ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

Docket No. 971140-TP

St.

January 29, 1998

DECUMENT HUMBER-DATE U 1568 JAN 298 FPSC-RECORDS/REPORTING

1		DIRECT TESTIMONY OF			
2		JOHN P. LYNOTT			
3		ON BEHALF OF			
4		AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.			
5		DOCKET NO. 971140-TP			
6					
7	Q.	PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND			
8		EMPLOYMENT.			
9	A.	My name is John P. Lynott, and my business address is 1875 Lawrence Street,			
10		Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications			
11		as a District Manager in the Local Connectivity Costing and Pricing District of the			
12		Local Services Division.			
13					
14	Q.	ARE YOU THE SAME JOHN P. LYNOTT WHO FILED DIRECT AND			
15		REBUTTAL TESTIMONY ON BEHALF OF AT&T AND MCI IN THE			
16		PROCEEDING (DOCKET NOS. 960833-TP/960846-TP/960757-TP) ON			
17		ISSUE 1 ELEMENTS?			
18	Α.	Yes.			
19					
20	Q.	WHAT IS THE PURPOSE OF YOUR TESTIMONY?			
21					
22	A.	The purpose of my testimony is to help this Commission establish appropriate			
23		non-recurring cost (NRCs) rates for local market entry when an existing customer			
24		migrates from BellSouth to Competitive Local Exchange Carrier ("CLEC") such			
25		as AT&T. The specific focus of my testimony is to expand on the testimony I			

have previously presented during the hearing held January 26-28, 1998, regarding
 the NRCs for certain UNEs. and explain the non-recurring costs associated with
 the elements of Issue 8 in this proceeding. I am attaching as Exhibit JPL-1 my
 previously filed Direct Testimony and as Exhibit JPL-2 my previously filed
 Rebuttal Testimony. The technical assumptions identified in these Testimonies
 are also applicable to the Issue 8 elements discussed below.

7

8 Q. WHAT IS THE BASIS FOR THE NON-RECURRING PRICES YOU ARE 9 PROPOSING IN THIS PROCEEDING?

- A. I rely on the AT&T/ MCI Non-Recurring Cost Model (NRCM) Release 2.0 filed
 previously in Docket 960833-TP and included again with this testimony as
 Exhibit JPL-5. Also included as Exhibit JPL-6 is the Nonrecurring Cost
 Technical Assistance Binder (NTAB) containing the technical assumptions for the
 NRCM. Both JPL-5 and JPL-6 are in diskette form.
- 15

16 Q. PLEASE EXPLAIN WHAT IS MEANT BY THE TERMS MIGRATION 17 AND INSTALLATION.

- 18 A. Migration occurs when a customer with existing service requests a change in its
 19 local service provider (i.e., moving an existing BellSouth customer to AT&T).
 20 This contrasts with an installation, which is defined as the establishment of any
 21 new (or additional) service for a CLEC customer.
- 22

Q. COULD YOU BRIEFLY DESCRIBE THE STEPS FOR MODELING THE NON-RECURRING COSTS ASSOCIATED WITH CUSTOMER MIGRATION?

For the 2-wire analog "POTS" loop and port and the 2-wire ISDN/BRI loop and 1 A. port, the NRCM assumes that migration activities can be accomplished 2 electronically through the electronic gateway that exists between a CLEC and 3 BellSouth and BellSouth's OSSs that the CLEC is accessing. Essentially, the 4 process of migrating a BellSouth customer to a CLEC utilizing unbundled 5 network elements is an update of OSS database records to identify the new service 6 provider as the new customer of record. Thus, the cost for a migration order 7 potentially is processing time only, which is recovered in recurring rates. 8

When an order does fall out, the NRCM assumes that the Provisioning Analyst Work Station ("PAWS"), or a similar OSS, assists in clearing some of the jeopardy conditions automatically, again resulting only in the cost for processing time. The NRCM, however, assumes that some manual work will be required to resolve fallout problems that PAWS cannot resolve (e.g., communication link failures between different OSSs, software release incompatibility, database errors, hardware failures, system maintenance, etc.).

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18 Exhibit JPL-3 provides the NRCM's matrix for the migration service order19 activity.

20

Q. PLEASE EXPLAIN THE GENERAL SERVICE FLOW FOR THE DEVELOPMENT OF MIGRATION NON-RECURRING COSTS?

- 23 A. Generally, the service order flow is as follows, and is depicted in Figure 1:
- 241.The Service Order Processor ("SOP") sends the order to the Service Order25Analysis & Control System ("SOAC").SOAC analyzes the order and

1		determines if assignments or updates are necessary to outside plant
2		(assignments/updates), interoffice facilities or central office equipment
3		(assignments/updates), and whether local digital switch (recent change
4		translations) functions are needed. It should be noted here, that in the case
5		of a simple request of a customer to change providers with no change in
6		what he or she is currently receiving in service (e.g., "as is" or "migration
7		(means that the existing customer and their services are in place today and
8		will remain identical with the new local service provider.), Unbundled
9	I	Network Element Platform, and Soft Dial Tone (Soft Dial Tone is where
10	i	the circuit facilities and the switch port are not reassigned, but are left in
11		place even though the premises is vacated.), there is no need to access any
12		down-stream systems via SOAC because all facilities are already in place.
13		Thus, the only cost associated with this activity is processor time to
. 14	ļ	change some records in BellSouth's databases.
15	i	
16	5 2.	The Provisioning Systems (e.g. Memory Administration/Recent Change)
17	,	respond with assignments or updates and SOAC formulates the Element
18	}	Management System ("EMS"), and Provisioning Systems Translation
19)	Packets and Messages based upon the component response data.
20)	
21	3.	SOAC electronically sends the Translation Packets and Messages to EMS,
22	2	and/or Provisioning Systems (e.g., Memory Administration Recent
23	3	Change [MARCH] and Operations Processor System for Intelligent

Network Elements [OPS/INE].

1	4.	The Provisioning Systems and/or EMS electronically sends Translation
2		Packets and Recent Change Messages to the Local Digital Switching
3		Systems ("LDS") ² , Digital Cross-connect Systems ("DCS") ³ , and/or other
4		Stored Program or Processor Controlled Network Elements ("PCNE").
5		The EMS ⁴ also sends Translation Packets or Recent Change Messages to
6		the Integrated Digital Loop Carrier ("IDLC") ⁵ , Automated Digital
7		Terminal Systems ("ADTS") ⁶ , Fiber in The Loop ("FITL") ⁷ , SONET
8		ADM/LTE ⁸ or other Processor Controlled Intelligent Digital Loop Carrier
9		("DLC") ⁹ .
10		
11	5.	Upon receipt of the Message or Translation Packets, the EMS,
12		Provisioning Systems, and Processor Controlled Network Element
13		("PCNE") will respond in one of two ways:
14		
15		(a) The first is a positive acknowledgment that the Translation Packets
16		or Messages received have been worked successfully. Assuming a
17		positive acknowledgment response, service is normally
18		provisioned within 2.0 seconds.
19		(b) The second is an error acknowledgment (fallout) sent to SOAC to
20		indicate that the EMS, PCNE, and/or Provisioning Systems were
21		unable to translate the Translation Packet or Message successfully.
22		If this occurs, the order falls out of the system, the error(s) are
23		resolved and the order is re-input into the process.
24		

6. Assuming successful flow-through (no fallout or RMA), SOAC stores EMS, PCNE, and/or Provisioning Systems requests/responses in its databases for use of reports and inquiries. SOAC also sends the assignment section to the service order processor ("SOP"), and completions are automatically posted in the affected OSS Systems (e.g., Provisioning Systems, Work Management Systems, and Billing Systems, etc.)

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High Level Provisioning Flow





Q. IS THIS SAME PROCESS FLOW ALSO APPLICABLE TO MIGRATION ACTIVITIES OF EXISTING BELLSOUTH 4-WIRE AND DS1 CUSTOMERS?

A. Yes. The general service flow is similar because the CLEC service order request
is causing BellSouth's operational support systems to be electronically updated to
reflect the assignment of the end-user's existing service or facilities to the CLEC.
Certain activities would change only to reflect access to those OSS supporting 4wire designed and DS1 facilities (e.g., TIRKS and NSDB).

9

10Q.IS THERE AN EXISTING CHARGE TODAY FOR WHICH THIS11COMMISSION CAN RELATE TO UNDERSTAND THE MIGRATION12PROCESS?

Yes. In BellSouth's Interstate Access Tariff BellSouth charges long distance 13 A. carriers a PIC (Primary Interexchange Carrier) NRC when a customer wishes to 14 15 migrate from one long distance provider to another. It is an activity that only 16 requires an update of records and which BellSouth currently charges \$1.49 per activity. It should be noted that this NRC is based on a study performed by 17 18 BellSouth in 1990. Clearly, adjustments to this study to recognize existing 19 automation and removal of CPU costs (a recurring cost in a TELRIC study) will 20 trend this cost to the level produced by the AT&T/MCI Non-Recurring Cost 21 Model.

22

Q. WHAT CRITERION SHOULD THE COMMISSION USE TO EVALUATE THE APPROPRIATENESS OF NRCs?

As is the case with network elements in general, the Commission should ensure 1 Α. that NRCs are not structured in a manner that forces new entrants to pay for costs 2 3 that they do not cause. Presently, for example, ILECs commonly "disconnect" unbundled network elements by software recent change only (i.e., without 4 physical disconnection of any sort). This activity is referred to as 'soft dial tone' 5 and requires no manual work. Yet, the non-recurring installation charges 6 7 BellSouth proposes to charge new entrants invariably reflect the costs of physical reconnection, regardless of whether the facilities in question were ever physically 8 9 disconnected in the first instance. Similarly, BellSouth proposes to charge 10 CLECs new installation NRCs, which account for dispatch activity, when the 11 CLEC is merely requesting that records be updated to reflect the migration of a 12 BellSouth customer to the CLEC. Structuring NRCs so that new entrants must 13 pay for costs that the incumbent will not actually incur is yet another means by which ILECs can erect competitive barriers to competition. Modeling costs that 14 15 reflect the elimination of such proposals not only minimizes initial barriers to 16 entry, but also closely links cost recovery with the manner in which the costs are 17 actually incurred.

18

Q. WHAT PRICES DO YOU RECOMMEND BE ESTABLISHED BY THIS COMMISSION FOR THE MIGRATION OF A BELLSOUTH CUSTOMER TO A CLEC FOR THE FOUR SENARIOS OUTLINED IN ISSUE?

A I recommend the 'migration' service order activity NRC found in Exhibit JPL-4
 as produced by the AT&T/MCI Non-Recurring Cost Model. The model
 establishes a price of \$.21. I further recommend that this same 'migration' rate be

- applied to service orders that migrate an existing BellSouth customer with 4-wire
 designed or DS1 loop and port service.
- 3

4 Q. WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?

5 Α. Yes. In order for a competitive environment to exist, new entrants must have non-6 discriminatory access to the incumbent's databases and other resources for 7 entering service orders to eliminate the need for costly, intermediate customer 8 service contacts. Also, new entrants must only incur costs equal to those which 9 the ILEC would incur using a forward looking network architecture and efficient 10 OSS or else the CLEC is burdened with a barrier to entry and the ILEC has no incentive to become efficient. Finally, NRCs must be based upon TELRIC 11 principles. The prices produced by the AT&T/MCI NRCM should be adopted by 12 this Commission. 13

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16 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

- 17 A. Yes.
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1 ENDNOTES:

- Agreement between BellSouth Telecommunications, Inc. and AT&T
 Communications of the South Central States, Inc.; Part I, Sections 28.1 and
 28.6.4.
- 5 2. LDS requirements and objectives are found in modules of Bellcore's LSSGR; FR6 64.
- 7 3. DCS requirements and objectives can be found in Bellcore's TR-NWT-000170.
- 8 4. EMS requirements, objectives, and interface specifications can be found in
 9 Bellcore's GR-2869-CORE & FR-439.
- IDLC requirements and objectives can be found in TR-TSY-000303 and GR-303 CORE.
- 12 6. ADTS requirements and objectives can be found in Bellcore's TR-TSY-000174.
- 13 7. FITL requirements and objectives can be found in Bellcore's TA-NWT-000909.
- SONET requirements and objectives can be found in Bellcore's GR-253-CORE of
 FR-440 (TSGR)..
- 16 9. DLC requirements and objectives can be found in Bellcore's TR-NWT-000057.
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- 24
- 25

Exhibit Docket No. 971140-TP Lynott Exhibit JPL-1

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BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

AND

MCI TELECOMMUNICATIONS COMPANY

AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

Docket Nos. 960833-TP/ 960846-TP/971140-TP

November 13, 1997

1		DIRECT TESTIMONY OF
2		JOHN P. LYNOTT
3		ON BEHALF OF
4		AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC. AND
5		MCI TELECOMMUNICATIONS COMPANY AND
6		MCI METRO ACCESS TRANSMISSION SERVICES, INC.
7		DOCKET NOs: 960833-TP/960846-TP/971140-TP
8		
9	Q.	PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND
10		EMPLOYMENT.
11		
12	Α.	My name is John P. Lynott, and my business address is 1875 Lawrence Street,
13	•	Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications
14		as a District Manager in the Local Connectivity Costing and Pricing District of the
15		Local Services Division.
16		
17	Q.	WHAT IS THE PURPOSE OF YOUR TESTIMONY?
18		
19	Α.	The purpose of my testimony is to help this Commission establish appropriate
20		non-recurring cost (NRCs) rates for local market entry. It has been the
21		experience of AT&T and MCI that the NRC rates being proposed by most
22		incumbent local exchange carriers ("ILECs") are vastly overstated for a variety of
23		reasons, including faulty assumptions or inaccurate input values relating to

001-A

1		network architectur	e, operations support systems (OSSs) capabilities and labor
2		costs. AT&T and 1	MCI have developed a costing tool that models forward-
3		looking non-recurri	ng costs in order to develop appropriate NRC rates. The
4		specific focus of my	v testimony is to explain the technical assumptions that were
5		used to develop the	AT&T and MCI Non-Recurring Cost Model (NRCM).
6			
7	Q.	HOW IS YOUR T	ESTIMONY ORGANIZED?
8			
9	Α.	I begin with a descri	iption of general assumptions that are used in the NRCM. I
10		then describe in more	re detail some of the non-recurring activities that are costed
11		out in the model. For	or brevity's sake, I do not describe in detail the technical
12		assumptions underly	ving each and every activity provided for in the model. I have
13		organized my testim	ony as follows:
14			
15		SECTION I -	Qualifications and Background
16		SECTION II	General NRCM Cost Modeling Assumptions
17		SECTION III	Customer Migration Costs
18		SECTION IV	Non-Recurring Costs for Installation
19		SECTION V	Non-Recurring Costs for Disconnection
20		SECTION VI	Summary and Recommendation
21			
22			

1		SECTION I - Qualifications and Background
2		
3	Q.	PLEASE STATE YOUR EDUCATIONAL AND EMPLOYMENT
4		BACKGROUND.
5		
6	Α.	I attended Pennsylvania State University and graduated from Regis University in
7		Denver, Colorado, receiving a BS degree, with a major in Technical Management
8		(Emphasis on Electrical Engineering Technology; "EET"), and a minor in
9		Economics. I have also successfully completed a mini-MBA at the Wharton
10		School of Business/University of Pennsylvania, as well as numerous other
11		technical and management training seminars and curriculums. I am presently
12		pursuing a Master of Science degree in Technology Management ("MOTM") at
13		the University of Denver. I am a member of the Institute of Electrical and
14		Electronics Engineers ("IEEE").
15		
16		I began my career as a Communications Technician with Mountain States
17		Telephone and Telegraph Company ("Mountain Bell") in 1981 in the Network
18		Switched Services department. From divestiture of the Bell System in 1984 until
19		1994, I held various assignments with US WEST Communications in the Network
20		Terminal Equipment Center/Switching Control Center ("NTEC/SCC"), Technical
21		Operations/Product Support, Network Maintenance Engineering, and Service
22		Assurance/Electronic Switching Assistance Center ("ESAC"). In 1994, I left U S
23		WEST for a position with AT&T Bell Laboratories/Network Systems as a Senior

- 1Market Manager providing Custom Engineering and Development (CEAD), and2Tier One Operations Support Systems ("OSS") support.
- 3

In November 1995, I accepted an assignment with AT&T Communications as a
 Technical Support Manager on local infrastructure access issues. Then in 1996 I
 accepted my current position within AT&T.

7

8 Q. MR. LYNOTT, COULD YOU PLEASE HIGHLIGHT THAT PORTION 9 OF YOUR WORK EXPERIENCE THAT IS PARTICULARLY 10 PERTINENT TO THE MATTERS DISCUSSED IN YOUR TESTIMONY?

11

12 Yes. While I have worked for AT&T since 1994, for most of my career I have Α. 13 worked in a Regional Bell Operating Company ("RBOC") environment with Mountain States Telephone and Telegraph Company ("Mountain Bell") or its 14 successor Company, U S WEST Communications (U S WEST). Throughout my 15 16 13 years with these companies, I was heavily involved with the various work centers, functions, activities, and Operational Support Systems ("OSS") that are 17 the focus of our testimony which follows. That experience began in my job as a 18 Communications Technician actually performing the work, continued in various 19 20 managerial positions observing and supervising others who performed the work, 21 and culminated in other managerial assignments where I helped select the network 22 element technologies and develop the industry standards involved.

Q. WOULD YOU PLEASE PROVIDE EXAMPLES OF THOSE JOB RESPONSIBILITIES AND EXPERIENCES THAT HAVE PARTICULAR APPLICATION HERE?

4

My hands-on work as a Communications Technician (COT) for 5 Α. Certainly. 6 Mountain Bell included the timely provisioning and maintenance of POTS-type, "designed," and high capacity DS1 services in a central office (CO) environment. 7 8 This required that I become very familiar with leading edge, processor-controlled 9 network element central office conversions and replacement of older technologies 10 with what were forward-looking technologies at that time. I also coordinated with 11 outside plant (Installation and Maintenance ("I&M") technicians in the 12 installation and maintenance of both POTS and designed services, as well as trunks and special services for interexchange carriers ("IXCs"). I specifically 13 coordinated with the Special Services Center ("SSC") on the testing, acceptance, 14 and maintenance of designed circuits, with the Circuit Provisioning Center 15 ("CPC") to resolve fall-out of incorrect circuit designs, and the Switching Control 16 17 Centers ("SCC"). As my career with Mountain Bell shifted into managerial roles, 18 I trained and supervised technicians who performed these work functions, and interfaced on a biweekly basis with my counterparts in not only the SSC, SCC, 19 20 CPC, and I&M groups, but also the Facilities Maintenance Administration Center ("FMAC") and Recent Change Memory Administration Center ("RCMAC," a 21 22 switch translations work group). All of these work centers are important to the non-recurring cost (NRC) modeling issues addressed later in my testimony. 23

By 1988 my managerial responsibilities (after divestiture in 1984, with U S 1 2 WEST) were Company-wide in scope, covering operations across all 14 states. In 3 a series of managerial positions, I was responsible for developing and writing detailed technical methods and procedures (M&Ps) to govern the provisioning 4 5 and maintenance of local exchange and access services; for resolving technical 6 problems on the U S WEST network when field personnel could not; and for 7 analysis and selection of vendor-specific, forward-looking OSS systems and 8 technologies such as LDS, SONET, DCS, TR-303, SS7, and ADTS, many of 9 which are discussed in the testimony which follows. In my last position at U S 10 WEST, I served as liaison to Bell Communications Research ("Bellcore"). In this 11 position I was responsible for assuring that the Company's new technology 12 interfaces were compatible to legacy Bellcore OSS systems, which required a 13 thorough understanding of flow-through provisioning and maintenance issues, 14 problems, fallout, and systems, both upstream and downstream, and from ordering 15 through order completion.

16

After leaving U S WEST in mid-1994 for AT&T Bell Laboratories (now Lucent Technologies), I served as Marketing Manager for the Company's provisioning and maintenance OSS systems for the Western Region, and also provided Tier I systems engineering support for all interfaces with U S WEST Communications. Since transferring to AT&T Communications in late 1995, I have been immersed in the technical aspects of the crucial NRC costing and pricing issues that must be resolved as AT&T, MCI, and other local service providers ("CLECs") move into

1		the local exchange market under the Federal Telecommunications Act of 1996.
2		These varied work assignments over the years have all helped prepare me for
3		addressing the issues in this case.
4		
5	Q.	HAVE YOU EVER BEEN INVOLVED IN NEGOTIATIONS AND/OR
6		ARBITRATION PROCEEDINGS WITH ANY ILEC?
7		
8	А.	Yes, I was an AT&T lead negotiator on Interconnection, Unbundling,
9		Collocation, and Local Number Portability (LNP) issues in the U S WEST
10		negotiations. Subsequently, I was also involved in, and testified in Arbitration
11		Proceedings on Technical Feasibility issues.
12		
13	Q.	HAVE YOU PREVIOUSLY TESTIFIED IN OTHER JURISDICTIONS?
14		
15	А.	Yes. I have previously testified in numerous times in Colorado, Texas, New
16		York, Minnesota, Arizona, Utah, and New Mexico.
17		
18		SECTION II - NRCM Assumptions
19		
20	Q.	PLEASE EXPLAIN THE PURPOSE OF THE NON RECURRING COST
21		MODEL (NRCM).
22		

1	Α.	As explained in the model's documentation (Exhibit JPL-1), the NRCM develops
2		one time non-recurring cost estimates for the tasks and activities that may be
3		performed by an ILEC such as BellSouth when a Competitive Local Exchange
4		Carrier (CLEC) requests wholesale services, or, as is the subject of this
5		proceeding, interconnection, and/or unbundled network elements. Utilizing a
6		forward-looking cost methodology, the NRCM develops a "bottoms-up" estimate
7		of non-recurring costs. To accomplish this, the NRCM reflects the individual
8		tasks and activities that may be required to respond to CLEC requests.
9		
10	Q.	WHAT DO YOU MEAN WHEN YOU SAY "FORWARD-LOOKING
11		COST" METHODOLOGY?
12		
13	А.	In the context of the NRCM, I use this term to refer to costs that an efficient
14		provider, using currently available technology would incur to conduct the non-
15		recurring activities described below.
16		
1 7	Q.	WHAT ARE NON-RECURRING COSTS?
18		
19	А.	Non-recurring costs are the efficient, one-time costs associated with establishing,
20		disconnecting or rearranging unbundled network elements purchased from
21		BellSouth at the request of a customer (e.g., CLEC). Non-recurring cost activities
22		are those that only benefit the CLEC requesting the elements.

1 Q. WHY IS IT SO IMPORTANT THAT THE ACTIVITIES BEING

2

PERFORMED SPECIFICALLY BENEFIT THE CLEC?

3

4 Α. If the activity being performed is a one-time activity, but benefits all future users 5 of a particular telecommunications facility, the costs of the activity typically are characterized as recurring. The costs of constructing a loop is one example. 6 7 Proper allocation of one-time costs is particularly important in a competitive 8 environment where more than one local exchange carrier including the ILEC may 9 use a particular facility at different points in that facility's lifetime. If all the 10 forward-looking costs of a one-time activity benefiting multiple users are borne. 11 by the first telecommunications provider to use the facility, then obviously the first user will be forced to pay more than its fair share. 12 13 14 Activities associated with manual assistance due to errors in the network 15 management systems and databases (Operational Support Systems) are examples of activities that do not benefit the customer. This is because efficiently managed 16

17 systems do not experience these errors. Rather, such activities are a function of

18 embedded inefficiencies, and result in costs for which CLECs should not
19 compensate an ILEC.

20

21 Q. CAN YOU EXPLAIN, BRIEFLY, HOW THE NRCM IS PUT 22 TOGETHER?

1	Α.	Yes. The theory behind the development of a non-recurring cost model is fairly
2		simple. First, it is necessary to identify the non-recurring actions required to
3		provision unbundled network elements to CLECs. Second, it is necessary to
4		break down each action into the detailed work activities that comprise that
5		service, and determine both the time necessary to complete these activities and the
6		associated labor rates. Finally, it is necessary to determine, for each action, the
7		probability that a particular work activity will be required to provide the action.
8		
9		The non-recurring cost of a particular action, then, is simply the sum of the costs
10		of each of the necessary work activities, calculated as the product of the required
11		time, the labor rate, and the probability of occurrence of that work activity. The
12		NRCM calculates non-recurring costs using precisely the steps I just described.
13		
14		Version 2.0 of the NRCM is included with my testimony on a diskette. Also
15		included on the diskette is the output file for Florida.
16		
17	Q.	WHAT PROCESSES DOES THE NRCM MODEL?
18		
19	Α.	The majority of non-recurring processes which the NRCM models involve
20		activities associated with pre-ordering, ordering and /or provisioning processes.
21		Short descriptions of these processes are as follows:
22		

1		•	Pre-ordering: the process by which a CLEC interfaces with customers to
2			determine customer needs, usually beginning with the ILEC providing to
3			the CLEC information necessary to initiate orders. This information, such
4			as customer premise address, phone number availability, feature
5			availability and service availability, is made accessible to CLECs
6			electronically so they can accurately respond to customers when taking
7			service and feature orders.
8			
9		•	Ordering: the process by which a CLEC electronically submits a Local
10			Service Request (LSR) order to an ILEC via an electronic gateway. The
11			ILEC responds electronically with a positive confirmation of order
12			acceptance or order fallout requiring CLEC resolution.
13			
14		•	Provisioning: the process by which an ILEC, after receipt of an LSR
15			order, performs the necessary functions to provide Unbundled Network
16			Elements (UNEs) requested by a CLEC.
17			
18	Q.	WHA	AT IS THE DIFFERENCE BETWEEN PRE-ORDERING AND
19		ORD	ERING?
20			
21	Α.	Pre-0	rdering is the process of gathering all of the information necessary to be able
22		to cre	eate an accurate end user service order. This includes all of the information

.

about the services, if any, currently subscribed to by the end user, the service address, the facilities available to provide service to the end user, telephone number assignments, and the like. Once all of this information has been collected, ordering is the actual placing of an order for the various unbundled network elements needed to provide services to the end user.

6

7 Q. WHY IS PRE-ORDERING A FUNCTION THAT REQUIRES ACCESSING 8 THE ILEC'S DATABASES?

9

10 Α. When an entrant is going to use either resold services or unbundled network elements provided by the incumbent, the entrant will have to place a service order 11 with the incumbent. If an entrant is to have its order properly identified with the 12 end user's current service account, all of the information about the end user to be 13 served must match the information the incumbent already has on that end user. 14 Because the market is currently a monopoly, only the incumbent has the 15 information about the billing and service address(es), the telephone numbers, and 16 the features and functions that are used by each end user. Accordingly, the entrant 17 must interface with the ILEC. Pre-ordering also allows the new entrant to talk to 18 a potential customer about what services are available at his location, how soon it 19 20 is likely service could be provided, and what the cost will be. This is the same function a customer experiences when shopping for new tires, or new stereo 21 22 equipment.

12

Q. WHAT IS PROVISIONING?

2

3	Α.	Provisioning is the actual assignment of all of the network elements needed to
4		provide services to a given end user. It is the turning up of service so that the new
5		entrant is ready to provide service to the new or existing customer.
6		
7	Q.	HOW ARE THE PRE-ORDERING, ORDERING AND PROVISIONING,
8		AS WELL AS MAINTENANCE AND BILLING, ELECTRONIC
9		PROCESSES MANAGED ?
10		
11	Α.	These processes are managed through the use of Operational Support Systems
12		("OSS").
13		
14	Q.	WHAT ARE OPERATIONAL SUPPORT SYSTEMS?
15		
1 6	А.	OSS are the electronic, software driven computer programs and databases that
1 7		telephone companies use to manage their pre-ordering, ordering, provisioning,
18		repair, maintenance and billing processes for both their retail and wholesale
19		operations. Today's software programs and databases operate in a highly
20		automated, accurate and rapid manner with little to no human intervention.
21		
22	Q.	WHY ARE OSS ASSUMPTIONS IMPORTANT TO THE
23		DEVELOPMENT OF A NON-RECURRING COST MODEL?

