



State of Michigan
Standard Desktop Environment
Government to Government

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B. Executive Summary

The most critical productivity tool for many government employees is their computer. Without access to agency specific applications, e-mail, and other software packages, the work slows to a crawl and the public is impacted. When Michigan's Information Technology services were consolidated, the State faced 34 different desktop systems that operated on end-of-life equipment, used outdated solutions, and were impacted by multiple virus outbreaks, some lasting for days.

The systems in place couldn't handle the State's growing mobile workforce, and security was non-existent. Faced not only with the need for both an immediate short-term fix and long-term fix, the State also faced intractable budget issues. In response, the Michigan Department of Information Technology (MDIT) partnered with the other state agencies to develop a comprehensive strategy to stabilize the operations of every state department.

The resulting program, named Michigan/1 (M/1), was a secured desktop solution which works for all state agencies and their 55,000 employees; and a security based laptop solution named Next Generation Laptop (NGL) that allowed state staff to perform their work in the field while state systems and client data were protected. MDIT moved to off-the-shelf desktop management solutions, allowing us to reduce development of high-maintenance in-house solutions, and enabling statewide software upgrades.

The M/1 and NGL system works for all Michigan agencies—from the health and welfare agencies, law enforcement agencies, Treasury, Transportation, Natural Resources and Secretary of State—showing the system is transferable to any organization. The program includes standardization and consolidation.

Like any consolidation effort, Michigan's Standard Desktop Environment saves significant dollars. By centralizing major functions, our departments will go from 2,612 "office" servers down to 670, eliminating an estimated \$9.7 million for hardware support costs alone. Within the first year of its operation, the support team for the standard desktop environment eliminated (and redeployed) 33 additional positions, resulting in efficiencies of \$3-5 million. This year, the Office Automation Services organization eliminated another 10 positions, realizing further statewide solution benefits.

The NGL laptop solution combines encryption protection with multiple wireless solutions to allow access into state systems and internet access. Over 12,000 laptop users no longer have to be at their assigned state location for business-related access or application and security updates. In the past 24 months, MDIT teams have completely migrated over 27,000 employees in eleven agencies to the standard environment, and another 19,000 employees to the backend support components of M/1 and NGL.

The Standard Desktop Environment combines innovation, best practices in cross-agency collaboration, human capital management, technical architecture, and change management to deliver a suite of services that have changed the face of government operations in our state.

C. Description:

Business Problem: The State of Michigan was dealing with the same issues many other organizations have—outdated, end-of-life legacy systems and mounting security attacks. It was simply unacceptable to continue doing business with these old systems, necessitating our moving forward with a new statewide solution. We reached out to the private sector and looked at models in organizations like Dow Chemical, Dell and the US Navy.

We started with significant challenges: Outdated solutions, prolonged budget constraints that forced agencies to choose between refreshing aging hardware/software and funding citizen programs; and over 1,400 geographic locations to support across Michigan. Technicians were often deployed to unfamiliar environments, forced to leave the job undone to wait for spare parts, or required to search for information on how the support solution worked. The work took days, and the result was major frustration for both staff and clients.

Support was not the only issue; even getting new equipment in the field was a challenge. By the end of MDIT's first year, 8,000 new desktop computers were stored in our warehouse without deployment plans. Security was also a serious concern. Thousands of employees were still running operating systems more than six years old with outdated or no anti-virus protection. Some 43 patch deployment systems were in place, and there was no common information repository on how the different systems worked or on equipment location.

There is no better statement of the impact all these factors had than when the state was affected by the "Blaster" virus in August of 2003. It took our teams days to identify the variety of solutions needed to resolve the virus infections across all the non-standard equipment, more than 100 employees, and nearly 3 weeks to effectively deal with the outbreak. State employees statewide were blocked from working while our support teams made their way across the state to visit each and every infected PC. Michigan needed a standard desktop environment.

Business Solution—The Standard Desktop Environment

The answer was to implement a standard desktop environment that could quickly accommodate all 19 state agencies. Hundreds of software products were being used to connect end-users to the basic services; the new desktop environment standardized and bundled these products to reduce technical complexity.

The solution consists of standard hardware with a statewide software image layer followed by an agency specific layer. The next step adds individual packages based on business needs for all desktops and laptops, including: centralized file storage wherever possible, a two-tiered backup solution, a single automated tool for distributing software and security patches, a print/output solution, Anti-Virus protection, DHCP services and DNS/WINS. Our approach to realizing a standard environment effectively dealt with the immediate needs and set the stage for a long-term solution.

