

This IDC Market Spotlight provides advice and guidance on maturing existing technology and management processes to ensure successful hybrid cloud deployments that are operationally and cost optimized.

Performance Management: Best Practices to Improve Hybrid Cloud Transparency

September 2018

Written by: Stephen Elliot, Program Vice President, IDC

Introduction

Digital transformation continues to drive new operating models for IT organizations that are reimagining their business. The use of public and hybrid cloud deployments, Agile development processes, DevOps practices, software-defined networking and storage, and container and microservices-based application architectures enable digital business execution. Increasingly, CIOs and their development and infrastructure and operations (I&O) teams recognize that technology architecture is becoming business architecture.

To accelerate transformation and the use of these modern technologies, IT executives recognize that with progress comes an explosion of technology complexity and a decrease in application visibility across the software and hardware layers. While the benefits of cloud technologies and modern application practices are obvious, many IT organizations miss the opportunity to reduce business risks and costs by improving their cloud planning and management capabilities before deploying cloud-based services. Opportunities also exist to reengineer heritage management processes to enable more collaboration and automation across DevOps, SecOps, engineering, cloud, and I&O teams with performance and availability responsibilities for these modern cloud environments.

As executives make application workload migration decisions, the hybrid cloud option continues to resonate. The need for control, data integrity, orchestration, and enhanced security drives hybrid adoption. Hybrid clouds offer an opportunity to create new processes, which are often extensions of existing private cloud processes and organizational roles and responsibilities. For example, application and network performance management can drive operational excellence spanning private and hybrid cloud architectures, which in turn leads to lower business risks, higher cloud ROI, and more automated and integrated processes that reduce customer experience problems. This IDC Market Spotlight provides advice and guidance on maturing existing technology and management processes to ensure successful hybrid cloud deployments that are operationally and cost optimized.

AT A GLANCE

WHAT'S IMPORTANT

IT executives are choosing hybrid cloud architectures for their benefits of security, data integrity, control, and management process integrations.

Best practices for hybrid cloud management are often extensions of existing private cloud management practices. However, modern Agile and DevOps practices are forcing IT executives to rethink how they develop, deploy, and manage applications to drive speed and an improved customer experience.

Definitions

- » **DevOps.** DevOps represents the integration of application development and IT operations at many levels, including culture, process workflows, and infrastructure management, as well as application creation, deployment, and delivery. Fundamentally, DevOps represents a faster, more agile approach to conceptualizing business innovation and driving those ideas or processes into customer- and user-accessible code — whether delivered as packaged software (in component form or as a full logical application), mobile and web apps, or online business services.

Achieving this type of operational environment can be very challenging. Schisms between developers, operations, and business teams are ingrained and difficult to change. Shifting dev and ops teams can be opposed or even hostile to one another. They often rely on fractured approaches to application release and support that make it difficult to coordinate activities. Such approaches can slow innovation and time to market.
- » **Hybrid cloud.** A hybrid cloud is a cloud computing environment that uses a mix of private cloud and public cloud services with orchestration between the platforms, allowing data and applications/solutions to be shared between them. Examples include usage of private and public cloud resources for the same workload to support bursting to public cloud or usage of one cloud (private or public) for production and the other cloud for test/dev, backup, or analytics. Unlike public clouds, which deliver services to multiple organizations, a private cloud is dedicated to the needs and goals of a single organization.
- » **Multicloud.** A deployment environment that uses two or more public or managed cloud computing services in a single heterogeneous architecture for complete or partial application/solution delivery (e.g., an enterprise may concurrently use separate cloud providers for infrastructure [IaaS], platform [PaaS], and software [SaaS] services or use multiple infrastructure [IaaS] providers).

Benefits

The benefits of performance impacts multiple teams: DevOps engineers, I&O, development, platform engineering, site reliability engineers, cloud architects, NetOps, and application support. These teams increasingly must collaborate to speed up problem identification and resolution and meet the increase in deployment frequency from software development teams. The balance of collecting broad and deep levels of information across the private, hybrid, and public cloud and then correlating it with application and infrastructure data points and metrics is critical to business success and risk mitigation. With technology complexity at an all-time high, the need for vendor-independent performance transparency is paramount across the varying multicloud environments. Additional opportunities for driving faster time to market and business outcomes and related benefits include:

- » **Analytics:** Collecting and correlating data from multiple cloud environments, networks, and applications, while pinpointing and predicting where problems exist before they cause customer disruption, is critical to maintaining a high customer reputation. Getting the right data to the right stakeholder as fast as possible also drives faster resolution cycles for application problems.
- » **Dashboarding:** The visualization of performance data in elegant, easy-to-use dashboards drives executive visibility and tighter team communications. Showing the "metrics that matter" to the right stakeholder is critical to driving team collaboration and trust.

- » **Packet-level inspection:** Having high data cardinality and deep levels of packet awareness is important as multicloud environments and software-defined infrastructure increase complexity, making visibility and observability across every layer of application and hardware infrastructure difficult. The more data, the better the ability to quickly pinpoint where a problem exists.
- » **Service dependency mapping:** To avoid application performance problems while performing a workload migration, it's essential to have a visual understanding of the application components and their related dependencies. Having visibility into applications that traverse hybrid and private clouds enables IT stakeholders to better troubleshoot component (network, application, database, etc.) dependencies when problems exist, helping contain the problem faster.