13

1 Α. Telecommunications networks have evolved to the point where functions such as 2 billing, pre-ordering, ordering, provisioning and maintenance rely heavily on 3 efficient, high availability Operational Support Systems in order to minimize nonrecurring cost and maximize performance quality and reliability. In terms of 4 "system solutions", significant advances have been implemented in the last 10-20 5 6 years that minimize the need for manual labor (and non-recurring costs) when 7 these systems and databases are efficiently operated and maintained. In fact, the 8 industry has developed and begun to implement the "next generation" of OSSs through industry standards such as Telecommunications Management Network, or 9 10 TMN.

11

Not so long ago, functions such as processing a service order were very labor 12 13 intensive, requiring constant human intervention to update manual inventories and 14 to physically complete each and every order. Today, however, the databases 15 existing within an incumbent's OSS architecture (often referred to as 'Legacy' systems) have been automated and re-engineered to virtually eliminate the need 16 17 for human intervention. As these automated systems have developed over the past two decades, "[t]he watchwords for such systems became flow through, 18 19 meaning that the processing of a problem or request for service would flow through several computer systems and be resolved without human intervention."¹ 20 21 OSS evolution has had, and will continue to have, a very significant impact on 22 non-recurring costs. Given that the major driver of high non-recurring costs had

14

1		been incremental labor times and labor rates, the reduced reliance on human
2		intervention due to advanced OSSs has significantly reduced the incremental non-
3		recurring cost associated with functions such as pre-ordering, ordering,
4		provisioning and maintenance. Significant cost savings can be achieved with
5		existing OSS, if their capabilities are not undermined by polluted databases or
6		inefficient configurations.
7		
8	Q	ARE THERE ANY OTHER ASSUMPTIONS REGARDING OSS ₅ THAT
9		ARE RELEVANT TO MODELING NRCs?

11	Α.	Yes. Assumptions regarding recovery of OSS investment are important. First,
12		the NRCM does not capture OSS investment required for the establishment and
13		operation of the electronic gateway that serves as the medium for CLEC/ILEC
14		interfacing because it has value over many years and to all exchange carriers
15		utilizing the network. Second, BellSouth's current OSS investment is recovered
16		through recurring rates, to the extent it needs to be recovered at all. Mechanized
17		OSS manages the totality of the telecommunications network. Arguably, no OSS
18		investment should result in any cost increase, even for recurring rates, because
19		much, if not all, OSS investment is recovered through efficiency gains that result
20		from that investment. That is, investing in up-to-date OSSs reduces costs for the
21		ILEC, and, hence, the investment pays for itself over time.

1 Q. DO YOU HAVE AN EXAMPLE IN WHICH OSS EFFICIENCY GAINS

WERE REALIZED?

А.	Yes, as I mentioned previously, the provisioning of a service request, prior to the
	advent of efficient OSSs, was a manual, labor intensive effort that was prone to
	mistakes and service delays. Bellcore then developed, and the industry has
	implemented, several OSSs that have mechanized the assignment process.
	One software solution product of Bellcore called Facility Assignment and Control
	Systems (FACS) automated the assignment process. Another product called the
	Computer Operations For Main Frame Operations (COSMOS) automated manual
	inventory systems for tracking the assignment of central office equipment.
	In addition, two other products from Bellcore further automate the provisioning
	process: the Loop Facility Assignment and Control system (LFACS) provides a
	mechanized inventory and assignment of the outside plant; and the Service Order
	Analysis and Control System (SOAC) tracks and analyzes the service order.
	SOAC determines if inventory assignments are required, and sends those
	assignment requests to the inventory systems (LFACS and COSMOS).
	Together, these systems have mechanized the assignment process needed to
	provision a service request. As a result, for much of the POTS, complex, and
	special services, those systems have virtually eliminated the need for manual
	assignments, providing an efficient means for managing the network and
	Α.

1		significantly reducing the work forces needed in the provisioning process. In
2		addition, these systems have led the way for other enhancements and systems that
3		now manage the work forces, produce translations that activate the local digital
4		switch, and provision services in a completely electronic flow-through manner.
5		
6	Q.	CAN YOU PROVIDE AN EXPLANATION OF FALLOUT?
7		
8	Α.	The term used when orders do not flow through an OSS automatically is
9		"Fallout". Most ILEC systems are electronically linked and are dependent on one
10	×	another. Occasionally an error will occur as data flows through the systems, and
11		this error will cause a service order to "fall out" of the systems, resulting in the
12		need for manual intervention. For example, in an electronic ordering process, if
13		one of the OSSs receives erroneous or incompatible information from another
14		OSS, the order will be designated as a process "fallout" and may require manual
15		intervention to correct or complete the order.
16		
17		It is important to note that the NRCM only considers "fallout" within the OSS
18		managing the provisioning processes. Fallout during the pre-ordering and
19		ordering processes (i.e., errors on the Local Service Request itself) are the
20		responsibility of the CLEC to manually clear, as provided for in the
21		Interconnection Agreement between AT&T and BellSouth. ²
22		

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1 Q. IS FALLOUT IMPORTANT TO MEASURING NRCs?

3	Α.	Absolutely. Fallout is important because in many instances it is the only cost
4		driver for an otherwise seamless electronic flow-through process. With OSSs that
5		are well managed and maintained, the rate of fallout is expected to be minimal,
6		especially in a competitive environment. This is a necessity because fallout
7		affects the customer in terms of longer delivery intervals and restoration/response
8		times, as well as higher cost of providing service; conditions a competitive
9		company can ill afford.
10		
11	Q.	WHAT FALLOUT RATE IS USED IN THE NRCM?
12		
13	Α.	The NRCM assumes a conservative fallout rate of 2%. Fallout levels proposed by
14		MCI and AT&T were selected based on the judgment of our experts of a
15		competitive industry, as well as fallout levels reported by ILECs. A 98% flow-
16		through process rate is an achievable forward-looking benchmark. The level of
17		fallout currently reported by some ILECs for resale orders is approaching, at, or
18		better than, what our model proposes and this will be the trend in a competitive
1 9		environment for UNE orders as well. A prime example is the SWBT transcripts
20		for EASE/TSR flow through provisioning which indicate only a 1% fallout rate
21		for resale orders. ³ SWBT has also indicated that they expect the same 99% flow-
22		through for unhundled network elements (UNE) via similar systems. Moreover,

1		US West has also stated in a cost study filed before the Minnesota Public Service.
2		Commission on 7/11/97 that "97% of all CSB PIC Changes are completely
3		mechanized." PIC changes involve the transfer of ILEC facilities between inter-
4		exchange carriers and, thus, involve non-recurring activities comparable to those
5		an ILEC must perform to provision unbundled network elements to CLECs.
6		
7		Even BellSouth admits that low fallout rates currently are achievable. ⁴ Further, a
8		competitive local environment will necessitate a low fallout rate, as indicated in
9		the requirements RBOCs have supplied to Bellcore. According to Bellcore GR-
10		2869, Issue 2, (Oct. 1996) pg.4-25, section 4.6.2 on Immediate Service
11		Activation, "Activation will occur at the time of assignment" (i.e., immediately).
12		Such requirements will not allow for high levels of fallout.
13		
14	Q.	IS THE 2% NRCM FALLOUT RATE SIMILAR TO THE ASSUMPTIONS
15		BEING UTILIZED BY BELLSOUTH IN THEIR COST STUDIES?
16		
17	Α.	Not at all. BellSouth, like several other ILECs, has assumed a significantly higher
18		degree of manual intervention in its OSS systems, such as COSMOS/SWITCH,
19		PREMIS, TIRKS, and LFACS. For the reasons discussed above, this assumption
20		is invalid because it does not represent efficiently managed and forward looking
21		systems, and, accordingly, produces a higher non-recurring cost than should be
22		experienced even with the automatic flow-through processes that actually exists

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1		today. In addition, BellSouth introduces unnecessary workgroups, such as the
2		LCSC and ACAC, to internally rework orders that BellSouth deems contain
3		CLEC order entry errors. Any manual assistance required to clear errors
4		associated with the data on the Local Service Order will be performed by the
5		CLEC, which incurs all cost. Since all order errors, not OSS fallout, are 100%
6		electronically returned to the CLEC, BellSouth inappropriately overstates relevant
7		non-recurring cost.
8		
9	Q.	IN ADDITION TO OSS, IS THE NETWORK ARCHITECTURE
10		ASSUMPTION CRITICAL WHEN MODELING NON-RECURRING
11		COSTS?
12		
13	Α.	Yes. It's also important to understand and utilize forward looking network
14		architectures in modeling non-recurring costs. For example, the NRCM utilizes
15		Local Digital Switches ("LDS"), Integrated Digital Loop Carrier (IDLC/GR-303)
16		for loops greater than 9 Kilofeet (for loops less than 9 Kilofeet, copper is
17		assumed), Digital Cross-connect Systems ("DCS"), and Synchronous Optical
18		Network ("SONET") rings for transport. These architectures are important
19		because they are forward looking intelligent processor controlled network
20		elements that can communicate over standard interfaces to the OSSs in such a
21		manner that little-or-no manual intervention is required for provisioning or
22		maintenance activities. These architectures are also the ones currently be
		• • •

1		with advanced OSSs to minimize cost and improve customer service and are
2		essential to the development of forward looking non-recurring costs.
3		
4	Q.	ARE THESE FORWARD LOOKING NETWORK TECHNOLOGIES
5		AVAILABLE TODAY?
6		
7	Α.	Yes, current forward looking network technologies are available to the
8		telecommunications industry. In fact, BellSouth made headlines in a November
9		2, 1993, AT&T News press release: "BellSouth makes ISDN call via GR-303-
10		compliant loop carrier." The news release stated that the demonstration points to
11		substantially lowered costs for ISDN connections, expected to make ISDN service
12		more attractive and widespread. SONET technology also is deployed currently
13		within the BellSouth network, and is the existing, forward-looking technology in
14		the industry. BellSouth offers a variety of SONET services in its Interstate
15		Access Tariff.
16		
17	Q.	CAN YOU BRIEFLY DESCRIBE OTHER SIGNIFICANT ASPECTS OF
18		THE NRCM'S METHODOLOGY AND ASSUMPTIONS?
19		
20	А.	Yes. As a threshold matter, the model develops separate non-recurring costs for
21		migration, installation, and disconnection functions. The cost to disconnect has
22		been modeled separately in order to model accurately an entrant's non-recurring
23		costs, depending on whether the new entrant chooses to disconnect the feature or

.

1	function at the time an end user cancels service, or maintain the service, feature or
2	function installed for a future customer. By contrast, in the current, non-
3	competitive environment, ILEC connect charges often recover the cost of both the
4	connection and the disconnection.
5	
6	In addition, the NRCM assumes certain levels of testing. As an example, the
7	NRCM does recognize continuity-type testing to insure connectivity. The costs of
8	conformance-type testing (necessary to insure that installed facilities deliver
9	services meeting the required specifications), however, are captured within the
10	maintenance loading factor on recurring rates because this testing is performed
11	during the Engineer, Furnish and Install (EF&I) phase associated with plant
12	placement. As a result, the NRCM does not duplicate inclusion of these costs.
13	The NRCM also assumes that BellSouth will proactively maintain its network to
14	ensure that it operates properly and provides reliable customer service. Such
15	proactive monitoring of the network is done in order to be aware of potential
16	failures before they occur. In addition, BellSouth must respond to customer
17	generated inquiries about service problems. The NRCM assumes that the costs
18	for these types of testing are recovered in recurring rates.
19	
20	Lastly, the NRCM models different process flows depending upon whether the
21	service, feature, and/or function is considered a plain old telephone service

23 critical from a cost perspective since a designed service may be significantly more

22

("POTS") or a designed/private line type special service. This distinction is

1	costly. For example, the use of special services test access points will trigger a
2	costly designed circuit, which, in turn, triggers other costly processes
3	(equipment/technology intensive designs), special services OSSs, and work
4	centers/work groups that BellSouth does not use itself when provisioning or
5	maintaining its own non-designed POTS type services. In addition, it is important
6	for parity reasons to ensure that BellSouth charges new entrants for designed
7	process flows only in circumstances in which BellSouth, for its own customers,
8	would incur this expense.

10 Q. WHAT CRITERION SHOULD THE COMMISSION USE TO EVALUATE 11 THE APPROPRIATENESS OF NRCs?

12

13 Α. As is the case with network elements in general, the Commission should ensure that NRCs are not structured in a manner that forces new entrants to pay for costs 14 15 that they do not cause. Presently, for example, ILECs commonly "disconnect" unbundled network elements by software command only (i.e., without physical 16 disconnection of any sort). This activity is referred to as 'soft dial tone' and 17 18 requires no manual work. Yet, the non-recurring installation charges BellSouth proposes to charge new entrants invariably reflect the costs of physical 19 reconnection, regardless of whether the facilities in question were ever physically 20 21 disconnected in the first instance. Structuring NRCs so that new entrants must 22 pay for costs that the incumbent will not actually incur is yet another means by which ILECs can erect competitive barriers to competition. Modeling costs that 23

1		reflect the elimination of such proposals not only minimizes initial barriers to
2		entry, but also closely links cost recovery with the manner in which the costs are
3		actually incurred.
4		
5		SECTION III - NRCs for Customer Migration
6		
7	Q.	PLEASE EXPLAIN WHAT IS MEANT BY THE TERMS MIGRATION
8		AND INSTALLATION.
9		
10	А.	Migration occurs when a customer with existing service requests changes in its
11		local service provider (i.e., moving existing ILEC customers to a CLEC). This
12		contrasts with an installation, which is defined as the establishment of any new (or
13		additional) service for a CLEC customer.
14		
15	Q.	COULD YOU BRIEFLY DESCRIBE THE STEPS FOR MODELING THE
16		NON-RECURRING COSTS ASSOCIATED WITH CUSTOMER
17		MIGRATION?
18		
19	А.	The NRCM assumes that migration activities can be accomplished electronically
20		through the electronic gateway that exists between a CLEC and BellSouth and
21		BellSouth's OSSs that the CLEC is accessing. Thus, the cost for a migration order
22		potentially is processing time only, which is recovered in recurring rates.

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1		When an order does fall out, the NRCM assumes that the Provisioning Analyst
2		Work Station ("PAWS"), or a similar OSS, clears some of the jeopardy conditions
3		automatically, again resulting only in the cost for processing time. The NRCM,
4		however, assumes that some manual work will be required to resolve fallout
5		problems that PAWS cannot resolve (e.g., communication link failures between
6		different OSSs, software release incompatibility, database errors, hardware
7		failures, system maintenance, etc.).
8		
9	-	Based on my experience with New England Telephone Co.'s Mechanized Loop
10		Assignment Center (MLAC), I have estimated that the average time expended by
11		technicians to resolve system problems consists of 2.5 minutes to retrieve and
12		analyze the order and 15 minutes to actually clear the jeopardy.
13		
14	Q.	CAN YOU EXPLAIN HOW PAWS CLEARS SOME OF THE JEOPARDY
15		CONDITIONS?
16		
17	Α.	Yes. The PAWS system is a software product from Bellcore that manages and
18		tracks fallout or jeopardy conditions. When fallout is detected, OSSs such as
19		SOAC route information about the fallout to PAWS. PAWS, in turn, routes this
20		data to a particular work group or system that can assist in resolution of the
21		problem. The PAWS software also comes equipped with a "work scripting" tool
22		set which allows companies like BellSouth to construct work scripts that emulate
23		otherwise manual transactions required to resolve the jeopardy condition. If, for

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1		example, the system detects an interfering station condition (primary service
2		cannot be installed, possibly because the disconnect for that service location has
3		not been received yet), the work scripts would perform the necessary inquiry
4		transactions on various systems, evaluate the condition and clear the conflict or
5		reroute the fallout to a workgroup for further investigation.
6		
7		SECTION IV - NRCs for Customer Installation
8		
9	Q.	HOW DOES THE NRCM DEVELOP INSTALLATION COSTS?
10		
11	А.	The best way to answer this question is using the development of non-recurring
12		unbundled loop (For cost modeling purposes, 2 Wire POTS and ISDN BRI are the
13		same. In addition, the NRCM provides for different activities that take place
14		depending upon whether a copper loop or GR-303 fiber loop is being
15		provisioned.) and port installation costs as an example. (Exhibit JPL-2.) The
16		NRCM multiplies individual work activity times by the applicable rate per hour to
17		determine the activity cost. After the total costs of provisioning the service type
18		are calculated, the model sums the costs and applies an "overhead factor" to arrive
19		at the total cost of provisioning that service type.
20		
21	IS IT	TECHNICALLY FEASIBLE FOR A FLOW-THROUGH PROVISIONING
22		PROCESS TO OCCUR?

.

1	Α.	Yes. With the deployment today of efficient OSS, a flow-through provisioning
2		process takes place the majority of the time.
3		
4	Q.	PLEASE EXPLAIN THE GENERAL SERVICE FLOW FOR THE
5		DEVELOPMENT OF INSTALLATION NON-RECURRING COSTS?
6		
7	Α.	Generally, the service order flow for OSS and INE is as follows and is illustrated
8		below:
9		
10		1. The Service Order Processor ("SOP") sends the order to the Service Order
11		Analysis & Control System ("SOAC"). SOAC analyzes the order and
12		determines if assignments or updates are necessary to outside plant
13		(assignments/updates), interoffice facilities or central office equipment
14		(assignments/updates), and whether local digital switch (recent change
15		translations) functions are needed. If required, SOAC then generates an
16		assignment request and sends it to the appropriate Provisioning Systems
17		(e.g., Computer System for Mainframe Operations [COSMOS], Loop
18		Facility Assignment and Control System [LFACS], Trunk Inventory and
19		Record Keeping System [TIRKS], etc.). It should be noted here, that in
20		the case of a simple request of a customer to change providers with no
21		change in what he or she is currently receiving in service (e.g., "as is" ("As
22		Is" means that the existing customer and their services are in place today
23		and will remain identical.), Unbundled Network Element Platform, and

1		Soft Dial Tone (Soft Dial Tone is where the circuit facilities and the
2		switch port are not reassigned, but are left in place even though the
3		premises is vacated.), there is no need to access any down-stream systems
4		via SOAC because all facilities are already in place. Thus, the only cost
5		associated with this activity is processor time to change some records in
6		BellSouth's databases.
7		
8	2.	The Provisioning Systems (e.g. Memory Administration/Recent Change)
9		respond with assignments or updates and SOAC formulates the Element
10		Management System ("EMS"), and Provisioning Systems Translation
11		Packets and Messages based upon the component response data.
12		
13	3.	SOAC electronically sends the Translation Packets and Messages to EMS,
14		and/or Provisioning Systems (e.g., Memory Administration Recent
15		Change [MARCH] and Operations Processor System for Intelligent
1 6		Network Elements [OPS/INE].
17		
18	4.	The Provisioning Systems and/or EMS electronically sends Translation
1 9		Packets and Recent Change Messages to the Local Digital Switching
20		Systems ("LDS") ⁵ , Digital Cross-connect Systems ("DCS") ⁶ , and/or other
21		Stored Program or Processor Controlled Network Elements ("PCNE").
22		The EMS ⁷ also sends Translation Packets or Recent Change Messages to

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1		the Integrated Digital Loop Carrier ("IDLC") ⁸ , Automated Digital
2		Terminal Systems ("ADTS") ⁹ , Fiber in The Loop ("FITL") ¹⁰ , SONET
3		ADM/LTE ¹¹ or other Processor Controlled Intelligent Digital Loop Carrier
4		("DLC") ¹² .
5		
6	5.	Upon receipt of the Message or Translation Packets, the EMS,
7		Provisioning Systems, and Processor Controlled Network Element
8		("PCNE") will respond in one of two ways:
9		
10		(a) The first is a positive acknowledgment that the Translation Packets
11		or Messages received have been worked successfully. Assuming a
12		positive acknowledgment response, service is normally
13		provisioned within 2.0 seconds.
14		(b) The second is an error acknowledgment (fallout) sent to SOAC to
15		indicate that the EMS, PCNE, and/or Provisioning Systems were
16		unable to translate the Translation Packet or Message successfully.
17		If this occurs, the order falls out of the system, the error(s) are
18		resolved and the order is re-input into the process.
1 9		
20	6.	Assuming successful flow-through (no fallout or RMA), SOAC stores
21		EMS, PCNE, and/or Provisioning Systems requests/responses in its
22		databases for use of reports and inquiries. SOAC also sends the

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1		assignment section to the service order processor ("SOP"), and
2		completions are automatically posted in the affected OSS Systems (e.g.,
3		Provisioning Systems, Work Management Systems, and Billing Systems.
4		etc.)
5		
6	Q.	PLEASE EXPLAIN THE INTEROFFICE TRANSPORT COST
7		MODELING ASSUMPTIONS.
8		
9	A.	First, the non-recurring cost model assumes, that SONET rings for interoffice
10		transport are the proper forward looking technology to employ and that DS1 and
11		DS3 are virtual paths over the SONET ring.
12		
13		Second, forward-looking Digital Crossconnect System/Electronic Digital Signal
14		Crossconnect (DCS/EDSX ¹³) technology is assumed. There is no need to
15		manually perform option settings on the SONET equipment (i.e., line codes,
16		features) because DCS/EDSX has default settings, and because it is software
17		controlled. If changes of the default settings are required, it will be remote and in
18		a flow-through manner from upstream OSS systems(s) such as the Bellcore
19		Operations Processing System for Intelligent Network Elements ("OPS/INE").
20		The cross connects are performed electronically and will take approximately 50
21		milliseconds for CPU processing time with an acknowledgment response within 2
22		seconds per Bellcore specifications. ¹⁴

1	Third, the study also assumes that the performance monitoring for Error Seconds
2	("ES"), Bit Error Rate ("BER"), Cyclical Redundancy Check ("CRC),
3	Unavailable Seconds ("UAS"), Severely Error Seconds ("SES"), and Automatic
4	Protection Switch Counts ("APS") have been set. Remote DS1 loop-back testing
5	is facilitated by the use of a Testing OSS system ("TOS'). Finally, Quad (4-port)
6	plug-in cards have been assumed.
7	
8	Fourth, the transport non-recurring cost modeling does not include the end-to-end
9	provision of special access/private line services, but rather only designed
10	interoffice facilities ("IOF") transport and, therefore, the entire transport process
11	is controlled by the Facilities Maintenance Administration Center ("FMAC") and
12	not the Special Services Center (SSC). Thus, this transport cost reflects ordering
13	capacity only.
14	
15	Fifth, alarms are typically tested with the Facility Maintenance Administration
16	Center ("FMAC") upon acceptance and turn-up of the intelligent network
17	elements (i.e., DCS/EDSX, SONET Mux, etc.) and not on a facility by facility
18	basis. This feature has no manual labor for testing other than trace lamp
19	continuity because performance monitoring is performed automatically between
20	the EDSX/DCS/EDSX and the Network Monitoring and Analysis ("NMA") OSS
21	This assumes, of course, that the FMAC has already built the parse rules,
22	templates, and databases in the NMA OSS System. If performance monitoring

("PM") fails then intrusive testing will occur via a remote Integrated Test System ("ITS") or similar Test Operations System OSS system.

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Finally, the cost for DS1 grooming within the DS3 Interoffice Transport is CPU 4 5 processing time only. This feature has no manual labor because it assumes the new entrant has access to Flexcom/LINC, which is a Bellcore OSS end-user 6 7 partitioned system, or Customer Network Controller ("CNC"), which is a Lucent 8 end-user OSS system, that allows for end user customer access to EDSX/DCS and 9 SONET Add/Drop Multiplexers for reconfiguration of their own DS3, DS1, and/or DSO bandwidth. This allows the new entrant the ability to groom the DS1 10 11 within the DS3 interoffice Transport.

12

Q. WHAT TIMES AND ACTIVITIES WERE ASSUMED FOR INTEROFFICE TRANSPORT?

15

16 Two channel units or plug-ins were assumed for each DS3. Three channel units Α. or plug-ins were assumed for a DS1. The cards required to be installed are in 17 DCS/EDSX, high speed SONET Multiplexer and low speed SONET multiplexer 18 (applicable to DS1 only). This allows low speed drops (e.g., DS1s) from a high 19 20 speed SONET ring (e.g., OC-48) to a low speed DS1. The times to install the cards was estimated at 2 minutes each. However, the time was divided by 4 to 21 22 reflect the Quad (4-port) cards plug-ins for DCS/EDSX and the low speed 23 multiplexer. The time for the high speed plug-in was divided by 28 to reflect the

1		capacity of an STS-1, DS3, or OC-1. For testing, its was assumed, as discussed
2		above, all performance monitoring ("PM") registers were pre-set for autonomous
3		reporting of PM threshold crossings to the OSS. However, it was assumed that it
4		took the FMAC technician 3 minutes to retrieve and analyze the data. In addition,
5		it was assumed that 1% of the time an ITS or intrusive test will be performed, if a
6		performance Monitoring test fails. Fall out was included and the center assumed
7		was the Circuit Provisioning Center.
8		
9		V. NRCs for Customer Disconnects
10		
11	Q.	PLEASE DEFINE DISCONNECT.
12		
13	А.	Disconnect occurs when a service to a customer is ended.
14		
15	Q.	PLEASE DESCRIBE WHY THE NRCM MODELS DISCONNECTION
16		NRCs SEPARATELY?
17		
18	А.	While ILECs, including BellSouth in its model, typically model installation NRC
19		charges to include the cost of disconnection, the NRCM separates installation and
20		disconnection for costing and pricing purposes. The rationale for this method is
21		two fold. First, the ILEC should only receive the revenue for the disconnect at the
22		time the actual disconnection occurs. This eliminates a "time value of money"
23		concern that is inherent in most current ILEC methodologies.

1		Second, the disaggregation of installation and disconnect costs and prices also
2		allows the new entrant the ability to benefit from the long standing and efficient
3		practices with respect to Dedicated Inside Plant ("DIP") and Dedicated Outside
4		Plant ("DOP"). The DIP and DOP processes allow for rapid activation or
5		deactivation of services at an end user location without the need for physical
6		disruption of the facility because, with DIP and DOP, physical connections
7		remain in place and only a command from the OSS to the network element is
8		necessary to activate or de-activate the service. If a new entrant chooses to have
9		service de-activated using only software commands, disconnection NRCs become
10		almost non-existent. BellSouth's current disconnect policy adheres to this
11		practice of DIP and DOP in order to provide immediate service activation to the
12		next customer at that premise. Thus, by modeling the installation separately from
13		disconnection, the new entrant would have the same benefits from the DIP and
14		DOP processes as would BellSouth.
15		
16		VI. Summary and Recommendation
17		
18	Q.	WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?
19		
20	Α.	Yes. In order for a competitive environment to exist, new entrants must have non-
21		discriminatory access to the incumbent's databases and other resources for
22		entering service orders to eliminate the need for costly, intermediate customer
23		service contacts. Also, new entrants must only incur costs equal to those which

1	the IL	EC would incur using a forward looking network architecture and efficient
2	OSS o	or else the CLEC is burdened with a barrier to entry and the ILEC has no
3	incent	tive to become efficient. Finally, NRCs must be based upon TELRIC
4	princi	ples.
5		
6	The N	IRCM recognizes those requirements. The NRCM, therefore, corrects the
7	many	faulty assumptions that have been found in ILEC cost studies. The Non-
8	Recur	ring Cost Model correctly adheres to the following:
9		
10	(1)	A forward looking cost model should incorporate the efficiencies of
11		automated OSSs which provide for maximum electronic flow through of
12		orders.
13		
14	(2)	To the extent fallout does indeed occur, it should be limited to
15		approximately 2% of the total orders processed.
16		
17	(3)	Manual work times should reflect appropriate intervals based on the use of
18		forward looking network technologies.
19		
20	(4)	Wherever appropriate, service orders should be processed through a non-
21		designed POTS provisioning process as opposed to a more expensive
22		designed services process.

