

CenturyLink

XML Implementation Guidelines – for Interconnect Mediated Access (IMA) Release 36.0 Version 15

Date

April 28, 2014,

Prepared by:

CenturyLink
Electronic Interface Services Team

For questions regarding this document, please contact

Electronic Interface Services
(303) 992-9725
700 W. Mineral Ave
Littleton, Colorado 80202

Abstract:

This document will assist CLECs in understanding and successfully managing the process of implementing XML trading capabilities between their organization and CenturyLink. The information in this document is specific to the use of the XML interface to Interconnect Mediated Access system and should not be construed as being applicable to other XML interfaces available from CenturyLink.

Document Information

Document Owner: Electronic Interface Services Team

Document History

All revisions made to this document are listed here in chronological order.

Version	Date	Description
1.0	7/7/06	New Document for XML Interface 20.0
2.0	9/15/06	Add SATE WSDL, update Connectivity section re: Digital Certificates, updated the Implementation Overview, Negotiations, Connectivity and Progression Testing process diagrams, update Connectivity and Technical Information sections to provide additional configuration and technical information
3.0	10/16/06	Corrected the pull maximum – number of notices that can be requested per pull transaction from 500 to 100.
4.0	10/30/06	Corrected Production WSDL URLs.
5.0	02/05/07	Made updates to Technical Information section.
6.0	03/09/07	Made updated to Technical Section. Minor updates throughout.
7.0	09/28/07	Made updates to SATE Data Request Process, Connectivity section, Progression and Controlled Production Minimum Testing requirements
8.0	03/07/08	Made updates to Technical Information. Minor updates throughout.
9.0	04/21/08	Updated the URL to reflect the change from edi to xml made on 4/21/08 to the IMA XML URL.
10.0	09/05/08	Updates to Migration process
11.0	03/06/09	No major updates
12.0	03/05/10	Updates to the WSDL URLs for Pre Order
13.0	09/02/11	Updates to change Qwest to CenturyLink

14.0	03/09/12	No major updates
15.0	04/28/14	Connectivity testing-Current Release Production WSDL URLs updated. EIS REP information is updated with the EIS TEAM information eis.team@centurylink.com .

Important: This document has been through a formal review process. To the best of our knowledge it is accurate. CenturyLink reserves the right to make further modifications, as necessary.

CenturyLink Information Technologies

XML Implementation Guidelines – for Interconnect Mediated Access (IMA)

TABLE OF CONTENTS

1. INTRODUCTION	6
Purpose	6
Audience.....	6
Scope.....	6
Sections in this Guide.....	6
Acronyms.....	7
2. CENTURYLINK ENVIRONMENTS.....	8
Stand Alone Test Environment Overview.....	8
SATE System Layout.....	9
SATE Supported Transactions and Products.....	9
SATE Transaction Responses.....	10
SATE Multi-Release Support Schedule.....	11
SATE Functionality – Assumptions.....	12
Adding Additional Data to SATE.....	12
3. IMPLEMENTATION ACTIVITIES	14
Initial Communications	16
Initial Communications and Project Plan Negotiations Flow Diagram.....	17
Initial Communications Activities	17
Initial Communications Phase Completion	18
Project Plan Development/Negotiation.....	19
Typical Implementation Timeline	19
Project Plan Negotiation Phase Completion.....	19
Requirements Review	20
Requirements Review Process Flow Diagram	20
Requirements Review Activities	21
CenturyLink Documentation Overview	21
<i>Disclosure Document</i>	22
Requirements Review Phase Completion	23
Connectivity Testing	24
Current Release Production WSDL URLs.....	24
Current Release SATE WSDL URLs.....	24
XML Post Order Notices	24
Connectivity Process Flow Diagram	26
Connectivity Testing Activities	26
Connectivity Testing Phase Completion	30
Test Plan Development and Approval.....	31
Test Plan Review Approval Process.....	31
Progression Testing Phase	32
Progression Testing Process Flow Diagram	32
Progression Testing Activities.....	33
Progression Testing Phase Completion	36
Controlled Production Phase.....	37
Controlled Production Process Flow Diagram.....	37
Controlled Production Activities	38
Controlled Production Phase Completion.....	39
Production.....	40

Phased Support Procedures/Contacts	40
CenturyLink IT Wholesale Systems Help Desk Roles and Responsibilities.....	40
Limitations for CenturyLink XML Support	40
CLEC Roles and Responsibilities	41
Migration	42
Release Lifecycles	42
Migrating to a New Release.....	42
Recertification Requirements.....	43
Migration Activities	44
IMA Data Conversion.....	45
Migration Phase Completed	45
Regression Testing.....	46
Regression Testing Process Flow Diagram	46
Regression Testing Activities.....	46
Change Management Process.....	48
4. TECHNICAL INFORMATION	49
IMA XML Business Descriptions and Business Models	49
FBDL XML Transaction Processing.....	51
XML WSDL Information.....	52
Developer Worksheets	52
APPENDIX A: COMPARISON OF REGRESSION TESTING AND PROGRESSION TESTING VIA THE STAND-ALONE TEST ENVIRONMENT	55
APPENDIX B: SERVICE BUREAU IMPLEMENTATION GUIDELINES	57
APPENDIX C: IMA XML MINIMUM TEST REQUIREMENTS	66

1. Introduction

Purpose

This document assists Competitive Local Exchange Carriers (CLECs) in understanding and successfully managing the process of implementing XML trading capabilities between their organization and CenturyLink.

Audience

This document is intended for organizations wishing to implement wholesale trading capabilities with CenturyLink for the exchange of Pre-Order, Order, and Post-Order information via the IMA XML interface. It also contains information regarding the CenturyLink Stand Alone Test Environment (SATE) that can be utilized for either regression testing of the XML interface software or progression testing that is related to the implementation of an IMA XML release. Service Bureaus, as related to an Implementation project, are covered in Appendix B.

Scope

This document provides a general overview of the XML Implementation Process. Additional information and documentation will be provided during implementation support meetings. The information in this document applies to the use of the IMA XML interface and should not be construed as being applicable to other XML/electronic interfaces available from CenturyLink.

Sections in this Guide

This document is divided into four sections addressing the Implementation Process in terms of both the business and technical information. Following the Introduction, the CenturyLink Environments section provides information on the environment that will be utilized during the implementation processes, the Implementation Activities section addresses the Trading Partner requirements and processes in an XML implementation project (or migration), and the Technical section addresses system and interface issues, and the data syntax/business rules necessary to successfully create and submit electronic information via XML to CenturyLink systems.

Acronyms

CLEC	Competitive Local Exchange Carrier (CLEC generically refers also to any customer implementing IMA XML)
CMP	Change Management Process
CM	Configuration Management
EIS	Electronic Interface Services
EIS-TL	Electronic Interface Services-Team Lead
FBDL	Facility Based Directory Listings
IMA	Interconnect Mediated Access
LSR	Local Service Request
LSOG	Local Service Ordering Guidelines
OBF	Ordering and Billing Forum
OSS	Operational Support Systems
SATE	Stand Alone Test Environment
EIS TEAM	Electronic Interfaces Service Team. Members of this team perform Project Management (PM), Technical Support Engineer (TSE) and Business Analyst (BA) roles
SYAD	System Administrator
TCV	Trading Partner Configuration Verification
VICKI	Virtual Interconnect Center Knowledge Initiator
XML	eXtensible Markup Language

2. CenturyLink Environments

CenturyLink utilizes two environments for the implementation process. The Production environment is not only used for submitting production transactions but also for conducting the Controlled Production testing. The Stand Alone Test Environment (SATE) is used for both Progression and Regression testing. More information surrounding Controlled Production, Progression and Regression testing will be covered later in this document.

Stand Alone Test Environment Overview

CenturyLink has developed SATE to take Pre-Order and Order requests, pass them to the stand-alone database, and return responses to the SATE user. SATE uses test account data and requests that are subjected to the same IMA XML system edits and flow through edits as those used in production. For SATE users, CenturyLink will provide the account data (see the SATE Data Document). Order scenario submissions do not leave the SATE testing environment and do not affect the existing production data, nor are they provisioned.

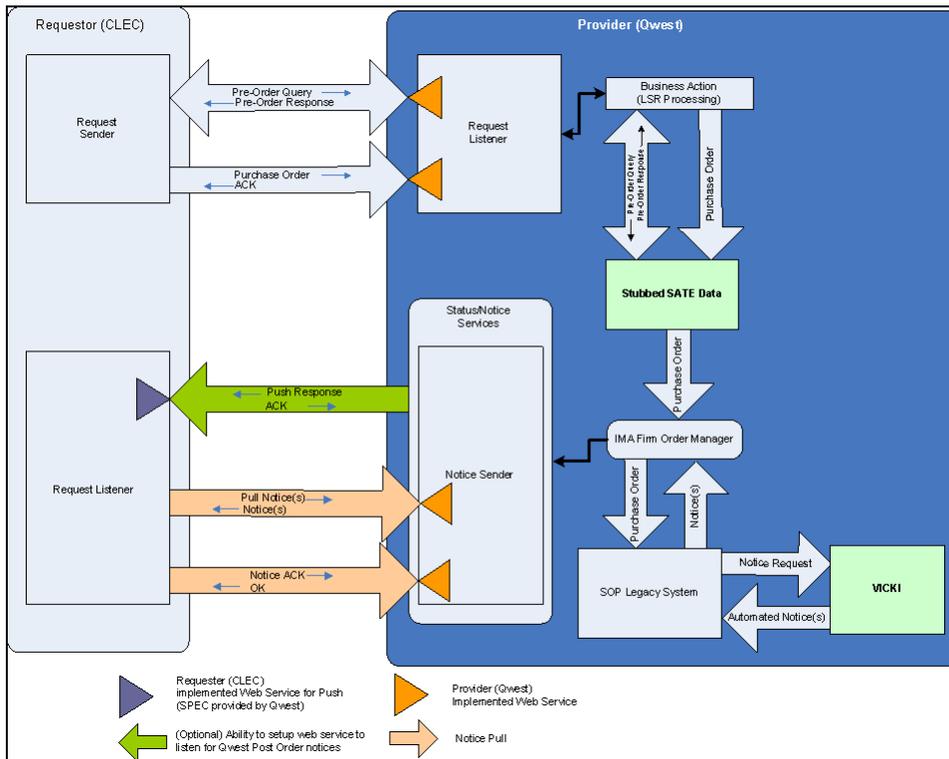
The SATE system has production flow through capabilities for valid product and activity combinations. If the order passes the flow through edits a Local Response (FOC) will be automatically generated and sent to the CLEC.

CenturyLink is also able to send automated responses using VICKI (the Virtual InterConnect Knowledge Initiator). Detailed information on the use of VICKI can be found at: <http://www.CenturyLink.com/wholesale/ima/xml/index.html>. VICKI allows the CLEC to specify a response chain, which returns most responses automatically. Although the use of VICKI is not required, it is highly recommended.

The goal of SATE is to supply a test environment that can be used to accomplish the following:

- Test an XML application against real IMA functionality - SATE provides a test environment that does not rely on real production systems but, at the same time, interacts with the SATE user's application in the same manner as IMA XML production systems.
- Test XML WSDLs and receive consistent responses – a primary benefit of both regression and progression testing.
- Run Pre-Order transactions, Orders, and Post Order transactions, including cancellations and Supplemental transactions, and receive error messages and consistent responses as a result.
- Practice the creation and submission of LSRs via the XML interface.
- Enable the CLEC to identify where to review their business processes and modify the technology that supports their XML interface.
- Provide automated post-order responses using VICKI.
- Provide the ability to test whether a given LSR would flow-through to the CenturyLink SOPs in a test environment.

SATE System Layout



All systems in the shaded area to the right are copies of the production systems. SATE houses simulated legacy system data and responses, known as stub data.

SATE Supported Transactions and Products

The following transactions and all responses associated with them are included in the current release of the Stand-Alone Test Environment:

Pre-Order

- Address Validation (Numbered Addresses only)
- Appointment Scheduling
- Cancel TN/Appointment
- Connecting Facility Assignment
- Facility Availability (Convert POTS to Unbundled Loop, POTS Facility Availability, HICAP Design Services)
- Meet Point Query
- Raw Loop Data Query
- Customer Service Record Query¹
- Service Availability
- TN Reservation Query (with TNSR following)
- Loop Qualification Query
- Listings Reconciliation Query

¹ FTP or e-mail requests will not be returned; the appropriate post-order response will be returned.

Order

- Centrex Plus
- Centrex 21
- Centron
- Directory Listing Only
- EEL/UNE Combination
- Facility Based Directory Listing
- Local Number Portability
- POTS Resale
- CenturyLink DSL
- Shared Loop (including Line Splitting and Loop Splitting)
- UNE-P Centrex
- UNE-P Centrex 21
- UNE-P POTS
- Unbundled Loop
- Unbundled Loop with Number Portability (LNP only)
- Unbundled Distribution Loop
- Unbundled Distribution Loop with NP
- UNE Centrex 21 (P or STAR) Split
- UNE-P POTS (P or STAR) Split
- UNE Unbundled Loop Split
- Unbundled Loop Split with NP
- Resale Private Line (contact CenturyLink for data)
- PRI ISDN Facility (contact CenturyLink for data)
- PRI ISDN Trunks (contact CenturyLink for data)

Post Order

- Local Response
- Completion
- Status Updates
- Pending Service Order Notification (PSON)
- Billing Completion Notification (BCN)
- Batch Hot Cut Status Update
- Service Order Status Inquiry (SOSI)
- Provider Notification (PN) - one-way (CenturyLink to CLEC) XML transaction

Note: Additional functionality can be agreed upon and added in later releases. Requests for transactions not currently supported may be requested via CMP.

SATE Transaction Responses

In SATE, Pre-Order and Order transactions are created using CenturyLink provided data that when correctly submitted to SATE, will return consistent responses. These responses will enable the SATE user to test the XML WSDLs, as well as ensure that these responses can be successfully received and interpreted by the CLEC.

SATE's VICKI functionality will allow a CLEC to submit a Local Service Request (LSR) in SATE and receive specific expected responses. The set of responses produced from chronological system

events is known as a “Path”. The paths are listed in detail in the SATE VICKI Path document. If a desired path includes manually generated responses, such as a Manual FOC, the response is still listed in this document; however, the phrase “Manually Generated” is shown. When a path ends in a manually generated response, the LSR will be included in a CenturyLink manual work queue to trigger the response to be sent to the CLEC.

