
ENSURING CONTINUITY OF SERVICE FOR CRITICAL PUBLIC
SAFETY APPLICATIONS

Business Continuity and Disaster Recovery

State of Utah

ENSURING CONTINUITY OF SERVICE FOR CRITICAL PUBLIC SAFETY APPLICATIONS

EXECUTIVE SUMMARY

The Utah Department of Public Safety's computer systems were housed in a flood-prone basement with a failing uninterruptible power supply and aging servers. Numerous, extensive system outages were impacting the Utah Criminal Justice Information System (UCJIS), driver licensing, and other critical systems. Correcting the problems became a priority for the Department of Public Safety (DPS) and the newly formed Department of Technology Services (DTS).

A project team was formed from DPS and DTS personnel. Plans were made to obtain new servers that were to be placed in Utah's state-of-the-art Salt Lake Data Center. Numerous technical, financial, and logistical challenges were presented and overcome in making the move. In addition, to compliment the new systems at the Salt Lake Data Center, redundant, hot systems were installed at the State's Richfield Data Center, a disaster recovery site located 150 miles south of the Salt Lake Data Center.

Because of the planning and dedication of the DPS Database Migration Team, critical systems are in an enterprise worthy, secure, stable environment, with the latest technology, providing services to the Department of Public Safety, the Utah and national criminal justice community, and to the public, in day-to-day operations as well as in an emergency/disaster.

DESCRIPTION OF THE BUSINESS PROBLEM

The Utah Department of Public Safety's computer systems were in danger. The Utah Criminal Justice Information System (UCJIS), State Driver License System, Utah Highway Patrol databases, State Forensic Services/Crime Lab systems, and numerous in-house systems were housed in a flood-prone basement data center, with an aging uninterruptible power supply (UPS) that had exploded or caught fire twice within three years. The servers themselves were aging, causing numerous outages as they ran out of resources. Correcting these issues became a priority for the Department of Public Safety (DPS) and the newly formed Department of Technology Services (DTS).

Solution Description

A project team consisting of business owners, project management, programmers, networking teams, security/firewall teams, and system administrators were assembled to tackle the project. Numerous other resources were involved as needed.

New servers were obtained, with negotiations between the various agencies involved to help share the cost. Challenges included moving approximately 30 point-to-point connections, both local and national (and the associated coordination with the agencies), upgrading applications to run in the new operating system, providing security, migrating data to a storage area network (SAN), and bandwidth issues (networking and disk IO). Several dry runs were performed to ensure the cutover would have minimal impact to the law enforcement community, which runs 24/7.

The implementation of the disaster recovery site replicated all of the resources moved to the Salt Lake Data Center, with the addition of learning and implementing data replication. Numerous fail-over tests were conducted to ensure all was working correctly. This almost two year project concluded with numerous assignment changes to reflect the new environment, taking advantage of making the systems part of an enterprise solution.

Length of Time in Operation

The project commenced in 2006, and was fully operational by January 2007.

SIGNIFICANCE TO THE IMPROVEMENT OF THE OPERATION OF GOVERNMENT

As it was, the systems providing criminal justice information to the law enforcement and criminal justice community was barely running, with numerous extended outages. In the law enforcement world, information at the right time increases officer safety as well as helping to enforce laws that protect the public. The systems involved not only provide information to agencies in the State of Utah but nationally as well through the FBI's National Crime Information Center (NCIC) and Interstate Identification Index (III) and the National Law Enforcement Telecommunications System (NLETS). The systems involved also provided services directly to the citizens of Utah through the Driver License system. Something had to be done to make the systems available as much as possible.

BENEFIT OF THE PROJECT

Moving the systems to an enterprise environment, which includes a disaster recovery site, has greatly improved the availability and stability of the systems at Public Safety.

This in turn increased officer safety, public safety, and improved customer service for the 1.6 million drivers throughout the State.

Business Continuity (BC) and related Disaster Recovery (DR) has been utilized numerous times since implementation, both planned and unplanned. Planned failovers have taken place when major networking changes at the Salt Lake Data Center were being performed. Other planned failovers include other hardware changes such as major enhancements to the Storage Area Network (SAN) which houses the UCJIS data. Unplanned outages have been caused by unplanned network failures and major UCJIS database problems that could not be resolved quickly.

While failover is not quite seamless (some human intervention is still required), the decision to failover is currently made by our personnel each time an incident occurs. If the outage at the Salt Lake Data Center looks like it will be greater than an hour, the failover process is begun as quickly as possible. Because of the ability to failover to the DR site, UCJIS has not been out of service for any extended period (greater than 1.5 hours) of time since implementation. With planned automated failover implementation, human intervention will be less important and outages will continue to diminish in frequency and duration.

Public Safety information requires extensive data integration from cross boundary partners which makes DR and BC implementations much more complex. One of the key lessons of this project is that incremental improvement is more important than a “perfect” DR and BC environment. Now that the infrastructure is in place and the business requirements are clear it will be possible to continue to migrate toward more automation and higher levels of reliability.