1		(5)	A forward looking cost model should incorporate the efficiencies of
2			automated Intelligent Network Elements (SONET, GR-303/IDLC,
3			DCS/EDSX, LDS, etc.) which provide for maximum electronic flow
4			through for provisioning of orders.
5			
6		(6)	Wherever appropriate, the same work centers, work groups, technicians,
7			and associated labor rates should be modeled at parity with how BellSouth
8			provides similar services to itself.
9			
10		(7)	Migrations and installations should be recognized as mechanized
11			whenever DIP and DOP will permit.
12			
13		(8)	Installation and disconnection should be calculated separately to account
14			for significant cost differences dependent on a new entrant's disconnect
15			decisions regarding DIP/DOP.
16			
17	Q.	DO Y	OU RECOMMEND ANY NRCS TO THIS COMMISSION?
18			
19	Α	Yes.	I recommend the NRCs found in Exhibit JPL-3.
20			
21			,
2 2			

I <u>ENDNOTES</u>:

.

2 3 4	1.	The Froehlich/Kent ENCYCLOPEDIA OF TELECOMMUNICATIONS, VOLUME 12, Page 480.
5 6 7	2.	Agreement between BellSouth Telecommunications, Inc. and AT&T Communications of the South Central States, Inc.; Part I, Sections 28.1 and 28.6.4.
9 10 11 12 13	3.	Southwestern Bell recently indicated in its Texas filing that their EASE system, which services residential lines, has a fallout rate of 1%. (Transcripts; Open Meeting Prehearing Conference - 6/24/97 - Southwestern Bell before the PUC and ALJ.)
14 15 16	4.	BellSouth Surrebuttal Testimony on 9/8/97 of William N. Stacy before the Georgia PSC in Docket No. 7061-U ("BellSouth has achieved a flow-through rate of approximately 97% in certain exchanges").
18 19 20	5.	LDS requirements and objectives are found in modules of Bellcore's LSSGR; FR- 64.
20 21 22	6.	DCS requirements and objectives can be found in Bellcore's TR-NWT-000170.
23 24 25	7.	EMS requirements, objectives, and interface specifications can be found in Bellcore's GR-2869-CORE & FR-439.
25 26 27	8.	IDLC requirements and objectives can be found in TR-TSY-000303 and GR-303-CORE.
28 29 30	9 .	ADTS requirements and objectives can be found in Bellcore's TR-TSY-000174.
30 31 32	10.	FITL requirements and objectives can be found in Bellcore's TA-NWT-000909.
33 34 35	11.	SONET requirements and objectives can be found in Bellcore's GR-253-CORE of FR-440 (TSGR)
36 37	12.	DLC requirements and objectives can be found in Bellcore's TR-NWT-000057.
38 39 40 41 42 43 44	13.	Bellcore SR-TSV-002275, BOC Notes on the LEC Network, Issue 2 (April 1994), section 9.2.2.2, pages 9-7 and 9-8. states that "EDSXs are software controlled alternatives to the manual DSX." It also states that "DCSs are software -controlled devices considered to be intelligent network elements because they can provide the following features Remote Provisioning and rearrangement of the digital interconnections; Continuous service monitoring; Automatic equipment and facilities protection (self-healing capabilities); and Remote test access.

1 14. Bellcore TR-199-CORE Memory Administration Messages (OTGR).

Exhibit Docket Nos. 960833-TP, 960846-TP, 971140-TP Lynott Exhibit JPL-1 NRCM 2.0 Documentation





NON-RECURRING COST MODEL

Version 2.0

Model Description

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List of Attachments

- A. Non-Recurring Types
- **B.** Detailed Work Activities
- C. Activity Assignment Table

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I. OVERVIEW

The Non-Recurring Cost Model (NRC Model) develops one time (non-recurring) cost estimates for the tasks and activities that may be performed by an Incumbent Local Exchange Carrier (ILEC) when a Competitive Local Exchange Carrier (CLEC) requests wholesale services, interconnection, and/or unbundled network elements.

Utilizing a forward looking cost methodology, the *NRC Model* develops a "bottoms-up" estimate of non-recurring costs. The NRC Model reflects the individual OSS tasks and activities that may be required to respond to a CLEC request. To the extent feasible, each component has been separately costed.

The majority of non-recurring element types involve activities associated with the preordering, ordering and /or provisioning process. A short description of these processes follows:

Pre-ordering: The process by which a CLEC interfaces with customers to determine customer needs. A CLEC and ILEC exchange necessary information to initiate orders. This information, such as customer premise address, phone number availability, feature availability and service availability is made accessible to CLECs electronically so they can accurately respond to customers when taking service and feature orders.

Ordering: The process by which a CLEC electronically submits a Local Service Request (LSR) to an ILEC via an electronic gateway. The ILEC responds electronically with a positive confirmation of order acceptance.

Provisioning: The process by which an ILEC, after receipt of an LSR order, performs the necessary functions to provide the service, interconnection, or Unbundled Network Elements (UNE) requested by a CLEC.

These processes are depicted in the high-level chart on the next page.

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Description

In summary, the *NRC Model* provides a detailed step-by-step understanding of the systems required and the manual work activities performed by an ILEC in the ordering and provisioning of wholesale services and unbundled network elements. The model is designed to reflect the most efficient management and operations of existing ILEC OSSs.

II. METHODOLOGY

As shown by the following chart, the NRC Model develops costs in four distinct stages:



A. Determine Non-Recurring Cost Element Types:

The NRC element types that were initially selected for calculation by the model were developed based on a review of the charges proposed by ILECs during negotiation and arbitration proceedings. These NRC element types consist primarily of functions performed in the provisioning of service to existing customers (migration)¹ and to new

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¹ Migration is defined as moving existing ILEC customers to a CLEC.

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customers (installation)². It is anticipated that additional elements will be provided in future releases of the NRC Model. A number of additional elements have been added with this release.

The *Telecommunication Act of 1996* explicitly allows new entrants to provide local telecommunication services by means of various connectivity options. To the extent these options cause different costs to be incurred, such costs are modeled separately within the NRC Model. The local connectivity options include:

Total Services Resale (TSR): ILEC acts as a wholesaler of local telephone service which the CLEC then resells to end user customers.

Unbundled Network Elements Platform (UNE-P): CLEC purchases unbundled network elements in combination from the ILEC at cost-based rates.

Unbundled Network Elements (UNE): CLEC purchases individual unbundled network element(s), e.g., unbundled network element-loop (UNE-Loop), from an ILEC that may be used alone or in combination to provide telecommunication services to CLEC end user customers.

One example of a element type developed by the *NRC Model* is a "*POTS/ISDN Migration -UNE-P*. This element type represents the situation where an existing POTS or ISDN customer changes it's local service provider from an ILEC to a CLEC, and the CLEC serves the customer by purchasing the unbundled network elements in combination (UNE-P).

See Attachment A for a complete list of the NRC element types included in the model. Within the model, the user has the ability of either costing individual element types or batch processing a user selected list of element types all at once.

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² Installation is defined as the establishment of service for a CLEC customer that is not currently served by an ILEC. Service may be for an existing or new customer premise.

B. Identify and Map Activities:

The *NRC Model* identifies the individual systems utilized and manual work activities performed, when an ILEC provides a non-recurring service. These activities are considered generic for the ILEC and fall primarily within the pre-ordering, ordering and provisioning processes. There have been 290 work activities identified and captured in the model. See **Attachment B** for a complete list and description of the activities included in the model.

The model then maps the appropriate set of work activities to each NRC element type. For example, to migrate a POTS customer under the UNE-P option, requires eighteen identified work activities. The logic of the *NRC Model* maps these activities to the NRC element type through an assignment table contained on the "*Process & Calcs*" sheet of the *NRC Model*.

As demonstrated in the following table excerpt, activity assignment is made by the placement of an "X" at the table intersection of activity and NRC element type. (Note: while some activities are generic to many NRC element types, others are specific to only a few.)

1D- No.	Process Flow / Activity	T FOTS / ISDN BRI Migration TSR	2 POTS / ISDN BRI Migration UNE Platform	48
1	CLEC customer contact	X	X	
2	CLEC requests customer address data, CSR, and appointment	X	X	
3	ILEC gateway requests address data from Administrative Info	x	X	
4	ILEC gateway formats and returns address, CSR, and appointing	n		
5	CLEC customer service representative inputs LSR information	X	X	
6	ILEC gateway receives, validates and logs LSR, returns FOC	x	X	
7	CLEC gateway sends LSR to EXACT			
8	ILEC SOG retrieves CSR data, formats and passes to SOP	×	×	
9 '	EXACT and TUF sends request to SOP			
10	SOP sends request to SOAC	x	X	
11	SOAC analyzes order, generates assignment requests for OSP	X	X	
290				

When a user of the model chooses to cost out a particular NRC element type, the model selects the column corresponding to that NRC element type and looks for the activities

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that are required to be performed. If an "X" is shown, the activity in that row is required. In the table shown above, for example, a *POTS Migration* under the TSR connectivity option requires steps 1, 2, 3, 5, 6, 8, 10, and 11. (Note: this is only a sample of activities required for this element type).

For each activity described above, the model incorporates costing inputs. These inputs include the probability of the activity's occurrence, the time to complete the work activity, and the labor rate associated with the work activity. The model then calculates the cost of each individual activity based upon these inputs and model assumptions. For a complete list of the activity assignment table, see Attachment C.

C. Calculate Costs:

The third stage of the model calculates the cost of each activity and process. The *NRC Model* uses advanced features of Microsoft Excel 7.0 including Visual Basic for Applications (VBA) macros and dialog boxes. The User Guide, which is a separate document, contains additional information on how to run the model.

Through the use of "drop-down" input screens, the model provides the user with alternative input feeds that impact non-recurring service costs. These input screens include the following:

NRC Model - Control Panel: Prompts the user to select NRC element type and state.

Customize Batch: Allows the user to exclude elements from a Batch Run Scenario.

Manual Labor Rates: Prompts the user to either accept or override default values for the input labor rates.

Other NRC Model Inputs: Prompts the user to either accept or override default input values for the following NRC Model inputs. (Note: the Assumptions and Inputs of the model are described in more detail later in this document)

- Copper Fiber Ratio (Copper %)
- Central Office Staffing Ratio (% of lines served via staffed central offices)
- Average Trip Time
- Setup Time
- Work Activities per Order (in central office)
- Percentage Non Dedicated Facilities
- Variable Overhead (%)
- POTS System Fallout
- Complex System Fallout

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After the user has selected a element type, and has accepted or adjusted any of the default inputs, the model selects all of the activities associated with that particular non-recurring element type based upon the assignment table. Once these activities are selected, the model calculates the cost of each activity using the following formula:

Activity Cost = (Activity Probability (%) x Time (minutes)) x Rate (S per hour) / 60

The chart below demonstrates how the model performs this step:

Probability (%)	Time (minutes)	Rate (\$/hour)	D= Cost	(A I BIC)/60 w/out Overhead (\$)
NA				
100.0%	-	R	\$	-
NA				
100.0%	-	R	\$	-
40.0%	2.50	36.64	\$	0.61
2.0%	20.00	36.64	\$	0.24
40.0%	0.25	36.64	\$	0.06
40.0%	2.00	36.64	\$	0.49
40.0%	0.25	36.64	\$	0.06
40.0%	1.50	36.64	\$	0.37
2.0%	-	R	\$	-
2.0%	2.50	33.87	\$	0.03
2.0%	15.00	33.87	\$	0.17
60.0%	-	R	\$	-

As reflected above, an assumption in the model is that forward looking OSS investments and system processing costs should be recovered in competitively neutral recurring rates as opposed to non-recurring rates. Therefore, the costs of these activities are set to zero by the placement of an "R" in the *Rate* input field.

Finally, the model sums the costs of all appropriate activities for each element type and then applies the user defined "overhead factor" to arrive at the total cost of providing the element.

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D. Generate Results

After all calculations have been completed, the model populates the results into a table. NRC element types that are run individually are output by the model as follows:



When results are run in batch mode, the model outputs the cost of each NRC element type generated by the model in a single table.

III. Assumptions And Data Inputs

This section provides a description of the data inputs and general assumptions (technical and otherwise) used by the *NRC Model*.

A. Efficient Operations Support Systems

The *NRC Model* assumes the existence of OSSs which are operated efficiently by the ILEC. Such systems are automated and mechanized today, and should be capable of handling all movement of data electronically between other systems and databases.

The NRC Model OSSs are defined by the following minimum criteria:

- All databases are updated on a timely basis, regularly maintained for maximum performance, and are consistent with each other
- OSSs are appropriately sized and electronically linked
- OSSs use front-end edits to minimize the possibility that erroneous information is entered
- OSSs rely on the latest software releases and reside on high availability platforms

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In addition, the environment in which the NRC Model OSSs are operated is defined by the following:

- No network exhaustion is assumed
- To the extent problems occur, the ILEC will pro-actively conduct a proper root cause analysis and will implement changes to eliminate the problem
- CLECs will have access to these OSSs via an electronic interface
- Work throughput is efficiently planned (i.e., POTS and ISDN BRI-type services should not be classified as designed circuits. Such a classification is unnecessary, does not mirror ILEC procedures, and drives up costs.)
- Company personnel are adequately trained
- The deployment of the latest data communications network technology

B. Recovery of Operations Support System Investment

The NRC Model assumes that the costs of the underlying OSSs (i.e., hardware, system software, and processor costs) should be recovered in the LEC's recurring wholesale and retail rates.

In general, OSSs are not developed or partitioned to support only one class of customer, such as a CLEC, nor are they established to support a particular set of functions, such as non-recurring functions. Instead, the architecture of OSSs today is designed to manage the totality of the LEC's telecommunication network, with individual systems and databases reliant on each other for optimal integrity.

In the FCC's order in Docket 96-325, a recurring cost was defined as one that is incurred periodically overtime.³ OSS development is predicated on the assumption that the OSS will have a life-span of several years. To properly recover this investment in a one-time charge would require a precise present value calculation to prevent over or under recovery of this cost. However, the FCC has found that, "in practice, the present value of the recurring costs cannot be calculated with sufficient accuracy to warrant up-front recovery of these costs".⁴

4 Ibid., paragraph 746.

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³ FCC Order 96-325, paragraph 745. First Report And Order - Released: August 8, 1996

The FCC has concluded that:

"imposing non-recurring charges for recurring costs could pose a barrier to entry because these charges may be excessive, reflecting costs that may (1) not actually occur, (2) be incurred later than predicted; (3) not be incurred as long as predicted; (4) be incurred at a level that is lower than predicted; (5) be incurred less frequently than predicted; and (6) be discounted to the present using a cost of capital that is too low."⁵

Further, OSS investments, like switching and loop investments, produce long term assets, the recovery of which should, like the recovery of switching and loop costs, be amortized over the life of those assets.

C. Electronic Fallout

Fallout refers to errors in an electronic flow-through process. For example, in an electronic ordering process, if one of the OSSs receives erroneous or incompatible information from another OSS, the order will "fallout" of the electronic process and may require manual intervention to correct or complete the order.

Fallout is important because in many instances it is the only cost-driver for an otherwise seamless electronic flow-through process. In the absence of fallout, many processes would only have systems processing costs, costs which should be recovered via competitively neutral recurring rates.

There are four major categories of electronic fallout.

- 1. Database synchronization errors
- 2. Network element denial
- 3. Communication errors
- 4. Synchronization Errors

Database synchronization errors occur when databases that contain identical data do not match, or they disagree as to the availability or status of a needed resource. Typical database synchronization errors that fallout include street names that exist in one database that are not duplicated in other databases. Another example is when facilities marked as 'spare' in one database are not reflected as available in another database.

Network element denial is a second type of fallout. It can happen when an Intelligent Network Element (INE), such as a Local Digital Switch, responds that it cannot perform a

⁵ Ibid., paragraph 747.

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task requested by another component of the network for whatever reason. For example, the element management system might believe that a certain version of software is available to activate certain features, when in reality the installation of this software has not yet been performed.

Communication errors represent the failure of the communication links between OSS, the Element Management Systems (EMS), and/or the INE. These errors take place because a valid communication path cannot be found between the elements.

Synchronization errors occur when two separate components (OSS to OSS or OSS to EMS & INE) attempt to communicate, but fail to establish the necessary communications protocols, even though the link is functioning.

Of the four categories of fallout, the error that occurs most often is database synchronization error. The degree of fallout from these four categories can and should be minimized by properly maintaining the OSS databases and the telecommunication network.

In determining the input values for fallout, in both a simple (POTS) and complex environment, the NRC Model draws upon industry experience and comparable industry information⁶. Relying on the assumption of efficiently operated OSSs and processes, the default fallout rate utilized in the NRC Model is 2%. This is further supported in Bellcore GR-22869, where according to Section 4.6.2 (Immediate Service Activation) "Activation will occur at the time of assignment" (i.e., immediately)⁷. This variable is user adjustable for both POTS and complex fallout.

D. Labor Rates

The labor rates used by the *NRC Model* represent a fully assigned rate, which includes wages and benefits for first-line supervision through third level management. In addition, the labor rate accounts for non-productive time, overtime pay, clerical support and other

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⁶ Southwestern Bell recently indicated in its Texas filing that their EASE system, which services residential lines, has a fallout rate of 1% (transcripts; Open Meeting Prehearing Conference- 6/24/97- Southwestern Bell before the P.U.C. and A.L.J.) In addition, US West states in a cost study filed before the Minnesota Public Service Commission on 7/11/97 that "97% of all CSB PIC Changes are completely mechanized."

⁷ Bellcore GR-2869, Issue 2, (Oct. 1996) pg. 4-25, section 4.6.2

Description

miscellaneous expenses. Finally, labor rates have been developed and applied for 14 different job classifications in order to account for the varying levels of labor costs incurred by different work centers and process activities.

When available, union contract labor rates are used as the foundation for developing the appropriate rates. Since data was not readily available to derive average rates by adjusting for pay zones and wage progression, the top pay zone represented by the union contract for each state is used for all rates, thereby assuming that the entire work force is at the maximum rate within their pay band.

The particular job classifications used in the *NRC Model* were identified by reviewing individual work activities included in the model. This information, when combined with knowledge of job descriptions, job function codes, union contracts and information drawn from publicly available cost studies, enabled the identification of the following technical titles to be used in the model.

– Technician Type
Business Dispatch Administration Center (BDAC)
Consumer Dispatch Administration Center
Circuit Provisioning Center (CPC)
Customer Service Center
Frame Control Center (FCC)
Facility Maintenance Adminstration Center
Installation & Maintenance / Outside Plant
Loop Assignment Center (LAC)
Network Terminal Equipment Center (NTEC)
Recent Change Memory Administration Center
Switching Control Center (SCC)
Special Service Center (SSC)
Splicing
InterLATA Carrier Service Center

Publicly available cost models suggest that benefits generally equate to approximately a 33%-35% increase over the contract labor rates. The *NRC Model* uses a 40% benefits loading to provide a conservatively high cost estimate. The first through third level

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management salaries and benefits were calculated and loaded on to the labor rates based on a ratio of 15:1 for contract to supervisory personnel, and 5:1 for the next two layers of management. The salary and benefits for one clerical position were also incorporated.

The loaded hourly rates were inflated by 23% to represent productive hourly rates. This includes paid time off for vacations, holidays, personal days, training, coffee breaks, etc. Miscellaneous expenses were added to cover such items as travel expense, training, and office supplies. Finally, another increment was added to cover premium pay for overtime worked.

Wage Rate Components	Input	Hourty	Cumulative	Derivation
Basic wage rate		\$20.00	\$20.00	Union contract
Benefits loading	40%	\$8.00	\$28.00	Subject matter expert
Non productive time loading	123%	\$6.56	\$34.56	2080 paid hrs / 1685 prod hrs
Overtime loading		\$1.78	\$36.34	\$3000 annual overtime / 1685 prod hrs
Miscellaneous loading		\$1.19	\$37.53	\$2000 annual misc exp / 1685 prod hrs
First line supervisor salary w/benefits	\$75.000			SME estimate
First Level hourly w/benefits	\$36.06			Salary & bene / 2080 paid hours
First Level hourly		\$2.40	\$39.94	1st level sai & bene / 15 reports
Second level mgmt. ave. salary w/benefits	\$105,000			SME estimate
Second level hourly w/benefits	\$50.48			Salary & bene / 2080 paid hours
Second Level hourly		\$0.67	\$40.61	2nd level sal & bene / 75 reporting people
Third level ave, salary w/benefits	\$135,000			SME estimate
Third level hourly w/benefits	\$64.90			Salary & bene / 2080 paid hours
Third level sal. (Hr.) divided by 375		\$0.17	\$40.78	3rd level sal & bene / 375 reporting people
9 mont Clock are selar w/benefits	\$51 800			SME estimate
O mont dark herety w/hanafite	\$24.90			Salary & bene / 2080 paid hours
Support derk sal, (Hr.) divided by 375	¥27.00	\$0.07	\$40.85	Support clerk sal & bene / 375 people

Provided below is an example of the labor rate calculation.

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E. Work Times And Probabilities

The estimated work times contained within the *NRC Model* incorporate the following underlying assumptions:

1. Dedicated Facilities

The NRC Model assumes dedicated facilities exist in the plant, both inside (Dedicated Inside Plant-DIP) and outside (Dedicated Outside Plant-DOP). Long standing practices have demonstrated that it is more cost efficient to commit facilities ahead of time to facilitate rapid service activation. This is accomplished during the construction phase (i.e., building of the plant). Anticipated living units are assigned facilities in the inventory systems such as LFACS and SWITCH. The inventory systems are updated to reflect this commitment.

When customers move from one location, it is assumed that in time another customer will move into the same location. Therefore, the "disconnect" of a service is in reality a "deactivation" of service to a particular living unit, (i.e., no physical work is performed).

2. Testing

For the TSR and UNE-P local market entry scenarios, the *NRC Model* assumes that all testing will be performed by the ILEC and that the cost of this testing is recovered through recurring rates. In addition, the *NRC Model* assumes that the CLEC will be responsible for the testing of customer loops once the customer is terminated on the CLEC switch. Problems reported by the customer could be verified and located using the new entrant's Mechanized Loop Testing system (MLT). If the problem was in the new entrant's equipment the new entrant would repair it. If the trouble was determined to be outside of the new entrant's local switch and collocated equipment, it would be referred to the ILEC. Any other information that would be required by the ILEC could be obtained from the new entrant's test center.

In addition, it is assumed that special service circuits will be tested prior to "turn-up". These costs have been accounted for in the *NRC Model*.

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3. Activity Work Times And Probabilities

Work time estimates and probabilities are associated with various activities. The work time estimate is the average amount of time required to perform a particular work function. These time estimates were obtained from subject matter experts. A probability represents the percentage time a particular work function/activity is performed when processing a particular service offering. For example, if 20% of the lines are served by unstaffed central offices, the probability of travel time would also be 20%. As with the time estimates, these probabilities were determined by subject matter experts.

F. Other Input Fields

1. NRC Element type

This input variable allows the user to cost out individual NRC element types. There are 48 element types to select from (see Attachment A). It is expected that other element types will be added in the future.

2. State Selection

The user is able to choose a state jurisdiction to model. State selection is intended to drive the appropriate labor rates for that particular state.

3. Manual Labor Rates (\$ per hour)

When the state selection is made, the model provides an input screen containing the labor rates for that particular run. This screen can be used to modify the default labor rates contained in the model.

4. Copper-Fiber Ratio

This ratio represents the percent of lines served by straight copper as opposed to lines served by fiber (i.e., Integrated Digital Loop Carrier). The model default is 60% fiber, 40% copper. The significance of this variable is that there are additional work steps associated with copper plant. This ratio can be user adjusted .

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5. Central Office Staffed Ratio

This input variable represents the number of lines in a state that are served out of central offices which have technicians on site. The significance of this variable is that additional travel time and cost is required in order to do work in those offices that are not normally staffed. For example, service orders may require a technician to be dispatched for work to be completed at a non-staffed office. As the default ratio, the NRC Model assumes that 80% of the lines in a state are served by staffed central offices.

6. Average Trip Time

This variable accounts for the travel time of a technician. These technicians may need to periodically make trips to the field to rearrange outside plant, or will need to travel to the non-staffed central offices to complete various work activities such as customer orders, on-going maintenance, etc. The Work Management OSS will schedule and develop the work load and activities for the traveling technicians. Thus, the travel time is associated with several work activities, not just one. The default value contained in the NRC Model for the travel time is 20 minutes.

7. Setup Time

This user adjustable variable accounts, as an example, for the time associated with setting up cones while working at the Feeder Distribution Interface (FDI) or the Service Area Interface (SAI). A default value of 5 minutes is used in the Model.

8. Number of Work Activities Per Order (central office)

The average number of work activities is set at four. The default assumption is that the technician will complete four work activities.

9. Percentage Non Dedicated Facilities

This input represents the percentage of non dedicated facilities for POTS type service. A default of 0% is used in the model. As indicated in the model any cost associated with non dedicated facilities should be recovered via recurring rate elements of services.

10. Variable Overhead (%)

This input represents the loading variable overhead expenses not already captured in the model. The default is 10.4% and is derived from Hatfield Model support documentation.

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Non-Recurring Element Types

- 1. POTS / ISDN BRI Migration TSR
- 2. POTS/ISDN BRI Migration UNE- Platform
- 3. POTS/ISDN BRI Migration UNE-Loop
- 4. POTS/ISDN BRI Install TSR
- 5. POTS/ISDN BRI Install UNE-Platform
- 6. POTS/ISDN BRI Install UNE-Loop
- 7. 4 Wire Migration UNE-Loop
- 8. 4 Wire Install UNE-Loop

9. Feature Changes

- 10. 2 Wire Cross Connect at the FDI Migration
- 11.2 Wire Cross Connect at the FDI Install
- 12. 4 Wire Cross Connect at the FDI Migration
- 13. 4 Wire Cross Connect at the FDI Install
- 14. Cross Connect 2 wire, 6 line NID Install
- 15. Channelized DS1 Virtual Feeder to RT Install
- 16. DS1 Interoffice Transport
- 17. DS3 Interoffice Transport
- 18. POTS/ISDN BRI Disconnect TSR/UNE Platform
- 19. POTS/ISDN BRI Disconnect UNE Loop
- 20. 4 Wire Disconnect UNE Loop
- 21.2 Wire Cross Connect Disconnect at the FDI
- 22. 4 Wire Cross Connect Disconnect at the FDI
- 23. Channelized DS1 Virtual Feeder to RT
- 24. 2 wire Loop, different CO Migration
- 25. 2 wire Loop, different CO Install
- 26. 4 wire Loop, different CO Migration
- 27. 4 wire Loop, different CO Install
- 28. DS1 Loop to Customer Premise Migration
- 29. DS1 Loop to Customer Premise Install
- 30. Line Port (DS0, Analog, ISLU) Install
- 31. Channelized DS1 Line Port (TR-303-IDT) Install
- 32. 2 wire Loop, different CO disconnect
- 33. 4 wire Loop, different CO disconnect
- 34. DS1 Loop to Customer Premise disconnect
- 35. Line Port (DS0, Analog, ISLU) disconnect
- 36. Channelized DS1 Line Port (TR-303-IDT) disconnect
- 37. Fiber Cross Connects Install
- 38. Fiber Cross Connects disconnect
- 39. SS7 Links (A&D, DS0) Install
- 40. SS7 Links (A&D, DS0) disconnect
- 41. SS7 Links (A&D, DS1) Install
- 42. SS7 Links (A&D, DS1) disconnect

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- 43. SS7 STP global title translations Install 44. SS7 STP message transfer part Install
- 45. SS7 STP global title translations disconnect
- 46. SS7 STP message transfer part disconnect

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Detailed Work Activities

NRC Model

Activity Descriptions

STEP	TASK/ACTIVITY	DESCRIPTION
1	CLEC customer contact	Customer service representative obtains
		the service address, customer name, and
		customer service requests.
2	CLEC requests customer address	CLEC representative requests service
	data, CSR, and appointment from	address information from the customer
	ILEC	and then inputs that information into the
		gateway to confirm that the service
		address is listed in the ILEC's databases.
		For migrating customers, the CLEC also
		requests additional customer information
		that is found in the Customer Service
		Record which is stored by the ILEC.
3	ILEC gateway requests address	The gateway processes the CLEC service
	data from Administrative	request by obtaining Customer Service
	Information System and CSR	Record information from the
	T D O	Administrative Information System.
4	ILEC gateway formats and returns	The gateway passes address verification
	address, CSR, and appointment	and CSR information back to CLEC.
	data to CLEC	
2	CLEC customer service	CLEC creates Local Service Request
	representative inputs LSK	(LSR) from information gathered from the
	Information into LOS	customer and ILEC CSR (If available).
0	ILEC gateway receives, validates	The gateway receives, validates and logs
	and logs LSR, returns FOC, and	the Local Service Request (LSR). At this
	passes LSR to SOG	point, if enoneous information was input
		the order to a CLEC service representative
		who would have to correct then re-input
		the order. If the order is valid, the ILEC
		confirms that the order is complete by
		sending the CLEC a Firm Order
		Commitment to the CLEC. The ILEC
		then passes the LSR back to its Service
		Order Generator (SOG) for further down-
		stream processing.
7	CLEC gateway sends LSR to	EXACT validates service order request
	EXACT	and transmits to TUF.

