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Study: Optimizing the Use of Web/Teleconferencing to Reduce Travel Expense in State Government

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1 Introduction

The Department of Administrative Services (DAS) prepared this study in response to the April 2012 Mid-Biennial Budget Review, which required DAS to study optimizing the use of web/teleconferencing to reduce travel expense in state government. DAS was also required to assess current teleconferencing capabilities and research applicable industry standards & best practices.

DAS began actively assessing unified communications usage, including teleconferencing, throughout the state of Ohio in 2011. A multi-agency Unified Communications Work Group was formed to gain a comprehensive understanding of the current state as well as to clearly define agency requirements. An assessment of the current state revealed that agencies are in fact employing a variety of teleconferencing technologies to realize efficiencies and achieve cost savings. This study details the findings of the current state analysis, the efforts that are currently underway with regard to unified communications, and the recommendations for further optimizing the adoption, implementation and management of teleconferencing technologies throughout the state of Ohio.

This study addresses the following types of teleconferencing technologies:

Video Conferencing

Video conferencing is a powerful tool that facilitates a virtual, visual meeting environment between two or more participants, located at different sites, by using computer networks to transmit and receive audio and video data. Video conferencing is a widely accepted mode of communication. The mechanics of video conferencing are similar to a telephonic conference, except video communication allows a visual presentation. Each participant has a microphone, speakers, and a video camera mounted on/or attached to the computer. Alternatively, participants may use video conferencing endpoints, room based telepresence or a voice over IP phone that is video capable. As two or more people communicate with each other, their voices are carried over the network to the others, and images appear on the other participant's monitor.

Audio Conferencing

Audio conferencing is a tool that facilitates audio only conferencing. Each participant calls into an audio conferencing bridge or service and can listen and speak to all parties on the conference call.

Web Conferencing

Web conferencing is a tool that allows users to collaborate online via their personal computer or other computing device. Each participant can share their desktop, document or presentation with the group from their computers. This technology allows multiple parties to be able to perform collaborative functions online, such as document editing and review, without having to leave their desks.

At the federal level, Executive Order 13589 of 2011 requires federal agencies to cut costs by 20% across five areas including travel. Carbon emissions may also be reduced through the use of collaboration tools to save our environment from the emissions cars and other forms of transportation generate.

2 Current state

In 2011, the Multi-Agency CIO Advisory Council, Enterprise Technical Architecture Subcommittee chartered and tasked the Unified Communications Work Group with identifying the communications technologies, including teleconferencing, in use within Ohio's agencies. The work group conducted a survey to assess the current state of these technologies.

<u>Video Conferencing</u>

The survey indicated that 63.2% of responding state agencies were using or planned to use video conferencing technologies to reduce travel and service expenses. Some notable agency uses were as follows:

- Providing training to field staff;

- Delivering health related services to inmates;

- Offering opportunities for distance learning and collaboration; and

- Conducting ad hoc meetings.

A September 2012 study released by the e-Tech Ohio Commission also provided details regarding agency interest in video conferencing capabilities. The following is an excerpt from the report[1]:

> *"eTech has seen significant growth in the use of video conferencing since FY09 – during that year, eTech managed approximately 5,000 video calls. That number rose to more than 7,500 during FY10, and to just over 12,000 calls in FY11. Distance learning has been the key driver in this growth, with the education sector accounting for more than 10,000 calls during FY11.*

> *As greater emphasis is placed on blended learning, it is anticipated that K-12 education will increase its needs and demands for greater availability of video conferencing capabilities to achieve economies and increased learning opportunities through distance learning technologies.*

> *The State of Ohio has done well at adopting video conferencing as a means of achieving greater efficiencies, cost-avoidance, and offering additional learning opportunities for students statewide. While there have been growing pains, and there are issues that need to be addressed, the overall utilization and implementation to date has been commendable."*

The e-Tech Ohio Commission is only one of many entities that provide video conferencing services to public entities. However, e-Tech's video conferencing cost model is not sustainable. Additionally, many agencies have their own systems that they support and manage separately, and most cannot interoperate, resulting in a fragmented approach that, in most cases, prevents cross-agency collaboration.

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[1] Refer to Appendix A for the full text from the e-Tech Ohio Commission's September 2012 Study, "*Ohio Video Conferencing Services Strategic Review*"

Audio Conferencing

Audio conferencing is in widespread use across state government. Most agencies contract with a third party service to deliver this function. The work group survey indicated that 84.2% of respondents use audio conferencing. This is currently done on an as needed basis and using a variety of providers. A more enterprise approach that leverages the state's buying power through economy of scale is being explored.

In many cases, audio conferencing capabilities are delivered by using a conference phone that is designed for meeting rooms. Most users of the current Centrex System cannot easily conference parties together for discussions or meetings. Due to these functional limitations, agencies are using audio bridging services from a variety of providers.

