DEPARTMENT OF INFORMATION TECHNOLOGY

Gordon Bruce, Director and Chief Information Officer
Keith Rollman, Senior Advisor

OVERVIEW

The Department of Information Technology maintains the city's extensive computer and telecommunications networks and also acts as a key advisor to the Mayor and other city departments on the use of technology in general to improve city services, communications, online capabilities and data processing.

As the 13th largest municipality in the United States, the City and County of Honolulu ("City") is currently realizing the benefits and opportunities of five years of major technology infrastructure upgrades.

Background

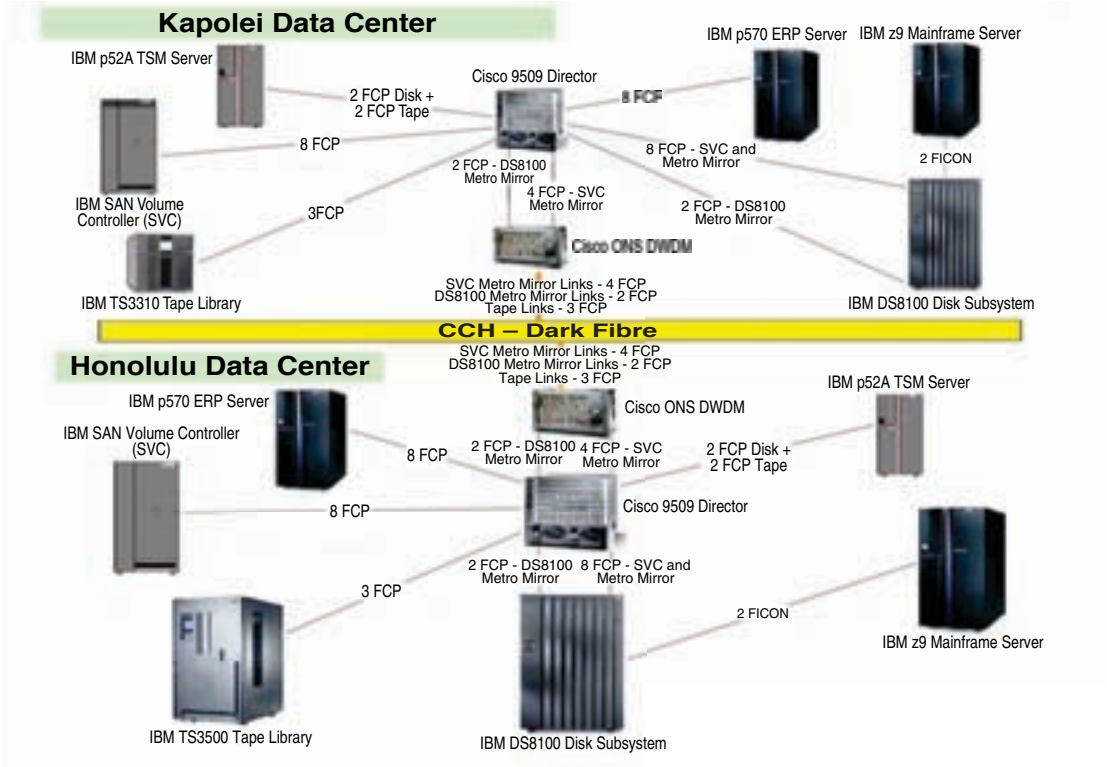
When Mufi Hannemann took office as Mayor of the City and County of Honolulu on January 2, 2005, he brought with him a deep appreciation for information technology—and a keen understanding of what technology could do for the citizens of Honolulu. Hannemann convened an independent panel of private-sector volunteers to review

Honolulu's agencies, including the struggling Department of Information Technology (DIT). The panel found that the department had historically been woefully under-funded—by $100 million in the previous five years alone.