The automated replies from the Stand-Alone system will remain consistent over time. For example, a Raw Loop Data query for a given phone number will always give the same reply. The only case where this will not be true is on related scenarios and the data saved in them. For example, in the case of POTS Resale, an edit is done on whether a phone number has been reserved. A CLEC may therefore have an LSR error if the TN is not reserved, but the same LSR would go through if a phone number had been reserved. Another case where saved data will be used, making replies differ, is Supplemental LSRs.

Unless the data document indicates otherwise, the system generated error codes and messages returned in SATE will mirror the Production environment. As some responses in SATE and production are manually generated, the verbiage used in SATE on the manually generated outbound response may not match what a CLEC may receive in production, nor represent the actual message/data content expected from the result of the transaction or Order.

SATE does not mimic the timing of responses in production. Pre-Order responses and BPL errors are system-generated in real-time from SATE.

Where CSRs are requested via e-mail or FTP, the appropriate post-order response will be generated. The CSR will not be sent via e-mail or FTP.

CLECs may escalate a technical inquiry or a Progression response request to the EIS TEAM. If technical problems are experienced in SATE, contact the EIS TEAM.

SATE Line Loss Notifications (PN) is manually generated individually. If you wish to receive a PN transaction, contact the EIS team. .

SATE Multi-Release Support Schedule

At a minimum, the SATE environment will support any releases that are currently available for implementation in IMA. New releases of IMA are planned for release on the IMA XML Stand-Alone Test Environment approximately thirty calendar days prior to their release into production unless that release is deemed to be in ‘red testing status’. Red testing status indicates that the IMA release’s system testing effort has discovered significant issues that place the release in jeopardy. There will be no mid-cycle data conversion in SATE. The sunset dates for SATE will be the same as for the IMA Production releases.

SATE Functionality – Assumptions

Interface

- The IMA Stand-Alone Test Environment is for electronic transactions only. No IMA GUI access is provided.

Availability - Days/Hours of Operation

- The SATE system will be available from 6 am to 8 pm Mountain Time (MT) on Monday through Friday only. Technical support will be provided from 8 am to 6pm Monday through Friday. During the remaining hours that the SATE system is available (Monday through Friday 6am-8am and 6pm-8pm (MT)), limited after-hours technical support may be provided upon request.

Usage Limits

- CenturyLink reserves the right to limit the number of transactions or Orders submitted by any single SATE user where such usage levels could jeopardize or diminish the usefulness of SATE to other users; SATE is not to be utilized for load testing.

Transaction and Order Data Retention

- The IMA database designed to hold appointments, LSRs, and other data specific to the transactions being performed via the XML submittals will be completely cleared of all SATE-user-submitted data 30 days after the transactions are submitted. This will impact transactions and Orders that depend on related Transaction Numbers or Purchase Order Numbers (PONs) being in the system, such as SUPs, etc. Regression SATE users must anticipate this and plan their testing accordingly. The EIS TEAM will assist Progression users of SATE in test scheduling.

Adding Additional Data to SATE

The SATE Data Document contains data available in the SATE system for CLEC use in testing their IMA XML Interface. The SATE Data Document is updated for new releases any time a system change occurs that impacts the Data Document. In the course of testing their interface, a CLEC may need additional data added to the SATE system to support their testing. If such additional data is needed, the data request process is used.

The Data Request Process:

- For a new data request, the CLEC completes a Data Request Form The SATE Data Request Form is located on the CenturyLink IMA XML web site:
<http://www.CenturyLink.com/wholesale/ima/xml/index.html>
- When completing the form, the CLEC should provide a detailed explanation of the data request. This explanation needs to include comprehensive detail that will allow CenturyLink to clearly understand the request. The CLEC then submits the completed Data Request Form to eis.team@centurylink.com
- When CenturyLink receives the data request, CenturyLink will send an e-mail message to the CLEC stating that the request was received and a review is in progress.
- During the initial review CenturyLink will review the data request to ensure a common understanding of the request. If necessary CenturyLink will send e-mails requesting more

information. If the request is still not understood, CenturyLink will schedule a meeting with the CLEC.

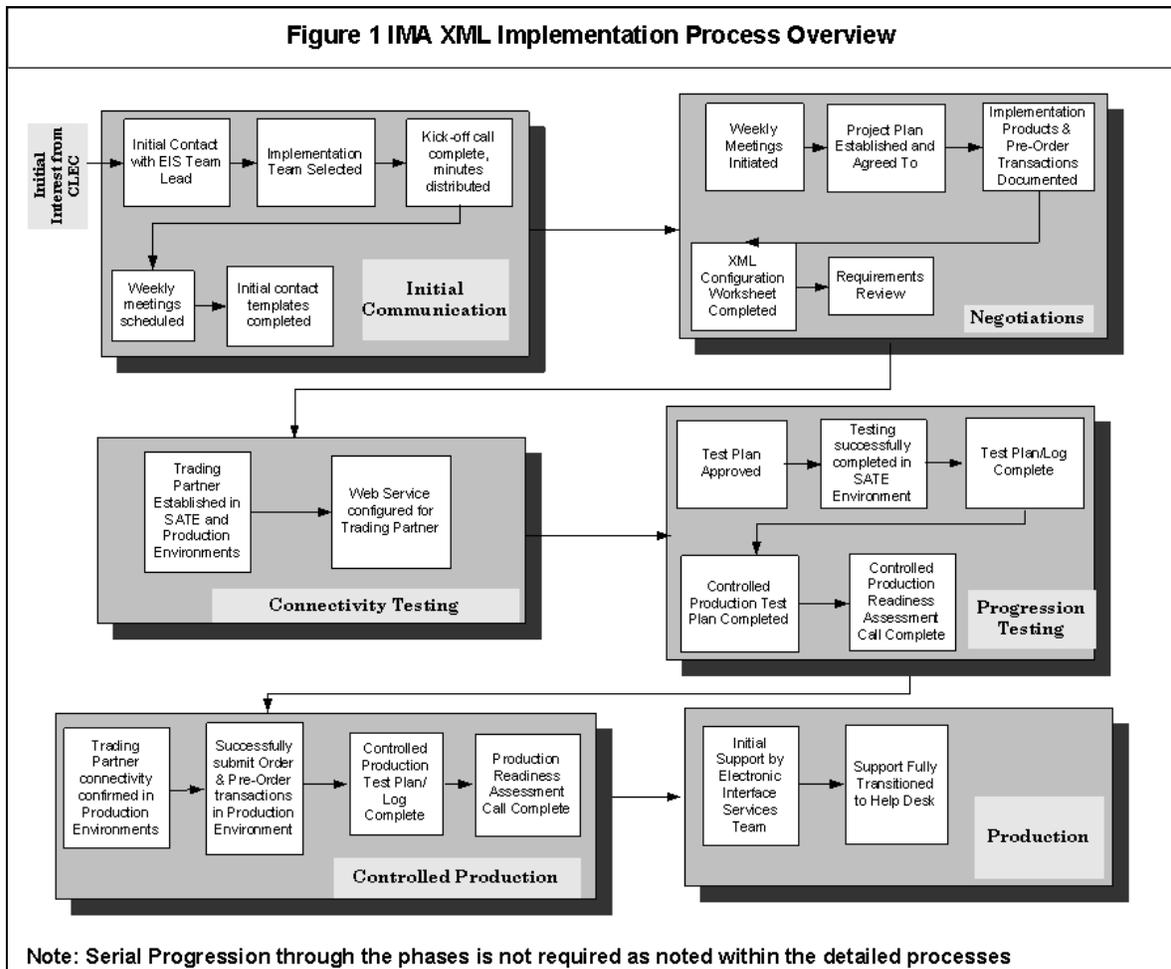
- CenturyLink will gather more information in an attempt to work with the CLEC to resolve any open questions that CenturyLink has regarding the data request.
- When the intent of the request is understood, CenturyLink will either deny the request or approve it. If the request is approved, the CenturyLink SATE Data Document coordinator will e-mail the data to be added to SATE to the requesting CLEC. This e-mail will request concurrence from the CLEC that the data included in the e-mail will satisfy the request. With the receipt of a concurring e-mail from the CLEC, the request is considered approved.
- Within ten business days of the approval, CenturyLink will load the approved data into SATE.
- When the data is loaded, the SATE Data Coordinator will send an e-mail to the requestor stating that the data has been loaded into SATE and it is available for testing use. **This data will remain in SATE and available for use with all IMA Releases going forward.**
- Although CenturyLink replicates all new data to all SATE CLEC accounts as part of loading new data, the data document will only be updated when multiple CLECs request similar data.
- All requested data must be fictitious. All requests are reviewed and validated against current production data. It is CenturyLink's policy not to add specific, real (production) customer data to SATE. If you would like us to "mirror" an existing account with fictitious customer identifying information, please note that in your request and provide examples where possible.

3. Implementation Activities

The use of XML provides an effective mechanism to automate the communication and processing of Order information and to reduce manual processes. The XML Implementation Process will progress according to an agreed upon plan and timeline. The typical project phases for CLECs implementing a given release will include:

1. **Initial Communications:** During this phase, all activities to initiate a CLEC's implementation are conducted, including the Kickoff conference call. For Migrations, we do this step via email and forgo the formality of a call if the customer is ok with it.
2. **Implementation or Migration Project Date Negotiation:** During this phase, the Implementation or Migration Project dates are discussed and finalized. Dates are either documented in the meeting minutes or via email.
3. **Requirements Review:** The Requirements Review phase provides an opportunity for a CLEC to review CenturyLink's XML system and business requirements and ask any questions they may have regarding those requirements. Most questions will be directed to the on-line question log located on the CenturyLink Wholesale Systems website for IMA XML, in the FAQ section: <http://www.CenturyLink.com/wholesale/ima/xml/index.html>.
4. **Connectivity Testing:** During this phase, CLEC connectivity is established and tested. This phase includes the set up of the Trading Partner configuration.
5. **Progression Testing:** This phase affords the CLEC the opportunity to validate their technical development efforts and to quantify LSR processing results in CenturyLink's Stand Alone Test Environment (SATE).
6. **Controlled Production:** This phase consists of the controlled submission of CLEC requests to the CenturyLink production environment for provisioning as production orders. CenturyLink and the CLEC use Controlled Production results to determine operational readiness for full Production turn-up.
7. **Production:** The CLEC is able to submit full volumes of production LSRs and pre-order transactions to CenturyLink..

Figure 1 provides an overview of the steps in each phase of a standard XML Implementation process. Some activities are precursors to others that follow. Others may be done in parallel. For example, requirement review and Test Plan development may occur while connectivity is being established. The Connectivity steps can be environment specific with certain tasks needing to be repeated for each environment.



Initial Communications

This section explains the objectives of the Initial Communications activity regarding XML trading capabilities. The Initial Communications discussion is intended to accommodate:

- A general description of the XML interface
- An overview of the XML Implementation Process
- Identification of applicable XML documentation resources
- Determination of the specific XML functionality to be implemented by the CLEC

Each CLEC will be provided with a CenturyLink EIS TEAM member that will perform all the roles noted below. The EIS TEAM member will work with the CLEC throughout the CLEC's XML Implementation. The EIS TEAM member performs the roles of:

- Project Manager (PM): Responsible for facilitating meetings, coordinating overall Project , and is the primary point of contact for CLEC implementation process.
- Business Analyst (BA): Responsible for providing assistance with the business rules and processes associated with the products offered by CenturyLink via XML.
- Technical Support Engineer (TSE): Responsible for facilitating the implementation processes from a systems standpoint and testing with the CLEC.

- Review the Implementation Guidelines and the Implementation Processes
- Discuss the Progression Testing options
 - SATE environment with VICKI or with manually-generated Post-Order notice responses, if VICKI is not used.
 - Attended testing vs. unattended testing.
- Review documentation resources
- Discuss administrative processes

Initial Communications Phase Completion

The initial communications phase will be considered complete with completion of the Kickoff call and initiation of configuration activities.

Project Plan Development/Negotiation

A formal Implementation/Migration Project Plan that represents the milestones and responsibilities of all parties throughout the planned XML implementation or migration process will be mutually negotiated. Regularly scheduled conference calls will be conducted to review progress, answer questions, and identify and communicate resolution of issues. The CenturyLink EIS TEAM and CLEC Project Manager will be jointly responsible for maintaining and monitoring progress within the Project Plan. A mutual negotiation and approval process will be used to manage changes to schedules as recommended or required by either party. All parties will give sufficient advance notice to the other party to allow adequate analysis of the impact of any proposed schedule changes.

The inability of either party to meet any of the milestones contained in the Project Plan on the date(s) identified may result in the need to renegotiate a revised Project Plan. All revised plans will be developed based on the availability of resources from within the respective organizations and may contain dates that are substantially different from those described in the original plan.

The development of, and agreement to, the Project Plan is the pre-requisite to beginning the Implementation

Typical Implementation Timeline

Actual implementation duration will depend on the number of transactions to be implemented, resource availability, project scope, and other factors.

CenturyLink recommends that a phased approach be used when implementing multiple transactions. Using a phased approach, the CLEC chooses the transactions that are most important to their business plan. The most important transactions would be implemented first. Additional transactions would then be implemented in phases during the implementation that is already underway or once the initial transactions are already in production. A detailed Project Plan representing each phase will be mutually defined. The plans will describe the specific activities to be performed in support of each phase of implementation for each transaction.

Project Plan Negotiation Phase Completion

This phase of the XML Implementation will be considered complete with the creation of an agreed upon project plan.

