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Audit Report

**AUDIT OF THE SERVICE LEVEL AGREEMENT
OF THE SBC DATACOMM MANAGED SERVICES
AGREEMENT**

(Report No. A07-008)

March 16, 2007

City Auditor

Craig D. Kinton, CPA

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Executive Summary

This report presents the results of the audit¹ of the Service Level Agreement (contract) of the SBC DataComm (now AT&T) Managed Services Agreement administered by the Communication and Information Services (CIS) department. The contract, valued at approximately \$60 million, provides for the management and monitoring of our voice and primary data network. The purpose of the audit was to determine if AT&T was in compliance with the terms and conditions of the contract and Service Level Agreement.

Due to the lack of sufficient data and processes to ensure data collection, AT&T was unable to show compliance with the terms and conditions of the contract. Lack of effective contract oversight and monitoring by CIS is a contributing factor to this condition. Due to the lack of available information to determine compliance with the contract, we terminated the field work prior to the completion of the audit.

We will begin a new audit of the contract in April 2007. This should allow sufficient time for CIS and AT&T to implement processes, procedures, and data capture/retention methodologies to enable auditing for contract compliance.

Examples where there was a lack of sufficient data include:

- **Security**
 - *Critical Event Notification* – Tracking of critical events was not implemented until September 1, 2006. Documentation was not available that indicates critical events were tracked (and that the City was notified of the event) since contract inception. Although the contract defines eight reasons to report an event as critical, AT&T had limited the event to only one reason.
 - *Bandwidth Utilization* – AT&T was not capturing sufficient data to report bandwidth utilization over a period of time. Bandwidth utilization reports the percentage of total network capacity being used over a period of time. It is one of the industry-standard measurements used to determine the efficiency of the network.
 - *Intrusion Detection System (IDS) Signature Updates* – AT&T was unable to provide data to affirm that all signature updates had been installed. An IDS system detects attacks on a network. The manufacturer of the IDS system regularly publishes updates to the

¹ Audit conducted under authority of Dallas City Charter, Chapter IX, Section 3.

system that provide additional threat identification capability. These updates are called “signature updates.”

- **Network Management and Service Level Agreement**

Data was not available to test the Fault Management Service Level Agreement. Fault management detects, isolates, and corrects malfunctions in a telecommunications network. This agreement covers fault detection, fault isolation, and fault resolution performance requirements. It also addresses the creation and maintenance of a managed device fault history database.

- **Service Level Agreements for Equipment and Telephony Services**

AT&T could not account or reconcile their most recent Site Type listing to the Service Level Agreement Matrix (SLA Matrix) in the contract. The Site Type listing is one of the components used to compute penalty amounts due the City for AT&T’s failure to meet minimum availability service requirements. Based on a March 29, 2006 listing provided to us on October 30, 2006, AT&T was unable to identify 22 out of 247 (8.9%) sites listed in the SLA Matrix. Also, 184 sites (74%) are incorrectly classified. This inconsistency in data prevents the testing and validation of any Service Level Agreement that relies upon the SLA Matrix.

- **Record Retention**

AT&T and the City had not previously defined which records, data, or documents to retain over the life of the contract.

Recommendations Summary

Recommendation 1:

We recommend that CIS ensure that AT&T implements policies and procedures designed to provide sufficient data, including identifying all contract deliverable requirements, defining and implementing an SLA compliance methodology, and defining records to be retained and record retention periods.

Recommendation 2:

We recommend that CIS designate a contract compliance person to monitor compliance with the terms and conditions of the contract.

Management's Response Summary

The Chief Information Officer agreed with both recommendations and completed an execution of a work plan to address identified issues and designating a contract compliance person. Complete management response is contained in Appendix III of this report.

Audit Results

I. Sufficient data did not exist and processes were not in effect to substantiate compliance with the terms and conditions of the agreement.

AT&T had not retained and stored sufficient amounts of quantitative data to provide for adequate reviewing, measuring, and testing of specific terms and conditions in the contract. From a listing of 215 deliverables in the contract, we selected 41 to test for compliance. The 41 tests covered the areas of Help Desk, Asset Management, Cabling, Network Monitoring and Management, Maintenance, Emergency Response, and Security. Some of the areas also have corresponding Service Level Agreements. Since the areas of Network Management and Security are critical to the ongoing operations of the City's network, approximately 50% of our testing was focused in these areas. Testing occurred in Dublin, California and Dallas, Texas.