Web Conferencing/Collaboration

Many agencies use Web conferencing technologies to support collaboration for discussions and/or meetings. The work group survey indicated that 78.9% of respondents utilize Web conferencing technologies. Most agencies have a contract with an external third party for this software and/or service. This is currently done on an as needed basis and using many providers. A more enterprise approach that leverages the state's buying power through economy of scale is being explored.

Response to Unified Communications Survey Results

In addition to conducting the unified communications survey, the work group performed research, worked with Gartner analysts, and met with a variety of vendors to discuss current trends, understand best practices, and gain an understanding, from a roadmap perspective, of what was on the horizon in this space.

The work group created an enterprise unified communications requirements document, which included teleconferencing, to understand the needs of every agency. Since each agency has a different mission, the requirements were quite diverse.

A Request for Quotation (RFQ) was developed based upon the requirements of over 10 state agencies and in concert with OARnet and the Board of Regents. This RFQ was issued, responses evaluated and Cincinnati Bell Technology Solutions (CBTS), an Ohio company was selected.[2]

The result of the current state analysis and the RFQ award is an enterprise, hosted solution for Voice over Internet Protocol (VoIP) and Unified Communications to save money and enhance communication and collaboration. This service is currently being deployed to replace the state's aging Centrex service and allows the state of Ohio to utilize modern communication technologies. This solution allows the State to focus on the business of the State rather than serving as an agency by agency telephone company.

The basic hosted service provides telephony, audio conferencing, web conferencing and point-to-point video conferencing. This service allows the entire state to leverage its enterprise buying power, and provides for the use of the technologies at no additional monthly service cost. An enhanced rate service is also

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[2] According to CBTS, the unified communications contract award has currently created over 10 new jobs in Ohio.

available and provides the same technology tools as the basic service, but it also allows for point-to- multi-point video conferences. This feature allows many parties to participate, again at no additional service cost.

CBTS built the core of the system, which is housed in two Tier III data centers located in Ohio providing redundancy and failover capabilities. They are directly connected via fiber optics to OARnet. This allows the system to be delivered throughout Ohio using the OARnet backbone.

The hosted solution was successfully deployed to a test group of approximately 150 users across 10 agencies. The newly formed Ohio Facilities Construction Commission was the first to deploy the service when they moved to their new offices in the William Green Building. Beginning in January 2013, 14 additional agencies representing over 24,000 phones will also begin deploying the new system. The Bureau of Workers' Compensation and the Environmental Protection Agency will be the first agencies scheduled to implement in January 2013.

Current Challenges

While agency adoption rates for teleconferencing technologies are high, and the hosted solution has strong momentum in terms of agency adoption, there are additional challenges to overcome before all of the benefits of teleconferencing can be completely realized.

The current network infrastructure is one such challenge. State and local government, as well as the P-20 educational system, design and administer their own network infrastructures. A variety of vendors and network technologies are used to deliver each teleconferencing technology. This approach produces many technical issues, which impacts the degree of interoperability among teleconferencing solutions. This lack of interoperability makes the use of teleconferencing technologies, such as video conferencing among all parties difficult, if not impossible.

The existence of firewalls between agencies creates additional technical challenges, as does the lack of centralized IP address allocation and the lack of a centrally planned and managed network infrastructure.

Finally, participation in services such as the hosted solution is voluntary; and therefore, impacts the level of adoption, efficiency and standardization that can be achieved throughout the state. The more agencies that participate, the greater the savings for the state as enterprise buying power can be fully leveraged and standardization achieved.

3 Recommendations

Given the results of the current state analysis as well as the identification of some of the current challenges the state is facing in terms of completely optimizing the use of Web/teleconferencing to reduce expenses, DAS offers the following recommendations:

Large-Scale Adoption of Hosted VoIP Solution

Executive support for large-scale, enterprise adoption of the hosted solution is recommended. The contract contains tiered pricing, meaning that the greater the adoption of the service, by all levels of government, higher education and K-12 provides greater overall savings to the state of Ohio. The state of Ohio should use this service, much like it uses electricity, and cease building its own systems that can be costly to support and update on an ongoing basis. Making the adoption of this hosted solution a high priority for all state and local government entities as well as academic institutions will help to save travel costs and time, increase collaboration, and gain efficiencies.

Support for Statewide Network Consolidation

Teleconferencing technology is only as good as the network infrastructure that supports it. With the latest upgrades to OARnet, a conduit is now available to deploy technology throughout the state of Ohio in ways that were not previously possible. The state of Ohio should transition its network infrastructure to a unified, collapsed network that is centrally managed. This will allow for ease of use between all state and local governments, as well as educational institutions. It will also simplify approaches to enterprise initiatives. Having separate networks that are segmented off from each other does not afford the state the ability to easily deploy and utilize technologies, such as video conferencing, that can provide great benefits and cost savings. Further, rather than running many network infrastructures with the personnel and costs associated with doing so, the state would reduce costs, become more efficient and enable collaboration.