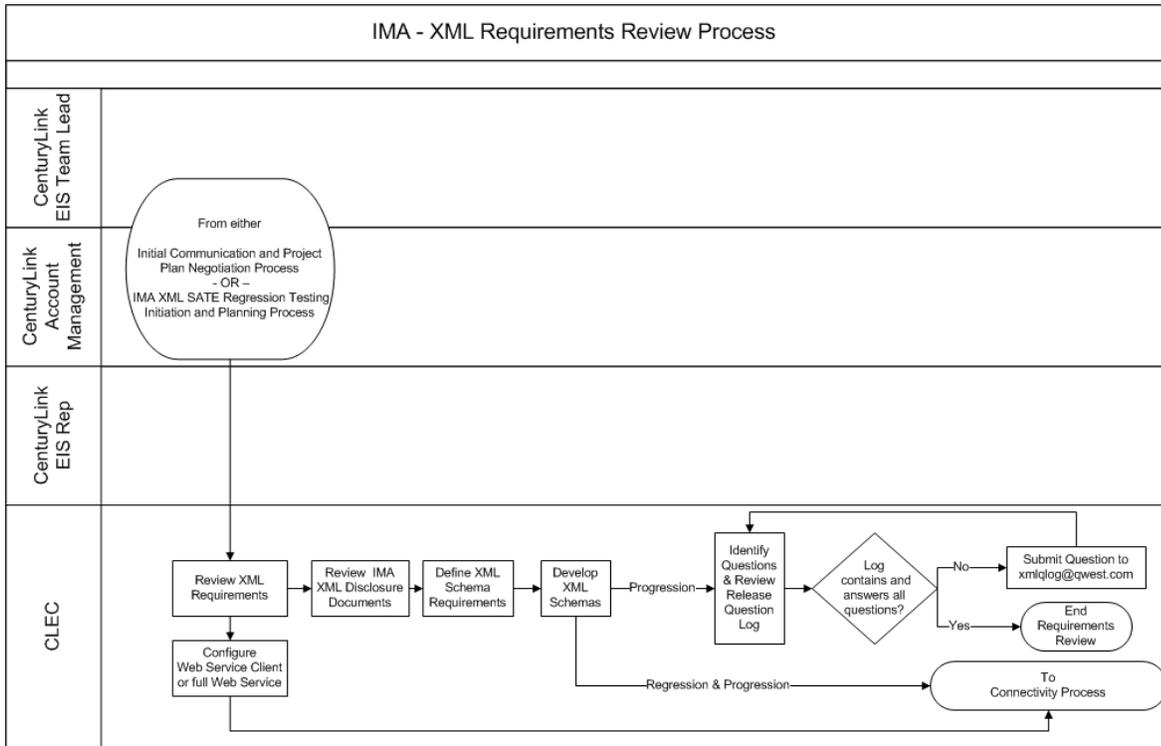
Requirements Review

A critical factor in a successful implementation is a thorough understanding by the CLEC of the CenturyLink XML interface. The requirements review phase of implementation will provide the CLEC with an opportunity to develop a clear understanding of CenturyLink requirements for IMA. This review is critical to the CLEC who must:

- Develop and define the business processes and procedures necessary to support the use of their XML interface for IMA transactions.
- Develop the appropriate documentation (i.e., Methods and Procedures) necessary to support the use of the XML interface by CLEC personnel.
- Perform any necessary database gap analysis for the purpose of ensuring that all data fields that carry the XML information can be successfully populated.
- Identify appropriate data values.
- Select Pre-Order transactions to support the intended products to be ordered through XML.

NOTE: CenturyLink strongly recommends the use of Pre-Order transactions to assist CLECs in achieving Order content accuracy, reducing rejection rates, and improving Service Order flow-through.

Requirements Review Process Flow Diagram



Requirements Review Activities

While it is the CLEC's responsibility to perform a thorough review of all CenturyLink requirements, CenturyLink will provide support to clarify issues and answer questions regarding the XML interface business rules, requirements, and the Implementation Process. CenturyLink recommends the following process to ensure that the CLEC has a thorough understanding of the answers to each question.

1. The CLEC reviews CenturyLink requirements as documented in the Disclosure Document, the Frequently Asked Questions (FAQ) document and other documents listed in the "CenturyLink Document Overview" section of this document.
2. Questions arising from the CLEC's review of XML requirements will be included on a release-specific Question Log, which will capture questions from all CLECs and will be made available to the CLEC community.
3. The question will be submitted to CenturyLink via email to eisteam@centurylink.com
4. CenturyLink will add the new question to the log and either provide a response to the question or identify those questions requiring further investigation and research. CenturyLink has 5-10 business days to provide this initial response. The questions will have one of three statuses: New=Question was recently added and status or a response will be included in the next log; In Progress=Question required further investigation and research and is currently in progress; Closed=Question has been answered.
5. Questions submitted by Wednesday will be added to the log and posted on Friday. Status and responses are communicated via posting of the log to the IMA XML website (<http://www.CenturyLink.com/wholesale/ima/xml/index.html>) each Friday. CenturyLink will date-stamp the Question Logs to indicate the date for the last update (eg: Combined CLEC Question and Answer Log – IMA XML 27.0 – Last Updated mm/dd/yy). CenturyLink will not post new logs or update the link title if there are no updates to those logs.
6. If a CLEC has follow-up questions on a Log item that is Closed, the additional question will be submitted to the eis.team@centurylink.com email address and will be tracked as a new question with a reference back to the original question.

CenturyLink Documentation Overview

The following documents provide additional information on the Implementation Process, IMA XML Requirements, or are designed to capture necessary business and configuration parameters. Distribution of these documents will occur as needed during the course of the implementation project.

Distributed prior to the kickoff call:

- Kickoff Agenda
- Contact List Template

Distributed after the kickoff call:

- XML Configuration Worksheet
- Test Plan Template

Additional information can be found on the IMA XML website (<http://www.CenturyLink.com/wholesale/ima/xml/index.html>) including:

- XML Implementation Guidelines for Interconnect Mediated Access (IMA)
- Link to Disclosure Document (Release Specific)
- Frequently Asked Questions
- IMA SATE Data Document (Release Specific)
- VICKI Path Document
- SATE Data Request Form
- IMA FBDL Corrective Procedures and Confirmation/Error Codes
- IMA and SATE Errors List (Release Specific)

Information specific to each new release is made available to the CLEC based on the schedule in Table 1, per the CMP-approved timeline for a change to an existing OSS Interface.

Table 1: CenturyLink IMA XML Disclosure Document Publication Schedule

PUBLICATION	SCHEDULED DELIVERY
Draft Disclosure Document	73 days before Release Date
Disclosure Document	45 days before Release Date
Change Summary	45 days before Release Date
Disclosure Document Addendum #1	2 weeks after Release Date
Disclosure Document Addendum #xx	As required to notify CLECs of system bugs

Disclosure Document

The CenturyLink XML Disclosure Documents present CenturyLink XML interface requirements. The Disclosure Document is issued and available on the CenturyLink website forty-five (45) days prior to each release (draft is available 73-days prior to the release) with a change summary from the prior release. When the Disclosure Document for a release is available, a release notification is distributed to the CLECs.

The content of the document may change after issuance, as the release is not yet deployed. To notify CLECs of any changes to the Disclosure Document, CenturyLink will issue an Addendum to the Disclosure Document two weeks after the release is issued. The Addendum will be placed on the CenturyLink website and a Release Notification will be distributed to the CLECs. Additionally, the Disclosure Document will be updated as required to correct for documentation and/or system bugs. When addenda are posted, the individual chapters and appendices will show an updated date

next to the chapter title to indicate that the content in that chapter has been updated in that addendum.

The Disclosure Document contains a chapter for each Pre-Order and Post-Order transaction and a chapter for Ordering. Each chapter contains the following sections:

- Business Description and/or Business Model—describes the electronic communication that comprises the complete business transaction cycle for a particular XML transaction and presents the sequence by which these electronic communications will be exchanged.
- XML WSDLs—defines the syntax and structure of the XML transaction data

Disclosure Appendices contain:

- Developer Worksheets

The content of the Disclosure Document is described in further detail in the Technical Section of this document.

The disclosure documents can be found at:

<http://www.CenturyLink.com/disclosures/netdisclosure409.html>

Requirements Review Phase Completion

The Requirements Review phase of the implementation will be considered complete when the CLEC determines that they have adequately reviewed CenturyLink's requirements documentation. The CLEC may decide to continue use of the Question Log throughout the implementation.

Connectivity Testing

This section explains the objectives of the Connectivity Testing activities regarding XML trading capabilities. The Connectivity Testing activities are intended to accomplish:

- Configuration of the Trading Partner Relationship
- Obtain Digital Certificates
- Successfully submit Transactions to CenturyLink Web Services
- CenturyLink to successfully connect to CLEC Web Services (if Push Notice is implemented)

CenturyLink offers an XML-based web service for LSR Pre-Order, Order and Post-Order functionality. The web service (aka: IMA XML Gateway) exposes services implemented using SOAP over HTTP and are completely described using the WSDL.

Authentication to these web services will be through CenturyLink-provided digital certificates. The process is a 2 way SSL authentication where CenturyLink presents a server certificate and expects the client to present the CenturyLink issued client certificate. The CenturyLink issued certificate has a userid associated to the specific TPID requesting the client certificate. This userid must correspond to the TPID originating the transaction. More information on obtaining the Digital Certificate can be found in the Connectivity Testing Activities section below.

The CenturyLink WSDLs are available at the following locations:

Current Release Production WSDL URLs

Pre-order: <https://ixgprod.ordering.centurylink.com/PreOrderIma/preOrderIma>

Order: <https://ixgprod.ordering.centurylink.com/imaOrder/order>

Post Order: <https://ixgprod.notices.centurylink.com/imaPostOrder/postOrder>

Current Release SATE WSDL URLs

Preorder: <https://ixgsate.ordering.qwest.com/PreOrderIma/preOrderIma?WSDL>

Order: <https://ixgsate.ordering.qwest.com/imaOrder/order?WSDL>

Post Order: <https://ixgsate.ordering.qwest.com/imaPostOrder/postOrder?WSDL>

WSDL information for the previous release(s) can be found at <http://www.qwest.com/disclosures/netdisclosure409.html>

XML Post Order Notices

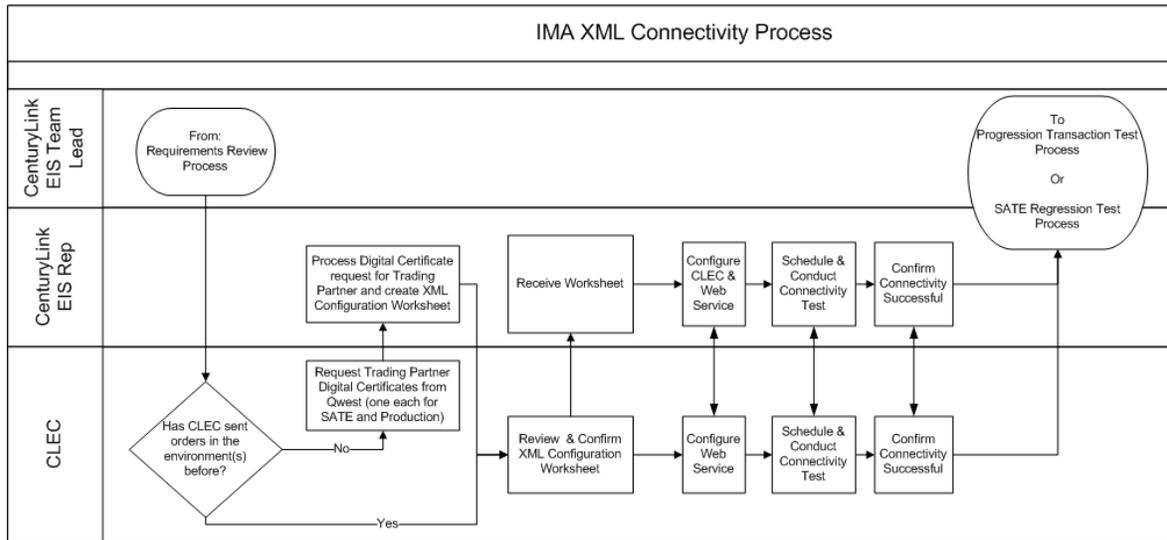
CenturyLink offers two Post-Order notice response options.

1. Pull Notice response: All CLECs are required to implement this option. The CLEC implements a web service client to periodically request all unsent notices from CenturyLink. CenturyLink responds with a Notice message containing all unsent and unacknowledged notices. The CLEC is required to acknowledge each notice back to CenturyLink via a separate web service call. Unless otherwise specified, the information contained in this document specifically refers to the Pull Notice response.
 - CenturyLink has set a maximum of 100 notices that can be pulled at one time.
 - The CLEC has the ability to request from 1 to 100 notices. If the CLEC doesn't specify the number of notices, or the request exceeds the CenturyLink maximum, then the CenturyLink maximum will apply.
 - CenturyLink will indicate if additional notices remain to be pulled.
2. Push Notice response: This is optional. If the CLEC chooses to implement this option, the CLEC is required to implement a web service – requiring a web server (like WLS) running a CenturyLink-defined definition, licensing costs, firewall and security protocols to enable notices to come in from CenturyLink, as well as a strategy to guarantee the availability and appropriate bandwidth of the web service. Where applicable, the Push Notice response information will be clearly delineated in the remainder of this document.

Access to the public Internet and CenturyLink-issued Digital Certificates are needed before implementing the CenturyLink IMA XML interface. This will provide a secure network to send and receive data between CenturyLink and the CLEC, providing an efficient means to transport high volumes of data.

It is feasible to share an internet connection already being used between CenturyLink and a CLEC (or a Service Bureau). If an internet connection is shared, it is critical that appropriate bandwidth exists and for the CLEC to monitor the transmission volumes as performance issues could be impacted.

Connectivity Process Flow Diagram



Note: Serial progression through the processes is not required as some tasks may be performed in parallel

Connectivity Testing Activities

1. Obtain Digital Certificates

The EIS TEAM will create a CLEC-specific CenturyLink signed-authorized Digital Certificate (Client Digital Certificate) for each environment (SATE and Production) and provide the 9-digit User ID and 4-digit PIN to the CLEC via email. Digital Certificates are required and may take up to five business days to obtain. Once the Digital Certificate is obtained, the User ID number (9-numeric) for each environment is confirmed back to CenturyLink on the XML Configuration Worksheet.

The CLEC must download the Client Digital Certificate onto the server used for web-service communication to CenturyLink for the applicable environment. Steps for completing this can be found at <http://ecom.CenturyLink.com/>. Once you have completed these steps, you need to export the digital certificate to your desktop. Instructions for this can be found at http://ecom.CenturyLink.com/ecomhelp/export_import.html. Once you complete those steps ftp that file to the appropriate server using the bin option. This certificate is passed as a parameter in the XML transaction to the CenturyLink webservices.

Once the CLEC has obtained the client certificate they must go out to the WSDL URL and download the CenturyLink Server certificate for each WSDL URL. This certificate will need to be stored in the CLECs Trust Store.

Digital Certificates must be kept up-to-date in all environments and it is the CLEC's responsibility to coordinate the update of their digital certificate with CenturyLink. Currently

the CenturyLink provided Client Certificate expires every 5 years. If the Certificate User ID changes, the digital certificate must be updated in the CLEC and CenturyLink environments at the same time – so the work effort must be coordinated. CLECs implementing their own web service for purposes of receiving CenturyLink Push notices will need to obtain a signed server certificate. This will need to be provided to CenturyLink. CenturyLink requires 5 business days to update digital certificates in all environments. Failure to coordinate the work or updating of the digital certificate on only one side of the interface may result in production down-time.