- **Security**

We attempted to perform 11 security compliance tests, but were only able to complete one test (Debugging Level Logs). The test areas included:

- Critical Event Notification (3 tests)
- Real-Time Intrusion Detection (1 test)
- Bandwidth Utilization (1 test)
- Signature Updates (2 tests)
- Firewall Changes (1 test)
- Firewall Configuration Backup (2 tests)
- Debugging Level Logs (1 test)

The contract defines eight events that are to be considered "critical". As a critical event, any one of these events can negatively affect the performance and security of the network. We found that AT&T had only defined a critical event as a "breach of the firewall." They had not included these additional contract items as critical events: attempted breach of firewall, root/administration level compromise, user-level compromise, suspected user-level compromise, network system probe, denial of service attack, and other actions deemed malicious or unusual. An occurrence of one of these events has the potential to significantly impair the City's network in its entirety.

We also found that AT&T had only begun tracking what they considered to be critical events as of September 1, 2006 even though the contract start date was August 25, 2004. With only two weeks of captured data

available for testing, we did not perform any tests related to Critical Event Notification.

Other tests, including Bandwidth Utilization and the Critical Event Notification SLA, could not be performed due to lack of data.

- **Network Management**

We completed seven of eight tests related to network management issues. Network management is the controlling, planning, deploying, and monitoring of the resources of a network. We did not find any conditions that would negatively affect the performance of the network, but we did find several issues that do not comply with the terms and conditions of the contract. These issues are:

- Fault Management: The Fault Management SLA could not be verified because AT&T treats all faults as “Outages.” AT&T has not reported any faults in the network since the contract start date.
- Complete failure recovery documentation and process descriptions were not available. Only 14 of the 25 recovery manuals were available for review.

- **Service Level Agreement for Equipment and Telephony Services**

AT&T did not have an accurate listing of the number of sites per Site Type as defined in the contract. The SLA Matrix (found in Attachment 5.A of the contract) sets forth the factors to be used in computing penalty amounts (credits) if AT&T does not meet the minimum availability requirements for various types of equipment and services. The factors are based on the classification of City locations into Site Types. Site Types are delineated based on type of facility, type of connection, and number of voice/data stations present at a particular site. The number of sites per Site Type included in the Matrix was determined prior to commencement of the contract in August 2004. The contract defines 247 sites classified into six different Site Types.

As a precursor to verifying the credit amounts the City has received from AT&T, we attempted to verify the number of sites and Site Type classifications as listed in the contract by requesting a current listing from AT&T. Based on a March 29, 2006 listing provided to us on October 30, 2006, AT&T was unable to identify 22 out of 247 (8.9%) sites listed in the SLA Matrix. Also, 184 sites (74%) are incorrectly classified (by Site Type) when compared to the contract. After repeated attempts to reconcile the two listings, AT&T was unable to explain the differences between the two listings.

- **Record Retention**

The types of records that must be retained are not defined in the contract. Without this definition, it is not possible to test for compliance with the terms and conditions of the contract. The contract states that pertinent records are to be retained during the life of the contract and five years after the end of the term of the contract. The contract uses the term “pertinent” to define which records are to be retained, but the definition of which records are considered pertinent was never agreed to by AT&T and the City.

Recommendation 1:

We recommend that CIS ensure that AT&T implements policies and procedures designed to provide sufficient data including:

- Identifying all contract deliverable requirements.
- Defining and implementing an SLA compliance methodology.
- Defining records to be retained and record retention periods.

Management Response

CIS and AT&T developed and will complete execution of a work plan by April 2007 to address deficiencies identified from the contract compliance field work.

II. There was a lack of adequate contract monitoring by CIS.

AT&T’s inability to show compliance with the contract is in part due to CIS’s lack of contract oversight and monitoring. Many of the areas that we attempted to test lacked data that should have been routinely reviewed by a contract monitor. Although CIS held monthly SLA performance reviews, sufficient evidence was not requested and reviewed by CIS to determine contract compliance.

CIS did not make adequate provisions at the commencement of the contract to comprehensively monitor contract performance. As a result, procedures and processes were not implemented to determine whether AT&T was adhering to the contract deliverables.

Best practice dictates that contract performance be monitored to ensure that the City is receiving all services due for the monies expended.

Recommendation 2:

We recommend that CIS designate a contract compliance person to monitor compliance with the terms and conditions of the contract. This person should maintain documentation to track compliance with the contract.

Management Response

CIS will designate a contract compliance administrator to the AT&T Managed Service contract by April 5, 2007.

