

The cloud operating model has achieved success in managing both computing resources and business workloads. Increasingly, this model is proving to be efficient and effective when applied across the entire digital infrastructure.

The Cloud Operating Model: Advancing Capabilities and Control Across the Digital Infrastructure

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Questions posed by: Cisco

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Q. What is the cloud operating model, and how is it evolving to meet IT operations management requirements across the entire digital infrastructure?

A. First off, let's examine what is meant by the cloud operating model and the digital infrastructure. The digital infrastructure encompasses all the technology components and connections that serve any private enterprise, public/NGO agency, or service provider. Included are all major technology domains (e.g., private datacenters, public cloud computing services, wired and wireless networks, core and edge environments, embedded and standalone security solutions, and business applications and data sets).

The cloud operating model is a well-established approach to managing cloud-based infrastructure (IaaS) and application (SaaS) services via a centralized cloud-based management service. As organizations seek to operate their digital infrastructure more efficiently and effectively as a unified foundation for the end-to-end experience, cloud operating model principles are being increasingly applied across the digital infrastructure — from network to compute, from private to public, and from applications to data.

Applying cloud operational principles to the entire digital infrastructure provides consistent visibility and control to all systems, services, and staff involved in driving the digital infrastructure. This unified approach to operations management enables organizations to boost IT agility, drive operational excellence, improve IT service quality, streamline IT operations, and heighten innovation and impact. And in the end, this approach optimizes the user experience.

Of course, as the cloud operating model moves to satisfy far more diverse infrastructure requirements, it must evolve to serve more IT technologies and domains and mitigate more problems and threats. Detailed intelligence, in-depth analysis, and automated actions strengthen vital functions such as infrastructure optimization, root cause analysis, and anomaly detection. The evolution of the cloud operating model must also support heightened staff collaboration and systems integration across IT. Here, role-based dashboards, APIs, and standardized data sets bolster usability and extensibility.

Q. What are the benefits of the cloud operating model that can be applied across the digital infrastructure?

A. Many of the reasons driving the continued acceleration of private and public cloud computing and application environments are evident when examining the proliferation of the cloud operating model and the adoption of management platforms to support the transition. Agility is improved via streamlined operations and dynamic activation of new features and functions. Velocity is increased via consolidated management, service development, and deployment. Innovation is facilitated via continual service enhancements. Security is strengthened via concentrated and likely more complete protection mechanisms.

Beyond the standard advantages of the cloud operating model, IT operations management is further enhanced by centralized cloudlike processes in multiple ways. Deployments, maintenance, and adjustments can be directed and automated from a single control point. End-to-end visibility can be delivered by comprehensive intelligence collection and management. Deep insights into digital infrastructure components and conditions can be developed by a central AI/ML-driven analytics engine. Human and automated actions can be secured, validated, and even directed by combining intelligence and insights from all appropriate sources. Engineers, architects, operators, and support staff — even from different IT domains — can share tools and data to better coordinate their efforts. This drives staff productivity, team collaboration and, for the IT executive, staff satisfaction, retention, and impact.

In addition to the advantages presented by the actual use of the cloud operating model, the singular operational structure lends itself well to the establishment and enforcement of such things as industry baselines, best practices, recommended actions, threat mitigation, and validated system/service configurations.

Enterprises are at varying stages of maturity related to using cloud operating models, but there is a clear intention to increasingly leverage them for digital infrastructure. For example, a 2022 IDC global SD-WAN survey found that 45% of respondents preferred a vendor-provided, cloud-managed SD-WAN service, compared with 33% who preferred a vendor-provided SD-WAN; another 20% preferred a managed SD-WAN service. According to *IDC FutureScape: Worldwide Future of Connectedness 2023 Predictions*, by 2024, 75% of enterprises will leverage cloud-based APIs to create customer engagement applications that integrate UCaaS/CPaaS platforms with multichannel options to improve customer experience.

Q. How can organizations apply the cloud operating model to their digital infrastructure?

A. While the cloud operating model has been in use in managing public cloud-based computing and application services for a long time, it has only more recently been extended to other areas of the digital infrastructure. Private datacenters, cloud-conforming applications, on-premises networks, and more have increasingly come under the view and control of the cloud operating model.

For many wary organizations, using cloud principles to oversee the deployment, operation, and maintenance of on-premises systems may represent a loss of control, a security risk, or duplicate spending. A decade ago, some of these concerns were justified. However, as digital transformation accelerated across all industries and organizations, and

digital infrastructures grew to be more and more dependent on public and private cloud solutions, principles such as cloud-based management strengthened. Scale. Scope. Security. Intelligence. Analytics. Automation. Integration. Organizations have realized benefits in all these areas and more that have been enabled through adoption of the cloud operating model. As such, the standing of cloud operating models continues to improve in the IT industry and among enterprises.