2. Trading Partner Configuration

CenturyLink must establish the CLEC as a Trading Partner for each environment. The XML Configuration Worksheet is used by CenturyLink to establish the CLEC's Trading Partner configuration. CenturyLink recommends the established Trading Partner Name (TPID) remain the same for the Testing (SATE) and Production environments, although unique digital certificates will be required for each environment.

- a. The CenturyLink EIS TEAM will create the initial XML Configuration worksheet and send this to the CLEC.
- b. The CLEC should review the information CenturyLink has provided on the worksheet, complete the required fields/sections and return it with any changes, additional information and/or approval within five (5) business days of receipt.
- c. Once approval of the XML Configuration worksheet is granted from both parties, CenturyLink will configure the Trading Partner in SATE within five (5) business days.

3. CLEC Web Service

If the CLEC chooses to have CenturyLink Push available notices, the CLEC must implement a Web Service. This requires a web server, a web service – the web service definition (WSDL) will be provided by CenturyLink, access management software as well as the ability to allow CenturyLink to open enough threads to deliver the notices in a timely manner. Currently CenturyLink does not limit the number of threads that can access a customers Web Service, however the system limits that to 1000.

- a. The CLEC will complete the Push section of the XML Configuration worksheet – providing the URL of their Web Service for each environment. This web service must be configured to the definition provided by CenturyLink during the Implementation process. Once the CLEC identifies that Push will be implemented, CenturyLink will send the definition via email.
- b. CenturyLink will provide the public key used to Push the transactions to the CLEC. The CLEC must accept the certificate and configure their Web Service to receive from CenturyLink.
- c. CenturyLink will Push all notices using Public IPs. If a CLEC doesn't allow all public IPs through its firewall, the CLEC must allow at least the specific CenturyLink IMA

XML public IPs (as listed on the XML Configuration Worksheet per environment) through the firewall and into its system.

- d. The CLEC must also send their server certificate to CenturyLink and CenturyLink will add it to the Trust Store.

4. Connectivity Test

Once configuration has been successfully completed, a Connectivity testing call will be scheduled to occur a few days prior to the start of the Progression Testing Phase. This test will verify the communications between the trading partner and CenturyLink.

Connectivity is established for each environment utilized during the implementation:

- SATE
- Production

To provide assistance with any connectivity issues that might arise, CenturyLink will have both network and technical personnel on the Connectivity Testing Calls until successful connectivity is established. Therefore it is recommended that the CLEC's network and technical personnel join all Connectivity Testing calls.

Entrance Criteria – Connectivity Testing

Before the Connectivity Testing can occur, the following steps must be completed:

- The CLEC must have returned the XML Configuration worksheet form to CenturyLink.
- CenturyLink and the CLEC must establish each other as a trading partner on its systems.
- CenturyLink and the CLEC must configure their web-services and systems for Pull notices
- CLEC must load the CenturyLink provided Digital Certificate onto their server.
- A CLEC electing to have CenturyLink Push notice responses must implement a full Web-Service.

Process - Connectivity Testing

The following steps will occur during Connectivity Testing:

1. In the Project Plan, a mutually agreed upon date for Connectivity testing will be established and a testing call will be scheduled. At the agreed upon date/time, representatives for the CLEC and CenturyLink will join the call.
2. The CLEC will send CenturyLink a transaction with either invalid data or one of their approved test scenarios.
3. When a valid Pre-Order transaction is received, CenturyLink will return the Pre-Order response transaction to complete the synchronous connection.
4. When a valid Order transaction is received, CenturyLink will send the CLEC an acknowledgement response which completes the synchronous connection.
5. The CLEC must submit a Pull request to have CenturyLink return notices. The CLEC must return acknowledgements on each notice returned.
6. If the CLEC elected to have notices Pushed from CenturyLink, the CLEC must submit an additional transaction. CenturyLink will return the response, opening the connection with the CLEC web-service. The CLEC must acknowledge (synchronously) the Push to complete the Push cycle. The CLEC must also confirm the CenturyLink server certificate was added to the trust store on its server.

Successful completion of these steps will confirm that the XML Gateways have been correctly configured.

Exit Criteria – Connectivity Testing

To demonstrate successful Connectivity Testing, the following must occur:

- CenturyLink must receive a valid transaction generated by the CLEC.
- CLEC must confirm receipt of the following CenturyLink transactions:
 - Pre-order response
 - Synchronous acknowledgement indicating receipt of the order transaction.
- CLEC must submit a Pull request and successfully acknowledge each of the notices returned by CenturyLink.
- CLECs requesting that CenturyLink Push responses, must confirm receipt of CenturyLink's Push and acknowledge the notice.
- CenturyLink and the CLEC must agree that the test was successful and connectivity has been correctly established.

Connectivity Testing Phase Completion

This phase will be considered complete with the completion of the connectivity test in the applicable environments (SATE and Production). Each test will be considered complete when all of the exit criteria are satisfied.

Test Plan Development and Approval

During Progression Testing and Controlled Production, the set of required Scenarios that are to be tested will be mutually agreed upon and represented by the CLEC on a Test Plan. The following bullets indicate the activities to be performed during this process depending upon the testing phase and environment utilized.

For Progression Testing and Controlled Production, CLECs will submit a Test Plan using an adequate description of the test case and expected results (including the actual scenario number from the SATE data document for Progression testing) to represent the scenarios on the Test Plan. CenturyLink will review the Test Plan with the CLEC making the corrections needed for approval.

For any transactions to be sent to CenturyLink via XML, data for the transmittal must be correctly structured. The Scenario data used in SATE must comply with the Developer Worksheet guidelines in terms of format and business rules and with the published XML WSDLs.

Test Plan Review Approval Process

The Test Plan review process for Progression Testing and Controlled Production will occur as follows:

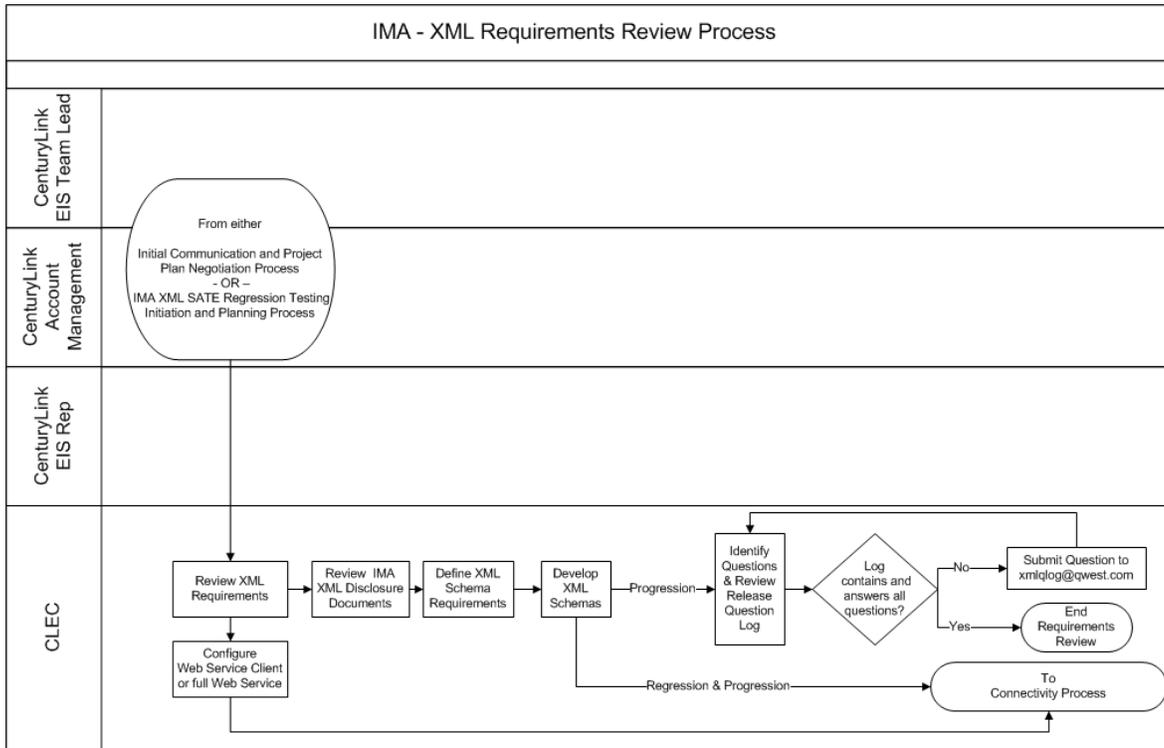
1. The CLEC populates the Test Plan template with the scenarios the CLEC plans to test and the expected responses. The Test Plan should represent the required Scenarios to be tested (Pre-Order transactions, product Order/Activity Types, Post-Order transactions) along with the required responses for each test Scenario. The scenarios on the Test Plan document should contain an adequate description of expected results. The CLEC should ensure that the Test Plan includes transactions that will meet the minimum testing criteria for each phase of the test. These criteria are detailed in the Test Plan completion section of the Progression Testing or Controlled Production section of this document, as well as in Appendix D.
2. CenturyLink determines whether the CLEC has included appropriate scenarios on the Test Plan to meet the minimum requirements for Progression Testing, Controlled Production, or Migration to a new release. The EIS TEAM then reviews the Test Plan comments with the CLEC.
3. The CLEC corrects the Test Plan based upon any feedback from CenturyLink and resubmits it to CenturyLink for review.
4. Tasks 2 and 3 repeat until the Test Plan is correct and approved by CenturyLink.

The CLEC sends all final copies of the Test Plan to CenturyLink at testing completion. These final versions should exactly match the XML information as it was actually submitted and successfully tested.

Progression Testing Phase

The Progression Testing Phase affords the CLEC the opportunity to validate their technical development efforts and to quantify LSR processing results. Progression Testing will identify the CLEC's ability to submit correct XML transactions through the IMA system.

Progression Testing Process Flow Diagram



Progression Testing Activities

1. SATE Documentation Review

In preparing to test with CenturyLink the CLEC should review the SATE Data Document, verifying the necessary data is available for their testing. If they plan to test specific types of data which are not found in the SATE Data Document then the CLEC will need to submit a SATE Data Request form and follow the SATE Data Request process – further explained in the Data Request process section of this document.

This is also a good time to review the VICKI document to ensure understanding of its use.

2. Test Plan Creation - Progression

To prepare for IMA Progression Testing, the CLEC sends CenturyLink a Test Plan for review. The scenarios on the Test Plan must utilize the scenario number from the SATE Data Document to enable CenturyLink to verify these against the source document. If the CLEC is planning to use VICKI it is necessary to provide both the Path number and remarks to enable CenturyLink to verify the expected responses against the Path chosen. Further information regarding the completion of the Test Plan can be found in the Test Plan Development and Approval section of this document.

As referenced in the Test Plan Development and Approval section of this document, the Test Plan must satisfy all Progression Testing minimum testing requirements. The minimum set of required Scenarios is dependent on the transactions (including Pre-Order, Order, and Post-Order) that the CLEC intends to utilize in production via XML.

If any one CLEC (identified as an individual RSID/ZCID) elects to receive a given subscriber post-order response from CenturyLink (for either GUI or XML responses), all other Trading Partners who also provision services using that RSID/ZCID will be configured to receive those post-order responses. This applies to all DLEC arrangements as well as to any other Shared RSID/ZCID or LOA arrangements that CLECS might have in place for provisioning purposes.

The Main CLEC/Trading Partner must test the response notice as part of the certification process. Any other Trading Partners using the RSID/ZCID of the Main CLEC/Trading Partner may elect to test that post-order response notice and certify receipt of that subscriber response in Controlled Production or may elect in writing to waive testing of that subscriber response. If the latter, the CLEC must acknowledge its understanding that CenturyLink will continue to send those notices even though the CLEC may not be able to translate the notice. It is further expected that the CLEC receiving these notices is required to send an acknowledgement to CenturyLink. If the Acknowledgement is not received within 24 hours, CenturyLink will reset the notice status to Available.

This makes the notice available for Pull and the next Pull request will retrieve the notice again. This process will take place until CenturyLink successfully receives the Acknowledgement.

Guidance for the minimum number and type of Scenarios is reflected in the following requirements:

IMA Pre-Order Transactions - Progression Testing minimum requirements:

1. The CLEC must test every Pre-Order transaction being implemented.
2. For every Pre-Order transaction Query being implemented, the CLEC must test every Response Type.

IMA LSR Order and Post-Order Transactions - Progression Testing minimum requirements:

1. The CLEC must test every LSR Order transaction being implemented.
2. The CLEC must test all three supplemental transaction types (1=Cancel Order, 2=Change Due Date, 3=Other Change).
3. The CLEC must receive a positive response [Local Response (FOC – RT values B, C, D, or X) or DSRED (AT, AC)] for every Product being implemented.
4. The CLEC must receive at least one Completion.
5. The CLEC must have at least one transaction correcting a Local Response System Reject (RT Value V) and one correcting a Local Response ISC Reject (RT Value Z).
6. The CLEC must test every Response Type on the Test Plan (RT Values B, C, D, or X and E, N, J, and S) – Including the Provider Notification (line loss), Status Update, Billing Completion Notification, Batch Hot Cut and Pending Service Order Notification if any of these subscriber responses are being implemented. In addition, at least one Local Response (RT value J – Jeopardy) must be tested as the next response after receiving an FOC.
7. For new FBDL implementations, CLECs must test the submission of additional listings (e.g. Local Additional Listing (LAL), Local Extra Listing (LXL), etc.) as well as the Local Main Listing (LML).

NOTE - Once initial Progression Testing for a release is complete, implementation of additional LSR products need only meet requirements 1, 3, 4, and 5 above.

The IMA LSR Order Scenario submittals used for the Progression Testing Phase are not sent to the legacy systems to affect the existing production data, and are not provisioned. SATE test data accounts are provided by CenturyLink; therefore no production accounts are involved.

3. Conducting the Progression Test

In Progression testing two options are available to the CLEC. Attended Testing, where both the CLEC and CenturyLink are on a conference bridge while the CLEC submits transactions to CenturyLink real time and CenturyLink will send responses to the submitted transactions. Unattended testing, where the CLEC submits their test cases as time permits and updates the test plan as test cases are completed. Once the CLEC has finished testing for the day, they send CenturyLink an updated test plan. CenturyLink will review the updated test plan, update the status column and comments for the submitted test cases and return the test plan to the CLEC.