Appendix I

Background, Objective, Scope and Methodology

Background

On August 25, 2004, the City signed an agreement (SBC Managed Services Agreement) that transfers full responsibility for the provision, delivery, installation, and maintenance of all equipment, software, and services for the majority of the City's network to SBC (hereinafter referred to as AT&T). The contract is a comprehensive agreement designed to provide the City with telephone services, network data services, and equipment. AT&T assumed direct responsibility for services and equipment related to the operation of the City's network. The primary areas covered by the agreement include:

Service	Description
VoIP (Voice over Internet Protocol)	Allows use of the City's data network to make local and long distance telephone calls
Software and Software licenses	Covers software and licenses for the following systems: <ul style="list-style-type: none"> • Cisco Emergency Responder – identifies originating location of a 9-1-1 VoIP call placed within City facilities • Asset Management – Software/licenses for asset management system, servers, and back-up software • Un-Provisioned Sites – Software/licenses for Cisco routers/switches used to connect 75 un-provisioned sites <p><i>Note: An un-provisioned site is a site that was not included in the original implementation. Examples include libraries or fire stations not yet built.</i></p>
Managed Services	Includes: <ul style="list-style-type: none"> • Consulting and Engineering • Help Desk • Un-Provisioned Sites • Asset Management • Moves, Adds, Changes of Telephone Equipment • Network Monitoring/Management • Maintenance • Cisco Emergency Responder • Security
Telephony Services	Local and Long Distance Telephone Service

The original timeline included in the contract provided that the majority of the implementation work was to be completed by the end of 2004. The Cisco Emergency Responder and Electronic Billing systems were scheduled for completion in June and October 2005, respectively. AT&T and the City agreed that the timeline, as presented in the contract, did not contain a sufficient amount of time to complete the tasks, so they jointly revised the due dates in many of the key operational areas. The due dates were extended and reflected a fully implemented and operational system beginning December 2005. These key operational areas included:

- Network Assessment
- Vulnerability Assessment
- Network Monitoring
- Perimeter Security and Intrusion Detection
- Cisco Emergency Responder
- Asset Management System

The Communications Division of CIS was assigned responsibility for managing the project implementation and ensuring that AT&T was complying with the terms and conditions of the contract. One Assistant Director and two managers from the division were responsible for contract administration.

Section 38k of the agreement gives the City the right to execute a performance audit at any time with no frequency limitations and the right to perform a billing audit once per year. In the spring of 2006, the City Auditor's Office notified AT&T of their intent to audit the agreement. The agreement contains over 200 specific deliverables that AT&T is to achieve on a daily, weekly, monthly, or one-time basis. These deliverables form the basis of the audit.

Objective, Scope and Methodology

Our audit objective was to determine if AT&T is complying with the terms and conditions of the Service Level Agreement as found in the SBC DataComm Managed (now AT&T) Services Agreement.

Our audit was conducted in accordance with generally accepted government auditing standards and covered the period of April 2005 through September 15, 2006; however, we also reviewed any related records, procedures, and events occurring before and after this period.

To develop an understanding of relevant internal controls and controls within AT&T and the City, we interviewed City managers and staff, AT&T project managers, and AT&T operations representatives.

An Audit Report on –
The Service Level Agreement of the SBC DataComm Managed Services Agreement
Administered by Communication and Information Services

We selected 41 out of a total of 215 contract deliverables to test for compliance with contract terms and conditions. We prepared individual test scripts for each deliverable to be tested. The scripts specified the methodology of the test and also included a review of internal controls pertinent to the execution of the script. The tests were conducted at AT&T's Security Operations Center located in Dublin, California and at City facilities in Dallas, Texas in September and October 2006, respectively.

Appendix II

Major Contributors to this Report

Paul T. Garner, Assistant City Auditor
Tony Aguilar, CISA, Project Manager

Appendix III

Management's Response to the Draft Report

RECEIVED

Memorandum

MAR 09 2007

CITY AUDITOR'S OFFICE



CITY OF DALLAS

DATE: March 7, 2007
TO: Craig Kinton
City Auditor
SUBJECT: Audit of AT&T Managed Service

The following responses were prepared to address the recommendations in the Audit of AT&T Managed Service.

There were only two Audit recommendations provided by the City Auditor Office. This particular audit was terminated, and will be rescheduled according to the Auditor's Office no later than May 2007. Based on this, the responses were:

Audit Response: We recommend that CIS ensure that AT&T implements policies and procedures designed to provide sufficient data, including identifying all contract deliverable requirements, defining and implementing an SLA compliance methodology, and defining records to be retained and record retention periods.

CIS Response: CIS and AT&T developed and will complete execution of a work plan by April 2007 to address deficiencies identified from the contract compliance field work.

Audit Response: We recommend that CIS designate a contract compliance person to monitor compliance with the terms and conditions of the contract.

CIS Response: CIS will designate a contract compliance administrator to the AT&T Managed Service contract by April 5, 2007.

Should you require additional information, please let me know.

A handwritten signature in black ink, appearing to read 'Morris Levine, Jr.'.

Morris Levine, Jr.
Director/CIO
Communications & Information Services

c: Mary Suhm, City Manager
Jill Jordan, P.E. Assistant City Manager
Paul Garner, Assistant City Auditor
Charles Burki, Assistant Director, CIS
William Finch, Assistant Director, CIS

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