And the evidence was all around. The driver's licensing and motor vehicle systems were 35 years old—the oldest such systems in the country. What makes this even more unique is the fact that the City and County of Honolulu is running these systems for all counties (Maui, Kauai, Hawaii). Traditionally, this is a State-run system. The financial systems and core business applications were 26 years old. These other crucial systems were running on hardware and operating systems that were no longer supported. Disaster recovery was inconsistent. These factors were jeopardizing the department's ability to provide public safety and reliable services to the citizens of Honolulu.

A foundation for the development and deployment of the new ERP applications along with the enabling the reuse of applications required a re-architecting of the hardware and software infrastructure. A detailed review of existing and future needs resulted in the development and subsequent deployment of both production and disaster recovery facilities. The new architecture supports new IBM Z-Series mainframes, new P-Series Midrange systems, new IBM SAN solutions (DS8100), new IBM SAN Volume Controllers, new fiber channels, and new CISCO directors. The production system is mirrored across a private fiber channel utilizing Dense Wave Division Multiplexing for reliability. This foundation provides exciting, flexible opportunities to support the next phase, the virtualization of over 200 servers, and the addition of new server based applications.

Production/Backup Facilities



DEPARTMENTAL REORGANIZATION

Following over five years of comprehensive overhauling of the city's enterprise software environment and IT architecture it was time to re-organize the Department of Information Technology to be more aligned with its new mission and operational structure.

The old departmental organization structure was based on a mainframe-centered technology. Over the ensuing five years, it had been "bandaged" to incorporate computer technologies. After meeting with management staff and affected city departments we developed a reorganization plan that was submitted to the Department of Human Resources and Department of Budget and Fiscal Services for their review and approval.

The department manages the City's computer network and a central data processing operations center twenty-four hours a day, seven days a week. Ongoing projects include mainframe system and software upgrade, telecommunications and wide-area networking, client/server application development, and electronic forms processing.

There are five (5) divisions and one (1) support section in the department:

The new structure and responsibilities of the five new divisions of DIT are as follows:

Administrative Support

Coordinates the internal administrative affairs of the department, including budget preparation and control of expenditures; personnel administration; analyze manpower utilization and recommend staffing levels of operating units; analyze and plan improvements in organization, methods, systems and equipment; assist in the development of specifications for acquisition of equipment and software; provide clerical services for the department such as maintaining the inventory and payroll records.

Applications – Public Safety, GIS and SOA Division

Grace Cheng, 768-7620

Performs the full range of computer systems development including feasibility studies, RFP/RFB development, systems analysis and design, and computer programming; performs systems testing, personnel training an detail documentation of the developed systems; maintains implemented systems both developed in house and acquired; provides consulting services to end users; provides electronic data management. Assists the user department to plan and coordinate technology goals in line with enterprise wide technology objectives. Coordinates all efforts between the user department and DIT as it relates to the deployment of technology. Participates with DIT Director, management and other City's administrators and managers in strategic and tactical planning for the efficient and effective use of information resources in overall City operations. Evaluates plans and proposals from other governmental agencies (e.g. Federal and State) and public or quasi-public organizations.

Provides project management and directs project support staff, programming, support staff and administrative staff from consultants and vendors such as IBM, Microsoft, Dell, Computer Associates, and Oracle to name a few and related vendors as they provide ongoing support to the various application systems run by the City & County of Honolulu DIT. Functions include contract preparation, contract management and direct supervision of the vendor staff to ensure compliance with the documented specific needs of the City related application systems and related data bases. Prepares responses and testimonies pertaining to the functional areas.

Applications – ERP and CSR Division

Keith Ho, 768-7657

Performs the full range of computer systems development including feasibility studies, systems analysis and design, and computer programming; performs systems testing, personnel training an detail documentation of the developed systems; maintains implemented systems both developed in house and acquired; provides consulting services to end users; provides electronic data management. Assists the user department to plan and coordinate technology goals in line with enterprise wide ERP technology objectives. Coordinates all efforts between the user department and DIT as it relates to the deployment of ERP technologies. Participates with DIT Director, management and other City's administrators and managers in strategic and tactical planning for the efficient and effective use of information resources in overall City operations. Evaluates plans and proposals from other governmental agencies (e.g. Federal and State) and public or quasi-public organizations.

