AI and Continuous Automation Help Keep the Business of State and Local Governments Running Smoothly

MARKET TRENDS REPORT

govloop dynatrace

Introduction

State and local agencies are embracing digital services and moving applications, data and infrastructure workloads to the cloud. At the same time, the hybrid, multicloud environments the digital services are built on are becoming increasingly complex, making it harder to monitor performance and identify the source of performance problems. This is particularly challenging for state and local government agencies that routinely collaborate with one another, because collaboration requires the ability to share a full view of all applications and their interdependencies.

To manage these increasingly complex multicloud ecosystems, agencies must modernize how they monitor and manage applications, infrastructure, microservices and hybrid environments. The best way to do this is by applying continuous automation and artificial intelligence (AI). By continuously automating manual, repetitive tasks, such as deployment, configuration, discovery, topology and updates, teams can stay ahead of their dynamic hybrid multicloud environments and meet the needs of rapidly changing user and constituent demands.

To learn more about why AI and automation are so important for state and local agencies, GovLoop teamed with Dynatrace, a software intelligence company with solutions that simplify cloud complexity and accelerate digital transformation. This report covers the current application and infrastructure performance challenges agencies face and how to best address them.

By the Numbers

"By 2022, more than half of major new business systems will incorporate continuous intelligence that uses real-time context data to improve decisions."

Source: Gartner

95%

of organizations with modern application performance management (APM) solutions are more likely to speed the resolution of application issues than those without modern APM.

Source: Aberdeen

72%

of state chief information officers plan to invest or have invested in tools for enterprise data management.

Source: National Association of State CIOs (NASCIO) "Responsive State CIO Survey"

65%

of state CIOs said AI would be the most impactful new technology in the next three to five years.

Source: NASCIO

10

is the average number of monitoring solutions organizations use across their technology stacks, which provide visibility into only 11% of apps and infrastructure.

Source: Observablity, automation, and AI are essential to digital business success

85%

of state and local government agencies either have a strategy or are developing one to migrate legacy applications to the cloud.

Source: NASCIO

48%

of government agencies say they lag behind other departments in adopting new technologies for transforming business processes.

Source: KPMG

THE CHALLENGE

Sluggish performance, unhappy users

Many state and local agencies are transitioning away from legacy technologies and embracing hybrid, multicloud environments built on cloud-native architectures with containers, Kubernetes and microservices. Many agencies, each with its own management and monitoring requirements, share resources, which can increase the complexity of these dynamic environments.

Although these changes give agencies the tools and agility they need to better serve the public, they also create many more interdependencies among applications, containers IT infrastructure and microservices. Typically, teams must manually configure these connections, but in hybrid, multicloud environments with cloud-native apps, manual configuration has grown beyond human capacity to manage. All of this can make it much more difficult to monitor applications and the infrastructure they run on using traditional tools and methods.

These complexities also can cause real problems for people trying to use government services, and for government employees who need reliable access to mission-critical applications. Some of the most difficult issues to resolve include speed and load time, crashing and freezing, and application responsiveness and reliability.

THE SOLUTION: VISIBILITY INTO PERFORMANCE BOTTLENECKS

The most efficient way to solve the problems of complexity, visibility and usability is through comprehensive, automated monitoring of applications, infrastructure and cloud resources.

By using one platform to monitor all resources, both on-premises and in multiple clouds, agencies can be sure that nothing falls through the cracks. For example, IT operations teams should be able to monitor the entire environment to discover any anomalies in applications, containers, microservices or infrastructure. Because time and resources are limited, teams should expect precise, code-level answers prioritized by business impact.

Application performance monitoring (APM) and infrastructure monitoring are equally important.

- APM detects performance issues before they affect users, ensuring that applications are running at an acceptable level of service.
- Infrastructure monitoring keeps tabs on cloud and hybrid environments by continuously monitoring hosts, virtual machines, containers and orchestration platforms, networks, devices, and logs.

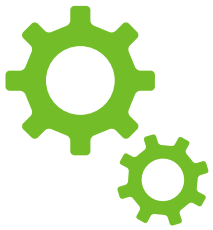
The most effective APM and infrastructure-monitoring solutions use AI and AI-assisted technology that leverage real-time topology mapping to analyze events and metrics, and to automatically detect anomalies and root cause across applications, infrastructure and users.

"As agencies increasingly embrace digital transformation and invest in hybrid, multicloud environments, they need a new approach to full-stack observability that provides precise answers instead of statistical guesses," said Mike Hoernemann, a Senior Systems Engineer at Dynatrace. "You need to be able to see what browser they are using, whether they are working on a desktop or mobile device, where they are geographically, and other precise details and context. With that level of information available, you can isolate the problems and fix them quickly, before they impact the user experience."

Advanced analytics is also important. Depending on the situation, agencies should be able to rely on their monitoring platform for analytics on each host, process and service, in addition to user behavior. With analytics capabilities that focus on intelligence-based answers derived from precise AI-driven telemetry, agencies can minimize outage and recovery time, optimize the performance of key agency services, boost productivity, and increase user and citizen satisfaction.

Hoernemann also suggests that a software intelligence platform should reach to edge devices and provide application programming interfaces to optimize end-to-end performance. Observability all the way to the edge ensures that you know how the entire technology stack can support desired outcomes.

BEST PRACTICES
For performance monitoring



When it comes to automation, don't go halfway.