Identify the Pain Points and Develop Quick Hits – Get IT Staff Buy-In: As part of the short-term solution, a number of cross-functional workgroups were formed to identify and solve the immediate support needs. Outcomes included a central Depot operation to deal with equipment and parts handling, direct phone line for field techs into the help desk so agency-specific information was a phone-call away, the implementation of a desktop website where information/instructions could be shared, and an asset management system. These short-term solutions reduced equipment deployments from over 120 days to less than 30 and initiated a knowledge base across MDIT front-line support teams.

Get the Facts, Do Your Homework, and Get the Techies on Your Side: Many long months were invested in talking to the agencies and our technical staff to understand business needs. As we discussed requirements with agency customers, it became clear that our customers just “wanted it to work” and were less concerned with how we fixed the problem.

Organizations had a multitude of business requirements that had to be understood and sometimes challenged. MDIT developed a formal governance model, formed cross functional workgroups from hundreds of technical staff and empowered them to finalize the details of the design. When consensus could not be reached, the issues were raised to a board of architects for decisions.

Get Consensus, Gain Trust: High-level business requirements were endorsed by Michigan’s Information Technology Executive Council (MITEC), made up of senior members of the executive, legislative and judicial branches of government who serve as MDIT’s steering committee. Direct sponsorship from the MDIT Executive Team kept the project moving forward, and the detailed design was ratified and tested in the Michigan/1 NGL lab setting.

Piloting the Solution – Find a Tough Target and Test the Waters: Changing the state desktop environment is a huge undertaking, and the MDIT team wanted a suitable challenge for our new architecture. The Department of Labor & Economic Growth (DLEG) was selected as the pilot agency because they were made up of many organizations that had recently come together as a new state agency. Its diverse set of more than 30 discrete business units gave MDIT a true workout for the flexibility of the technology platform and rollout processes.

Lessons learned from the pilot were taken back to the design team where improvements in the solution and processes were documented and tested in the lab. The project was expanded from DLEG to seven agencies. Upon completion of the seven agencies, all remaining agencies were engaged.

Developing the Support Strategy– Reorganize for Effect: MDIT developed an organizational structure that allowed implementation and ongoing support from a single group. The effort combined the functions of our technology helpdesk, field techs, systems administration, desktop design and delivery services,

training/documentation and a project management office to form the Office Automation Services (OAS) organization. Everyone from our field support staff to our help desk techs was trained/retrained on the solution, the processes and their role in the new organization.

For implementation, team leads were established and given special training mixing project management and technology tools. Team leads assigned to migrations were given mentors who had experience with the architecture, and a focus on continuous improvement was fostered at every level. As a result of the reorganization, teams focused directly on the complete implementation of the standard desktop environment.

A comprehensive set of reusable project processes, procedures, checklists, assessment and implementation documents were created that detailed the common steps each agency needed for successful consolidation: 1) Kick off and executive buy-in (including formal communications plan) - 2) Site assessment and requirements gathering - 3) Agency design and configuration - 4) Pilot - 5) Rollout delivery - 6) Feedback and wrap-up. A funding model was developed, defining a single rate per desktop, allowing agencies to convert/upgrade their office infrastructure with limited up-front investment.

Length of time and scope of current operation: The migration effort has been in operation for over 2 years, and the remaining agencies are finishing their migration to the standard desktop environment. The solution has played a dramatic role in stabilizing state operations.

Transferability to other states: Both government and private sector organizations can leverage the technology framework and project management model to implement their own standard desktop environment. Any state could cut more than a year off design efforts by using Michigan's model as baseline architecture. MDIT is routinely approached by states for both technical documentation and business case analysis to support moving to a standard desktop environment.

D. Significance in the Operations of Government:

Significance for MDIT: Employee Morale and Maturity: This project marked a turning point in our organization. It highlighted the true benefit of a consolidated organization and empowered line staff to impact the state's bottom line. Our employees were determined to never let budget or staffing challenges derail the project's success. Managers teamed to build employee skills and found win/win assignments like training field support workers in basic engineering roles that were resource challenged and assigning help desk workers to deployment teams across the state so they had first-hand knowledge of the architecture and tools. Time and again, state employee volunteers worked overtime over weekends, minimizing business interruptions and costs. Contract rates for transitioning the Department of Human Services were quoted at \$1.1 Million, but volunteer overtime helped avoid more than \$600,000.

