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Best Practices for Intelligent Application and Service Monitoring

Today's modern IT enterprises have different approaches and tools to predict and eliminate outages using advanced data collection and analytics. If you are managing IT operations, you know that it is not easy to make sense and derive context from all the data. Monitoring those different types of data being generated within your cloud and on-premises infrastructure — from modeling and performance data to logs, events and more — offer different value. In addition, the shift to software-defined infrastructure, including APIs and ephemeral services, introduces a requirement to collect streaming data from systems, services and applications.

In this guide, we'll explore some of the common challenges in managing dynamic IT environments and how IT Ops can deliver significant value in real time by following the best practices of intelligent application and service monitoring (IASM). Take a look at the five key pillars of IASM that enable IT Ops to implement holistic, extensible and scalable monitoring that dramatically increases the business value they can deliver.

Challenges in Monitoring Dynamic IT

Managing siloed monitoring tools has become a daunting task for IT Ops. Integrating all of these different data types is a critical aspect of gaining the complete context IT practitioners need to be effective in today's complex, dynamic environments. Most common data types collected in large enterprise environments include monitoring and metrics data, application data, and model data. Basic monitoring tools operate by pulling status updates from the various machines and devices across the network and reporting when any server or switch fails to respond to a ping or behaves out of the ordinary. They often require agents, which are costly to install and maintain and are slow to provide support for emerging cloud technologies like microservices and hyperconverged infrastructure.

Traditional monitoring solutions for application performance require too much manual instrumentation and configuration — a reason why most organizations today are only monitoring 5-10% of their applications. They also have little to no visibility below the OS level, so resources like storage, network interfaces and hypervisors tend to disappear. Many IT monitoring solutions don't maintain a rich catalog of integrations with legacy devices or haven't kept pace with the rapid evolution of modern cloud-focused IT like containers or hyperconverged infrastructure. Organizations still rely on disparate and siloed monitoring tools built on legacy frameworks that present a fragmented view of IT operations.

5 Key Pillars of IASM

You need to approach a dynamic IT environment with tools to monitor all parts of an IT service, regardless of where or how it is running, as well as to detect issues with how an application is interacting with other components. The key is to present a real-time view of what is happening to IT Ops and help them proactively address issues before they affect users.

IASM solutions will be able to make sense of complex application systems and help IT Ops prevent slowdowns or application failures. According to Forrester, the key pillars that help achieve IASM are:

1. Intelligent root-cause analysis

2. Remediation and automation

3. Measurement of digital customer experience

4. Ease of deployment

5. Better time to value and mean time to resolution (MTTR)

Five Pillars of IASM

Intelligent
RCA

Remediation &
Automation

Measure
Digital CX

Ease
Of Deployment

MTTR
& Time-to-Value
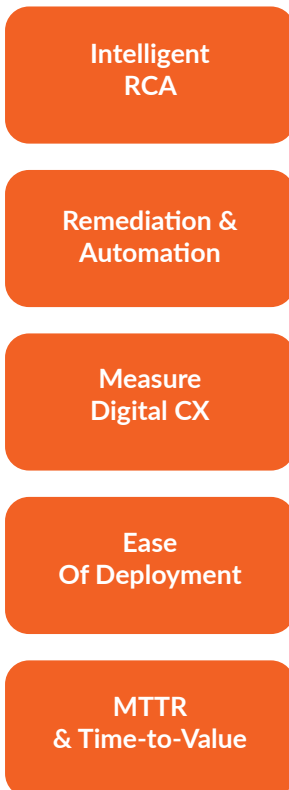
1. Intelligent Root-Cause Analysis

One of the key challenges faced by IT Ops is the lack of complete visibility and the inability to detect the root cause of a problem quickly, which leads to disruption of service and a poor end-user experience (an outcome which has increasingly become a top priority for IT teams to avoid). Intelligent root-cause analysis (RCA) provides IT teams with a clear diagnosis backed by readily accessible contextual data collected from different sources, which helps with faster mean time to resolution (MTTR). AI/machine learning–enabled RCA facilitates your troubleshooting process by uncovering relationships between different components in your hybrid IT infrastructure as well as trends and behaviors that fall outside of the realm of normal. Also, it helps in automating incident resolution based on issues identified, which dramatically improves user experience. Monitoring solutions with intelligent RCA capabilities provide greater value to users since IT engineers will find it much easier to make sense of all the data and variables from their highly complex and dynamic IT environments.