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8	ILEC SOG retrieves CSR data.	The ILEC's SOG receives the LSP date
[formats and passes to SOP	from the gateway and computer a
		order (o g formate the LCD 1
		order (e.g., formats the LSR data into a
		Service order) which is passed to the
		Service Order Processor (SOP) for
		processing.
9	EXACT and TUF sends request to	TUF is the OSS which translates the
	SOP	USOCs and FIDs that are required; then
		sends to the ILEC SOP.
10	SOP sends request to SOAC	The ILEC Service Order Processor
		receives a service order and passes the
		service order to the SOAC-like system. If
		the service order is not properly formatted.
		SOAC will send the service order back to
		an ILEC service rep for correction.
11	SOAC analyzes order, generates	SOAC analyzes the service order and
	assignment requests for OSP, COE,	sends assignment request to the inventory
	IOF, etc.	systems e.g., LFACS, SWITCH, and
	,	TIRKS
12	SOAC analyzes order, generates	SOAC analyzes the service order and
	assignment requests for COE and	sends assignment request to the inventory
	IOF, etc.	systems e.g. SWITCH and TIRKS
13	LEACS makes OSP assignments	I FACS commits OSP facilities for the
	e g cable and pair	assignment request and then sends back to
	e.g., cable and pair	SOAC
14	LEACS makes OSP spare and	I FACS spares up OSP facilities for re-
	available for reassignments e g	assignment
	cable and pair	assignment.
15	COE and EICT assignments are	SWITCH commits central office
15	made	equipment for the assignment request and
	made	then conds it hock to SOAC
16	COE and EICT areas and available	SWITCH anona un acatral affras
01	for reassignments are mode	switch spares up central office
	SOAC receives COE OSD TOE	SOAC receives information healt form
1/	SUAC receives CUE, USP, IUF,	I EACS SWITCH and TIDES
10		LIACS, SWITCH, and HKKS.
18	SUAU receives UUE and IUF, etc.	SUAC re-assembles the pieces of
		uniormation and formulates the customer
		waiting at a baged on sustainer convict
		demende which are recorded in USOC
		and FIDe SOA Caller formed at the
		and FIDS. SUAU then forwards this
		Information to MAKCH.
19	COSMOS / SWITCH assigns OE /	COSMOS/SWITCH commits central
	LU	office equipment for the assignment

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		request and then sends it back to SOAC.
20	COSMOS / SWITCH removes OE	COSMOS/SWITCH spares up central
	/LU	office equipment for the reassignment
21	SWITCH assigns IDT port	SWITCH commits LDS ports
22	SWITCH assigns call reference	CPU processing time
	values (CRV)	
23	SWITCH deletes call reference	CPU processing time
	values (CRV)	
24	SOAC delivers recent change	SOAC re-assembles the pieces of
	translation information	information and formulates the customer
		vertical features (call forwarding, call
		waiting, etc.) based on customer service
		demands which are recorded in USOCs
		and FIDs. SOAC then forwards this
		information to MARCH.
25	SOAC delivers recent change	SOAC notifies MARCH of disconnect
	disconnect information	
26	MARCH updates LDS	MARCH updates the Local Digital Switch
		(LDS) with information about the features
		and services that the customer has
		requested.
27	SOAC delivers equipment and	TIRKS transmits a formatted electronic
	facility information to NSDB	"word document" which contains the
		assignment and other information to the
		Network and Services Database and to the
		Work Force Administration Control
2,8	NSBD downloads assignments to	NSDB stores active record and passes the
	OPS/INE	appropriate assignments to Operations
		Systems/Intelligent Network Elements
		(OPS/INE). OPS/INE takes the
		information from NSDB and updates
20		specific INE's.
29	UPS/INE delivers Cross Connect	Operations Systems sends a message to
	and equipment provisioning	and talla it to make contain charges to
	message to five	and tens it to make certain changes to
20	OPS (DIE delivere Cross Connect	After the INE has been undeted the INE
30	or S/INE delivers Cross Connect	sends a positive acknowledgment back to
	to INF	OPS/INF which then forwards this
		acknowledgment back to WFA/C WFA/C
		then sends completion reports (ieonardies)
		back to NSDB.
31	OPS/INE undates WFA/C	After the INE has been undated the INE
1.1	Crowne updates write	sends a positive acknowledgment back to
		Same a bootte a mainto an administration on the In

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		OPS/INE which then forwards this
		acknowledgment back to NSDB
32	WFA/C updates NSDB	Ouestion as to whether line 32 should read
	•	OPS/INE updates NSDB
33	SOAC updates SOP	SOAC updates the SOP with completion
		information
34	SOP updates WFA, NSDB, LMOS	After all completion work is done SOD
	BOSS, CRIS, etc.	electronically undates I MOS to make sure
		that the renair center recognizes Duringer
		Office Records to keep a record of the
		types of service and other information
		about sustamore (and it as not). CD10 t
		undete en errete billing records (Credit report); CRIS to
		as to whather WEA NSDD the still
		as to whether wrA, NSDB should be
25	SOD underes WEA NEDD and	SOP wife OADS with 1 to 1
33	SOF updates wFA. NSDB, and	SOP notifies CABS with updated
26		Information
30	TIPKS	PICS sends correct plug- in to TIRKS for
	TIRKS	specific service
37	TIRKS provides equipment and	TIRKS receives request from SOAC for
	facility assignments	trunk and high capacity service
		information. TIRKS inventories
		equipment and assigns the required
		resources to S.O. This step is only
		performed for special services, interoffice
		facilities, high capacity services, etc.
38	TIRKS updates SOAC	After TIRKS has assigned equipment, it
		sends an assignment completion status to
		SOAC and forwards an electronic "word
		document" to WFA/DI (DO) and NSDB.
39	CPU time for NMA for PM data	NMA monitors certain network elements
	from test	for reliability purposes
40	SOP completes LSR	ILEC Service Order Processor updates the
		Customer Service Record and LSR to
		complete status.
41	ILEC gateway notifies CLEC of	The electronic gateway notifies the CLEC
	completed order	that the service order has been completed.
42	ILEC billing system issues final	The ILEC's billing system (CRIS) issues a
	bill to migrating customer	final bill to its retail customer. This step
		only needs to be completed for migrations.
43	TSR, UNE-PLATFORM, &	
	CHANGES	
44	Fall Out: RMAs forwarded to	PAWS has the ability to automatically and
	PAWS for reconciliation	manually clear RMAs.

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45	Fall Out: Pull and analyze order	This entails analyzing the order and
		manually clearing the RMA and re-
		entering the order back into the
		mechanized process.
46	Fall Out: Clear jeopardy	Technician in the RCMAC clears the
		RMA.
47	2-WIRE LOOP	
48	Copper	
49	Pull and analyze order (copper)	Technician in the CO prints and analyzes
		the order
50	Pull and analyze order (copper)	Technician in the CO prints and analyzes
		the order
51	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 work	must be dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
		same CO)
52	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 work	must be dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
		same CO)
53	Conduct continuity test (check dial	Before disconnecting from ILEC switch,
	tone and ANI)	test for accurate TN.
54	Install cross connect from MDF to	Frame technician runs cross connect in
	terminal block (copper)	СО
55	Install cross connect from MDF to	Frame technician runs cross connect in
	terminal block (copper)	СО
56	Conduct continuity test (check dial	After running new Cross Connect perform
	tone and ANI)	continuity test and ANI.
57	Close order	Technician closes order in SWITCH
		which sends information to SOAC, SOAC
		sends SOP completion information.
58	Close order	Technician closes order in SWITCH
		which sends information to SOAC, SOAC
		sends SOP completion information.
59	ILEC MLT test and or ISTF test	ILEC performs MLT and ISTF test
60	CLEC MLT test and or ISTF test	CLEC performs it's own MLT and ISTF
		test
61	Fall Out: RMAs forwarded to	Some RMAs are cleared utilizing pre-
	PAWS for reconciliation	programmed scripts in PAWS. Other
		RMAs require manual assistance
62	Fall Out: Pull and analyze order	I his entails analyzing the order and
	(copper)	manually clearing the RMA and re-
		inserting back into the mechanized process
63	Fall Out: Clear jeopardy	Technician in the LAC clears the RMA

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64	Pull and analyze order (copper)	Technician in the CO prints and analyzes
		the order
65	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 work	must be dispatched to the CO(assumes the
	activities	technician will perform 4 functions at the
		same CO)
66	Disconnect cross connect from	Frame technician removes cross connect
	MDF (Copper)	jumper that connects to ILEC switch
67	Close order	Technician closes order in SWITCH
		which sends information to SOAC, SOAC
		sends SOP completion information.
68	IDLC (GR-303)	
69	Install DSO TSI at RT (CPU time)	This is CPU time only and is done by
		OPS/INE to the INE at the RT
70	Disconnect DSO TSI at RT (CPU	This is CPU time only and is done by
	Time)	OPS/INE to the INE at the RT
71	CHANNELIZED DS1	This is CPU time only and is done by
	CAPACITY FOR THE VRT	OPS/INE to the INE at the VRT
	(TR-303)	
72	Pull and analyze order	Technician in the CO prints and analyzes
		the order
73	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 work	must be dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
		same CO)
74	Install IDT line port card	Place card in LDS
75	Install DSX cross connect (5 Wire)	Technician places the 5 wire cross connect
		at the DSX frame in the CO to the CLEC
		collocation.
76	Perform quasi random signaling	TL1 command sent from ITS
	source (QRSS) test via remote ITS -	
	DTAU	
77	Disconnect DSX cross connect (5	reconnician removes the 5 wire cross
	Wire)	connect at the DSX frame
78	CPU time at SONET MUX (DS1)	I have a second
		This is CDU time and the time to
79	CPU time at KI (DSI ISI)	OPSIDE at the PT
	Conduct continuity tort aver	OF SAINE at the KI
80	rendom signaling source (OPSS)	
	from ITS/DTAIL	
01	Close Order	WEA/DI notifies TIPKS which cands
10		completion to SOAC SOAC sends SOB
		completion notice
		completion notice.

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82	Fall Out: Pull and analyze order	This entails analyzing the order to
		determine next action to take.
83	Fall Out: Resolve Fallout	Circuit Provisioning Center (CPC)
		performs the design function
84	Pull and analyze order	Technician in the CO prints and analyzes
		the order
85	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 work	must be dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
		same CO)
86	CPU Time at SONET MUX (DST)	This is CPU time only and is done by
		OPS/INE in the CO
87	CPU Time at RT (DS1 TSI)	This is CPU time only and is done by
		OPS/INE at the RT
88	Disconnect DSX Cross Connect (5	lechnician removes the 5 wire cross
	Wire)	connect jumper at the DSX frame in the
89	Close Order	WFA/DI notifies TIRKS which sends
		completion to SOAC, SOAC sends SOP
		completion notice.
90	FIBER CROSS CONNECTS	
91	Pull and analyze order (FMAC)	FMAC Technician prints and analyzes the
		order.
92	I ravel time to the central office	This is completed by a Cable Splicing
03	In-tall 2 Distails (2 minutes of 2	This functions is performed by ENAC
93	Distail 2 Figures (2 minutes x 2	This functions is performed by FMAC
	(Figualis)	rechinctan.
04	Pomouo 2 Digtaile (2 minutos y 2	This function is performed by EMAC
94	Remove 2 Figuris (2 minutes x 2	Tashnision
05	OTDR (Ontical Time Domain	This function is performed when a fiber
93	Deflectometer) testing using Fiber	runs runction is performed when a noer
	Check 5000 type system	
06	Close order	WEADO notifies Design Center undetes
90		TIRKS and SOAC notifies SOP of
		completion
07	2 - WIRE CROSS CONNECT	The 2 wire Cross Connect that is done at
71	AT THE FDI (SUB-LOOP	the Feeder Distribution Interface by the
	UNBUNDLING)	Installation Technician
98	Pull and analyze order	Installation Technician prints and analyzes
		the order
99	Travel time to FDI / 2 work	This includes the time to travel to the FDIs
	activities	
100	Setup time / 2 work activities	This includes setting safety cones, opening
L		

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			FDI, getting required tools
	101	Conduct continuity test for ILEC	This test is done to insure that the correct
		•	Cross Connects are identified
	102	Cross Connect (Binding Post)	Perform Cross Connect functions using
			Binding Posts
Γ	103	Conduct continuity test for CLEC	When the Cross Connect is completed, a
			continuity test is performed
	104	Tear Down Set Up / 2 work	This function is performed by the
		activities	Installation Technician and entails closing
			the Cross Connect box, replacing tools,
			and collecting safety
		······	cones
	105	Close Order	WFA/DO notifies SOP of completion,
_			SOP notifies SOAC of completion
	106	Fall Out: RMAs forwarded to	Installation Technician using FAS
		PAWS for restoration	contacts the Loop Assignment Center
L			(LAC) for correct assignments
	107	Fall Out: Pull and analyze order	LAC analyzes the order and makes
			corrections
	108	Fall Out: Clear jeopardy	LAC updates LFACS
	109	Pull and analyze order	Installation Technician prints and analyzes
4	110		the order
	110	ravel time to FDI (more than 2	This includes the time to travel to the FDI
-	111	Satur time / 2 work activities	This includes setting seferty earlies
	111	Setup time / 2 work activities	FDL getting required tools
+	112	Conduct continuity test for ILEC	When the Cross Connect is completed a
	114		continuity test is performed
┢	113	Disconnect existing Cross Connect	Disconnect performed at Binding Post
		(Binding Post)	
ł	114	Tear Down Set Up / 2 work	This function is performed by the
		activities	Installation Technician and entails closing
			the Cross Connect box replacing tools and
			collecting safety
			cones
Γ	115	Close Order	WFA/DO notifies SOP of completion,
			SOP notifies SOAC of completion
ſ	116	4 - WIRE CROSS CONNECT	The 4 wire Cross Connect that is done at
.		AT THE FDI (SUB-LOOP	the Feeder Distribution Interface by the
		UNBUNDLING)	Installation Technician
ļ	117	Pull and analyze order	l echnician prints and analyzes the order
ļ	118	Pull and analyze order	I echnician analyzes the order
	119	Pull and analyze order (NTEC)	I echnician in the CO prints and analyzes
			the order

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120	Travel Time to FDI / 1 work	This is the travel time to the FDI from the
	activities	dispatch location
121	Negotiate customer release	
122	Setup time / 1 work activity	This includes setting safety cones, opening
		FDI, getting required tools
123	Cross Connect (Binding Post)	This is connecting a Cross Connect at the
		FDI
124	Tear Down Set Up	This function is performed by the
		Installation Technician and entails closing
		the Cross Connect box replacing tools and
		collecting safety cones
125	Travel Time to 4 wire NID	This is the time to travel to the customers
		location
126	Setup Time to 4 wire NID	This includes setting safety cones, getting
		required tools
127	1000 Hz test	Technician conducts 1000 Hz test
128	Tear Down Set Up	This function is performed by the
		Installation Technician and entails closing
		the Cross Connect box, replacing tools,
		and collecting safety
		cones
129	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 activities	must be dispatched to the CO (assumes the
		technician will perform 4 functions at the
120		same CO)
130	Disconnect SMAS (wire wrap)	CO technician performs wire wrap
		alsoonnections in order to disconnect the
121	Disconnect cross connect from	Erama technician removas aross connect
151	MDF (Cosmic-like frame, e.g.	iumper that connects to UEC switch
	nunch down 2 four wire)	Jumper that connects to TLEC switch
132	Travel time with in the staffed CO	This time includes moving from floor to
152	/ 4 work activities	floor within the same building
133	Close Order	WFA/DO notifies SCC which completes
155		in TIRKS TIRKS then notifies SOAC
		which notifies SOP of completion
134	Close Order	WFA/DI notifies WFA/C and sends
134		completion to TIRKS which notifies
		SOAC and updates SOP completion
		notice
135	Close Order (NTEC Contact SSC)	WFA/DI notifies WFA/C and sends
		completion to TIRKS which notifies
		SOAC and updates SOP completion
		notice

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136	Fall Out: Pull and analyze order	CPC analyzes the order and makes
		corrections
137	Fall Out: Manual design process	CPC performs design functions
138	Pull and analyze order	Installation Technician prints and analyzes
		the order
139	Travel Time to FDI / 1 work	This includes the time to travel to the FDI
	activities	from the dispatch center
140	Setup time / 1 work activities	This includes setting safety cones, opening
		FDI, getting required tools
141	Disconnect existing Cross Connect	This is disconnecting a Cross Connect at
	(Binding Post)	the Binding Posts
142	Tear Down Set Up / 1 work	This function is performed by the
	activities	Installation Technician and entails closing
		the Cross Connect box replacing tools and
		collecting safety
		cones
143	Close Order	WFA/DO notifies Design Center which
		completes in TIRKS, TIRKS then updates
		SOAC which notifies SOP of completion
144	4 - WIRE LOOP - And other	
	Designed Services	
145	Pull and analyze order (SSC)	Technician in the SSC analyzes the order
146	Pull and analyze order (NTEC)	Technician in the CO prints and analyzes
		the order
147	Pull and analyze order (FMAC)	Technician in the CO prints and analyzes
		the order
148	Travel time to the central office	When a CO is not staffed a technician is
	(non-staffed) minutes / 4 work	dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
		same CO)
149	I ravel time to the central office	when a CO is not staffed a technician is
	(non-staffed) minutes / 4 work	dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
150	Nagatiata austamar silaara	Same CO)
150	negotiate customer release	time when service can be intermined
151	Install cross connect MDF	NTEC technician runs cross connect in
151	(COSMIC-like frame e.g. punch-	CO
	down 1 four wire jumper)	
152	Remove cross connect MDF	NTEC technician disconnects jumper in
1.52	(COSMIC-like frame, e.g. punch-	CO
	down. 1 four wire jumper)	
153	Install cross connect MDF	NTEC technician runs cross connect in
	(COSMIC-like frame, e.g. punch-	СО

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	down, 2 four wire jumpers)	
154	Install cross connect (COSMIC-like	NTEC technician runs cross connect in
	frame, e.g. punch-down, 2 wire	СО
	jumpers)	
155	Cross connect (Wire Wrap, to AD4	NTEC technician runs cross connect in
	ADTS Channel Bank / unitized	СО
	SMAS)	
156	Disconnect (Wire Wrap, to AD4	NTEC technician disconnects jumper in
	ADTS Channel Bank / unitized	СО
	SMAS)	
157	Install channel unit at AD4	NTEC places channel unit in AD4 bank
158	Remove cross connect (COSMIC-	NTEC technician disconnects jumpers in
Constant and	like frame, e.g. punch-down, 2 wire	СО
	four jumpers)	
159	Remove cross connect - Wire	NTEC technician disconnects jumpers in
	Wrap to AD4 Channel Bank	СО
	(ADTS) / unitized SMAS	
160	Remove channel unit from AD4	NTEC technician disconnects jumpers in
		СО
161	Cross connect (4 wire SMAS, Wire	NTEC technician runs cross connect in
	Wrap, to D4 Channel Bank /	СО
	unitized SMAS)	
162	Remove cross connect (4 wire	NTEC technician disconnects jumpers in
	SMAS, Wire Wrap, to D4 Channel	СО
	Bank / unitized SMAS)	
163	Install 2 two wire shielded pair	NTEC technician connects jumpers in CO
	cross connects at the protector	
	frame	
164	Install 2 two wire shielded pair	FMAC technician connects jumpers in CO
	cross connects at the protector	
	frame	
165	Install 2 four wire cross connect at	NTEC technician connects jumpers in CO
	the Toll Distribution Frame	
166	Install 5 wire cross connect DSX	NTEC technician connects jumpers in CO
	bay	
167	Install 2 four wire cross connect at	FMAC technician connects jumpers in CO
	the Toll Distribution Frame	
168	Install 5 wire cross connect DSX	FMAC technician connects jumpers in CO
	bay	
169	Remove 2 two wire shielded pair	NTEC technician connects jumpers in CO
	cross connects at the protector	
	frame	
170	Remove 1 four wire cross connect	NTEC technician disconnects jumpers in
	at the Toll Distribution Frame	СО
here and a second se		

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171	Remove 5 wire cross connect DSX	FMAC technician disconnects jumpers in
	bay	СО
172	Remove 2 two wire shielded pair	FMAC technician disconnects jumpers in
	cross connects at the protector	СО
	frame	
173	Remove 1 four wire cross connect	FMAC technician disconnects jumpers in
	at the Toll Distribution Frame	СО
174	Remove 5 wire cross connect DSX	FMAC technician disconnects jumpers in
	bay	СО
175	Perform quasi random signaling	TL1 command sent from ITS
	source (QRSS) test via remote ITS -	
	DTAU	
176	Place plug-in at RT	NTEC places plug-in at Remote Terminal
177	Place plug-in at ADM	NTEC technician places plug-ins at Add
		Drop Mux
178	Place plug-in at RT	FMAC places plug-in at Remote Terminal
179	Place plug-in at ADM	FMAC technician places plug-ins at Add
		Drop Mux
180	Install DSO TSI at RT (CPU time)	CPU time only
181	Cross connect (4 wire SMAS)	NTEC technician performs wire wrap
	(Wire Wrap)	connections in order to connect the SMAS
		points
182	Remove Cross connect (4 wire	NTEC technician performs disconnection
	SMAS) (Wire Wrap)	to the SMAS points
183	Conduct SS7 test	SSC performs test
184	Conduct loop back analysis test	SSC performs test
185	Conduct loop back analysis test	SSC performs test
186	Conduct testing (1000 Hz.)	SSC performs test
187	Close Order (SSC)	WFA/DI notifies WFA/C and sends
		completion to TIRKS which notifies
		SOAC and updates SOP completion
		notice
188	Close Order (NTEC)	WFA/DI notifies WFA/C and sends
		completion to TIRKS which notifies
		SOAC and updates SOP completion
100	Class Order (EMAC)	WEADI notifies WEA/C and condo
189	Close Order (FMAC)	completion to TIRKS which notifies
		SOAC and undates SOP completion
		notice
100	Fall Out: Pull and analyze order	All 4 wire loops are designed CPC
190	(CPC)	analyzes the order.
191	Fall Out: Resolve Fallout (CPC)	CPC designs circuit and re-inputs into
		mechanized process
190	Fall Out: Pull and analyze order (CPC) Fall Out: Resolve Fallout (CPC)	notice All 4 wire loops are designed. CPC analyzes the order. CPC designs circuit and re-inputs into mechanized process

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192	Fall Out: Pull and analyze order	All 4 wire loops are designed. CPC
	(CPC)	analyzes the order.
193	Fall Out: Resolve Fallout (CPC)	CPC designs circuit and re-inputs into
		mechanized process
194	Pull and analyze order (NTEC)	Technician in the CO prints and analyzes
		the order
195	Pull and analyze order (SSC)	Technician analyzes the order
196	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 activities	must be dispatched to the CO (assumes the
		technician will perform 4 functions at the
		same CO)
197	Disconnect SMAS (wire wrap)	NTEC technician performs disconnection
		to the SMAS points
198	Disconnect cross connect from	NTEC technician disconnects jumper in
	MDF (Cosmic-like frame, e.g.	CO
	punch down, 2 four wire)	
199	Close Order (NTEC Contact SSC)	WFA/DI notifies WFA/C and sends
		completion to TIRKS which notifies
		SOAC and updates SOP completion
		notice
200	Close Order (SSC)	WFA/DI notifies WFA/C and sends
		completion to TIRKS which notifies
		SOAC and updates SOP completion
		notice
201	SIMPLE CROSS CONNECT	This cross connect is done at the customer
	AT THE NID (SUB-LOOP	premise Network Interface Device
	UNBUNDLING)	
202	Pull and analyze order	Installation Technician prints and analyzes
		the order
203	Travel time to customer premises /	This is the time to travel to the customers
	1 work activities	location
204	Setup time / 1 work activity	This includes setting safety cones, getting
		required tools
205	Terminate to NID	The Installation Technician mounts the
		Network Interface Device and connects
201		the required wires
206	Conduct dial tone continuity test	After the NID is mounted the installation
207	Teer Down Set Up / 1 work	This function is performed by the
207	rear Down Set Up / 1 work	Installation Technician and entails
	activities	replacing tools, and collecting safety
		cones
208	Close Order	WFA/DO notifies SOP of completion
200		SOP notifies SOAC of completion
		our nomice some of completion

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209	Fall Out: RMAs cleared	Some orders are cleared by PAWS while
	automatically by PAWS	others require RMA
210	Fall Out: Pull and analyze order	LAC analyzes the order and makes
		corrections
211	Fall Out: Clear Jeopardy	LAC updates LFACS
212	Pull and analyze order	Installation Technician prints and analyzes
		the order
213	Travel time to customer premises /	This includes the time to travel to the NID
	4 work activities	
214	Disconnect cross connect from	This activity includes disconnecting the
	NID	connections at the NID
215	Close Order	WFA/DO notifies SOP of completion,
		SOP notifies SOAC of completion
216	SMART CROSS CONNECT AT	This Cross Connect is done at the
	THE NID (SUB-LOOP	customer premise Network Interface
	UNBUNDLING)	Device
217	Pull and analyze order	Installation Technician prints and analyzes
		the order
218	Travel time to customer premises /	This is the time to travel to the customers
	4 work activities	location
219	Card plug in	Install plug-in card
220	Install wiring to NID (J-Mounting	Place appropriate wiring and perform the
	Shelf including RJ-48 jack exists)	Cross Connect function
221	Conduct continuity and card loop	This test is performed to ensure that the
	back test	new plug-in card performs as required
222	Close Order	WFA/DO notifies Design Center which
		completes in TIRKS, TIRKS then notifies
		SOAC which notifies SOP of completion
223	Fall Out: Pull and analyze order	CPC analyzes the order and makes
		CDC
224	Fall Out: Manual design process	CPC performs design functions
225	Pull and analyze order	Installation Technician prints and analyzes
226	T 1 dimensional de la constance de la constan	This is the time to travel to the sustances
226	1 ravel time to customer premises /	location
227	4 work activities	Technician disconnects wiring
227	NID	rechineran disconnects wirting
228	Close Order	WFA/DO notifies Design Center which
		completes in TIRKS, TIRKS then updates
		SOAC which notifies SOP of completion
229	DS3 INTEROFFICE	
	TRANSPORT (BAND WIDTH)	
230	Pull and analyze order	Technician in the CO prints and analyzes
		the order

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231	Travel time to the central office	When a CO is not staffed a technician
	(non-staffed) minutes / 4 work	must be dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
		same CO)
232	Install card for DCS	Install plug-in card
233	Install card for SONET MUX	Install plug-in card
234	Electronic Cross Connect on DCS	CPU time at the DCS
235	Electronic Cross Connect on SONET MUX	CPU time at the MUX
236	Performance Monitoring Testing	This function includes setting up for the
		test and all associated criteria, monitoring
		the test
237	Retrieve and analyze performance	The function includes setting up the PM
	monitoring data	testing capability and routing to the PM
		center
238	Intrusive Test (ITS)	This a 15 minute, 30 minute, or 1 hour test
		and monitoring
239	CPU time for registers	
240	Close Order	WFA/DI notifies WFA/C and sends
		completion to TIRKS which updates
		SOAC and sends SOP completion notice
241	Fall Out: Pull and analyze order	CPC analyzes the order and makes
		corrections
242	Fall Out: Resolve Fallout	CPC perform design function
243	Pull and analyze order	Technician in the CO prints and analyzes
		the order
244	Travel time to non-staffed office /	When a CO is not staffed a technician
	4 work activities	must be dispatched to the CO (assumes the
		technician will perform 4 functions at the
		same CO)
245	Remove the card	Remove the plug-in
246	Close Order	WFA/DI notifies WFA/C and sends
		completion to TIRKS which updates
		SOAC and sends SOP completion notice
247	DS1 INTEROFFICE	
- 210	TRANSPORT	
248	Pull and analyze order	the order
240	Travel time to the control office	When a CO is not staffed a technician is
249	(non staffed) minutes / 4 work	dispatched to the CO (assumes the
	activities	technician will perform 4 functions at the
	activities	same (O)
250	Install card for DCS	Install plug-in card
250	Install card for SONET MIX	Install plug-in card
251		mount Prob m out

