

State of Florida



Public Service Commission

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TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: October 24, 2011
TO: Ann Cole, Commission Clerk, Office of Commission Clerk
FROM: Laura V. King, Economic Analyst, Division of Regulatory Analysis *lvk*
RE: Document to be Filed in Docket No.: 000121A-TP - Investigation into the establishment of operations support systems permanent performance measures for incumbent local exchange telecommunications companies. (AT&T FLORIDA TRACK)

The attached presentation will be used and discussed during the staff training workshop to be held on October 25, 2011. As such, please file it in the docket file.

DOCUMENT NUMBER DATE

07762 OCT 24 =

FPSC-COMMISSION CLERK

AT&T Wholesale

SE System Architecture

Ron Moore, Principal IT Business Manager

October 25, 2011





OSS Architecture – Overview



Customer Interfaces



Service Management Layer



Network Management Layer

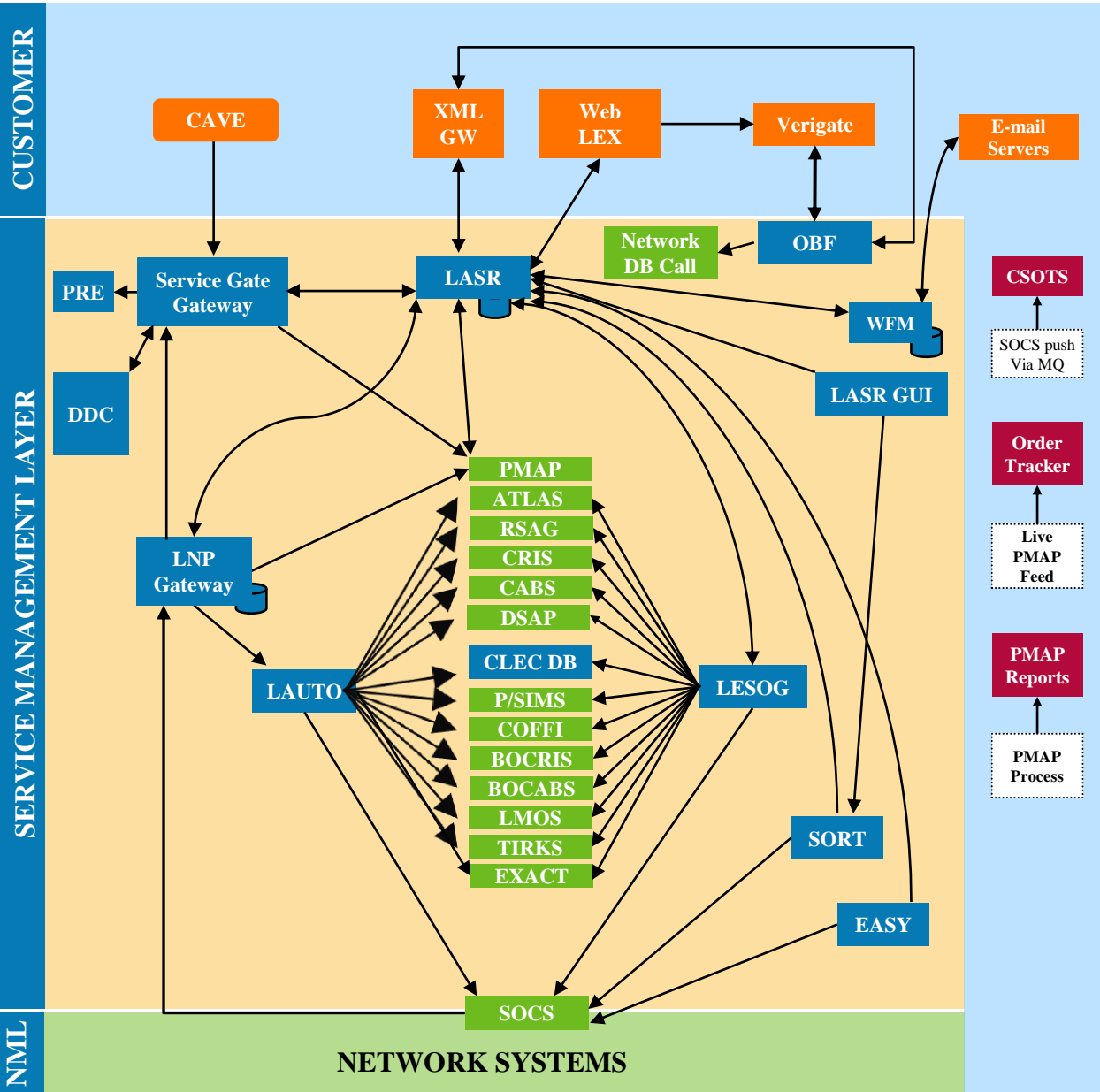


Reporting



OSS Architecture

Overview



CLECs have same opportunity to place orders as retail representatives – using systems that have been proven to be of like nature.

The OSS system developed for CLECs to do business with AT&T has evolved:

- Resale and facility provisioning
- Local Number Portability (LNP)
- UNE Remand
- AT&T / BellSouth merger

Customer Interface (SERVICE REQUEST)

- XML GW – CLEC application that interfaces with AT&T (machine to machine)
- Web LEX – AT&T provided interface (GUI – Graphical User Interface)
- Email submitted on template

Service Management Layer (ORDER)

- LNP / Non-LNP / Manual
- Service Order Generators
- Center interface (LASR GUI)

Network Management Layer (RESOURCES)

