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ARIZONA CORPORATION COMMISSION
PHOENIX, ARIZONA

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IN THE MATTER OF U S WEST
COMMUNICATIONS, INC.'S
COMPLIANCE WITH § 271 OF THE
TELECOMMUNICATIONS ACT OF 1996

Docket No. T-00000A-97-0238

AT&T COMMENTS ON SATE
SUMMARY EVALUATION
REPORT, VERSION 3.0

AT&T Communications of the Mountain States, Inc. and TCG Phoenix,
(collectively, "AT&T") hereby file their comments on Hewlett-Packard's ("HP") SATE
Summary Evaluation Report for Qwest IMA-EDI SATE, Final Release, version 3.0,
dated December 21, 2001 ("HP Report" or "Final Report").

I. INTRODUCTION

The following analysis of SATE¹ is based on the details from the Final HP
Report, the SATE workshop conducted in Arizona on December 12, 2001, along with
past experience of AT&T's experts to reach conclusions about the current state of
SATE.² AT&T agrees with most of the detailed comments and findings made by HP in
its Final Report but disagrees with many of HP's conclusions. The conclusions that HP
has reached with regard to the overall quality and "readiness" of SATE are not supported

¹ "SATE" stands for Stand-Alone Test Environment.

² AT&T's Comments are taken in large part from AT&T's Comments on version 2.0 dated December 3, 2001. In many important respects the findings and recommendations contained in version 2.0 did not change in version 3.0.

by the detailed findings and comments presented in the HP Report. HP admits that the testing is incomplete, requiring at the very least, full testing of SATE Release 9.0.³ As will be shown below, there are additional products in use in Arizona that have not been addressed by Qwest or HP. Further, Qwest has committed to implement only some of the recommendations made by HP, and those recommendations that Qwest has agreed to implement will not be implemented until well after test comments are complete. There is no current mechanism to verify the quality and completeness of Qwest's implementation, once again demonstrating that the Arizona testing process is incomplete.

II. ARGUMENTS

A. Testing Is Incomplete

HP has conducted some additional retesting since its Preliminary Report.⁴

However, not all problems were retested. In addition, the testing does not address the functionality of the new software associated with SATE 9.0. HP recommends testing the new 9.0 software after it is made available in late January. There are several other areas in which HP never even initiated testing or on which HP's testing was inadequate. The areas where additional testing is needed include:

1. **Incomplete Testing of Known Problems**

There were approximately 27 formal issues that remained open when HP completed its Preliminary Report. The Final HP Report lists five formal issues as closed but unresolved and one issue as open. These six formal issues were not successfully

³ The HP Report should not have been issued until testing was truly complete. However, HP was tasked by Staff to release reports on November 30, 2001, and December 21, 2001, apparently, whatever the status of the testing.

⁴ HP released version 2.0 of its report on December 3, 2001. Version 2.0 will be referred to herein as the Preliminary Report.

retested. Testing should not have been artificially concluded to meet Staff's deadlines for submission to the Arizona Commission. This results in an incomplete test and record. In addition, the HP Report lists twenty one (21) Candidate Issues (issues that could not be identified as formal issues before testing was completed). Of the twenty one, fully eighteen (18) were "closed-unresolved." This means that HP was not able to test whether Qwest corrected the problem. Not until Qwest has implemented fixes and HP has had an opportunity to verify the effectiveness of those fixes will this Commission, Staff and the parties know whether SATE operates properly. Clearly, there is a need for additional testing to assure that Qwest has corrected the remaining problems with SATE.

2. New Release Testing Incomplete

In addition to the approximately 27 unresolved issues HP identified in its Preliminary Report, HP was not able to complete testing with respect to New Releases. One important requisite of SATE is the ability of a competitive local exchange carrier ("CLEC") to evaluate the interaction of its systems with a new IMA-EDI software release. One of the objectives of SATE is to allow CLECs to do this type of testing before a new software version is released. HP was not able to test a full SATE release of new software before the release of the IMA-EDI official release. HP concluded in its Report that New Release Testing is incomplete: "This evaluation is inconclusive because HP was not able to fully verify that the SATE is adequate for new release testing"⁵ HP makes the following recommendations that Qwest complete with respect to New Release Testing:

6. Qwest [should] develop a formal process by which the SATE will be available for new release testing on an ongoing basis.

⁵ HP Report, § 2.1.6.

7. To ensure that the SATE is adequate for full release testing, HP recommends that IMA SATE release 9.0 be tested. This release is expected to take place February 2002.⁶

SATE will not be complete until Qwest has complied with these recommendations and they have been tested by an outside entity such as HP.

3. Testing of Business Process Error Codes (Negative Testing) Incomplete

One of the testing modules conducted by HP was “Negative Testing” to assess the reaction of SATE to incorrect inputs and responses. For CLECs it is very important that SATE react in the same manner as the production system when the CLEC makes incorrect inputs or responses. When a CLEC is designing or testing its OSS, it is critical that the CLEC OSS interpret error messages from the Qwest systems. HP’s Negative Testing was designed to test SATE for a limited number of Business Process Layer (“BPL”) error codes. As will be discussed later, HP has been unable to get a listing from Qwest for error codes that are sent by the Legacy Systems that sit behind the BPL and which the BPL simply passes through to the CLEC.

The Final Report shows that HP conducted a set of 65 negative test scenarios. Unexpected results were initially discovered with 12 of the 65 scenarios. This is a very high error rate of over 18%. This, however, is the tip of the iceberg. Of the 65 scenarios, 35 were run on SATE 8.0 with an error rate of 20%, and 30 were run on SATE 7.0 with an error rate of 17%. The list of error codes for the 8.0 BPL contains 2,423 entries. If we assume that HP tested one error code per scenario, which is generous, then HP would need to run 2,423 scenarios to test all of the error codes, instead of the 35 scenarios that were run. This means that HP tested a little less than 1.5% of all error codes. If the 20%

⁶ *Id.*, § 2.2.

error rate holds, this means that if complete testing were done, one could expect another 477 errors to be uncovered. AT&T is not suggesting that all possible error codes should be tested. However, testing only 1.5% of the BPL error codes is not a large enough sample. Testing of BPL error codes is clearly incomplete.