Provides data processing support for the Citywide Enterprise Resource Planning (ERP) financial management system and integration into the user agency's workflow processes in the City. Conducts evaluations of user agency needs, provides data processing support services, designs and develops automated systems and procedures, assists in developing plans and obtaining approvals,and implements the City's data processing plans with regards to the ERP financial management system and other related automated systems.

Provides project management and directs project support staff, programming, support staff and administrative staff from consultants and vendors such as CGI, IBM, Microsoft, Dell, Computer Associates, and Oracle to name a few and related vendors as they provide ongoing support to the various application systems run by the City & County of Honolulu DIT. Functions include RFP/RFB Development, contract preparation, contract management and direct supervision of the vendor staff to ensure compliance with the documented specific needs of the City related application systems and related data bases. Prepares responses and testimonies pertaining to the functional areas.

Technical Support Division

Clement Chan, 768-7688

Serves as the technical infrastructure architect and provides technical support to all divisions within DIT, and all City agencies that use the City's centralized information technology supported systems as detailed in the various Branch detail. Plans, designs, develops, implements, optimizes and oversees the Citywide communications applications including voice, data and video. Plans, designs,

implements, optimizes and oversees all mainframe, end user servers and storage requirements throughout the City. Determines, analysis and prepares reports on systems usage and capacity requirements; proactively reviews requirements to determine future needs. Plans, designs, implements, optimizes and oversees the architecture necessary to provide connectivity amongst all technologies including mainframe, mid-range, server and storage based technologies. Directs, administers, plans, coordinates, and implements City's infrastructure to interface to Federal, State and Military Public Safety Answering Points (PSAPs) for the operation of Wireless Enhanced 911 system and next generation 911 system. Provides technical guidance and recommendations to the Oahu PSAPs on the island wide 911 communications systems. Plans, develops and administers citywide mainframe, telephone, server and electronic storage standards, procedures and guidelines to ensure efficient, effective and compatible use of the City's infrastructure resources. Participates with DIT Director, management and other City's administrators and managers in strategic and tactical planning for the efficient and effective use of information resources in overall City operations. Evaluates plans and proposals from other governmental agencies (e.g. Federal and State) and public or quasi-public organizations. Provides project management and directs project support staff, engineering, support staff and administrative staff from consultants and vendors such as Hawaiian Telcom, MOBI, Sprint, Nextel, Clearwire, AT&T, Verizon, IBM, CISCO, Envision, Microsoft, Dell, IBM, Lenel and others as they provide ongoing support to the Data Security and Voice network applications. Functions include contract preparation, contract management and direct supervision of the vendor staff to ensure compliance with the documented specific needs of the City related to networks, voice, servers and electronic storage components and systems. Prepares responses and testimonies pertaining to the functional areas.

Radio and Network Infrastructure Division

Alvin Sunahara, 768-7630

Serves as the infrastructure support division for first responder communications including the City & County of Honolulu Networks (wired and wireless), Radio, microwave, and 800 MHz and related systems; responsible for the management of related technology and facilities, including buildings and towers; oversees all security access both physical and electronic to the various technology systems supported by DIT. Participates with DIT Director, management and other City's administrators and managers in strategic and tactical planning for the efficient and effective use of information resources in overall City operations. Evaluates plans and proposals from other governmental agencies (e.g. Federal and State) and public or quasi-public organizations.

Provides project management and directs project support staff, engineering, support staff and administrative staff from consultants and vendors such as Macom, Wilson Okamoto, Nextel, Cisco provide ongoing support to the 800 MHz, Microwave, wireless, City-wide fiber network infrastructure and wireless systems. Functions include contract preparation, contract management and direct supervision of the vendor staff to ensure compliance with the documented specific needs of the City related to networks, voice, servers and electronic storage components and systems.