Progression Testing Entrance Criteria

To begin Progression Testing, each of the following criteria must be met:

- Approval of the negotiated Project Plan
- Completion and approval of a Test Plan

Progression Testing Process

The Progression Testing process is executed as follows:

1. The CenturyLink test environment will be available for testing during posted times and, if attended testing is selected, the EIS TEAM will be available on testing days as scheduled and agreed.
2. The CLEC submits test transactions, according to the approved Test Plan.
3. CenturyLink generates the expected result responses based on the Test Plan and VICKI remarks within the individual test case.
4. For Attended testing, calls will be scheduled to provide an opportunity for the CLEC and CenturyLink testing representatives to interact and discuss the testing results. Testing communication may also be done via email if unattended testing is selected.
5. The Test Plan/Testing Status Log will be updated to reflect, at a minimum, testing start and completion dates. The Testing Status Log may also be used to track testing issues.

Progression Testing Exit Criteria

Progression Testing will be considered complete when the CLEC has met each of the following criteria:

- CLEC has completed all agreed upon Test scenarios as identified in the Test Plan
- CLEC is able to send valid transactions.
- CLEC can confirm their ability to receive CenturyLink responses.
- CLEC is able to generate acknowledgements in response to CenturyLink notices.
- CLEC can confirm their end-users have the ability to see and understand CenturyLink response information and error conditions.
- CLEC can confirm their ability to detect transaction processing failure within any component of the environment.
- CLEC has completed the list of points-of-contact for after-hours and emergency issues and submitted it to CenturyLink.

(See 'CLEC Roles and Responsibilities' in the Production section).

Progression Testing Phase Completion

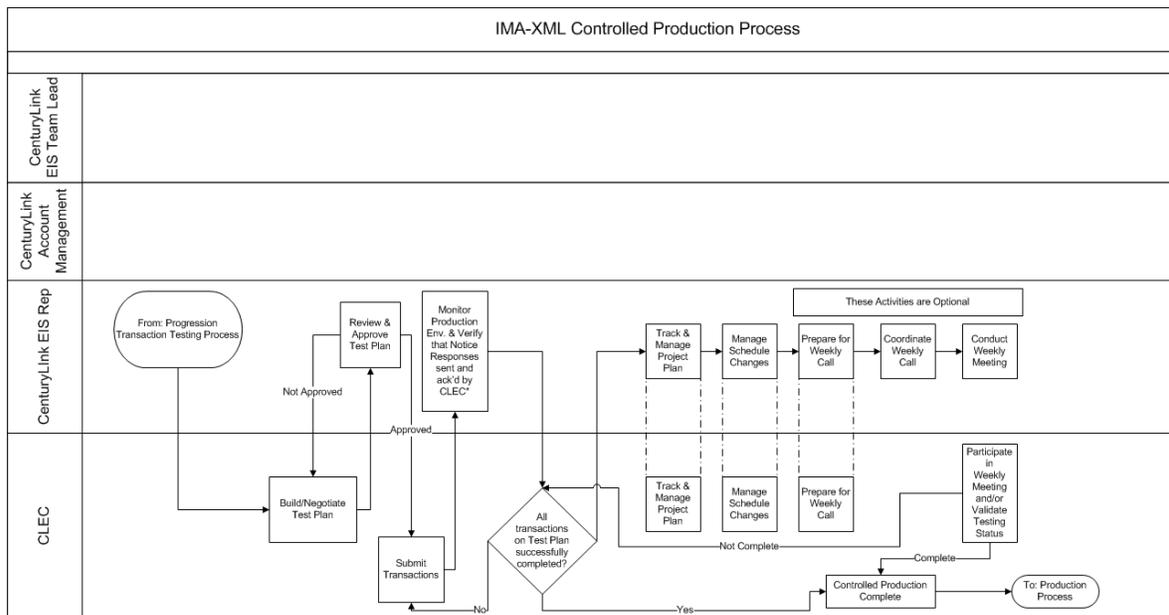
This phase will be considered complete when all of the Progression Testing exit criteria are satisfied.

Controlled Production Phase

Definition

Controlled Production is permitted after the successful completion of the Progression Testing Phase. The Controlled Production process is designed to confirm environment configuration and validate the ability of the CLEC to transmit XML data that meets CenturyLink standards. Controlled Production consists of the submission of requests to the CenturyLink production environment for provisioning as production Orders. CenturyLink and the CLEC use Controlled Production results to determine operational readiness for full Production turn-up.

Controlled Production Process Flow Diagram



Note: Serial Progression through the processes is not required as some tasks may be performed in parallel
 *As Controlled Production occurs in the Production environment, all responses are generated by either the OSS or ISC representative.
 The SPOC simply monitors the system to verify that the transactions were sent and acknowledged by the CLEC.

Controlled Production Activities

1. Test Plan Creation

The CLEC will create a Test Plan that meets the following minimum testing criteria for Controlled Production. Further information regarding the creation of the Test Plan can be found in the Test Plan Development and Approval section of this document.

IMA Pre-Order Transactions - Controlled Production minimum testing requirements:

1. The CLEC must test one transaction for each Pre-Order function being implemented. For every Pre-Order transaction tested, the CLEC must receive the response.

IMA LSR Order and Post-Order Transactions - Controlled Production minimum testing requirements:

1. The CLEC must test one LSR Order transaction (any product).
2. The CLEC must receive any response [Local Response or DSRED (Any RT value)]

2. Executing the Controlled Production Test

Entrance Criteria – Controlled Production

To begin Controlled Production, each of the following criteria must be met:

- Progression Testing Phase has been successfully completed.
- A Controlled Production Test Plan is approved
- CenturyLink has ensured the Trading Partner configuration has been created in the CenturyLink Production environment.

Process – Controlled Production

The Controlled Production process will be as follows:

1. CenturyLink and the CLEC agree on a set time for testing, if attended testing is selected.
2. The Production environment will be available during IMA hours of operation. If attended testing is selected, the EIS TEAM will be available for testing only during negotiated times.
3. The CLEC sends the transactions electronically to CenturyLink.
4. CenturyLink monitors the transaction flow for submitted transactions during the testing period, including confirmation of acknowledgements from the CLEC system.

5. A call will be scheduled to provide an opportunity for the CLEC and CenturyLink testing representatives to interact and discuss the testing results. Testing communication may also be done via email.

Exit Criteria – Controlled Production

Controlled Production will be considered complete when the CLEC has met each of the following criteria:

- CLEC has completed all agreed upon Controlled Production scenarios as identified in the Test Plan.
- CLEC is able to send valid transactions.
- CLEC can confirm their ability to receive CenturyLink responses.
- CLEC is able to generate acknowledgements in response to all CenturyLink notices.
- CLEC can confirm their end-users have the ability to see and understand CenturyLink response information and error conditions.
- CLEC can confirm their ability to detect transaction processing failure within any component of the environment.
- The list of CLEC points-of-contact for after-hours and emergency issues is current.

The Controlled Production exit criteria listed above must be satisfied for each transaction type before it can be used by the CLEC in the CenturyLink production environment.

Controlled Production Phase Completion

This phase will be considered complete when the Controlled Production exit criteria are satisfied for each product that the CLEC desires to implement.

Production

Phased Support Procedures/Contacts

XML support to IMA CLECs who have recently been placed into production (either via a new implementation or migration process) will be provided as follows:

<u>IMA Timeframe</u>	<u>Technical Support</u>	<u>Contact Information</u>
After production 'turn-up' and migration - First five days	XML EIS TEAM	Phone/Pager will be provided
After production 'turn-up' and migration – After First five days	CenturyLink IT Wholesale Systems Help Desk	1-888-796-9102

CenturyLink IT Wholesale Systems Help Desk Roles and Responsibilities

CenturyLink IT Wholesale Systems Help Desk (WSHD) personnel will provide information and resolution for IMA XML transaction processing problems that are caused by failure of CenturyLink XML environment hardware or software components. This resolution may be in the form of direct action or through escalation to the appropriate individuals within CenturyLink.

If the WSHD cannot resolve the issue during the initial phone call, they will escalate to Tier 2 Production Support. The Tier 2 Support Team then both resolves and closes the issue directly with the person that reported the issue or provides the closure information to Tier 1 for communication and closure with the CLEC.

Limitations for CenturyLink XML Support

The CenturyLink IT Wholesale Help Desk is not designed to provide assistance with transaction failure caused wholly or in part by failure of any component of the CLEC XML processing environment.

Questions regarding Order content, Order writing procedures or transaction status should be referred to the CenturyLink Interconnect Service Center Help Desk or the CLEC CenturyLink Service Manager.

CLEC Roles and Responsibilities

If CLEC resources cannot be contacted when XML production problems arise, CenturyLink reserves the right to deactivate the CLEC and/or suspend Push notices until such contact can be made.

For CLECs who choose to implement the Push Notice Retrieval functionality, where CenturyLink automatically Pushes all notices as they are received, CenturyLink expects to receive an asynchronous Acknowledgement. If one is not received, the notice will be made available for Pull. The CLEC is expected to have its web service available during the IMA production hours of operation. A Push will only be attempted once per notice. If CenturyLink cannot connect to the CLEC's web service to complete the Push, the notice will be made available for Pull. Where the unsuccessful Push is determined to be a CenturyLink issue, CenturyLink will correct the problem and re-Push the impacted notices. If a CLEC acknowledges a Push or a Pull Notice the notice is considered successful and that notice is no longer available for Push or Pull, but can be requested to be resent by the ISC.

Before contacting CenturyLink support, the CLEC should perform a thorough analysis of the components within their XML environment to insure that transaction failure is not a result of anomalies within their system. Before contacting CenturyLink, the CLEC should verify that the XML WSDL has been created, handed off to the web-service for transport and successfully delivered to CenturyLink.

The CLEC should have the following information before contacting the WSHD:

- TXNUM or PON #, VER #, Product, Trading Partner name and CCNA
- Date and approximate time of transmission
- List of all associated transactions/responses
- Name, address and telephone number
- Description of problem
- CLEC Support Points of Contact

Migration

Release Lifecycles

The CenturyLink XML interface architecture provides the capability for multiple releases to be in production at a given time. This design allows a CLEC to continue production use of a particular release while performing the development necessary to migrate to a more current release. It is important that the CLEC be aware of the retirement date for the current release they are implementing, or currently using, and be prepared to migrate to a subsequent release as appropriate. XML releases have predetermined sunset timeframes, after which point they will be unavailable for use. It is the CLEC's responsibility to be aware of these timeframes and plan accordingly. Release timeframes are updated and posted to the CMP website located at:

<http://www.CenturyLink.com/wholesale/cmp/ossalendar.html>

Note: Use of the GUI interface, which is always the most current release, concurrently with a prior version of XML may not be viable due to differences between the two releases.

Migrating to a New Release

CenturyLink supports a multi-release strategy for its XML Interface. Information regarding the release schedule is posted on CenturyLink's Wholesale website. The Recertification memo for a new release is issued forty-five (45) days prior to the date the release is implemented in Production and contains specific XML-related dates for the release.

CenturyLink currently uses the following guidelines regarding the availability and retirement of releases:

- Each new release is scheduled to be available in the SATE environment thirty (30) days prior to its implementation in the production environment.
- IMA XML releases are supported six (6) months after the next release is implemented.
- Release guidelines in the Recertification memo are provided to the CLECs forty-five (45) days prior to a release. These include the dates by which a CLEC must begin Progression testing for a given release and when transactions on that release must be in Production by the CLEC. If these dates are not met by the CLEC, the CLEC must implement the next release.

These guidelines are designed to ensure the CLEC's successful implementation or migration and to minimize the risk associated with development and deployment of new software. Variations to this schedule may become necessary and any such changes will likewise be published to CLECs via the normal CMP communication channels.

Recertification Requirements

Recertification is the process by which CLECs demonstrate the ability to correctly generate and accept transactions that were updated for the new release. For each release, CenturyLink will determine which transactions require the CLEC to perform recertification testing. For a given release, it is possible that only some of the transactions will require recertification by the CLEC. That decision by CenturyLink will be based upon the following factors:

- Mapping changes
- Changes to CenturyLink business rules enforced by the system

Transactions requiring recertification will be made known to the CLEC in the Recertification Memo, issued with the Disclosure Documents for the new release. As detailed in the minimum requirements below, a migration test will be required for each product.

At the time a CLEC migrates to a new release, any transaction(s) that the CLEC does not yet have in production using a current IMA version is considered to be a new implementation effort. These transactions must be implemented using all Phases of the implementation lifecycle as defined in this document. In some releases, existing transactions are updated with significant additions that add business rules and/or large WSDL changes. If the CLEC intends to continue use of the product, they will be required to perform a new product implementation of this transaction. This will entail Progression Testing and Controlled Production submittal of scenarios that reflect the new functionality.

Please note that point releases and/or patches do not require recertification and should have no development impacts.

To recertify or migrate a given transaction, the CLEC must perform the following minimum test requirements in the SATE environment:

IMA Pre-Order Transactions - Recertification/migration minimum requirements:

Recertification or Migration:

The CLEC must successfully test every transaction being migrated as indicated in the Recertification Memo. A successful transaction is one that receives a positive Response Type (i.e. 'Good' or 'Exact Match' response).

IMA LSR Order Transactions – Recertification/migration minimum requirements:

Recertification:

The CLEC must successfully test each product being migrated if the product is listed in the Recertification Notice and at least one supplemental transaction (supp can be tested on any product). CenturyLink may suggest specific activity types and preorder query types to be tested based on the changes implemented for the specific release. Test transactions should use the suggested activity/query types being migrated to ensure the CenturyLink changes have been tested successfully. A successful transaction is one that passes the IMA system edits (i.e. does not receive a System Reject).

Migration Trading Partner Configuration Verification (TCV):

The CLEC must successfully test at least one transaction for each product being migrated if the product is not listed in the Recertification Notice. A successful transaction is one that passes the IMA system edits (i.e. does not receive a System Reject).

IMA Post-Order Transactions - Recertification/migration minimum requirements:

Recertification:

The CLEC must test every notice response type being migrated if listed in the Recertification Notice. Please note that if the LR is changing CenturyLink will indicate the appropriate RT value to be tested.

Migration:

The CLEC must test each notice response type being migrated if not listed in the Recertification Notice. Please note that the LR may be any RT Value.

There are many factors that will influence the CLEC's migration plan. These influences and the process for migration are discussed further in the following section of this document.