4. Lack of Testing For Back Office Legacy System Edits and Error Codes

SATE uses a simulation of the back office legacy systems for SATE. It is clear that Qwest has not incorporated all of the legacy system edits and error codes, and what has not been provided cannot be tested. HP was unable to initiate testing for legacy system error codes because Qwest failed to produce the list of error codes as requested by HP.

Additionally it should be noted that HP could not test back-office legacy system edits to ensure this 8% error rate does not increase due to the generation of errors that were unable to be detected during SATE Progression or Regression testing.⁷

The need for the implementation of legacy system edits and error codes will be addressed further later in this document.

5. Discrepancies In Consistent Responses During Multiple Release Testing

HP has discovered some inconsistencies between the two releases it has tested.

This issue has not been fully explored in the HP testing, and HP has listed the results as Inconclusive:

HP has determined that the evaluation of this criterion remains Inconclusive. HP identified that most of the error message variances found relate to the incidence of legacy system errors that are not included on the production error list, and messages that present LSR FORM and SECTION Headers. Additionally, HP found occurrences of error messages being generated in SATE that were not equivalent to what was published on the error lists. HP ran 30 scenarios, of which

⁷ HP Report, § 6.6.3(5).

11 scenarios successfully matched and 19 scenarios did not match. See the Transaction Test Reporting Summary for further details.⁸

Clearly the HP testing revealed some significant inconsistencies that need to be explored. SATE 9.0 should be extensively tested to ascertain if this type of discrepancy still exists.

6. Volume Capacity Testing

Qwest has not tested SATE for any type of volume.⁹ It is unknown how SATE would handle multiple CLECs and interface developers processing multiple orders at once. While SATE is not meant to be a load testing vehicle, some amount of load should be tested to see if SATE will hold up when ten or twenty CLECs, with several developers each, test during a new release.

7. Conclusion

In summary, the current HP Report, and the testing it represents, is admittedly incomplete for numerous reasons. HP's testing has been terminated, leaving many loose ends, as described above. Realistically, additional testing should be done after SATE 9.0 is released to test the issues identified.

B. The SATE Functionality Is Not Adequate

In developing SATE, Qwest appears to have made some compromise on what would be useful for CLECs and what was easy to develop. HP noted that Qwest did not consult the CLECs before designing SATE.¹⁰ The result is that SATE will not allow the complete range of products and features to be ordered as does the production system, nor

⁸ *Id.*, § 6.6.3(6).

⁹ *Id.*, § 6.6.4 (2). "HP did not perform volume capacity testing."

¹⁰ *Id.* "However, Qwest obtained little direct input from CLEC community."

does SATE take orders and respond back in the same time frame or the same manner as the production system. HP recognizes these inadequacies in their Report.

1. Incomplete Set of Products that are Supported by SATE

Beyond the issues associated with HP's incomplete testing of SATE, is the issue of whether SATE, as it currently operates, addresses CLECs needs. It does not. Eighteen percent of the capabilities currently used by CLECs in Arizona are not in SATE and have not been tested by HP. "Report 7 – Products offered in AZ," modified by HP on December 12, 2001, reflects that the current count of functionality in the IMA EDI Disclosure document is 80 products. The total count of capabilities in SATE is only 34. This means that 46 capabilities, fully 57.5%, are not in SATE. Of these 46, six are already in use in Arizona. There are currently 34 capabilities in use in Arizona by CLECs, yet only 28 of these are currently included in SATE. The following six capabilities are in use but are not included in SATE:

- a. Customer Service Record via FTP or Email
- b. TN/Appointment Cancellation
- c. Design Layout Request
- d. Facility Availability ISDN Capable Loop
- e. Non-Fatal Error Response Transaction
- f. Non-Fatal Response

Qwest must include these items in SATE and HP must then test them before SATE can be deemed acceptable in Arizona. SATE is currently inadequate in addressing CLEC needs.

HP recommends that: “Qwest submit a plan to ensure that it meets CLEC needs for testing of all products available in Arizona, including new technologies.”¹¹ Later, in this same section, “HP also recommends that Qwest obtain input from the CLECS to determine the full suite of products that shall be included in the SATE.”¹² In the matrix entitled “Overall Transaction Test Evaluation Findings Summary,” HP further clarifies the lack of completeness of SATE:

Are the scenarios supported in the SATE inclusive of the products and activities that are required to support the business processes of a CLEC operations center?

This **Inconclusive** result is based on the most recently delivered SATE Data Documents. All products are not offered in SATE when compared to the products found available in the IMA EDI Network Disclosure documentation. HP recommends that Qwest obtain input from CLECs to determine the full suite of products that shall be included in SATE.¹³

CLECs need all of the products and features that can be ordered using the production system to be available in SATE.

It is insufficient to base SATE products on only those that are currently being used by CLECs in Arizona. Before a CLEC offers a new product to retail customers it needs to test its ordering and provisioning systems with SATE. A retrospective look at what products are currently being sold has no bearing on the new products that CLECs would like to test and sell

2. Manual Post-Order Processing

SATE uses manual processing for post-order activity such as FOC, Completion, and other functions. Qwest plans to add these functions in an automated fashion by

¹¹ *Id.*, § 2.2(1).

¹² *Id.*, § 2.2(5).

¹³ *Id.*, § 6.6.3(7).

adding the VICKI capability to SATE in the first quarter of 2002. The current manual process is unlike that which is experienced in the production environment:

The existing SATE response process does not make consideration to the automated process known as "VICKI" which is to be Implemented into SATE in January.¹⁴

The lack of automation for post-order processing will impact CLEC OSS development.

