

## 2008 Innovations Awards Program APPLICATION

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ID # (assigned by CSG): 08-S-01AL

**Please provide the following information, adding space as necessary:**

State: Alabama

Assign Program Category (applicant): Government Operations - Administration (Use list at end of application)

1. Program Name           Alabama Centralized Email (ACE)
2. Administering Agency State of Alabama  
                                  Department of Finance  
                                  Information Services Division
3. Contact Person (Name and Title)   Mr. Jim Burns, Chief Information Officer
4. Address           64 North Union Street, Suite 200, Montgomery, Alabama 36130
5. Telephone Number   334-242-3227
6. FAX Number        334-242-3999
7. E-mail Address     jim.burns@isd.alabama.gov
8. Web site Address   www.isd.alabama.gov
9. Please provide a two-sentence description of the program.  
    Provide a centralized email solution for over two hundred (200) State agencies. Consolidate over forty-five (45) separate email systems down to one and in turn use a central directory service, Microsoft Active Directory, and consolidated network.
10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on March 1, 2008 to be considered.  
    The system was made mandatory by Governor's Office and has been operational for more than three years (02/2005) hosting over 20,000 users.
11. Why was the program created? What problem[s] or issue[s] was it designed to address?  
    The current Governor addressed the need for a centralized email system to provide the capability of better distribution and to eliminate the inadequacies of individual, disconnected agency hosted systems.
12. Describe the specific activities and operations of the program in chronological order.
  - a. 2003 – ISD introduced new centralized email system called ACE and associates it with Alabama.Gov email address.
  - b. 2003 – 2004 Some agencies migrate willingly, majority of the agencies refuse to participate.
  - c. 2005 - New CIO and Governor – Participation in the centralized email system is made mandatory.
  - d. 2005– 95 % of State agencies migrate to ACE with others willing to migrate. Some issues such as network and application are addressed.
  - e. 2007 – Upgrade of ACE system to latest technology including High Availability and Disaster Recovery.

13. Why is the program a new and creative approach or method?

It is a break from the traditional method of allowing each individual agency to implement and maintain its own email system. This program provides centralized email for all executive branch agencies and their employees in order to provide effective and standardized communications, maintenance, and costs.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

Start-up costs amounted to \$400,000 in initial hardware and software purchases in order to maintain an initial system load of 7,000 users.

15. What are the program's annual operational costs?

1.1 million.

16. How is the program funded?

The program is funded through a charge-back model where fees are based on the size of the customer's requested mailbox.

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

The program was initiated through a letter from the Governor's Office to all executive branch State agencies requiring them to work together with ISD in a unilateral effort to consolidate and eliminate their existing network, directory service, and messaging system.

18. What equipment, technology and software are used to operate and administer this program?

Currently in use is a combination of HP rack mount and blade servers in a Microsoft Exchange 2003 environment. This solution utilizes a Microsoft Windows Server 2003 R2 Enterprise edition as the operating system of choice to take advantage of its clustering technologies. Through this means, a redundant hardware solution has been created to eliminate single points of failure within the system.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

Yes; Jim Burns, 64 North Union Street, Montgomery, Alabama, 36130, 334-242-3227, jim.burns@isd.alabama.gov.

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

There are several states implementing some portions of this solution to some degree but Alabama is the first to deliver on a fully integrated and centralized network, directory service, and messaging system.

21. Has the program been fully implemented? If NO, what actions remain to be taken?

No; while the system is fully implemented there remain about 5% of the agencies to be migrated.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

Pros:

ACE has many pros relating to costs, reliability, and security.

Costs: When ISD performed cost comparisons for individual agencies, ACE, with its many features, is less expensive and better than the different systems that were in place prior to consolidation. Agencies had to be forthcoming about their actual and projected costs and include ongoing software licenses and support, upgrades, server replacements and upgrades to existing equipment, backup and recovery, and personnel costs. They also had to consider their exposure to viruses and other malicious software if they have their own separate system.

When they were forthcoming, the \$5.50 per 100 MB ACE mailbox became very attractive in comparison (larger mailboxes are available for additional charges). ISD was able to do this because of economies of scale that cannot be achieved by individual agencies--especially those with less than 200 employees. It's important to also note that Exchange 2003 Client Access Licenses, Windows Client Access License, and licenses for the most current version of Microsoft Outlook for the desktop and laptop PCs are included in the monthly price for ACE.