Adopting a model-based approach that incorporates all kinds of data from different sources and stores it all in the same place enables IT Ops to quickly execute RCA to identify the services impacted by a component failure. A topology model includes discovered and logical relationships, supporting both RCA and impact analysis. You can easily browse all other data coming in at that time from across your hybrid IT environment to quickly scope out the level of impact a particular incident is generating on your applications. RCA is provided by event analysis from service elements and dependencies and informed by a set of policies. With machine learning capabilities, you can quickly highlight relevant data or group data points together to eliminate event storms.

2. Remediation and Automation

IT Ops teams need software to help them throughout their deductive problem-solving processes — accelerating resolution by streamlining investigation and collaborating across teams, quickly identifying root cause, and automating remediation. Instead of spending their time treating recurring symptoms, they should attack problems at their core. IT practitioners from multiple disciplines can all work from a single source of truth to properly identify next steps and assign teams to execute remediation when an issue occurs. This can lead to cases where remediation steps can be automated, without IT intervention, further reducing MTTR.

The key is selecting a platform with an ability to perform event correlation based on a native, deep understanding of the IT infrastructure components and dependencies. It should be domain-aware as well as IT service-aware — it should know how the infrastructure works in order to determine logical relationships. Understanding how these individual monitored elements support a critical service at any given point in time helps to prioritize the most important issues to investigate and resolve first.

3. Measurement of Digital Customer Experience

Both developers and IT teams need to collaborate and create a road map for managing digital experiences in dynamic environments. They find it challenging to overcome hurdles like siloed metrics and inability to take action on measurement insights, which leads to substandard digital experiences for customers. Having the right tools and processes helps IT professionals uncover pain points from metrics collected through user interactions. These measurements can help in creating a framework for key stakeholders to design and improve digital experiences. IT monitoring solutions need to be able to identify pain points in user experiences by connecting insights across data sources to pinpoint critical customer experience issues along the customer journey.
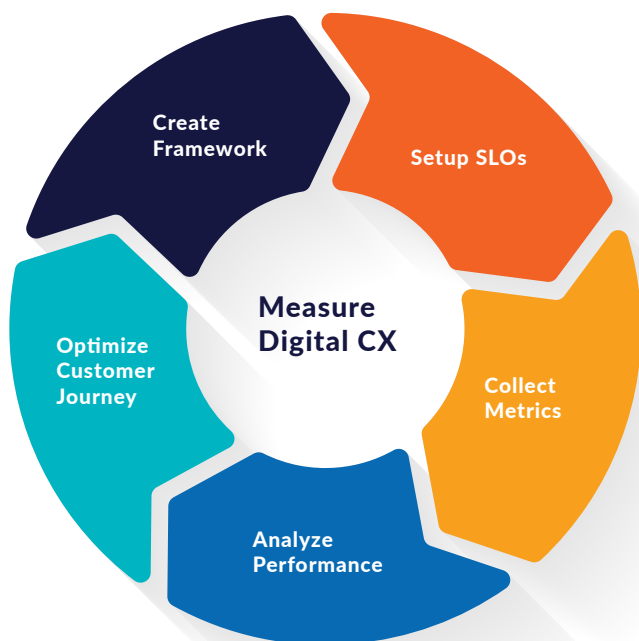
A full-stack monitoring mechanism can help cross-functional teams to view and understand application performance along with the customer journey. For instance, setting up service-level objectives can ensure your critical applications are up and running. But having deep visibility into performance metrics of your customer-facing applications can enable both developers and IT teams to answer key questions about the overall digital experience in real time.

4. Ease of Deployment

Deploying new applications that transform the customer experience in an agile fashion can weigh heavily on your IT infrastructure. Modern monitoring platforms should enable you to confidently scale and adapt to unique and evolving needs while focusing on delivering business value through IT services rather than administering the tools that support them. For users, the improved ease of deployment and minimal need for configuration are seen as necessary features while evaluating vendors. IT Ops teams need monitoring solutions that operate efficiently and can handle changing environments without having to rearchitect their existing systems.

IT leaders are looking for some combination of both agent-based and agentless monitoring solutions with the capability to quickly monitor any service they create or deploy in order to help keep their growing infrastructures in line. It helps to have a born-in-the-cloud IASM solution that brings together operational insights from physical, virtual and cloud infrastructures to effectively monitor your entire IT ecosystem at scale.

## 5. Time to Value and Mean Time to Resolution (MTTR)

It gets more challenging as new technologies (e.g., containers and microservices) continue to evolve. Traditional point tools can only allow IT teams to get hardware-specific data they control and manage. In many cases, the ability to streamline IT operations is the most advantageous part of the business case for modern IT monitoring. By providing an end-to-end view of the infrastructure, administrators can more quickly highlight risks and pinpoint the source of any given issue. Time spent finger-pointing and firefighting is also reduced as individual administrators are empowered to single-handedly identify and resolve availability and performance concerns. Whether you are in the midst of creating a completely new environment for your IT department or are reevaluating monitoring tools and the potential of hosted IT services, you need an intelligent IT operations management platform built for taming the most complex, modern IT environments.