"Back office system integration is not available so HP cannot conclude that the results in SATE will be the expected results in Production."¹⁵ Lack of automation for post-order processing also constrains the number of LSR responses that a CLEC can expect in a day. Without VICKI this number is currently ten per day.

3. Lack of Flow Through

SATE does not flow through orders in the way that the production system does.

Flow through is a very important part of the OSS interface. SATE does not provide this type of interface; subsequently, it does not give the CLEC any idea how many of its

orders would flow through or if the CLEC OSS will facilitate or inhibit flow through. HP

has commented on this problem: "Back office system integration is not available so HP cannot conclude that the results in SATE will be the expected results in Production."¹⁶

The OBF has stated that the response times should be the same in test system as in the production system:

Provided a customer uses the same connectivity option as it uses in production, the customer should, in general, experience response times similar to production.¹⁷

¹⁴ *Id.*, § 6.6.3(8).

¹⁵ *Id.*, § 6.6.5(2).

¹⁶ *Id.*

¹⁷ ATIS/OBF Change Management Process; OBF 2233a2v2.

Qwest has stated that it will have limited flow through capability for SATE in February 2002, with full flow through capability in the second quarter of 2002. Until Qwest implements flow through and VICKI capabilities in SATE, and they are fully tested, this requirement will not have been met.

4. Functions That Are Not Yet Available

There are additional functions that need to be added to SATE, some of which are already planned. The current testing does not encompass them.

5. Tariff-Based USOC and Geography Edits

Qwest is assuming a general type of CLEC without any state tariffed-based USOCs or geographical edits, which would occur in the production environment. Co-Provider tariff-based USOC and Geography edits are not applied to the Co-Provider's view of SATE as they would exist in production. The whole Qwest universe of valid USOCs and Services is made available to the tester.¹⁸

C. High Rates of Problems Necessitate Additional Third-Party Testing

The transaction testing results clearly show that the initial versions that HP tested were extremely problematic and that many problems still remain in SATE. Testing of SATE 7.0 had an initial error rate of 25%.¹⁹ SATE 8.0 had an initial failure rate of 23%.²⁰ In negative testing of SATE 7.0 the error rate was 16% and for SATE 8.0 it was 20%, though as discussed earlier, HP tested only 1.5% of the BPL error codes and none

¹⁸ *Id.*, § 6.6.5 (1).

¹⁹ HP Report, §§ 2.1.3 and 5.5.

²⁰ *Id.*, § 5.5.

of the Legacy System error codes.²¹ These are very high rates of error and signify a system that is still in development and should not be trusted for use by CLECs. Most of these problems are rated as medium severity.²² HP found the following types of errors:

- Invalid test data
- Outcome of scenarios incorrect
- Business rules for SATE not consistent with the production environment
- Production error messages can not be reproduced or reproduced inaccurately
- Results of SATE scenarios do not match with results of production

The very high error rate in initial SATE releases is extremely detrimental to the purpose of SATE, which is to provide CLECs with a stable means of testing their OSS before entering the production environment. A CLEC cannot effectively test their OSS with an inaccurate test environment. The very high initial error rates for SATE 7.0 and 8.0 makes a convincing case for the need of thorough third-party testing for SATE 9.0. Qwest system testing obviously did not find the necessary errors in SATE 7.0 and 8.0, and there is no assurance that they will find them in SATE 9.0. Qwest should be required to have an independent third-party test of SATE releases until the initial error rate for a new release is below 5%.

D. Inadequate Processes and Support

Among the critical aspects of SATE are the processes and support Qwest puts behind the system. Qwest must have processes to maintain and improve SATE and

²¹ *Id.*

²² The criteria for high severity have been set so stringently that AT&T does not expect any software error to be assigned a high severity.

support staff to manage and maintain the system. HP had a number of issues with the way in which Qwest is supporting SATE and the processes that are in place, or are lacking. Qwest has not yet developed the processes necessary to support SATE. In its evaluation of the SATE program, HP observed a number of process problems and had a number of recommendations for the processes that support SATE.

1. No Quality Assurance Plan for Documentation.

There is currently no quality assurance plan or release management practice specifically for SATE documentation. HP recommended that “Qwest implement a quality assurance process and a release management practice specifically for the SATE documentation.”²³

2. No Definition of Roles and Responsibilities for Individuals and Organizations.

There are currently no published roles and responsibilities for individuals and organizations involved in SATE. HP makes the following observation:

Not all functional roles have been identified at the individual activity level.²⁴

HP recommends:

That Qwest clearly and specifically identify the roles and responsibilities of each individual and organization involved in the SATE. This definition of roles and responsibilities should include goals and objectives and mission statements for each organization and for all personnel. In addition, the job description for each employee should be clearly defined.²⁵

²³ *Id.*, § 2.2(2).

²⁴ *Id.*, § 5.5.

²⁵ *Id.*, § 2.2(3).

3. No Internal Controls to Insure Accountability.

HP notes that there was a lack of definition associated with accountability for implementation and testing activities:

Accountability for the completion of key SATE implementation and testing activities is not consistently defined (i.e., deliverable descriptions, responsible parties clearly identified and time frames established).²⁶

Qwest must put in place internal controls to ensure accountability for organizations and individuals involved in SATE. HP recommends:

That Qwest develop a system of internal controls to ensure accountability for organizations and individuals involved in the SATE process. These controls should use clearly defined goals and objectives and should tie specifically to functional responsibility, such as quality of documentation, accuracy of test account data, mirror image of production, etc. Employees involved in the SATE should be encouraged to accomplish these goals and objectives.²⁷

4. No Process Flow Documentation

Qwest has not yet developed process flow documentation that would be a guide to CLECs in using SATE. HP notes that:

- Process flows are not documented in a thorough and consistent fashion. This problem is magnified by the fact that SATE related activities are interwoven with the activities related to other EDI applications in the EDI Implementation Guide. Additionally, process activities are not always presented chronologically.
- Although activity inputs and outputs are often implied, generally they are not defined clearly enough to ensure understandability by CLECs. Therefore they were evaluated as "Partially Compliant" across all SATE processes.
- Quantifiable process performance objectives are not clearly documented.²⁸

HP recommends:

²⁶ *Id.*, § 5.5.

