County of Honolulu Improves Responsiveness to Citizens

The City and County of Honolulu implements Unified Communications, video, and business continuity solutions to support innovative services.

EXECUTIVE SUMMARY

CITY AND COUNTY OF HONOLULU

Hawaii, United States

CHALLENGE

- Upgrade infrastructure to meet current needs
- Improve communications for employees
- Improve citizen convenience and responsiveness

SOLUTION

Solutions for delivering a reliable network and telephone service, video surveillance, and backup and recovery

RESULTS

- Simplified citizen communication with government
- Improved citizen service in tax office, and accelerated pothole repair with phone-based applications
- Implemented robust backup and recovery facility to help ensure that services are always available

Challenge

When Mufi Hannemann took office as the mayor of Honolulu, he initiated a major effort to bring the city's information technology (IT) infrastructure up to date. His vision included a keen appreciation of technology and its ability to transform public services, as well as its role in improving service efficiency. He appointed Gordon Bruce to the role of director and chief information officer for the City and County of Honolulu. The department is charged with maintaining the city's digital networks, thousands of workstations, phone systems, radio communications, multiple mainframe and mid-range computers, more than 200 servers, hundreds of laptops, mobile devices, and data storage functions. Department staff also advises the mayor and city council on other issues, such as deploying technology for homeland security and providing public access to Internet-based services.

The City and County of Honolulu is the 13th-largest municipality in the United States, and it covers the entire island of Oahu, Hawaii. However, many of its IT systems had not been updated in more than 20 years. During Bruce's first month on the job, the data center caught fire, the fire-suppression system failed, and two power outages resulted in system crashes. Many data center systems were operating on hardware and operating systems that were no longer supported by their vendors. For example, critical mainframe applications, such as four separate driver licensing and motor vehicle registration systems, were almost 40 years old. In addition, disaster recovery measures were inconsistent, as well as inadequate for current needs.

The city and county's existing telephone systems were also outdated, complex, and costly. The city's main private branch exchange (PBX) system was 28 years old and cost US$600,000 per year to maintain. There were also 10 other different PBX or key systems, and none was interoperable with the others. With multiple PBX systems in place, city and county phone numbers had five different prefixes, which made it difficult for citizens to quickly reach departments and services. Over time, the telephone systems' complexity had resulted in multiple unused telephone numbers, lost or unanswered voicemail messages, and costly maintenance expenses.

"Our challenge was to quickly address the primary infrastructure and communication challenges that we faced," says Bruce. "We planned to implement an IP-based infrastructure to take advantage of the capabilities that a converged infrastructure offers. The next step is to use that foundation to support our management applications and citizen services."

"The new infrastructure and Unified Communication systems are extremely cost-effective. We have simplified our telephone system and improved data services, and we deliver new services to citizens with the same operating budget that we had three years ago. In essence, my budget is the same, but we are doing much more."

– Gordon Bruce, Director and Chief Information Officer, Department of Information Technology for City and County of Honolulu

Solution

The City and County of Honolulu first connected its facilities around the island of Oahu to a Gigabit Ethernet fiber optic backbone. With remote city halls, police substations, fire stations, ambulance facilities, and other civic buildings on a single network, Bruce's next step was to implement reliable telephone service. He allowed existing PBX maintenance agreements to expire and used the savings to deploy Cisco® Unified Communications solutions in city and county facilities across the island. Within 30 days, the city began implementing new Unified Communications solutions. More than 3500 Cisco Unified IP Phones are now being used, and Bruce expects to complete installation of 5000 by the end of 2008. The city has also integrated Cisco Unity® voice messaging with its Microsoft Exchange Server and Outlook application. Today a portion of the city and county employees use the messaging capabilities, but usage is expected to grow.

Duplicate Cisco systems were installed at the Honolulu production data center and the Kapolei backup facility to mirror servers, storage area networks (SANs), and tape libraries over dark fiber connecting the two facilities. At the heart of the data center and Kapolei facility are mirrored Cisco 9500 Series Multilayer Director systems. These systems add intelligent features to a high-performance core network to provide high availability, scalability, ease of management, and transparent integration for new technologies. New mainframes also now operate important applications such as the driver licensing systems and motor vehicle registration systems for Honolulu, Maui, the big island of Hawaii, and Kauai.

The city also is beginning to implement video surveillance capabilities over the network. Five sewage treatment plants, fire department headquarters, and the main Frank Fasi Municipal Building are now online. Live video is captured, and the city stores 30 days of footage.

Results

The new network infrastructure with its recovery and backup system now provides a solid foundation for highly available employee and citizen services while reducing operational costs. In many data centers, servers, storage area networks (SANs), and computing resources have their own associated backup and recovery systems, adding cost and management requirements. According to Bruce, the Cisco Multilayer Director represents a tremendous advance for network management, because it significantly simplifies backup as well as management for all of the city's critical applications.

"The Cisco Multilayer Director has completely changed how we back up our SANs, servers, mainframe, and mid-range computing capabilities," he says. "It enables me to use common backup, storage, and inter-system communication for all of our systems. This is convergence at its best."

City and county employees now have reliable dialtone, the ability to use multiple lines, and basic features like caller ID. The new system has also reduced the number of telephone prefixes from five to two, simplifying communication for citizens. Emergency first response services have a single prefix, and non-first responders have another.

The city is making significant progress toward its goal of providing services that increase citizen convenience. Tasks such as ordering personalized vehicle license plates, inquiring about registration fees or title, booking drivers' tests, and registering vehicles can now be performed online. Responsiveness to citizen concerns is also significantly improved. For example, residents can report potholes by calling the pothole hotline and leaving a voicemail message. A notification is automatically generated and sent to the county road crew, who generates a work order to repair the pothole. The application has accelerated repairs and built citizen goodwill.

The Cisco Unified Communication solution enabled the county to improve service to taxpayers. In the past, callers who had property tax bill questions usually received a busy signal or no answer. A new calling tree system in the tax office now routes calls directly to a person who can help the caller. During peak periods, the county can add additional staff members to answer calls and minimize hold times for callers. Everyone is pleased with the service improvement, and the system has also reduced stress for employees during tax billing time. For the first time, the tax department received praise for the improvement from citizens.

The city saves money and improves overall security with its video surveillance capabilities and a credentialing system that operate over the network. Employees with access to specific facilities can swipe their ID badges, and the system records and videotapes their entry into the building and their exit. The city also monitors several remote buildings that do not have fiberoptic network connectivity. The buildings are connected using a wireless link, and video traffic is sent over the Cisco network.

"The new infrastructure and Unified Communication systems are extremely cost-effective," says Bruce. "We have simplified our telephone system and improved data services, and we deliver new services to citizens with the same operating budget that we had three years ago. In essence, my budget is the same, but we are doing much more."

Next Steps

Mayor Hannemann's vision and support for the infrastructure upgrade is paying off. The city continues to deploy video surveillance at additional locations, including parking structures, police headquarters, and a new bus transportation facility. Design is beginning on projects to implement video surveillance on critical thoroughfares and for surfboard lockers at Waikiki Beach. Bruce expects the network to also support high-visibility new projects, including a $3.7 billion rail system that will incorporate video surveillance, data communications, and Smartcard-based fare collection.

Soon work will begin on a new $110 million joint traffic management and security facility will break ground, which will combine the emergency management systems, all existing 911 systems, and a Homeland Security presence. All of the services that support these operations will also be delivered over the network.

For More Information

To find out more about Cisco solutions and services, visit: www.cisco.com.

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