2007 NASCIO Award Nomination
Category: Enterprise IT Management Initiatives
Title: State of Minnesota Enterprise IP Telephony

I. Executive Summary

Minnesota's Office of Enterprise Technology began business planning for potential conversion from analog telephone service to IP Telephony in 2003, based on three significant drivers:

- A state budget shortfall and fewer ongoing resources.
- The rising cost of analog centrex and ACD systems.
- Improved convergence products that made implementation of IPT viable on an enterprise scale and allowed the bundling of basic telephone, advanced contact center, interactive voice response, and IP-enabled fax services.

The conversion to IPT has occurred in phases:

- 2004–2005: Began conversion with individual agencies, particularly the Department of Revenue as an early adopter.
- 2006: Implemented a "proof-of-concept" project at the Department of Transportation to model a scalable process for enterprise-wide implementation.
- 2007: Began full-scale enterprise conversion planning as part of a priority list of statewide consolidation projects.

In a period of only two-and-a-half years, the State has implemented IPT to about one-third of the State's operating telephone stations. The deployment rate of IPT services continues to ramp up, growing by 100% since July 2006, and will continue to accelerate as implementation becomes full-scale.

Although IPT is a utility service with enterprise-wide implementation, the direct benefits accrue primarily to the government organizations that participate:

- Bottom-line savings allow agencies to focus precious resources on program priorities that serve citizens.
- Improved features and functions improve agencies' capability to provide effective services.
- Efficiency through centralization permits agencies to focus on business priorities.

Nonetheless, the enterprise has enjoyed secondary benefits that will improve the overall management and effectiveness of the State's IT infrastructure:

- The IPT implementation process has developed a model of collaborative planning and deployment that will be used in future utility service development.
- A single architecture for telecommunications services allows the state to develop other related enterprise applications and add-on features.
- As a front runner nationwide, OET can share its IPT knowledge and experience to inform other conversion efforts.

The ultimate beneficiaries of IPT conversion are citizens, who can be assured that the State's total investment in financial and human resources for telecommunications is minimized, freeing resources for the direct services that improve their lives.

II. Justification of Nomination

a. Title: State of Minnesota Enterprise IP Telephony
Category: Enterprise IT Management Initiatives

b. Business Problem and Solution, Length of Time in Operation

Three factors led the State of Minnesota to plan, and then roll out IP telephony (IPT) services on an enterprise basis at the beginning of 2004:

i. **A state budget shortfall of nearly $4 billion** made it imperative to achieve better efficiencies in technology infrastructure by designing and implementing shared technology solutions.

ii. **The rising cost of analog centrex and ACD systems** created a strong desire among the OET customer base for shared, network-based telephony and contact center services. Customers expressed interest in the investment of a portion of the State's technology dollars into an enterprise telephone system, more powerful and with a lower unit cost, than any individual agency—large, medium, or small—could procure on its own.

iii. **Convergence products**, after much hype and promotion earlier in the decade, became mainstream and viable by 2003. Convergence delivers data, IP video, and IP voice over a single Internet Protocol (IP) service connection, providing customers with new levels of efficiency and choice in meeting their business communication needs. In the marketplace, sales of IP telephony systems began to outpace those of legacy analog systems. Technology consultants to the State during the planning process unanimously endorsed a move to IP-based voice services.

The Office of Enterprise Technology, on behalf of the state enterprise and in consultation with its customers, developed a statewide solution: a carrier class, partionable IP telephony infrastructure with full redundancy, failover capabilities, and gateways to the public switched telephone network (PSTN), housed at two hardened sites in the Minneapolis-St. Paul area and distributed via the state network, MNET. The network serves 1,000 locations in 300 cities throughout Minnesota and thus provided a ready conduit for statewide IP telephony connectivity.

OET owns and operates the IP telephony infrastructure on behalf of the State, and bundles basic telephone, advanced contact center, interactive voice response, and IP-enabled fax services. In addition, agencies that wish to can perform their own moves, adds, changes and deletes as if operating in a standalone system.

IP Telephony Components

a. Cisco Hosted IP Contact Center (IPCC), Version 7.0
Includes modules Intelligent Contact Manager (ICM), Network Application Manager (NAM) and Customer Intelligent Contact Manager (CICM).

b. Cisco CallManager clusters, Version 4.1
Includes two clusters

c. Cisco Customer Voice Portal, Version 3.1

d. Cisco Agent Desktop, Version 7.0

e. Cisco Emergency Responder, Version 1.3

Fifty-four servers, located in two redundant sites, support the above components as well as other functions, including PSTN gateways, gatekeepers, recording, queuing, routing and reporting.

Funding

Funding for the services comes from internal bill-back rates charged to participating agencies.

