



May 27, 2008

GEORGE W. WRIGHT
VICE PRESIDENT, INFORMATION TECHNOLOGY OPERATIONS

SUBJECT: Audit Report – Private Branch Exchange Systems
(Report Number IS-AR-08-010)

This report presents the results of our audit of the Private Branch Exchange (PBX) systems (Project Number 07RG004IS000). Our objective was to determine if the U.S. Postal Service has the opportunity to reduce telecommunications expenses by reducing trunk space to the most cost-efficient level while still maintaining Postal Service operations. This self-initiated audit addresses the financial risk associated with maintaining telecommunications resources. We conducted this audit in partnership with the Headquarters Telecommunications staff, which provided input and guidance that helped achieve our objective. Click [here](#) or go to Appendix A for additional information about this audit.

Conclusion

The Postal Service has an opportunity to reduce telecommunications expenses by eliminating overcapacity in PBX voice services. We estimate cost-saving opportunities with a total monetary impact of \$1,330,781 (funds put to better use of \$1,316,533 and \$14,248 of questioned costs) by eliminating 91 lines identified in this audit and removing 97 supporting circuit cards.

Elimination of Overcapacity

We identified 97 PBX voice lines¹ that exceed current and anticipated capacity requirements and can be eliminated without adversely impacting operations. This condition occurred because PBX management is decentralized and telecommunications technologies and user needs change frequently. In addition, linking inventory information to detailed invoices and contract data was not always possible. Best practices suggest an accurate up-to-date inventory, detailed invoices, and applicable contract information are the primary sources of information that managers need to ensure they understand what goods and services they should purchase. We found this information difficult to obtain, which contributed to the Postal Service paying for PBX

¹ The OIG identified 97 lines, but six of them do not have recurring monthly charges. These lines do, however, incur annual monitoring and maintenance costs the Postal Service can reduce.

resources they no longer needed. Click [here](#) or go to Appendix B for our detailed analysis of this issue.

During this audit, we suggested enhancing future traffic studies by including “exceptions” or “alerts” to notify responsible officials when a traffic study indicated potential overcapacity. The Sprint account representative stated their contractor is developing an email “alert” to notify Headquarters Telecommunications officials when a specific traffic study indicates potential overcapacity. If management eliminates the excess lines, there will be a savings of \$1,143,610 over the next 2 years.

We recommend the Vice President, Information Technology Operations, direct the Manager, Telecommunications Services, to:

1. Discontinue voice services for the 91 lines that service the Postal Service’s Private Branch Exchange systems and those that we identified as overcapacity.
2. Centralize management of Private Branch Exchange (PBX) systems, assign resources to regularly monitor traffic studies, and take action necessary to ensure PBX capacity is appropriate.

Monitoring Services

The Postal Service has the opportunity to reduce line monitoring services by removing circuit cards supporting the lines being eliminated. Currently, vendors charge the Postal Service \$964.80 per circuit card to monitor and maintain each line on an annual basis.² If management removes the circuit cards, there will be \$187,171 in savings over the next 2 years.³

We recommend the Vice President, Information Technology Operations, direct the Manager, Telecommunications Services, to:

3. Remove the Private Branch Exchange circuit cards that support disconnected lines.

Management’s Comments

Management agreed with all of the recommendations and stated that Telecommunications Services will coordinate with service providers, telephone equipment suppliers, and invoice management contractors to disconnect the 91 lines by November 15, 2008. Information Technology will secure the necessary services through their supplier to obtain monthly utilization reports and establish a process by November 30, 2008, to ensure capacities are managed and monitored appropriately. Additionally, management stated that the Raleigh Information Technology Service Center will coordinate circuit card removal and maintenance port reductions with the

² Monitoring and maintenance includes one traffic study per line.

³ For the 97 circuit cards, we multiplied 97 by \$964.80 (annual charge) for a 2-year period, for a total of \$187,171.20.

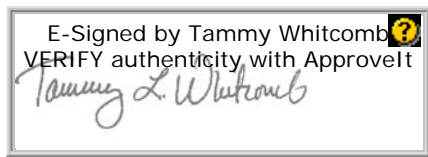
supplier and align the PBX maintenance contract by December 15, 2008. Although management did not specifically state they agreed with the monetary impact, their planned corrective actions imply agreement. We have included management's comments in their entirety. Click [here](#) or go to Appendix D for management's comments.

Evaluation of Management's Comments

The U.S. Postal Service Office of Inspector General (OIG) considers management's comments responsive to the recommendations in the report.

