



## IDC TECHNOLOGY SPOTLIGHT

# Container Management Platforms Accelerate Agility While Enabling I&O Transformation

January 2018

By Stephen Elliot

Sponsored by Cisco

*IT infrastructure and operations (I&O) teams and cloud architects are seeking to better understand and communicate the value of container management platforms and capabilities. This Technology Spotlight provides an in-depth perspective on the value proposition of container management platforms as well as an explanation of why container management is a requirement. This paper also enables I&O and cloud architecture teams to optimize the planning of container management and accelerate the adoption of container management to help drive transformation that scales with DevOps teams using container-based and microservices-based application environments.*

### Introduction

Container technology has emerged as a popular way to optimize software development processes and increase business agility and time to market with new applications. It's a huge step forward from monolithic application environments. But it would be wrong to limit the value proposition of containers to modern, cloud-native applications. For many organizations, the first container experiences are more likely to be associated with a so-called "lift and shift" of existing monolithic applications from a dedicated virtualized environment into a similar virtualized environment, but with the application and its key dependencies logically grouped together by the container packaging. As interest runs high, many large organizations are investing to quickly get up to speed on this new technology. As IT executives increase the use of containers in a multicloud-, microservices-, DevOps-driven reality, container management platforms are becoming a required investment to increase container ROI and to improve agility and quality-centric business outcomes.

With growing business pressures to accelerate and automate development and deployment with operational and security processes, I&O teams and cloud architects must use container management in conjunction with best practices (DevOps) to achieve faster time to market and to cost optimize development, deployment, and operational processes with automation. Container management enables I&O teams and cloud architects to adjust and scale to the increased frequency with which development teams deploy software. Transformation of the development cycle is pressing I&O teams to become a trusted partner with the software factory. At the same time, I&O is demanding the delivery of self-service capabilities for automated infrastructure provisioning and configuration and establishing the need for sophisticated monitoring and management solutions that identify, resolve, and predict performance problems. Without these sophisticated delivery capabilities, I&O teams can't scale and keep pace with faster development and deployment cycles.

I&O teams and cloud architects face several additional challenges that must be overcome to achieve faster time to market, improve customer satisfaction, and increase throughput. The challenges are as follows:

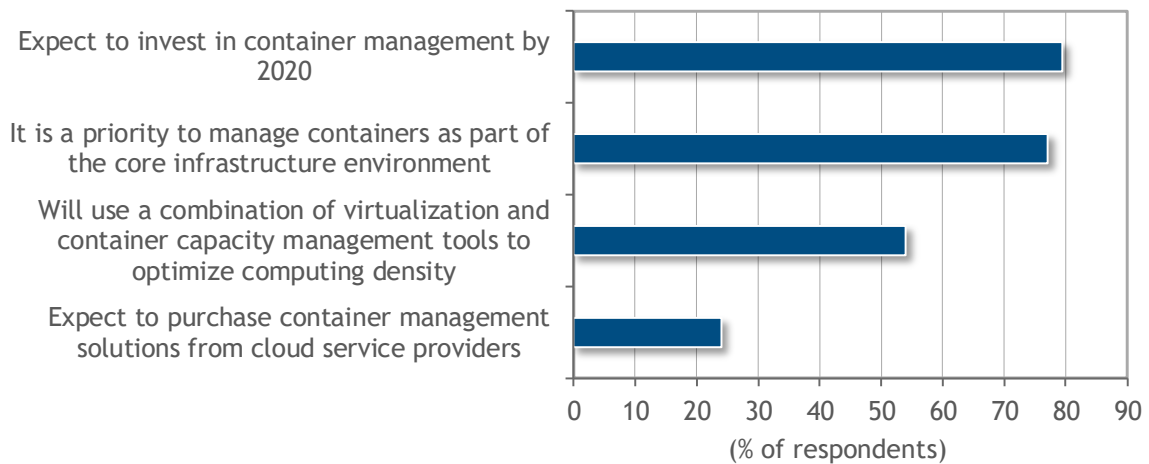
- The proliferation and integration of traditional and modern applications and the growth in the use of software-defined networks (SDNs)

- The deployment and code dependencies of legacy and modern applications in a multicloud world
- Growing security threats that seek entry points across large, multicloud application and network infrastructure footprints
- The reality that regardless of the underlying application architecture, the requirements of integrated application and infrastructure performance and availability remain

To attack these challenges, organizations are planning on purchasing container management solutions, as shown in Figure 1.