- Dispatch, Facility, Feature, TN

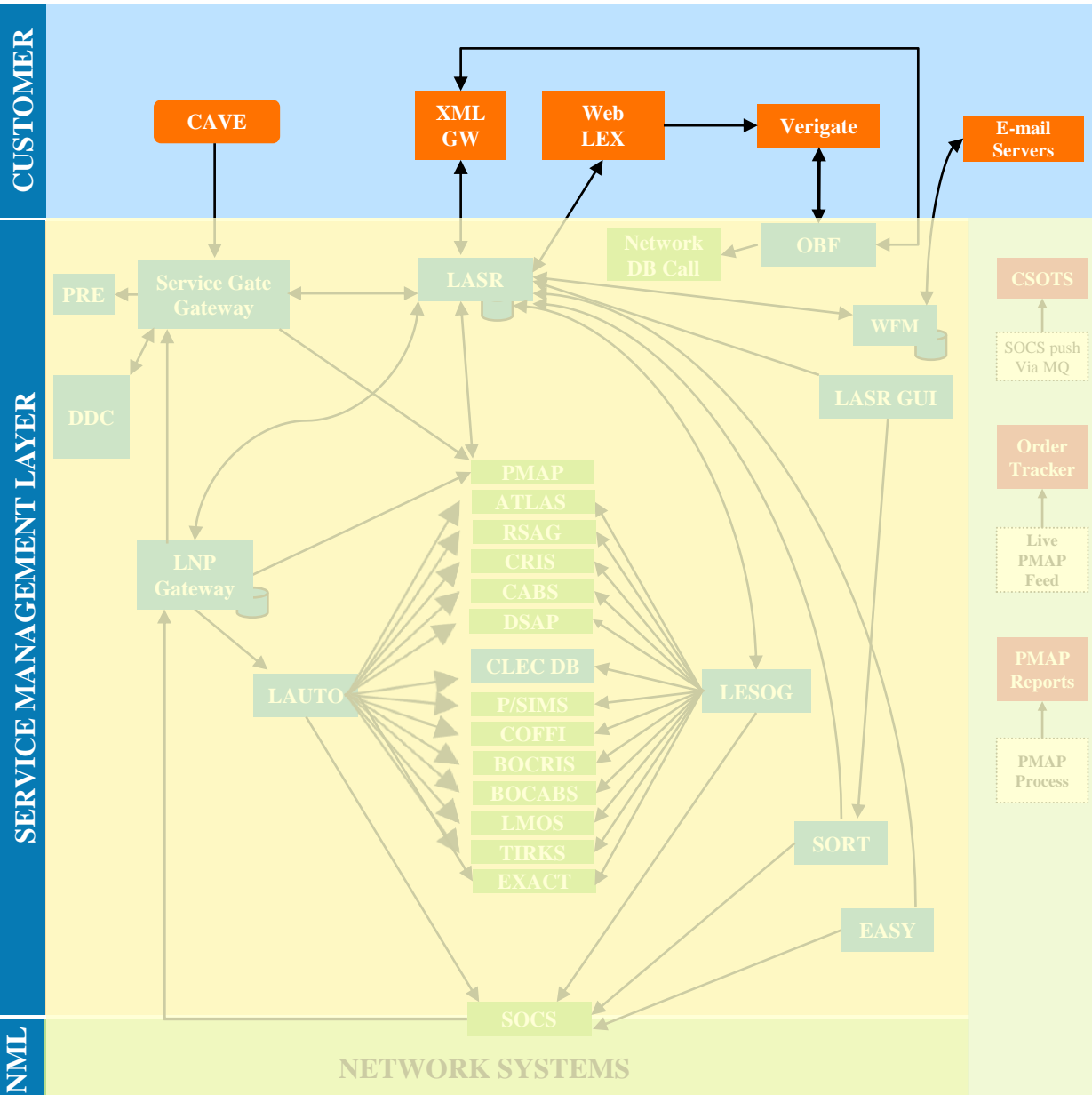
Reporting (STATUS AND MONITORING)

- Operational Reporting (Status)
- PMAP Reporting (Performance)



Customer Interfaces

Preorder and Order Flows



A CLEC wants to provide services and submits a request in one of 3 ways: through a self developed application that interfaces to the XML (eXtensible Markup Language) Gateway; via AT&T developed Web LEX (Local Service Request Exchange System) interface; or by email sent on a template form to a specified mailbox.

Preorder services such as TN (Telephone Number) or facility availability and validation activities like address look up are done by accessing a system called Verigate. An interface between LEX and Verigate exists so that a CLEC can perform preorder functions in conjunction with ordering.

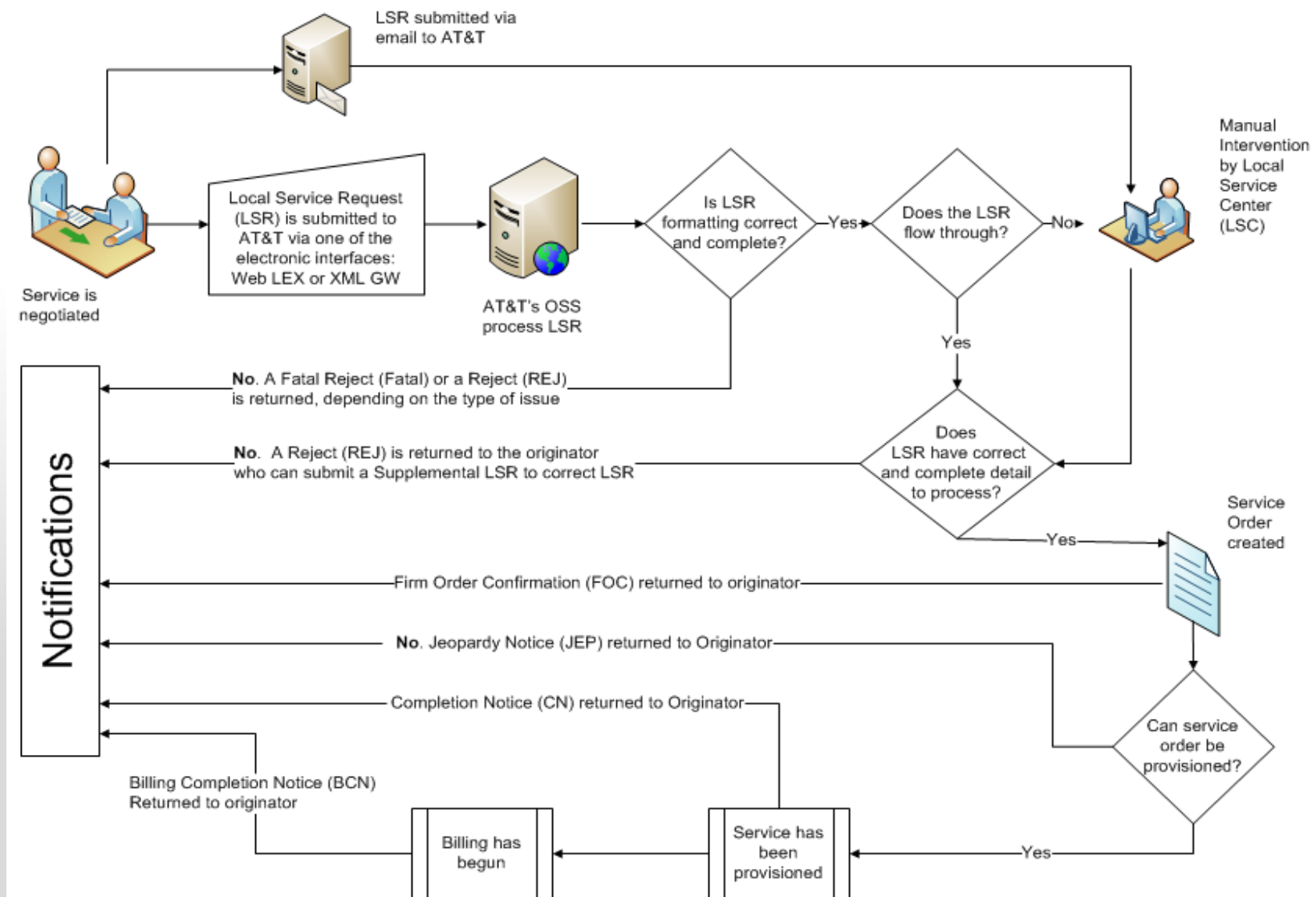
Order services such as a resale line, a TN port, or a directory listing are requested via the LSR (Local Service Request) process. Upon receipt of the LSR, AT&T will process it and provide appropriate responses.

Responses may contain availability, validation, or a **reservation number** for preorder activities; **FOC** (Firm Order Confirmation) for processed LSRs; **reject** for incomplete or erroneous LSRs; **jeopardy** for facility or resource constraints; **completion notice** for provisioning activity completion; or **billing completion notice**.