The OIG considers all the recommendations significant and, therefore, requires OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. These recommendations should not be closed in the follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Gary C. Rippie, Director, Information Systems, or me at (703) 248-2100.



Tammy Whitcomb
Deputy Assistant Inspector General
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Attachments

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APPENDIX A: ADDITIONAL INFORMATION

BACKGROUND

A PBX is a private telephone network that is capable of supporting hundreds or thousands of extensions. A PBX uses “T-1”⁴ lines to connect to the local service provider where incoming calls are routed using Direct Inward Dialing (DID). The Postal Service uses 492 PBX systems at many of their larger facilities.⁵ Sprint’s Managed Network Operations manages security of these devices and also provides InfoPlus traffic studies for each system at least once a year. Traffic studies provide information on trunk utilization, grade of service, and required resources.

Day-to-day responsibility for field PBX systems is decentralized. However, systems located at headquarters and Inspection Service facilities are the responsibility of Headquarters Telecommunications Services. Headquarters Telecommunications Services also provides oversight for higher level issues such as contract negotiations and renewals.

Because day-to-day management of telecommunications resources is decentralized, efforts to maintain accurate inventories were irregular. Complex telecommunications invoices, combined with confusion over responsibility for verifying the information prior to payment, complicated the situation.

The Postal Service hired contractors to help manage telecommunications resources (Profitline) and to provide a single location (Sprint) for all telecommunications staff to coordinate change requests. These contracts were intended to help the Postal Service improve the accuracy of their inventory information and help optimize their resources at the most cost-efficient level while still maintaining operations.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our original objectives were to evaluate whether existing controls over PBX services were sufficient to safeguard against potential security vulnerabilities and to assess whether the Postal Service has opportunities to reduce telecommunication expenses by eliminating unneeded PBX capacity. During the audit we narrowed our objectives to determining if the Postal Service has the opportunity to reduce telecommunications expenses nationwide by reducing trunk space to the most cost-efficient level while still maintaining Postal Service operations. We deferred our review of potential security vulnerabilities for inclusion in a future audit.

⁴ “T-1” lines are dedicated phone connections that consist of 24 individual channels, each of which can be configured to support voice or data up to 64k per second.

⁵ The most common “T-1s” are Primary Rate Interface (PRI) into PBXs configured as either local dial tone circuits or dedicated long-distance circuits. The Postal Service also uses a type of “T-1” line called Government Market Platform (GMP) which charges a lower monthly fee than other “T-1s” but has additional charges based on usage.

We reviewed PBX traffic studies for the 492 Postal Service PBX systems and communicated our results to responsible officials at Telecommunications Headquarters and field offices to gain their concurrence or record their disagreement. We attempted to identify specific costs for the lines targeted for elimination. This proved problematic because most of the invoices were summary invoices that did not contain adequate detail to determine exact costs by individual lines.

This process was further complicated because we could not link the physical address of the PBX system listed in the traffic studies to the information on the telecommunications invoices. Telecommunications service providers generally manage their accounts using master billing telephone numbers rather than a physical address or the customer number used in the traffic studies. As a result, we requested customer service records from telecommunication service providers in order to reconcile the service to the invoice.

For lines that we were unable to reconcile to an invoice, we used an “average” cost figure we calculated by benchmarking telecommunications costs from current vendor advertising rates and future proposals for contracts with the Postal Service. In addition, we calculated the average cost of the lines we had specific invoices for and compared this actual cost to the benchmarked cost. Using a conservative approach, Postal Service officials and the OIG agreed to use \$525 for all lines except a few GMP lines that would cost \$193 per month. We used these figures to calculate savings for lines where we did not have specific invoices, combined this information with the cost of the 11 lines where we had invoices, and projected the cost over 24 months. In addition, we calculated the annual cost savings of reducing line monitoring and maintenance contract costs for the lines we recommend the Postal Service eliminate. Click [here](#) or go to Appendix C for our detailed analysis.

We conducted this performance audit from April 2007 through May 2008 in accordance with generally accepted government auditing standards and included such tests of internal controls as we considered necessary under the circumstances. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We relied on data from the Sprint Traffic Studies and 11 invoices from service providers. We did not directly audit the Sprint system, but performed a limited data integrity review by validating the results of this information with Headquarters Telecommunications and field Information Systems officials to support our data reliance. We discussed our observations and conclusions with management officials during the audit and on April 21, 2008, and included their comments where appropriate.