The complexity that state governments and municipalities are dealing with today makes automation essential. For example, a change in any environment can affect other systems and environments. Making the required changes using manual techniques takes time, and it's too easy to make mistakes or overlook important changes. Today's complex environments require built-in automation of everything, including deployment pipelines, configuration changes and cloud migration projects. Automating the monitoring and support processes by managing connections among applications, containers, infrastructure and microservcies ensures that new updates, applications and features won't be slowed down, and that users' requests can be supported quickly and automatically.

AI isn't a nice-to-have—it's a must-have.

AI-powered platforms can detect issues in real time, pinpoint the source of the problems, and automatically launch the proper remediation processes, often before users realize a problem has occurred. That's more important than ever for today's state and local agencies, which have increasingly complex applications and infrastructure and support many remote users on different platforms. A platform with AI built into its core can efficiently and continually map dependencies and find potential issues, which allows IT teams to quickly spot and resolve problems before they worsen.

Standardize on one software intelligence solution agencywide.

In most traditional IT environments, different IT groups — for example, applications, databases and infrastructure — use their own performance monitoring and management solutions. When something goes wrong, the source of trouble often involves multiple solutions that are disconnected. "When monitored solutions exist in separate silos, you may get different interpretations of the data, and end up with different results based on different points of view," Hoernemann points out. A single platform that collects all relevant data from all sources, all in context, provides one source for answers.

Use your software intelligence platform to improve cross-agency collaboration.

Cloud-based collaboration within and among agencies has grown significantly in the past several years, but incompatible systems, along with inconsistent system reliability and responsiveness, have hampered it. For example, state health agencies must interact with the Centers for Disease Control and Prevention, but using multiple solutions reporting different metrics to a federal agency can cause confusion. With the right software intelligence platform, all team members can be on the same page, with the data coming from the same source.

CASE STUDY

How one agency reduced bottlenecks and delays with AI and automation

The IT department of a major state government was experiencing performance bottlenecks and needed to increase productivity and optimize performance. One of the first bottlenecks the team tackled was a records-processing application, which caused a backlog that often took up to eight days to process.

After considering several solutions, the team chose to implement the Dynatrace Software Intelligence Platform, based largely on its APM capabilities. In 2020, Gartner named Dynatrace a leader in APM for the 10th consecutive year because of features they say are most important: front-end monitoring; application discovery, tracing and diagnostics, and domain-centric AI. Dynatrace also scored highest on five out of Gartner's six APM capabilities: IT operations, DevOps release, application support, application development and cloud operations.

After implementing the Dynatrace Software Intelligence Platform, records processing time fell to just 15 minutes from eight days. For this state agency, that was just the beginning. When the pandemic hit and employees started working from home, the state began to experience major traffic surges in applications and infrastructure. For example, when the governor held a press conference related to the pandemic, the state's COVID-19 portal would jump from a typical average load of about 2,000 people to more than 30,000 concurrent sessions.

With the Dynatrace Software Intelligence Platform, agency staff could make changes quickly to optimize the software environment to handle these peak loads. If it became apparent that a surge was coming, IT staff could get ahead of it to optimize performance before it impacted users. The platform has been so successful that the state plans to expand its use of Dynatrace into other areas of the IT stack.

HOW DYNATRACE HELPS

The Dynatrace Software Intelligence Platform helps agencies more effectively monitor, analyze and act on intelligence about the performance of applications, infrastructure and microservices; the dynamic multicloud environments they run on; and all users' experience. The Dynatrace platform consists of five modules: APM, to detect and pinpoint application performance issues before users are impacted; Infrastructure Monitoring with continuous auto-discovery of all components, devices, logs and events; Digital Experience Monitoring to improve user experiences across channels; AI-powered Digital Business Analytics for real-time answers to business questions; and AIOps to continuously monitor for anomalies and provide root-cause determination.

Because Dynatrace builds and maintains a real-time topological map that can track billions of nodes, the platform can trace individual end-user actions to specific containers, data centers, disks, hosts, instances, log files, networks, processes and services. With advanced observability and powerful AI at the core, Dynatrace continuously analyzes all dependencies, providing causation, not just correlation, for precise root-cause determination.

To learn more visit: **www.dynatrace.com/solutions/government**

Conclusion

State and local agencies are just starting to harness the power of cloud-native architectures and containerized environments. Disparate monitoring solutions, manual processes, and reliability and efficiency issues have caused visibility and management to suffer. The sharp increase of remote workers and constituent demand for online services has multiplied these challenges and brought the issue to a head for many agencies.

Keeping pace with the changes brought by hybrid environments, newer processes and technologies, and increased digital services requires a coordinated, automated approach to software management and monitoring. By standardizing on a modern AI-driven approach to performance and infrastructure monitoring, agencies can better improve overall productivity, increase user satisfaction, keep the business of government running smoothly and optimize performance.

ABOUT DYNATRACE

Dynatrace provides software intelligence to simplify cloud complexity and accelerate digital transformation. With advanced observability, AI, and complete automation, our all-in-one platform provides answers, not just data, about the performance of applications, the underlying infrastructure, and the experience of all users. That's why many of the world's largest enterprises trust Dynatrace® to modernize and automate cloud operations, release better software faster, and deliver unrivaled digital experiences.

Curious to see how you can simplify your cloud? Let us show you. Visit our **trial page** for a free 15-day Dynatrace trial.

To learn more about how Dynatrace can help your business, visit **https://www.dynatrace.com**, visit our blog and follow us on Twitter @**dynatrace**.

ABOUT GOVLOOP

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 300,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

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