²⁷ *Id.*, § 2.2(3).

²⁸ *Id.*, § 5.5.

That Qwest develop process flow documentation that accurately reflects actual SATE processes and is a reliable guide to CLECs using the SATE.²⁹

HP further recommends that:

Document process flows for key activities performed by both Qwest and CLECs. This documentation should illustrate the order in which the activities are performed, identify the roles that perform them, and provide a clear activity description including inputs/outputs.³⁰

5. No Process for SATE Use In New Release Testing

Qwest has also not yet formalized the process whereby SATE can be used by CLECs before a production release is in effect.³¹ This is a critical use for SATE and Qwest must formalize this process. HP recommends that “Qwest develop a formal process by which the SATE will be available for new release testing on an ongoing basis. Qwest should invite ACC oversight of this function.”³²

6. No Process Objectives or Measurements

Qwest has not yet developed process objectives or measurements. Before these are developed, it is not possible to fully evaluate Qwest’s current operations or their planned support for SATE. HP remarks: “Quantifiable process performance objectives are not clearly documented.”³³

HP also states that:

Process performance was not measured against clearly established process objectives for time, cost or quality. With the exception of transaction testing, there was no evidence of clearly defined process measurements or objectives.³⁴

²⁹ *Id.*, § 2.2(3).

³⁰ *Id.*, § 5.5.

³¹ This is a requirement of the Federal Communications Commission. *Bell Atlantic New York Order*, ¶ 109.

³² *Id.*, § 2.2(6).

³³ *Id.*, § 5.5.

³⁴ *Id.*, § 5.3.

7. Ongoing Support Cannot Be Verified.

The CLECs have no assurance that Qwest will provide ongoing support for SATE in terms of the personnel necessary to work with CLECs during testing. HP has not yet evaluated Qwest's technical support for SATE, as Qwest has not established guidelines that can be used.

Technical Support for CLECs was not fully evaluated. This is due to the lack of a standard set of tech support guidelines or procedures (there is no documentation that indicates the existence of a technical support process).³⁵

8. Lack of Qwest Staff Support for Reasonable Operational Hours.

Qwest support for SATE does not provide support until 8:00 AM. This does not give a company such as AT&T, which has much of its OSS development on the East Coast, enough time in the day to do adequate testing. HP notes this problem:

It has been noted that the Eastern Time zone cannot utilize the SATE until 10:00 am. It may be advisable for Qwest to consider extended hours of availability to accommodate multiple time zones.³⁶

E. SATE Document Is Deficient

1. Documentation is New and Incomplete, Requiring Qwest Support

The documentation that Qwest is providing for SATE is very new and incomplete, requiring HP to frequently call Qwest staff for clarification and interpretation:

However, much of the SATE documentation reviewed in this evaluation was newly developed and required support from Qwest SATE personnel to allow HP to properly use the SATE environment.³⁷

³⁵ *Id.*, § 5.3.

³⁶ *Id.*, §6.6.3(7).

³⁷ *Id.*, § 2.1.1.

2. Poor Version Control

HP also notes inaccuracies throughout the documentation, probably due to the rush with which it was prepared. HP is essentially proofing the documentation for Qwest and helping to define areas where additional explanation is needed:

In addition, the SATE documentation contained numerous, relatively minor inaccuracies that HP believes are the result of hasty preparation and **poor version control**.³⁸

Qwest can easily fix minor inaccuracies. However, poor version control is a more challenging problem that Qwest must address. To address this concern, HP makes the following recommendation:

Qwest implement a quality assurance process and a release management practice specifically for the SATE documentation. As a minimum, this should specifically address the Data Documents and the Production Errors Lists.³⁹

3. Documents Found Unsatisfactory

HP finds the following SATE documents Unsatisfactory for Completeness and Clarity:

- IMA EDI Implementation Guide v6.0
- IMA EDI 7.0 Data Document for SATE
- IMA EDI Data Request Form
- IMA EDI 7.07 Data Document for SATE
- IMA EDI 8.05 Data Document for SATE⁴⁰

Specifically, HP finds that several of these documents did not contain the level of detail necessary. These documents must be expanded to provide completeness and socialized with HP and CLECs to test for clarity.

³⁸ *Id.* (emphasis added).

³⁹ *Id.*, § 2.2(2).

⁴⁰ *Id.*, § 4.4.

F. Simulation of Legacy Systems

The most troubling aspect of the current implementation of SATE is the fact that SATE simulates the back end legacy systems. SATE uses a copy of the IMA-EDI interface, but uses a simulation of the legacy systems that provide the actual order processing and response. Qwest has called this simulation a “stubbing” system, an analogy from cable systems where a branch cable may be “stubbed” instead of going to the actual destination. SATE uses a software simulation of the legacy systems with built in “canned” data that simulates Customer Service Record (“CSR”) and facility information. The challenge with a simulation is to assure that the simulation captures all of the necessary functions of the real legacy systems, and to make sure that the functions that are captured are accurately simulated. CLECs will be depending on SATE for accurate representations of order and response activity that the CLEC OSS would see when working with the production systems.

