Containers Power Cloud Operations; Enterprises Reluctant To Embark On The Journey To The Cloud Alone

Container-based cloud-native technologies help companies transform how they build, deploy, and operate software. In this unprecedented time when agility matters and virtual environments are vital, companies must accelerate their cloud-native transformation to increase efficiency, ensure consistent customer experience (CX), and bring development and operations teams together. Container use is increasing rapidly for more application use cases, but companies face barriers with adopting containers at scale. The solution? Container management platforms bring engineering and operations teams together with a unified approach to overcome challenges with portability and compliance. That’s why companies are turning to third-party container management providers to go cloud-native rather than doing it entirely on their own.

Key Findings

Container usage is rising: 86% of IT leaders are prioritizing using them for more applications. Containers help development and operations teams take the friction out of cloud-native development.

Companies using container management platforms struggle with compliance (meeting industry regulations and enforcing policies) and portability (building and deploying across multiple cloud environments).

IT leaders are turning to partners for container management and looking for secure, reliable, and easy-to-use solutions. In the future, 65% plan to leverage third-party tools for container management.
Containers Are At The Heart Of Cloud-Native Business Transformation

Cloud-native applications are typically designed as scalable microservices and deployed in containers. They’re built using automated processes like DevOps and deployed to one or more cloud platforms. Thus, it is a top priority to use containers for more applications (86%), use more cloud platforms to run them (81%), and become more cloud-native (85%) in software development and delivery.

Containers are a natural stepping-stone from virtual machines to cloud-native infrastructure, increasing efficiency, taking the friction out of building applications, and improving collaboration across development and operations teams. The top drivers for container adoption are to speed up software delivery by simplifying the DevOps connection and to let developers focus on what they do best: thinking strategically about business objectives, writing excellent code, and delivering amazing experiences.
Top Use Cases For Container Workloads

Containers help companies build new applications and modernize existing ones. In both good times and bad, compelling CX sets leading companies apart, so it’s no surprise that 59% of decision makers say they use containers for systems to win, serve, and retain customers (systems of engagement, like web, mobile, and eCommerce). These applications (like mobile banking and online appointment booking) demand scale, speed, and iterative improvement to respond to changing customer demands.

Over the next two years, companies will leverage containers for even more customer-facing applications, like customer support, collaboration, and product notifications. They will also use containers for more complex, stateful workloads like data and analytics, internet of things (IoT), and mission-critical systems of record. With more applications being built and deployed in containers, there will be an increased need for container management platforms to provide a unified management layer across all these use cases.

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Top Two Use Cases For Containers Today

1. To migrate existing custom-developed applications to cloud platforms (46%)
2. To build new cloud-native stateless applications (44%)

Workload Growth Rates On Containers Over Next Two Years

<table>
<thead>
<tr>
<th>WORKLOAD OR APPLICATION</th>
<th>GROWTH RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems-of-engagement applications</td>
<td>59%</td>
</tr>
<tr>
<td>Data-related applications</td>
<td>35%</td>
</tr>
<tr>
<td>Internet-of-things (IoT) applications</td>
<td>33%</td>
</tr>
<tr>
<td>Systems-of-record applications</td>
<td>29%</td>
</tr>
</tbody>
</table>

Base: 263 US IT decision makers who are responsible for or have insights into container management platform usage at their organizations.
Source: A commissioned study conducted by Forrester Consulting on behalf of Capital One, March 2020
Compliance Is The Top Challenge Of Container Management Platforms

Containers are a new technology for many, and operations teams need tools to understand how distributed, containerized applications perform. Operational efficiency begins with visibility — you can’t optimize what you can’t measure. Teams need better insight into container runtime metrics (to ensure container health) and the performance of containerized applications.

Teams also need better compliance information from container management platforms. Deploying applications quickly comes with increasing obligation to ensure no vulnerabilities are introduced during development and that applications in production follow compliance requirements. Regulatory compliance is more critical than ever as scrutiny intensifies across industries.

Top Two Challenges Of Using Containers*

1. Container runtime monitoring
2. Monitoring and managing app/container performance

Top Challenge With Container Management Platforms

Compliance

Forrester Opportunity Snapshot: A Custom Study Commissioned by Capital One | June 2020

Base: 83 US IT decision makers who are responsible for or have insights into container management platform usage at their organizations.

Base: 263 US IT decision makers who are responsible for or have insights into container management platform usage at their organizations.

Source: A commissioned study conducted by Forrester Consulting on behalf of Capital One, March 2020.
Portability Stands In The Way Of Fully Leveraging Container Management Platforms

Companies also face challenges with portability as they look toward building and deploying across multiple cloud environments; they rank portability as the second biggest challenge when using container management platforms. Portability (the ability to build and deploy across multiple environments such as moving between building/development, testing, and deployment environments) is essential as organizations move away from physical computing environments that are on-premises and are expected to build and deploy more containers on single and multiple public clouds. Enterprises must be able to move applications between different cloud platforms and tech stacks and to carry over policies across environments to manage risk.

Companies rank portability as their second highest challenge when using container management platforms.