Create Framework

Setup SLOs

Measure Digital CX

Optimize Customer Journey

Collect Metrics

Analyze Performance

How Zenoss Can Help

Zenoss Cloud is the first SaaS-based intelligent IT operations management platform that streams and normalizes all machine data, uniquely enabling the emergence of context for preventing service disruptions in complex, modern IT environments. With Zenoss Cloud, you get the only machine learning insights informed by real-time model data as well as all other data types. This creates an unprecedented capability to visualize incidents, forecast trends and detect issues before the business is impacted. Intelligent insights allow you to:

- Support new business models

- Transition IT to event-driven outcomes

- Evolve from availability and performance to capacity and optimization

- Deliver management as a service for DevOps

Zenoss leverages machine learning–driven dynamic dashboards, creating an intelligent user interface (Smart View) based on user interactions. For instance, Zenoss Smart View displays the most relevant information on the top based on the event data collected from different sources, including event severity, event class and event name, as well as the time each event occurred. This makes things easier for IT Ops to quickly identify and troubleshoot issues before they impact user experience.
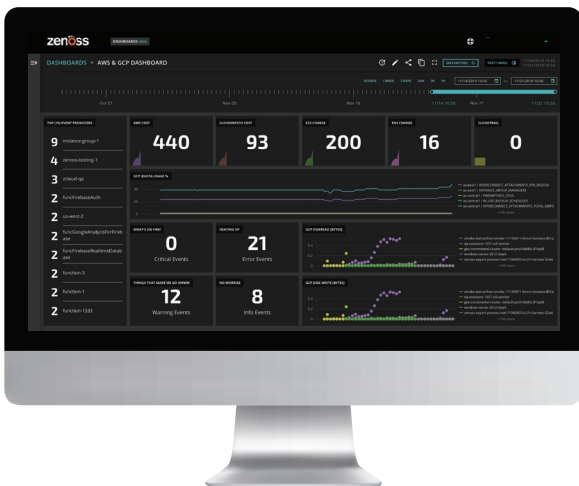
With Zenoss, the data streams in directly from applications, and an open API allows DevOps teams to build monitoring into their projects from the beginning. Zenoss helps you adopt customer experience measurement capabilities by tracking native synthetic transactions through integration with third-party solutions. It collects custom metrics using agents to provide insights into poorly performing microservices to understand implications on applications. Zenoss supports custom integration with third-party real user monitoring (RUM) solutions with capabilities that include ingesting published RUM alert events, parsing the events to determine the affected devices, and correlating the events with the Zenoss service impact model to enable root-cause identification.

IMPROVE MEAN TIME TO RESOLUTION (MTTR)

85%

REDUCE ALERT NOISE AND EVENT STORMS

99.99%

INCREASE ITOM SYSTEM AUTOMATION

70%

CONCLUSION

A dynamic IT ecosystem requires a modern approach that spans the entire IT service chain — an approach that is unified, architecturally extensible, and based on real-time, end-to-end visibility and system analytics. A cohesive solution can have the potential to deliver significant cost recoveries to IT departments that want to invest in new, modern capabilities but lack the available resources to do so. Zenoss works with the world's largest organizations to ensure their hybrid IT services and applications are always on. As the leader in intelligent application and service monitoring, Zenoss' comprehensive real-time models provide unparalleled insights into holistic health and performance data, uniquely enabling users to predict and eliminate outages, dramatically reducing downtime and recovering significant IT resources for transformational projects.

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Intelligent Application And Service Monitoring

"Zenoss strategy emphasizes simplifying integration across multiple IT data sources and corporate analytics systems … Customers that have large volumes of disparate data sources and need a highly scalable solution should consider Zenoss."

– Forrester Research

About Zenoss

Zenoss works with the world's largest organizations to ensure their IT services and applications are always on. As the leader in software-defined IT operations, Zenoss uniquely collects all types of machine data, including metrics, dependency data, events, streaming data and logs, to build real-time IT service models that train machine learning algorithms to deliver robust AIOps analytics capabilities. This enables IT Ops and DevOps teams to optimize application performance, predict and eliminate outages, and reduce IT spend in modern hybrid IT environments. Zenoss is recognized as a Leader in The Forrester Wave™: Intelligent Application and Service Monitoring, Q2 2019. For more information about Zenoss, please visit https://www.zenoss.com.

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