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	(high speed - OC48 to STS1)	
252	Install plug in for low speed DS1	Install plug-in card
	(low speed STS1 to DS1)	
253	Electronic cross connect on DCS	CPU time at the DCS
254	Electronic cross connect on low	CPU time at the DS1 cross connect
	speed DS1 (low speed DS1)	
255	Conduct continuity test - quasi	Keep alive signal applied to prevent
	random signaling source (QRSS)	alarms from activating
	from ITS/DTAU	
256	Performance Monitoring Testing	The function includes setting up the PM
		testing capability and routing to the PM
		center
257	Retrieve and analyze performance	This function includes setting up for the
	monitoring data	test and all associated criteria monitoring
		the test
258	Conduct SS7 test	Overall continuity test
259	Intrusive Test (ITS)	This a 15 minute, 30 minute, or 1 hour test
		and monitoring
260	CPU time for registers	
261	Close order	WFA/DI notifies WFA/C and sends
		completion to TIRKS which updates
		SOAC and sends SOP completion notice
262	Fall Out: Pull and analyze order	CPC analyzes the order and makes
		corrections and notifies installation
2.02		technician
263	Fall Out: Resolve Fallout	CPC updates TIRKS minimal RMAs
264	Pull and analyze order	Technician in the CO prints and analyzes
265	T li han to the first of the fi	the order
265	I ravel time to non-staffed office /	when a CO is not started a technician is
	4 WORK activities	displicited to the CO (assumes the
		same (Q)
266	Remove the card	Remove plug-in from equipment bay
200	Close Order	WEA/DI notifies WEA/C and sends
207	Close Order	completion to TIRKS which undates
		SOAC and sends SOP completion notice
268	Intra-Building Travel	
269	Travel time with in the staffed CO	NTEC technicians go from frame to frame
	/ 4 work activities	which are located on different floors of the
		same building
270	Travel time with in the staffed CO	FMAC technicians go from frame to
	/ 4 work activities	frame which are located on different floors
		of the same building
271	SS7 STP global title translations	

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272	Receive work request	LSR is transmitted to the ILEC (pre order
		completed if required)
273	Analyze request	CPC analyzes LSR for completeness
274	Build request into WFA	Populate appropriate WFA fields
275	Pull and analyze order	SSC coordinates the orders
276	Services - GTT translations (input	Input GTT into SEAS
	into SEAS)	
277	close order	WFA/DI notifies WFA/C and sends
		completion to TIRKS which updates
		SOAC and sends SOP completion notice
278	Fallout: Pull and analyze order	CPC analyzes the order
279	Fallout: Resolve Fallout	CPC updates TIRKS minimal RMAs
280	SS7 STP message transfer part	
281	Receive work request	LSR is transmitted to the ILEC
282	Analyze request	SSC analyzes LSR for completeness
283	Build request into WFA	Populate appropriate WFA fields
284	Pull and analyze order	SSC coordinates the orders
285	Create and input screening table	Establish STP screening tables as related
		to A LINK point code
286	MTP point code to link set	Build MTP to point code to link set
	translations	translation at ILEC STP
287	Establish link set	MRVT test which checks MTP to link set
		functionality
288	close order	WFA/DI notifies WFA/C and sends
		completion to TIRKS which updates
		SOAC and sends SOP completion notice
289	Fallout: Pull and analyze order	CPC analyzes the order
290	Fallout: Resolve Fallout	SSC updates TIRKS minimal RMAs

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

1500		6. Arger	1.0	3	4	5	6	7	8	9	10	11
165		① >/1:	38	1.1	- 199 - L				<i>2</i>			
83		1	POTS/	00701	- 19 <u>0</u>	DOTO		a			1	
原稿		POIS	ISUN BRI -	PUISI	BOTE	PUISI	PUIS/	Gran an	1 S.		2 Wire Cross	
1D		ISUN DRU-	TINE-	Niemilon	ISDN PDI	ISUN BRI-	ISUN DRI-	4 YVE -	A VALUE A LAND	F	Connect at the	2 Wire Cross
No.	Process Flow (ACAVI	TSR	Platform	LINE - LOOD	Install - TSR	- Platform	-1000	LINE . Loop	+ WHE - INSCAL	Chapter	FDI-	Connect at the
	C) EC customer contact	X	X	X	X	X	X	X	X	X	Y	Y
2	CLEC requests customer address data, CSR, and appointment from ILEC									n n	Ŷ	Â
3	ILEC gateway requests address data from Administrative Information System and	x	x	x	X	×	x	x	x	x	x	×
4	ILEC gateway formats and returns address, CSR, and appointment data to CILC		1		x	×	x	x	x	x	X	x
5	CLEC customer service representative inputs LSR information into LOS	X	X	X	X	X	X	x	x	X	X	×
6	ILEC galeway receives, validates and logs 1 SR, returns FOC, and passes 1 SR to	x	х	×	×	x	x	x	x	×	x	x
7	CLEC gateway sends I SR to EXACT									1	ł	
8	ILEC SOG retrieves CSR data, formats and passes to SOP	X	X	×			-	x	X	X	X	X
9	EXACT and TUF sends request to SOP				L L							
10	SOP sends request to SOAC	÷	Ċ.	÷.	÷ ÷	÷	l Č l	x	X	X	X	x
11	SOAC analyzes order, generates assignment requests for OSP, COF, TOP, etc.		<u>^</u>	^	1 ^	^	· ·	X	X	x	x	x
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc	1		×	×	×		Y				
B	LEACS makes OSP assignments, e.g., capie and pair	}	ł	<u>^</u>	L î	^		^	^		X	x
14	LFACS makes OSP spare and available for reassignments, e.g. cable and part	1		×	x	x	x	¥	×		1 1	
15	COE and EICT assignments are made							^	Ŷ		1	
10	COLO IN ELCT SPECE AND EVALUATE FOR COSSIGNMENTS ARE INSEE	X	×	×	×	×	×	¥		v		
17	SUAC receives LOE, USP, IDF, elc	Ŷ	î	^		^		^	^	^	· ·	X
18	SOAC receives COE and IOF and	1							[]		1 1	
19	COSMOS / SWITCH assigns OI: 1.0			1	1	}	} 1		l i		1 1	
20	COSMOS / SWITCH removes OF / LU	1	[1		[]					
21	SWITCH assigns IDT port				1	1						
22	SWITCH assigns call reference values (('RV))	1					1				1 1	
23	SWITCH deletes call reference values ((KV)	[1			{ 1					
24	SOAC delivers recent change translation information	×	x	×	×	×				x	x	
25	SOAC delivers recent change disconnect information	1					í I					
26	MARCH updates LDS	X	×	×	X	x				x	X	
27	SOAC delivers equipment and facility information to NSDB			×	X	x	X				1 1	
28	NSBD downloads assignments to OPS/INE		1	×	×) X	×					
29	OPSANE delivers Cross Connect and equipment provisioning message to INE			×	X	X	×					
30	OPSANE delivers Cross Connect and equipment disconnect message to INE	1			l.	1					1 1	
31	OPS/INE updates WFA/C		ţ.	1 .								
32	WFA/C updates NSDB		v	÷.	÷ ÷	÷	÷ i	~				
33	SOAC updates SOP	÷ .	1 0	Î Î	Û Û	÷ ÷	Ŷ	Ŷ	÷	÷	x	x
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc	^	î î	Ŷ	<u>^</u>	^		^	^	^	~	X
35	SOP updates WFA, NSDB, and CABS	1		£.			1			1		
30	FIRMS accurate accurate and facility becoming its	1			1			x	x			
37	TIRK'S provides equipment and facting assignments	1	1	1			1	x	x			
20	CPULtime for NMA for PM data from test	1		1	1	1		2,22				
40	SOP completes LSR	x	x	×	×	х	x	x	x	x	x	x
41	ILEC gateway notifies CLEC of completed under	x	х	x	x	x	x	x	x	x	x	x
42	ILEC billing system issues final bill to migrating customer	X	x	x				х			X	
43	TSR, UNE-PLATFORM, & CHANGES					1. Sec. 4.						
44	Fall Out RMAs forwarded to PAWS for recommission	x	x	1	×	x	1			x	1	
45	Fall Out Pull and analyze order	x	x		×	x				x		
46	Fall Out Clear jeopardy	×	×		X	x				X		
47	2-WIRE LOOP	1	1			1						
48	Copper				1				1			
49	Pull and analyze order (copper)	1	1	X	1				1	Į.	t t	

ATTACHMENT C

in also	NOT THE REAL PROPERTY OF THE R	S STATES	1	11.14	15	16	17	18,000	19	20	21	22	23
10		4 Wire Cross Connect at the	4 Wine Cross Connect et	Cross Conhect 2	Chennelized DS1 Virtual Energies to	DS1	DS3	POTS / ISON BRI - Disconnect - TSR / LINE -	POTS / ISDN BRI-	4 -Wire	2 Wire Cross Connect	4 Wire Cross Connect	Channelized DS1Virtual Feeder to
and the second		Migration	Install	NID - Install	RT - Install	Transport	Transport	Platform	UNE LOOO	UNE Looo	at the FDI	at the FDi	RI
1	CLEC customer contact	X	X	X	1			X	X	X	X	X	Cripciola Port
2	CLEC requests customer address data, CSR, and appointment from ILEC			5. C									
3	ILEC gateway requests address data from Administrative Information System and	1 X	x	x				X	x	X	x	x	1
4	ILEC gateway formats and returns address, CSR, and appointment data to CLEC	X	х	X	1				X	X	x	x	
5	CLEC customer service representative inputs LSR information into LOS	X	x	×	x	X	X	X	X	X	X	X	x
6	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to	X	×	X	X	×	X	x	X	×	x	×	x
7	CLEC galeway sends LSR to EXACT				x	x	X						1
B	ILEC SOG retrieves CSR data, formats and passes to SOP	X	x	X				X					
9	EXACT and TUF sends request to SOP		~		×	×	X			1	1		
10	SOP sends request to SOAC	ŝ	Ŷ	Û Û	÷.	÷	Ŷ		X	X	x	X	x
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc	· ·	^	· ·	^	^	^	^		X	X	x	×
12	SOAC analyzes order, generates assignment requests for COE and TOP, etc.	Y Y	×	1	×		1			1			1
13	LEACS makes OSP assignments, e.g., cable and pair	î î			~		1	x	×	x	¥	v	~
14	COE and EICT assignments are made	1	1		x						Ŷ	Ŷ	^
16	COE and EICT space and available for reassignments are made	1							x	x			x
17	SOAC receives COE OSP IDE etc	x	X		X	x	X	1	x	x	x	x	¥
19	SOAC receiver COE and IOF all		1							1			î
18	COCHOE (SWITCH assists OF (11)			1	1			1					
19				1				1					
20	COSMOS/SWITCH removes DE/TO	1		[1						
21	SWITCH assigns ID1 port			1			1						
22	SWITCH assigns call reference values (CRV)			1				[1			
23	SWITCH detetes call reference values (CRV)	1		t.			1						
24	SOAC delivers recent change translation information	1		1		1	1	×					
25	SOAC delivers recent change disconnect intomation	1	(1		[-			j		
20	MARCH updates LDS			}	×	×	x	1	x	x			~
27	SCAC derivers equipment and factory information to respect	1		1	x	x	X		X	x			Ŷ
20	OPS/INE delivers Cross Connect and enumeral provisioning message to INE			1	x	x	x				1		^
30	OPS/INE delivers Cross Connect and equipment disconnect message to INF			1			1	1	X	x	1		x
31	OPS/INE updates WFA/C			1	x	x	x	[x	x	1	1	x
32	WFA/C updates NSDB				X	×	×		x	×			x
33	SOAC updates SOP	x	x	x	X	x	X	X	X	×	x	x	x
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc.	X	x	×	X			×	X	×	x	×	x
35	SOP updates WFA, NSDB, and CABS					Ç.	, Ç	1					
36	PICS sends plug-in assignments to TIRKS			1	×	Ŷ	Î Î	×		× I	1		
37	TIRKS provides equipment and facility assignments	Ŷ	Ŷ	1	Ŷ	x	x			Ŷ	1	Ŷ I	x
38	TIRKS updates SOAC	<u></u>		1	x	x	x	1 1		<u>^</u>	1	^	
39	CPU time for NMA for PM data from test	×	x	x	x	x	X	x	x	x	x	x	¥
40	ILEC asternay polities CLEC of completed under	×	x	x	x	x	X	x	x	x	x	x	x
42	ILEC billing system issues final bill to migrating customer	x		X									
43	TSR, UNE-PLATFORM, & CHANGES				1			1.0000					
44	Fall Out RMAs forwarded to PAWS for reconciliation						1	X			1	1	
45	Fall Out Pull and analyze order							0				1	
46	Fall Out Clear jeopardy		1	1				<u>^</u>			1		
47	2-WIRE LOOP												
48	Copper	1					}						
49	Pull and analyze order (sopper)	1	3	1	3 8		•	. 1			1	1	

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11.0	THE PROPERTY AND AND ADDRESS OF A DESCRIPTION OF A	24	25	26	27	28	29	30	31	1. 32	23	1 14 1	16	1
ID No	Process Flow / Activity	2 wire Loop, different CO	2 wire Loop. different CO	4 wire Loop, different CO	4 wire Loop, different CO	DS1 Loop to Customer Premise -	DS1 Loop to Customer Premise -	Line Port (DS0, Analog, ISLU) -	Channelized DS1 line port (TR- 303-IDT) -	2 wire Loop, different CO	4 wire Loop, different CO	DS1 Loop to Customer Premise -	Line Port (DSO, Analog, ISLU) -	30 Channelized DS1 line port (TR- 303-IDT) -
E.C.		- Migration	12 - Install	- Migration	- Install	Migration	Install	Install	Install	- disconnect	- disconnect	disconnect	Disconnect	Disconnect
1	CLEC customer contact	X	X	X	X	х	X	X	and the second se	X	X	X	X	
2	CLEC requests customer address data, CSR, and appointment from II EC		~								1	1 1		
3	ILEC gateway requests address data from Administrative Information System and	1 0	Û,	Ŷ	÷	, č	Č.	x	1	X	x	×	x	
4	II.F.C gateway formats and returns address CSR, and appointment data to CLFC			÷ ÷		+		<u>^</u>		X	X	X	X	
2	CLEC customer service representative inputs LSR information into LOS	Ŷ	Ŷ	Ŷ	Û Û	Ŷ	\$	Ŷ	×	X	X	X	x	x
2	CLEC gateway receives, variantes and logs LSR, returns roce, and passes LSR in	^	â	<u>^</u>	<u>^</u>	^	-	2	Ŷ	· ·		×	X	X
	ILEC Soft retrieves CSR data formats and passes to SOP	X	x	×	x	X	x		1 ^	×				X
9	EXACT and THE sends request to SOP	1				1			×	^				
10	SOP sends request to SOAC	X	x	X	x	×	x	×	X	x	x	Y	~	, č
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc.	X	x	X	x	X	x			x	x	Ŷ	^	^
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc.			Į	1	1		x	x		n n		Y	
13	LFACS makes OSP assignments, e.g., cable and pair	X	x	x	x	1	}						^	^
14	LEACS makes OSP spare and available for reassignments, e.g., cable and pair)	1						x	x]
15	COE and EICT assignments are made	x	X	X	×	×	x	x						
16	COE and EICT spare and available for reassignments are made			1	1	1	}		1	x	x	x	x	
17	SOAC receives COE, OSP, IOF, etc.	x	×	x	x	×	x		1	x	x	x		l .
18	SOAC receives COE and IOF etc	1	1	1	1	1		x	1				Y	1
10	COSMOS / SWITCH ANSWIN OF / 11	1		1	1		1	x	1	}			•	
20	COSMOS / SWITCH removes OF / 111	1										1	~	
20	SWITCH annous IDT and	1		1	ł									
21	Switch assigns to t port	ł				1			× 1					x
22	Switch assigns can reference values (CRV)	1	1	1	1				Ŷ					
23	SWITCH deletes call reference values (FRV)			1	1			Y	f i			1		x
24	SOAC delivers recent change transfation information	1		1				^	1			ł	x	
22	MARCH underer LDS	1	1	1		1		x					~	
20	SOAC delivers environment and facility information to NSDB	1	1		1			x	x		1	1	Ŷ I	~
28	NSBD dowaloads assumments to OPS/INF	1	I.			1						1	^	~
29	OPS/INE delivers Cross Connect and equipment provisioning message to INE						1 1		1 1				1	
30	OPS/INE delivers Cross Connect and equipment disconnect message to INI:					1			ł					
31	OPS/INE updates WFA/C	1									1	1		
12	WEA/C updates NSDI					1			×		1	ł		x
33	SOAC updates SOP	X	X	X	X	X	X	x	X	x	x	×	X	x
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc.	×	×	×	×	X	X	x	×	×	x	×	X	x
35	SOP updates WFA, NSDB, and CABS	1	1		ł						}		1	
36	PICS sends plug-in assignments to TIRKS	Y	×	L V	×	× 1	Y		×	×	~		1	
37	LIRKS provides equipment and facility assignments	Ŷ	Ŷ	Ŷ	Ŷ	Ŷ	Ŷ		Ŷ	Ŷ I	÷ 1	× I		×
38	COLLEGE CONTRACTOR DATA AND A CONTRACTOR A		101		~				Ŷ	^	^ (x
.19	SOP completed LSR	X	X	x	x	x	x	x	x	x	x	x	× 1	Č.
40	I FC external polities (1 FC of completed order	x	x	x	x	x	x	x	x	x	x	Ŷ	Ŷ	×,
42	ILEC billing system issues final bill to migrating sustainer	X		X		X			100					^
43	TSR, UNE-PLATFORM, & CHANGES										1.0.0			
44	Fall Out RMAs forwarded to PAWS for reconciliation							x			1		x	
45	Fall Out Pull and analyze order	1			1			x				}	X	
46	Fall Out Clear jeopardy							x					x	
47	2-WIRE LOOP											{		
48	Copper											{		
49	Pull and analyze order (copper)	1	1	1		1 1		x		1	1	1	1	

Estim	HARRING MERINE SHE WARRANG IT IS	37	38	39	40	41	42	43	44	45	46
12-8		1855			1.30		2	12-		- 51.5	
-1-2		· Antai			5.78	-1. 16.16		007.070	007.070		
1.0		Elber Cross	Elhar Coner	SST Links	SSTINK	SCT Links	CC7 Links	SS/ SIP	SS/ SIP	SS/SIP	SS/STP
UU -		Connecteurs	Connects -	ALD DSOL	ARD DSOL	ALD DS1)	ARD OSI)	translatione	massage	giobal translations	message
No.	Process Flow / ACEVICY	Install	Disconnect	Install	Disconnect	install	Disconnect	Install	- install	Disconnect	Disconnect
1	CI.EC customer contact			x	X						
2	CLEC requests customer address data, CSR, and appointment from ILEC								{	ļ	
3	ILEC galeway requests address data from Administrative Information System and			×	×						
4	ILEC gateway formats and returns address, CSR, and appointment data to CLEC			X	×						
5	CLEC customer service representative inputs I.SR information into LOS	×	X	×	×	X	X				
6	ILEC gateway receives, validates and loga LSR, returns FOC, and passes LSR to	×	X	X	×	×	X		ł	1	1
7	CLEC gateway sends LSR to EXACT	×	×	1.00	1.00	X	×				1
8	ILEC SOG retrieves CSR data, formats and passes to SOP			Х	X	1-0-3					
9	EXACT and TUF sends request to SOP					X	X				
10	SOP sends request to SOAC	×	×	X	×	X	X		1		
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc) X	X	X	×	x	X	ļ	1		
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc			}	}			Í I	1		
13	LFACS makes OSP assignments, e.g., cable and pau				ł	{		1	1		
14	LFACS makes OSP spare and available for reassignments, e.g., cable and pair	1	1			1		1			
15	COE and EICT assignments are made	}	1	· ·	· ^	1		1	1		
16	COE and EICT spare and available for reassignments are made				1						
17	SOAC receives COE, OSP, IOF, etc.	X	×	x	X	×	X		1		
18	SOAC receives COE and IOF, etc	}	1	1		1					
19	COSMOS / SWITCH assigns OE / LU		1			1				i i	
20	COSMOS / SWITCH removes OL: 110	1			1	1		1	1		
21	SWITCH assigns IDT port		1	1	1	4					
22	SWITCH assigns call reference values (('RV)	1	1	1	1			}	1	1	
22	SWITCH deleter call reference values ((BV)	i	}		1	}	1				
23	SOAC delivers recent change translate to information	1	1	1	4	1					
25	SOAC delivers recent change disconnect information		1		1	ł		1			
26	MARCH updates LDS	1	1	1	ł	1					
27	SOAC delivers equipment and facility information to NSDB		1	1		X	x				
28	NSBD downloads assignments to OPSINE	1	1		{	X	X	1			
29	OPS/INE delivers Cross Connect and equipment provisioning message to INF.		1		1	X	x				
30	OPS/INE delivers Cross Connect and equipment disconnect message to INF	1	ł		1		1				
31	OPS/INE updates WFA/C	1	1	1	1	×	x			1	
32	WFA/C updates NSDB	2224	1			X	X				
33	SOAC updates SOP	X	X	x	X	x	×				
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc.	x	×	×	×					1	
35	SOP updates WFA, NSDB, and CABS					Č	2			1	
36	PICS sends plug-in assignments to TIRKS					÷	÷ i				
37	TIRKS provides equipment and facility assignments	÷ .	Q	÷ 0	Û Û	Ç I	Ç I				
38	firk's updates SOAC	Â	1 ^	<u>^</u>		x					
39	CPU time for NMA for PM data from test	×	X	×	×	x	x				
40	SUP completes LSR	x	×	x	x	x	x	1		1	
41	ILEC billing system issues final bill to migrating customer			1011							
43	TSR . UNE-PLATFORM, & CHANGES										
44	Fall Out RMAs forwarded to PAWS for recommission		1						}	}	
45	Fall Out Pull and analyze order			1					1		
46	Fall Out Clear jeopardy								1		
47	2-WIRE LOOP			ł							
48	Copper		1	[1		
49	Pull and analyze order (copper)	1	1	1	1	1	{		1	1	

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

RAR	There are a second the second s	(in Line	20.201	5 B	die -	5	6	7	8	9	10	11
C.A.		振り思	POTS /	8			25				1.1	
SCY		POTS/	ISON BRI -	POTS /	11944	POTS /	POTS/	A. Star	1 10		2 Wire Cross	19-08-0700 - 300
D.		ISDN BRI -	Migration -	ISDN BRI -	POTS /	ISDN BRI-	ISDN BRI -	4 Wire -	259		Connect at the	2 Wire Cross
Ho.	Process Flow / Activity	Migration -	Platform	UNE - Loop	Install - TSR	- Platform	+ Loop	UNE - Loop	+ UNE - Loop	Changes	FUI - Migration	FDI - Install
50	Pull and analyze order (copper)				X	X						
51	Travel time to the central office (non-staffed) minutes / 4 work activities		(×		1	×		1		1	
52	Travel time to the central office (non-staffed) minutes / 4 work activities				×	×					1	
53	Conduct continuity test (check dial tone and ANI)		1	X		1						
54	Install cross connect from MDF to terminal bloch in opper)			×	1		x					E .
55	Install cross connect from MDF to terminal block (copper)			Ű								
56	Conduct continuity test (check dial tone and ANI)		t	0			Ŷ		1			
57	Close order			-	×	×						
58	Close order		1	1	x	x						
59	ILEC MLT test and or ISTF test		1	1			x					
60	CLEC MLT test and or ISTF test			x	1	1	x		1		1	
61	Fall Out RMAS forwarded to FAWS for reconciliation		1	x	1	1	x					
62	Fall Out Clear jeonardy			x			X					
64	Pull and analyze order (cooper)				[1			1 1		1	
65	Travel time to the central office (non-staffed) minutes / 4 work activities	ţ	1			1					1	
66	Disconnect cross connect from MDF (Copper)				1	1	}				ł	
67	Close order	1				1	1		1 1		}	
68	1DLC (GR-303)	ł	{			1						
69	Install DSO TSI at RT (CPU time)	1	1	×	f	1	X		X		ł	
70	Disconnect DSO TSI at RT (CPU Time)		ł	1		1	1		1			
71	CHANNELIZED DSI CAPACITY FOR THE VRT (TR-303)	ſ	1									
72	Pull and analyze order		}	1	1	1	1					
73	Travel time to the central office (non-statted) minutes / 4 work activities		{	1	ł	1	1				1	
74	Insult IDT line port card	1	1	1	ł	1						
75	Install DSX cross connect (5 Wire)		1	ł	ĺ				1			
76	Perform quasi random signalling source (QRSS) lest via remote 113 * 121 AO	1	1	}	ł	1						
77	COLUME AND SOMET MUX (DS1)		1	1	1	1	1					
78	CPU time at BT (DS1 TS1)		1	1		1	1					
80	Conduct continuity test - quast random signaling source (QRSS) from ITS/DTAU	i	ł	1	i i	ł	}					
81	Close Order	1		1	1	1	1					
82	Fall Out. Pull and analyze order		1	1	}	1	1					
83	Fall Out Resolve Fallout	1	1	t		1	1 1		1 1			
84	Pull and analyze order	1	1	1	[1	1		1 1			
85	Travel time to the central office (non-staffed) minutes / 4 work activities				1		1		1 1			
86	CPU Time at SONET MUX (UST)		1	1		1						
8/	CPU Time at KT (DST 131)	}			ļ	1					1	
88	Close Order		1	1	ł	1	1		1 1		1 1	
90	FIBER CROSS CONNECTS		1	ł		1	1				1	
91	Pull and analyze order (FMAC)		1	1	1	1	1		{ }		}	
92	Travel time to the central office	1	1	1	1	1			1		1	
93	Install 2 Pigtails (2 minutes x 2 Pigtails)				ł	1	1		1 [1	
94	Remove 2 Pigtails (2 minutes x 2 Pigtails)	1	ł			1	1					
95	OTDR (Optical Time Domain Reflecometer) testing using Fiber Check 5000 type	system	1		1	1	1		1 1		1	
96	Close order		1			1			1			
97	2 - WIRE CROSS CONNECT AT THE FD1 (SUB-LOOP UNBUNDLING)		1		ł	1			1		x	X
98	Pull and analyze order				1		1		1		x	x
99	Travel time to FDI / 2 work activities		1		1	1	1				x	x
100	Setup time / 2 work activities	1	<u>1</u>			0.			s - 5			