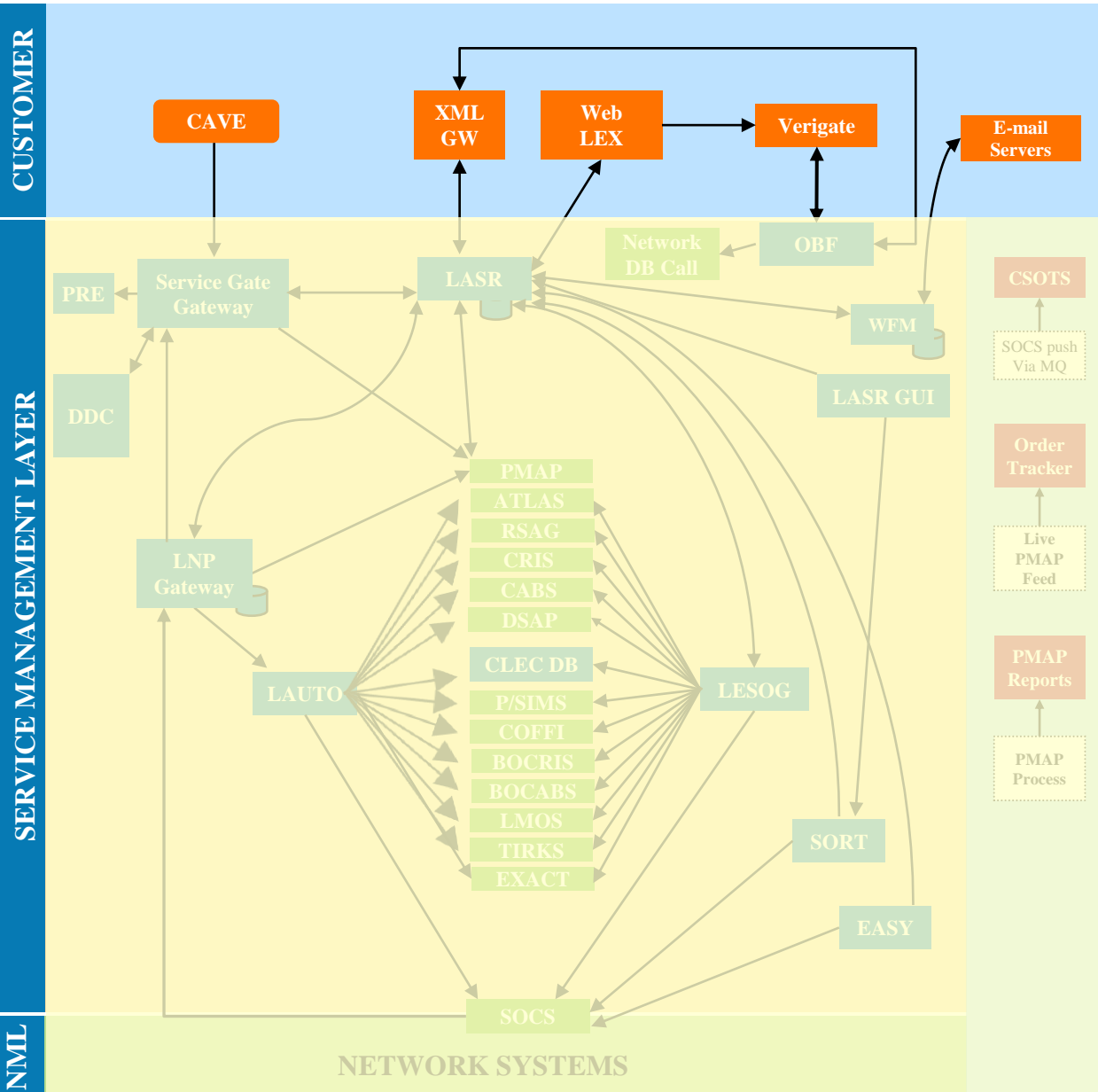
Additional reporting is available to CLECS for data such as LSR and Service Order Status, Customer Service Record (CSR), CLEC Line Loss, and Usage.

Customer Interfaces

LSR Flow



Customer Interfaces Systems



A CLEC has several ways to interconnect with AT&T. The CLECs or 3rd party aggregators transmit LSRs through the XML Gateway, via WEB LEX, or sending an email.

XML Gateway is a machine to machine gateway to process requests. An industry standard is defined (XML) for data to be passed between the companies. The CLEC designs an application to map the required information into this format. This is used for preorder and ordering requests.

CAVE (CLEC Application Verification Environment) is an environment available for a CLEC to system test their initial or upgraded connection to AT&T's OSS (Operations Support System) and also allows CLECs to test AT&T's systems during its periodic upgrades to the OSS.

Verigate (PREORDER) is an AT&T Web GUI (Graphical User Interface) that allows a CLEC to query our network systems for network element (TN, facilities, etc.) validation and availability.

Web LEX (ORDERING) is an AT&T created Web GUI that is used for order requests. Business rules validate the request as it is created. There is a link between Web LEX and Verigate to facilitate the preorder validation during the placement of orders.

Email templates are available to request service.

Customer Interfaces

Web LEX

New to Web Toolbar?
If you've never used Web Toolbar, install the software using the Setup program. Click [Instructions](#) to find out how.

[Instructions](#)

[Click here to log on to Web Toolbar](#)

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Toolbar

Version 2.3.2

User:
Password:

This is an AT&T Inc company system restricted to use by AT&T Inc company employees and its licensed users. The system is restricted to official business and is subject to being monitored at any time. Anyone using this system expressly consents to such monitoring and to any evidence of unauthorized access, use, or modification being used for criminal prosecution.

Please do not close, minimize this window while Toolbar is running.

File View Actions Data Reports Help

Status	PON	VER	User ID	Last Activity D/T	End User Name	Service Type	Activity Type

Select Region

Click a region on the map or a button that corresponds to the region. Then, click Submit.

AT&T Midwest Region AT&T Connecticut
 AT&T Southwest Region AT&T West Region
 AT&T Southeast Region

NUM Navigation
Add Copy Delete

First Next Prev Last
 Go

Note: Web LEX is used for Order Activities

File View Actions Data Reports Help

AT&T Southeast Region

Status	PON	VER	User ID	Last Activity D/T	End User Name	Service Type	Activity Type

WELCOME TO LEX
Version 10.11

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Toolbar

Bill Information	USOC Search Tool	SE USOC Search Tool	Verification Gateway
LEX 10.11	Options	Exit	Help
Recent News	Please do not minimize the Toolbar login screen		System Status





Customer Interfaces

Web LEX

File View Actions Data Reports Help							
Status	PON	VER	User ID	Last Activity D/T	End User Name	Service Type	Activity Type

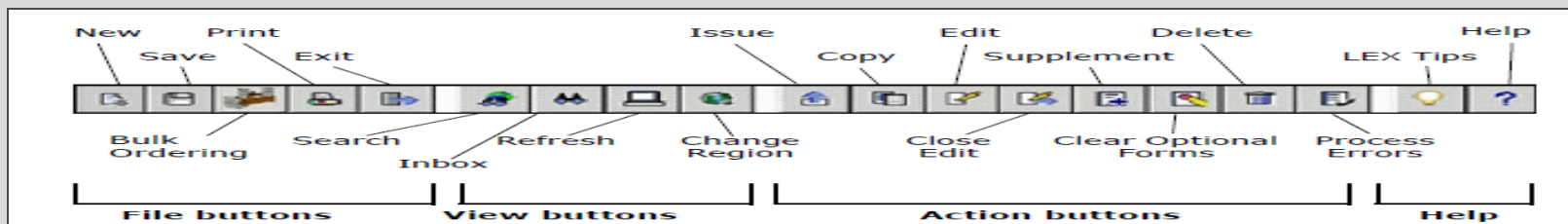
- File**
- New LSR
- Save
- Print Forms
- Bulk Ordering
- Exit

