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Commonwealth of Kentucky
Commonwealth Office of Technology
Network Operation Center – Monitoring Solution

Project Initiation: February 2018
Project Completion: December 2018

Project Sponsors:
Rick Woodruff, Executive Director, Office of IT Services and Delivery,
Commonwealth Office of Technology

Dr. Charles Grindle, Chief Information Officer,
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Executive Summary

The Commonwealth Office of Technology has invested in a state-of-the-art Network Operations Center (NOC) and monitoring solution for the Commonwealth of Kentucky. Our goal is to identify, notify and repair problems with the infrastructure and applications before they affect our customers. Teams actively monitor alerts 24x7, 365 days a year and escalate to the appropriate COT and agency teams for resolution.

Exemplar

The Commonwealth Office of Technology is charged with supporting infrastructure and applications across the Executive Branch of government. With over 30,000 end-points , thousands of business applications, and a host of services that are critical to citizens and government alike, there is a requirement to monitor and resolve IT issues efficiently and expeditiously.

Kentucky recognized that modernizing its Network Operations Center was critical but determined that investing in state-of-art technologies was required to keep pace with technology advancements across the Commonwealth.

Concept

The team monitors console alerts that include Nagios, System Center Operations Manager (SCOM), Active Directory Federated Services (ADFS), Oracle Enterprise Manager (OEM), and Kentucky Emergency Warning System (KEWS), Data Center Warning Systems and a newly implemented monitoring solution called Dynatrace to ensure a stable and reliable enterprise system.

Significance

The NOC project provides proactive monitoring and services for:

- Commonwealth infrastructure including the CDC and the ADC,
- Thousands of business applications
- 13 Executive Agencies
- Kentucky Boards and Commissions.

While this project enables the Office of Technology to better support its customers, it also enables Cabinets and Agencies to use the tools for self-help and development

Impact

Upgrading the NOC and monitoring solution has provided the following benefits:

- Faster response times for outages.
- Faster root cause analysis with the implementation of Dynatrace.
- Proactive performance or availability resolutions.
- Production downtime reduction and an overall reduction in MTTR by 85%

Qualitatively improved partnerships between COT and our customer agencies.

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The previous NOC and monitoring solution for the Commonwealth was housed in a large metal modular desk commonly known as the "Purple Dinosaur". It consisted of (31) 17" monitors and computers and had been in place since 2002. The workspace was duplicated on each end of the desk for redundancy. Team members were stationed across the structure only being able to monitor screens directly in front of them at the time.

The team used several products to monitor the infrastructure that included Nagios, System Center Operations Manager (SCOM), Active Directory Federated Services (ADFS), Oracle Enterprise Manager (OEM), Kentucky Emergency Warning System (KEWS), Data Center Warning Systems. COT was limited to these tools due to the lack of space available at the existing console.

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Kentucky's project was designed to allows the Operations staff to visually track changes in the environment in a more efficient manner and provide a more platforms which could be monitored simultaneously.

COT upgraded to a state-of-the-art monitoring solution for the Commonwealth of Kentucky infrastructure and application platforms. The Network Operations Center (NOC) was upgraded to include a modern configuration including (12) 55-inch Ultra HD monitors mounted in a video-wall format. This configuration allows the Operations staff to visually track changes in the environment in a more efficient manner and providing a broader scope of platforms, which can be monitored simultaneously.

Five workspaces were installed for technicians. Each includes a sit to stand desk and are configured with workstations utilizing 43-inch ultra HD 4K multi-client monitors, allowing the staff to have up to (4) separate monitoring areas on each screen.

"Code Blue" conference area within the NOC to troubleshoot outages that occur in the Enterprise.

As part of the investment, COT has also acquired an Application Monitoring Solution called Dynatrace. Dynatrace provides full stack monitoring for applications from the front-end to the back-end, to infrastructure, to the cloud in real time. It auto-detects all application dependencies and tracks transactions across all tiers. The software allows COT to resolve performance or availability issues before they affect our customers.

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A key product in this project has been Dynatrace. Dynatrace has been implemented for business-critical applications across all Executive agencies. By utilizing the advanced diagnostic abilities afforded within this product we have been successful in pinpointing the root of an outage scenario and providing swift resolution; reducing the assembly of time-consuming "war rooms" and tying up unaffected personnel.

Dynatrace has also been leveraged in applications' development and test environments detecting issues early and preventing them from being promoted into production.

Similarly to the prior has been the benefit of advanced warning. By having access to this breadth of data, issues have been detected prior to escalating to a full outage scenario.

Impact

Upgrading the NOC and monitoring solution has provided the following benefits:

- Faster response times for outages.
- Faster root cause analysis with the implementation of Dynatrace.
- Proactive performance or availability resolutions.
- Production downtime reduction

Qualitatively improved partnerships between COT and our customer agencies.

The Network Operations Center project was a strategic initiative of Kentucky's Commonwealth Office of Technology. It was designed to improve service and service delivery to our Agencies. As a result of this project

- Reduced production downtime and an overall reduction in MTTR by 85%
- Root-cause analysis and business impact identification.
- Ability to monitor real-time issues.
- Faster response times for outages.

- Faster root cause analysis with the implementation of Dynatrace.
- Resolve performance or availability issues before they affect our customers.
- Reduce the production downtime
- Reducing the time spend in war-room meetings

Perhaps the single greatest benefit derived from the NOC project has been dramatic improvements in the relationship between COT and its customer agencies for operations and operational troubleshooting. Because the new monitoring and management tools support a single, objective source of technology status and operation – COT and its customers operate, now, from a shared perspective. There is a real and perceived improvement in transparent communications and focus has shifted from assigning blame between applications and infrastructure to resolving issues.