PRIOR AUDIT COVERAGE

Report Title	Report Number	Final Report Date	Monetary Impact	Report Results
<i>Headquarters Cellular Services</i>	IS-AR-07-011	4/30/2007	\$122,772	Pagers have become obsolete and their services have been replaced by other mobile devices. As a result, the Postal Service discontinued the widespread use of pagers.
<i>Audit of Cellular Services</i>	IS-AR-07-010	3/29/2007	\$6,821,185	The Postal Service has opportunities to capture savings of cellular services by centralizing management control and eliminating unneeded services and devices.
<i>National Voice Services – Savings Opportunities</i>	IS-AR-05-016	9/30/2005	\$9,883,972	The Postal Service can capture savings by performing comprehensive inventory and assessments of local telephone lines in accordance with existing policy.
<i>Security Controls in Voice Systems – Louisiana District</i>	IS-AR-05-007	4/18/2005	\$361,716	The Louisiana District has opportunities to capture savings by eliminating overpayments, duplicate billings, and unnecessary telephone lines.

APPENDIX B: DETAILED ANALYSIS

Elimination of Overcapacity

Through our review of PBX traffic studies, we identified 91 PBX voice lines that exceed current and anticipated capacity requirements and can be eliminated without adversely impacting operations. We provided the physical addresses for the 91 oversubscribed PBX systems and requested invoices for the voice lines servicing these systems. The contractor was unable to provide us with many of these invoices because they needed a master billing telephone number in order to identify the appropriate invoice.

The system that provided the traffic studies and the PBX inventory information relied on physical addresses and customer account numbers and had no records of master billing numbers. As a result, it proved extremely difficult to reconcile the PBX voice services to appropriate invoices. In the majority of cases, we were only able to obtain a summary invoice that contained charges for many Postal Service facilities we did not include in our PBX audit. We were only able to identify the actual charges associated with the lines servicing a specific PBX for 11 of the 91 lines.

Best practices in telecommunications management suggests that gaining control over telecommunications expenses, auditing invoices, enforcing service level agreements, and performing business analysis are all components of a solid telecommunications expense management (TEM) process. For an organization to attain the greatest savings through TEM, three main data sources are required:

- Inventory – to understand what should be paid for and how services are configured.
- Invoices – to understand what the carriers are billing.
- Contract information – to verify the carriers are billing correctly according to the contract requirements.

Ideally, this information would be most useful if combined in a single database.⁶ The fact that this information was not readily available contributed to our inability to accurately identify PBX expenditures for excess telecommunications services.

The audit also identified two facilities where an active PBX was located even though the facility had been closed. One facility had been closed for more than 2 years and the other had been closed for 6 months. We obtained actual invoices for both of these facilities. As a result, we calculated questioned costs going back in time to the date the

⁶ Suggested fields of information are: Service Provider, Circuit and Service Type, Circuit ID and Phone Number, Account Number and Sub-Account Number, Circuit and Service Status (for example, in service or out-of-service), Facility Name and Location (street, city, state, and zip), Quoted Amount for Service, Install Date, Disconnect Date, Change Date, Port Speed, Contract Length (if applicable), Features (if applicable), and Recent Traffic Study.

facility closed and the PBX should have been shut down. This resulted in \$14,248 in questioned costs and \$31,140⁷ of funds put to better use identified in the audit.

In addition, the Postal Service has another opportunity to reduce telecommunications expenses by reducing the number of lines requiring monitoring and maintenance. Sprint, the contractor providing this service, uses an electronic scanning process to determine how many circuits are in use. They charge the Postal Service ██████████ per circuit, per year. Account representatives from Sprint explained that if the Postal Service removes the circuit board for each eliminated line, the future scans will only count the active lines in use. As a result, the Postal Service will save ██████████ per circuit, per year. We identified ██████ lines where management could remove the circuit cards, which would result in a savings of \$187,171.20 over 2 years.⁸

Corrective Action Started

During this audit, we suggested enhancing future traffic studies by including “exceptions” or “alerts” to notify responsible officials when a traffic study indicated potential overcapacity. A Sprint account representative stated their contractor is developing an email “alert” that would be sent to Headquarters Telecommunications officials notifying them that a specific traffic study indicates potential overcapacity. This system will help telecommunications managers identify which traffic studies warrant their immediate attention and will help ensure resources are optimized to support voice operations. Based on these actions, we are not providing a recommendation at this time.