**FIGURE 1**

### Enterprise Plans for Purchasing Container Management Solutions



n = 200

Base = North American IT decision makers responsible for enterprise cloud and DevOps management strategies

Source: IDC's *Cloud and DevOps Management Survey*, July 2016

IDC's research indicates that IT organizations investing in cloud and DevOps are prioritizing investments in container management. In July 2016, IDC's *Cloud and DevOps Management Survey* of 200 enterprise-class IT decision makers in North America responsible for cloud and DevOps management strategies found that 79.5% expect to invest in container management by 2020. Three-quarters of these decision makers (77%) believe that managing containers as part of their core infrastructure environment is a priority.

As the adoption of container technology in production increases, both the container management strategy and the container management platform become critical to IT's ability to optimize the scale, cost savings, and agility benefits that containers and microservices offer. In addition, critical production applications have always required management tools, processes, and investment to maintain security, reliability, and performance. Increasingly, companies that don't make these investments are exposed to less-than-optimal business results, poorly performing container-based applications, and high levels of business risk.

I&O teams and cloud architects must consider the need for container management platforms to scale and offer deep capabilities as container-based, microservice deployments increase into production. "Good enough, freemium" management tools suddenly become obsolete, and a deeper,

more scalable container management platform becomes a required investment. The six most common, associated trigger points for this investment are as follows:

1. Typical container deployments that exceed 100 containers
2. Container deployments that go beyond experimentation
3. Process automation for CI/CD requirements
4. Security and authentication requirements
5. Real-time analytics to identify and resolve problems faster
6. Bursting requirements for on-demand resource allocation and dynamic load balancing

## **Benefits**

In many of today's IT organizations, there remain too many silos and manual processes, as well as limited visibility and lack of measurable business outcomes. Container management platforms offer several benefits for I&O teams and cloud architects that expand the value of containers and increase IT agility and speed. One of the major benefits is automation; specifically, automation of the configuration and deployment of containers and clusters as well as automated capacity planning and load balancing. Modern digital service delivery teams use containers and container management platforms to deliver business outcomes across people, process, and technology. Some of the benefits are as follows:

### **■ People**

- Better communications, teamwork, and collaboration are enabled between DevOps and I&O teams and cloud architects as development teams increase the frequency with which they deploy container-based applications for cost optimization and accelerated transformation.
- 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 container and hardware infrastructure, thus speeding time to problem identification and resolution.

### **■ Process**

- Out-of-the-box integrations and APIs enabling fast integrations are provided that deliver deep, end-to-end process views (from across various tools) for disparate teams to optimize container cluster visibility for multiteam troubleshooting.
- Bidirectional, multicloud data collection and analysis are enabled across virtual machines (regardless of workload location) and physical infrastructure for streamlined container orchestration that increases I&O control points.

### **■ Technology**

- Providing a road map for managing containers and supporting infrastructure that moves I&O and cloud delivery teams beyond ad hoc management enables the reduction of business risks and unnecessary cost overruns.
- More automated processes are enabled across container and infrastructure resources that utilize analytics to adapt infrastructure in real time based on application requirements to drive operational simplicity and cross-silo/multicloud automation.

It can't be overstated that the management and automation of production container environments are necessary requirements. I&O teams and cloud architects must understand that as DevOps and Agile teams expand, the speed upon which I&O teams must partner with them accelerates. Reactive I&O

and cloud architecture teams are increasingly difficult to scale due to manual and human limitations as well as a lack of automation and legacy management tooling. Modern I&O delivery teams recognize the importance of automation to increase speed and scale as well as the need to collect and incorporate customer feedback that improves product quality and satisfaction. Therefore, they proactively partner with DevOps teams to deliver more secure, higher-performing applications.

