Missouri Enterprise Server Disaster Recovery Plan

Executive Summary

The State of Missouri has developed and deployed an Enterprise Server Disaster Recovery Plan to facilitate the recovery of critical functions in the event of a catastrophic failure or disaster. In a distributed server environment, hardware and system configurations vary greatly from application to application as well as from agency to agency. In the ever growing server environment, the problem is as complicated and exponential as the number of applications.

In response to this problem, the State of Missouri launched a cross-departmental effort to identify the critical functions that are server-dependant, formulate a solution, train key staff members and implement the solution.

Critical functions hosted on servers located throughout the state were identified by key agency IT members working together with the business side of the agencies.

> *"Aligning the objectives of business and IT within the resilience-oriented architecture is necessary for success."*

Richard Cocchiara Chief Technology Officer
for business continuity and resilience services, IBM Global Services

The equipment, including the specifications of the servers as well as the required peripheral devices such as backup units, was associated with each agency's critical functions.

The administrative piece of enterprise server recovery plan was set to mirror the state recovery plans already in place, facilitating consistency in the event of a disaster. The key to server recovery was designing a database to house critical server information. The database ties critical functions with equipment and allows for interdependencies and duplications to be identified in order to create a more efficient method for recovery. Specific staff members from all agencies were provided with training to ensure data consistency. The database is to be reviewed on an annual basis to ensure current information has been added.

Business Problem

The dependency on server-based applications to host programs provided to the public has grown. The continued deployment of web based applications is required in order to provide a cost effective method for the citizens access to state services. The equipment providing these services are located, configured and managed by the agencies responsible for these services. Applications are built on specific hardware that is essential to the proper functioning of the application. In the event of a disaster, this crucial hardware may not be available to the agency in need. The fundamental problem is where to find the hardware in a timely manner. Without equipment, we are out of business; vital services are not available to the public.

Historically, Missouri's information technology services were a function of each agency, and primarily operated independently of other agencies. Each was responsible for their own services; each struggling to develop means to recover in the event of a devastating failure. Although agencies had disaster recovery plans in some fashion, these plans often fell short due to the interdependencies with other applications or systems. Missouri's Information Technology Services Division did not exist. Each agency was an island of technology and resources. Some islands were closer than others, assisting if able. Some were better equipped and some agencies where doomed to failure if a disaster occurred. The state lacked a mechanism to provide for all vital services, regardless of the capacity of the individual agency hosting the service.

Solution

The solution was simple, identify the state's server resources and share those resources in time of need. By borrowing system functionality, personnel and expertise, the disparities were corrected. The problems caused by the distribution of resources provided its own solution. By leveraging that very same environment, the power of recovering was realized by utilizing resources from other agencies.

By coordinating and documenting the total resources available across the state, problems were solved by identifying similarities in functions. This facilitated the ability to borrow functionality from another agency to fill the gap of the affected agency until a permanent solution is feasible. Efficiency in recover is realized; saving money, precious time and effort by restoring to equipment already in place.

Project Description

As a result of the strategic planning initiative for the newly consolidated agencies, server recovery was identified as a priority. The Enterprise Disaster Recovery Team was established in June of 2006 with the mission; "Minimize the cost and recovery time needed to restore mission critical functions in the event of a disaster." Members were assembled from consolidated and non-consolidated agencies. Meetings were held weekly from June 2006 until December 2006 to fulfill the goals of the mission. The team worked in conjunction with an application development group from Office of Administration to produce a web based application, which associated agency critical functions with hardware requirements. A draft Disaster Recovery Plan was completed and submitted for approval. Efficiencies for recovery, systems, financial and staff members were realized by:

- **Basing criteria on the business needs of the State as identified in Agency Continuity of Operations Plans**
- **Mirroring the administrative functions that were already in place**
- **Coordinated with existing recovery plans**
- **Team representation from agencies' subject matter experts**
- **Identifying the resources needed for recovery**
- **Designing a comprehensive database**
- **Providing training**

With training provided to key personnel to populate and utilize the database, Missouri's Enterprise Server Disaster Recovery Plan created a business prioritized efficient recovery system. The web-based system provides any where, any time access across agencies, pulling down barriers and building trust. In addition, this system is backed up, sent off-site and tested.

Significance to Improve Government Operations

Missouri's service platforms are diverse. By the nature of the dissimilar yet specific services that the Information Technology Services Division is charged with supporting, an unlikely candidate for consolidation exists. However, working with the environment shows a need to capitalize on that diversity, making it work for us. Utilize the resources at hand. Leverage that which was already available.

Missouri has eliminated the dependency on storing additional equipment that sits idle, whose only function is, to have on hand in case of a disaster. The time it takes to put systems in place has been minimized by utilizing equipment that is already in position. Vital equipment has been identified, eliminating the time required to search, ask and borrow in the face of disaster. Less effort is needed in a time when staff members are often exhausted, stressed and struggling to restore the services that the public expects to have on demand. Amidst this hectic, chaotic time, Missouri has built in assurance that information technology needs and thereby the public needs will be met.

Rather than continue to view recovery from an agency prospective, this enterprise approach identifies which applications should be recovered from a state perspective. This change provides the opportunity to recover systems from locations impaired by a disaster to locations that are functioning, regardless of business owner.

Benefits

Identifying similar resources across the state has provided the ability for agencies to temporarily host vital services for other agencies. This shift to an enterprise solution allows the state to accommodate State-wide priorities. By enabling operations to share resources, recovery time is greatly minimized. This provides the time for permanent recovery recourses to be acquired and put in place permitting all to return to normal operations. Benefits to specific areas are:

State of Missouri

Citizens - Confidence in Service

Missouri has responsibility to be proactive in restoring those services that will best meet the needs of citizens in the trying times of a disaster. A sound plan for recovering services that are vital to survival and well-being in the face of a disaster provides confidence to our citizens that everything is being done to meet those expectations.

Business Partners - Confidence in Presence

Whether another government entity or a business relying on Missouri's services and information, confidence that Missouri will be able to conduct business and communicate in the event of a disaster is provided. The ability to stay in business is assured.

Agencies - Confidence in Resources

Each agency has been involved with the architecture from inception. Each is familiar with the data recorded. The extensive database will be available when needed, providing confidence that equipment and resources will be furnished when their own systems fail.

State of Missouri – Confidence in Decisions

The state has at its fingertips a comprehensive view of resources. The opportunity to quickly make decisions at critical junctures now exists as does the ability to allocate vital resources in a timely manner. This system also provides opportunities to identify duplications in data, resources and services. The confidence in strategic decisions, when disasters strike, has been greatly increased.

Return on Investment

Missouri has taken proactive steps to ensure reliability and credibility to provide critical services in the event of a disaster. By working together, agencies will sustain a more robust methodology for recovery. Taking advantage of advances in technology; evolution of process; seizing opportunities and leveraging improvements, will reduces operational costs, minimizing or eliminating the:

- **Expense of purchasing and storing equipment solely for recovery purposes**
- **Redundant systems and data across the enterprise**
- **Gaps in Continuity of Operations Plans**
- **Stress and frustration of procuring resources in the midst of a disaster**

The direction of Missouri is to continue to refine and standardize the recovery process, including backup systems. The Enterprise Server Disaster Recovery Plan will identify opportunities to standardize equipment during upgrade cycles. These commitments to refinement will in turn expand the return on this investment that was initiated to minimize the recovery time needed to restore mission critical functions in the event of a disaster.