AIOps: Elevate IT Operations in the Digital Era

Dynamic pattern discovery, proactive problem identification, and root cause analysis
EXECUTIVE SUMMARY

In the era of digital business transformation, IT operations’ role has changed from technology provider to digital enabler—and is more critical than ever. However, cloud adoption, DevOps methodology, and the pace of innovation and change are creating unprecedented complexity and challenging IT operations’ ability to support business needs for speed, agility, and innovation.

The traditional approach to the discipline of IT operations and performance monitoring must evolve in support of digital business by implementing artificial intelligence for IT operations or “AIOps.”

AIOps is a new methodology that:

1. Brings together diverse historical and real-time data from monitoring, the service desk, digital experiences, and devices in a big data platform

2. Uses machine learning and advanced analytics to proactively identify and react to data patterns indicative of systemic, actual, or potential issues

3. Measures the impact of activity across increasingly complex and distributed digital business infrastructure and applications

Leveraging the power of AIOps, IT operations elevates to a strategic digital business driver through the fast, cost-effective management of multi-cloud and on-premises infrastructure and digital experiences.
Digital enterprise creates opportunity for new and tenured businesses to grow, scale, and differentiate using on-premises, private cloud, and public cloud technologies. Technology is the business, and IT operations is at the core of digital business technology. At BMC, we believe IT operations is the “core” of digital business.

It’s often said that innovation happens at the “edge.” Innovation requires a different mindset—a mindset that says “anything is possible.” This way of thinking doesn’t consider existing process or tool limitations, sustainability, scalability, performance, or interactivity. Nor should it. Digital businesses need people thinking about competitive advantages, innovative services, and market disruption.
To deliver on digital business, top-performing enterprises are writing 30% more software than average-performing organizations in order to differentiate their businesses, exploit product leadership, customer intimacy, and/or operational efficiency."

— What CIOs Need to Know About Software-Defined Infrastructure and Digital Business, Gartner, ID: G00325934, 10 July 2017.

Startups have the luxury of maniacal focus on innovation through external funding, adoption, and growth at the expense of profitability. Digital enterprises don’t. While innovation is happening at the edge of a digitally transforming business, someone needs to continue to manage the core that is underwriting that innovation. That “someone” is IT operations.
If innovation is to be meaningfully integrated into the larger business, it must first be enabled by IT operations with the expectation of taking over management of the innovation when the innovation matures. This enables a virtuous circle of innovation —> management —> innovation.

IT operations must “innovate at the core” in such a way that it frees the business to explore services, applications, partnerships, and technologies within a framework of long-term viability to the digital enterprise.
MULTI-CLOUD CLOUD ADOPTION, DEVOPS, AND THE PACE OF CHANGE CREATE COMPLEXITY AND BLIND SPOTS

Multi-cloud, microservices, connected devices—these new and changing technologies, widely adopted in pursuit of business innovation, are creating a digital data explosion and unprecedented level of complexity. So, while organizations should aspire to a seamless handoff of innovation from digital business innovators to core IT, reality has a way of frustrating this goal.

Innovative technologies often are adopted and deployed by the business outside of the context of a broader technology strategy—serving the needs of one part of the business that won’t be slowed down by central IT management that can’t keep up.

The IT tools and processes that have been refined and honed for years to meet the needs of a pre-digital world are simply out of alignment with the current demands of digital business. Siloed tools and organizations, the rise of the developer, shifting budgets, and on-demand technology resources create blind spots—leading to out-of-control costs, redundancy, lack of interoperability, failure to scale and integrate, and poor customer experiences.
CURRENT COURSE AND SPEED PREVENTS IT OPERATIONS AND DIGITAL BUSINESS ALIGNMENT

The speed, scale, and complexity brought on by innovation is stressing core IT’s traditional rules-based approach to performance management. Organizations are spending more time and resources than ever before on problem identification, troubleshooting, and root cause analysis because:

+ **Erratic infrastructure behavior** creates event storms that may or may not point to real problems

+ **Public cloud resources** require dynamic operational cost management that’s unfamiliar for IT operations organizations that have traditionally managed capital expenses

+ **Service ticket categorization** fails to capture the breadth of issues that constantly arise in a digital world

+ **Digital experiences** can no longer be determined from the view of a single managed app or service—unmanaged third-party systems are critical to performance and digital experience
These complications, and many others that unexpectedly appear daily, require a new approach to managing the core of digital business: IT operations. Customers continually state that their IT war room is in a perpetual state of reaction, visibility is lacking, data is overwhelming, and public cloud costs are soaring.

“Cost savings for cloud initiatives often fail to meet expectations due to lack of planning and improper workload migration scope.”

