BEST PRACTICES: MODERN APM

PeerPaper Report

BASED ON REAL USER REVIEWS OF
CA TECHNOLOGIES APM SOLUTIONS

IT Central Station
Unbiased reviews from the tech community

ABSTRACT

The evolution of software applications has caused a necessary change in the practices and tooling used in Application Performance Monitoring (APM). Applications today are seldom as simple and monolithic as they were in earlier generations. They consist of many distributed, API-connected components like web services, microservices and containers, e.g. Docker. In some cases, the application is actually composed of elements controlled by more than one corporate entity, hosted in both cloud and on-premises environments. Monitoring the performance of such modern applications requires a new approach to APM and an updated APM toolset. What does it take to succeed? Learn from IT Central Station members as they share APM best practices for modern applications based on their experiences with CA APM solutions.

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INTRODUCTION

Applications today are seldom as simple and monolithic as they were in earlier generations. Their fast-moving evolution is driving changes in Application Performance Monitoring (APM). Modern applications tend to consist of distributed, REST API-connected components like web services, microservices and containers like Docker. The app itself may be composed of elements controlled by more than one corporate entity. The pieces could easily be hosted in multiple cloud and on-premises environments.

Monitoring the performance of such modern applications requires a new approach to APM. It also means updating the APM toolset. To understand what it takes to succeed, read on to hear from IT Central Station members who work with APM on a daily basis. They share APM best practices for modern application based on their experiences with CA APM solutions.

APM in Brief

APM comprises a collection of processes and tools aimed at ensuring an acceptable level of performance and availability of software applications. It's typically used to monitor business critical or customer facing applications to detect and diagnose application performance issues that may be complex in nature. APM is relevant whether or not there are established Service Level Agreements (SLAs) or Quality of Service (QoS) guarantees.

APM Challenges in a New Digital World

Digital Transformation initiatives are moving development and applications from a monolithic architecture deployment to a complex, distributed and ephemeral architecture. These include cloud, microservices and APIs. Monitoring and managing performance for distributed, loosely connected types of applications is a radical departure from traditional APM. There are many more moving parts,