Future

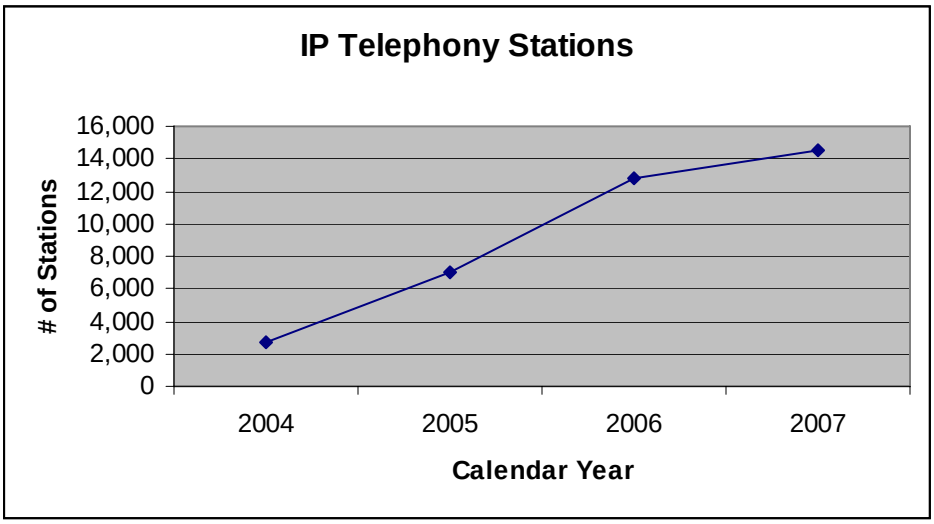
Future enhancements to the system are planned and could include self-service audio and video conferencing, unified messaging, and other realtime media applications.

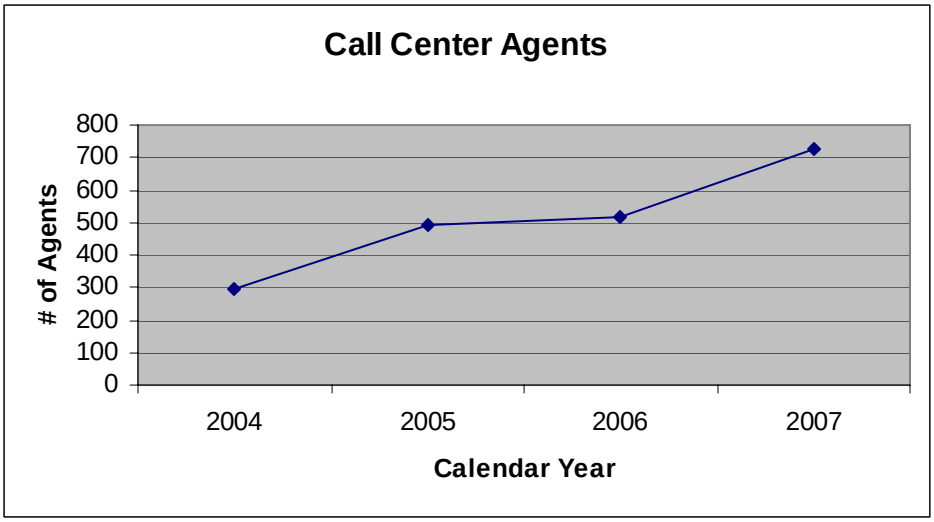
c. Significance to the Improvement in Government Operation

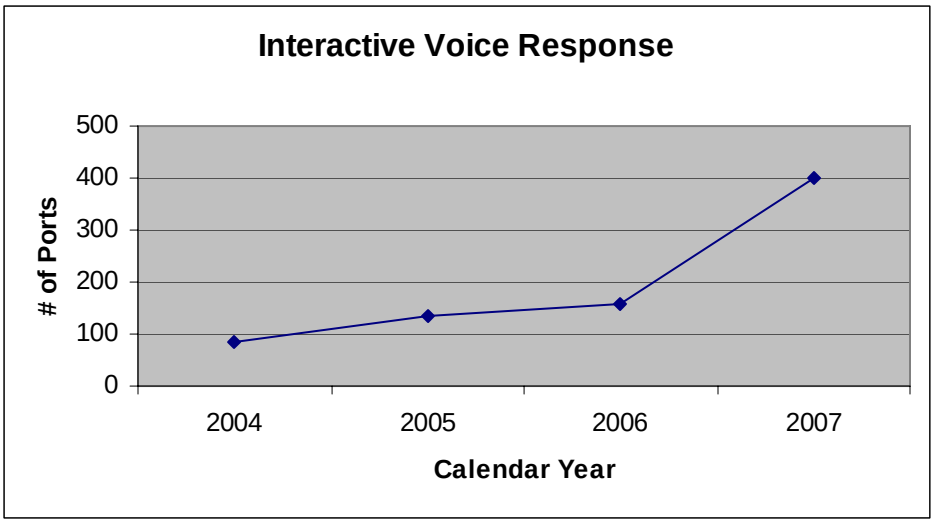
Deployment success

In a period of only two-and-a-half years, the State has implemented IPT to 30 agencies and other government entities, beginning with its earliest adopter, the Department of Revenue, which implemented 1,000 IP telephony stations and 200 contact center agents. The current total stands at 14,500 IPT stations (about one-third of the State's operating telephone stations), 725 agents, and 400 interactive voice response (IVR) ports. The deployment rate of IPT services continues to ramp up, growing by 100% since July 2006.