Other incumbent local exchange carriers, such as BellSouth, chose approaches that actually use the legacy systems as part of the test environment. However, a good simulator can be used as a test environment. AT&T’s concern is that SATE, which has been put together very quickly, does not adequately represent the legacy systems. There are two aspects that must be evaluated. *First, the simulator must correctly handle all of the correct inputs that it is given. This means that SATE should give correct responses to orders that are correctly submitted. Second, the simulator must correctly handle all of the incorrect inputs that can reasonably be given to the system. This means that SATE should give the correct responses, in the form of error messages, to orders that are incorrectly submitted.*

The HP evaluation of correctly handled inputs produced errors as described above. HP has had difficulty in evaluating the effect of the responses of SATE to incorrect inputs. Qwest waited until December 6, 2001, to provide HP and the CLECs with a complete list of error codes for the Business Process Layer. It is unclear how many of the BPL error messages HP has tested. Qwest has so far failed to provide HP, or the CLECs, with a list of error messages that could come from the legacy systems. With a list of error messages that the legacy systems would send back to a CLEC, HP could run additional negative tests to see if SATE correctly generates the errors when given particular inputs. Testing is incomplete until this has been done. HP must also assure that all BPL error codes have been tested. Further, until this testing is done, there is no assurance that SATE adequately models the legacy systems. The failure to test the legacy system edit and error codes is a major omission and flaw in the test of SATE.

HP recognizes the importance of evaluating SATE's simulation of back end systems:

The impact of the SATE's simulation of back-end systems, is that Qwest has an additional responsibility to ensure the synchronization of SATE test results to make certain that CLECs receive responses to transactions that are indeed the same responses that would be received from production systems. This is particularly important if test transactions produce behavior that is different than production systems, as the nature of the behavior cannot be anticipated and planned for in advance. Management of a test environment of this type requires the involvement of knowledgeable personnel who can evaluate orders submitted and ensure that the CLEC receives a response that mirrors production. It also requires adequate resources and careful planning to ensure scalability.⁴¹

HP is also concluded that SATE does not capture BPL and back-office errors that may be caused by LSR data entry mistakes:

⁴¹ *Id.*, § 2.0.

This **Unsatisfactory** result reflects an evaluation of the outcomes received when processing LSR's through the SATE for Release 7.0 and 8.0. Both the Regression and Progression environments were included in this evaluation. When utilizing a small sampling of the SATE account data from the scenarios provided, HP realized a 20% Error rate when the expected results are compared to the actual results. HP prepared LSR's to induce fatal errors. The fatal error generation was pre-determined by analysis of the published production Error List. Specific error messages were selected and the LSR's were built to cause that error to occur. When these LSR's were executed in SATE there were unexpected results. The unexpected results fall into one of the following categories:

- Planned error did not occur
- Planned error message content did not match the error list
- Error message received is not on the published production Error List⁴²

HP further elaborated its concern regarding the accuracy with which SATE simulates the back end systems and warned of unsatisfactory results:

As HP evaluated the variances in expected responses to actual responses it became evident that there may be a difference between the listed error messages in the Production Error Lists and the actual error messages generated by the SATE Business Process Layer edits.

This **Unsatisfactory** rating is the result of the establishment of three formal issue documents 2005, 2018 and 2002. Through the investigation of these formal issues it has been documented that the existing production error lists that support IMA-EDI need to be updated to eliminate error messages that are obsolete within the IMA application. Additionally, Qwest has established a timeline for the issuance of error list publication and the corresponding change summaries. The revised production error lists and their change summaries are due to be published with the implementation of release 9.1 sometime in February. HP can not evaluate the success or failure of these processes due to its future implementation.

There are additional concerns supporting this unsatisfactory evaluation as it became evident that there are Legacy system edits which cause error responses to be generated. These Legacy system error messages are not incorporated into the Production Error list, nor are they part of any published SATE documentation. HP documented this in formal issue 2005. Qwest responded to this observation by developing a comprehensive description of legacy system errors, which they incorporated into the 8.01 V3 production error lists. This description was prepared per HP's request, in lieu of Qwest providing every possible legacy system error in the production error lists. However, further testing has shown HP

⁴² *Id.*, 6.6.3(2) (emphasis added?).

that there is inconsistency in the expected legacy system formats and the actual results returned by SATE.⁴³

These findings also seriously undermine the credibility of SATE and any conclusion that SATE is satisfactory for CLEC use and ready for "prime time."

G. ROC ANALYSIS BY KPMG CONFIRMS AT&T'S CONCERNS

KPMG Consulting has been retained by the Western Region Regulatory Oversight Committee ("ROC") to evaluate Qwest's OSS. In the course of its evaluation, KPMG has commented on SATE. Exception 3077 noted the following problem:

Exception:

Qwest's Interconnect Mediated Access (IMA) Electronic Data Interchange (EDI) Stand Alone Test Environment (SATE) does not offer CLECs sufficient testing capabilities.⁴⁴

KPMG, through its investigation, has found SATE lacking in testing capabilities that are required by CLECs:

KPMG Consulting has observed through interviews and documentation reviews, that the IMA EDI *SATE does not provide sufficient testing capabilities for CLECs* prior to connecting to Qwest's production systems. Certain limitations in the IMA EDI SATE have been identified, including the following:⁴⁵

KPMG found that SATE does not currently support post-order responses:

SATE does not offer true end-to-end testing capabilities through to Qwest's provisioning and billing systems. Currently, SATE does not generate post-order responses in the same manner as they are created in the production environment. Specifically, a Test System Engineer (TSE) manually provides responses to the CLEC that would be system-generated in the production environment (e.g. firm

⁴³ *Id.*

⁴⁴ ROC Exception 3077 (RMI) SATE Issues, November 8, 2001 (bold type in original). A copy of Exception 3077 is attached hereto as Exhibit A.

