

THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY



ORGANIZATION:

State of Illinois - Central Management Services

PROJECT NAME:

Project Hercules

Summary

The State of Illinois completed the Herculean task of migrating 1,600 mission-critical data circuits to its upgraded communications backbone to provide superior service and new applications to dozens of State agencies, improve the productivity of the State's 57,000 employees, and save Illinois taxpayers over \$7 million annually. The upgraded, high-speed network now carries all the data traffic that the State needs to operate on a daily basis, and also provides Internet access, email services, videoconferencing and other vital applications to more than 2 million citizens at nearly 8,000 constituent customers including schools, libraries, and hospitals across Illinois.

Introductory Overview

Governor Rod Blagojevich challenged CMS to help him keep his campaign promise to increase efficiency within state government – without raising sales or income taxes. He wanted a government that was responsive and accountable, and one that conserved its resources. With a mandate from the Governor to make state government more efficient, the Department of Central Management Services (CMS) set out in 2003 to consolidate and improve the State's telecommunications infrastructure while offering new services to State agencies and constituents and, most importantly, reducing costs.

Many of the 50 State agencies routinely leased expensive private circuits to carry mission-critical data – including police reports, unemployment data, prisoner tracking, traffic and road safety conditions, and lottery results – with little coordination or centralization. CMS saw and seized an opportunity to consolidate all that crucial traffic onto one core backbone, the State-owned Illinois Century Network (ICN).

CMS' Bureau of Communication and Computer Services – which manages the computer and telecommunications needs of the State government as well as 7,800 schools, universities, libraries and other local government bodies – completed the Herculean task of migrating 1,600 data circuits from the private, leased network to the State-owned ICN.

With the successful completion of Project Hercules in 2005, the State of Illinois has migrated

LOCATION:
*Chicago, Illinois,
United States*

YEAR:
2006

STATUS:
Laureate

CATEGORY:
*Government and
Non-Profit Organizations*

NOMINATING COMPANY:
Microsoft



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

ORGANIZATION:
*State of Illinois - Central
Management Services*

PROJECT NAME:
Project Hercules

LOCATION:
Chicago, Illinois, United States

YEAR:
2006

STATUS:
Laureate

CATEGORY:
*Government and
Non-Profit Organizations*

NOMINATING COMPANY:
Microsoft

its data traffic relating to highway safety, revenues, law enforcement and other critical services from a frame-relay network it leased from SBC (now AT&T) to the State's upgraded communications network. Building on the State's IT transformation which saved \$210 million over the past two fiscal years, the new efficiency initiative – dubbed Project Hercules – will save Illinois taxpayers an additional \$7 million per year.

The Illinois Century Network was designed and built several years ago to provide a communications network for State college and universities. Under the leadership of Gov. Blagojevich, CMS realized the potential of the network was not being utilized, at a time when the State was paying private companies to lease their data networks to carry agencies' information traffic. Project Hercules was created to upgrade the ICN, migrate the State's data traffic from expensive leased systems onto the State-owned network, and provide faster, lower-cost services to State agencies and constituents.

Nearly two years in the making, the complex initiative was managed without disturbing vital services to a single client agency. The successful migration entailed a coordinated statewide effort in which information being transmitted was identified, logged, carefully cut over (often during midnight shifts) and then tested. After checking to see that traffic was moving correctly over the ICN, workers retired each leased circuit.

To accommodate the increased traffic and enable next-generation applications, CMS upgraded the network with carrier-class routers and increased bandwidth. The ICN was upgraded with Multi-protocol Label Switching (MPLS), a technology that's easier to manage, moves data faster and enables state agencies and other government entities to expand and improve their communications. CMS is now experimenting with applications over the ICN such as content filtering (for universities), school-to-home services, Voice over Internet Protocol and videoconferencing.