Efficiencies: MDIT has been able to transition away from a vertical staffing model dependent on specific people to a model that leverages everyone's technology skill sets across all departments and agencies. Standardization has allowed the "build it once" approach. Build it once, test it once, and distribute it once to all target users. The efficiencies gained have allowed MDIT to refocus support staff on learning emerging technologies and providing new services.

Consistent Remote Backups: The Standard Desktop Environment no longer relies on end-users to change tapes. Instead our architecture creates consistent backups without user intervention and allows for rapid recovery.

Significance for State Agencies: *Enable the Mobile Worker:* The environment makes mobile working a reality. Tools and procedures for supporting secure connectivity have been developed and are implemented statewide. The Next Generation Laptop provides broadband and Wi-Fi access to give employees fast, secure access to files and applications anywhere in the country.

Service Levels and Productivity: Michigan's Client Service Center receives over 31,000 contacts a month. With the implementation of the statewide desktop environment, the help desk staff have already increased their first call resolution between 12-15% to an average of 63%.

Security Enhancements & Disaster Recovery: Patches are now consistent statewide and virus outbreaks are few and far between. Critical security patches can be distributed and installed in a matter of minutes. Virus outbreaks are now limited to an agency or to a few business groups rather than statewide. In terms of disaster recovery in a recent virus outbreak limited to two non-migrated agencies, the Department of Civil Rights was migrated to the standard desktop environment over the weekend as part of their clean up.

Alignment to Cabinet and Legislative Priorities: The goal from our Governor, Legislature and CIO was clear. Listed explicitly in the Cabinet Action Plan and our Technology Strategic Plan (Goal 3), each agency was charged with streamlining basic (and critical) service offerings. Participating in the standard environment is one way agencies cut costs and increase productivity.

Refresh of Server Infrastructure: The vast majority of state agencies had not upgraded any of their remote office servers since the consolidation of IT services. The average age of these servers was over 7 years. Moving to a rated service model gave all agencies the flexibility to reduce up front costs and get their offices upgraded to equipment under warranty.

Consistency: Employees are able to work in any State office with the same technological capability. An M/1 NGL user can login from any state location.

Significance to Citizens: Cost and Stability: The vast majority of state services depend on IT. Whether being interviewed to determine benefits eligibility, renewing your driver's license or opening a new business, you will be working with a state worker that needs connection to their applications, the ability to print forms, and a place to store your records in an electronic file. Since its inception, the standard environment has increased the availability of these functions to our ultimate customer...our citizens. Michigan is spending less taxpayer money and keeping state workers focused on their main mission: Providing services.

E. Benefits of the Standard Desktop Environment:

Less Equipment: MDIT has increased support levels, drastically lowered the failure rate of equipment, reduced complexity, and provided greater functionality. Nearly 75% of servers supporting state offices will be eliminated (2,612 to 670) upon completion. By implementing a streamlined and consolidated solution, the state will save more than \$9.7 million (\$5,000 for each server).

Lower Rate & Service Improvements: After just one year we realized efficiencies in operations and lowered the annual desktop rate by \$10 per desktop, for an estimated 2008 savings of \$550,000; resulting in the withdrawal of a planned 2010 rate increase. Common process and planning has brought deployment and installation of office equipment from an average of more than 120 days to less than 30 days. Computers come imaged from the factory.

Reduction in Staff & Reduced Travel: The reorganization to the new Office Automation Services organization eliminated the need for 23 additional staff and saved \$2,070,000 in 2008. Additionally, 10 staff were reduced in 2009. In terms of travel, more than 80% of desktop problems can be corrected from a remote location; saving time, money and down-time.

Development Efficiencies: The standard environment takes complexity out of deployment plans and gives Michigan's development teams a lab environment to test software upgrades, application deployments and compatibility issues.

Faster Time to Recover: MDIT successfully blocked 99.94% of all virus attacks. In 2004, MDIT had to remedy 4,664 systems attacks. Each virus took an average of 3.49 days to fix. This cost the State dearly in lost staff productivity and technician repair time. The new desktop environment has nearly eliminated this statewide problem. Outbreaks have been quickly contained when detected.

Benefits Impact Multiple Stakeholders: Employees and contractor staff of all agencies, citizens of Michigan, and users outside of Michigan benefit from the implementation. The standard desktop environment is more than a combination of technical solutions, cost savings, and consolidation efforts. It has brought our agency to new levels of maturity and engaged our clients in a dialogue of true collaboration. This platform lies at the center on nearly every strategic initiative and has transformed the foundation of enabling technology across the state.