Reduces the State's Costs - Saves \$4.0 million/year at current number of e-mail users

- Current:  $\$22.00 \times 22,000 \times 12 \text{ months} = \$5.81 \text{ million per year}$ 
  - (\$22.00 is the estimated average cost per user per month for e-mail provided in the states decentralized e-mail environment)
- Future: At potential of 28,000 e-mail users, the State can expect an additional \$1.1 million in savings each year

Reliability: ACE consists of thirty-four (34) servers arranged for fail-over and maximum reliability. In addition to being on the datacenter's main Uninterruptible Power Supplies, ACE servers are backed up with generator power, along with the other component of the data network. ACE has built-in "Webmail" (for easy access to email from home or on the road) as well as encrypted Blackberry integration for better security. ISD has a professional staff of system administrators to maintain these, and many other servers, enabling them to back-up one another and assist with technical challenges. ISD provides daily back-ups of ACE emails both on-site in Montgomery, Alabama and off-site in Birmingham, Alabama. We also have the ability to provide mailbox restores in the event of accidental deletion of emails.

Security: ACE is behind the firewall in the most secure part of the state-wide network. It is maintained with security patches and malicious code protection by a staff of professional administrators with oversight by a Security Office. We have contracts with leading companies (such as Microsoft, Intergraph, and NIC) that provide consulting and recommendations to improve security. ACE is on the latest, most secure operating system and the latest email system. ACE includes virus and spam protection on an email-by-email basis.

Cons:

Individual agencies lose some control over email and this causes them concern. Email has become a mission critical application for all agencies and they are reluctant to trust an external agency, albeit another state agency, with this important work. Agencies are also reluctant to migrate because it changes their way of doing business.

A change in the email system will cause the need to change from decentralized directory services (for user authentication and server management) and this drives additional workload and costs. It does; however, provide "single sign-on" as an added benefit.

23. How has the program grown and/or changed since its inception?

The program has grown in scale in terms of the number of customers (users), hardware, and design architecture while maintaining pace with most current technologies. The program is projected to be updated to Exchange 2007.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

Other states may encounter the same kind of resistance from individual agencies we encountered in Alabama. Email being such a critical application for any agency, they may be reticent to trust even another state agency with this important work.

To be successful, the IT agency must have enough funds available to build a robust email system prior to receiving revenue by billing for individual accounts. This can be a large, short-term challenge and represent over a million dollars for a system capable of handling over 10,000 users.

## Case Study: State of Alabama Consolidates 45 E-Mail Systems

Matthew W. Cain

This document describes the process the state of Alabama took to consolidate 45 e-mail systems into one centralized Exchange e-mail system. The report is relevant to planners and architects looking to understand the dynamics around e-mail consolidation/centralization activities.

### Key Findings

- Support for the e-mail project had to come directly from the governor's office to *persuade agencies that it was the right direction for the state to take, and to compel recalcitrant agencies to participate in the consolidation effort.*
- Building the central e-mail system prior to agency engagement allowed the central IT organization to easily demonstrate concrete value to hesitant agencies and more clearly *answer objections to the project.*
- The consolidation effort resulted in lower overall costs, significantly better uptime, a broad expansion of e-mail features and cross-agency efficiencies.
- A centralized e-mail system, and the associated unified network and directory services, have made the state more nimble in its ability to deploy new applications, and has lowered the deployment cost of new applications.

### Recommendations

- *Making participation mandatory — at the behest of the governor — is essential.*
- A combination of arguments including lower cost, more functionality and greater uptime can help sway reluctant agencies.
- Building a rock solid Active Directory and Exchange topology based on expert advice will ensure a smooth rollout and continuing operations.
- Using the central e-mail system as a catalyst for additional services increases the value proposition of the centralization effort.

## WHAT YOU NEED TO KNOW

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E-mail consolidation efforts in certain circumstances can yield significant cost, efficiency and stability benefits.

## CASE STUDY

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### Introduction

Three years ago, the state of Alabama had over 20,000 users on 45 e-mail systems supporting 250 agencies. The state, working under the direction of a new CIO recently from the private sector (from system integrator CSC), undertook a multiyear effort to consolidate all e-mail onto one Exchange 2003 infrastructure.

### The Challenge

The extreme decentralized nature of the state's e-mail systems had resulted in vast inefficiencies. There was no common address book for cross-agency interaction, and calendaring activity was limited to each of the 45 e-mail systems. They were all based on a wide variety of different mail systems — many antiquated, and some based on public mail systems such as Yahoo. There was no common naming convention, making it difficult to ascertain e-mail addresses. Nor were there any common e-mail policies across the state. E-mail ownership costs ranged from a low of \$8 per user per month, up to \$50 per user per month.

The primary challenge for the state-centralized e-mail effort was not technical — it was using standard and mature off-the-shelf Exchange 2003 technology — but rather organizational. Many agencies exhibited territorial behavior and were reluctant to turn over mail services to a central authority.