⁴⁵ *Id.* (emphasis added).

order completion notices, and other post-order responses such as rejections). Manual response generation is not representative of the production environment, and does not provide adequate assurance that CLECs will see similar transaction behavior once in production. Additionally, manual intervention increases the risk of human error.⁴⁶

KPMG also found that the flow through is not currently supported by SATE and that this lack causes problems for CLECs:

Flow-through orders are not supported in SATE, even though these types of orders will be processed in the production environment. Therefore, CLECs are unable to truly test the ability of orders to flow-through (no manual intervention) the IMA systems in production. CLECs will only have limited ability to evaluate the behavior of the system in a manner that is consistent with flow-through orders in production. A test environment should mirror the production environment, and provide evidence of what is to be expected when entering production, including flow-through behavior.⁴⁷

KPMG found that the volume of orders that CLECs can process through SATE is limited by the manual post processing environment:

- *The volume of order responses supported in SATE is restricted due to manual response handling.* As stated in the IMA EDI Implementation Guidelines⁴⁸:

“As with the Interoperability environment, Post-Order responses are manually generated in SATE and may include Rejects, FOCs, Jeopardys, and Completions. Responses will be generated on posted SATE operation business days as follows:

- FOCs - each day for the first ten Order transactions received the prior business day.
- Progression responses - as negotiated in Project Plan
- Regression responses other than FOCs - within 5 days of a request for a response”

The number of responses that a CLEC receives in automated format should not be restricted. Because SATE does not support automated response handling, the CLEC can only receive a prescribed number of responses to its order transactions. *This*

⁴⁶ *Id.* (emphasis added).

⁴⁷ *Id.* (emphasis added).

⁴⁸ EDI Implementation Guidelines – for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 6.0, Released October 11, 2001, Section 2, Implementation Activities, at 16.

*capacity limitation does not adequately mirror the production process, and does not allow the CLEC the ability to test large volumes of orders and the expected response behaviors.*⁴⁹

KPMG found that SATE responses do not always mirror the data that would be found in production responses:

The data contained within the order responses is not consistent, and may not mirror the data that would be found in production responses.⁵⁰

KPMG correctly concludes that the lack of a mirrored response is a serious problem for CLECs:

The inability to provide consistent data within the EDI order responses impacts the CLEC's ability to accurately assess the expected outcomes of orders. Additionally, it impairs the CLEC's ability to analyze EDI problems when the CLEC cannot consistently compare actual data outcomes to expected data outcomes.⁵¹

KPMG was concerned with the differences in responses from SATE, using a simulated "Stub" environment, and the production systems that use the actual legacy systems:

KPMG Consulting understands that the differences in the test deck data could potentially yield different results in SATE and production. As long as the processing logic in SATE and production is identical, this is not considered a system deficiency. However, Qwest continues in its response as follows:

"Second, SATE stubs do not hold some of the error messages held in production. For example, a query in production for a certain telephone number might result in an error message that says "Host Not Found." In SATE, the CLEC might receive "Bad NPA/NXX." In all cases, the error message received will be a real production error message and in all likelihood, it will be the error message received on such a query, however, such functionality cannot be guaranteed. If a CLEC would like to receive a certain error message in SATE, they can request it be added via the SATE Data Request Process."⁵²

KPMG reaches the following conclusions as to the impact of SATE problems and inadequacies on CLECs:

⁴⁹ ROC Exception 3077.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

Impact:

A limited or insufficient testing environment could delay the timely implementation of a CLEC's IMA EDI release. Also, problems could arise in the production environment *that may have otherwise been avoided if SATE more closely mirrored the production environment.* These factors could increase a CLEC's operating expenses as a result of additional time required to ensure the functionality of the systems, and could inhibit revenues if delays hinder a CLEC's ability to service its customers.⁵³

It is clear that KPMG is observing the same types of problems that AT&T has expressed concern over in the preceding paragraphs. It is also clear that KMPG found in several respects that SATE does not mirror the production environment.

H. QWEST'S RESPONSES TO HP'S RECOMMENDATIONS INADEQUATE

In its Final Report, HP made nine recommendations that it feels Qwest should implement for SATE and the processes and personnel that support the system. Qwest responded to these recommendations on December 28, 2001. Qwest is refusing to address several of the recommendations and has responded inadequately to others. Qwest must step up to these recommendations, in full, resolve the other issues raised herein and then have all corrective action verified by a third party before SATE can be deemed satisfactory. AT&T has the following issues with Qwest's specific responses.

1. Meeting CLEC Needs for Testing All Products Available in Arizona

While Qwest has set up conference calls with CLECs to discuss and prioritize the addition of new products to SATE, none of the suggested products has yet been added to SATE. It is too early to tell if Qwest will comply with this recommendation.

⁵³ *Id.* (emphasis added).

2. Implementation of Quality Assurance Processes and Release Management Practices for SATE Documentation

Qwest claims that it already follows quality and versioning control processes. The error rates found by HP suggest that these processes either need to be revised or followed more closely by Qwest. Qwest has stated that they will provide documentation on the processes by January 15, 2002. HP should evaluate the processes when they are made available to determine if they are adequate and comment on whether Qwest is capable of following them in the future.

3. Implementation of Quality Processes in Staffing and Organizational Responsibilities and the Development of Process Flow Documentation

Qwest has agreed to develop the recommended processes and process flow documentation. Qwest has stated that these will be completed and documentation made available on January 21, 2002. HP should evaluate Qwest's documentation when it is made available to see if Qwest has adequately responded to this recommendation.

4. HP Recommends That Qwest Publish a List of Variances Between SATE and Production Business Edits to Ensure That CLECs Are Fully Aware of Any Such Discrepancies So That a CLEC May Effectively Develop Their Business Processes in this 'Simulated' Environment. This List Should Become a Permanent Part of the SATE Documentation Library.

In the December SATE workshop in Arizona, Qwest committed to provide a list of legacy system error codes and edits that can be passed through the production systems to CLECs. Qwest has failed to provide this list. In its response to HP's recommendation, Qwest states that it will track error codes that are sent to CLECs in the production environment for the next six months. Qwest essentially fails to address the HP recommendation with respect to legacy system error codes and edits. In addition, Qwest is ignoring the part of the recommendation that would entail publishing a list of variances between SATE and the production environment with respect to BPL error code usage. HP found a high percentage of discrepancies in the Business Process

Layer and tested only a small sample of error codes. Qwest should publish a list of variances between SATE and the production environment for the BPL. Some of these discrepancies may be a result of the interface between the BPL and a simulated "stubbed" environment, rather than to actual legacy systems. Until Qwest complies with these requests, the evaluation of SATE will be incomplete and its usefulness to CLECs will be limited.

