

# Information Technology Operations Command Center (ITOCC): Phase One

Emerging and Innovative Technologies



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**State of Oklahoma**



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## Executive Summary

As IT consolidation has progressed during the past four years, Oklahoma has seen dramatic growth of its centrally managed information technology infrastructure. The Oklahoma Office of Management and Enterprise Services currently manages more than 2,500 servers, 800 network devices, 10,500 desktops and 14,000 telephones in more than 500 locations across the state. System users work in an array disciplines for more than 78 state agencies.

The need for an improved central monitoring and response incident center to improve service delivery was seen a key effort. The Information Technology Operations Command Center was built to meet this need. The ITOCC is a centralized facility housed at the state's tier-three data center — capable of withstanding an EF5 tornado and prolonged power disruptions — that monitors all IT assets across the state. The center gives technicians the unprecedented ability to see real-time performance and status updates across the enterprise systems used by state agencies. The system currently monitors more than 30,000 unique elements, including everything from utilization of server CPU, disk, memory and network to network bandwidth utilization at a granular level to the condition of uninterruptible power supply power at each location.

This level of visibility enables engineers and technicians responsible for maintaining the systems to have a unique bird's-eye view, enabling them to quickly isolate root cause and plan for better system reliability. The cross-functional nature of the ITOCC allows for teams to work collaboratively across operating areas and provides abundant cross training opportunities. In the event of major incidents, the ITOCC becomes the central facility staff can gather to work together and quickly resolve a problem.

## Business Problem and Solution

Oklahoma is uniquely endeavoring to consolidate information technology for about 85 state agencies in six years while helping to consolidate any voluntary agencies across the state. The State of Oklahoma's centrally managed IT infrastructure has grown rapidly as a result of the efforts. IT consolidation has produced a data center with more than 2,500 servers and a network that reaches more than 500 locations across the state. Approximately 14,000 telephones, 500 uninterruptible power supply installations and 800 devices were managed by state staff. As systems were brought into centralized management a wide variety of monitoring tools and platforms were in use by disparate groups with no central control or visibility.

The number of devices and telephones is growing. A need was established for a centralized monitoring and management platform to ensure all IT issues were recognized in real time and work could begin immediately to address disruptions. The ITOCC's ultimate goal was to recognize and address issues before they became service impacting events.

Plans were put in place for a small team of ITOCC analysts that would build and manage the monitoring system. The system would use Solar Winds software to monitor every server, Voice over Internet Protocol gateway, phone, uninterruptible power supply and network device for uptime, latency, utilization, service availability, hardware status and service usability. Other tools including network vendor monitoring, weather radar and predictions, tools available from local power companies, IT security alerts, voice platform reporting and in-depth network traffic reporting were brought together in one place for a singular view of the IT environment.

Construction of the ITOCC physical space was also a major decision. State budget concerns meant the new facility would need to be built at minimum cost but without losing capability. Staff was relocated to allow the use of existing space in the state's tier-three data center. The data center can withstand winds up to 200 mph in case of an EF5 tornado and be completely powered by a backup generator. The space was equipped with a state-of-the-art video wall to view selected screens and project them to any of the nine monitors placed around the command center. The center will house 10 technicians with room for more technicians to be on-site and work collaboratively in the event of a major incident.

An ITOCC vision was for IT technicians to cross-train and collaborate across several disciplines. Each service area, whether it is server, network, desktop, help desk, application development or security, would be asked to fill a chair in the ITOCC by rotation during short-term temporary assignments. The ITOCC has the unprecedented ability to have team members with day-to-day operations knowledge and experience

from every service looking at issues as they occur and using their combined knowledge to quickly isolate and correct issues. The cross-functional nature of the team and rotation of nearly all staff through the ITOCC gives technicians a unique opportunity for cross-training and gaining visibility and insight into the work of their counterparts in other disciplines. It also gives a better understanding of how each service area's day-to-day work affects their team members and ultimately the end users.

## Significance

Oklahoma is able to have visibility into the service status of every server, network link and device, phone and uninterruptible power supply across the state for the first time. Service issues are seen in near real time across the multiple service areas, allowing operations staff to respond to issues before calls from end users are received and often are able to correct these issues before the end users even notice them. Larger issues that span across multiple functional areas are easier to trouble shoot as the increased granularity of the view into the IT infrastructure allows staff to see trends and dependencies finding root problems much more quickly.

### **Improving Citizen Services**

The ITOCC will monitor all network devices, making sure large incidents do not impact services to citizens. Many police officers use the network for pulling data during car stops. The network is also used to route dispatch voice traffic to officers in the field who use radio communication. The ITOCC monitors devices connecting to the state's network in rural areas of Oklahoma from veteran hospitals to wildlife reservations to school districts.

### **Strategic & NASCIO Priority Alignment**

This project aligns with the NASCIO State CIO Priorities by consolidating and optimizing monitoring of servers, network links, devices, phones and UPS for the State of Oklahoma. The ITOCC creates a collaborative space where teams can address an issue from multiple disciplines to resolve the incident more quickly and efficiently. The ITOCC also aligns with the OMES mission by enhancing the value of state information through IT tools and increasing collaboration and data analysis.

## Benefits

The implementation of the ITOCC is in its first phase of three phases, which includes several benefits:

### **Quicker repair time**

The complete ITOCC will create a ticket for 20 percent of infrastructure incidents before a customer calls. The ITOCC will improve incident one and two performance by 10 percent.

### **Improved cross functional collaboration**

The ITOCC is staffed with permanent employees for day-to-day operations as well as rotating staff from each of the different service areas. The cross functional collaboration will improve processes for monitoring all IT service assets across the entire state.

### **Improved visibility**

With 32 video feeds and nine distributed screens throughout the data center, the ITOCC improves visibility by allowing for the ability to visual system dependencies for improved root-cause analysis.

### **Improved monitoring**

Utilizing software platforms, partner interfaces and integrating with the service desk, the ITOCC will provide 24/7 operations. The ITOCC serves 78 different agencies with approximately 14,000 voice customers and over 800 managed network devices. Monitoring assets at this level will improve management of major incident case handling, prioritizing and status updates.