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SERVICE ORDER PROCESS / NON-RECURRING

and the	Contraction of the second s	12	13	14	15	16	17	18	19	20	21	22	23
130.05			12 出现。	2015			1	이번 같이	11	Se 187		344	1
1337		31	4 Wire	See .		1940 C		POTS/			2 Wire	4 Whe	Channelized
現代法		4 Wire Cross	Cross	Cross	Channelized	152.0		ISDN BRI -	POTS/		Cross	Cross	D\$1Virtual
ID 2		Connect at the	Connect at	Connect 2	DS1 Virtual	D\$1	DS3	Disconnect -	ISDN BRI-	4 -Wire	Connect	Connect	Feeder to
No.	Process Flow / Activity	FDI -	the FDI -	wire, 6 line	Feeder to	Interoffice	Interoffice	TSR / UNE -	Disconnect -	Disconnect -	Disconnect	Disconnect	RT-
1.530		Migration	install	NID - Install	RT - Install	Transport	Transport	Platform	UNE Loop	UNE Loop	at the FDI	at the FDI	Disconnect
50	Pull and analyze order (copper)							-					
51	Travel time to the central office (non-staffed) numates / 4 work activities						1						
52	Travel time to the central office (non-stalled) minutes / 4 work activities								1			ł	
53	Conduct continuity test (check dial tone and ANI)			[1		1		1	}
54	Install cross connect from MDF to tertional block (copper)								1			(
55	Install cross connect from MDF to terminal block to opper))							1	1	1
56	Conduct continuity test (check dial tone and ANI)							1		1	1		(
57	Close order							1		1	1		
58	Close order						1	1					
59	ILEC MLT test and or ISTF test									1			
60	CLEC MLT test and or ISFF test			ł				1		1	{		
61	Fall Out RMAs forwarded to PAWS for reconciliation			1	ſ	2	1	1	X	1			
62	Fail Out Pull and analyze order (copper)						1		X	1			
63	Fall Out Clear jeopardy				1			1	X	1	1		
64	Pull and analyze order (copper)							1	X	1			1
65	Travel time to the central office (non-staffed) minutes / 4 work activities			1			[ł	X	1			1
66	Disconnect cross connect from MDF (Copper)			ſ		•	1	1	÷	f			
67	Close order					1			^ ·			1	ļ
68	IDLC (GR-303)						1	1				[
69	Install DSO TSI at RT (CPU time)			i .			1	1	×	1	1	Į	1
70	Disconnect DSO TSI at R1 (CPU Time)			[<u>^</u>	1		}	
71	CHANNELIZED DSI CAPACITY FOR THE VRT (TR-303)			ļ	x		1			1		1	
12	Pull and analyze order)	Ŷ		ł				1	(1
75	Invertime to the central office (non-starred) minutes / 4 work at invites				<u>^</u>		1	1			1		
74	Install DSY cross connect (S Wite)			1	x			1			1	1	
76	Perform quasi random signalling source (ORSS) test via remote [15 - DTAU			ļ				1		1		1	
70	Disconnect DSX cross connect (S Wite)						1	1	1	1	1		
78	CPU time at SONET MUX (DS1)				X					1	1		
79	CPU time at RT (DSI TSI)			Į	X			1			1	}	
80	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU				X		1	Í.	(1	1	1	
81	Close Order			j .	X		1			1		([
82	Fall Out Pull and analyze order	1		1	X				}	ť.	1	ĺ	1
83	Fall Out Resolve Fallout				X					1			×
84	Pull and analyze order			[1	1	1	[Ŷ
85	Travel time to the central office (non-staffed) minutes / 4 work activities			1							1	}	x
86	CPU Time at SONET MUX (DS1)							1			1	}	Ŷ
87	CPU Time at RT (DS1 TSI)				1 1		1			1	1	}	Ŷ
88	Disconnect DSX Cross Connect (5 Wile)				1			1	1	1			Ŷ
89	Close Order			ŕ			1	1	1	1		1	~
90	FIBER CROSS CONNECTS						[ļ		[}	1
91	Pull and analyze order (FMAC)						1	1		1	}		
92	I ravel time to the central office						ļ	1		1			1
93	Install 2 Pigdats (2 minutes x 2 Pigdats)				1			1					1
94	CODB (Charles L'Une Domaio Reflectionale) testino anna hiber (check form) fune	\$							1				
95	Close order						1	1		1			[
90	2. WIDE CROSS CONNECT AT THE RDL ISURI OOP UNBUNDLING.									1			
97	Pull and analyze order							1	[ļ		
90	Travel time to FDI / 2 work activities						1						
100	Setun time / 2 work activities)		1]		

SERVICE ORDER PROCESS / NON-RECURRING

15		24	25	26	27	28	29	30	31	32	33	34	35	36
13217			R. Santa	Sher	the life of		5.01	Line Port	Channelizad	1.20	1 1		Line Port	Channellred
1975	A STREET AND A STR	ALC: NOT	1.1	使门。	E	DS1 Loop to	DSt Loop to	(DSO	DS1 line		1	DS1 Loop In	(DSO	DStine
100		2 wire Loop	2 wire Loop	4 wire Loop.	4 wire Loop.	Customer	Customer	Analoo.	port (TR-	2 wire 1 000	4 wire 1.000.	Customer	Analog	port (TR-
No.	Process Flow / Activity	different CO	different CO	different CO	different CO	Premise -	Premise -	ISLU) -	303-IDT) -	different CO	different CO	Premise -	ISLU) -	303-HDT) -
and the second		- Migration	- Install	- Migration	- Install	Migration	Install	Install	install	- disconnect	- disconnect	disconnect	Disconnect	Disconnect
50	Pull and analyze order (copper)									1			X	
51	Travel time to the central office (non-staffed) minutes / 4 work activities			1				x	1				X	
52	Travel time to the central office (non-staffed) minutes / 4 work activities				1	1			1	1				
53	Conduct continuity test (check dial tone and ANI)			1		})	1		t		ł
54	Install cross connect from MDF to terminal block (copper)		1	i i	1	ſ	} 1	×	1			1	1	
55	Install cross connect from MDF to terminal block (copper)]			1		ļ	1		1		
56	Conduct continuity test (check dial tone and ANT)	1	l	1	1		1 1			1				
57	Close order		1	1	•			^	1	1	ł			
50	t lose order	1	1				t	x	1	1		1	ł	
60	CLEC MI Tiest and or ISTE less				{	1						[1	
61	Fall Out BMAs forwarded to PAWS for recent diston			[1		()		(1	}		
62	Fall Out Pull and analyze order (copper)			}	-	1	1 1	1	1	1	1			
63	Fall Out Clear reopardy						1			1	1	[1	
64	Pull and analyze order (copper)			1	ł		1		ť			1		
65	Travel time to the central office (non-staffed) minutes / 4 work activities				[1			1]	1		
66	Disconnect cross connect from MDF (Copper)	1					1	1	1	1		1	X	ł
67	Close order				1)	1			×	[
68	IDLC (GR-303)		t	ţ								1	}	ł
69	Install DSO TSI at RT (CPU time)	[ĺ		1	1	1	ſ				1	1	[
70	Disconnect DSO TSI at RT (CPU Time)			1		}			1			[
71	CHANNELIZED DSI CAPACITY FOR THE VRT (TR-303)	1		Į		1) [ĺ		1	1	}		
72	Pull and analyze order	1		1		1			÷					, X
73	Travel time to the central office (non-staffed) minutes / 4 work activities		l	1					÷		1			^
74	Install ID1 line port card	1			1		1		Ŷ		1	ł		
75	Perform owner readom signalling router (ORSS) (set up remote (TS), DFALL					[}		x	1	[ſ		(
70	Disconnect DSX cross connect (5 Wire)		1		}		1			1		}	1	×
78	CPU time at SONET MUX (DS1)	1		}	1	[1				1		1	
79	CPU time at RT (DS1 TSI)			Í		1	1		1	1	}	-		1
80	Conduct continuity test - quasi random signaling source (QRSS) from ITS/D1AU				1	J	1 1				[1	1	
81	Close Order					1	1 1		x	1		1		x
82	Fall Out Pull and analyze order	(ţ	1	1 1		x		ļ			×
83	Fall Out Resolve Fallout			1	1				×	1			1	x
84	Pull and analyze order	ł			1	1	1					1		
85	Travel time to the central office (non-statted) minutes / 4 work activities				1				(1	ł]	1	
80		ł		1	1	1						1		[
89	Disconnect DSX Course Connect (S Wile)									1		[
80	Close Order			1	1		[]				ł			
90	FIBER CROSS CONNECTS	t			1	1			l	1	1		1	
91	Pull and analyze order (FMAC)								1	1				1
92	Travel time to the central office				ł					1		[1	
93	Install 2 Pigtails (2 minutes x 2 Pigtails)				1					1			1	
4)4	Remove 2 Pigtails (2 minutes x 2 Pigtails)						1 1							
95	OTDR (Optical Time Domain Refleconieter) insting using Fiber Check 5000 type	s					1							
96	Close order													
97	2 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)													
48	Pull and analyze order						1			1				
99	Travel time to FDI / 2 work activities													
100	Setup time / 2 work activities	1		1	1	1	1 1		L	1	I	1	1 3	l.

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SERVICE ORDER PROCESS / NON-RECURRING

06.50	CONTRACTOR CONTRACTORS / AND	37	38	. 39	40	41	42	43	44	45	46
用加强		- Mail		1.38	N.K.	1. T.C.	12	hand	7 4	1 23	
10 M		- 1960 F	385 : 200	1	H ~ 신明		3	Server .	1 1 3	P REAL	Maria
	有关的是非常是非常能力。如果在这些的是一个的是我们是不可能的。	ELE AL	14 15 16	14	11.11.11.11	124	Stand	SS7 STP	SS7 STP	SS7 STP	SS7 STP
ID		Fiber Cross	Fiber Cross	SS7 Links	SS7 Links	SS7 Links	SS7 Links	giobal title	massage	global title	message
No.	Process Flow / Activity	Connects -	Connects -	(ALD, DSO)	(A&D, DS0) Disconnect	(A&D, DS1)	(A&D, DS1) Disconnect	Install	- install	Disconnect	Disconnect
50	Pull and analyze order (conper)	and the second state	Active and the second		D TOTAL & FEEL			a de tante de la	110110		
51	Travel time to the central office (non-staffed) minutes / 4 work activities			1							
52	Travel time to the central office (non-staffed) minutes / 4 work as tavities										
53	Conduct continuity test (check dial tone and ANI)			1	1						
54	Install cross connect from MDF to terminal block (copper)		1	[f i					
55	Install cross connect from MDF to terminal block (copper)	1			ł						
56	Conduct continuity test (check dial tone and ANI)			ł							
57	Close order]	t i	ſ						
58	Close order			}		1					
59	ILEC MLT test and or ISTF test		[1		1				
60	CLEC MLT test and or ISTF test)				
61	Fall Out RMAs forwarded to PAWS for reconciliation			1		1					
62	Fall Out Pull and analyze order (copper)	1		}							
63	Fall Out Clear jeopardy				1						
64	Pull and analyze order (copper)	1	}		{	1					
65	fravel time to the central office (non-statled) minutes / 4 work activities			ſ		(i					
66	Disconnect cross connect from MDF (Copper)										
67	Close order				{		1				
60	IDIA. (GR-303)										
70	Disconner (DSO 1 SLAY P.T. (CPU Time)		1			1					
70	CHANNELIZED DSL CAPACITY FOR THE VET (TR-303)		1				1			l. I	
72	Pull and analyze order				1						
73	Travel time to the central office (non-staffed) minutes / 4 work autivities		ļ.	1							
74	Install IDT line port card		}	ł							
75	Install DSX cross connect (5 Wire)		l l	1	1		[
76	Perform quasi random signalling source (QRSS) test via remote HTS - DTAU	1	ſ			1					
77	Disconnect DSX cross connect (5 Wire)			1	1						
78	CPU time at SONFT MUX (DS1)		}								
79	CPU time at RT (DS1 TSI)	1		1		[
80	Conduct continuity test - quasi random signaling source (QRSS) from 115/DTAU		<u>(</u>		1						
81	Close Order				1		1				
82	Fall Out Pull and analyze order			[
83	Fall Out Resolve Fallout		ł.)	1	1					
84	Pull and analyze order		1		1					()	
85	Travel time to the central office (non-staffed) minutes / 4 work activities		1	1	1	1 1					
80			1	ł			1				
8/	Cro Time a RT (DST 131)		}	(1						
80	Class Order										
00	FIRER CROSS CONNECTS		1)	ļ						
91	Pull and analyze order (EMAC)	x	×		ł		t i				
92	Travel time to the central office	x	×								
93	Install 2 Pigtails (2 minutes x 2 Pigtails)	X									
94	Remove 2 Pigtails (2 minutes x 2 Pigtails)		N N								
95	OTDR (Optical Time Domain Reflecometer) testing using Fiber Check SUMI type	s x	1				1				
96	Close order	X	X								
97	2 - WIRE CROSS CONNECT AT THE FDL (SUB-LOOP UNBUNDLING)										
98	Pull and analyze order					1					
99	Travel time to FD1 / 2 work activities										
100	Setup time / 2 work activities				f .	(J I	1 1		I }	

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

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101		ISK M	Platform	UNE - Loop	Install - ISR	- Platform	- Loop	UNE - Loop	- UNE - Loop	Changes	Migration	FDI - Install
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102	Cross Connect (Binding Post)		(1						X	x
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104	Close Order	}	j.	}	1		1				Û Û	÷
105	Fall Out RMAs forwarded to PAWS for astration		1				1			ſ	Ŷ	Ŷ
107	Fall Out Pull and analyze order			1							Ŷ	Ŷ
108	Fall Out Clear reopardy			ſ	1						x	x
109	Pull and analyze order		1			1			1			
110	Travel time to FDI (more than 2 miles) / 2 work activities"			1	1	1	1		1)	
111	Setup time / 2 work activities		1	1	1		1					
112	Conduct continuity test for ILEC	}		Į.	1							
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115	Close Order				1			r i i i i i i i i i i i i i i i i i i i				
116	4 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)				1	}				ļ		
117	Pull and analyze order		1	1	1		1	1				
118	Pull and analyze order	}			1	1			1	[
119	Pull and analyze order (NTEC)	[1				1			
120	Travel Time to FDI / 1 work activities			1								
121	Negotiate customer release			1		1	1		1	ł		
122	Setup time / I work activity		J	1	ł							
123	Cross Connect (Binding Pust)]		1								
124	Tear Down Set Up					1		1		ł		1
125	Travel Time to 4 wire NID				ł	ſ	1			e e e e e e e e e e e e e e e e e e e		
126	Setup Time to 4 wire NID			1	1			1	ł			
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128	Tear Down Sei Up	1		1	1	1		4				
129	Travel time to the central office (non-staffed) minutes / 4 activities	ł	1	1	1	1	1	1	1	ſ		
130	Disconnect SMAS (wire wrap)	t		[1				1			
131	Disconnect cross connect from MDF (Cosilin-like frame, e.g. punch down, 2 four	wire)		1				1				
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121	Close Order				1		1					
134	Close Order (NTEC Contact SSC)			1				}				
136	Fall Out Pull and analyze order			1	1	1			Į –			
137	Fall Out Manual design process			1	1		1				(
138	Pull and analyze order	i]		1							
139	Travel Time to FDI / I work activities				1							
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141	Disconnect existing Cross Connect (Binding Post)		1		1	1			1			
142	Tear Down Set Up / I work activities		1	1	}	1				1		
143	Close Order		1				1	-			í l	
144	4 - WIRE LOOP - And other Designed Services			1		1						
145	Pull and analyze order (SSC)		ļ					x	x			
146	Pull and analyze order (NTEC)			t				x	x		[
147	Pull and analyze order (FMAC)		}	1	1	1						
148	Travel time to the central office (non-staffed) minutes (4 work activities				(1		x	x			
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150	Negotiate customer release		1			ł	1	×	ł	ł	l i	

Exhibit Dockets Nos 960833/960846/971140 Lynett Exhibit JPL 1 Service Order Process Page 1 of 24

SERVICE ORDER PROCESS / NON-RECURRING

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SERVICE ORDER PROCESS / NON-RECURRING

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Exhibit Dockets Nos. 960833/960846/971140 Lynott Exhibit. JPL 1 Service Order Process Page Lot 24

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150 Negotiate customer release	149	Travel time to the central office (non-statled) minutes/ 4 work activities	3									
	150	Negotiate customer release				1	1		1	l.		1

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

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DI -		ISDN BRI	Migration -	ISDN BRI -	POTS/	ISDN BRI -	ISDN BRI -	4 Wire -			Connect at the	2 Wire Cross
No.	Process Flow / Activity	Migration -	UNE-	Migration -	ISDN BRJ -	Install - UNE	Install - UNE	Migration -	4 Wire - Install	Feeture	FDI -	Connect at the
100	The second s	TSR	Platform	UNE - Loop	Install - TSR	- Platform	- Loop	UNE . LOOP	- UNE - Loop	Changes	Migration	FDI - Install
151	Install cross connect MDF (COSMIC like frame, e.g. punch-down, 1 four wire jump	per)						x				
152	Remove cross connect MDF (COSMIC like frame, e.g. punch-down, I four wire juit	mper)										
153	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 2 four wire jump	pers)		0					x			
154	Install cross connect (COSMIC like frame, e.g. punch-down, 2 wire jumpers)			1								
155	Cross connect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)		1									
156	Disconnect (Wire Wrap, to AD4 ADTS Chammel Bank / unitized SMAS))			1				[
157	Install channel unit at AD4					1						
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpers)	•)		1								
159	Remove cross connect - Wire Wrap to AD4 (hammel Bank (ADTS) / unitized SMA	45										
160	Remove channel unit from AD4							ļ				
161	Cross connect (4 wire SMAS, Wire Wrap, to D4 ('hannnel Bank / unitized SMAS)	the briefly				1						
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Chamnel Bank / unitized)	SMAS)										
163	Install 2 two wire shielded pair cross connects at the protector frame			p.			ł	1			1	
164	Install 2 two wire shielded pair cross connects at the protector frame											
165	Install 2 four wire cross connect at the Toll Distribution Frame		1		[
166	Install 5 wire cross connect DSX bay		1									
167	Install 2 four wire cross connect at the Toll Distribution Prame		1							F		
168	Install 5 wire cross connect DSX bay		-	1								
169	Remove 2 two wire shielded pair cross connects at the protector traine											
170	Remove four wire cross connect at the foir Distribution Plane		ł								1	
171	Remove 5 wire cross connect DSA bay			ļ						1		
172	Remove 2 two wire shielded pair cross connects at the protector frame									1		
173	Remove I four wire cross connect at the foil distribution Frame)									
174	Remove 5 wire close connect DSA bay											
175	Place pluque et RT											
170	Place plug-in at K1			1			1					
178	Place plug-in at RT			1						1		
175	Place plug-in at ADM		ĺ.	(
180	Install DSO TSL at RT (CPU tune)								1			1
181	(Toss connect (4 wire SMAS) (Wire Wrap)		ĺ						x			
182	Remove Cruss connect (4 wire SMAS) (Write Wrap)			1					1	1		
183	Conduct SS7 test										ſ	
184	Conduct loop back analysis test									1		
185	Conduct loop back analysis test									}		
186	Conduct testing (1000 Hz.)			ſ				x	X			
187	Close Order (SSC)			1				x	÷		1	
188	Close Order (NTEC)			[^	^			
189	Close Order (FMAC)						[×	Y			
190	Fall Out Pull and analyze order (CPC)							Ŷ	Ŷ			
191	Fall Out Resolve Fallout (CPC)			1		(Ŷ	î î			
192	Fall Out Pull and analyze order (CPC)										1	
193	Fall Out Resolve Fallout (CPC)									1		
194	Pull and analyze order (NTEC)								1			
195	Pull and analyze order (SSU)									[
196	I ravel time to the central office (non-startica) formates / 4 activities		ł				ļ					
197	Disconnect SMAS (wire wrap)	Same										
198	Disconnect cross connect from MDF (Cosmic-fike frame, e.g. punch down, 2 four w	NO.1								(1	
199	Close Order (SCC)			ſ		1						
200		1								•		-

Exhibit Dockets Nos 96042376/0446971140 Lynatt Exhibit JPE 1 Service Order Process Page 1 of 24

12223	- Secure and a secure a	12 .5	13	14	15	16	17	18	19	20	21	22	23
253			TUB-EC		1000		144		C	5 (Sr. 1			
1.53		- 568	4 Wire				0.8.8	POTS/			2 Wine	4 Wire	Channelized
847	N. 后期的时候,在1998年1月1日中午中午中午中午中午中午中午中午中午中午中午中午中午中午中午中午中午中午中午	A Mire Cross	Cross	Cross	Channelizad	6 - 11 A	1.1.1	ISON RPL.	POTS		Cross	Conee	DS1Virtual
1		Connect at the	Coopert et	Connect 2	DS1 Vetual	DEI	093	Disconnet	ISON BOI	4 145-0	Connect	Conord	Engdario
E III		CONTROL OF DES	CONTRACT ON	CONTINCIZ	DST VITURE	Intercelline	Lotaroffice	TOP / LINE	Diagona di	4-1418	Disconnect	Discount	PROUBIN
No.	PTOCOGE Flow / ACOVITY	ALC: HALL	THE PLUI -	WID, Dille	Peeder to	Treasure	Transmice	Dialiante -	LINE LONG	LINE Loca	Disconinect	Disconnect	RI-
1.000	如此。····································	MIGRIDION	A MISESO	NIC - INSUM	PCI - BISABSI	Transport	manapon	Plation	UNE LOOP	UNE LOOP	at the PDI	at the FDI	Discorviect
151	Install cross connect MDF (COSMIC-like frame, e g punch-down, 1 four wire jus	n							1				
152	Remove cross connect MDF (COSMIC-like frame, e.g. punch-down, I four wire a	u		Į					1				
153	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 2 four wire jur	n						1		1			
154	Install cross connect (COSMIC-like trame, e.g. punch-down, 2 wire pumpers)			1		1	1					1	
155	Cross connect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)	C II		}									ſ
156	Disconnect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)							i i					
157	Install channel unit at AD4												
158	Remove cross connect (COSMIC-like trame, e.g. punch-down, 2 wire four jumpe	5							1				
159	Remove cross connect - Wire Wrap to AD4 Channel Bank (ADTS) / unitized SN			-					1				(
160	Remove channel unit from AD4			(
161	Cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized SMAS			({				1				
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Chaminel Bank / unitized	i											
163	Install 2 two wire shielded pair cross connects at the protector frame						1						
164	Install 2 two wire shielded pair cross connects at the protector frame												
165	Install 2 four wire cross connect at the full Distribution Frame						1		1				
166	Install 5 wire cross connect DSX hav							1					1
167	lostall 2 four wire cross connect at the Toll Distribution Frame			1					1				
168	Install 5 wire cross connect DSX hav						[1	1		
160	Remove 2 two wire shielded part cross connects at the protector frame				1		1						
109	Remove 2 two wire smeried part cross connects at the protector traine						1		1				
170	Remove From whe closs connect at the foil Distribution Frame						1		1				
1/1	Remove 5 wire cross connect DSX bay						1	1	1				
172	Remove 2 two wire shielded pair closs connects at the protector frame				1		1]			
173	Remove I four write cross connect at the foil Distribution Frame								1	1			
174	Remove 5 wire cross connect DSA bay								1			(1
175	Perform quasi random signafting source (QRSS) test via remote 115 - DTAU							f					1
176	Place plug-in at R I						1		1			(1
177	Place plug-in at ADM				1				1				
178	Place plug-in at RT				[]				1		1		
179	Place plug-in at ADM]								}
180	Install DSO TSI at RT (CPU tune)						1			1]	
181	Cross connect (4 wire SMAS) (Wire Wiap)						1						
182	Remove Cross connect (4 wire SMAS) (Wire Wrap)				1		1		}				
183	Conduct SS7 test												
184	Conduct loop back analysis test			1									
185	Conduct loop back analysis test				{				1]			
186	Conduct testing (1000 Hz)								[
187	Close Order (SSC)						}	1					
188	Close Order (NTEC)							1					
189	Close Order (FMAC)									10			ļ
190	Fall Out Pull and analyze order (CP())							1	1				
191	Fall Out, Resolve Fallout (CPC)								1				
192	Fall Out Pull and analyze order (CP())						1			x		x	x
101	Fall Out Resolve Fallout (CPC)							1		x		x	x
192	Pull and analyze under (NTEC)									х			
194	Bull and analyze order (SC)							1	1	×			
193	Frend time to the central office (non-staffed) interaction (d. activities]		×			
190	Traver time to the contral office (non-started) institues? A weightes						1			x			
147	Disconnect states (wire witep)						1		J	×		1	
198	Disconnect cross connect from MDP (Costen intername, e.g. punch mover a four									×	}		
100	Close Order (Pr(1), Condict SSC)						1			x			
200	Close Order (SSC)			r	(1	t	4	1	ь	N	5 C

Calle Fr	Participation and the second second second second second second	24	26	26	27	26	70	30	1 31	1 37	11	34	35	36
ID. No.	Process Flow / Activity	2 wire Loop, different CO	2 wire Loop, different CO	4 wire Loop, different CO	4 wire Loop, different CO	DS1 Loop to Customer Premise -	DS1 Loop to Customer Premise -	Line Port (DSO, Analog, ISLU) -	DS1 line port (TR- 303-IDT) -	2 wire Loop, different CO	4 wire Loop, different CO	DS1 Loop to Customer Premise -	Line Port (DS0, Analog, ISLU) -	Je Channelized DS1 line port (TR- 303-IDT) -
1000		- Migration	- Install	- Migration	- Install	Migration	Install	Install	Install	- disconnect	- disconnect	disconnect	Disconnect	Disconnect
151	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, I four wire in			X	X									
152	Remove cross connect MDF (COSMIC-like frame e g punch-down, I four wire										x)		
153	Install cross connect MDF (COSMIC-like frame = g punch-down, 2 four wire ju	1												
154	Install cross connect (COSMIC-like frame, e.g. punch-down, 2 wire jumpers)	x	х)		
155	Cross connect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)	x	x			1	(1	[
156	Disconnect (Wire Wrap, to AD4 ADTS Channie) Bank / unitized SMAS)			ł	1							1 1	ji	1
157	Install channel unit at AD4	x	×	x	x								1	
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpe	5								x		! 1		
159	Remove cross connect - Wire Wrap to AD4 Channnel Bank (ADTS) / unitized Sh	4								X	x			
160	Remove channel unit from AD4				1		[1		x	x) (0	
161	Cross connect (4 wire SMAS, Wire Writp, to D4 Channnel Bank / unitized SMAS	þ.		x	×									
162	Remove cross connect (4 wire SMAS Wire Wrap, to D4 Channiel Bank / unitize	h			1	[{						1
163	Install 2 two wire shielded pair cross connects at the protector frame												1	
164	Install 2 two wire shielded pair cross connects at the protector frame			(1	x	ļ	1					
165	Install 2 four wire cross connect at the Toll Distribution Frame												1	{
166	Install 5 wire cross connect DSX bay	(ļ	1				(I	
167	Install 2 four wire cross connect at the Toll Distribution Frame		1		[x						6	1
168	Install 5 wire cross connect DSX bay		1	1		×	X	ļ	1					
169	Remove 2 two wire shielded pair cross connects at the protector traine	1			[1						1		
170	Remove 1 four wire cross connect at the Toll Distribution France)	1					[
171	Remove 5 wire cross connect DSX bay				1					1				
172	Remove 2 two wire shielded pair cross connects at the protector frame	(1		}				X		
173	Remove I four wire cross connect at the Toll Distribution Frame									1		X		1
174	Remove 5 wire cross connect DSX bay	[}				×		
175	Perform quasi random signalling source (QRSS) test via remote HIS - DTAU			J		x	x							
176	Place plug-in at RT	[1	[
177	Place plug-in at ADM													
178	Place plug-in at RT	ł					X							
179	Place plug-in at ADM						x	}	1					Í
180	Install DSO TSI at RT (CPU time)													1
181	Cross connect (4 whe SMAS) (Whe Whap)			1 I I	A	}							l.	
182	Remove Cross connect (4 wire SMAS) (Wire Wrap)	J			1									
183	Conduct SS7 test								1			1 1	d.	
184	Conduct loop back analysis test						0 0							
185	Conduct loop back analysis test	~					~						l .	1
186	Conduct testing (1000 Hz)	Û Û	Û Û	0	Î Û		×			×	×	×		
187	Close Order (SSC)	L Û	Û Û	0	l û	l î	<u> </u>		1	Ŷ	Ŷ	î î		J
188	Close Order (NTEC)	^	^	^	1 ^		×			, î	Ŷ	x	l .	
189	Close Order (FMAC)	v	×	×	× ×	Ŷ	Ç.	1	1	×	×	Î Â I		
190	Fall Out Pull and analyze order (CPC)	Ŷ	Ŷ	Ŷ	Ŷ	Ŷ	x			x	x	x		
102	Fall Out Resolve Fallour (CPC)		~	(C)				(()	1
192	Fall Out - Resolve Fallout (CPC)								1)		
143	Part out incourse order (NTEC)			1									1	
194	Pull and analyze order (NTEC)								1			1 1		
195	Full and analyze order (SSC)												i i	1
140	Interest time to the central office (non-started) minutes (+ activities						[[P	
197	Disconnect cross connect from MDE (Corner, blact cone, e.o. punch down 3 too					ł								1
198	Close Order (NTEC Contect SSC)											1		1
200	Close Order (SSC)								1					
400				1					•					