Migration Activities

CLECs will be reminded in writing of their need to migrate to a new release prior to the next release being implemented. For migration, the CLEC will follow the same process as an initial implementation except that Controlled Production is not required on any XML transaction that successfully completed Controlled Production testing in a prior release. Any product not successfully tested in Controlled Production in a prior release will not be migrated under this exemption.

The following steps will be followed by the CLEC:

1. Contact the CenturyLinkEIS TEAM.
2. If this is your first migration, attend an initial migration kickoff call to discuss Recertification, migration strategy, and 'mid-cycle' data conversion.
3. Complete a Test Plan that includes tests to comply with all minimum testing requirements for a new release.
4. Perform the Progression Testing Phase – following the Migration Testing requirements outlined in the Recertification Memo.
5. Conduct Migration Readiness Assessment after the completion of testing.

Migration Exit Criteria

Migration will be considered complete when the CLEC has met all of the following criteria:

- CLEC has completed all agreed upon scenarios as identified in the migration Test Plan.
- CLEC has demonstrated the ability to send valid transactions.
- CLEC can confirm their ability to receive CenturyLink responses.
- CLEC has demonstrated the ability to generate acknowledgements in response to CenturyLink notices.
- CLEC can confirm their end-users have the ability to see and understand CenturyLink response information and error conditions.
- CLEC can confirm their ability to detect transaction processing failure within any component of the environment.
- The list of CLEC points-of-contact for after-hours and emergency issues is current.

IMA Data Conversion

As part of the IMA migration process, CenturyLink performs a ‘mid-cycle’ data conversion. With data conversion, any requests in the IMA database for the old release are converted to data compatible with the new release. Data conversion occurs at the same time as the migration to the new release. CenturyLink has blackout dates when data conversion cannot be performed, including the week of, before, or after a new IMA release is deployed or during scheduled maintenance windows. Migration weekends cannot be scheduled during these blackout dates.

CenturyLink schedules the migration/data conversion on Saturday evenings after the IMA Production hours of availability. CenturyLink has the largest window for conversions on Saturday evenings (14 hours – 9 p.m. to 11 a.m. Sunday versus 6 hours – Midnight to 6 a.m. on weeknights) based on IMA hours of availability. This is why CenturyLink targets Saturday nights for conversions. If anything were to go awry during the conversion it is critical to have enough time to restore and restart the conversion process. As a result, CenturyLink will schedule migrations/data conversions only on Saturday evenings.

If during the migration/data conversion CenturyLink experiences system issues, every effort will be made to complete the scheduled migration. In the event that CenturyLink is unable to complete the migration, the CLEC will be contacted immediately to revert their processing back to the previous IMA release and a new migration date will need to be scheduled.

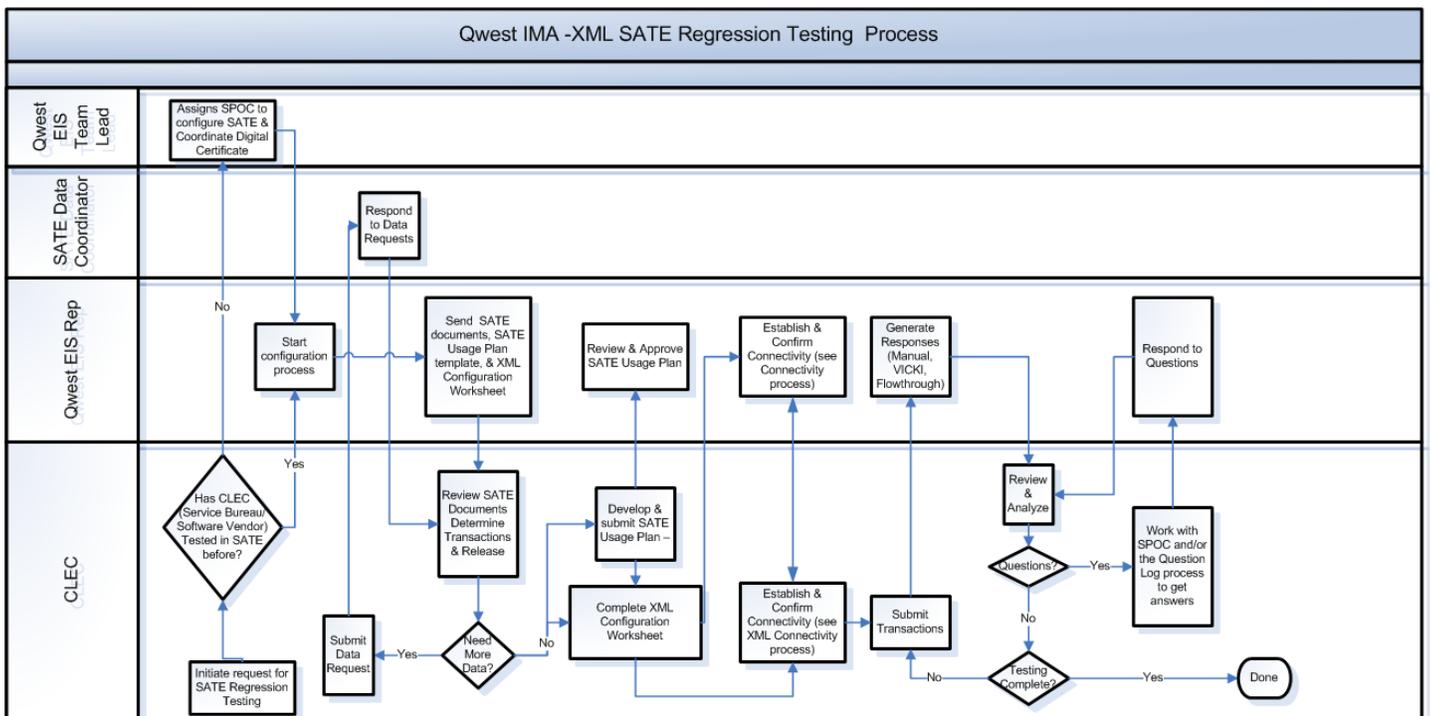
Migration Phase Completed

This phase will be considered complete when all the Migration exit criteria are satisfied. The migration/data conversion is completed and support is transitioned back to the WSHD.

Regression Testing

CenturyLink permits access to SATE for what is referred to as “regression” testing for customers who are not actively testing for an IMA Implementation or Migration. This is designed for CLECs, Service Bureaus, and Third Party Software Vendors wishing to test XML functionality without supervision or direct support. Although SATE access and regression usage is permitted, CenturyLink provides no “certification” to Service Bureaus or Third-Party Software Vendors. The CLEC, Third-Party Software Vendor, or Service Bureau contacts the EIS-TL to express an interest in regression testing. The EIS-TL will assign a EIS TEAM member (if no relationship to CenturyLink exists). Access to SATE for this purpose then requires the Initial Discussion, negotiated regression Usage Plan, Requirements Review and Connectivity Testing requirements as described in prior sections of this guide. Regression testing is primarily for those with ‘no intent’ toward meeting any CenturyLink entry or exit criteria within an Implementation process. This testing approach is represented on a Usage Plan that indicates the intended testing activities and timeline. CenturyLink personnel resources are not tasked to directly support regression SATE users.

Regression Testing Process Flow Diagram



Regression Testing Activities

The process for regression testing in the Stand-Alone Test Environment is as follows:

1. The SATE regression user’s Trading Partner configuration is established (if one doesn’t already exist) in SATE by CenturyLink.
2. CLEC will review the SATE Data Documents and VICKI Path Document that describe the test accounts and valid data.

3. The SATE regression user completes a Usage Plan (provided by CenturyLink) indicating the XML transactions that they plan to submit during regression testing. The Usage Plan is intended to provide CenturyLink with an estimate of the number of each type of transaction that the SATE regression user intends to test in regression testing. When completing a usage plan, SATE regression users should remember that the SATE system is not designed to support volume or capacity testing.
4. CenturyLink will evaluate the Usage Plan to ensure that the SATE system will be able to support the SATE regression user's proposed usage. All current usage plans will be evaluated together to ensure that the total planned usage by all SATE regression users can be supported. If the Usage Plan changes by an order of magnitude (i.e. if 100 planned transactions were to change to 1000 transactions) during regression testing, the SATE regression user must resubmit the Usage Plan, showing the increase, to the EIS TEAM for approval.
5. Upon CenturyLink's approval of the Usage Plan, the SATE Regression user can begin submitting transactions to SATE. Responses to order transactions should be requested using SATE's VICKI functionality. If VICKI is not used and the transaction does not flow through, the CLEC should request post-order notice responses from their EIS TEAM. Any additional manual responses will need to be requested from the assigned EIS TEAM. Include the PON number and responses needed in your email request and the EIS TEAM will send them out within 5 business days.
6. The SATE Regression user monitors their testing results. Determination of cause and effect relationships between submitted data and the results obtained is the responsibility of the SATE Regression user. When a SATE Regression user needs assistance, technical support will be provided by the EIS TEAM. A reply will be provided within five (5) business days of the technical inquiry. CenturyLink will also address and publish common SATE user questions in the Frequently Asked Questions document, available via the Web site. SATE Regression users may escalate a technical inquiry request to the EIS-TL.

Appendix A depicts the comparison of Regression testing to Progression testing in SATE.

Change Management Process

CenturyLink facilitates a regularly-scheduled forum in which CenturyLink and the CLECs communicate about Operational Support System (OSS) interface changes, release lifecycles, release notifications, and communication intervals. The CenturyLink CLEC Industry change management forum is referred to as the Change Management Process (CMP).

CenturyLink encourages CLECs implementing an IMA XML interface to participate in the CMP process. Online registration can be found on the CMP website page. Release notifications, team meeting information, and change requests are also provided to all registered team members via e-mail. For further CMP information, please refer to the following website:

<http://www.CenturyLink.com/wholesale/cmp/index.html>

During testing with CLECs, situations may occur that require CenturyLink to submit a Change Request internal to CenturyLink to fix an issue in CenturyLink's Test systems. When an issue is discovered that substantially impacts a CLEC's ability to use a transaction in XML, notification will be distributed via e-mail within three (3) business-days. Notification of any production issues will follow the CMP guidelines section 2.0. Please refer to the following URL for more information: <http://www.CenturyLink.com/wholesale/cmp/whatiscmp.html>. CenturyLink will notify all CLECs that have subscribed to the unplanned event notifications and Test environment notifications. It is the CLEC responsibility to subscribe to those notifications they wish to receive. The notification will include a description of the problem and, if known, a potential fix date. If a fix date is not known, CenturyLink will update all impacted CLECs with the fix date when known. CLECs intending to implement new transactions will be informed of any known issues for that transaction during the Kickoff call.

If a transaction becomes unavailable in SATE, CenturyLink will send an e-mail notification to all impacted CLECs within four (4) business hours. This e-mail will contain a description of the problem/transaction and, when known, an estimated fix time. A second e-mail will be distributed informing the CLECs when the environment or transaction becomes available for testing.

4. TECHNICAL INFORMATION

CenturyLink has published the IMA XML standards in the CenturyLink Disclosure Document found at <http://www.CenturyLink.com/disclosures/netdisclosure409.html>. CenturyLink has grouped fields based on usage throughout the Pre-order, Order, and Post-Order WSDLs (Web Service Definition Language). The Pre-order, Order, and Post-Order WSDLs contain the groups and fields that are reused throughout their respective transaction sets.

There are three appendices containing the Web Service Definition Language (WSDL) used by CenturyLink. There is one WSDL each for Pre-Order, Order and Post-Order. CenturyLink will determine the preorder request and order product requested based on the information and forms contained in the preorder/order transaction. In order to optimize interactive performance, the CLEC and CenturyLink agree to include only one LSR/Pre-Order request per submittal to the CenturyLink XML Gateway. CenturyLink will not accept “batched” preorder or order requests.

Post-Order notices will be Pushed individually. Multiple Post-Order notices may be returned for a Pull Notice request.

When submitting transactions to CenturyLink it is not necessary to send empty XML element (tag). If empty elements are sent they will not cause an error unless the field is required (or conditional with conditions met) per the business rules.

The following information is organized in the same sequence as the Disclosure Documents (distributed with each release) according to the following outline:

- IMA XML Business Descriptions and Business Models
- XML WSDLs
- Developer Worksheets

IMA XML Business Descriptions and Business Models

The IMA Order process is initiated by the submission of a request transaction to CenturyLink. The CLEC transmits the request using the XML WSDLs (WSDL). CenturyLink will translate and forward the data to the appropriate CenturyLink internal system. The request will activate one of the following responses from CenturyLink:

NOTE: The following responses DO NOT apply to FBDL.

- FOC (RT value B, C, D, N, S, Y or X) – This indicates that the original/supplemental request was received. If a supplemental request, it indicates that the original request was changed (or cancelled). The FOC indicates that the request has posted to internal provisioning systems as an ‘Order’ (one or many) or a change to an Order, or the internal service Order originally created has been cancelled

- “System Generated” LR Reject (RT value V) – This response from CenturyLink indicates that the BPL detected an error in the inbound transaction and did not post the transaction to internal CenturyLink databases. The “system-generated” LR reject response contains data fields that allow the CLEC to determine what type of error was generated from the system edits. To correct a request fatally rejected by the system, the CLEC must resubmit the original transaction with the necessary changes/corrections. CenturyLink will acknowledge the successful receipt of the corrected LSR as a valid service request with an LR FOC as described above.
- Interconnect Service Center (ISC) –generated LR Non-Fatal (RT value E) errors are errors that occur after the order has successfully passed the system edits and written to the CenturyLink Database. To correct a LR non-fatal error, the CLEC may send a corrected request with the same PON and incremented version to correct the errors or they may choose to call the ISC representative to discuss the errors.
- Interconnect Service Center (ISC)-generated LR Reject (RT value Z) – This response from CenturyLink indicates that the request successfully passed the system edits and written to the CenturyLink Database, but CenturyLink ISC personnel detected an error in the transaction that prohibited the request from being entered into the CenturyLink provisioning systems as a viable ‘order’. The ISC LR reject error response contains data fields that will allow the CLEC to determine what type of error the CENTURYLINK ISC generated. To correct a request rejected by the ISC, the CLEC must send a supplemental request, using the same PON and an incremented version number with the necessary changes/corrections. CenturyLink will acknowledge the successful receipt of the corrected LSR as a valid service request with an FOC as described above.
- LR Jeopardy (RT Value J) - If CenturyLink has a problem meeting the commitment on the local service request, a Jeopardy Notification LR will be issued and sent via XML. If the jeopardy is caused by CenturyLink conditions, CenturyLink will negotiate a new due date and send a new FOC LR. If the jeopardy is caused by non-CenturyLink conditions, the CLEC must submit a supplemental request to correct the condition with the same PON and incremented version number as the original request. If this jeopardy caused the due date to be missed, the supplemental request must include a revised due date. If an error is found after the FOC LR is sent, a Jeopardy Notification LR will be sent.
- Completion – Indicates physical order provisioning is complete
- Provider Notification (Line Loss) – Subscriber Transaction - Real-time XML transaction identifying a lost line to the CLEC.
- Billing Completion Notification (BCN) – Subscriber Transaction
- Pending Service Order Notification (PSON) – Subscriber Transaction
- Status Update (SU) – Subscriber Transaction
- Batch Hot Cut (BHC) – Subscriber Transaction

NOTE: The CLEC can send a Supplemental Request before the CLEC receives the FOC from CenturyLink, if necessary.