- 5. HP Recommends That Qwest Formally Incorporate the SATE Into the CMP Process, and Future Changes and Modifications Should Be Subject to That Process and that Qwest Develop a Permanent, Formalized Method of Obtaining CLEC Input and Identifying Current and Future SATE Requirements In Connection With the CMP Process. This Process Should Proactively Seek CLEC Evaluation of the SATE Process, Suggestions For Improvement, and Forecasts for Testing Requirements. HP Also Recommends That Qwest Obtain Input From the CLECS to Determine the Full Suite of Products That Shall Be Included in the SATE**

Qwest is in the process of integrating SATE change requests into CMP. This process is as yet incomplete and no evaluation of the result can be attempted for several months.

- 6. HP Recommends That Qwest Develop a Formal Process by Which the SATE Will Be Available For New Release Testing On An Ongoing Basis**

Qwest maintains that it has a process by which SATE will be available for new release testing on an ongoing basis. This claim must be evaluated by HP, or another third-party tester, when SATE 9.0 is released at the end of January. If the SATE error rate for 9.0 is greater than 5%, a subsequent third-party test should be required for SATE 10.0.

- 7. To Ensure That The SATE Is Adequate For Full Release Testing, HP Recommends That 9.0 Be Tested. This Release is Expected to Take Place February 2002**

Qwest has stated that third-party testing is not needed for SATE 9.0 release. The high initial error rates for SATE 7.0 and SATE 8.0 suggest otherwise, as discussed earlier. Qwest should be required to abide by this recommendation. If the error rate for SATE 9.0 is higher than

5%, as established by the third-party, then Qwest should be required to have outside evaluation of SATE 10.0 as well. It is clear to AT&T that Qwest's internal testing is not adequate to assure an accurate SATE environment.

8. Development of Performance Standards for SATE

The Test Advisory Group is developing performance standards for SATE. The biggest question is the threshold error rate. Qwest wants the error rate to be 5%. CLECs are proposing a lower error rate. Software errors are not equivalent to errors in order entry or order completion. Software errors affect the design of CLEC systems and can have widespread collateral impact on eventual CLEC orders and all customer service. The benchmark error rate should be 1% or 2%. Qwest's proposal is too high.

9. HP Recommends That Qwest File With the ACC An Implementation Plan for the Above Recommendations, Which Includes Specific Deliverables, Milestones, and Dates, No Later Than December 31, 2001

Qwest claims that its responses to the individual recommendations constitute compliance with this final recommendation. Qwest should consolidate the commitments that are scattered through the text of their responses into one schedule. In addition, no specific deliverables or milestones have been advanced by Qwest for these items. Lastly, compliance does not occur until Qwest implements each corrective action and a third party has verified the effectiveness of the fix.

III. SUMMARY

It is clear to AT&T that additional testing is needed to assure SATE is ready for reliable service. HP recommends, and AT&T concurs, that SATE 9.0 should be thoroughly tested. This would be the first test of SATE in a true progression testing mode. SATE 9.0 is also scheduled to have VICKI capability for post order processing. SATE 9.0 is due for deployment in late

January 2002. In addition, significant pieces of SATE are yet to be developed and cannot be tested until they are developed. Due to the high error rate of initial SATE releases, testing of new features and functions should be done by a third party until new SATE releases prove to be more reliable.

SATE is not a production-ready system. The current SATE implementation is, at best, a beta test version that CLECs should use with caution. There are still inconsistencies between SATE and the production system that can give CLECs incorrect results. More troubling is the fact that only 1.5% of BPL error codes have been tested and no legacy system edits and error messages have been tested. The implication of this is that the responses of SATE cannot be verified as accurate, inaccurate, or not existent. The fact that several CLECs have been using SATE is not persuasive. The ROC exception submitted by KPMG was based on less than adequate experiences by CLECs. CLECs who are currently using SATE are using a flawed and incomplete system and should be cautious of designing their systems to it. Testing should continue on SATE even though some CLECs may choose to use it, just as with the production system.

In conclusion, all of the recommendations made by HP should be implemented before the Arizona Corporation Commission concludes that SATE is certifiable. Further, in addition to the recommendations made in these Comments, AT&T makes the following recommendations that should also be implemented before making any decision:

1. SATE should be tested against a much larger set of BPL error codes and a large set of legacy system error messages,
2. SATE should be updated to simulate all common error situations of the legacy systems,
3. SATE should be retested after new error messages have been programmed,

4. VICKI enhancement for post order processing should be implemented and tested,
5. Additional commonly used products in SATE such as Line Splitting and Loop Splitting should be implemented and tested, and
6. Flow through capability for SATE should be implemented and tested, and
7. SATE release 9.0 should be tested by a third party.

Until these recommendations are adopted and implemented, the Commission cannot find that SATE mirrors the production environment.

Respectfully submitted this 18th day of January, 2002.

**AT&T COMMUNICATIONS
OF THE MOUNTAIN STATES, INC.
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Exhibit A

Date: November 8, 2001

EXCEPTION REPORT

An exception has been identified as a result of the Qwest documentation review, and information gathered during interviews, for the Test 24.6 OSS Interface Development Review.

Exception:

Qwest's Interconnect Mediated Access (IMA) Electronic Data Interchange (EDI) Stand Alone Test Environment (SATE) does not offer CLECs sufficient testing capabilities.

Background:

Qwest employs a phased approach for CLECs that wish to develop an IMA/EDI application-to-application interface with Qwest's OSS systems. The steps of the current process are listed below:¹

1. Initial Communications (includes Kick Off conference call)
2. Project Plan (proposed/negotiated)
3. Requirements Review (by the CLEC)
4. Firewall Rules and IA-to-IA Testing
5. Testing - Interoperability and/or SATE environment
6. Controlled Production
7. Production ("Turn-Up")

Qwest developed SATE in May 2001 as an alternative testing environment to the Interoperability environment. By creating SATE, Qwest now offers CLECs the option between the Interoperability environment and SATE for testing their IMA EDI interface. The latest version, SATE 8.01, was implemented as of October 22, 2001.