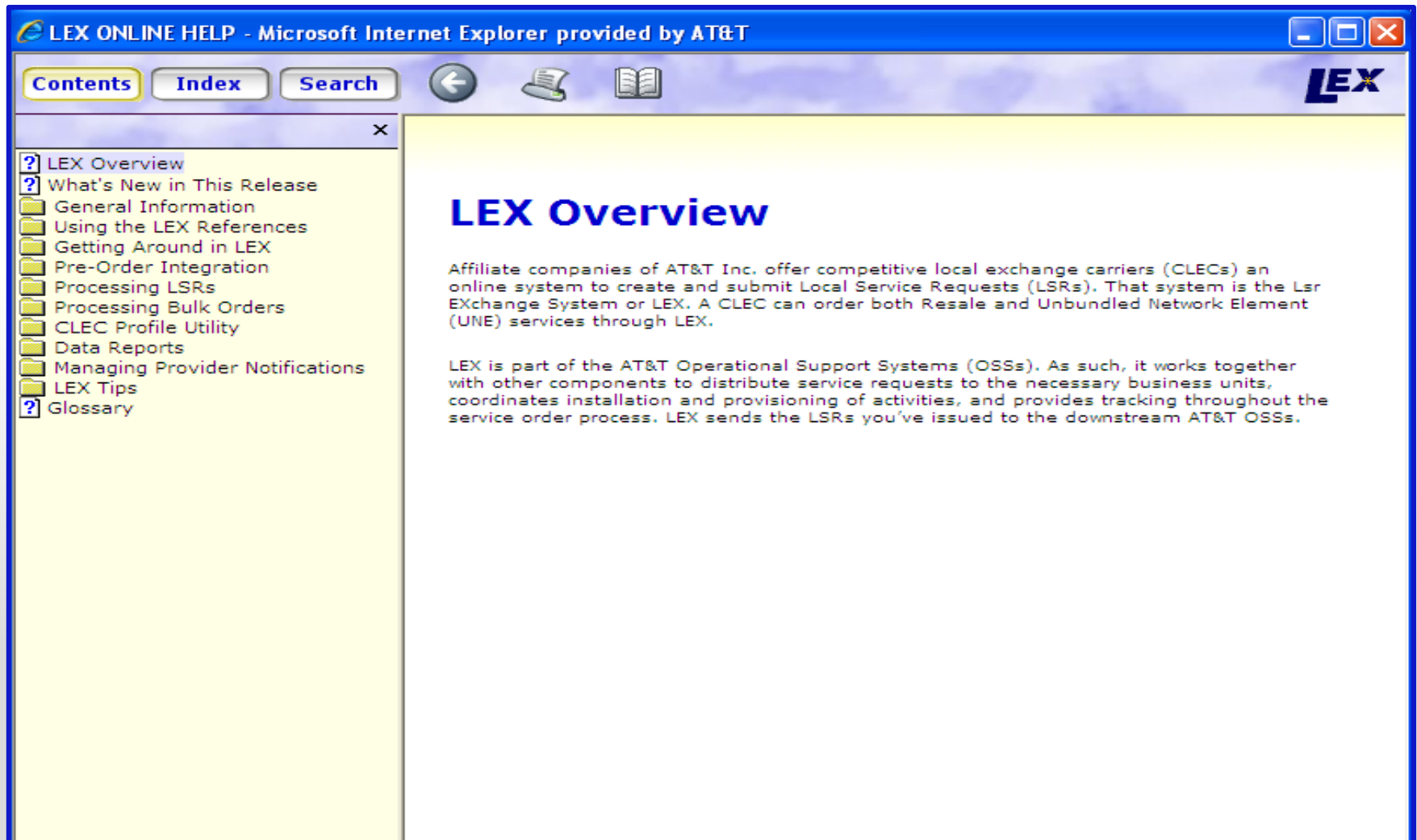
- View**
- Search
- Inbox
- View Errors
- Refresh
- Change Region
- Provider Notifications

- Actions**
- Issue LSR
- Copy LSR
- Edit LSR
- Close Edit
- Supplement LSR
- Clear Optional Forms
- Delete LSR
- Process Errors
- Cancel
- CLEC Profile Utility

- Data Reports**
- LSR / Service Form Data
 - LSR - EU
 - Loop Service
 - Loop with NP Service
 - Number Portability Service
 - Port Service
 - Port with Loop Service
 - Resale Service
 - Directory Listings
 - Directory Service Request - EU
- Current Notifications
- Coordination
- Historical Analysis
- Usage Analysis

- Help**
- LEX Tips
- Help Topics
- View Read Me File
- About





The screenshot shows a web browser window titled "LEX ONLINE HELP - Microsoft Internet Explorer provided by AT&T". The browser's address bar and navigation buttons are visible. The page content is organized into a left-hand navigation pane and a main content area. The navigation pane lists various topics, with "LEX Overview" selected. The main content area displays the "LEX Overview" page, which includes a title and two paragraphs of text describing the LEX system and its integration with AT&T's Operational Support Systems (OSSs).

LEX ONLINE HELP - Microsoft Internet Explorer provided by AT&T

Contents Index Search

- ? LEX Overview
- ? What's New in This Release
- General Information
- Using the LEX References
- Getting Around in LEX
- Pre-Order Integration
- Processing LSRs
- Processing Bulk Orders
- CLEC Profile Utility
- Data Reports
- Managing Provider Notifications
- LEX Tips
- ? Glossary

LEX Overview

Affiliate companies of AT&T Inc. offer competitive local exchange carriers (CLECs) an online system to create and submit Local Service Requests (LSRs). That system is the Lsr EXchange System or LEX. A CLEC can order both Resale and Unbundled Network Element (UNE) services through LEX.

LEX is part of the AT&T Operational Support Systems (OSSs). As such, it works together with other components to distribute service requests to the necessary business units, coordinates installation and provisioning of activities, and provides tracking throughout the service order process. LEX sends the LSRs you've issued to the downstream AT&T OSSs.





