

EXHIBIT M

A White Paper

on

***The Stand Alone Test Environment (SATE)
Virtual Interconnect Center Knowledge Initiator***

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Introduction

Purpose of the Document

This document provides a high-level overview of the Stand Alone Test Environment (SATE) Virtual Interconnect Center Knowledge Initiator (VICKI). The document is made of three key sections, each of which highlights a certain aspect of the project:

- Business Drivers and Purpose
- Definition
- CLEC Process and Documentation

Intended Audience

This document is intended for anyone with a desire to understand the scope, purpose, and status of VICKI

Business Drivers and Purpose

Business History and Need

In August of 2001, the Stand-Alone Test Environment was launched. It was designed to give Competitive Local Exchange Carriers (CLECs) an EDI test bed with which to test various order and pre-order scenarios for certification against Qwest's Interconnect Mediated Access (IMA). SATE was designed to specifically meet the following needs:

- Allow CLECs to test their software in an unsupervised test environment that does not rely on real production accounts and does not run the risk of interfering with production.
- Provide repeatable test cases that do not require a CLEC to provide data.
- Allow CLECs to run test Local Service Request (LSR) and pre-order scenarios in order to master and code to Qwest business rules.

SATE's launch represented an additional improvement to the CLEC Certification Process. With SATE, CLEC testing is simplified. Qwest publishes a Data Document with a set of test scenarios and data that can be used by CLECs to initiate a variety of LSR and pre-order requests. CLECs can use these scenarios to certify their software, regression test their software, or streamline their business processes. Qwest dramatically loosened usage limits with the launch of SATE enabling CLECs to run a large number of pre-order and order test scenarios without Qwest supervision.

Although Order and Pre-Order testing was simplified with SATE's launch, post order processing continues to require coordination with Qwest personnel. In SATE today, CLECs contact the EDI Implementation Team to request certain post-order transactions be sent. The EDI Implementation Team then manually initiates these transactions for EDI transmission, as they would be sent to a CLEC in production. For example, a CLEC tester may want to test to see that a POTS Resale LSR for an Activity of N can be properly processed to completion by that CLEC's software. In this case, a testing CLEC would contact Qwest and request that an FOC and Completion for that LSR be sent. Qwest would then manually trigger these responses.

This process can be enhanced through automation.

Note: Qwest has also recently made plans to move ahead with Real World Scenario Testing for post-order transactions. With real world scenario testing, when a CLEC sends an LSR request to Qwest they are asking "what" would happen to this specific LSR if the telephone numbers, circuits, and facilities in SATE existed in Qwest's Production Network and this specific LSR was sent to Production. Plans for Real World Scenario post-order testing will be addressed in the Flow-Through White Paper to be reviewed on January 8, 2002. These plans were also discussed in the SATE User Group Meeting on November 27, 2001. For post-order processing today, only the above interface testing scenario is supported. Real

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World Scenario Testing will allow CLECs to test the exact message they would receive in production for the LSR they sent. VICKI allows them to test message formats, messages, and maps for specific pre-determined test scenarios.

Project Objective

VICKI was created to respond to requirements for further automation and decreased dependence on Qwest personnel for post-order processing. The objective of the VICKI project is to improve a CLECs ability to test post-order transaction processing in a stand-alone manner.

Definition**High-Level Requirements**

Qwest processes LSRs in its production OSS through a variety of complex systems. Depending on the processing of the LSR and whether a CLEC has chosen to receive Status Updates from Qwest, a variety of post-order transactions could be sent by Qwest in various different sequences. Some examples of the statuses/sequences are:

- A Firm Order Confirmation (FOC), followed by a Physical Work Completed Status Update on a Service Order, followed by an LSR Completion, and a Posted to be Billed Status Update on that Service Order.
- An Error Status update, followed by a Firm Order Confirmation (FOC), followed by a Physical Work Completed Status Update on a Service Order, followed by an LSR Completion, and a Posted to be Billed Status Update on that Service Order.
- A manual reject.
- A non-fatal message followed by a manual reject.
- A Firm Order Confirmation (FOC), followed by a Jeopardy Status Update on a Service Order, and an LSR Jeopardy.

Upon inception, the High-Level Requirements for VICKI were essentially to automate the aforementioned process for requesting post-order transactions from Qwest such that:

- CLECs could test all valid production scenarios.
- CLECs could test with production time delays as well as with condensed time delays ideal for shortening test cycles.
- CLECs could receive post-order messages on demand and therefore easily test reception.