Exhibit Dockets Nosi 9608339600465/9/1140 Tyriatt Exhibit 2011 Service Order Process Page 1 of 24

1.50		37	38	39	49	41	42	43	44	45	46
220		14:13年	1.52 3	4					13 14		
2992			tel 2	131		1. K.		007 070		007.070	007.070
10				COT Links	COT Links	CC7 Links	CC7 Links	olobal lilla	33/ 51P	Sar SIP	537 51P
ALC: N	Burghan Flow / Activity	Connects -	Connects	ALO DSOL	ASD DSO	ALD DSI	ALD DS1)	translations	Imessage	translations	message
PHO.	PINCER FIGHT AUDIT	instell	Disconnect	Install	Disconnect	install	Disconnect	Install	- install	Disconnect	Disconnect
151	Initial cross connect MDE (COSMIC like frame e.g. punch-down. I four wire nu	1						II START			
152	Remove i ross connect MDF (COSMIC like frame e g punch-down. I four wire				1						1
153	Install cross connect MDF (COSMIC like finne, e.g. punch-down, 2 four wire in	0				1					
154	Install cross connect (COSMIC-like traine, e.g. punch-down, 2 wire pumpers)				(]		}
155	Cross connect (Wire Wrap, to AD4 AD1S (hannuel Bank / unitized SMAS)		1	X		1					
156	Disconnect (Wire Wrap, to AD4 AD1S Channnel Bank / unitized SMAS)				X)	ļ		}
157	Install channel unit at AD4		1	X							
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpe	5		1			1		1		1
159	Remove cross connect - Wire Wrap to AD4 Chamnel Bank (ADTS) / unitized SN					J					
160	Remove channel unit from AD4				x						
161	Cross connect (4 wire SMAS, Wire Wirep, to D4 (hannnel Bank / unitized SMAS)]				}	1
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Channel Bank / unitize	1		1							
163	Install 2 two wire shielded pair cross connects at the protector frame							}			
164	Install 2 two wire shielded pair cross connects at the protector frame				1						
165	Install 2 four wire cross connect at the Toll Distribution Frame										
166	Install 5 wire cross connect DSX bay								1		
167	Install 2 four wire cross connect at the Toll Distribution Frame										
168	Install 5 wire cross connect DSX bay					1			1		
169	Remove 2 two wire shielded pair cross connects at the protector frame			1			1				
170	Remove 1 four wire cross connect at the Toll Distribution Frame					1					
171	Remove 5 wire cross connect DSX bay				1					1	
172	Remove 2 two wire shielded pair cross connects at the protector frame		-						1		[
173	Remove 1 four wire cross connect at the Toll Distribution Frame						1			1	
174	Remove 5 wire cross connect DSX bay							1			
175	Perform quasi random signalling source (QRSS) test via remote ITS - DTAU		-							[J
176	Place plug-in at RT		{	1					1		
177	Place plug-in at ADM							[
1/8	Place plug-in at R I						1				
179	Place plug-in al ADM		1		1	J				1	
180	Constant DSO 151 at K1 (CPO time)						1				
181	Provide Connect (4 wire SMAS) (Wire Wild)				1		1				
182	Conduct CC2 set		1	×	1						
183	Conduct sor rest			x							
185	Conduct here hack analysis test					}				1	
186	Conduct testing (1000 Hz.)				1		1		1		1
187	Close Order (SSC)			x	x					1	
188	Close Order (NTEC)		1	x	x						1
180	Close Order (EMAC)			2010	S				1		1
190	Fall Out Pull and analyze order (CPC)		1	x	x			}			
191	Fall Out Resolve Fallout (CPC)			x	X				1		
192	Fall Out Pull and analyze order (CPC)				i i						
193	Fall Out Resolve Fallout (CPC)										
194	Pull and analyze order (NTEC)								1		
195	Pull and analyze urder (SSC)								1		
196	Travel time to the central office (non-statted) minutes / 4 activities										
197	Disconnect SMAS (wire wrap)				ĺ						
198	Disconnect cross connect from MDF (Cosmic like frame, e.g. punch down 2 four										
199	Close Order (IVTEC Contact SSC)						[
200	Close Order (SSC)					1		1			

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

12 100		1.00	2.44	8 3	1.184.		6	7. activ	El Dick	9	10	11
100		ALL ST	Print Print Print	1954 - Gar	16-45	122	Delta a	法 田田	TEXEL .	1.	1 21	
		Contraction of the	POTS /	1991 A. 1972	場關於協	Alle	· 公司编辑中王		· 新建設 二十	100	一 子 名 城市	1 I. T
23.11	and the second	POTS /	ISDN BRI -	POTS/	Same 12	POTS /	POTS /	際になる問題に	SEQ.40	1000	2 Wire Cross	a second and a second
ID.		ISDN BRI-	Migration -	ISDN BRI -	POTS /	ISDN BRI -	ISDN BRI -	4 Wire -	从 到上20月1日	NY 10 10	Connect at the	2 Wire Cross
No.1	Process Ficte / Activity	Migration -	UNE-	Migration -	ISDN BRJ -	Install - UNE	Install - UNE	Migration -	4 Wire - Install	Feature	FDI -	Connect at the
1000		TSR	Platform	UNE - Loop	Install - TSR	- Platform	-Loop	UNE LOOP	- UNE - Loop	Changes	Migration	FDI - install
201	SIMPLE CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)											
202	Pull and analyze order				}							
203	Travel time to customer premises / I work activities											
204	Setup time / I work activity											
205	Terminate to NID			1								
206	Conduct dial ione continuity test											
207	Tear Down Set Up / I work activities					ļ						
208	Close Order				1							
209	Fall Out: RMAs cleared automatically by PAWS											
210	Fall Out Pull and analyze order	1		1								
211	Fall Out Clear Jeopardy				1							
212	Putt and analyze order											
215	Disconnect cross connect from NID	1										
214	Close Order				1							
215	SMART CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)											
217	Pull and analyze order											
218	Travel time to customer premises / 4 work activities										1	
219	Card plue in						ļ			ł		
220	Install wiring to NID (J-Mounting Shell including RJ-48 jack costs)	1		[
221	Conduct continuity and card loop hask test	[
222	Close Order		J									1
223	Fall Out Pull and analyze order				1							
224	Fall Out Manual design process											
225	Pull and analyze order			}								
226	Travel time to customer premises / 4 work activities						1				1	
227	Disconnect cross connect from NID			}	1							
228	Close Order										1	
229	DSJ INTEROFFICE TRANSPORT (BAND WIDTH)	1	}	}						[
230	Pull and analyze order				1							
231	Travel time to the central office (non-staffed) minutes / 4 work activities		}				1					
232	Install card for DCS]		}				1				
233	Install card for SONET MUX		1			1						
234	Electronic Cross Connect on DCS						[
235	Electronic Cross Connect on SUNET MUX				1							
236	Performance Monitoring Lesting				1]					
237	Retrieve and analyze performance monitoring data											
238	Collision for constant											
239	Cive Order	ſ			J	J						
240	Fall Out Pull and analyze order											
241	Fall Out Resolve Fallout)							
243	Pull and analyze order											
2.14	Travel time to non-staffed office / 4 work activities										1	
245	Remove the card				1							
246	Close Order										1	
247	DSI INTEROFFICE TRANSPORT										1	
248	Pull and analyze order											
249	Travel time to the central office (non-staffed) minutes / 4 work activities											
250	Install card for DCS											
251	Install card for SONET MUX (high speed OU to US IST)]				1 1	1		

E +htht Dockets Nos 96083399600460 n°1146 Lynott Exhibit JPL 1 Service Order Process Page 1 of 24

Chief and	·····································	12	13	14	15	16	17	18	19	20	21	22	23
15.68	AND A REAL PROPERTY AND A REAL PROPERTY AND A		i	1.				and the state of the					
111		194	4 Wine	100				POTS/			2 Wine	4 Wire	Channelized
1.1		4 Wire Cross	Cross	Cross	Channelized	i name	13.125	ISDN BRI -	POTS/		Cross	Cross	DS1Virtual
ID		Connect at the	Connect at	Connect 2	DS1 Virtual	DS1	DS3	Disconnect -	ISDN BRI-	4 -Wire	Connect	Connect	Feeder to
No.	Process Flow Activity	FDI -	the FDI -	wire, 6 line	Feeder to	Interoffice	Interoffice	TSR/UNE -	Disconnect -	Disconnect -	Disconnect	Disconnect	RT-
S. C. Mark	[1] 10.1 [1] 10.1	Migration	Install	NIO - Install	RT - Install	Transport	Transport	Platform	UNE Loop	UNE Loop	at the FD1	at the FDI	Disconnect
201	SIMPLE CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)												
202	Pull and analyze order			X			1						
203	Travel time to customer premises / 1 work activities			X									
204	Setup time / 1 work activity			×									
205	Terminate to NID			X									
206	Conduct dial tone continuity test			X									
207	Tear Down Set Up / I work activities			X									
208	Close Order			x		1							
209	Fall Out RMAs cleared automatically by PAWS									1		1	
210	Fall Out Pull and analyze order									1	[
211	Fall Out Clear Jeopardy			1									
212	Pull and analyze order												
213	Travel time to customer premises / 4 work activities				1								
214	Disconnect cross connect from NID								[
215	Close Order						1	[
216	SMART CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)			1						1			
217	Pull and analyze order												1
218	Travel time to customer premises / 4 work activities										1		
219	Card plug in												
220	Install wiring to NID (J-Mounting Shelt including RJ-48 Jack exists)							1		1			
221	Conduct continuity and card loop back test			1									
222	Close Order					1						1	
223	Fall Out. Manual device proces												
224	Pall out Manual design process										1		[
225	Fraud time to customer premises / 4 work activities											1	
220	Disconnect group connect from NID												
227	Close Order						1					1	
220	DS3_INTEROFFICE TRANSPORT (BAND WIDTH)							ļ			1		
230	Pull and analyze order			1			x	1	1				
231	Travel time to the central office (non-staffed) injustes / 4 work activities		1			1	x					1	1
232	Install card for DCS				1		x						
233	Install card for SONET MUX					1	X	1		1		1	
234	Electronic Cross Connect on DCS						x						
235	Electronic Cross Connect on SONF LMUS	}					×						
236	Performance Monitoring Testing					ł	x			1	([
237	Retrieve and analyze performance monitoring data				1		x						[
238	Initiasive Test (ITS)			1			x			[[[
239	CPU time for registers						X						
240	Close Order					[X	[
241	Fall Out Pull and analyze order						X						
242	Fall Out Resolve Fallout					1	x			J	ļ		
243	Pull and analyze order				1								
244	Travel time to non-staffed office / 4 work activities												
245	Remove the card												
246	Close Order												
247	DS1 INTEROFFICE TRANSPORT					×							
248	Pull and analyze order					x							
249	Travel time to the central office (non-staffed) monotes in work activities					x					1		
250	Install card for DUS					×				0			
251	INSTALL CATO TO SOMET MUX (nigh speed Of the posts)	L. Contraction of the second sec	1	1			•	1				1	

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SERVICE ORDER PROCESS / NON-RECURRING

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德潮		1 3		10	27		新花	30	31	34	3	-	2	
		- 16 · 1		41	4			Line Port	Channelized				Line Port	Channelized
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205	Terminate to NID													
206	Conduct dial tone continuity test													
207	Tear Down Set Up / I work activities											1 1		(
208	Close Order					[1			}			
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210	Fall Out Pull and analyze order							ļ						
211	Fall Out Clear Jeopardy											[[
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214	Disconnect cross connect from NID											1 1		
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218	Travel time to customer premises / 4 work activities				[ļ				
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250	Install card for DCS													
251	Install card for SONET MUX (high speed - OC48 to STS1)					1	I (I.			1 1		

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SERVICE ORDER PROCESS / NON-RECURRING

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213	Travel time to customer premises / 4 work activities										
214	Disconnect cross connect from NID			11							
215	Close Order										
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217	Pull and analyze order										
218	Travel time to customer premises / 4 work activities				}						
219	Card plug in										
220	Install wiring to NID (J-Mounting Shelf including RJ 48 jack exists)										
221	Conduct continuity and card loop back test		1]
222	Close Order										
223	Fall Out Pull and analyze order										
224	Fall Out Manual design process										
225	Pull and analyze order						1				
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227	Disconnect cross connect from NID										
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231	Install card for DCS										
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250	Install card for DCS					X					
251	Install card for SONET MUX (high speed OC48 to STST)	I I		I	I I	× 1				1	l.
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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

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252	Install plug in for low speed DSI (low speed STST to DST)											
253	Electronic cross connect on DC S											
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271	SS7 STP global title translations											
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273	Analyze request											
274	Build request into WFA											
275	Pull and analyze order											
276	Services - GTT translations (input into 51/AS)						1 1		£		i i i i i i i i i i i i i i i i i i i	
277	close order											
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SERVICE ORDER PROCESS / NON-RECURRING

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255	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU					x							
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259	Intrusive Test (ITS)					×							
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268	Intra-Building Travel							J					
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SERVICE ORDER PROCESS / NON-RECURRING

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257	Retrieve and analyze performance monitoring data													
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SERVICE ORDER PROCESS / NON-RECURRING

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254 Electronic cross connect on low speed DS1 (low speed DS1) X X	
255 Conduct continuity test - quasi random signaling source (QRSS) from LLS/DTAU X	
256 Performance Monitoring Testing X	
257 Retrieve and analyze performance monitoring data X	
258 Conduct SS7 test X	
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263 Fall Out Resolve Fallout X X	
264 Pull and analyze order	
265 Travel time to non-staffed office / 4 work activities	
266 Remove the card	
267 Close Order	
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271 SS7 STP global title translations	
272 Receive work request X	
273 Analyze request X	
274 Build request into WFA	
275 Pull and analyze order X	
276 Services - GTT translations (input into SEAS)	
277 close order X	
278 Fallout Pull and analyze order X	
279 Fallout Resolve Fallout X	()
280 SS7 STP message transfer part	
281 Receive work request X	X
282 Analyze request X	X
283 Build request into WFA	X
284 Pull and analyze order X	X
285 Create and input screening table X	X
286 MTP point code to link set translations X	X
287 Establish link set	X
288 close order X	X
289 Fallout Pull and analyze order X	X
290 Fallout Resolve Fallout X	X





NON-RECURRING COST MODEL

Version 2.0

USER GUIDE

1. General Introduction

The *Non-Recurring Cost Model* sponsored by AT&T and MCI is a spreadsheet based costing tool that calculates the forward-looking cost of customer connection, disconnection, and change of service. The model also calculates the costs of additional activities related to interconnection, unbundling, and wholesale service. This User Guide is provided to help the user step through the *NRC Model*. Additional detail is provided in the Model Description document.

To enhance the cost model's functionality and to facilitate ease-of-use, the model utilizes advanced features of **Microsoft Excel 7.0**; these features include *visual basic for applications* (VBA) macros and dialog boxes. The macros are routines that serve to automate repetitive processes and to simplify operations and calculations. The dialog boxes allow users to quickly and accurately choose NRC scenarios and to alter the numerous user-adjustable variables via drop-down boxes, check boxes. buttons, and spinners.

The model is composed of 17 unique sheets, including: eight standard Excel worksheets, three VBA module sheets, and six dialog sheets. The following sheets are visible at model start-up:

- Control buttons to run and navigate the model and to present summary results
- *Processes & Calcs* process steps, calculations, and inputs for the intersection of NRC type and required process
- Inputs presents NRC elements and inputs from dialog box interfaces
- Batch Output detailed outputs and costs for each NRC element
- Input Record detailed record of the selected inputs compared to the default inputs
- Glossary presents telephony acronyms, technical terminology, and descriptions
- Source Code visual basic for applications code
- Copy Input Value Code visual basic for applications code
- Save Option Code visual basic for applications code

The following sheets are hidden at model start-up:

- *dlg NRC model* first dialog box
- dlg Customize Batch second dialog box
- *dlg Labor Rates* third dialog box
- *dlg Other NRC* fourth dialog box
- *dlg Instruction* NRC Model user instructions
- *dlg Developer's Notes* checklist for model developers
- Batch PO Staging a staging sheet used for printing Batch Output
- Batch Summary Tempy Sheet a staging sheet used for printing Batch Output

The hidden sheets can only be seen directly by going to the toolbar and using the **Format** - **Sheet** - **Unhide** command. These sheets are hidden because model users do not need to access these sheets to run the model.

2. Opening the Model

When the user opens the model they will see the following Password protection message.

Password	? ×
'Non-Recurring Cost' is reserved by ATT and MCI	OK
Enter password for write access, or open read only.	Cancel
Password:	Read Only
and the second	<u></u>

The model user must open the model by clicking the 'Read Only' option. The user will be able to do everything they need to do with the model with the 'Read Only' option. This protection ensures that the user will not inadvertently change the coding in the model. Once opened as 'Read Only' the file may be saved with a *different* file name.

3. "Control" Sheet

When the user opens the Non-Recurring Cost Model they are presented with a "Control" sheet.



The "Control" sheet presents eight buttons to run and navigate the Non-Recurring Cost Model.

On the left side of the sheet there are six buttons for running the model, printing output, clearing output, and saving data. The following is a description of the functionality provided by each button:

- Run NRC Scenario used to calculate the cost of a single NRC element
- Run Batch Scenario used to calculate the costs of all the NRC elements
- Clear Output used to clear the output from the latest 'NRC Scenario' or 'Batch Scenario'
- Save Batch Scenario used to save the summary data, the inputs, and the output detail for a 'Batch Scenario' to a separate Excel workbook
- Print Single Run used to print the summary data and the inputs from a 'NRC Scenario'
- *Print Batch Run* used to print the summary data, the inputs, and the output detail for a 'Batch Scenario'.

On the right side of the "*Control*" sheet there are four additional buttons. The buttons provide the following additional functionality:

- *Examine NRC Steps* goes to the "*Processes & Calcs*" sheet where the specific steps costed for a particular NRC element or the complete table of processing steps may be viewed
- Model Instructions used to call up a simple help tool
- Inputs used to quickly go to the "Input" sheet
- *Glossary* used to examine a list of telephony terms and acronyms by going to the "*Glossary*" worksheet.

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4. Dialog Boxes

The first dialog box, titled "*NRC Model - Control Panel*", allows the user to choose the type of non-recurring charge and the state. For Batch Runs the NRC Type drop down box is not used because all the NRC Elements are included in a Batch Run.

NRC Model - Co	ontrol Panel	×
NRC Type:		
POTS / ISDN	BRI - Migration - UNE - Loop	•
State / Compa	any	
Alabama		
	OK Cancel	7#

The second dialog box, titled "*Customize Batch Run*" allows the user to **exclude** certain elements from the batch run. The user can exclude elements by checking the boxes that correspond to the element. If the user does not wish to exclude any elements, they should ensure that none of the check boxes are selected and then click the OK button to continue.

A standard Batch Hun includes all 46 N selected will be excluded from the Batch	HC types. Exclude NHC types by selecting the NI h Run.	HC type's check box. Any NHC types
F POTS/ISDN BRI, Migration, TSR	POTS/ISDN BRI, discrit, TSR/UNE-P	4 wire Loop, diff Co - discnt
POTS/ISDN, Migration, UNE-P	POTS / ISDN BRI- disent - UNE-L	DS1 Loop, Cust Prem - discrit
POTS/ISDN, Migration, UNE-L		Line Port (DS0,Anlg) -discrit
POTS/ISDN BRI, Install - TSR	C 2 Wire X-Conn discrit at the FDI	China DS1 line port - discrit
POTS/ISDN BRI, Install, UNE-P	✓ 4 Wire X-Conn discrit at the FDI	Fiber Cross Connect - Install
POTS/ISDN BRI, Install, UNE-L	Chnl DS1, Virtual Feeder, discnt	Fiber Cross Connect - discrit
4 Wire Migration, UNE - Loop	☐ 2 wire Loop, different Co - Migration	□ SS7 Links (A&D, DS0) - Install
4 Wire Install - UNE - Loop	√ 2 wire Loop, different Co - Install	🗂 SS7 Links (A&D, DS0) - discrit
Feature Changes		SS7 Links (A&D, DS1) - Install
2 Wire X-Conn FDI - Migration	✓ 4 wire Loop, different Co - Install	🔽 SS7 Links (A&D, DS1) - discrit
□ 2 Wire X-Conn FDI - Install	☐ DS1 Loop, Customer Prem - Migration	SS7 STP GTT - Install
☐ 4 Wire X-Conn FDI - Migration	DS1 Loop, Customer Prem - Install	SS7 STP MTP - Install
☐ 4 Wire X-Conn FDI - Install	Line Port (DS0,Analog,ISLU) - Install	SS7 STP GTT - disont
Simple X-Connect at NID - Install	└ Chnl DS1 line port (TR-303) - Instalf	SS7 STP MTP - disont
🗂 Chnl DS1, Virtual Feeder, Install	2 wire Loop different Co - discrit	WHERE A
DS1 Interoffice Transport		- Aller -
DS3 Interoffice Transport		

The third dialog box, titled "*Manual Labor Rates (S per hour*)" allows the user to set individual labor rates for 14 technician types. The lower edit box on this dialog box shows the state whose labor rates appear in the other edit boxes. When initially running the model for a state, the user must select the **State Defaults** button. The model will populate the edit boxes with the labor rates for the state. The user must then choose the OK button to continue to the next dialog sheet. If the lower edit box displays the correct name of the state chosen for a model run, the user can immediately click the OK button to continue to the next dialog box.

Business Dispatch Administration Center (BD.	AC] \$32.40
Consumer Dispatch Administration Center (CD	DAC) \$32.40
Circuit Provisioning Center (CPC)	\$34.91
Customer Service Center (CSC)	\$33.27
Frame Control Center (FCC)	\$36.64
Facility Maintenance Adminstration Center (F	MAC) \$41.97
Installation & Maintenance / Outside Plant (18	M/OSP) \$40.46
Loop Assignment Center (LAC)	\$33.87
Network Terminal Equipment Center (NTEC)	\$41.97
Recent Change Memory Administration Cente	er (RCMAC) \$33.27
Switching Cantrol Center (SCC)	\$41.97
Special Service Center (SSC)	\$41.97
Splicing	\$40.46
InterLATA Carrier Service Center (ICSC)	\$33.27
STATE	Alabama

The fourth and final dialog box. titled "*Other NRC Model Inputs*", allows the user to adjust nine categories of inputs; these categories include: the copper-fiber ratio, CO staffing ratio, trip time, setup times, work activities per order, variable overhead percentage, percentage of non-dedicated facilities, and system fallout percentages for POTS and complex actions. The user can select the model's defaults by selecting the Defaults button. When the user is satisfied with the inputs click the OK button to continue.

Copper Fiber Ratio Copper Percentage)	<u>1.</u>	40%			Perc Non Faci	centage -Dedicated lities	4%	
CO Staffing Ratio Percentage of lines s staffed central offices	erved from	n (80%		44	Va Ov	riable verhead (%)	10.4%	
Trip Time 20 n Minutes		Set Up Time in Minutes	5			-System Falls POTS	out	-
						Complex	2%	-
	Work Orde Offic	c Activities pe r (Central es)	r 4					

5. Running the Model

To run the Non-Recurring Cost Model the user must first choose "Run NRC Scenario" or "Run Batch Scenario" from the "Control Sheet". After choosing one of these options, the user will be presented, in succession, with the four dialog boxes noted above. The user has the option to run the model with the default inputs or to adjust them.

When the user chooses "*Run NRC Scenario*", the user will be presented with a summary output on the "*Control*" sheet; showing NRC element and cost. If the user wishes to see further detail they should use the "*Examine NRC Steps*" button. This button will take the user to the "*Processes & Calcs*" sheet. This sheet will be "filtered" for those activities required for the chosen NRC element. The user can go to the "*Inputs Record*" sheet to examine which of the inputs were used to create the current outputs.

When the user chooses the "*Run Batch Scenario*" the model will produce a comprehensive summary list of NRC types and costs on the "*Control Sheet*". To examine all the required steps for each NRC element, the user should go to the "*Batch Output*" sheet. This sheet records all the steps required for each of the NRC types. Finally, the model also produces a list of the inputs used to create the "Batch Output" in the "Input Record".

Important Note

If the user runs another Scenario or Batch Run, the model will overwrite the contents of the "Control", "Batch Output", and "Input Record" sheets. If the user requires a permanent record of a Batch Run, they should use the save option outlined in section 6, page 10 of this users guide.

6. "Saving Batch Scenario" Data

By selecting the "Save Batch Scenario" button the model will save all the data relevant to a Batch Run in a separate Excel workbook. The workbook will include 3 sheets entitled: "Summary", "Batch Output", and "Input Record". These sheets will contain the same data that resides in the sheets "Control", "Batch Output", and "Input Record" respectively. The model will prompt the user to name and choose the directory for the newly created workbook with the following message screen:

Save As		? ×
Save in: Bill		
NRCM (Version 2.0).xls		Save
Sample Run.xis		Cancel
		125-
File name: Book 3	*	
Save as type: All Files (* *)		

The user should use this screen just as they normally would. When the user has named the workbook, the model will remind the user that the new workbook is still open and return the user to the "Control" screen.

7. Printing A "Batch Scenario"

The user can print all the data relevant to a "Batch Scenario" by clicking the "Print Batch Scenario" button on the "Control" sheet. This button invokes a print MACRO that will send three print jobs to the user's default printer. The list below details the three print jobs:

- 1st Print Job
 ⇒ Content Summary of NRC Elements and costs from the "Control" sheet
 ⇒ Page length 2 pages
- 2nd Print Job
 - \Rightarrow Content Summary of Inputs from the "Input Record" Sheet
 - \Rightarrow Page length 1 page
- 3rd Print Job
 - \Rightarrow Content "Batch Output" sheet in its entirety
 - \Rightarrow Pages 48 pages.

The print MACRO is an excellent time saver. However, the user must realize that the total pages sent to your default printer upon execution of the MACRO is 51 pages.

8. Examining Model Mechanics and Algorithms

The user may wish to examine the detail behind the costs for each NRC element. The user can go to the "*Processes and Calcs*" sheet to see the specific electronic and or manual steps that the model used to generate element costs. The example below shows how the user could view only those activities that take place for *POTS / ISDN - Migration - TSR*, the model uses Excel's **Data - Filter - Autofilter** function. By using this function, the "*Processes and Calcs*" sheet will only show activities in which the NRC element and activity step intersect, this intersection is marked by an "X". The user should note that NRC scenarios are placed in columns and the process steps are in rows.