## **Considering Cisco**

Cisco Container Platform is a turnkey, open, production-grade software solution that helps simplify the deployment and management of container clusters, based on native Kubernetes. It provides a comprehensive stack for container clusters on a subscription-based platform and includes orchestration, management, networking, load balancing, persistent storage, security, monitoring, analytics, and optimization.

Cisco Container Platform is based on industry standards with an open architecture and open source components providing flexible deployment options that avoid lock-in. It enables a true hybrid cloud environment (infrastructure agnostic) for consistent application deployment and management across hyperconverged infrastructure, virtual machines, or bare metal deployments both on-premises and in the public cloud. Cisco Container Platform is also extensible to networking (Contiv), load balancing (Nginx), and security today, as well as other Cisco value-added solutions such as AppDynamics, and CloudCenter in the future. This enables applications to seamlessly span on-premises and cloud-based environments, making them more agile. It also means that applications in the cloud can take advantage of on-premises capabilities (including existing IT systems) and applications on-premises can take advantage of new cloud capabilities.

Cisco Container Platform is optimized in collaboration with Google Cloud to deliver a next-generation open hybrid cloud architecture and extensible to work with other Kubernetes environments. It offers customers robust, enterprise-ready container support with an integrated and production-grade combination of Cisco Container Platform, GKE, and GCP on any infrastructure. Cisco also provides automated updates and a single technical assistance center (TAC) to support the entire Cisco Container Platform and Kubernetes stack. Moreover, Cisco Container Platform will integrate with existing workloads and Google solutions such as Istio and Apigee.

Cisco Container Platform is available as a standalone solution, and it will initially be available on Cisco HyperFlex infrastructure (applicable to existing Cisco HX customers only).

## **Challenges**

Innovative technologies, such as container management platforms, face challenges that can span IT culture, organizational structure, and technology. Several common challenges arise when teams deploy containers into production: They often must deal with disparate open source tools, poor visibility into application interdependencies across hybrid cloud environments, and complex container technology. Some additional challenges are as follows:

### **■ 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 teams are also challenged to change their culture to a more partner-driven organization with development teams.
- CIOs and IT executives are challenged to make significant and sustainable levels of investment across people, process (Agile), and automation technologies, with automation product decisions made by collaborative, cross-silo teams.

## ■ Organizational structure

- Automation adoption and usage transcend traditionally disparate buying centers across security, development, networking, I&O, and cloud architect teams.
- 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

- It's a significant challenge to gain the attention of developers as they consider various SaaS-based management and orchestration tools in their workstreams without making it difficult to adopt the platform.
- It's difficult to provide the right mix of depth and breadth of capabilities, with roles-based dashboards, to deliver value across the container management life cycle, and across multiple clouds, with a hardware-agnostic strategy.

## Conclusion

Container management platform investment is a requirement for I&O and cloud architecture teams to increase the speed and automation needed for fast deployments and high performance of container-based and microservices-based production applications. To drive business outcomes such as time to value and time to market, as well as improvements in customer satisfaction and Net Promoter Scores (NPS), I&O and cloud architecture teams must realize that transformation is required across the IT culture, processes, and technologies. Using container management can help accelerate the transformation by taking advantage of and extending container-based automation features that integrate with the network and related security tools in order to drive sustainable competitive advantage through speed and quality improvements.

---

### ABOUT THIS PUBLICATION

This publication was produced by IDC Custom Solutions. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Custom Solutions makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

### COPYRIGHT AND RESTRICTIONS

Any IDC information or reference to IDC that is to be used in advertising, press releases, or promotional materials requires prior written approval from IDC. For permission requests, contact the IDC Custom Solutions information line at 508-988-7610 or [gms@idc.com](mailto:gms@idc.com). Translation and/or localization of this document require an additional license from IDC.

For more information on IDC, visit [www.idc.com](http://www.idc.com). For more information on IDC Custom Solutions, visit [http://www.idc.com/prodserv/custom\\_solutions/index.jsp](http://www.idc.com/prodserv/custom_solutions/index.jsp).

Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 [www.idc.com](http://www.idc.com)