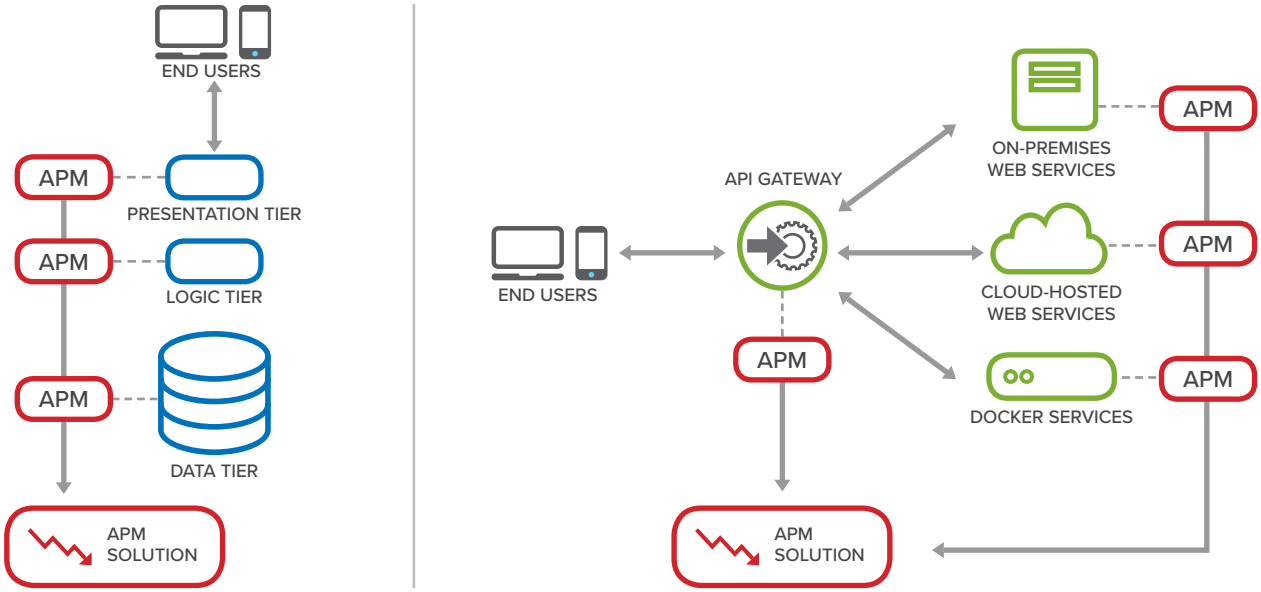

Figure 1 - APM becomes more challenging with modern applications which frequently connect multiple elements, some of which may reside in different entities.

and an increase in multiple dependencies between components to track. Plus, the topology and substance of the application change quickly, making it even more complex to diagnose application issues. In contrast to semi-annual updates, APM must now contend with agile methodologies, Continuous Integration (CI) and other processes that might see software updates several times a day!

Future-Proofing APM

APM continues to evolve in parallel with software development and deployment methods. For background, businesses today increasingly rely on modern software approaches to deliver a "digital experience" to customers. People expect to engage with businesses across multiple device types as well as in new, dynamic ways, e.g. getting virtually fitted for a dress while using a mobile app on a plane. From these new use cases, there has been a renewed focus on APM that will accommodate modern software platforms along with the delivery that will support these experiences.

Future-proofing an APM solution, therefore, is evolving to address new uses of APIs. It is adapting to the widespread use of cloud-hosted data and software services. APM is also adjusting to accommodate the revolution of container-based software and microservices. All of these are part of creating the "digital experience," with rapid changes to applications. Figure 1 compares reference architectures for traditional N-tier applications with those based on APIs and Containers.

Best Practices for Modern APM

APM for the current and upcoming generations of software functions optimally when tools and processes align with best practices. The following best practices arise from the experience of IT Central Station members who are responsible for APM.

MONITOR CONTAINERS

Given the rising prominence of containers as an element in application architecture, the best practice is to focus APM on monitoring container performance. A Project Lead for Monitoring, who is in the rollout phase of container monitoring, explained his future plan by saying, "In the end, all containers will be instrumented by CA APM agents in order to have a complete

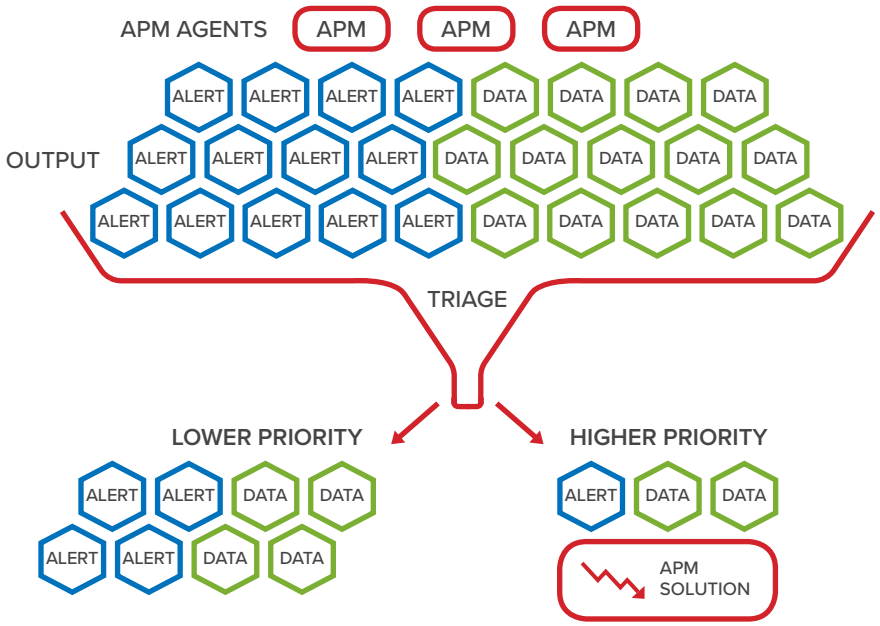

Figure 2 - The APM triage process helps administrators determine which alerts and performance data indicate a serious problem versus an issue that can be examined later without affecting application service levels.

view of the current operative status of the dynamic and volatile container world." An IT Senior Manager of Online Services at a tech services company who admires CA APM for its scalability, similarly noted, "We are now moving to containers and the newest technologies."

