

White Paper

How Infrastructure and Operations Teams Can Reduce Operating Expenses Using Hybrid Cloud Optimization and Automated Workload Placement

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Stephen Elliot Tim Grieser
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IDC OPINION

In tough economic cycles, infrastructure and operations (I&O) teams' relevance and value to the business increase as revenue-generating production services take a central focus in executive decision making. I&O teams are asked to provide tools, processes, analytics, data access, and dashboards to increase operating efficiencies through cross-team collaboration that enables scale, increased automation, workload placement, and faster decision making for the business. Providing highly available services that deliver a great customer experience becomes even more important as executives add more scrutiny to their purchase decisions and demand choice and integrations to avoid the high cost of vendor lock-in. Hybrid cloud optimization offers I&O teams an opportunity to manage services across private and public clouds while providing visibility, insight, and actions that can optimize workload placement based on business policies. In light of COVID-19 and the tightening economic climate, I&O executives should take actions to make more informed workload placement decisions and improve service transparency, compliance, and business continuity and resiliency for remote workers as we enter the new normal of globally distributed workforces and dynamic customer engagement models.

IN THIS WHITE PAPER

This white paper provides actionable guidance for infrastructure and operations teams that are under pressure to transform *and* reduce operating expenses while maintaining optimum levels of service performance across applications, networks, and the end-user experience. It provides hybrid cloud management data and information that should be used to help elevate I&O teams' unique value to the business using data-driven decision making and modern integrated technologies to accelerate outcomes in tight economic environments and rapidly changing business conditions. The white paper provides I&O teams with a road map for executing a hybrid cloud management approach that unifies and analyzes traditionally fragmented data sources across applications, infrastructure, networks, and the end-user experience to drive optimal workload placement decisions across multiple clouds while concurrently achieving operational and cost efficiencies, improved collaboration, and impactful business outcomes.

SITUATION OVERVIEW

As history has shown during the past two recessions (2001 and 2007), I&O teams are core to successfully transforming critical business processes while maintaining high levels of service availability for customers. In tough economic times, I&O teams' relevance and business value typically *increase* as production services that drive revenues take a central focus in executive decision making, and teams that can deliver cost and process efficiencies and outcomes garner more attention and budget. Teams can organize around three pillars: choice, experience, and velocity. While growth and technology experimentation projects remain important, there is no substitute for existing revenue-generating production services and the associated (and required) IT management, orchestration, and delivery capabilities that I&O teams deliver. In tightening economic environments and with fast-changing business and organizational demands and relentless compliance requirements, I&O and DevOps teams must provide tools, processes, data access, and dashboards to increase operating efficiencies and cross-team collaboration that enable scale, increased automation, and faster decision making for the business.

COVID-19 has changed every business – and the world. Now more than ever, business and technology leadership teams must view their technology architectures as their business architecture to become more resilient, move faster, and adjust to dynamic business conditions. The more efficient and optimized these architectures, processes, and teams become, the better a business can compete to grow profitably. According to IDC's *COVID-19 Impact on IT Spending Surveys* conducted in March and April 2020, out of 339 respondents, 50% said they plan to maintain current investment levels or increase their infrastructure software spending due to the pandemic.

These infrastructure software investments will be driven partly by the need to bring on-premises datacenter resources and cloud resources together. It is a critical I&O requirement to have visibility across all of the underlying infrastructure, including the application layer. This complexity drives the need for service transparency and the use of advanced analytic models to identify and resolve problems fast to reduce (or prevent) customer impact and the ability to choose the "best fit" cloud architecture for each workload to deliver cost optimization and business risk reduction. It also drives the need for tool integrations from multiple vendors, enabling customers to avoid vendor lock-in while providing long-term licensing transparency and flexibility.

In addition to infrastructure management and automation, and the life-cycle management of network, compute, and storage devices, I&O executives must have the ability to manage cloud-native, traditional, and container-based environments. Deep levels of insight and visibility into Kubernetes clusters, pods, and hosts as well as the ability to bring this information together with other metrics and data are essential to having an end-to-end view of service availability and identifying and resolving problems in cloud-native applications. Increasingly, many of these applications are distributed applications as they traverse multiple cloud architectures and have integrations with classic, or legacy, systems and applications.