Considerations

Customers choosing hybrid cloud infrastructure should use application performance management to reduce business risks and costs and improve consistent and reliable operations. The practices in the sections that follow should be considered for optimizing application performance management for a hybrid cloud environment.

Staff Resources

- » Consider adding development skills across the team; application performance tools often must ingest data from third-party tools. API development skills are becoming increasingly common across I&O and networking teams to increase data access and integration across the broader tool portfolio.
- » Rethink existing roles and responsibilities for the development, infrastructure, and operations team. Many organizations are creating or hiring new roles that add valuable skills for a multicloud world. These include DevOps engineers, automation managers, cloud architects, site reliability engineers, and platform engineers.

DevOps and Agile Processes

- » IT executives should consider their current organizational structure as they shift from an IT project-centric culture to a product-driven culture using Agile and DevOps practices. These practices often require a shift in how best practices are shared through centers of enablement, the use of Agile Scrum teams and Agile Release Trains, and new roles such as cloud architects. During the transition, there is often an increase in the role of performance management for multiple IT stakeholders.
- » IT executives must focus on building trusted business relationships across executive, managerial, and staff levels within the business. Business and technology performance metrics measure the progress of Agile and DevOps teams and enable baselining for application performance as new model adoption occurs.

Tools

- » The use of hybrid cloud demands transparency across multiple delivery tiers (network, application, systems, etc.). Leveraging performance tools that provide private cloud management can drive a consistent view into hybrid cloud environments.
- » As new container, microservice, and cloud-native-based applications emerge in a multicloud world, network and I&O teams must work more closely with DevOps and engineering teams to provide self-service and best-fit

monitoring solutions that show data to various stakeholders. Faster software iterations and more deployments raise the importance of teamwork and dashboards.

Trends

There are several core trends impacting hybrid cloud performance management:

- » Enterprises are utilizing containers and microservices for application migrations between public, hybrid, and private cloud environments. Kubernetes is the default standard for the deployment model for container-based workloads. Executives realize that these modern application models require performance management across every layer of the delivery model.
- » There is a realization of the importance of metrics and tools that deliver and optimize speed and quality and improve the customer experience. From time to market, profitability, Net Promoter Scores (NPSs), and customer satisfaction, successful companies are investing in solutions that drive transparency for well-defined business and technology metrics.
- » There is executive recognition that both legacy, heritage estates, and new modern application (hybrid, public, PaaS, containers, microservices, etc.) models will work in concert for the foreseeable future. Enterprise IT organizations will have all these models and must manage them equally.

Conclusion

Application performance management is a requirement for a hybrid cloud deployment and essentially for any type of cloud investment. The growing technology complexity that a multicloud world offers established the need for transparency into critical performance data that impacts the customer experience. IT executives should consider the use of their existing application performance tools in a hybrid cloud world and drive a consistent set of data and dashboards for teams responsible for legacy and new application services. By utilizing best practices, IT stakeholders will optimize their operation and management processes, improve development and operations time to respond and solve problems, and enable a better customer experience.

With technology complexity at an all-time high, the need for performance transparency is paramount.

MESSAGE FROM THE SPONSOR

With cloud a cornerstone of many companies' DX strategies, optimizing its benefits is a business imperative. Enterprises looking to deliver high-performing cloud services need the ability to ensure reliable, high-performance service delivery. This can only be accomplished with real-time, vendor-independent pervasive visibility into virtualized and cloud environments.

NetScout's cloud solutions can help with smart data harnessed from the IP Intelligence found in your network traffic, aka wire data. This smart data, illuminated by superior analytics, delivers end-to-end service-level visibility into hybrid cloud environments, simplifying the complex, mitigating risks, accelerating business agility, and promoting operational excellence.

NetScout's service assurance solutions for hybrid cloud helps you innovate with confidence by offering:

- » Deployment Agility
- » Proactive Performance Monitoring & Analysis
- » End-to-End Visibility
- » Service Triage

NetScout provides pervasive software-centric instrumentation that continuously processes traffic flows at the source in real time to deliver complete insight across the entire service stack, including applications, infrastructure, and their respective interdependencies.

About the analyst:***Stephen Elliot, Program Vice President, Management Software and DevOps***

Stephen Elliot manages multiple programs spanning IT Operations, Enterprise Management, ITSM, Agile and DevOps, Application Performance, Virtualization, Multicloud Management and Automation, Log Analytics, Container Management, DaaS, and Software-Defined Compute. Mr. Elliot advises senior IT, business, and investment executives globally in the creation of strategy and operational tactics that drive the execution of digital transformation and business growth.

 **IDC Custom Solutions****IDC Corporate USA**

5 Speen Street
Framingham, MA 01701, USA
T 508.872.8200
F 508.935.4015
Twitter @IDC
idc-insights-community.com
www.idc.com

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