FOCUS ON APIs

APIs form the vital connectors that hold modern applications together. Monitoring and managing their performance is therefore essential for meeting SLAs. A Project Manager, QA Leader and Information Security Manager who uses Runscope at a small tech services company described how API management works for him. "We use it to monitor the APIs," he said. "We always have them scheduled. We have it all monitored. Even when it's a problem on our side, the server is down, or there is a lack of memory, the first thing to break is the API, because the calls can't be processed." With Runscope, "We know exactly at that moment because we receive notifications, and we can take action. It doesn't only notify us of the type problem, but it also links it to our servers."

A Quality Assurance Engineer, who uses Runscope at a consultancy with over 1,000 employees, described the tool as reliable "for running big amounts of API tests, which you can schedule to run periodically." For a Test Engineer who uses Runscope, the product is valuable because it "is able to detect API layer issues in our production environment before our customers are able to." The Runscope API monitoring tool also has a beneficial impact on software before it even goes life. As a QA Manager at a retailer explained, "Our primary use is for REST API automation. Runscope allows our QA team to spend less time on our API smoke test during releases. Runscope is the best option for REST API automation."

PROACTIVELY TRIAGE APPLICATIONS AS QUICKLY AS POSSIBLE

When an application performance problem surfaces, the IT operations team wants to know how serious it is, as quickly as possible. The most severe slowdowns and outages should get the fastest, most intense attention. This requires a process known as triage, depicted in figure 2. Borrowed from hospitals, the term refers to the practice of treating the most seriously injured patients first. Some APM tools offer advanced triage capabilities that include the use of Artificial Intelligence (AI) and Machine Learning (ML) to analyze the problem. This quickly helps administrators determine the issue's level of severity and determine the fastest path to its mitigation.

A Systems Engineer at a tech services company with

more than 50 employees discussed how, "It's critical that we're able to find actual problems or issues with applications on our network." He followed up by saying, "We use APM to do that, as well as to troubleshoot the causes or triage them so that we know where to look for the problem." A Manager at a tech services company with more than 10,000 employees said that CA APM's Assisted Triage and Analysis Notebook are two of the products most valuable features. As he shared, with these two features, CA APM "answers the question as to why the experience is poor, without having to do all the manual digging around."

DETERMINE ROOT CAUSES OF APPLICATION PERFORMANCE PROBLEMS

The triage process can help administrators discover the root cause of an application performance problem. Root cause analysis is a vital part of APM because admin time is limited and it is inefficient for team members to waste time trying to fix a problem that is secondary to the real, root cause of the issue. In this context, a Senior Service Assurance Consultant at a tech services company, who uses CA APM internally to monitor and diagnose Java-based systems, described the tool by noting, "It gives precise insights about problems and leads to the root cause very quickly."

> **"We're taking more of an inside out approach to actually bringing the root cause immediately to our attention. This is instead of us having to start and dig down to identify what the root cause was. It brings it right to the forefront immediately without requiring additional triage."**

A Director of Technical Projects, Client Services, FIS at a tech services company with over 1,000 employees spoke to the diagnostic value of CA APM by commenting, "We're taking more of an inside out approach to actually bringing the root cause immediately to our attention. This is instead of us having to start and dig down to identify what the root cause was. It brings it right to the forefront immediately without requiring additional triage." The secret, according to a Business Solutions and Innovation user at a tech consulting company with more than 50 employees, rests with "the ability to accomplish the identification of the root cause of problems with applications in drill-down level by integrating the suite with tools for managing and monitoring."