Container Building And Deployment Over Next Two Years

“Where do you primarily build and deploy containers today vs. where do you expect you will primarily build and deploy them in two years?”

<table>
<thead>
<tr>
<th>Container Building and Deployment</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build and deploy mostly on-premises</td>
<td>-54.3%</td>
</tr>
<tr>
<td>Build on-premises and deploy to a single public cloud</td>
<td>+6.7%</td>
</tr>
<tr>
<td>Build on-premises and deploy to multiple public clouds</td>
<td>+21.4%</td>
</tr>
<tr>
<td>Build and deploy mostly in a single public cloud</td>
<td>+37.5%</td>
</tr>
<tr>
<td>Build and deploy both on-premises and in multiple public clouds</td>
<td>+87.5%</td>
</tr>
<tr>
<td>Build and deploy in multiple public clouds</td>
<td>+137.5%</td>
</tr>
</tbody>
</table>

Base: 263 US IT decision makers who are responsible for or have insights into container management platform usage at their organizations

Source: A commissioned study conducted by Forrester Consulting on behalf of Capital One, March 2020
Companies Seek Partners To Speed Their Journeys To The Cloud

For most enterprise development and operations teams, containers and cloud-native development open up new ways to build, deploy, and deliver new customer experiences. However, many don’t have the internal expertise to create container management platforms. Only 30% of respondents say their companies plan to build container management platforms from open source components themselves.

Most (65%) will turn to third-party container management platform vendors. Why? Experienced container management platform vendors curate and package integrated tools and development experiences, offer security and compliance policy and enforcement features, provide training and implementation support, and are backed by ecosystems of cloud-native solution providers to reduce the burden on enterprise IT teams.

Base: 263 US IT decision makers who are responsible for or have insights into container management platform usage at their organizations
Source: A commissioned study conducted by Forrester Consulting on behalf of Capital One, March 2020

Overview
Current State
Challenges
Benefits
Conclusion

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Plans For Managing Container Environments In The Future
(Top and bottom selections shown)
Companies Seek Container Management Platforms That Are Secure, Reliable, And Easy To Use

Companies need a secure, reliable container management platform to deploy cloud-native containerized applications. IT leaders demand strong security features (50%) and reliability (44%) to deploy confidently. To expand adoption across different lines of business, development teams, and use cases, the platform must deliver exceptional ease of use for developers (37%), including simplified workflows, a flexible environment, and the ability to handle complex back-end decisions.

Container management platforms must support the growing demand for multicloud deployment. IT leaders say container management platforms must be multicloud (46%), meaning it provides a consistent developer and ops experience whether managing containerized applications in one public cloud or across multiple clouds at once.

Most Important Container Management Platform Features

“What are the most important container management platform features to help your company expand its use of containers to build, deploy, and manage cloud-native software at scale?”

(Top four shown)

- **Strong security features**: 50%
- **Multicloud**: 46%
- **High reliability**: 44%
- **Ease of use for developers**: 37%

Base: 263 US IT decision makers who are responsible for or have insights into container management platform usage at their organizations
Source: A commissioned study conducted by Forrester Consulting on behalf of Capital One, March 2020
Conclusion

Containers are central to cloud-native digital transformation. To gain their benefits, companies will increasingly rely on container management platform vendors to help them:

- **Build better software faster.** No company can afford to ignore the cloud. Container management platform vendors must balance developer wants with enterprise needs, allowing companies to iterate faster, test more often, and create better software overall.

- **Maintain compliance.** Look for container management solutions that support secure, consistent software development processes and implement governance policies and controls that can be configured and adhere to regulations.

- **Remove the heavy lifting from container operations.** Turn to skilled vendors and service providers to monitor and optimize how your containers and cloud-native applications perform at scale.

**Project Director:**
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**Contributing Research:**
Forrester's infrastructure and operations research group
Methodology

This Opportunity Snapshot was commissioned by Capital One. To create this profile, Forrester Consulting conducted research with custom survey questions asked of 263 US IT leaders with insights into container orchestration, management, and monitoring. The custom survey was completed in March 2020.

Demographics

<table>
<thead>
<tr>
<th>COMPANY SIZE (BY EMPLOYEES)</th>
<th>LENGTH OF CONTAINER ADOPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 to 999: 40%</td>
<td>Less than one year: 25%</td>
</tr>
<tr>
<td>1,000 to 4,999: 34%</td>
<td>One to three years: 49%</td>
</tr>
<tr>
<td>5,000 to 19,999: 17%</td>
<td>More than three years: 26%</td>
</tr>
<tr>
<td>20,000 or more: 9%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INDUSTRY (TOP 4)</th>
<th>RESPONDENT LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail: 14%</td>
<td>C-level executive: 16%</td>
</tr>
<tr>
<td>Technology: 13%</td>
<td>Vice president: 25%</td>
</tr>
<tr>
<td>Manufacturing: 11%</td>
<td>Director: 38%</td>
</tr>
<tr>
<td>Telecom: 8%</td>
<td>Manager and below: 21%</td>
</tr>
</tbody>
</table>

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