Manages tower construction, fiber construction, and wireless construction projects. Functions as DIT's technical advisor for new construction projects city-wide.

Operations Division

Herbert Ho, 768-7614

Plans, administers and coordinates the DIT central and backup computer systems, including mainframes, mid range systems, servers, centralized printers, scanners and data entry devices; develops and maintains monetary and document controls to ensure accuracy of data processed; develops computer schedules, routes documents and reports to an from users; coordinates software and hardware changes with user agencies; provides diagnostic services on telecommunications and computer networks; acts as network controller by coordinating installing and de-installation of operations center based equipment. Supports the EOC providing key direction and technical advice to all City agencies during a disaster. Also coordinates plans and activities for data and system recovery within DIT in the event of a disaster. Participates with DIT Director, management and other City's administrators and managers in strategic and tactical planning for the efficient and effective use of information resources in overall City operations. Evaluates plans and proposals from other governmental agencies (e.g. Federal and State) and public or quasi-public organizations.

Accomplishments

DIT continues to add interactive/transactional features to the City Web site, including new online application processes. To date over 20 new online services have been introduced. There is also increased use and development of electronic forms for internal use by city employees. The next phase includes the deployment of a formalized e-governance program, Service Oriented Architecture (SOA) through the use of IBM Websphere Portal, Content Management and the rational toolset.

Interoperable communications now exist island-wide over the City & County of Honolulu 800 MHz radio system. The City is in the early planning stage for the eventual relocation of the Department of Emergency Management Operations Center, and its consolidation with the Joint Traffic Management Center. DIT will specify and design the technology to empower this state-of-the-art nerve center for disaster and crisis management (exercises are now conducted quarterly to test the technology and procedures).

DIT is further charged with expanding the newly deployed Access Controls and Monitoring Systems (ACAMS), solutions for facilities security, including credentialing, video surveillance and building access. This system complies with federal homeland security standards.

Project Prioritization Process

Each year involves the continuance of several major projects that will update and reshape DIT services at the City & County of Honolulu. The director and his division chiefs established a system for prioritizing the projects that are handled by the department.

Projects were categorized using the following criteria:

1. Required by Law
2. Mayor's Directive
3. DIT Director Priorities
4. Required by City Audit
5. Obsolescence
6. Homeland Security
7. Maintenance
8. Funded
9. Other / ROI

A new project management tool was created to consolidate reporting by the various divisions and managers in a central data base. This information is used to track the progress of each project to better facilitate management oversight. During the fiscal years 2005-2006 and 2007, the City's DIT has completed many projects. Fiscal Year 2008/2009 include over 50 additional citizen centric projects

Program Focus for FY2010

The following programs were prioritized for Fiscal Year 2009:

- Telecommunications tower maintenance services
- Telecommunications tower upgrades
- Division of Motor Vehicles system
- Network communications infrastructure strategy
- Workforce development integration
- Access control systems for city facilities
- Photocopiers/fax machines/multi-function devices
- Mainframe processor expansion (UNIX)
- Liquor Commission system
- Enterprise content Management
- SOA (IBM Websphere)
- Server consolidation
- SAN strategy
- Cyber Security
- Enterprise asset management
- Public safety systems
- Internet and Intranet Revitalization

DEPARTMENT OF INFORMATION TECHNOLOGY

Operating Budget Highlights

Continued expansion and improvement of our operational software:

1. Internet renovation with the implementation of IBM Websphere, which will increase capabilities and efficiencies.
2. Advanced cyber security, to support more online services and higher transactional limits.
3. Intranet (Employee and inter-departmental communications) expansion and innovation (also on IBM Websphere platform). More e-form deployment.
4. ERP – city now in a position to take advantage of the newly activated payroll and human resource modules to further streamline government operations. As highlighted by the GFOA report.