Customer Interfaces

LSR Email Form Example

LSOG 10 - Effective 03/20/2010

036152

End User Service Request

Administrative Section		PCN	<input type="text"/>	VER	<input type="text"/>		
PG	<input type="text"/>	OF	<input type="text"/>				
<hr/>							
Location and Access Section		LOCNUM	<input type="text"/>	EUA	<input type="text"/>		
NAME	<input type="text"/>		NCON	<input type="text"/>	AFT	<input type="text"/>	
SAPR	<input type="text"/>	SANO	<input type="text"/>	SASF	<input type="text"/>	SASD	<input type="text"/>
SASN	<input type="text"/>						
SATH	<input type="text"/>	SASS	<input type="text"/>	LD1	<input type="text"/>	LV1	<input type="text"/>
LD2	<input type="text"/>	LV2	<input type="text"/>	LD3	<input type="text"/>	LV3	<input type="text"/>
AAI	<input type="text"/>						
CITY	<input type="text"/>						
STATE	<input type="text"/>	ZIP CODE	<input type="text"/>	ORDN	<input type="text"/>		
LCON	<input type="text"/>	TELNO	<input type="text"/>	EUMI	<input type="text"/>		
ACC	<input type="text"/>						
WSOP	<input type="text"/>	CPE MFR	<input type="text"/>	LOCNUM HEADER	<input type="text"/>		
CPE MOD	<input type="text"/>	ELT	<input type="text"/>	IBT	<input type="text"/>	LOCNUM DETAIL	<input type="text"/>





Customer Interfaces

Verigate

- Set Service Center / Area Default
- MAIN MENU**
- Address Validation Inquiry**
- Numbered
 - Descriptive
 - Unnumbered
 - Unnamed
 - TN (Telephone Number)
 - Manual Request-View Results
- Loop Qualification Inquiry**
- Actual Data
 - Archived Actual/Design Data
 - Manual Request-View Results
 - Manual Request -- WTN
 - Facilities Report
 - Multiple Loops Inquiry (Address Only, Actual Only)
 - Loop Pre-Qualification Inquiry
 - Integrated Digital Loop Carrier (IDLC) Inquiry
 - Loop MakeUp for Spare Facilities*
 - Cancellation Facilities Reservation*
- Feature/Service Availability**
- Feature Inquiry
 - PIC/LPIC Inquiry
- Complex Products Inquiry**
- Initial Product Inquiry
 - View Results
- CSI Inquiry**
- CSI by ATN*
 - CSI by Circuit Number*
 - CSI by Miscellaneous TN*
 - View Multiple CSIs*
 - View CABS CSI*
- Directory Listing Inquiry**
- Order Status Inquiry**
- POS Inquiry**
- TN Inquiry**
- Confirm Reservation
 - Cancel Reservation
 - Reserve Miscellaneous Account Numbers*
- RACF Inquiry**
- Rate Group Inquiry**
(AT&T Southwest Region only)
- View All***
- YPH Inquiry**
- Batch Cut Inquiry**
- Inquiry/Reservation
 - View Results/Modify
 - Bulk Reservation
 - Bulk Confirmation
 - Cancel Reservation
- Data Validation Link**
- CSOTS**
- HELP**
- AT&T Southeast References**
- Back to Main Menu**
- * AT&T Southeast Region only

C
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Welcome to Enhanced Verigate!

Set Your Service Center / AREA Default: yes no

Service Center Default:

Area Default:

Company Code (AT&T Southeast Region):

CCNA (AT&T Southeast Region):



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Note: Verigate is used for Preorder Activities

Toolbar			
Bill Information	USOC Search Tool	SE USOC Search Tool	Verification Gateway
LEX 10.11	Options	Exit	Help
Recent News	Please do not minimize the Toolbar login screen		System Status





Numbered Address Validation

Service Center (SC1):

Area:

Service Address House Info:

Prefix (SAPR):

Number (SANO):

Suffix (SASF):

Service Address Street Info:

Directional (SASD):

Name (SASN):

Thoroughfare (SATH):

Suffix (SASS):

Loc. Designator 1 (LD1):

Loc. Value 1 (LV1):

Loc. Designator 2 (LD2):

Loc. Value 2 (LV2):

Loc. Designator 3 (LD3):

Loc. Value 3 (LV3):

City (CITY):

State (STATE):

Zip (ZIP):

Validated Address

BLPW907ADR THIS ADDRESS ALSO HAS
LIVING UNITS WITH SUPPLEMENTAL ADDRESSES

Available Telephone Numbers (ATN):

9546894375	W	<input type="text"/>
9546894374	W	<input type="text"/>

Service Address House Info:

Prefix (SAPR):

Number (SANO): 12399

Suffix (SASF):

Service Address Street Info:

Directional (SASD): SW

Name (SASN): 53RD

Thoroughfare (SATH): ST

Suffix (SASS):

Loc. Designator 1 (LD1):

Loc. Value 1 (LV1):

Loc. Designator 2 (LD2):

Loc. Value 2 (LV2):

Loc. Designator 3 (LD3):

Loc. Value 3 (LV3):

Additional Address Information (AAI):

Listed Address Locality (LALOC):

City (CITY): COOPER CTY

State (STATE): FL

Zip (ZIP): 33330

Route (ROUTE):

Box (BOX):

Number Plan Area / Number Tel. Prefix (NPA/NXX): 954434

Exc. Cent. Off. ID (EXCO):

Facility Environment Provisioned (FEP):

Quick Service Indicator(QSI):

Quick Service Telephone Number(QSTN):

Rate Zone Mileage Applies (RZMA):

Service Instructions (SI):

AREA TRANS CUT DT:

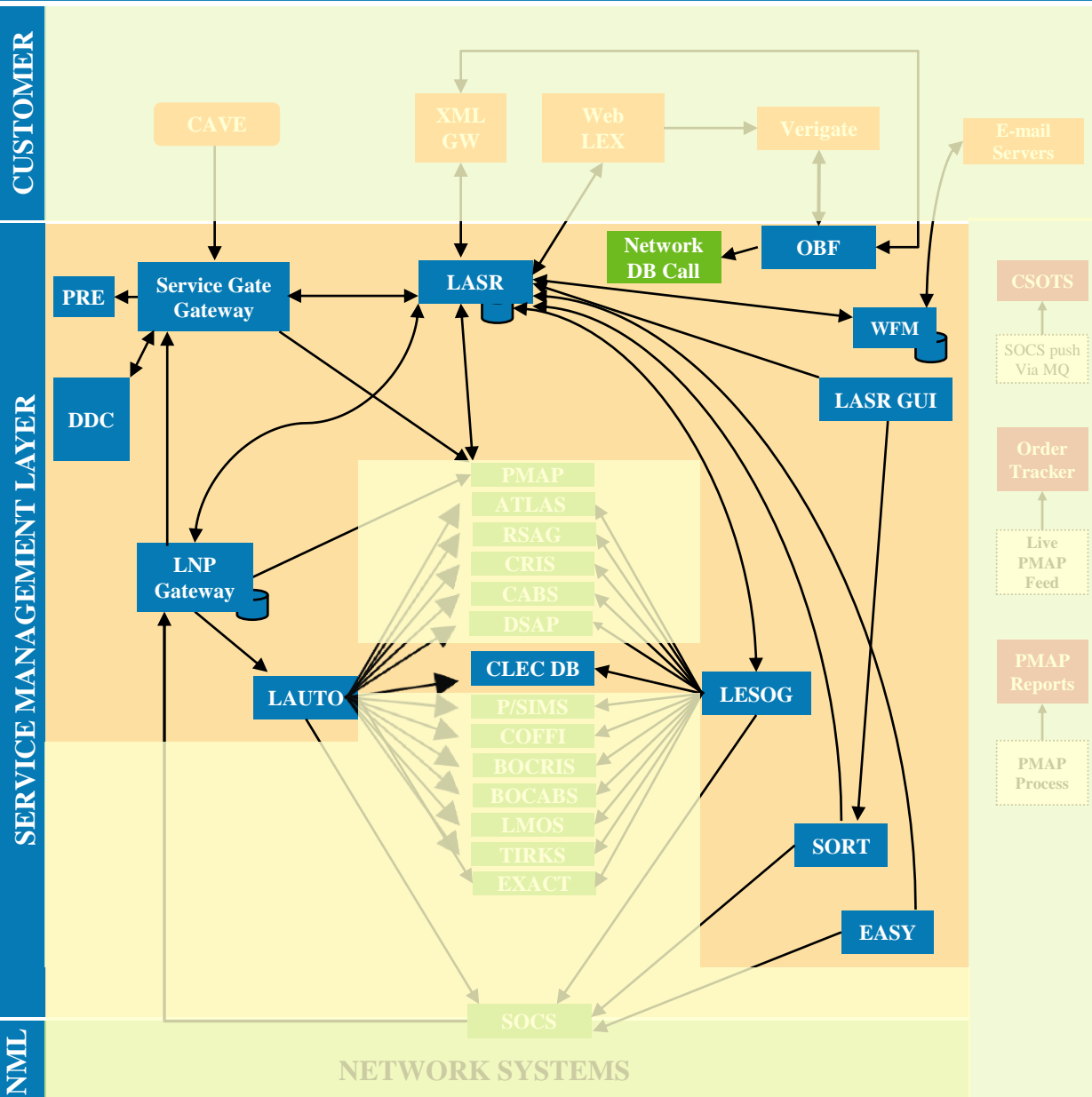
AREA TRANS NUM CHGDT:

AREA TRANS NPANXX:

AREA TRANSFER WC CLLI:



Service Management Layer Systems

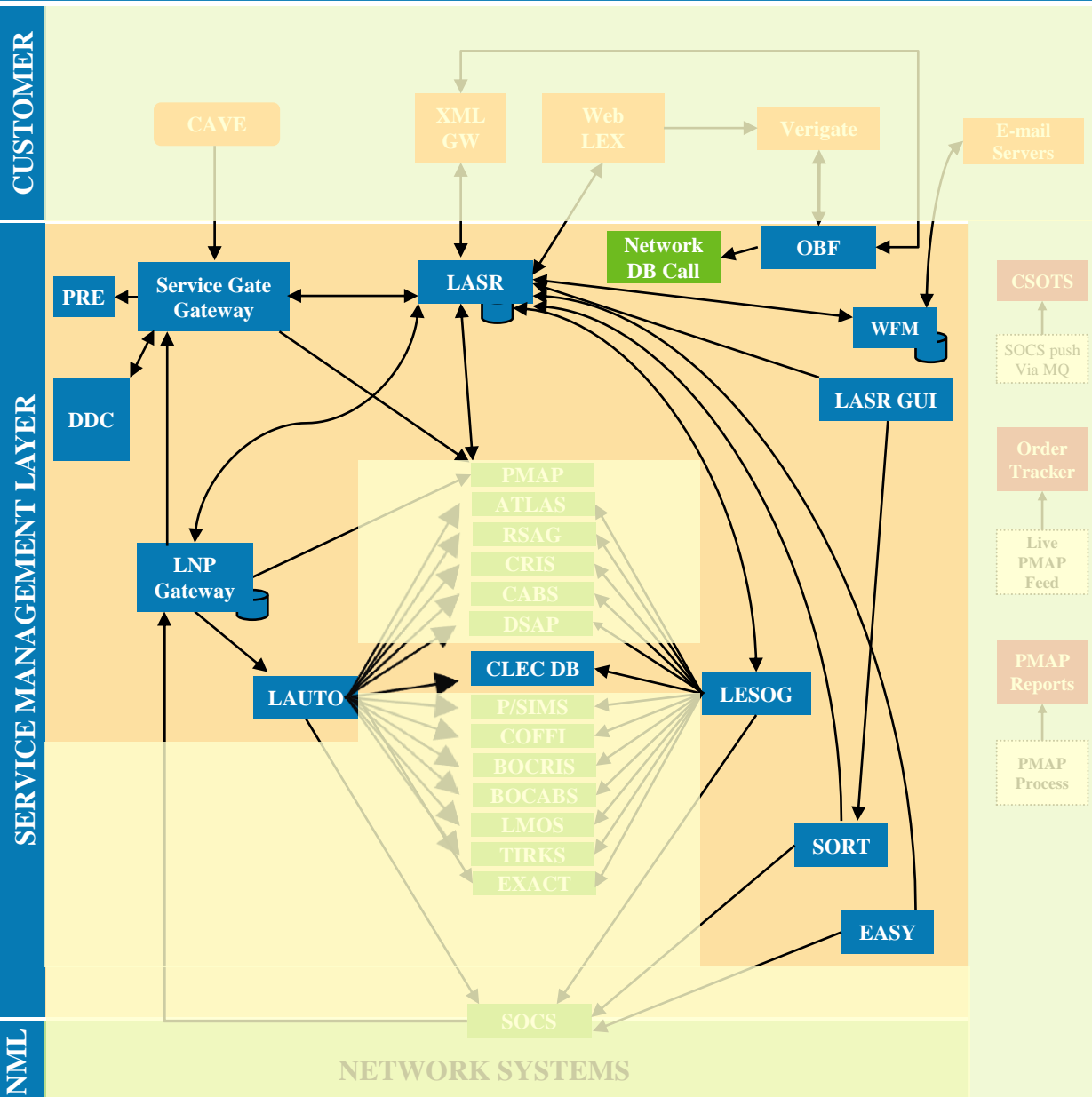


The AT&T Local Service Center (LSC) is responsible for translating the LSR that the CLEC submits into a Service Order that the Network organizations will use to provision the products and services. Many internal systems and databases are used. Several of the major applications and databases are:

- OBF** Provides Wireline Telco data to CLECs and business rule validation
- LASR** Provides status and tracking of individual LSRs
- LASR GUI** Web based interface used by LSC
- WFM** Tracks email and fallout LSRs
- SGG** Used to process LNP requests
- PRE** SE LNP business rules
- DDC** Due Date (DD) calculator
- LNP GW** LNP Gateway interface to NPAC
- LAUTO** LNP Service Order Generator
- LESOG** Non-LNP Service Order Generator
- CLEC DB** Maintains CLEC information used by systems
- SORT** Tool used to compare Service Order to LSR
- EASY** Tool used to automate some LSR fallout
- SOCS** Service Order application that distributes the service order to appropriate network work groups