As part of Ohio's IT Optimization strategy and the IT Transformation Plan, statewide network consolidation efforts are underway, and should be supported at all levels. The DAS Office of Information Technology has formed a functional work group to assist in this initiative. Unified communications is a service that can be consumed and leveraged if the network infrastructure is ready to support it.

Teleconferencing Support & Cost Saving Opportunity

Video, audio and Web conferencing are available in the new hosted solution. However, an emphasis needs to be placed on its use at all levels for Ohio to gain the savings, integration, ease of use and efficiencies that it affords.

> **Example: One person; by car; making 12 trips per year; length of two days; hotel/living at $200/day; participant's annual salary $80,000; produces a saving's result of $3,903 in cost, 108 hours in labor and 273 KG of CO_2.**

> *Source: Auburn University's 2012 Recommendations for Travel Cost Reduction*

Gartner, an IT research company, believes that telepresence will replace 2.1
million airline seats each year. That will cost the travel industry $3.5 billion
annually--but save companies that same amount in cash.

Source: Gartner 2010 Research Report

Other Recommendations include:

- Establish adoption of the hosted unified communications solution as a high priority for all state and local government bodies. The hosted solution will:

    - Save travel costs and time
    - Increase collaboration
    - Improve efficiencies

- Socialize teleconferencing as the preferred format for government meetings.

- Teleconferencing should be encouraged for:

    - Training field staff in all agencies
    - Delivering educational services to citizens including distance learning, telemedicine, and preventative educational services
    - Economic development (e.g., providing seminars for small business and startups, communicating information about changes in regulations, delivering certification courses, etc.)

- Creation of a statewide plan for the use and adoption of all teleconferencing technologies as a collaboration tool for state and local government as well as education. Some areas to address in the plan include:

    - Training
    - Education
    - Meetings
    - Support for and expansion of telework
    - Increased real-time collaboration and communication throughout government

- Utilize the VoIP service, hosted and provided by CBTS, to unify teleconferencing technologies throughout state and local government, higher education and K-12. This will allow the teleconferencing technologies to be delivered from a single providing entity, allowing for ease of use and interoperability, while permitting the state to use the technology without becoming a provider of it.

- Review of Ohio's public meeting law to determine if any changes should be proposed. Savings through using videoconferencing for meetings could be limited by the public meetings law. Modifications to the public meetings law would allow more public entities to take advantage of this technology. Currently, only the Board of Regents can have public meetings via videoconferencing.

Appendix A

The following excerpt is from a report created in September 2012 by e-Tech regarding current state from their perspective:

Ohio Video Conferencing Services Strategic Review

September, 2012

Introduction. The Interim Executive Director of the eTech Ohio (eTech) Commission requested a strategic review of Ohio video conferencing services in order to maximize their efficiency and return on investment for the agency and taxpayers, as well as plan for the future needs of the agency's customers of these services. This report document attempts to meet these needs, as well as provide historical background information and research into applicable industry standards and best practices for these services that may be helpful to decision-makers formulating policies for these services.

Background Information. Ohio was an early adopter of video conferencing technology in the late 1990's for K-12 education, higher education, and government agency functions. This was made possible due to Ohio's leadership role in having developed a converged network infrastructure capable of supporting this type of communication, allowing for cost-avoidance in travel, and enhanced learning opportunities for students K-20. However, this early adoption of video conferencing technology also developed with multiple governmental entities implementing their own isolated services to provide these functions. Oftentimes, these entities were unaware of the needs or availability of these capabilities in other nearby governmental entities, and high cost equipment (particularly video bridges), were over-purchased and underutilized. Efforts have been made within and among multiple governmental entities over the years to create greater efficiencies in the use of these technologies, and a significant amount of progress has been made. The K-12 educational community has received a great deal of leadership from eTech itself as well as from the Information Technology Centers (ITCs) throughout the state. In addition, a report (included herein as Appendix A), from June 20, 2008 recommended that the then three largest providers of video conferencing services (eTech, OARnet, and OIT), consolidate their services utilizing eTech as the coordinating agency. For the most part this recommendation was accomplished, with eTech becoming the coordinating agency for these video conferencing services. Constrained governmental budgets, lower costs for video conferencing equipment, and equipment seemingly easier to use and support, are all likely to put additional strains on the centralization of video conferencing services that has already occurred, despite the negative ramifications to taxpayers that any decentralization will cause. The current strains on centralization of video conferencing services are primarily caused by the inherent nature of imperfect chargeback mechanisms for the costs of these services. This will be discussed later in this document along with potential means to incent agencies to utilize these centralized video conferencing services to the benefit of Ohio taxpayers.