Project Hercules is the State's latest in a series of IT efficiency efforts to fulfill Gov. Blagojevich's instructions to do more with less. Over the past two years, CMS has taken a number of actions in the IT arena - eliminated thousands of unused phone lines, renegotiated cell-phone rates and outside contractors' rates, reduced headcount and bought equipment and services in greater bulk – which saved more than \$210 million while improving service. Overall, the State's efficiency efforts in administrative areas including IT and telecommunications, fleet and property management and procurement have produced savings of \$529 million, according to a recent Deloitte Consulting study.

Benefits

The results have been astonishing. The upgrading of the ICN and migration of the data traffic to it were completed without any loss of data and without impeding agencies' daily business operations. The upgraded network now provides higher-speed services at a lower cost to State agencies, and enables new applications including videoconferencing, school-to-home services and content filtering for local government institutions such as colleges, universities and libraries. After initial reluctance, State agencies have responded to the completed project with enthusiasm.

Project Hercules became possible after the successful transformation of the State's IT infrastructure and the implementation of a Statewide governance process, which provided more than \$210 million in savings over two fiscal years. This accomplishment represents a significant portion of the total \$529 million in validated savings the State of Illinois achieved in FY04 and



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

ORGANIZATION:
*State of Illinois - Central
Management Services*

PROJECT NAME:
Project Hercules

LOCATION:
Chicago, Illinois, United States

YEAR:
2006

STATUS:
Laureate

CATEGORY:
*Government and
Non-Profit Organizations*

NOMINATING COMPANY:
Microsoft

FY05. With the completion of Project Hercules, the State will realize annual savings of at least \$7 million from the retirement of the leased private network for the State's data traffic.

Looking ahead, the Microsoft Enterprise Agreement that CMS negotiated in 2005 to provide discounted office desktop software for State employees is expected to provide annual savings of at least \$2.1 million for a total exceeding \$10.5 million over the 5-year life of the contract. In addition, local governments including municipalities, colleges and universities, counties, and school, library and park districts, will be able to take advantage of the statewide master contract negotiated by CMS to purchase needed desktop software at heavily discounted prices. Local government entities as disparate as the City of Evanston, Rush North Shore Medical and the Chicago Transit Authority have ordered software licenses as a result of the agreement, and many more are signing on as their budgets allow.

With the successful completion of Project Hercules in 2005, the State of Illinois has migrated its data traffic relating to highway safety, revenues, law enforcement and other critical services from a frame-relay network it leased from SBC (now AT&T) to the State's upgraded communications network. Building on the State's IT transformation which saved \$210 million over the past two fiscal years, the new efficiency initiative – dubbed Project Hercules – will save Illinois taxpayers an additional \$7 million per year.

The migration gives CMS control over the network, so it no longer relies on AT&T for support, upgrades or changes. Setting up a videoconference, for example, which used to require contacting the telecom vendor to order, arrange and pay for the service, is now done by the State in-house.

The IP platform for network transport reduces expenses and, importantly, "is compatible with the technology used by computers on the network," as the Tribune noted. Beyond cost-savings, however, the upgrade provides greater connectivity, security and reliability:

·Connectivity: The use of Multi-Protocol Label Switching (MPLS) network technology enables customers to connect all its offices together in a reliable and efficient manner, and provides for centralized service networking, hub-and-spoke networking, and any-to-any connectivity.

·Security: The Virtual Private Network (VPN) Offering enables IP traffic to travel securely over the State's backbone infrastructure by encrypting all traffic from one network to another.

·Reliability: All customer connections to the ICN backbone hold a 99.9% availability guarantee with a 95% end-to-end availability commitment, providing customers with a highly available wide-area networking infrastructure.

The Importance of Technology

CMS chose MPLS as the technology necessary to upgrade its communications backbone, the ICN, and provide higher-speed, reliable, and lower-cost service as well as to enable next-generation applications to ICN users.