Besides visibility and insight across multiple clouds, infrastructure, and applications, applying analytics to these unified data pools has never been more important. Analytic capabilities provide more precise triggers to initiate automated workflows and enable deeper insights into performance patterns. The ability to increase the productivity of existing I&O teams, and make existing resources more efficient, continues to rise in importance as budgets are more tightly managed and environments become more complex. Development teams need to increase the speed and deployment frequency of applications as a result of Agile and DevOps practices. According to *IDC FutureScape: Worldwide Developer and DevOps 2020 Predictions* (IDC #US44636519, October 2019), "by 2022, 50% of DevOps teams will invest in tools to focus on business KPIs (cost, revenue, etc.), and operations will play a larger role in end-to-end app performance and business impact."

Doing more with less will be a key mantra for the foreseeable future. Analytics enable I&O teams to govern supply and demand by creating business rules and policies that are automatically enforced through self-service interfaces that deliver resource provisioning. In addition, the same policies and rules can guide developers toward "best fit" workload placement and resource allocation recommendations that reduce and contain costs. These built-in, automated guardrails reduce business risks and improve the management and orchestration of critical services quickly. I&O teams can also apply singular policies to multiple clouds, increasing the consistency of service delivery while reducing administration overhead.

Cisco Intersight Workload Optimizer

Cisco has introduced Intersight Workload Optimizer, a SaaS-based solution that helps IT organizations optimize resource usage, control costs, and deliver required performance across a complex landscape of infrastructure, applications, and workloads, including on-premises and cloud deployments. Cisco Intersight Workload Optimizer operates in real time to ensure workloads get resources when needed to optimize overall system operational performance and health. The solution enables continuous placement, resizing, and capacity decisions to achieve optimal system utilization and application performance.

Customer Experience

IDC recently had conversations with two large enterprise IT organizations using Cisco Intersight Workload Optimizer. Both organizations are going through transformations; they are demanding better infrastructure performance and looking for cost reduction opportunities. The customers are using the product to rightsize their VM and infrastructure pools, utilizing automation where possible. This enables savings on resources, such as reducing the number of servers needed to support a diverse set of workloads and applications and optimizing licensing fees by "truing up" the actual VM configurations. Using the solution has helped both organizations increase infrastructure density and performance and drive more collaboration with development teams by reporting on key data metrics that drive operational efficiencies and decision making for capacity management.

The first customer, a global pharmaceutical company, brought in Cisco Intersight Workload Optimizer to reduce costs. The company uses the product as the single pane of glass for setting licensing rules rather than going into each of 20 VMware vCenter instances. The time needed to perform these tasks went "from 8 hours to 30 minutes," allowing the company to reduce costs and improve team productivity. The operations team suspected it had cost savings opportunities through underutilized storage and VMs, but other groups felt they were optimized. Using Cisco Intersight Workload Optimizer, the operations team enabled the collection and reporting of hard data that showed underutilized resources, which drove development collaboration and improved decision making. By gaining improved infrastructure performance, the development teams could move faster, in a

cost-optimized fashion. The product has "turned down commodity costs." In addition, the customer stated that the product has "seamless integration" with ServiceNow for IT service desk and service management solutions delivering automated workflows that improve the customer experience while reducing costs.

The second customer, a large retail chain, has achieved similar business outcomes and benefits with rightsizing, capacity management, and reclaiming resources. The solution performs many of these tasks in an automated fashion, providing valuable recommendations that reduce costs and improve employee productivity. The automation has reduced the time for capacity management for VMs, CPU, storage, and memory from "weeks to minutes," improving team productivity and cost reduction. In one example, the customer found 27TB of storage savings. The customer said the solution was used in its test automation process, for several VMs, and that it "worked beautifully." The rightsizing efforts were typically manual and difficult to create; the product makes this very simple. After using the automation capabilities, the customer has defined its success with the product using metrics that include "time savings, employee productivity, reduction in the number of P0 and P1 incidents, and alert reduction."