Current Environment. In June 2012, Scott Gaughan (at the time an employee of eTech), produced a report for the eTech Ohio Interim Executive Director (included in full in Appendix B), that states in part:

> *"eTech has seen significant growth in the use of video conferencing since FY09 – during that year, eTech managed approximately 5,000 video calls. That number rose to more than 7,500 during FY10, and to just over 12,000 calls in FY11. Distance learning has been the key driver in this growth, with the education sector accounting for more than 10,000 calls during FY11."*

There appears to continue to be significant growth in video conferencing across all agency types (e.g. – state government, higher education, K-12, etc.), served by eTech.

As greater emphasis is placed on blended learning, it is anticipated that K-12 education will increase its needs and demands for greater availability of video conferencing capabilities to achieve economies and increased learning opportunities through distance learning technologies.

Summary. The State of Ohio has done well at adopting video conferencing as a means of achieving greater efficiencies, cost-avoidance, and offering additional learning opportunities for students statewide. While there have been growing pains, and there are issues that need to be addressed, the overall utilization and implementation to date has been commendable. Issues outlined in this document need to be reviewed and addressed. Political and administrative leadership need to provide decisive action and attention to these matters in order that the growing needs of both agencies and distance learning within Ohio are successfully addressed.

Advantages of Video Conferencing

No Time Constraint

Video conferencing can be conducted at any time of the day. Time differences between countries do not matter when people use this method of communication because they do not actually need to travel to attend meetings.

Saves Time and Money

Transaction of any business requires frequent travel, to facilitate its growth and diversification. That translates to travel and associated costs like hotel accommodation and food expenses. A video conference will keep executives in the office, rather than sending them halfway across the country for conducting business. As one can conduct transactions without traveling, it also reduces the time spent in doing so.

Sharing Information is Easy

This technology enables improvisation of operations and services of remote outlets. As it can also be used to transmit files and documents, it is possible to provide real-time information that can help in solving problems. Also, decisions can be made in the least possible time. The ability to share, coordinate and evaluate digital data from anywhere in the world allows people to conduct simultaneous communication and collaboration on time-sensitive projects.

No longer limited to Federal government agencies with big budgets, video conferencing and telepresence systems are transforming the way state and local government agencies communicate. As costs have come down and reliability has improved, government agencies of all kinds are using this technology to increase productivity, reduce travel, and fulfill eco-friendly initiatives.

Video conferencing and telepresence systems create virtual meeting experiences so realistic, participants feel as if they are in the same room, even when they are in agencies located miles apart. As a result, the need for government workers to travel for meetings is reduced, saving travel related costs and carbon dioxide emissions.

State and local government agencies use video conferencing and telepresence solutions for a wide variety of applications, including collaboration among departments, video arraignments, video delivery of health related services and distance learning/training.

Inter/Intra-Agency Communication

Spread out in locations across the state, many state and local governments face communication challenges. Video collaboration solutions can help agencies with the following:

Joint planning

Training and education

Health and wellness education

Multi-organization coordination and collaboration

Continuity of operations

Secure communications

Citizen and community outreach programs

Judicial and Corrections

Video systems in courts and correctional facilitates improve security and facilitate the judicial process. These solutions enable hearings and cases to travel through the court system faster, and minimize transportation costs and security risks of inmates. Typical uses of video solutions in judicial and correctional environments include:

Arraignments

Visitations

Scheduled court hearings

Court appeals

Depositions

Witness testimony

Telemedicine

Court recordings

First Responders and Public Safety

First responders and public safety agencies utilize video conferencing systems to improve emergency response times and maintain continuity of operations in critical situations. Mobile solutions allow emergency

personnel to go into the field to assess disasters and report back to headquarters in real time. Implementing this technology in first responder and public safety environments facilitates:

Emergency management

Critical needs assessment

Crisis communications

Preparedness and response training

Central command communications

Ensuring citizen safety

Other critical uses of video for state and local government agencies include:

Protecting the Public

Increase speed and efficiency of pretrial services with remote video arraignment

Officers spend more time responding, less time in court

Faster fire and rescue response time

Eliminate contact between victims and offenders

Enhance emergency operations center (EOC) collaboration for emergency response

Increasing Service Effectiveness, Responsiveness, and Productivity

Spend more time collaborating, less time driving

Reach informed consensus faster

Redistribute staff resources in departments

Defer staff increases

Keep courts on schedule

Reduce Costs and Stimulate Economic Development

Save taxpayer dollars

Reduce overtime costs

Lower fuel costs

Decrease maintenance expenses

Positive environmental impact

Attract more people to live and work in a community

Improved quality of life

********************************End of Excerpt***********************************