NOTE: If an LSR was submitted via XML, all supplemental activities must be submitted via XML.

FBDL XML Transaction Processing

The FBDL XML order process is initiated by the submission of a listing request transaction to CenturyLink. The CLEC transmits the request using the XML WSDL (WSDL). CenturyLink will perform system validation edits upon receipt of the transaction. If the inbound transaction fails these edits, a LR System Reject (RT=V) will be returned to the CLEC and the request will not be posted to CenturyLink systems. If the request successfully passes all system edits, CenturyLink will translate and forward the data to the appropriate CenturyLink LSS system. The request will activate the following response from CenturyLink:

1. “AT” Status - DSRED (RT = L), is returned to the CLEC if the Listing has successfully Posted to the internal LSS Provisioning system as a listings order (one or many).
2. “AC” status - DSRED (RT = C), is returned to the CLEC if the Listing has been partially posted to the internal LSS Provisioning system as a listings order (one or many) and CenturyLink will review the order and send an updated subsequent DSRED:
 - “AT” status – DSRED (RT = L), indicating the successful posting of the listings order.
 - “AD” status - (RT = W), indicating a partial post and requires the CLEC to follow up. The LSS DSRED will contain data fields that will allow the CLEC to determine the next course of action. No further action will be taken by CenturyLink.
 - “RF” status – (RT = N), indicating cancel of partial order and CLEC is required to submit a new request.
3. “RF” Status – (RT=E), indicating initial LSS reject. The LSS DSRED reject error response contains data fields that will allow the CLEC to determine what type of error the CENTURYLINK LSS generated. The entire PON must be resubmitted.

Please refer to Chapter 1 and the individual product chapters in the Disclosure Document for more specific information regarding transaction flows.

<http://www.CenturyLink.com/disclosures/netdisclosure409.html>

XML WSDL Information

As stated above, the WSDLs are located in the appendices of the Disclosure document. There is one appendix each for Pre-Order, Order and Post-Order respectively. For more information on production WSDLs including URLs please see Chapter 1 of the Disclosure Document. It is expected the CLEC will use the WSDLs contained in the appendices as a reference when developing their internal interactive XML system. Please refer to the appropriate Disclosure Document for release-specific information at the following web site:

<http://www.CenturyLink.com/disclosures/netdisclosure409.html>

Developer Worksheets

The CenturyLink Developer Worksheets contain the CenturyLink business rules that identify how the CLEC is to correctly format and populate CenturyLink XML requests. The Developer Worksheets summarize the business rules for each field on a request and within each transaction or Order form segment. CenturyLink LSOG forms used for a transaction are described with the rules regarding how each field is used including:

- Business rules,
- Field length, field characteristics
- Valid values.

The following pages explain the layout and content of a CenturyLink Developer Worksheet, (Figure 3) and an explanation of each component identified on the example layout.

The Pre-Order Developer Worksheets contain an additional column. This column, ‘LSOG 6 Ref’, indicates the LSOG 6 reference number for all OBF supported fields. Where this column is blank, the field can be construed as CenturyLink-specific.

Developer Worksheet Legend

- A. This is the field reference number. Order and Post-Order worksheets, the field number corresponds to the LSOG field number. For instance, if the value from the CenturyLink Developer Worksheet is LSR-7, then the user could reference the OBF Guideline for the LSR form, field 7, for additional information. However, if the reference number is a number followed by a letter, such as LSR-7a, the field is a CenturyLink specific field and will not be found in the LSOG.
- B. This is the name of the field from the LSOG or as defined by CenturyLink, and, if applicable, the associated CenturyLink XML WSDL field name.
- C. Action Type: This field defines the actions (activities) that are valid for the transaction or product.

- D. The indicators found here signify whether the field is required (R), conditional (C), optional (O), prohibited (P), or not applicable (N). A required field (R) must be present for the transaction to be valid. A conditional (C) field indicates that the field's population is based upon specific business rules as defined in the worksheets and/or LSOG. Optional (O) means the transaction will still be valid even if this field is not populated. Prohibited (P) means that population/use of that field is not allowed for certain situations defined in the business rules and will result in a system (BPL) reject. Not applicable (N) means that this field is not used for the given activity. If the field indicates "Not Used by CenturyLink", CenturyLink will return a SOAP Fault error if the field is received.

- E. The Negotiated Business Rules field defines the CenturyLink business rules. If this field is blank, consult the LSOG for the appropriate business rules. Otherwise, the rules specified in this field take precedence over those in OBF.

- F. Field length dictates the accepted data length for that field.

- G. Field Characteristics denote the appropriate data type for the field. Valid formats include
A=Alpha, N=Numeric, and A/N=Alphanumeric (allows for alpha, numeric, or a combination of characters, to be used unless otherwise stated in the business rules for that field).

- H. Valid Values identify any specified values or formats for the field.

Figure 3: Developer Worksheet Example

Ref	Field Name	Action Type	Analog Line Side Port	Digital Line Side Port	Unbundled Analog DID/PBX Trunk	Unbundled DS1 DID/PBX Trunk	UNE POTS (P or STAR)	<p style="text-align: center;">Negotiated Business Rules Rules apply to individual products. Product number precedes the applicable business rule(e.g.: 1-4 means rule applies to products 1, 2, 3 & 4; 1,4 means rule applies only to 1&4)</p>	Field Lengths	Field Characteristics	Valid Values
			11	12	18	20	25	N=Not Req'd., R=Required, O=Optional, C=Conditional, P=Prohibited, Blank=Action Type is N/A, * = Repeating Field (# of stars indicates level of repetition)			
	Port Service (PS)										
	3.2 Administrative Section										
1	PON	Not used by CenturyLink							16	a/n	
2	VER	Not used by CenturyLink							2	a/n	
3	AN	Not used by CenturyLink							16	a/n	
4	ATN	Not used by CenturyLink							12	n	
5	PQTY	Populated by CenturyLink							3	n	
6	ORD	N=New Installation D=Disconnect W=Conversion As Is V=Conv. As Specified Z=Conv. Spec/No DL C=Change T=Outside Move L=Seasonal Suspend Y=Deny B=Restore R=Record M=Inside Move	N N N N N N	N N N N N N	O O O O O O	O O O O O O	N N N N N N N N N N		9	a/n	
7	PG_of_	Not used by CenturyLink							4	n	

Appendix A: Comparison of Regression Testing and Progression Testing via the Stand-Alone Test Environment

IMPLEMENTATION AREAS	PROGRESSION Stand Alone Test Environment	REGRESSION Stand Alone Test Environment
Initial Communication	SAME*	SAME*
Kickoff Call	SAME*	Not Applicable
Security	SAME*	SAME*
Connectivity	SAME*	SAME*
Negotiation	Project Plan	Usage Plan
Support Team	EIS TEAM	EIS TEAM via e-mail. EIS TEAM will respond within 5 business days of e-mail
Progression Testing Phase		
Test Plan	CLEC indicates intended scenarios and receives guidance and approval of the Test Plan before submitting XML transactions or Orders	NONE SATE user indicates desired scenario volume/types and schedule in Usage Plan – must be approved by CenturyLink
Scenario Data	CenturyLink provides valid values for specific fields via the IMA XML SATE Data Document; CLEC selects valid values and integrates them with user-supplied data in submitted scenarios	SAME*
Testing Process	CLEC creates/submits scenarios to SATE environment until successful and notifies CenturyLink of successful PONs	SATE regression user creates and submits scenarios; reviews the responses; corrects and resubmits until successfully processed
Response	Provided by the EIS TEAM, Flow Through and VICKI CenturyLink provides responses automatically through VICKI or Flow Through function. See SATE VICKI Path Document for further information.	SAME*

IMPLEMENTATION AREAS	PROGRESSION Stand Alone Test Environment	REGRESSION Stand Alone Test Environment
Testing Calls	As scheduled in Project Plan	NONE
Testing Success	CLEC corrects/submits scenarios until successful and notifies CenturyLink of PONs to be used for documenting correct testing success; CenturyLink verifies user-indicated PONs/INQNUMs as successful and indicates successful completion on the Test Plan	Determined by SATE regression user.
Number of Transactions Permitted	As negotiated in Project Plan	As negotiated in Usage Plan
Technical Support	CLEC is provided technical support as negotiated in the Project Plan	Technical support provided via e-mail FAQs posted on website
Controlled Production	After completion of the Progression Testing phase, the CLEC enters Controlled Production to validate transactions in the Production environment before full turn-up. See the Controlled Production section for more information.	Not Applicable

(* Requirements are same as in adjacent column marked SAME* - see requirement details in this Guide)

Appendix B: Service Bureau Implementation Guidelines

Objective:

This document will establish CenturyLink’s definition of a service bureau from a service and product perspective in relation to the sending and receiving of data with CenturyLink’s IMA XML systems. In addition, this document will provide the criteria for the implementation and operating procedures for CLECs using IMA XML, and the Service Bureaus that support them.

Contents:

1. DEFINITION OF A SERVICE BUREAU:	58
2. THE ROLE OF THE CLEC:	58
3. SERVICE LEVEL AGREEMENTS:	59
4. CMP PARTICIPATION:	59
5. CENTURYLINK RELEASE SUNRISE/SUNSET DATES:	59
6. REQUIREMENTS REVIEW:	59
7. PHYSICAL CONNECTIVITY:	59
8. TESTING PROCESS:	59
Connectivity Testing Phase:	60
Progression Testing Phase (SATE):	60
Trading Partner Configuration Verification (TCV):	60
Controlled Production Phase:	61
9. RELEASE MIGRATIONS:	61
Connectivity Testing Phase:	61
Progression Testing Phase (SATE):	61
Trading Partner Configuration Verification (TCV):	61
10. PRODUCTION SUPPORT/HELP DESK:	62
11. TABLE A: SUMMARY – ROLE OF THE SERVICE BUREAU IN A CLEC IMPLEMENTATION.....	63
12. TABLE B: TESTING REQUIREMENTS FOR SERVICE BUREAU IMPLEMENTATIONS.....	64

1. Definition of a Service Bureau:

CenturyLink considers a third party vendor to be a Service Bureau when the following criteria are met:

1. The third party vendor uses the same IMA XML software, version, and configuration for all CLECs actively using its software in production.
2. The third party has a signed Letter of Agency (LOA) between themselves and each CLEC which meets the requirements outlined in the Proof of Authorization/Letter of Agency V2.0 (<http://www.CenturyLink.com/wholesale/preorder/index.html>) document.
3. The third party vendor must have more than one CLEC implementing or in production with IMA XML on a single release of IMA XML.
4. The third party vendor must have a single web service between its central location and CenturyLink, which must be used by all CLECs with that Service Bureau.
5. The third party vendor must obtain and manage unique digital certificates and TPIDs for each CLEC.

CenturyLink does not have an agreement with the Service Bureau and therefore must treat the CLEC utilizing a Service Bureau as an individual entity. However, the Service Bureau is an Agent for the CLEC and acts on behalf of the CLEC for the CLEC's initial CenturyLink XML implementation, as well as all subsequent release migrations or new product implementations.

2. The Role of the CLEC:

For a new implementation, the CLEC must make initial contact with CenturyLink's IMA XML Implementation Team directly. Upon the CLEC's completion of the Initial Contact Questionnaire, the Service Bureau may act on behalf of the CLEC during their implementation effort. However, the CLEC must be present for all Implementation Kickoff and Controlled Production and Production Readiness Assessment calls, must participate in the development and finalization of an agreed upon project implementation plan. In addition, the CLEC conducts all Controlled Production activities from their facilities.

For an existing CLEC working toward a migration project only (no new products, etc.), the Service Bureau may completely represent the CLEC (ie the CLEC does not need to contact CenturyLink nor need to participate in any calls. It is the CLEC's choice as to how involved they get with the migration project and each CLEC may choose to participate fully in calls and in testing.

The following sections elaborate on the IMA XML specific implementation areas. Additionally, TABLE A summarizes the role of a Service Bureau during a CLEC's implementation.

3. Service Level Agreements:

Outside of the CenturyLink Interconnect Agreement, CenturyLink does not maintain separate service level agreements with CLECs, nor will CenturyLink have a service level agreement with any Service Bureau directly. However, a CLEC may have specific contractual date and time frames for service delivery stated in their Interconnection Agreement with CenturyLink. In this situation, those contractual date and time frames for service extend to the Service Bureau, who is acting as an Agent for the CLEC.

4. CMP Participation:

Service Bureaus are welcome to attend the CLEC Industry Change Management Process forum (CMP) meetings and participate in this forum. Additionally, CLECs may solicit advice from their Service Bureau regarding their CMP votes at any time. Service Bureaus may also vote on behalf of the CLEC if the requirements outlined in section 17.0 of the CMP Redesign Process are met

5. CenturyLink Release Deployment & Sunset Dates:

In an effort to avoid impact to CenturyLink's release dates and to provide parity amongst CLECs, CenturyLink's IMA XML Release deployment and sunset dates will be the same for CLECs whether or not they utilize a Service Bureau arrangement. These release dates are published on the CMP web page located on CenturyLink's Wholesale web-site at <http://www.CenturyLink.com/wholesale/cmp/calendar.html>.

6. Requirements Review:

CenturyLink expects that the CLEC will be aware of CenturyLink's business rules and processes associated with ordering various product types. CenturyLink also expects that the Service Bureau will define the processes and business rules that apply to their software, which will affect the CLEC, and will keep the CLEC informed of these impacts.

7. Physical Connectivity:

The Service Bureau will provide internet bandwidth and manage unique digital certificates for each CLEC to maintain a secure network to send and receive data between CenturyLink and the CLEC, as well as providing an efficient means to transport high volumes of data. Please refer to the "XML Implementation Guidelines" for further technical information on connectivity.