Future Technology Change

During this audit, telecommunications managers stated they expect the Postal Service to migrate from traditional voice systems to Voice Over Internet Protocol (VOIP) in 5-6 years. VOIP converts analog telephone signals into digital signals and then uses the internet to transmit these digital signals. This effort would be a significant change in technology for the Postal Service and, while the agency could save costs, capturing these savings would depend on turning off unneeded services. As a result, it is critical for the Postal Service to have an inventory system in place containing detailed data similar to the data previously described to ensure eliminating outdated services in a timely manner.

Since this is a future technology implementation and management has not established formal plans, we are not providing a recommendation at this time.

⁷ \$31,140 of funds put to better use is included in the \$1,129,362 of funds put to better use figure in Appendix C.

⁸ The OIG identified 97 lines but six of these lines do not have recurring monthly charges. However, these six lines do incur annual monitoring and maintenance costs the Postal Service can reduce.

**APPENDIX C: CALCULATION OF FUNDS PUT TO
BETTER USE AND QUESTIONED COSTS**

The following table represents our summary of the cost savings the Postal Service could achieve if management implements our recommendations. We provided additional details, including the location of PBX sites, the number of lines we recommend the Postal Service eliminate, the cost savings projected for each line, and the name of the Postal Service official responsible for eliminating lines in a separate document to Headquarters Telecommunications officials.

Number of Lines or Circuits	Description	Funds Put to Better Use	Questioned Costs	Total Monetary Impact
91	T-1, PRI, and GMP lines discontinued.	\$1,129,362		
97	Circuit cards for servicing PBX systems that can be removed will reduce monitoring and maintenance contract costs.	187,171		
	SUBTOTAL	\$1,316,533		
3	PRI lines being turned off at facilities that have already closed. ⁹		\$14,248	
	SUBTOTAL		\$14,248	
	TOTAL			\$1,330,781

⁹ We included future costs for the two closed facilities in the funds put to better use figure since we included the three eliminated lines at these facilities in our testing.

APPENDIX D: MANAGEMENT'S COMMENTS

GEORGE W. WRIGHT
VICE PRESIDENT
INFORMATION TECHNOLOGY OPERATIONS



May 19, 2008

Brian Newman
Acting Director, Audit Operations
1735 North Lynn St.
Arlington, VA 22209-2020

SUBJECT: Draft Audit Report - Private Branch Exchange Systems
(Report Number IS-AR-08-DRAFT)

Thank you for the opportunity to review and comment on the subject draft audit report. We offer the following response for each of the recommendations noted.

Recommendation 1:

We recommend the Vice President, Information Technology Operations, direct the Manager, Telecommunications Services, to:

Discontinue voice services for the 91 lines that service Postal Service Private Branch Exchange (PBX) systems that we identified as overcapacity in this audit.

Response

Management agrees. Telecommunications Services will perform this action with Service Providers, Telephone Equipment Suppliers and Invoice Management Contractors to ensure disconnection of the 91 lines identified by the Office of Inspector General. This action will be completed by November 15, 2008.

Recommendation 2:

We recommend the Vice President, Information Technology Operations, direct the Manager, Telecommunications Services, to:

Centralize management of PBX systems, assign resources to regularly monitor traffic studies, and take action necessary to ensure PBX capacity is appropriate.

Response

Management agrees. Information Technology will secure the necessary services through our supplier, utilization reports provided monthly (to be reviewed by existing resources), and take necessary actions to ensure the capacities on the PBX's are managed and monitored appropriately. This process will be established and operational with qualified personnel no later than November 30, 2008.

Recommendation 3:

We recommend the Vice President, Information Technology Operations, direct the Manager, Telecommunications Services, to:

Remove the Private Branch Exchange circuit cards that support disconnected lines.

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Response

Management agrees. Raleigh Information Technology Service Center will coordinate the circuit card removal, storage and maintenance port reduction(s) with the USPS maintenance supplier, Sprint. This effort will further be aligned with Supply Management's PBX maintenance contract port increments. This action will be completed by December 15, 2008.

In conclusion, we concur and agree with the findings of the report. We will be take an active approach to implement the recommendations in order to take advantage of savings opportunities and improved management of the technology. We will provide periodic cost savings reports to the OIG as requested. We do not believe that this report contains any propriety or business information and may be disclosed pursuant to the Freedom of Information Act.

If you have questions regarding our response, and would like to discuss them further, please contact Debra Bannister at 202-268-4851, ITO Audit Response Management.



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