MPLS was chosen to support the direction that technology is consistently moving towards. It was a necessary move to become a carrier-class provider and gain the ability to provide and support new initiatives within the state. As the Chicago Tribune noted in a recent article about Project Hercules ("Illinois a phone company defector," January 3, 2006), many large public- and private-sector enterprises "will follow Illinois' lead by bringing network operations in



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

ORGANIZATION:
*State of Illinois - Central
Management Services*

PROJECT NAME:
Project Hercules

LOCATION:
Chicago, Illinois, United States

YEAR:
2006

STATUS:
Laureate

CATEGORY:
*Government and
Non-Profit Organizations*

NOMINATING COMPANY:
Microsoft

house.”

The migration gives CMS control over the network, so it no longer relies on AT&T for support, upgrades or changes. Setting up a videoconference, for example, which used to require contacting the telecom vendor to order, arrange and pay for the service, is now done by the State in-house.

The IP platform for network transport reduces expenses and, importantly, “is compatible with the technology used by computers on the network,” as the Tribune noted. Beyond cost-savings, however, the upgrade provides greater connectivity, security and reliability:

·Connectivity: The use of Multi-Protocol Label Switching (MPLS) network technology enables customers to connect all its offices together in a reliable and efficient manner, and provides for centralized service networking, hub-and-spoke networking, and any-to-any connectivity.

·Security: The Virtual Private Network (VPN) Offering enables IP traffic to travel securely over the State’s backbone infrastructure by encrypting all traffic from one network to another.

·Reliability: All customer connections to the ICN backbone hold a 99.9% availability guarantee with a 95% end-to-end availability commitment, providing customers with a highly available wide-area networking infrastructure.

The future of the MPLS network - which supports layer 3 (of the OSI model) traffic - encompasses encrypted traffic, Quality of Service (which prioritizes traffic for increased speed and reliability), videoconferencing and Voice over IP. The MPLS network also has the potential for increased security through AES – Advanced Encryption Standard and 3DES – Triple Data Encryption Standard.

Originality

Project Hercules was a fiscally responsible business decision and, as such, serves as a model not only for other governments but for private-sector enterprises.

This project is the first of its kind in any State, although we expect it to be copied by other state and local governments and corporations, as do prominent experts including David Isenberg, Fellow at Harvard University’s Berkman Center for Internet and Society, Richard Nespola, chief executive of Kansas-based The Management Network Group, Inc., and Miles Lee, vice president of Boston consultancy Adventis (as noted in the Chicago Tribune, January 3, 2006).

The IT transformation in Illinois was referenced during a March 9 workshop hosted by the State of Illinois called “Measuring and Sustaining Government Efficiency” attended by more than 20 representatives from 10 governments including eight states and the City of Chicago. In addition, CMS Director Paul Campbell has been asked to address the benefits of the State’s IT consolidation including Project Hercules at the June 29 National Conference of State Banking Supervisors.

This project is the first of its kind in any State, although we expect it to be copied by other state and local governments and corporations, as do prominent experts including David Isenberg, Fellow at Harvard University’s Berkman Center for Internet and Society, Richard Nespola, chief executive of Kansas-based The Management Network Group, Inc., and Miles Lee, vice president of Boston consultancy Adventis (as noted in the Chicago Tribune, January 3, 2006).



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

ORGANIZATION:
*State of Illinois - Central
Management Services*

PROJECT NAME:
Project Hercules

LOCATION:
Chicago, Illinois, United States

YEAR:
2006

STATUS:
Laureate

CATEGORY:
*Government and
Non-Profit Organizations*

NOMINATING COMPANY:
Microsoft

Success

CMS completed the Herculean task of upgrading its telecommunications backbone, the Illinois Century Network, to accommodate next-generation applications for the 57,000 employees of dozens of State agencies and the more than 2 million citizens who rely on the ICN at nearly 8,000 colleges, universities, schools, libraries, health care facilities and local governments across the state.

