



State of Iowa Business Continuity Center

Executive Summary

In order to support the continuity of operations of the professional services Iowa citizens have come to expect from state government, the State of Iowa executive branch assessed the likelihood of various contingency events (i.e. fire, storms, earthquakes, terrorism, etc) and analyzed support options to provide for the continuous operation of critical business and support systems. A range of solutions was assessed, including commercial data center hot site subscriptions, a public/private partnership to collaboratively develop a disaster recovery hot site facility with large business and non-profit organizations in Iowa, and in-house development of dedicated government disaster recovery facilities. Ultimately, the executive branch decided to upgrade an existing disaster recovery data center cold site that was originally built in 1994 to a Tier II data center hot site.

The State of Iowa Business Continuity Center contains a disaster recovery hot site which is an operationally ready data center offering specific hardware platforms for immediate availability upon notification of a disaster event. A subscription for similar services obtained from a private company having sufficient MIPs, DASD, and peripherals required to recover a "like" computer configuration was estimated at \$42,500 per month. With a private sector disaster recovery hot site subscription service, the same hot site can potentially be used by a large number of organizations in the event of a disaster. Such a hot site can only be used for a finite period, often between eight and twenty-four weeks, to recover from a disaster. The subscription fees would cost the State of Iowa \$2.5 million over five years.

The Business Continuity Center was developed for a total build-out cost of \$1.2 million. There are no competing subscribers that may preempt the hot site space and no contractual limitations on the state's use of the space in the event of a disaster. To defray the maintenance and operational costs of the hot site and ensure it remains fully operational at all times, the hot site mainframe shares a workload with the production data center in the State Capitol Complex. Each data center maintains sufficient processing capacity to recover critical applications. The highest priority applications in each data center have a hot failover capability to the alternate data center. This hot failover capability is periodically tested and verified.

The State of Iowa hot site is a fully compliant Tier II data center, as defined by TIA-942, a standard developed by the Telecommunications Industry Association (TIA) specifying guidelines for planning and building data centers. Tier II data centers are less susceptible to disruptions from both planned and unplanned activity. The design is composed of a single path for power and cooling distribution, with redundant components (N+1), providing 99.741% availability (annual downtime of 22.0 hours).

Title: State of Iowa Business Continuity Center

Concise Description of the Business Problem and Solution, Including the Length of Time in Operation:

The State of Iowa's production data center in the state capitol complex supports a wide range of mainframe and server-based applications. The business requirements for many of the applications require specific recovery windows in the event of a disaster. A range of solutions was assessed, including commercial data center hot site subscriptions, a public/private partnership to collaboratively develop a disaster recovery hot site facility with large business and non-profit organizations in Iowa, and in-house development of dedicated government disaster recovery facilities. Ultimately, the executive branch decided to upgrade an existing disaster recovery data center cold site that was originally built in 1994 to a Tier II data center hot site.

The 3,800 square foot hot site contains an IBM zSeries z890 2086 Model 150 Mainframe (172 MIPS) ; a StorageTek SL8500 automated tape library with 500 tape cartridge slots (100 terabytes) and five LTO-2 drives; multiple server racks with redundant power supplies; IBM FastT Storage Area Network connected using 1Gb and 2Gb fiber channels; two 200 kWh power conditioning and distribution units; 200 ton chilled water and 75 ton air handler capacity; and an uninterruptible power system with 400 kWh emergency generator capacity.

The 7,000 square feet contiguous to the hot site is prepared for fast build out, requiring only air handlers and power distribution units to be made ready. The hot site facility is co-located with the central point of presence for the Iowa Communications Network, a state-owned and operated fiber-optic network providing high speed voice, video, and data services to all ninety-nine counties in Iowa.

The Iowa Medicaid Enterprise uses the Business Continuity Center mainframe to handle the daily Medicaid processing. The Medicaid processing applications in the hot site all have hot failover capability to the production data center mainframe located in the State Capitol Complex. The failover from the hot site to the production mainframe has been thoroughly tested in four distinct failure scenarios. The Business Continuity Center was certified with high marks by the federal government in February 2006.

