South Carolina Department of Administration

South Carolina's Statewide Information Technology Standards

admin
THE SOUTH CAROLINA DEPARTMENT of ADMINISTRATION

NASCIO STATE IT RECOGNITION AWARDS INFORMATION

- **Category:** Enterprise IT Management Initiatives
- **State:** South Carolina
- **Project Initiation:** October 2017
- **Project Completion:** October 2018
- **Contact**: Keith Osman, Chief Information Officer
- **Email**: Keith.Osman@admin.sc.gov
- **Phone**: 803-896-0001
- **Address**: 4430 Broad River Road, Columbia, SC 29210

NASCIO State IT Recognition Award Submission
South Carolina's Statewide Information Technology Standards

EXECUTIVE SUMMARY

In 2016, South Carolina made the historic decision to develop and implement a shared services model for the state's information technology (IT) resources. This decision fundamentally transformed the way in which IT is acquired, consumed and managed by the state's 70+ agencies, and marked a decided shift away from the state's previous highly decentralized approach.

Before this decision, most agencies operated in their own individual silos, which resulted in the duplication of efforts and increased costs when compared to peer states. This decentralized approach made it difficult to understand the state's true technology costs, and, more importantly, increased data security and privacy risks while making economies of scale virtually impossible to achieve.

As part of this historic effort, gubernatorial and legislative directives were enacted that called for the formation of a defined governance process to oversee the effort, directed agencies to begin the adoption of shared services for a variety of areas, and also tasked South Carolina with the development of a series of statewide information technology standards. These standards focus on the procurement, maintenance, security and performance of each specified technology, not individual manufacturers or brands.

The creation of a common set of technology standards for all state agencies was unprecedented in South Carolina and served to redefine how agencies approach the design, procurement, implementation and use of specific technologies. Standards originate, progress and are ultimately recommended through the IT shared services governance structure. This structure includes representatives from a diverse group of agencies and provides a solid collaborative approach while ensuring agencies have a constant voice and input in such key decisions.

Through this process, statewide IT standards have been developed for the following technologies:

- **Electronic mail**: Software as a Service was established as the common email platform for the state, with Microsoft Exchange Online serving as the software of choice.
- **End-user computing devices**: Common standards and negotiated pricing levels were established for a variety of computing devices, including desktops, laptops and tablets.
- **Hyper converged infrastructure systems**: Technology requirements were established for hyper converged computing within the state's enterprise IT architecture, which can be leveraged to meet a host of business needs, including self-service capability.

The development and use of these standards provide a wide range of benefits for the state, as well as for individual agencies. Such overarching benefits include the elimination of costly redundant infrastructure, a reduction in complexity and associated labor costs, increased reliability, improved security, system optimization and the creation of economies of scale which result in the lowering of the overall cost of IT procurement, implementation and support.

The transformation of the state's information technology environment could not take place in a vacuum, but instead could only be accomplished by bringing agencies together to collaborate and partner to identify needs from a statewide perspective and improve the services South Carolina provides its citizens in the most secure, efficient and cost-effective manner.

PROJECT NARRATIVE

In 2016, South Carolina made the historic decision to develop and implement a shared services model for the state's information technology (IT) resources. This decision fundamentally transformed the way in which IT is acquired, consumed and managed by the state's 70+ agencies, and marked a decided shift away from the state's previous highly decentralized approach.

As part of this initiative, gubernatorial and legislative directives were enacted that formed a defined governance process for statewide IT, directed agencies to begin the adoption of shared services, and tasked South Carolina with the development of a series of statewide information technology standards. Such directives included the following:

Guiding Directives

In January 2016, Executive Order 2016–07 was issued requiring cabinet agencies to use shared services through the implementation of the 2016-2018 Statewide Strategic Information Technology Plan. The goal of the plan was to enhance agency mission-centric services by adopting more efficient, cost-effective, innovative and secure IT service delivery provided through the South Carolina Department of Administration (Admin). Both the executive order and the Statewide Strategic IT Plan emphasized the role of standards as a key component of the shared services model.

Six months later, the South Carolina General Assembly enacted Proviso 117.133 of the 2016–2017 General Appropriations Act. This proviso required all state agencies — with the exception of legislative and judicial departments, and higher education institutions — to use shared services as they become available and, in a sequence, determined by Admin. The provisions of 117.133 have been reissued in each subsequent state budget since.

In November 2018, the 2018-2020 Statewide Strategic Information Technology Plan was published and continued the direction for the state's IT toward shared services. Like its predecessor, the new plan envisions a broad set of IT standards which support and extend shared services Initiatives across South Carolina's government IT enterprise.