The successful completion of Project Hercules required upgrading the State-owned ICN and then migrating from a private, leased network to the ICN a high volume of data traffic used by agencies to fulfill a variety of critical communications needs. Managed without disrupting vital services to a single client agency – and fully completed ahead of its Dec. 31, 2005 deadline, the effort will produce annual savings of at least \$7 million.

Instead of paying a vendor to provide circuits to Illinois State Police, IDOT, Revenue and dozens of other State agencies, CMS moved that mission-critical traffic to the ICN where state employees can monitor and manage it. Furthermore, the ICN is managed around the clock, 24x7x365, by the State's new Customer Service Center (CSC) and Customer Management Center (CMC), which are staffed entirely by State employees, a transition from outside contractors also completed in 2005.

The upgraded network is performing wonderfully – several agencies have paid compliments as they get more bandwidth with consistent reliability at lower cost.

The results have been astonishing. The upgrading of the ICN and migration of the data traffic to it were completed without any loss of data and without impeding agencies' daily business operations. The upgraded network now provides higher-speed services at a lower cost to State agencies, and enables new applications including videoconferencing, school-to-home services and content filtering for local government institutions such as colleges, universities and libraries. After initial reluctance, State agencies have responded to the completed project with enthusiasm.

Difficulty

Initially, State agencies resisted the idea of ending their long-established relationships with SBC (now AT&T) and relying on CMS to carry and manage their critical data traffic over the State's network. CMS had to convince the agencies that the ICN could be upgraded to handle the increased traffic, that it would provide higher-speed service at lower cost with the same level of quality, and that CMS could effectively manage the network to ensure agencies' crucial operating data would not be lost.

Technical challenges included creating a comprehensive picture of all the data traffic that various agencies were transmitting over various systems and circuits leased from SBC and other vendors.

To complete Project Hercules successfully, CMS:

1) Upgraded State-owned telecommunications backbone, the Illinois Century Network, to accommodate next-generation applications

-Upgraded to new technology that's easier to manage, moves data faster and enables state agencies to make better use of data, voice and video applications



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

ORGANIZATION:

*State of Illinois - Central
Management Services*

PROJECT NAME:

Project Hercules

LOCATION:

Chicago, Illinois, United States

YEAR:

2006

STATUS:

Laureate

CATEGORY:

*Government and
Non-Profit Organizations*

NOMINATING COMPANY:

Microsoft

-New technology enables next-generation applications: we're experimenting with lots of services including videoconferencing, school-to-home services, content filtering (for universities), Voice over Internet Protocol (VoIP, a method of carrying a conversation over the Internet instead of the telephone network)

2) Migrated State agencies' critical data traffic on 1,600 data circuits from a frame-relay network (leased from SBC) to ICN

- Required coordinated statewide effort

-Inventoried leased circuits, identified information being transmitted, planned migration

-Carefully cut over traffic - often during midnight shift to avoid impairing agencies' operations during business day

-Tested each cutover to ensure the migration of data traffic was successful

3) The upgraded network is performing wonderfully – several agencies have paid compliments as they get more bandwidth with consistent reliability at lower cost.

The obstacles to success, while huge, were overcome. The project required an extensive, coordinated effort, with various staff, contractors and consulting firms working together to migrate more than 1,600 circuits in less than one year. In each location across the state, the team worked to provide and install a new router, standardize the configurations, coordinate the work within outage windows, provide backups, conduct testing and authentications. The successful completion of the effort has improved service to State agencies, constituent customers and 2 million Illinois citizens.

Initially, State agencies resisted the idea of ending their long-established relationships with SBC (now AT&T) and relying on CMS to carry and manage their critical data traffic over the State's network. CMS had to convince the agencies that the ICN could be upgraded to handle the increased traffic, that it would provide higher-speed service at lower cost with the same level of quality, and that CMS could effectively manage the network to ensure agencies' crucial operating data would not be lost.