### Approach

The central state IT organization — under the Department of Finance — had been successfully operating a variety of shared services for the state, including: the phone system, Internet access and content filtering, WAN and mainframe operations (including statewide applications such as payroll), and primary public-facing Web sites. Centralized level one help desk support was available for each of these, and was eventually extended to the state e-mail system. All of those services were charged back to the agencies, and the state had accumulated a surplus which acted as "seed" money (about \$1 million) for the e-mail project.

The state first addressed the physical network — ensuring that WAN connectivity and bandwidth was sufficient for the e-mail project — and created a single Simple Mail Transfer Protocol (SMTP) gateway. It then contracted with Microsoft to design a statewide single-forest Active Directory infrastructure, as well as a clustered Exchange topology. The state then built the e-mail system and conducted a pilot with the Department of Finance consisting of 550 people, 200 of whom worked in the IT department.

The state then conducted an inventory of existing mail systems and quickly realized that agencies could be categorized in one of three ways — the willing, the failing and the unyielding. Willing agencies were those which were anxious to turn over e-mail operations to the state IT department; the failing were those agencies which operated antiquated mail systems with limited functionality and low uptime; and the unyielding were those agencies which — mostly for political and "turf" reasons — were resistant to turn over mail operations to a central authority.

The primary value proposition the central IT department offered was new functionality (browser access to mail and BlackBerry support were popular), single sign-on services for access to shared state services, efficient spam-blocking capabilities, and lower operational cost. Demonstrating Outlook 2003 to agencies operating older mail clients was particularly successful in the sales effort. The IT department also argued that agency personnel dedicated to e-mail operations would be freed up to focus on more strategic agency IT initiatives.

Once the system was up and running, willing agencies were brought over. The central IT department had been helping to improve agency e-mail systems that were failing, but it now declined to provide assistance. Instead, it suggested to the agencies that if they wanted an improved e-mail system, they must join the centralized Exchange system. Those agencies in the unwilling category needed more attention — a sustained sales effort was required as well as extensive political persuasion. Some agencies argued that their e-mail systems were "free," and so they had to be educated in the economic realities. Some of the unwilling agencies felt that the state IT department already operated enough of their IT infrastructure and were reluctant to yield control over their e-mail systems.

By being able to demonstrate the live Exchange e-mail system to the agencies, the central IT department was able to quickly dispel objections, and entice agencies with new features. The state also mandated that all desktops had to support at least Windows XP, and provided technical assistance and help in finding budget for the effort to modernize PC fleets. This proved attractive to agencies that had been looking for reasons to upgrade their desktop infrastructure.

## Results

The state currently has 21,000 users on the central e-mail system. All agencies have been converted except the Department of Public Health (which, due to IBM Lotus Notes/Domino dependencies, is taking a bit more time) and the Department of Transportation (which, due to a large number of user — 5,000 — and geographic and WAN constraints, continues to operate its own Exchange system). An all-inclusive base-level mailbox, with 100MB of storage, is charged back at the rate of \$5.50 per user per month, with expanded storage available (a 2GB mailbox is \$12 per user per month). BlackBerry services are charged back at the rate of \$5 per user per month. Costs are fully recovered with this pricing schedule.

E-mail uptime is over 99.9%, with only one 45 minute outage reported over the past year. Spam- and virus-blocking (via Symantec and Ironport) has improved considerably. The state is now processing 1 million inbound messages a month and blocking 95% of that traffic as spam. There are now statewide e-mail policies in place. And users now have access to a statewide e-mail directory, use a common naming convention (firstname.lastname@agency.alabama.gov), and cross-agency scheduling is possible. User acceptance of the Exchange system is strong.

The state reports that it is now considerably easier and cheaper to procure statewide applications, such as a child-welfare program. Previously, bidding vendors would have to design the application to work across multiple e-mail systems; now they only have to write to the common Exchange system. It is also much easier to layer new services on the central e-mail system: the state plans, for example, to bring in Microsoft Biztalk for process automation and workflow services, as well as unified messaging capabilities. The state plans to upgrade to Exchange 2007 in the first half of 2008.

## Critical Success Factors

The state was able to accomplish the centralization effort primarily because of a clear mandate from the governor and the finance director. The head of the Department of Finance is among the most important cabinet members and was able to get a public commitment from the governor that

participation in the effort was mandatory for agencies. Having an active, robust e-mail system which could be demonstrated was critical, as was a solid sales strategy based on cost and functionality.