Reshaping the State's Approach to IT

To truly understand the significance of the decision to implement a shared services model, one must first look at the highly decentralized approach South Carolina had historically taken regarding its IT resources. Before this decision, most agencies operated in their own individual silos. No governance existed requiring agencies to report their full IT operational costs, follow a standardized approach to data privacy or security, or to establish architectural standards. A 2014 study determined South Carolina had a higher cost of government IT than did comparable states. More importantly, South Carolina operated with higher data security and privacy risk because of its decentralized organization. Implementing a standards-based approach was truly revolutionary.

The transformation of the state's longstanding approach to its technology resources could not be forced onto agencies traditionally used to managing their own affairs. To successfully develop and implement a shared services model, the culture and mindset of agencies had to be broadened to see things from a statewide enterprise perspective. Thus, South Carolina deliberately pursued a collaborative approach to the development of statewide IT standards. Agencies "have a seat at the table" with Admin and participate in the development, review and adoption of architectural standards at every stage of the

process. This creates a sense of partnership which works out in an overall enterprise service delivery model to South Carolinians through a common infrastructure that is secure, efficient and cost-effective.

How are Standards Developed?

The creation of a common set of technology standards for all state agencies was unprecedented in South Carolina and served to redefine how agencies approach the design, procurement, implementation and use of specific technologies. As such, all standards originate, progress and are ultimately recommended through the IT Shared Services governance structure. This structure helps provide a solid collaborative approach while ensuring agencies have a constant voice and input in such key decisions. Individuals participating in the governance structure represent a group of state agencies diverse in both size and scope. The process governing the development of statewide IT standards is summarized below:

- **Decision to Develop IT Standard**
  The Executive Oversight Group (EOG), comprised of agency executives, recommends the creation of a standard for a specific technology.
- **Assembling Subject Matter Experts**
  The Technology Work Group (TWG) charges the Security and Architecture Review Board (SARB), both comprised of IT staff, with assembling a subgroup of agency subject matter experts.
- **Subgroup Develops Draft**
  The SARB subgroup considers potential components and options, weighing the expected benefits and risks of each, while developing the initial draft of the standard.
- **Draft Forwarded for Review and Consideration**
  The draft is forwarded for review, consideration and recommendation to the full SARB, which can choose to return the draft for revisions or advance the draft to the next level.
- **Governance Groups Recommend or Return**
  This process is repeated as the draft is advances through the TWG, the Agency Work Group (AWG) and ultimately the Executive Oversight Group.
- **Standard Published for Agency Consumption**
  Once recommended by the EOG, the standard is published by Admin for agency consumption.
- **Procurement Assistance**
  The state's procurement authority, the State Fiscal Accountability Authority, attends all standards development meetings to ensure procurement mechanisms are established. Their recommendations are incorporated into the standards proposal.
- **IT Planning Review**
  Agency procurements of technologies covered under published standards must align before the purchase can be approved. Waivers may be sought through the governance process.

As evidenced from this summary, collaboration between Admin and state agencies exists throughout the process. Such collaboration helps ensure agencies are actively engaged in these decisions that will impact South Carolina's IT environment for years to come.

Standards Developed to Date

To date, Statewide Information Technology Standards have been developed, reviewed and adopted for:

- End-user computing devices

- Electronic mail
- Hyper converged infrastructure systems

A standard is currently being developed for cloud computing, while others are in the planning stage.

End-User Computing Device Standard

In October 2017, Admin announced the development of the End-User Computing Device Standard, the first standard adopted as part of the IT Shared Services Initiative. This standard, which was updated in January 2019, provides guidance for such computing devices as desktops, laptops, tablets and smartphones, and is designed to help align agency business needs with the identified technology specifications. The standard also addresses such related technical aspects as use cases, form factors, standard categories and available services.

New agency purchases of end-user computing devices must align with the specifications set forth in the new standard. A formal exception process is available for agencies that need to deviate from the standard; however, such exceptions must be approved through the governance process before an agency is permitted to purchase non-standard technology.

The creation of this common set of standards provides a wide range of benefits for the state as well as for individual agencies. Such benefits include:

- A reduction in the complexity and effort needed to support multiple non-standard technologies.
- An increase in purchasing power.
- Negotiated pricing on devices provides significant savings.
- Estimated $2,200,000 in since the implementation of the standard based on contract savings.

Admin and the State Fiscal Accountability Authority (SFAA) have established custom pricing under existing state term contracts for use in the procurement of devices. This pricing, detailed below, provides agencies with the primary method for purchasing computing devices aligned with identified use-cases and specifications.

Dell	Lenovo	Panasonic
39-43% avg. savings on desktop and laptop models.	40-45% avg. savings on desktop and laptop models.	10% avg. savings on laptop models.

As evidenced above, South Carolina has begun to see the savings from economies of scale that were first envisioned by the move to shared services.

Electronic Mail Standard

In October 2018, Admin announced the development of a statewide IT standard for electronic mail. The Email Standard provides agencies with a single cloud-based architecture designed to improve security, eliminate redundant infrastructure and optimize system efficiency.