FUTURE OUTLOOK

I&O teams have a tremendous opportunity to deliver business continuity while maximizing performance and thus increase their business relevance and business outcomes. I&O teams should consider IDC's seven-step plan, based on IDC customer inquiries, to adopt hybrid cloud management and workload placement. The steps are:

1. Invest resources in tools and processes that provide cost transparency and optimal resource utilization; consider the idea of automating resource movement across on-premises or public clouds, with utilization and price as important factors.
2. Simplify global connectivity between datacenters and public clouds, reducing maintenance and operations costs while improving network and application performance.
3. Integrate performance monitoring and management of traditional/heritage, cloud-native, and container-based applications to deliver transparency and cost optimization across multiple clouds and to reduce customer-impacting downtime.
4. Plan for multicloud data collection and analysis for streamlined problem identification and resolution processes that prevent downtime and help identify problems faster.
5. Avoid cloud, hypervisor, and software-defined network (SDN) vendor lock-in by planning for a cloud exit strategy before signing a contract. Recognize that each contract is a form of lock-in, and mitigate risks by upgrading the due diligence process and by spending time planning for new DevOps and I&O practices and new development and management tools and processes.
6. Review SLA contracts and policies to understand the critical availability and performance metrics spanning networks, applications, and related infrastructure; obtain assurance that dashboards will provide enough transparency and understand the outcomes if service levels are not met.
7. Consider the critical requirements for each application workload; create a road map for both manual and automated cost-effective workload optimization and placement policies that trigger smart decision making based on business requirements.

CHALLENGES/OPPORTUNITIES

Challenges

Teams face several challenges when they deploy hybrid cloud management tools into production, such as silo-based teams using isolated open source tools, ineffective use of analytics, and poor visibility into application interdependencies across hybrid cloud environments. Additional challenges are related to IT culture, organizational structure, and technology.

IT Culture

- Many I&O leadership teams are challenged to spend time planning and investing in management automation and orchestration in a cross-silo, coordinated fashion. I&O leadership teams are also challenged to change their culture to a more partner-driven organization with development teams as these teams transition to Agile and DevOps practices.
- I&O executives are challenged to make significant and sustainable levels of investment across people, process (Agile), and technologies, which can drive end-to-end transparency across all tiers of the technology stack while empowering team collaboration and trust.

Organizational Structure

- Analytics that drive workload placement and recommendations transcend I&O teams; security and development teams must trust the tools and outcomes they deliver to drive adoption.
- Network teams are challenged to invest in developer skills, and I&O teams are challenged to tightly collaborate with DevOps teams early in the application development process to drive integrated automation across a common operating model.

Technology

- Event and notification storms make it difficult to focus on where problems reside, and manual processes slow the process of fixing problems.
- It's difficult with role-based dashboards to provide the right mix of depth and breadth of capabilities that will deliver value across the infrastructure management life cycle, and across multiple clouds, with a hardware-agnostic strategy.

Opportunities

Hybrid management offers several benefits for I&O teams to expand their business and strategic value and increase IT agility and speed. One of the major benefits is automation; specifically, automation of the configuration and deployment of containers and clusters and automation of capacity planning and workload balancing. Additional benefits are related to people, process, and technology.

People

- Better communications, teamwork, and resource access are enabled between DevOps and I&O teams as development teams increase their need for application performance management and resource provisioning capabilities.
- A single source of truth is provided for critical information that all teams can use to identify and resolve problems across the complex array of physical, virtual, and container-based infrastructures, thus speeding time to problem identification and resolution.

Process

- Out-of-the box integrations and APIs enabling fast integrations and service transparency that are provided deliver deep, end-to-end process views (from across various tools) for disparate teams across heterogeneous devices and multiple cloud environments.
- There is a need for continuous optimization, particularly in the current turbulent environment. This ensures ROI now, plus long-term ongoing savings.

Technology

- Reduction of business risks and unnecessary cost overruns is enabled by providing a road map for managing multiple clouds from one console and supporting infrastructure that moves I&O and cloud delivery teams beyond ad hoc management.
- More automated processes are enabled across container and infrastructure resources that utilize analytics to adapt infrastructure in real time and decide workload placement based on application requirements to drive operational simplicity and cross-silo/multicloud automation.

CONCLUSION

The current business environment is turbulent, unsettled, and unpredictable. I&O teams should have a sense of urgency to act to provide stability, collaboration, and transformational opportunities for new customer engagement models. As hybrid cloud management continues to permeate the enterprise IT organization, I&O teams can optimize workload placement based on business policies and drive continuous improvement opportunities for themselves and peer groups. The ability to drive and deliver business outcomes for cost containment, optimization, and growth offers I&O teams an opportunity to impact business strategy and use new tools and processes to modernize multicloud operations. As we enter the new normal of globally distributed workforces and dynamic customer engagement models, I&O teams should use analytics and integrated tools and processes to speed workload placement decisions to more quickly adapt to changing demands and drive business results for the long term.

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Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com

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