5	Arizona - NRC Elements	Total Cost					
8	POTS ISDN BRI - Migration - TSR	\$ 0.23	with overhead				
7		\$ 0.21	without overhead				
8			 Designation of the second s				
9							
	PVICE OPDER BROCESS / NON PECUPPIN	C TYPE	MATDIX				
10	RVIGE ORDER FROGESS / NON-REGURRIN	GITTE	MAIRIA				
11	2	3	4	5	6	7	8
14					•	в	C
				1			
			System or	Vork	Probability	Time	Flate
	Process Flow / Activity	Step	Action	Center	(×)	(minutes)	(\$/hour)
13							
14	CLEC customer contact	Pre-Order	CLEC Customer Service Representative		NA		
16	ILEC gateway requests address data from Administrative information system and USH	Pre-Order	Frems, ALGO, BUSS CHIS	1	100 055		н
18	LEDU dustomer service representative inputs com information into Luio	Order	REC ANALY STARED DOE		100.051		B
21	EEC SOBramarias CSP has internet and outpart of SOP	Dider	BOSS BOP		100.015		B
21	SDP render a material ST 1.7	Provisioning	SOP		100.0%		8
24	SOAC analyzes nider nenerales approximent requests for OSP COE ICF, etc.	Provisioning	SDAC		100.0%		B
20	COAC reserver COE DER CE MA	Provisioning	SOAC		100.0%		8
12	SOAC receives close, our fear and align information	Provisioning	MARCHIASAR In ISON BRIL		100.0%		я
34	MARCH Industri DS	Provisioning	MARCH (ASAF MUSCIN BEI		100.014		FR.
41	SDAC under SDP	Provisioning	SOP	1	100.8%		8
42	SDP undated WEA NSDP LMCS BOSS CRIS etc.	Frousioning	SOP		100.014	4	B
48	SOP completes LSB	Provisioning	SOP		100.014		R
49	1 EC dateway notifies CLEC of completed order	Provisioning	LEC galeway		NA		
50	ILEC billing system is sues final bill to migrating customer	Provisioning	LEC gateway		NA		
59	Fall Dur. PIMAs forwardes to PAVS for restoration	Provisioning	PAWS CPU Time		2.011		R
	and a second s	Dutorizionina	If EC manual activity	REMAC	2.44	2.50	\$ 36.4
60	In all User, multiand an angel or ser	1.1753421211111	and the second second				

Exhibit Docket No. 971140-TP Lynott Exhibit JPL-2

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

AND

MCI TELECOMMUNICATIONS CORPORATION

AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

Docket No. 960833-TP/960846-TP/960757-TP/971140-TP/960916-TP

December 9, 1997

Exhibit Docket No. 971140-TP Lynott Exhibit JPL-2

	REBUTTAL TESTIMONY OF							
	JOHN P. LYNOTT							
	ON BEHALF OF							
	AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC., AND							
	MCI TELECOMMUNICATIONS CORPORATION, AND							
	MCI METRO ACCESS TRANSMISSION SERVICES, INC.							
	DOCKET NOs.: 960833-TP/960846-TP/971140-TP/960757-TP/960916-TP							
Q.	PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND							
	EMPLOYMENT.							
A.	My name is John P. Lynott, and my business address is 1875 Lawrence Street,							
	Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications							
	as a District Manager in the Local Connectivity Costing and Pricing District of the							
	Local Services Division.							
Q.	ARE YOU THE SAME JOHN P. LYNOTT WHO FILED DIRECT							
	TESTIMONY ON BEHALF OF AT&T AND MCI IN THIS							
	PROCEEDING?							
Α.	Yes.							
Q.	WHAT IS THE PURPOSE OF YOUR TESTIMONY?							
A.	The purpose of my rebuttal testimony is to address: (1) the direct testimony of							
	BellSouth witness Eno Landry concerning non-recurring costs (NRC), (2) certain							
	deficiencies in BellSouth's non-recurring cost study, (3) modifications required to							
	BellSouth's non-recurring cost study to efficiently provide the aforementioned							
	Q. A. Q. A.							

- elements, and (4) advantages of the AT&T/MCI Non-Recurring Cost Model
 (NRCM) for modeling BellSouth's non-recurring costs.
- 3

4 Q. DO YOU HAVE A SPECIFIC CONCERN WITH THE TESTIMONY OF 5 BELLSOUTH'S WITNESS ENO LANDRY?

6 Yes. In describing the major components contributing to non-recurring costs, Mr. Α. 7 Landry identifies the receiving and processing of the service request into an internal order as a BellSouth cost. This is also reflected in BellSouth's cost study 8 9 as cost associated with the Local Customer Service Center (LCSC). In a competitive local environment, it is the responsibility of the Competitive Local 10 11 Exchange Carrier (CLEC) to process the local service order for BellSouth 12 provisioning. The insertion of the LCSC work group in the ordering and provisioning processes is discriminatory to the CLEC. Such additional costs are 13 not being borne by BellSouth. Indeed, AT&T and BellSouth have an 14 Interconnection Agreement to provide for the mechanized flow of pre-ordering 15 and ordering service request data exchange. 16

17

18 Q. ARE THERE OTHER MODELING ERRORS IN THE BELLSOUTH 19 NON-RECURRING COST STUDIES?

A. Yes. AT&T and MCI joint witness Thomas Hyde discusses the methodological and assumption concerns with the BellSouth studies. Highlights include BellSouth's embedded cost nature (early 1990 sources with little to no detail of functions being performed), inappropriate network architecture assumptions (over-engineering and excess plant), which results in unnecessary work functions that BellSouth does not experience itself, and duplicate work activities due to BellSouth's treatment of each and every unbundled network element being provisioned on separate orders. For example, a CLEC has no use for a standalone loop without the loop being connected to a port or dedicated transport or its own equipment located in collocation space.

5

6 Q. ARE OPERATIONAL SUPPORT SYSTEM ASSUMPTIONS 7 IMPORTANT TO THE DEVELOPMENT OF A NON-RECURRING COST 8 MODEL?

9 A. Yes. Telecommunications networks have evolved to the point where functions 10 such as billing, pre-ordering, ordering, provisioning and maintenance rely heavily 11 on efficient, high availability Operational Support Systems (OSSs) in order to 12 minimize non-recurring cost and maximize performance quality and reliability.

13

14 Q DO BELLSOUTH'S ASSUMPTIONS REGARDING OSSs NEGATIVELY 15 IMPACT THE MODELING OF NRCs?

Yes. First, assumptions regarding recovery of OSS investment are important. 16 A 17 The AT&T/MCI NRC Model does not capture OSS investment required for the establishment and operation of the electronic gateway that serves as the medium 18 19 for CLEC/ILEC interfacing, because this Commission has already stated that 20 these cost will be borne by each individual provider. Charging such costs to new 21 entrants would be a barrier to competitive entry. Yet, in spite of this clear direction from this Commission, BST has proposed to recover the costs of its 22 23 proposed electronic gateway through a separate charge assessed on each and every 24 order received from a CLEC for an unbundled element.

25

Additionally, BellSouth's current OSS investment (not the gateway to access 1 2 these OSSs) is being recovered through recurring rates, to the extent it needs to be 3 recovered at all. Mechanized OSS manages the totality of the telecommunications 4 network. Arguably, no OSS investment should result in any cost increase, even 5 for recurring rates, because much, if not all, OSS investment is recovered through 6 efficiency gains that result from that investment. That is, investing in up-to-date 7 OSSs reduces costs for the ILEC, and, hence, the investment pays for itself over 8 time.

9

10 BellSouth fails to recognize the efficiencies of its own existing ('Legacy') OSSs. 11 BellSouth failed to consider the automated systems that are currently available to 12 support and replace manual activities/functions performed by their respective 13 work centers. BellSouth's non-recurring cost worksheets provide only a brief 14 description of the activities performed by these work centers. Having spent 15 several years dealing with service provisioning in an ILEC, work-times and work groups indicated by BellSouth are overstated or unnecessary due to the many 16 17 advances in operational support systems. Rebuttal Exhibit JPL-1 is a table that 18 identifies certain work functions BellSouth includes in calculating non-recurring 19 I have provided certain automated systems (OSS) that are currently cost. 20 available and their functionality as an example of why such manual work costs are 21 not warranted.

22

Q. CAN YOU PROVIDE AN EXAMPLE OF NECESSARY ADJUSTMENTS TO BELLSOUTH'S NON-RECURRING COST STUDY?

A. Yes. Rebuttal Exhibit JPL-2 consists of (page 1 of 2) BellSouth's NRC Inputs for
 the 2-wire ADSL-compatible Loop and (page 2 of 2) Adjusted NRC Inputs for the
 2-wire ADSL-compatible Loop. The Adjusted NRC Inputs depiction also reflects
 the correction of modeling flaws as identified by AT&T/MCI witness Thomas
 Hyde.

6

Q. WHAT IS THE PURPOSE OF THE PROPOSED CHANGES IN THE BELLSOUTH COST STUDIES?

9 A. The recommended adjustments offer this Commission information to better 10 evaluate the BellSouth cost studies. The BellSouth cost study modifications are 11 necessary to more accurately portray BellSouth's own cost using efficient 12 practices, not the historic practices BellSouth is modeling.

13

14 In addition, the AT&T/MCI Non-Recurring Cost Model (NRCM) does not currently cost each of the specific non-recurring activities identified by this 15 Commission. The NRCM does, however, contain many of the necessary work 16 steps/activities and work times required to order and provision these unbundled 17 Following the NRCM's TSLRIC costing guidelines, 18 network elements. 19 adjustments were made to recognize electronic ordering, efficiently managed OSSs and forward-looking network architecture benefits. Necessary adjustments 20 to BellSouth's other filed studies is attached as Rebuttal Exhibit JPL-3. Certain 21 critical assumptions are provided, e.g., detailed work activities and times, as well 22 as a brief explanation where worktimes or probabilities, e.g. the probability of a 23 24 line served at a non-staffed central office affects travel, have been modified.

25

5

Exhibit Docket No. 971140-TP Lynott Exhibit JPL-2

1 Q. PLEASE EXPLAIN YOUR ASSUMPTION ON FALLOUT?

The term used when orders do not flow through an OSS automatically is 2 Α. "Fallout". Most ILEC systems are electronically linked and are dependent on one 3 another. Occasionally an error will occur as data flows through the systems, and 4 this error will cause a service order to "fall out" of the systems, resulting in the 5 need for manual intervention. For example, in an electronic ordering process, if 6 7 one of the OSSs receives erroneous or incompatible information from another OSS, the order will be designated as a process "fallout" and may require manual 8 9 intervention to correct or complete the order.

10

11 It is important to note that the NRCM only considers "fallout" within the OSS 12 managing the provisioning processes. Fallout during the pre-ordering and 13 ordering processes (i.e., errors on the Local Service Request itself) are the 14 responsibility of the CLEC to manually clear.

15

16 Q. IS FALLOUT IMPORTANT TO MEASURING NRCs?

A. Absolutely. Fallout is important because in many instances it is the <u>only</u> cost
driver for an otherwise seamless electronic flow-through process. With OSSs that
are well managed and maintained, the rate of fallout is expected to be minimal,
especially in a competitive environment. This is a necessity because fallout
affects the customer in terms of longer delivery intervals and restoration/response
times, as well as higher cost of providing service; conditions a competitive
company can ill afford.

24

1Q.DOES BELLSOUTH RECOGNIZE FALLOUT IN THEIR COST2STUDIES?

- 3 A. Yes. BellSouth, like several other ILECs, has assumed a significant degree of manual intervention in its OSS systems, such as COSMOS/SWITCH, PREMIS, 4 TIRKS, and LFACS. In fact, BellSouth assumes a 100% manual ordering and 5 provisioning process with no recognition of its OSS capabilities. For the reasons 6 7 discussed above, this assumption is invalid because it does not represent 8 efficiently managed and forward looking systems, and, accordingly, produces a higher non-recurring cost than should be experienced even with the automatic 9 10 flow-through processes that actually exists today. In addition, BellSouth 11 introduces unnecessary workgroups, such as the LCSC and ACAC, to internally 12 rework orders that BellSouth deems contain CLEC order entry errors. Any manual assistance required to clear errors associated with the data on the Local Service 13 Order will be performed by the CLEC. Since all ordering errors, not provisioning 14 OSS fallout, can be 100% electronically returned to the CLEC, BellSouth 15 inappropriately overstates relevant non-recurring cost. 16
- 17

18 Q. IN ADDITION TO OSS, IS THE NETWORK ARCHITECTURE 19 ASSUMPTION CRITICAL WHEN MODELING NON-RECURRING 20 COSTS?

A. Yes. It's also important to understand and utilize forward looking network
architectures in modeling non-recurring costs. For example, the NRCM utilizes
Local Digital Switches ("LDS"), Integrated Digital Loop Carrier (IDLC/GR-303)
for loops greater than 9 Kilofeet (for loops less than 9 Kilofeet, copper is
assumed), Digital Cross-connect Systems ("DCS"), and Synchronous Optical

1 Network ("SONET") rings for transport. These architectures are important because they are forward looking intelligent processor controlled network 2 elements that can communicate over standard interfaces to the OSSs in such a 3 manner that little-or-no manual intervention is required for provisioning or 4 maintenance activities. These architectures are also the ones currently being 5 deployed by BellSouth today. Technologies such as these work hand-in-hand 6 7 with advanced OSSs to minimize cost and improve customer service and are 8 essential to the development of forward looking non-recurring costs.

9

10 Q. HAS BELLSOUTH INCLUDED THE AVAILABILITY OF THIS 11 TECHNOLOGY IN DEVELOPING ITS PROPOSED PRICES FOR NRCs?

- A. No. BellSouth has not reflected the use of the latest technology in its cost studies
 for NRCs. As reflected in the rebuttal testimony of Thomas Hyde, BellSouth
 instead has relied upon studies on equipment placed into service before 1995.
 Thus, it is apparent that BellSouth's cost studies for NRCs do not reflect forwardlooking, least cost technology, and should be rejected.
- 17

Q. DOES THE AT&T/MCI NRCM REFLECT THE USE OF THE LATEST
 AVAILABLE FORWARD-LOOKING LEAST COST TECHNOLOGY
 DESCRIBED ABOVE?

- 21 A. Yes.
- 22

23 **O**. PLEASE DISCUSS THE AT&T/MCI NON-RECURRING COST MODEL'S 24 (NRCM) ASSUMPTIONS FOR THE **TR-303 IDLC** 25 **CONCERNING SUB-LOOP UNBUNDLING.**

1	Α.	The NRCM assumes that the DOP (what is this?) and NID are in place. After the
2		CLEC purchases a Virtual Tributary DS1 (VT-1) on the ILEC OC-3 Fiber Feeder
3		from the Remote Terminal ("RT") to the CLEC collocation space, the installation
4		(and subsequent disconnection) of an unbundled loop would not require any
5		manual effort. The appearance of any new or migrated virtual DS0 customer loop
6		at the collocation area would be accomplished electronically using the appropriate
7		OSSs and the functionality that is inherent in TR-303 IDLC systems. In other
8		words, if the ILEC has 24 DS0 channels/customers on its Virtual Tributary DS1
9		(VT-1) and terminated on its Local Digital Switch (LDS) and one (1) customer
10		decides to migrate to the CLEC, the ILEC would still retain the other 23 on their
11		VT1 and LDS. If the second customer (DS0) decides to migrate to the CLEC, the
12		ILEC would still retain the other 22 DS0s on its VT1 and LDS - and so on. It
13		should be noted that in the above scenario, it is assumed that both VT1s are
14		resident on the same ILEC Fiber Feeder (OC-3). Each OC-3 has the a total DS1
15		payload capacity – depending on electronics and configuration – of 84 VT1s.

16

17 Q. IS THIS THE SAME AS SUB-LOOP UNBUNDLING, ONLY IN A TR-303 18 IDLC ENVIRONMENT?

A. Absolutely not, because the CLEC in the above scenario is still using the same ILEC OC-3 Loop fiber feeder, and is simply grooming from one Virtual DS1 tributary or channel (VT1) to another Virtual DS1 tributary or channel within the same ILEC OC-3 fiber feeder. The DS0s are groomed via communications from a provisioning/recent change OSS to the electronic time slot interchange (TSI) at the remote terminal (RT). If the CLEC were to provide its own OC-3 or physical

- 1 DS1 from their POP to the RT or Feeder Distribution Interface (FDI), then it may 2 be considered as sub-loop Unbundling. 3 4 Q. WHAT ARE SOME OF THE ADVANTAGES OF THE AT&T/MCI NRC 5 MODEL? The NRCM provides a detailed step-by-step understanding of the systems 6 A. 7 required and the manual work activities performed by an ILEC in the ordering and 8 provisioning of wholesale services and unbundled network elements. 9 The NRCM models efficient, currently practiced processes using a TELRIC 10 11 network that supports wholesale services and unbundled network elements. 12 13 The NRCM can be modified to reflect the removal or addition of work 14 steps/activities by updating the steps on the 'Processes & Calcs' spreadsheet of 15 the NRCM. The user determines the work/processes by selecting any of the 290 16 activities for each service type on the 'Processes & Calcs' spreadsheet. 17 18 The NRCM allows for user inputs to adjust for specific regional conditions, 19 including the copper/fiber ratio of served loops and loops served by staffed vs. 20 non-staffed facilities. A proper cost study must account for these data. 21 22 The NRCM identifies cost in the manner in which costs are incurred and
- 24

23

25

requested for installation, migration, and disconnect non-recurring activities.

1

2

Q.

Α

Q.

A.

docket.

principles.

- 22
- 23 (1) A forward looking cost model should incorporate the efficiencies of
 24 automated OSSs which provide for maximum electronic flow through of
 25 orders.

Recurring Cost Model correctly adheres to the following:

DO YOU RECOMMEND ANY NRCs BASED ON ADJUSTMENTS TO

Yes. Adhering to TSLRIC principles and based on necessary adjustments to

BellSouth's NRC cost studies identified above and in the rebuttal testimony of

Thomas Hyde, I recommended certain modifications that have been utilized by

AT&T witness Wayne Ellison for purposes of AT&T's rate proposal in this

Yes. In order for a competitive environment to exist, new entrants must have non-

discriminatory access to the incumbent's databases and other resources for

entering service orders to eliminate the need for costly, intermediate customer

service contacts. Also, new entrants must only incur costs equal to those which

the ILEC would incur using a forward looking network architecture and efficient

OSS or else the CLEC is burdened with a barrier to entry and the ILEC has no

incentive to become efficient. Finally, NRCs must be based upon TSLRIC

The NRCM recognizes those requirements. The NRCM, therefore, corrects the

many faulty assumptions that have been found in ILEC cost studies. The Non-

BELLSOUTH'S NRC STUDIES TO THIS COMMISSION?

WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?

- 1 (2) To the extent fallout does indeed occur, it should be limited to 2 approximately 2% of the total orders processed.
- 3 (3) Manual work times should reflect appropriate intervals based on the use of
 4 forward looking network technologies.
- 5 (4) Wherever appropriate, service orders should be processed through a non-6 designed POTS provisioning process as opposed to a more expensive 7 designed services process.
- 8 (5) A forward looking cost model should incorporate the efficiencies of 9 automated Intelligent Network Elements (SONET, GR-303/IDLC, 10 DCS/EDSX, LDS, etc.) which provide for maximum electronic flow 11 through for provisioning of orders.
- 12 (6) Wherever appropriate, the same work centers, work groups, technicians,
 13 and associated labor rates should be modeled at parity with how BellSouth
 14 provides similar services to itself.
- 15 (7) Migrations and installations should be recognized as mechanized
 16 whenever DIP and DOP will permit.
- 17 (8) Installation and disconnection should be calculated separately to account
 18 for significant cost differences dependent on a new entrant's disconnect
 19 decisions regarding DIP/DOP.
- 20

21 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

- 22
- 23 A. Yes.
- 24
- 25

Exhibit Docket Nos.: 960833-TP/960846-TP/960757-TP/971140-TP/960916-TP John P. Lynott Rebuttal Exhibit JPL-1 Available Operational Support Systems Page 1 of 1

Work Center	BellSouth Reason for NRC ¹	Automated Systems not considered in development of Non-Recurring Cost
WMC	WMC coordinates dispatched technicians	WFA/C - (Bellcore) The central operations system coordinating the installation and
	Any IMC or Network Svcs-Clerical time is	maintenance work and determining the dispatch system into which work orders flow. This
	reflected in WMC time.	automated online system screens service orders according to type and complexity, routes orders
		to the proper departments, monitors the work until completion, and verifies the quality of work
ACAC	ACAC coordinates overall administration of svc	through final testing of the circuits.
	order	WFA/DI(Bellcore) A system that coordinates, tracks, prices and loads inside (central office)
	ACAC coordinates overall service turnup	installation, maintenance and routine work activity.
		WFA/DO-(Bellcore) A system that coordinates, tracks, prices and loads outside installation,
	ACAC includes incremental time for handling	maintenance and routine work activity.
	various coordination issues (3.57 mininstall &	FORCE—(Bellcore) A system that assigns work taking into account the qualifications and
	disconnect)	daily schedules of each technician, generates daily list of work to be done by the employees at
		each location.
AFIG	AFIG assigns facility	FACS-(Bellcore) Facility Assignment and Control Systems (SOAC, LFACS,
		SWITCH/COSMOS, TIRKS, PAWS). Automated systems to provide assignments of
OSPE	OSPE reviews request, assigns FRN, & returns	inventory, to track and sequence service request, and to deliver work request to other down
	svc inquiry to LCSC	stream systems.
		FACS currently has the capability of flow-through assignment. A forward looking network
		will include all available facilities. RMAs should be kept to a minimum (e.g., 2%)
CPG	CPG processes svc request & generates DLR &	FACS/TIRKS—(Bellcore) Facility Assignment and Control Systems (SOAC, LFACS,
	word document to ALEC & field	SWITCH/COSMOS, TIRKS, PAWS) Automated systems to provide assignments of inventory,
		to track and sequence service request, and to deliver work request to other down stream
		systems.
		TRIKS currently has the capability of flow-through assignment. A forward looking network
		will include all available facilities. RMAs should be kept to a minimum (e.g., 2%)

BellSouth Non-Recurring Cost Work Sheets, F2wadsl.xls, F2whdsl, F2wdistr.xls, F4whdsl, F4wdistr.xls.

Exhibit _____ Docket No. 971140-TP Lynott Exhibit JPL-3 Florida NRCM 2.1 Service Type Page 1 of 1

	Florida - BS - NRC Elements	Total Cost				0	D - D	
	POTS / ISDN BRI - Migration - UNE - Platform	\$ 0.21	with overhead				R = Recum element.	ng rate
	to ILEC cost is reflected for errors identified on the LSR due to the 100% electronic return of this fallout to the CLEC for clearance.	<u>.</u>	Without overhead		User I or SM define	Input IE ed	System ma totality of th network.	nage the e
SER	VICE ORDER PROCESS / NON-RECURRING	e Request (LSR) Processe	s: 4	5	6	4 7	8	9
(Lamix-	Pre-Order - D	etermine Customer needs.	Protection of the second of the	A CARTER STREET	No state			D=(A x B
Yash-	Order - Subm	it LSR via Electronic Gatew	ay and		A	B	C	x C) / 60
	Reflects the individual task required to functions to p	ve acceptance (FOC) or faile ILEC performs necessary rovide request.	but.	Sales a	-			Cost w/out
ID Na.	Process Flow / Activity	Step	System or Action	Center	(%)	Time (minutes)	Rate (\$/hour)	Overhead (\$)
1	CLEC customer contact	Pre-Order	CLEC Customer Service Repres	sentative	NA	Ind seattly a		2
	CLUC FUCTORIAL FORMAT				11/1			
2	CLEC requests customer address data, CSR, and appointment from ILEC	Pre-Order	CLEC gateway		NA			
2 3	CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a	Pre-Order and CSR Pre-Order	CLEC gateway Premis, ALOC, BOSS, CRIS		NA 100.0%		R	s -
2 3 5	CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS	Pre-Order and CSR Pre-Order Order	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW		NA 100.0% NA		R	S -
2 3 5 6	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR 	Pre-Order and CSR Pre-Order Order to SOG Order	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE		NA 100.0% NA 100.0%		R R	s - s -
2 3 5 6 8	CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP	re-Order and CSR Pre-Order Order to SOG Order Order	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP		NA 100.0% NA 100.0% 100.0%	-	R R R	s - s - s -
2 3 5 6 8 10	CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC	re-Order Pre-Order Order to SOG Order Order Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOP	OSS or OSS-like	NA 100.0% NA 100.0% 100.0%	-	R R R R	S - S - S -
2 3 5 6 8 10	CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc.	re-Order Pre-Order Order to SOG Order Order Provisioning Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOP SOAC	OSS or OSS-like that manages the	NA NA 100.0% NA 100.0% 100.0% 100.0%	-	R R R R R	s - s - s - s -
2 3 5 6 8 10 11 17	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC receives COE, OSP, IOF, etc. 	re-Order Pre-Order Order to SOG Order Provisioning Provisioning Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOP SOAC SOAC	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0%	-	R R R R R R	\$- \$- \$- \$- \$- \$- \$- \$- \$- \$-
2 3 5 6 8 10 11 17 24	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information 	re-Order Pre-Order Order to SOG Order Provisioning Provisioning Provisioning Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOAC SOAC SOAC MARCH (ASAP for ISDN BRI)	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0%	-	R R R R R R R	\$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$-
2 3 5 6 8 10 11 17 24 26	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information MARCH updates LDS 	re-Order Pre-Order Order to SOG Order Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOAC SOAC SOAC MARCH (ASAP for ISDN BRI) MARCH (ASAP for ISDN BRI)	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	-	R R R R R R R R	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ -
2 3 5 6 8 10 11 17 24 26 33	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information MARCH updates LDS SOAC updates SOP SOP 	re-Order Pre-Order Order to SOG Order Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOAC SOAC SOAC MARCH (ASAP for ISDN BRI) MARCH (ASAP for ISDN BRI) SOP	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	-	R R R R R R R R R	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ -
2 3 5 6 8 10 11 17 24 26 33 34	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information MARCH updates LDS SOAC updates SOP SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc. 	re-Order Pre-Order Order to SOG Order Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOAC SOAC SOAC MARCH (ASAP for ISDN BRI) MARCH (ASAP for ISDN BRI) SOP SOP	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	-	R R R R R R R R R R R R R	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ -
2 3 5 6 8 10 11 17 24 26 33 34 40	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information MARCH updates LDS SOAC updates SOP SOP completes LSR ILEC astaway notifies CLEC of completed order. 	Pre-Order Pre-Order Order to SOG Order Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOP SOAC SOAC MARCH (ASAP for ISDN BRI) MARCH (ASAP for ISDN BRI) SOP SOP SOP SOP	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	-	R R R R R R R R R R R R R R	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ -
2 3 5 6 8 10 11 17 24 26 33 34 40 41	 CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information MARCH updates LDS SOAC updates SOP SOP completes LSR ILEC gateway notifies CLEC of completed order ILEC gateway notifies CLEC of completed order ILEC gateway notifies CLEC of completed order 	Pre-Order Pre-Order Order to SOG Order Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOAC SOAC SOAC MARCH (ASAP for ISDN BRI) MARCH (ASAP for ISDN BRI) SOP SOP SOP SOP ILEC gateway ILEC gateway	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% NA	-	R R R R R R R R R R R R R	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ -
2 3 5 6 8 10 11 17 24 26 33 34 40 41 42	CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information MARCH updates LDS SOAC updates SOP SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc. SOP completes LSR ILEC gateway notifies CLEC of completed order ILEC billing system issues final bill to migrating customer Eall Out: RMAs forwarded to PAWS for reconciliation	Pre-Order Pre-Order Order to SOG Order Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOAC SOAC SOAC MARCH (ASAP for ISDN BRI) MARCH (ASAP for ISDN BRI) SOP SOP SOP SOP ILEC gateway ILEC gateway BAWS CPUT Time	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% NA NA	-	R R R R R R R R R R R R R R	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ -
2 3 5 6 8 10 11 17 24 26 33 34 40 41 42 44	CLEC requests customer address data, CSR, and appointment from ILEC ILEC gateway requests address data from Administrative Information System a CLEC customer service representative inputs LSR information into LOS ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR ILEC SOG retrieves CSR data, formats and passes to SOP SOP sends request to SOAC SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc. SOAC delivers recent change translation information MARCH updates LDS SOAC updates SOP SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc. SOP completes LSR ILEC gateway notifies CLEC of completed order ILEC billing system issues final bill to migrating customer Fall Out: RMAs forwarded to PAWS for reconciliation FallOut: Pull and analyze order	Pre-Order Pre-Order Order to SOG Order Provisioning	CLEC gateway Premis, ALOC, BOSS, CRIS ACTIVIEW ILEC gateway, STAREP, DOE BOSS, SOP SOAC SOAC SOAC MARCH (ASAP for ISDN BRI) MARCH (ASAP for ISDN BRI) SOP SOP SOP SOP SOP ILEC gateway ILEC gateway ILEC gateway ILEC gateway ILEC gateway ILEC gateway	OSS or OSS-like that manages the activity.	NA 100.0% NA 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% NA NA NA	-	R R R R R R R R R R R R R R R R R R R	S - S

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Price Proposal	v2.0
	TOTAL
NRC TYPE	COST
	Price Proposal NRC TYPE

FLORIDA Non-Recurring Cost

2 POTS / ISDN BRI - Migration - UNE- Platform 0.21

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