Design Options

In production, post-order transactions to CLECs are triggered in one of three ways:

- Some messages including FOCs, Manual Rejects, and Non-Fatal Errors are manually triggered by an ISC Representative entering information into IMA.
- Some FOC messages are triggered by the successful Flow Through of an LSR without manual intervention.
- Finally, some messages including status updates and Completions are triggered by a message being sent without manual intervention from Customer Request Manager (CRM) to IMA. CRM receives statuses from various Qwest systems and sends them to IMA.

After establishing the High-Level Requirements, Qwest evaluated several options for creating VICKI . To use production systems, including those behind CRM, would simply increase work for Qwest and the CLECs. If for example, some production systems were used, additional personnel and coordination would be required to trigger the interactions between systems. Such a process was not efficient and did not meet the end goals of the project.

However, the system could not simply send generic post-order transactions to a CLEC. The messages had to match what a CLEC would see in production.

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It was therefore determined that the best option was to create a single system that serves as back-end systems do in production thus creating a variety of easy to trigger production-like scenarios.

User Design

VICKI was designed according to the following functional concepts.

At the time a CLEC enters an LSR, they determine the post-order transactions they want to see in response to that LSR and whether they want that LSR to receive those post-order transactions with production-like or testing-conducive time lapses between events. They specify this using the Remarks field of an LSR. For example, if they want an LSR to receive the post-order transactions that eventually result in a Completion with production-like time periods between events the CLEC writes "<Prod: Complete>" in the Remarks field of the LSR field of their LSR. If they want a manual reject with shortened time frames between events for testing purposes, they write "<Test: Jeopardy>."

Once entered by a testing CLEC, if an LSR has Remarks that exactly match those of a defined path, a set of transactions is sent to the CLEC. These transactions are called a path. For example, for a POTS Resale New Order where the Remarks read <Test: Error Complete>, the following would be sent to a CLEC's EDI Interface:

- An "Error" Status Update (if the CLEC has status updates on) will be sent 15 SATE Operational minutes after LSR entry.
- 15 SATE Operational minutes later an FOC with one N order due one day in the future will be sent to the CLEC.
- 8 SATE Operational Hours later a "Physical Work Completed" Status Update will be sent to the CLEC (if the CLEC has status updates on)
- 15 SATE Operational minutes later an LSR Completion will be sent to the CLEC.
- 15 SATE Operational minutes later a "Posted to be Billed" Status update on the aforementioned LSR will be sent to the CLEC (if they have status updates on).

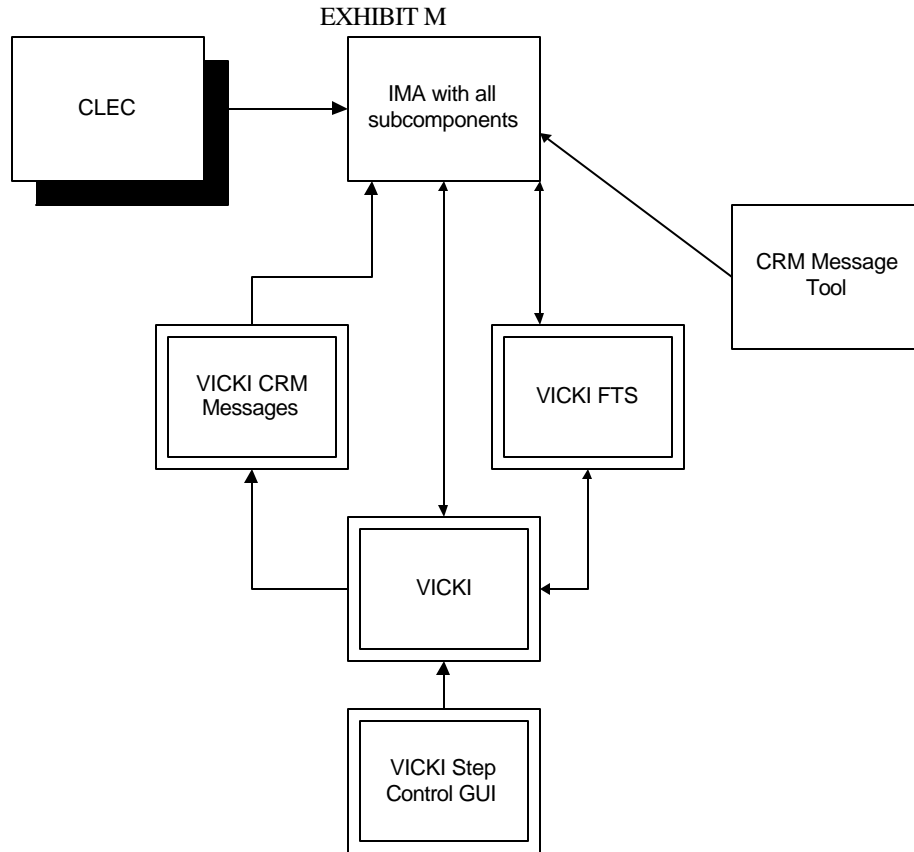
Note: The Remarks that trigger post-order transactions and the actual post-order transactions they trigger are specific to a Product, Activity and Supplemental Type. Paths are defined for a Product, Activity, Supplemental Type and Remarks field combination. This is done to ensure that the FOC, Service Order Detail and Completion on any path match the general pattern of the transactions that would be received on that LSR in production. From a user standpoint, the remarks trigger paths for multiple products and activities. From a technical standpoint however, each Product, Activity Supp Type, Remarks combination creates a unique path.