AUTOMATICALLY MAP TOPOLOGIES AND DEPENDENCIES

The layout of application elements and their relationships to one another will affect performance, especially for modern applications where change is inevitable. For example, if multiple applications invoke the same API simultaneously, the API can become "overheated" and slow down, affecting the performance of all the dependent applications. For this reason, IT Central Station members like the Project Lead for Monitoring liked the fact that CA APM can analyze his architecture for "system changes, topological changes, or code updates that are introduced into our environment." In this vein, the Business Solutions and Innovation user at the tech consulting company recommended spending time to do a proper mapping of business processes, interfaces and dependencies. APM can do this, automatically mapping application topologies and dependencies.

TRACE TRANSACTIONS FOR IN-DEPTH INVESTIGATION OF APPLICATION PERFORMANCE PROBLEMS

The ability to trace a business transaction as it makes its way through associated software applications gives IT managers a powerful tool for APM. It takes much of the guesswork out of determining what's going wrong. And, it aligns APM with business transaction processing, which is what actually matters in most organizations. Software doesn't exist in a vacuum. It serves a business purpose.

As a Services (APM) Consultant at a tech company with more than 50 employees commented, "We can capture the in-depth transaction trace and error trace which helps us to provide RCA to the customer. Now, the application team has more visibility in regards to their application performance and they can easily pinpoint to the problematic area by transaction traces." A Principal Analyst at a comms service provider with

over 1,000 employees remarked, "Suddenly, we were able to evaluate based off how code was being traced. In one incident, it saved us 18 hours in finding the actual problem in the logic for that application once we had a problem."

HARVEST AND ANALYZE DIAGNOSTIC INFORMATION

The best APM tools provide for the harvesting and analysis of diagnostic information about application performance. A Consultant at a tech company with over 1,000 employees found that CA APM worked well in this sense, saying, "Overall the Tools helps to detect any issue emerging with in-depth analysis available for the resolution through APM." A Solution Architect at a tech services company with over 1,000 employees echoed this notion, saying that CA APM "helps us to meet business transactions SLA for our critical end-user applications; proactively identify the issue and helps the application team make its diagnosis before it impacts the end-user experience."

Similarly, an IT Technical Integrator Level IV at a financial services firm with over 1,000 employees likes CA APM because, "It has provided application teams with another tool in the tool box to diagnose complex performance and availability issues. It also allows for the early detection of an issue before we hear about it from our customers." He then added, "CA APM reduces our time to resolution and improves our customer confidence."

A Senior Consultant at a tech company with over 1,000 employees offered the following perspective: "Before APM, all the support/information diagnostic retrieval was post-mortem. Logs retrieval with tons and tons of useless info would generate a report after several days of an issue, with no clue as to a root cause, but with several hypotheses on what was it. Now, different teams can get info even before the system crashes and can take proactive steps and find the exact point to focus their efforts to fix it."

TAKE ADVANTAGE OF THE FULL BREADTH OF APM METRICS

APM metrics complement the diagnostics and analysis capabilities of an APM solution. Managers need to know the numbers behind the apps they are managing. The IT Technical Integrator Level IV at the financial services firm felt this way, observing that "metric Data API that allows querying and extraction of metric data" was the most valuable feature of his APM solution. The Senior Consultant at the tech company expressed how APM had improved his organization by enabling him to attain "service maturity," which he described as the ability to "retrieve the normal metrics for every major aspect of each module and deliver this info to the correct eyes."

> **"We have had large environments, many millions of metrics feeding in, and never have we had to dedicate a single resource to maintaining it."**

For a Middleware Specialist at an energy/utilities company with over 1,000 employees, the value was in how his APM solution "gives us the flexibility to create new metrics and measure whatever we need." As he put it, "It makes it possible to monitor the full range of applications from the most complex to the most simple ones." The Principal Analyst at the comms service provider added, "We have had large environments, many millions of metrics feeding in, and never have we had to dedicate a single resource to maintaining it." An APM solution will need to dynamically scale and process millions of metrics quickly in order to meet the growing demands of modern application environments.