The Iowa Medicaid Program provides medical services to eligible Medicaid recipients under Title XIX (Medicaid) of the Social Security Act through enrolled providers and health plans. The federal government allows states to receive 90 percent federal financial participation (FFP) for all expenditures attributable to the design, development, and installation of claims processing and information retrieval systems and 75 percent FFP for the operation of such systems. To receive the federal funding, the developed system must be certified by the Secretary of the Department of Health and Human Services (HHS) as compliant with the technical and operational standards of the Medicaid Information Technology Architecture (MITA). These standards address:

- **Service Level Management (SLM)** business service requirements and specified availability and response time targets to ensure the quality of service. This also includes support targets contained in operational level agreements with the Iowa Department of Administrative Services (DAS) Technology Operations team.
- **Capacity Management** processes ensure that adequate capacity is available at all times to meet the requirements of the business by balancing business demand with IT supply. The capacity plan is integrated with the business strategy and includes performance management, workload management, demand management, and application sizing and modeling.
- **IT Service Continuity Management** produces recovery plans designed to ensure that IT services will continue on an agreed level and within an agreed schedule following any major incident that might disrupt service. This component of a business continuity planning process

requires compliance with the Health Insurance Portability and Accountability Act (HIPAA) security requirements.

- **Financial Management for IT Services** provides the basis for running IT as a business within a business and for developing a *cost-conscious* and *cost-effective* operation.
- **Availability Management** is responsible for ensuring that services meet or exceed their availability targets and are proactively improved on an ongoing basis.

The Business Continuity Center hot site was certified as meeting these requirements in June, 2005. The Business Continuity Center is connected by fiber channel to the executive branch production data center in the State Capitol Complex.

Each commercial software product operating in the JFHQ Business Continuity facility is fully documented in the Site Support Plan. This plan contains:

- First, Second, and Third Level Support Contacts
- A detailed product description
- Documentation of the installation method and installation personnel
- Vendor Name and Vendor Help Desk Contact
- Comprehensive Support Documents
- Administrative Notes
- Operational and Monitoring Instructions
- Recovery Procedures
- Script Documentation
- Functional Test Scripts

The Business Continuity Center is run in a lights out mode. Processes are in place for ongoing operational monitoring and emergency operations.

Significance of the Project to the Improvement of the Operation of Government:

By ensuring the Business Continuity Center is compliant with MITA, it meets the stringent HIPAA security requirements and is operated in a business-like manner in compliance with the federal Clinger-Cohen Act. This provides state agencies, boards, and commissions in Iowa with access to a state-of-the-art business continuity center that is compliant with state and federal service level, capacity, service continuity, financial, and availability management requirements.

Public Value of the Project (benefits realized by service recipients, taxpayers, agencies or the state – also include documented outcomes such as realized return on investment, short-term/long-term payback with summary calculations, or cost avoidance data):

The Business Continuity Center provides for the rapid recovery of critical state government information technology operations. By meeting the substantial operational and business requirements of the Medicaid program, state government in Iowa has an operational facility to address the availability and resiliency requirements of a wide range of essential services.

The underground Business Continuity Center features hardened building construction, redundant utilities, and a highly secure restricted access environment to mitigate against a wide range of contingency events.

The business decision to develop the Business Continuity Center hot site was not conditioned on a Return on Investment strategy or a long term/short term payback. DAS viewed it as a normal operational expense to meet the business requirements of our internal customers.

Cost of Hot Site Build Out

Total square feet for build-out of JFHQ business recovery center	10,800
Cost of build-out for hot site capability ¹	\$ 1,182,000.00
Build-out cost per square foot.....	\$ 108.82

Currently, 3,800 square feet of the facility is used to contain the equipment configuration below for operation of the Medicaid Management Information System processing (and to provide hot standby for designated critical applications running on the Hoover Building mainframe). The remaining 7,000 square feet is available for use by state agencies.

A brief narrative on hardware located in the JFHQ Business Continuity Center:

The JFHQ business continuity center includes:

- An IBM zSeries z890 2086 Model 150 Mainframe (172 MIPS)
- StorageTek SL8500 automated tape library with 500 tape cartridge slots (100 terabytes) and five LTO-2 drives
- Multiple 42 U server racks with redundant power supplies and 10/100 Ethernet RJ45 connectors. A KVM box is shared between every 2 cabinets, allowing multiple servers to be controlled from one keyboard, video monitor, and Mouse
- IBM FastT Storage Area Network connected using 1Gb and 2Gb fiber channels
- Two 200 kWh power conditioning and distribution units
- 200 ton chilled water and 75 ton air handler capacity
- Uninterruptible power system with dual diesel-driven generators providing a total of 400 kWh electrical power

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¹ The build out cost does not include the cost of the computer system hardware and software.