— Build the Right Justification for Moving to the Cloud, Gartner, ID: G00326183, 15 May 2017
AIOPS EMPOWERS IT OPERATIONS TO SUPPORT INNOVATION AND THE DIGITAL ENTERPRISE

To effectively manage performance against digital business goals and control the cost of multi-cloud infrastructure in alignment with budget constraints, core IT organizations need an AIOps platform. AIOps platforms differ from IT operations analytics (ITOA) in that they do real-time, dynamic pattern identification on the vast amounts of data created by innovation-enabling technologies like bursting microservices and hybrid IT infrastructure, without the need for human intervention. Additionally, AIOps platforms are unique in their ability to organize and analyze according to data sources that traditional processes, driven by functional silos, are unable to understand.
The effective deployment of AIOps functionality, even restricted to monitoring-oriented use cases, requires a culture change. The very concept that monitoring, ITSM, or automation should reorganize their domains according to data sources, rather than technology types or infrastructure layers, upends most of the principles around which tools, processes, and tasks have been traditionally designed.

— What CIOs Need to Know About Software-Defined Infrastructure and Digital Business, Gartner, ID: G00325934, 10 July 2017.
The AIOps approach to monitoring and analytics:

+ Enables proactive problem identification by dynamically learning the behavior of the infrastructure and only raising alarms that are true issues

+ Eliminates blind spots by monitoring digital agent experience at the edge of the infrastructure where digital agents interact

+ Controls costs by dynamically managing public cloud utilization in the context of budget and spend

+ Reduces MTTR by focusing resources on the solution to problems versus chasing false alarms

Simply clustering performance monitoring events isn’t enough for IT operations to manage this complexity. The right AIOps platform combines monitoring and service desk information, and applies machine learning and automation to elevate IT operations in alignment with the digital business and in support of innovation happening all across the business.

“By 2022, 40% of all large enterprises will combine big data and machine learning functionality to support and partially replace monitoring, service desk, and automation processes and tasks, up from 5% today.”

— What CIOs Need to Know About Software-Defined Infrastructure and Digital Business, Gartner, ID: G00325934, 10 July 2017.
IT’S WORTH ASKING SOME HARD QUESTIONS

CIOs and their executive teams should closely examine the current approach to performance management and multi-cloud cost control in the context of their digital business goals.

A shift of this nature doesn’t just touch but fundamentally changes culture, tools, and processes. Some of the most important questions to consider when considering an AIOps platform include:

+ Does the current rules-based approach provide visibility into the on-premises, private cloud, and public cloud infrastructures?

+ How easy is it to understand multi-cloud infrastructure performance in the context of customer and digital service experiences?

+ How often do actual cloud costs exceed budget?

+ How easily can the IT organization identify problems from service deck tickets that aren’t accurately categorized or that are categorized as “other”?

+ How much time is spent in the war room trying to locate and solve problems?
With anything this vast and complex, there is no simple answer. So much great work has gone into the current IT operations approach to process design and tool selection, but the change brought by digital business demands new thinking, rigorous analysis, and discussion. Answers to AIOps questions aren’t simple “yes” or “no” responses—they need to be debated and discussed. The outcome will help IT leaders shape the vision and strategy for IT operations in the context of the digital business priorities. Answers to these questions also help IT leaders justify the investment required to shift culture, technology, and processes, and articulate the critical role of IT as the core of the digital business.
TrueSight is an AIOps platform powered by machine learning and analytics that elevates IT operations to address multi-cloud complexity and empower the speed of digital transformation. Our analytics engine dynamically identifies patterns in digital data that are unrecognizable using rules-based event management. TrueSight analyzes in real-time on-premises, private cloud, and public cloud infrastructure, monitoring, and service desk information, and automatically applies analytics to:

- **Predict** future performance issues with dynamic baselining and anomaly detection
- **Forecast** resource utilization, including public cloud cost, with capacity analytics
- **Focus** on the most likely source of a problem with probable cause analytics
- **Discover** issues captured in logs of a problem with log analytics
- **Identify** problems driving incidents with natural language clustering

Leveraging the power of the TrueSight AIOps platform, IT operations teams are best equipped to manage the performance of increasingly complex, scaled-out, and dynamic multi-cloud infrastructures, proactively identify issues otherwise buried in data, and deliver great customer experiences, while managing public cloud costs in alignment with budget.

Learn more at [www.bmc.com/TrueSight](http://www.bmc.com/TrueSight)
BMC is a global leader in innovative software solutions that enable businesses to transform into digital enterprises for the ultimate competitive advantage. Our Digital Enterprise Management solutions are designed to fast track digital business from mainframe to mobile to cloud and beyond.

BMC digital IT transforms 82 percent of the Fortune 500.