And while the cloud operating model has strengthened in terms of capabilities, there are still organizational hurdles to overcome within IT. IDC survey results always indicate executive concern for staff productivity, skill gaps, and shortfalls in teamwork. To counter these concerns, leading organizations are using shared management responsibilities, tools, and data to prompt heightened cross-domain interactions and impact. Given that cloud-related costs account for a growing portion of the IT budget (rising from 42% in 2023 to 50% in 2024, according to IDC surveys and predictions), it is not surprising to see the cloud operating model serving as leverage for near-term staff gains and longer-term end-to-end digital infrastructure management gains.

Q. What criteria should be used to evaluate management tools to aid in transitioning to the cloud operating model?

A. Recent worldwide IDC survey results indicate the many challenges brought about by today's specialized and highly manual management tools. IT staff, already pressured by accelerating business requirements and technology advancements, are given limited time to fully learn and utilize all available tools. Investment in the many tools at work (or those left unused) in today's highly complex digital infrastructure is rising, and yet management and security gaps still exist. Integration is limited, owing to the complexity or closed nature of many tools. And on-premises tools themselves require continual maintenance to ensure proper and safe operation.

To overcome many of the previously mentioned challenges and more, IT organizations need to look for solutions that not only reduce the complexity associated with owning and operating management tools but also contribute to a more automated, overarching, flexible, and forward-looking approach to managing the digital infrastructure.

While any evaluation would certainly consider a wide variety of both solution and supplier capabilities, the following select capabilities stand out:

- » Collect, display, and share detailed intelligence to form a foundational capability, providing the comprehensive visibility necessary for performance monitoring, problem identification, and trend analysis.
- » Support advanced analysis (increasingly driven by AI/ML) of all collected intelligence to allow such key functions as complex correlations, anomaly detection, and predictive analytics.
- » Automate actions based on gathered intelligence and processed insights to provide a more resilient and dynamic digital infrastructure as well as needed relief for IT staff.
- » Leverage embedded security capabilities to protect the digital infrastructure and contained management intelligence and enable integration with complementary security tools, to further strengthen the end-to-end security posture of the organization and solidify security practices.

- » Enhance integration and interactions with third-party and in-house management tools via extensible APIs and support for standardized exchanges of digital infrastructure intelligence and insights (e.g., OpenTelemetry).
- » Enable efficient and effective service to the IT staff by providing features focused on usability (e.g., role-based dashboards, customized displays, click-to-zoom movements, and no-code automation).

Q. How can enterprises ensure the cloud operating model will match their digital infrastructure management requirements into the future?

A. Into the future, the ability to engineer, operate, and evolve the digital infrastructure as a precisely coordinated and tightly coupled unified resource is paramount. For IT and the business, the digital infrastructure must be managed in a more cohesive fashion. As such, IT management is increasingly best served by solutions that provide for comprehensive visibility and control and cross-IT integrations and interactions that encompass all systems, services, and staff. In this unified future, there is minimal management separation of core and edge computing, LAN and WAN connectivity, private and public (and hybrid) clouds, internal and external resources, and worker and customer experiences.

Unfortunately, this concerted management effort is not yet fully supported by today's specialized solutions and siloed practices. In this disjointed environment, IT staff are saddled with domain-specific tools, complex operating procedures, and siloed management views and controls. The good news is that advancements promoting a more unified management approach are accelerating. The cloud operating model provides the operational framework to support consistent oversight and operations. Standardized APIs and open source technologies (e.g., OpenTelemetry) provide for easy sharing of intelligence and insights across tools and teams. Endpoint, application, and network performance management solutions now support the measurement and monitoring of the digital experience — a vital end-to-end service metric. And increasing ties between observability and automation heighten infrastructure dynamics, IT service levels, and resource efficiency.

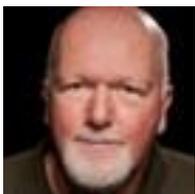
In working with IT organizations, IDC sees multiple key actions driving this move toward a more unified and concerted management effort focused on the operation and optimization of the digital infrastructure. Organizations are positioning their staff and teams for success by formally aligning domains and driving cross-IT collaboration. They are streamlining toolsets and practices, favoring solutions and processes that serve multiple functions and boost unified IT management efforts of engineering and operations, NetOps and SecOps, and so forth. And they are shifting from a reactive to a proactive management approach. Here, the cloud operating model and its supporting management tools can facilitate more predictive analysis, problem avoidance, and prescriptive actions. Each of these initiatives can be bolstered by the intelligence, insights, and controls offered by the cloud operating model.

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