Service Management Layer

Process

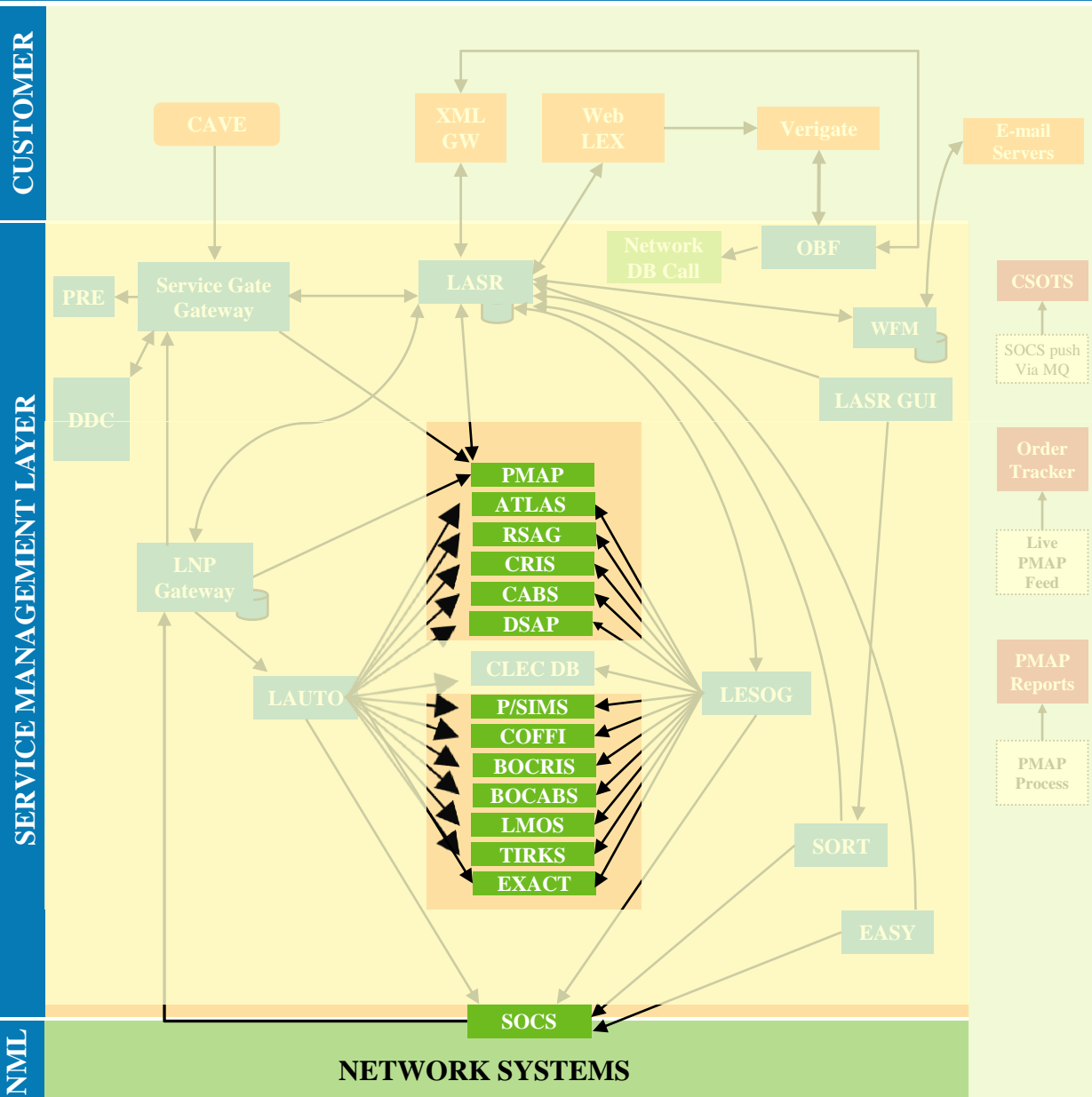


LASR (Local Access Service Request System) is the repository for tracking and providing statuses for CLEC ordering requests (LSRs). LASR does 1st level validation and routes the LSR, based upon type (LNP or non-LNP), to **LESOG** (Local Exchange Service Order Generator) or to the **SGG** (Service Gate Gateway) for additional **PRE** (Programmable Rules Engine) screening and to **DDC** (Due Date Calculator), and **LAUTO** (LNP Automation – Service Order Generator).

Should issues arise with information on the LSR, a reject is sent back to the CLEC. The CLEC can issue a supplemental version of the LSR to modify the request. For a “clean” LSR (no issues), a FOC is returned with the Due Date, the Service Order Number, and appropriate facility and TN information.

The vast majority of the LSRs flow through the OSS without any manual intervention. The LSC uses several tools to help issue orders submitted via email as well as electronically submitted LSRs that fall out either by design or the small percentage where unplanned fallout may occur. **WFM** (Work Flow Manager) tracks and provides status for these types of LSRs. Additionally, the LSC uses **SORT** (Service Order Review Tool) to assist in the checking of manually generated service orders. **EASY** (Error Automation System) can assist with the processing of simple service order modifications and error correction.

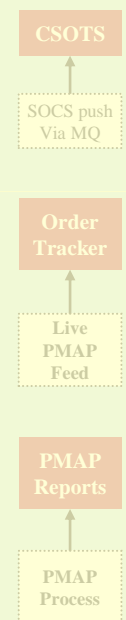
Network Management Layer

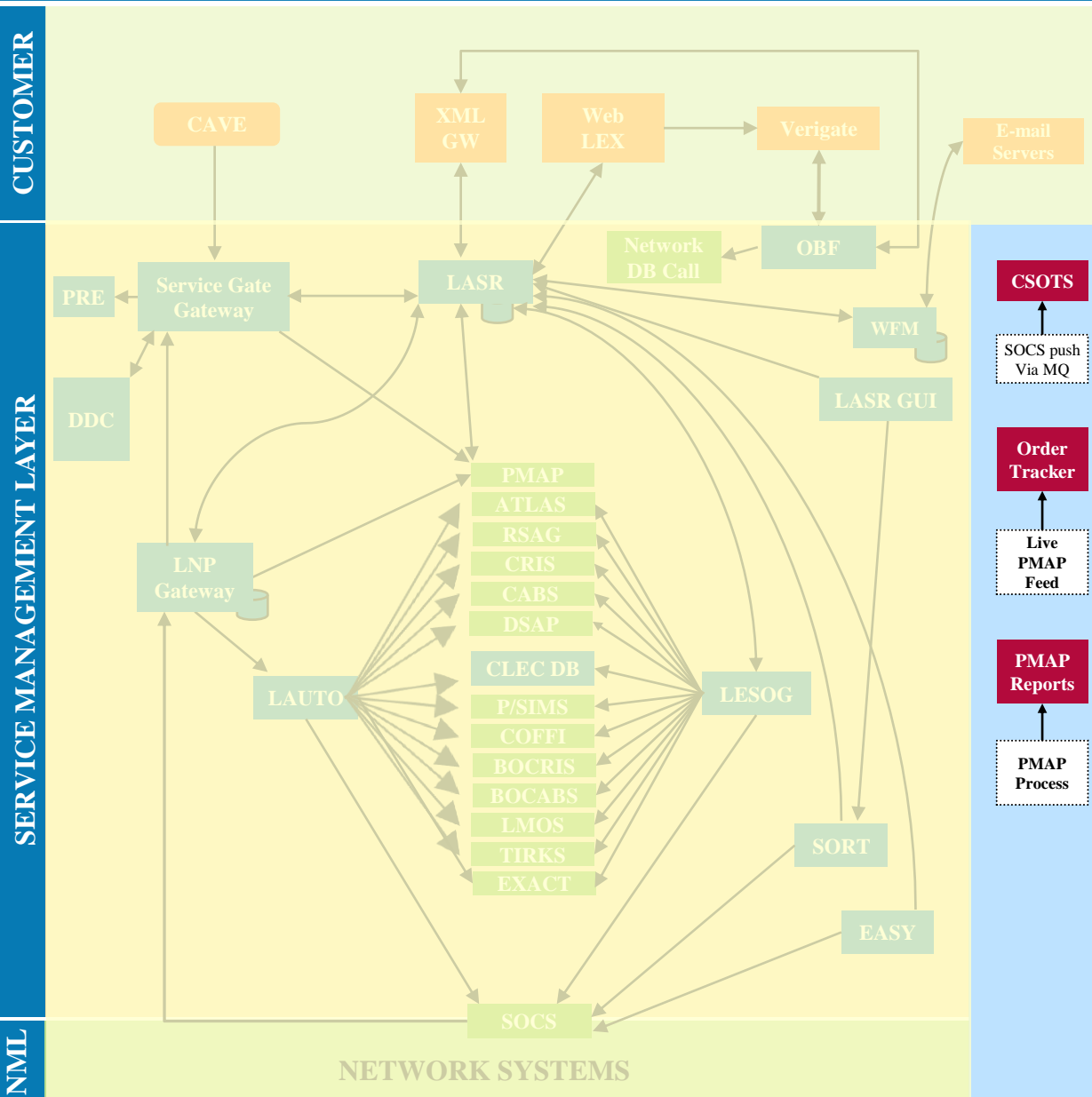


Many database systems are used to provision and bill the local services. These systems keep track of network inventory information and various billing structures depending upon the particular contract or tariff that governs the ordering of a service. These network systems and databases are the same ones that are used by AT&T retail systems.