City IT Operations Now World Class

The city's Department of Information Technology has undergone a dramatic restructuring in the five plus years under Mayor Mufi Hannemann. Hannemann's appointee, Director Gordon Bruce, has initiated and supervised the total renovation of the city's computer operations, enterprise resource planning, network operations, and telecommunications systems.

Honolulu consistently ranks in the top ten of major U.S. cities for best practices with the use of advanced technology by Digital Cities.

Specific noteworthy project completed since 2005:

1. New ERP systems upgrade supported by AIX/Oracle - P-series (IBM) platform
2. Replacement of obsolete mainframes with 2 state of the art Z-series (IBM) and advanced remote "mirroring" backup strategy
3. Consolidation of multiple disparate phone systems under Cisco / VOIP technology
4. Unified interoperable communications for first responders
5. Repair, upgrade or replacement of critical microwave / 800 MHz towers
6. Introduced advanced Web strategies and more online services

7. Mobile (Wireless Enhanced) 911 system that pinpoints mobile phone callers within 100 meters
8. Free public WIFI coverage at multiple locations, including contiguous coverage in business districts.
9. Major upgrades to the city's island wide fiber optic network
10. Execution of Websphere solutions for Intranet and Internet operations.
11. Hawaii Fire Department Intranet with advanced GIS asset management tools (HOSES)
12. Advances in cyber security allowing for more online services and transactions.
13. Fully compliant building ACAMS building access and security system (largest in the state meeting Federal standards.)
14. Department of Facilities Maintenance electronic work order system for mapping and managing street paving and pothole repair.
15. Consolidated Asset Management System

Projects Completed by the end of FY2010

- 3 Tower Reconstructs
- 10 Tower Repairs
- 800 MHz Re-banding (Nextel Funded)
- 4 new simulcast sites
- Battery replacement at 8 sites
- Payment Card Industry Certification
- E-911 Pictometry Upgrade (Mobile Funded)
- Storage Area Network Upgrade
- Server Consolidation/Virtualization
- PMO Metrics Projects
- Clarity Project Management
- Clarity Financial Reporting
- Computer Aided Dispatch
- DPP Online Permit Applications
- Enterprise Asset Management – Phase 1 (Fed Funds)
- ACAMS – 5 More Facilities (Federal Grants)
- Intelligence Reform and Terrorism Prevention
- 8 Electronic Document Management Apps
- Network Mgt for Public Safety Systems
- 8 New HFD Systems - SOA
- First Responder Wireless System Upgrade
- New Facilities Reconstruction Support
- Licensing System – SOA
- ERP Web Portal – SOA
- Web Portal Replace – SOA
- VOIP – 1500+ Phones – Total now exceeds 4000
- Real Property Tax – Online Assessment Mgt
- Cyber Security
- HFD Intranet Portal – SOA
- Free Municipal WiFi Expansion

Conclusion

By continuing to employ high tech solutions and expanding relationships with private sector partners the City of Honolulu continues to keep pace with the best practices of other great cities. We have shown the way for the appropriate use of technology to offer citizens convenience and improved public safety, deliver city services faster and find better ways to facilitate economic development. This City & County of Honolulu commitment to infrastructure, integration, interoperability, and sustainability are demonstrated with significant funding and progress in everything from environmental services, transportation, and technology.

The Department of Information Technology management and staff will continue to look at ways to not only meet the service delivery bar, but to push it to the next level when it comes to providing citizen centric safety, applications and economic stimulation.

The city is strategically positioned to "mine" detailed fiscal and operational data to analyze the operations of the city including fiscal accountability and department performance.

Please direct any specific inquires regarding the operations and policies of the City Department of Information Technology to: gbruce@honolulu.gov, Gordon Bruce, Director of DIT, City and County of Honolulu, 650 South King Street, 5th Floor, Honolulu HI 96813-3017.