Clearly, the paths that exist and the Remarks that trigger them must be published to CLECs. Qwest will publish the valid LSR Remarks for each Product, Activity and Supplemental Type Combination and the responses they trigger in the documentation referenced in the CLEC Process section of this document. Qwest has already defined a set of remarks and associated paths. CLECs also will be able to request additional paths via a process similar in structure to the data request process.

Technical Design

VICKI was designed to meet the User Design referenced above. From a logical standpoint, VICKI is depicted below:

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VICKI works in the following manner.

1. When an LSR is entered into SATE it is evaluated to see if it matches the Product, Activity, Remarks and Supplemental Type criteria of a defined path. (If no match is found, no post-order transactions are sent unless the CLEC contacts the EDI Implementation Team and requests messages are sent manually.)
2. If a path is found a list of post-order transactions is created for that LSR according to the path it matched on. Time lapses according to the defined path, are also placed between each transaction.
3. One by one according to the time lapses, each step in the path is enacted and a transaction is sent to the CLEC.

With VICKI, Qwest will automate transactions that are automated in production, and leave manual processes that are currently manual in production. Events will be technically created in the following manner:

- FOCs: VICKI then uses a Flow Through Service emulator to create an FOC based on production FOC examples for that Product, Activity, and Supp Type Combination.
- All Status Updates and Completions: VICKI sends CRM like messages. In the case of Completions, these are based on production Completions examples for that Product, Activity, and Supp Type Combination.
- Second FOCs for a specific LSR, Manual Rejects, Non-Fatals, LSR Level Jeopardies: These are still manually created from the FOM in the exact same as in production.

Note: Path FOCs are provided with varying quantities and flavors of service orders found in production. CLECs are required to map their LSR test scenario to an existing path FOC that meets their needs. Also, with respect to the Service and Equipment detail of a Completion notice, VICKI is built to allow a CLEC to understand the EDI Map structure and content of a Completion. It does not return a Service and

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Equipment Section specific to the CLEC's test LSR. If a CLEC desires a specific Service and Equipment section be returned, they can request it be added to VICKI via the path request process.

To expedite or postpone transactions, a Path Step Control GUI allows the EDI Implementation Team to override the time delay between post-order transactions. It can be used to force the transaction to be sent earlier or later. A CLEC can contact Qwest to speed or to slow a path. A Qwest introduced CMP CR proposes to make this GUI available to the CLECs.

Note: Outside of VICKI, post-order transactions can still be produced, for those CLECs who desire it, by using the current SATE process. This process utilizes the FOM (an IMA component) and Qwest's CRM Message Tool in the diagram above.

Also available on the path step GUI is a worklist for the EDI Implementation Team. Although some transactions still require manual handling like those performed by an ISC Representative in production, VICKI allows a CLEC to specify what manual action needs to be done on an LSR. These specifications are stated by specifying a unique path.

Current Status

VICKI is due to launch with SATE 9.0, which is currently scheduled for January 28, 2002.

CLEC Process

Qwest plans to produce samples of VICKI path documentation to CLECs for review at the December 11, 2001 SATE User Group Meetings. This should help to explain in greater detail how a CLEC initiates a transaction.

Full processes including the Path Request Process, complete draft process documents, and a complete Path document will be reviewed at the January 8 SATE User Groups Meeting.

Note: A final draft of this white paper will be sent after the first CLEC review on December 11, 2001. It will include more detail on CLEC Documentation and Process as well as detail on how paths will be documented and how a CLEC can use documentation to trigger them.

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