## Lessons Learned

The degree of salesmanship and politicking involved in convincing unwilling agencies was substantial. In some cases, the governor's participation mandate had to be invoked. Having Microsoft involved in the design phase for Active Directory and the Exchange topology was critical for smooth system operation. The necessity to upgrade PCs to Windows XP also helped convince many agencies — which were looking for an excuse to modernize their PC fleet.

## RECOMMENDED READING

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"E-Mail Consolidation in the Public Sector"

"Government's Hierarchy of Challenges"

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## State gov't slow to network e-mail

December 11, 2007: 03:49 PM EST

Dec. 11, 2007 (Thomson Financial delivered by Newstex) --

MONTGOMERY, Ala. (AP) - When Gov. Bob Riley sent a recent e-mail to more than 20,000 state employees with a single mouse click, he was enjoying a computer-age advance long a staple of private business but not of state governments.

Computer experts say the bureaucratic, politically charged atmosphere of state governments left many with no way for their governor to communicate instantly by e-mail with all state employees.

In Alabama, it took 2 1/2 years to bring all the offices of the executive branch under a common e-mail network. Until then, most state agencies had their own e-mail systems and there was no complete list of state workers' e-mail addresses.

'We were way behind the times,' said Jim Burns, the state's chief information officer.

John Gillispie, Iowa's chief information officer and president of the National Association of State Chief Information Officers, said consolidating information technology service is gaining momentum throughout the states.

State information officers are seeking lower costs and improved services, which makes centralized e-mail 'a prime target,' he said.

In Nebraska, the state is about one-third of the way through a two-year project to consolidate e-mail. 'We are a little bit behind Alabama, but we are doing the same thing as Alabama,' Chief Information Officer Brenda Decker said.

State governments have trailed the private sector in consolidating e-mail, according to Matthew Cain, research vice president for the global technology consulting firm Gartner Inc. (NYSE:IT) of Stamford, Connecticut.

In the early days of computers, each government agency bought its own computers, set up its own e-mail system, and hired its own computer specialists. Then the department heads didn't want to turn over technological control to someone else.

'Politics,' Cain said.

It's such a political challenge that Cain's company studied how Alabama made the transition and now plans to 5/8use its findings to help other governments follow Alabama's plan.

Cain said Alabama's state government got an e-mail system that operates more efficiently and cheaply with fewer breakdowns because Gov. Riley mandated it and that helped cut through the opposition by some department heads.

In Nebraska, Decker met the same resistance from people who said, 'But we've always done it this way.' To overcome it, Gov. Dave Heineman volunteered his office to be one of the first to convert, she said.

In most states there are many agencies, boards and commissions that operate outside the governor's control. In Alabama, state Finance Director Jim Main said 'big brother' concerns existed within some of those programs, and officials had to be assured that their e-mails wouldn't be screened.

Burns and his staff at the state Finance Department have unified 45 separate e-mail systems serving more than 20,000 state employees at 250 state agencies, boards and commissions.

Before the unification, the lack of a complete list of state employees' e-mail addresses made it impossible to

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send routine announcements to every state employee at once, Burns said. Now, an employee can use the e-mail system to look up another employee's e-mail address, phone number and office location.

Employees can also check their e-mail from any computer with Internet access, which means they can keep up with e-mail if state government has to shut down because of bad weather. State officials can also notify thousands of employees in the Capitol complex immediately if there is an emergency.

The Alabama Finance Department estimates the combined system will save about \$1 million per year in operating costs and personnel. But there are some savings that can't be calculated.

With the old e-mail systems, state agencies' computers were sometimes shut down by viruses. The new system has extensive virus protection.

'We have never been shut down by a virus on our new system,' Burns said.

The new system also has extensive spam protection.

In October, the system received nearly 49 million messages. It screened out nearly 46 million as spam or junk and 14,673 as viruses. That left about 3 million real messages to deliver.

That means 94 percent of the messages that came into the system were mass-mailed junk or were trying to damage the state's computer systems.

'It has become the No. 1 problem on the Internet. The Internet is the Wild West. It's not regulated,' Burns said.

The new system covers nearly every office in the executive branch of government, except the departments of Transportation and Public Health, which will be joining later. The other two branches of government -- courts and Legislature -- still maintain their own systems, Burns said. Messages from the governor to them have to be relayed.

Before going to work for the state 3 1/2 years ago, Burns worked for Computer Sciences Corp. (NYSE:CSC) as the information technology director at Maxwell Air Force Base in Montgomery. At the base, Burns did the same thing he has spearheaded at the state: unifying the e-mail systems.

When asked which job was easier, he didn't hesitate to answer 'Maxwell.'

The reason?

Maxwell has 'one general with three stars on his shoulder' and every one on the base has to follow his orders. State government has many bosses, Burns said.

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