Issue:

KPMG Consulting has observed through interviews and documentation reviews, that the IMA EDI SATE does not provide sufficient testing capabilities for CLECs prior to connecting to Qwest's production systems. Certain limitations in the IMA EDI SATE have been identified, including the following:

- SATE does not offer true end-to-end testing capabilities through to Qwest's provisioning and billing systems. Currently, SATE does not generate post-order responses in the same manner as they are created in the production environment. Specifically, a Test System Engineer (TSE) manually provides responses to the CLEC that would be system-generated in the production environment (e.g. firm order completion notices, and other post-order responses

¹ EDI Implementation Guidelines – for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 6.0, Released October 11, 2001, Section 2, Implementation Activities, p.6.

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such as rejections). Manual response generation is not representative of the production environment, and does not provide adequate assurance that CLECs will see similar transaction behavior once in production. Additionally, manual intervention increases the risk of human error.

- ~~Flow-through orders are not supported in SATE, even though these types of orders will be processed in the production environment. Therefore, CLECs are unable to truly test the ability of orders to flow-through (no manual intervention) the IMA systems in production. CLECs will only have limited ability to evaluate the behavior of the system in a manner that is consistent with flow-through orders in production. A test environment should mirror the production environment, and provide evidence of what is to be expected when entering production, including flow-through behavior.~~
- ~~The volume of order responses supported in SATE is restricted due to manual response handling. As stated in the IMA EDI Implementation Guidelines²:~~

~~“As with the Interoperability environment, Post-Order responses are manually generated in SATE and may include Rejects, FOCs, Jeopardys, and Completions. Responses will be generated on posted SATE operation business days as follows:~~

- FOCs - each day for the first ten Order transactions received the prior business day.
- Progression responses - as negotiated in Project Plan
- Regression responses other than FOCs - within 5 days of a request for a response”

~~The number of responses that a CLEC receives in automated format should not be restricted. Because SATE does not support automated response handling, the CLEC can only receive a prescribed number of responses to its order transactions. This capacity limitation does not adequately mirror the production process, and does not allow the CLEC the ability to test large volumes of orders and the expected response behaviors.~~

- ~~The data contained within the order responses is not consistent, and may not mirror the data that would be found in production responses. According to the IMA EDI Implementation Guidelines³:~~

~~“In SATE, pre-order and order transactions are created using Qwest-provided data that, when submitted to SATE, will return consistent responses. These responses will enable the SATE user to test the EDI mapping structure. **Those responses will hold data that could appear in production, however, may not match the response that would be received on the same query sent to the Interoperability or Production Environment.** The error codes returned in SATE will mirror the Production environment. **Verbiage on outbound responses in SATE may not exactly mirror what would be returned from**~~

² EDI Implementation Guidelines – for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 6.0, Released October 11, 2001, Section 2, Implementation Activities, p.16.

³ EDI Implementation Guidelines – for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 6.0, Released October 11, 2001, Section 2, Implementation Activities, p.15.

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Qwest production systems or represent the actual message/data content expected from the result of the transaction.”

The inability to provide consistent data within the EDI order responses impacts the CLEC’s ability to accurately assess the expected outcomes of orders. Additionally, it impairs the CLEC’s ability to analyze EDI problems when the CLEC cannot consistently compare actual data outcomes to expected data outcomes.

As a result of an interview with a Qwest employee on September 12, 2001, KPMG Consulting requested clarification for the paragraph quoted above from the EDI Implementation Guide (Data Request No. ID128). Qwest responded that identical queries created in SATE and production may receive different responses due to the differences between the test deck data in SATE and the account data in production. Qwest specifically stated⁴:

“For example, an address validation query for "999 Van Cleve Rd" would result in an "Exact Match" in SATE, but "No Match" in production. Alternatively, the address "1999 Broadway" would result in an "Exact Match" in production, but no match in SATE.”

KPMG Consulting understands that the differences in the test deck data could potentially yield different results in SATE and production. As long as the processing logic in SATE and production is identical, this is not considered a system deficiency. However, Qwest continues in its response as follows:

“Second, SATE stubs do not hold some of the error messages held in production. For example, a query in production for a certain telephone number might result in an error message that says "Host Not Found." In SATE, the CLEC might receive "Bad NPA/NXX." In all cases, the error message received will be a real production error message and in all likelihood, it will be the error message received on such a query, however, such functionality cannot be guaranteed. If a CLEC would like to receive a certain error message in SATE, they can request it be added via the SATE Data Request Process.”

KPMG Consulting does not understand how different error messages could be received in SATE versus production for identical queries, other than the case of test deck data specific errors. The response processing logic for SATE should replicate the logic in production, and therefore, no differences should exist between the error messages received in the two environments for identical queries. Based on Qwest’s clarification, KPMG Consulting still believes that there is a potential deficiency with SATE in that response data is not necessarily consistent with production.

⁴ Qwest response to Data Request ID128 received by KPMG Consulting on September 27, 2001

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Impact:

A limited or insufficient testing environment could delay the timely implementation of a CLEC's IMA EDI release. Also, problems could arise in the production environment that may have otherwise been avoided if SATE more closely mirrored the production environment. These factors could increase a CLEC's operating expenses as a result of additional time required to ensure the functionality of the systems, and could inhibit revenues if delays hinder a CLEC's ability to service its customers.

CERTIFICATE OF SERVICE

I hereby certify that the original and 10 copies of **AT&T's Comments on SATE Summary Evaluation Report, Version 3.0** in Docket No. T-00000A-97-0238 were sent by overnight delivery on January 18, 2002 to:

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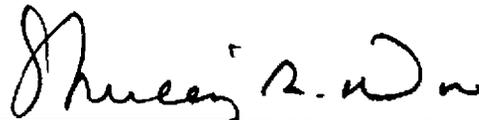
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