LEVERAGE ANALYTICS AND DASHBOARDS

Application performance data is most useful when administrators can see it quickly and effortlessly in a usable form. Analytics and dashboards fill this role for APM, as they do for other solutions. A Solution Architect at a tech services company with over 1,000 employees found this aspect of CA APM useful to his work. He commented, "We want to know what went wrong, and what is the area in my code that I can improve on." A Technical Service Owner for Monitoring at a healthcare company with over 1,000 employees offered, "The APM allows us to have inside-application analytics, and very seldom do we need to reboot, etc."

CA APM's Reports and Dashboards provides the Consultant at the tech company with a customized option to view data that he felt was "most important." A Vice President at a financial services firm with over 1,000 employees likes CA APM because, "It gives us insight into the functional health of the application, if we have any hot spots. For distributed applications we need those insights. We like the dashboards where we can consolidate different metrics into one view."

FOCUS ON APPLICATION END USER AND DIGITAL EXPERIENCE

APM exists for the benefit of end users. After all, they're the ones who turn the application into business value. Thus, APM does well when it focuses on end users and the overall digital experience the applications provide. The Solution Architect at the tech services company had this in mind when he wrote, "CEM helps us to deliver faster responses, and manage the end users' response and reliability."

CONCLUSION

APM needs to keep pace with changes in application architectures. With distributed components like APIs, cloud, microservices architectures and Docker containers, performance monitoring relies on new tools and best practices. According to IT Central Station members, these include using analytical and machine learning capabilities in the APM solution to proactively triage alerts and determine the root cause of performance issues. This may require a focus on APIs and containers.

A modern APM solution should also map application topologies and dependencies and trace transactions for an in-depth investigation of performance problems. Data and dashboards give admins visual tools to help them be productive and react quickly to issues that may affect the customer experience. With the right tools and best practices, APM can help the IT department exceed customer expectations and deliver application performance that supports business requirements.

ABOUT IT CENTRAL STATION

User reviews, candid discussions, and more for enterprise technology professionals.

The Internet has completely changed the way we make buying decisions. We now use ratings and review sites to see what other real users think before we buy electronics, book a hotel, visit a doctor or choose a restaurant. But in the world of enterprise technology, most of the information online and in your inbox comes from vendors but what you really want is objective information from other users. IT Central Station provides technology professionals with a community platform to share information about enterprise solutions.

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ABOUT CA TECHNOLOGIES

Application Performance Management solutions form CA Technologies, helps businesses optimize application performance across modern dynamic application environments by combining automatic detection, deep visibility, and massively scalable metric collection and analytics. With CA APM you can:

- Manage what comes first—customer experience: See the health of apps across channels, services and locations. Align teams to business outcomes with sharable experience dashboards.
- Find and fix problems faster: Assisted triage delivers intuitive root-cause analysis workflows based on analytics.
- Simplify complex topologies into role-relevant views specific to the task at hand with a unified, attribute-driven data model and team center perspectives.
- Gain fast and accurate feedback: Understand the impact of changes on application performance at any point in time. Quickly locate where problems originate—in code, releases or configurations.
- Shift left for higher quality: Seamlessly integrate across the DevOps toolchain—including continuous integration, delivery and testing—to increase quality and help prevent costly defects from reaching production.
- Gain richer performance insights: Automatically collect, correlate and layer application performance information with associated infrastructure topology and metrics.
- Achieve fast value with low overhead: Use a zero-configuration agent to automatically collect deep transaction traces whenever a problem arises. Monitor performance from mobile to mainframe:
- Gain end-to-end insight into app performance from APIs, partner-systems and mobile apps to back-end processes hosted on mainframe systems.
- Manage whatever comes next: Manage modern distributed application environments, microservices and containers with automatic container discovery and flow maps and massively scalable metric collection and analytics.

Regardless of your application architecture, CA APM's automated and hassle-free configuration means you start monitoring in minutes, with rich analytics delivering powerful insights as your environment grows—helping ensure that this powerful platform delivers on its promise of conducting digital business at scale. Try CA APM Today.