8. Testing Process:

The XML testing process must address two considerations: (1) New Product Implementations and (2) Release Migrations. The testing requirements for these two efforts are addressed in this section. Additionally, TABLE B serves to provide a high-level summary of Service Bureau progression testing requirements for New Product Implementation and Release Migrations.

The Service Bureau may use a **Lead** CLEC to test the products and activity types that the Service Bureau plans to offer to all CLECs subsequent to the Lead CLEC (herein referred to as the **subsequent** CLEC). The **Lead** CLEC tests for the first time a unique set of products for a given release in the CenturyLink Stand Alone Test Environment (SATE), as described below [see Progression Testing Phase (SATE)]. Following this testing, the **Lead** CLEC will perform Controlled Production for specific products/activities.

All **subsequent** CLECs wishing to implement the **Lead** CLEC's tested products have the option to progression test these products, as noted below [see Progression Testing Phase (SATE)]. If this testing is

skipped, the **subsequent** CLECs must perform Trading Partner Configuration Verification (TCV), also noted below. After the Lead CLEC completes the Progression Testing exit criteria in the Controlled Production Readiness Assessment, any **subsequent** CLEC using the Service Bureau's same products/activity types may move directly into Controlled Production once TCV has been completed, as applicable for the given testing process.

A Service Bureau may use multiple **Lead** CLECs for testing different products/or use one **Lead** CLEC for all product testing. A Service Bureau, established for Regression testing in SATE, may use that trading partner name and configuration to act as the Lead CLEC for purposes of Progression and Migration testing. Regardless of the number of **Lead** CLECs utilized, the testing phases required for CLEC implementations are the same as those used for a non-Service Bureau implementation. [For further explanation of these phases, please refer to the Implementation and Migration sections of this document.]

A. New Product Implementations:

This section identifies the requirements for new product implementation testing that are unique to a Service Bureau arrangement, highlighting the differing roles of the **Lead** CLEC and **subsequent** CLECs.

Connectivity Testing Phase:

- This testing is required for both the **Lead** and **subsequent** CLEC.
- This testing will be performed in the SATE environment, as well as in the Production environment.
- This testing can be performed with CenturyLink from the Service Bureau site (for SATE only). The CLEC may choose to perform this testing for SATE if they will be doing testing from their site to CenturyLink
- The CLEC is required to perform this testing for the Production environment.

Progression Testing Phase (SATE):

- The **Lead** CLEC's progression testing can be performed with CenturyLink from the Service Bureau site or the CLEC's location. If progression testing is performed from the Service Bureau site, the Service Bureau may use either the CLEC's Trading Partner configuration that will be used in production or the Service Bureau's SATE Trading Partner configuration.
- Any **subsequent** CLEC may choose to Progression test in the SATE environment; however, this is not a requirement.
- Any **subsequent** CLEC Progression Testing in the SATE environment may be performed from the Service Bureau or CLEC's site.

Trading Partner Configuration Verification (TCV):

- This configuration verification is not applicable to the **Lead** CLEC when their Trading Partner Relationships are verified, as part of the Progression Testing Phase.
- This verification is applicable to **subsequent** CLECs who opt not to test in a Progression Test environment. This will validate CenturyLink's Trading Partner configuration.
- This verification is performed in SATE and entails testing one successful pre-order transaction, order and post-order notice being implemented. One order transaction plus one supplemental Order transaction must pass CenturyLink's system edits to verify the Order responses. This allows CenturyLink to confirm the Trading Partner configuration.

- This verification can be performed from either the Service Bureau or CLEC's location, but must be progression tested using the CLEC's Trading Partner configuration.
- The XML Configuration Worksheet will outline the transactions required.
- A test plan will be used to document the completed testing.

Controlled Production Phase:

- Every CLEC must perform Controlled Production from the CLEC's location. The Service Bureau cannot perform this effort.
- As stated previously, any **subsequent** CLEC may begin Controlled Production when the **Lead** CLEC testing the same products has completed the Progression Testing exit criteria in the Controlled Production Readiness Assessment (that is, the **Lead** CLEC has exited the Progression Testing Phase).

9. Release Migrations:

The determination of the need to re-certify a product will be made by CenturyLink and specified in CenturyLink's release-specific Recertification memo, which will be provided to all CLECs with the issuance of Disclosure. The complexity and number of tests necessary will be based upon the complexity of changes to the release. If there are no changes to a product for a release, recertification of that product is not required, but may be tested at the CLEC's discretion.

To re-certify a product, the Service Bureau must perform a suite of tests in SATE with their **Lead** CLEC and CenturyLink; however, recertification does not require Controlled Production for any migration regardless of whether a CLEC uses a Service Bureau. This section identifies the process requirements for release migration testing that are unique to a Service Bureau arrangement, highlighting the differing roles of the **Lead** CLEC and **subsequent** CLECs.

Connectivity Testing Phase:

- This testing is not required for either the **Lead** or **subsequent** CLEC unless their Trading Partner (TP) Name, Digital Certificate ID or Push URL changes.
- If required, this testing will be performed in the SATE environment and the Production environment.
- If required, this testing can be performed with CenturyLink from the Service Bureau site (for SATE only). The CLEC may choose to perform this testing for SATE if they will be doing testing from their site to CenturyLink.
- The CLEC is required to perform this testing for the Production environment.

Progression Testing Phase (SATE):

- The **Lead** CLEC will need to test those products that CenturyLink determines need recertification, as noted above, and will follow the **Lead** CLEC process described under "(a) New Product Implementation Testing Requirements – Progression Testing Phase (SATE)".
- Any **subsequent** CLEC may choose to test in SATE; however, this is not a requirement.
- Any **subsequent** CLEC Progression Testing in SATE may be performed from the Service Bureau or CLEC's site.

Trading Partner Configuration Verification (TCV):

- This configuration verification is applicable to the **Lead** CLEC for each product change on the XML Configuration Worksheet when that product does not require recertification by CenturyLink. For products requiring recertification, this verification is not applicable to the **Lead** CLEC who tested in SATE, as their Trading Partner Relationships were verified as part of this testing phase.
- This verification is applicable to **subsequent** CLECs who opt not to re-certify products through testing in SATE.
- If required, each **subsequent** CLEC must test one successful transaction per pre-order transaction, order product, or post-order notice being implemented. One order transaction plus one supplemental Order transaction must pass CenturyLink's system edits to verify the post-order notices. This allows CenturyLink to confirm the Trading Partner configuration.
- This verification is performed in a test environment prior to changes being made to the Production environment. Please be aware that a five-day interval for Trading Partner configuration changes applies in Production.
- This verification can be performed from either the Service Bureau or CLEC's location, but must be tested using the CLECs Trading Partner configuration.
- A test plan will be used to document the completed testing.

10. Production Support/Help Desk:

It is strongly recommended that a Service Bureau have an established Help Desk process to support CLECs with production issues. CenturyLink is willing to assist Service Bureaus with establishing processes and guidelines that are consistent with CenturyLink's established Production and Help Desk support processes. CenturyLink's current help desk process allows a Service Bureau to work directly with its Wholesale Systems Help Desk (that is, represent the CLEC in lieu of the CLEC's participation in help desk calls). As a result, CenturyLink strongly encourages CLECs to complete the CLEC Trouble Shooting Guide with both CLEC and Service Bureau points of contact for emergency, weekend, holiday, and after-hour production support issues. CenturyLink also recommends that the CLEC contact the Service Bureau for support prior to contacting CenturyLink – to more accurately determine the source and nature of the issue.

11. Table A: Summary – Role of the Service Bureau in a CLEC Implementation

IMPLEMENTATION AREAS	A SERVICE BUREAU’S ROLE...
Service Level Agreements	The Service Level Agreement is located within CenturyLink’s Interconnect Agreement for CLECs. Neither a Service Level Agreement nor an Interconnect Agreement exists between a Service Bureau and CenturyLink; however, CenturyLink and the CLEC will have a signed Interconnect Agreement. Additionally, the requirements outlines in the Proof of Authorization/Letter of Agency V2.0 must be satisfied for the Service Bureau to represent the CLEC.
CMP Participation	Service Bureaus may vote on behalf of the CLEC providing the requirements outlined in section 17.0 of the CMP Redesign Process are met. Additionally, CLECs may solicit advice from their Service Bureau regarding their CMP votes at any time.
Release Deployment/Sunset dates	This process follows the CenturyLink documented process (see “XML Implementation Guidelines”).
Requirements Review	Service Bureaus should perform a review of CenturyLink’s requirements, keeping CLECs informed of all impacting changes. Additionally, CenturyLink expects that the CLEC will review all business processes and business rules associated with ordering various product types.
Connectivity Testing	<p>Service Bureaus need to provide a high-bandwidth internet connection and must manage a unique digital certificate per trading partner/CLEC.</p> <p>If a Service Bureau elects to receive Pushed notices for their CLECs, the Service Bureau may provide unique URLs for each CLEC or a single URL to which CenturyLink will Push notices. The Service Bureau must also implement a full web-service and security management (using a unique digital certificate for each CLEC provided by CenturyLink).</p> <p>CenturyLink relies on the Service Bureau to stop unauthorized transactions being submitted to CLECs when all CLEC transactions are transmitted to the same web-service. The Service Bureau must differentiate messages by Trading Partner ID to accomplish this goal.</p>
Progression Testing Process	Refer to TABLE B “Testing Requirements for Service Bureau Implementations” within this document.
Production Support/Help Desk	Service Bureaus may place calls to CenturyLink’s Wholesale Systems Help Desk on behalf of CLECs (see XML Implementation Guidelines for further details on the overall process).

12. Table B: Testing Requirements for Service Bureau Implementations

New Product Implementations

Progression Testing Phase:

	Connectivity	TCV	New Products
Lead CLEC	Testing required	Not Applicable	Testing required; see minimum testing requirements ¹
Test Parties:	CenturyLink to Service Bureau	Not Applicable	Either CenturyLink to CLEC or CenturyLink to Service Bureau
Subsequent CLECs	Testing required	Testing is required unless the CLEC decides to fully test their transactions in SATE – independent of the Lead CLEC.	Testing is optional when implementing a product that has already been tested and in production by a lead CLEC.
Test Parties:	CenturyLink to Service Bureau	CenturyLink to Service Bureau or CenturyLink to CLEC	CenturyLink to Service Bureau or CenturyLink to CLEC

Controlled Production Phase:

	Connectivity	TCV	New Products
Lead CLEC	Testing required	Not Applicable	Testing required; see minimum testing requirements ¹
Test Parties:	CenturyLink to Service Bureau	Not Applicable	CenturyLink to CLEC
Subsequent CLECs	Testing required	Not Applicable	Testing required; see minimum testing requirements ¹
Test Parties:	CenturyLink to Service Bureau	Not Applicable	CenturyLink to CLEC

Footnotes:

¹ Refer to the “XML Implementation Guidelines” document for minimum test scenario requirements.

Release Migrations

Progression Testing Phase (SATE):

	Connectivity	TCV	Existing CenturyLink Certified Products
Lead CLEC	Testing not required, unless the Firewall, IA or the TP Name changed.	Applicable for all products not requiring Recertification.	Testing required; see CenturyLink's release specific Recertification memo ¹
Test Parties:	CenturyLink to Service Bureau	Not Applicable	CenturyLink to Service Bureau
Subsequent CLECs	Testing not required, unless the Trading Partner Name, Digital Certificate ID or Push URL change.	Testing required, if CLEC opts not to test in SATE.	Testing optional
Test Parties:	CenturyLink to Service Bureau	CenturyLink to CLEC or CenturyLink to Service Bureau	Not Applicable

Footnotes:

¹ Refer to the CenturyLink's release specific Recertification memo for a determination of the products

Appendix C: IMA XML Minimum Test Requirements

Testing Phase	Pre-Order Testing	Order Testing	Post-Order Testing
New Implementation (Progression)	<ul style="list-style-type: none"> • Every transaction being implemented • Every associated response type 	<p><u>Overall Implementation Requirements:</u></p> <ul style="list-style-type: none"> • All three supplement types • One transaction correcting a System Reject and one correcting an ISC Reject <p><u>Requirements per Product:</u></p> <ul style="list-style-type: none"> • Every product being implemented 	<p><u>Overall Implementation Requirements:</u></p> <ul style="list-style-type: none"> • Every response type being implemented <p><u>Requirements per Product:</u></p> <ul style="list-style-type: none"> • One positive response [LR FOC (RT = B, C, D, or X) or DSRED (AT, AC)] per product being implemented <p><u>Additional requirement for FBDL:</u> CLEC must demonstrate the ability to receive a second DSRED after AD/AC for a given PON.</p>
Additional Products/Pre-Order transactions after Initial Progression Testing (Progression)	<ul style="list-style-type: none"> • Every transaction being implemented • Every associated response type 	<ul style="list-style-type: none"> • Every additional product being implemented 	<ul style="list-style-type: none"> • One positive response [LR FOC (RT = B, C, D, or X) or DSRED (AT, AC)] per product being implemented • One Completion per product being implemented • Each subscriber notice being added
Controlled Production	<ul style="list-style-type: none"> • Every transaction being implemented • One associated response type 	<ul style="list-style-type: none"> • One Order transaction (any product) 	<ul style="list-style-type: none"> • One response (any response) <p>NOTE: The LR or DSRED could be any value.</p>
Re-certification (Progression)	<ul style="list-style-type: none"> • Every transaction being migrated and indicated on the Recertification Memo as requiring re-certification • One associated query and selection type • One associated positive response type ('Good' or 'Exact Match') 	<ul style="list-style-type: none"> • Every transaction being migrated and indicated on the Recertification Memo as requiring re-certification • One supplemental transaction 	<ul style="list-style-type: none"> • Every response type requiring re-certification • One positive response per product requiring re-certification (meaning it passes System Edits) • One positive response for the supplemental transaction
<p>TCV - Migration Products not tested per the Recertification Notice and minimum testing criteria above.</p> <p>For subsequent CLECs with a Service Bureau for all products.</p>	<ul style="list-style-type: none"> • One Transaction per product being migrated 	<ul style="list-style-type: none"> • One Transaction for each product the CLEC is migrating – if that product is not required for recertification testing per the Recertification Memo. 	<ul style="list-style-type: none"> • One positive response for each notice type
TCV – Progression For Subsequent Service Bureau CLECs only	<ul style="list-style-type: none"> • One of each pre-order product being implemented. 	<ul style="list-style-type: none"> • One order transaction (any product) 	<ul style="list-style-type: none"> • Any post order response being implemented