Through this standard, Software as a Service (SaaS) is established as the intended email platform for the state moving forward, with Microsoft Exchange Online serving as the SaaS solution of choice. The SARB conducted extensive research with other states as well as reviewing current trends within South Carolina in establishing this standard.

It found Microsoft, the largest cloud email provider in the nation, able to meet all requirements set forth in the standard, and the majority choice of other states. On top of this, the SARB found 53 of the 74

agencies in South Carolina already using Exchange Online, thus, the standard leverages the significant investment already made in this solution.

The Email Standard provides a wide range of benefits to agencies, including:

- Elimination of costly redundant infrastructure
- Optimization of system efficiency through consolidation
- Disaster recovery capability
- Established baseline security components
- Sets up data protection, encryption and retention guidelines

South Carolina recognizes that not all agencies are currently in the same position in relation to IT. The Email Standard takes this into consideration and provides a roadmap for agencies to navigate through the various categories of technology, which include the contained, rejected, strategic and emerging technologies. This roadmap offers guidance on when agencies are expected to advance to the next category as they meet the state standard.

Hyper Converged Infrastructure System Standard

In October 2018, Admin announced the development of a statewide IT standard for Hyper Converged Infrastructure Systems (HCIS).

Agency IT departments are increasingly faced with the need to rapidly respond to business needs with ever greater calls for self-service portals, system availability and enhanced data security. This evolution has led to widespread adoption of cloud technologies. However, not all data sets or applications can move to commercial cloud service providers. Instead, many organizations — particularly those in the government sector — have begun to adopt hyper converged computing environments as a way of building virtual private cloud computing within their own facilities.

The development of the HCIS Standard sets forth the technology requirements for hyper converged computing within the state's enterprise architecture. Using this standard, HCIS can be leveraged to meet a host of business needs currently sought by agencies. Though self-service capability for application development and maintenance was a primary use case for this standard, HCIS may also be used to support such other use cases as virtual desktop infrastructure (VDI), server-based computing (SBC), virtual machine migration, private/hybrid cloud, remote office/branch office, relational databases, dedicated application infrastructure.

HCIS environments provide South Carolina with a variety of benefits, including:

- Simplified IT provisioning
- Reduced total cost of ownership through reduced maintenance and operational expenses
- Improved agility and scalability of IT infrastructure through private/hybrid cloud capabilities
- Reduced IT complexity

HCIS combine computing and storage components with intelligent software to create flexible pooled resources, called "Nodes," that can be scaled up or down based on demand. These resources are managed through a common toolset as a single system, providing agencies with flexibility and business responsiveness beyond what traditional server/storage architectures can provide. Through collaboration with state procurement, state term contracts are in place with HCIS vendors that meet technical,

maintenance and training requirements of the standard while providing economical pricing which reflects the increased purchasing power of statewide procurements.

Exception Process

A formal exception process has been established for instances when business requirements necessitate the use of devices that do not fall within a given standard. In such instances, agencies may submit an exception request which will be reviewed and processed by the IT shared services governance groups. However, such exceptions must be approved through governance before an agency pursues procurements, deployments or development activities related to technologies that are not compliant with the standard. In the last fiscal year, seven exceptions have been approved through this process.

Agency Access to Standards

To provide agencies with access to each standard, Admin has developed a Statewide IT Standards webpage. This webpage serves as central repository for the latest version of all Statewide IT Standards implemented as part of the IT Shared Services Initiative. This page can be accessed by visiting https://admin.sc.gov/itsharedservices/statewideITstandards.

Impact on South Carolina

The decision to adopt an IT shared services model was a historic decision for the state of South Carolina. This decision, and the resulting development and implementation of Statewide IT Standards, has transformed the way in which technology resources are acquired, consumed and managed and provides a wide range of benefits for the state as well as for individual agencies. Benefits realized include:

- Elimination of costly redundant infrastructure
- Improved data security
- Improved agility and scalability of infrastructure
- Increased purchasing power
- Increased system reliability
- Optimization of system efficiency through consolidation.
- Reduction in complexity and associated labor costs
- Reduction in maintenance and operational expenses
- Simplified IT provisioning
- Greater oversight of IT resources
- Customized pricing featuring significant savings on laptop and desktop models
- Estimated $2,200,000 in savings since the implementation of the End-User Computing Device Standard, based on contract savings resulting from the standardization of computing devices.

Conclusion

The decision to adopt an IT shared services model and implement a series of Statewide IT Standards addresses the issues extant from the long-standing decentralization of IT. First, a common architecture seeks to create economies of scale around the purchase, use and support of common technologies, thus lowering the overall cost of IT procurement, implementation and support. Furthermore, the standards, as developed, address data privacy and security concerns by establishing baselines for secure configurations and operations. The success realized thus far can be attributed to the collaborative effort of agencies throughout the state, resulting in an overall enterprise service delivery model to South Carolinians through a common infrastructure that is secure, efficient and cost-effective.