Below are charts showing the growth over four years (since inception) for IPT stations, call center agents, and interactive voice response (IVR) ports.







Enterprise Management

At the same time the deployment of this enterprise service got underway in 2004, the State, under Governor Tim Pawlenty's direction, launched a yearlong evaluation of government improvement and shared service opportunities. The resulting Drive to Excellence Transformation Roadmap confirmed OET's direction by identifying IP telephony on a priority list of enterprise shared-service initiatives that offered great opportunity to improve government efficiency and save significant dollars by avoiding duplicative expenditures for equipment, network and staff, and ensuring a uniform approach to implementation and the services provided. The Drive to Excellence recommended that the State identify and consolidate key "utility services" that could most efficiently and effectively be provided centrally.

Although the initial deployment has been on an optional, fee-for-service basis, OET and the Department of Transportation undertook, in 2006, a "proof-of-concept" IPT migration project. The project was a larger, total agency conversion model that would be scalable for future implementation of the service as the "utility" service envisioned by the Drive to Excellence.

The results proved the value and impact of large-scale transition from analog to IPT:

- **Significant savings**: the Department of Transportation calculates savings will be $700,000 per year on an ongoing basis after recouping start-up costs (calculated payback time is three years).
- **Increased functionality**: The ability of IPT to bundle add-on services such as contact center and fax services has enhanced the agency's functionality.
- **Resource efficiency**: Centralizing IP telephony services has allowed agency resources to be more effectively deployed on priority agency projects.

As a result of the proof-of-concept project and further utility service planning by the Office of Enterprise Technology and agency CIOs, IPT telephony has recently been identified as one of several existing OET services that will be upgraded to an enterprise-wide utility service with 100% Executive Branch participation. The additional anticipated benefits include a simplified and scalable conversion process and an improved, single architecture.

In conjunction with this new enterprise approach, OET recently launched an initiative to assist smaller agencies and boards with the sometimes prohibitive upfront costs of IPT migration by purchasing the IPT phones. This will make it possible for them to migrate more quickly to the money-saving IPT services.

The collaborative approach to service implementation continues in the provision of ongoing service support. Each organization that has converted, or is in the process of converting,

participates in a regular users group where OET and the users share information and solutions.

d. Public Value of IP Telephony

The initial incentive for IPT conversion was the inherent ongoing cost differential between comparable IPT and the centrex systems previously utilized by the majority of OET customers. It was anticipated that the enterprise IP telephony services would save agencies money not only in direct telephone service costs, but also in internal operations, allowing more public tax dollars to be used for programs that help citizens and businesses in Minnesota and that the enhanced capabilities offered by the technologies would improve agencies' business processes.

All of these expectations have proven true. In fact, as IPT migration began at the State of Minnesota, the initial cost differentials began to grow even more significant. Highly dependent on customer volume, the per-unit cost for centrex service grew in proportion to the dropping volume, making IPT increasingly attractive, and fueling the rate of adoption. *Even with current price stabilization negotiated with a major telco contract for those remaining on centrex services, an IPT station with voice mail is currently approximately one-third the cost of the equivalent centrex with voice mail (analog) service.*

Additionally, some organizations outside the Minneapolis-St. Paul metro area find that "hop-off" calling into the metro free-calling area, and "on-net" calling to other connected locations — both supported by OET's IPT telephony service —- save significant long distance costs.

A variety of factors (capital investment at OET, up-front agency costs including LAN infrastructure upgrades, long distance calling patterns, conversion of standalone call center agents and IVR ports to a bundled service, re-assigned technical resources, etc.) make it difficult to calculate an enterprise-wide net savings or payback timeframe for the total conversion effort and all associated costs. However, for the phones already converted, a service-to-service comparison of voice and voice mail ongoing monthly costs can be readily calculated:

14,500 stations converted to IPT
Centrex and voice mail at current prices: $427,750 per month
IPT and voice mail: $159,500 per month
Net enterprise savings for current installs: $268,250 per month

Needless to say, the cost savings of a complete migration to IP Telephony will constitute a significant dollar savings to individual agencies and governmental entities and ultimately translate to more efficient use of Minnesota's taxpayer dollars and additional resources available for citizen programs. This in itself is a significant benefit and victory and dramatically proves the value of an enterprise utility service model.

The underlying value, however, is equally noteworthy. The State of Minnesota Enterprise IP Telephony Project has created new processes both within the central IT organization – the Office of Enterprise Technology – and in the combined, external enterprise IT community that constitutes OET's customer base. The planning and implementation process that included proof-of-concept, phased, and ramp-up implementation stages has established a new, collaborative mindset and a concrete cross-boundary model that can shorten the process of subsequent and equally significant transformational projects. Minnesota's IPT experience will serve not only as a model for future enterprise projects planned for the state, but also as a front runner, can inform migration efforts in other states and municipalities.