Several of the main network systems and databases are:

- ATLAS** Maintains TN availability
- RSAG** Regional Street Address Guide
- DSAP** Distributes DD Assignment Information
- P/SIMS** Feature Information by Wire Center
- COFFI** Interface for features (PIC/LPIC)
- LMOS** Loop Maintenance Operating System
- TIRKS** Tracks design components of circuits
- EXACT** Used for order entry of access service circuits
- BOCRIS** Business Office Customer Records Inquiry System (Non-Design services)
- BOCABS** Business Office Carrier Access Billing System (Access / Design services)
- PMAP** Performance Measurement Analysis Platform





There are several ways that a CLEC can keep track of service requests submitted or completed.

Order Tracker provides a near real time view of LSR requests. This information is updated several times a day and gives processing status from receipt of LSR to Firm Order Confirmation or Rejection.

CSOTS (CLEC Service Order Tracking System) is a web-based tool that allows a CLEC to query the Service Order Communication System (SOCS). This is a view of the AT&T service order as it progresses through the provisioning process. The order may progress from a status of AO (waiting for assignment) through PD (Pending Dispatch) and PC (Post Completion). This nightly feed is updated from the SOCS system to provide summary data.

The **Performance Measurement and Analysis Platform (PMAP)** provides a view of AT&T's service level performance to a CLEC in several measurement categories. Depending upon the metric, the performance measure may be a benchmark or a parity comparison to the level of service provided to AT&T retail customers. Should a benchmark not be met or the CLEC not receive parity treatment for a metric, **Self Effectuating Enforcement Mechanism (SEEM)** remedies may be invoked and disbursed to the CLEC.



Open Discussion



Appendix





CLEC Interface Systems

VERIGATE, WEB LEX, XML Gateway, CAVE



Service Request Systems

SGG, PRE, DDC, WFM, LESOG, SORT, EASY, LNP GATEWAY, LAUTO, OBF, CLEC DB, LASR, LASR GUI



Network Systems

ATLAS, RSAG, CRIS, CABS, DSAP, PSIMS, COFFI, BOCRIS, BOCABS, LMOS, TIRKS, EXACT



Reporting Systems

CSOTS, Order Tracker, PMAP



SYSTEM	FUNCTION
ATLAS	<ul style="list-style-type: none">• Application for TN load, Administration, and Selection• Provides pool of available numbers to negotiation systems <LAUTO, LESOG, ROS, RNS>
BOCABS	<ul style="list-style-type: none">• Business Office Carrier Access Billing System
BOCRIS	<ul style="list-style-type: none">• Business Office Customer Records Inquiry System
CABS	<ul style="list-style-type: none">• Carrier Access Billing System
CAVE	<ul style="list-style-type: none">• CLEC Application Verification Environment• Used to test machine to machine interfaces
CLEC	<ul style="list-style-type: none">• Competitive Local Exchange Carrier
COFFI	<ul style="list-style-type: none">• Central Office Features File Interface• Interface for features, services, PIC / LPIC , daily update from P/SIMS
CRIS	<ul style="list-style-type: none">• Customer Records Information System
CSOTS	<ul style="list-style-type: none">• CLEC Service Order Tracking System



SYSTEM	FUNCTION
DD	<ul style="list-style-type: none">• Due Date
DDC	<ul style="list-style-type: none">• Due Data Calculator• Assigns Appropriate due dates for service requests based upon location, network element availability, workforce load <technician availability>
DSAP	<ul style="list-style-type: none">• DOE (Direct Order Entry) Support Application• Storage and distribution of DD assignment information. It does not perform Due Date Calculation
EASY	<ul style="list-style-type: none">• Error Automation System
EXACT	<ul style="list-style-type: none">• Exchange Access Control and Tracking System• Provides mechanized order entry for processing access service requests
LASR	<ul style="list-style-type: none">• Local Access Service Request System• Tracking system for entry and processing of local service requests received electronically from CLECs
LASR GUI	<ul style="list-style-type: none">• Graphical User Interface for LASR
LAUTO	<ul style="list-style-type: none">• LNP Automation• Converts LNP LSRs into AT&T SE standard service orders and enters them in SOCS (Service Order Communication System)
LESOG	<ul style="list-style-type: none">• Local Exchange Service Order Generator• Converts LSRs into AT&T SE standard service orders and enters them into SOCS (Service Order Communication System) for distribution to provisioning systems



SYSTEM	FUNCTION
LMOS	<ul style="list-style-type: none">• Loop Maintenance Operating System• Master line assignment data used to determine dispatch on repair orders
LNP Gateway	<ul style="list-style-type: none">• Local Number Portability Gateway• Processes LSRs for porting TNs
LSC	<ul style="list-style-type: none">• Local Service Center• Manages LSRs that are sent in via email or that do not flow through
LSR	<ul style="list-style-type: none">• Local Service Request
OBF	<ul style="list-style-type: none">• Ordering and Billing Forum Adapter• Provides wireline telco data in industry defined format. Performs common data translation and validation of business rules
OSS	<ul style="list-style-type: none">• Operational Support System• Suite of systems used to provision service requests
P/SIMS	<ul style="list-style-type: none">• Product / Services Inventory Management• Provides current and planned service availability (equal access service, carrier info, features info)
PMAP	<ul style="list-style-type: none">• Performance Measurement and Analysis Platform
PRE	<ul style="list-style-type: none">• Programmable Rules Engine• Working in conjunction with SGG, provides additional validations in SE OSS system
RSAG	<ul style="list-style-type: none">• Regional Street address Guide• Master source for service address data





SYSTEM	FUNCTION
SGG	<ul style="list-style-type: none">• Service Gate Gateway
SOCS	<ul style="list-style-type: none">• Service Order Communication System
SORT	<ul style="list-style-type: none">• Service Order Review Tool• Automate LSR to Service Order comparison for orders issued manually by LSC
TIRKS	<ul style="list-style-type: none">• Trunks Integrated Records Kicking system• Used to track design components of circuits
TN	<ul style="list-style-type: none">• Telephone Number
UNE	<ul style="list-style-type: none">• Unbundled Network Element
Web LEX	<ul style="list-style-type: none">• Local Service Request Exchange System
WFM	<ul style="list-style-type: none">• Workflow Manager• Assists in tracking and status for email service requests and "drop to manual" (non-Flow thru) requests
XML	<ul style="list-style-type: none">• Extensible Markup Language• Used for machine to machine interfaces

