

The Forrester New Wave™: Enterprise Container Platform Software Suites, Q4 2018

The Eight Providers That Matter Most And How They Stack Up

by Dave Bartoletti and Charlie Dai

October 16, 2018

Why Read This Report

In Forrester's evaluation of the emerging market for enterprise container platform (ECP) software suites, we identified the eight most significant providers in the category — Docker, IBM, Mesosphere, Pivotal, Platform9, Rancher Labs, Red Hat, and SUSE — and evaluated them. This report details our findings about how well each vendor scored against 10 criteria and where they stand in relation to each other. Enterprise architects can use this review to select the right partner for their enterprise container platform needs.

Key Takeaways

Docker, Red Hat, And Rancher Labs Lead The Pack

Forrester's research uncovered a market in which Docker, Red Hat, and Rancher Labs are Leaders; Pivotal, Mesosphere, and IBM are Strong Performers; and SUSE and Platform9 are Contenders.

UX, App Life-Cycle Management, And APIs And Integration Are Key Differentiators

External integration and application life-cycle management are key features to help build, connect, scale, and operate container-based apps in multicloud environments. Rich and consistent developer and operations experiences simplify and accelerate enterprise adoption.

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Related Research Documents

- [Navigate The Kubernetes Ecosystem](#)
- [Now Tech: Enterprise Container Platforms, Q2 2018](#)
- [The Three Faces Of Platform-As-A-Service](#)
- [Vendor Landscape: Container Solutions For Cloud-Native Applications](#)



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ECPs Speed And Simplify Cloud-Native Development And Operations

Enterprise container platforms provide a container-based development environment with container execution, orchestration, integration, security, and management capabilities designed to provision and control container clusters across multiple on-premises and cloud infrastructure platforms.¹ The market is young, dynamic, and maturing rapidly as vendors race to meet spiking enterprise demand for faster, easier, and safer deployment of containerized apps and container clusters in their own data centers and, increasingly, in the public cloud.² As you explore this emerging market, keep in mind that:

- › **Your DevOps skills and needs dictate your platform priorities.** Many companies use ECPs primarily to accelerate software development and gain development and operations (DevOps) maturity and view container platforms as an automated continuous delivery platform — the developer experience is paramount. For others, operations are most important; they struggle to learn how to manage multiple Kubernetes clusters they create and scale themselves. Still others want someone else to manage the entire experience. Know where you stand on this spectrum before you start implementation.³
- › **The same core open source technologies underpin all leading container platforms.** Every vendor we evaluated supports key open source components like the Docker container format, Kubernetes orchestration, Prometheus monitoring, and Grafana visualization with varying degrees of customization and enhancement. Some offer a Cloud Foundry option; others offer orchestration alternatives. Each participates in upstream projects hosted by the Cloud Native Computing Foundation and other bodies. Do you want to participate and contribute as well, or rely on your vendor to curate and enhance the best open source components for you? Know whether you'll be building or consuming platforms, or both.⁴
- › **Your best solution might be a mix of platforms, driven by specific use cases.** Many vendors in our evaluation already have proven experience helping enterprises accelerate container-based and microservice development for a particular type of app or use case. You might be more interested in modernizing data-driven apps, finding an IoT-focused container platform, or just containerizing existing legacy .NET or Java monoliths. Several customers we interviewed use one solution (a full platform-as-a-service) for cloud-native microservices and another (a less opinionated container-as-a-service) for older legacy code; others prefer a single trusted vendor relationship.⁵

Enterprise Container Platform Software Suites Evaluation Overview

The Forrester New Wave differs from our traditional Forrester Wave™. The New Wave only evaluates emerging technologies, and we base our analysis on a 10-criterion survey and a 2-hour briefing with each evaluated vendor. We group the 10 criteria into current offering and strategy (see Figure 1). We also review market presence.

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We included eight vendors in this assessment: Docker, IBM, Mesosphere, Pivotal, Platform9, Rancher Labs, Red Hat, and SUSE (see Figure 2 and see Figure 3). Each of these vendors has:

- › **A cohesive ECP software suite.** Each evaluated vendor solution is available for on-premises, self-managed, or managed deployment by clients; is sold as a software license or by subscription; and includes a range of management functionality for developing, deploying, orchestrating, and managing containers and clusters in a customer's environment (and optionally in one or more external public cloud environments). We did not evaluate native public cloud container or Kubernetes services.
- › **Proven enterprise customer adoption and Forrester client mindshare.** We included only the vendors and products most important to Forrester's enterprise clients as indicated by inquiry volume. The vendor had to be able to provide two or more enterprise customer references that were actively using the product.
- › **General availability in North America and/or Europe.** All of the evaluated vendor products were generally available as of July 1, 2018, and sold in either North America, Europe, or both. We did not evaluate preview, limited-availability, or prerelease features.

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FIGURE 1 Assessment Criteria

Criteria	Criteria explanation
Runtime and orchestration	What container configuration file formats and runtime environments are supported? What differentiating container orchestration features are supported? How are federated clusters managed across infrastructure providers? What differentiating container networking and storage features are provided?
Image management	Does the platform provide a private image registry? What differentiates it? Does it support on-premises and cloud registries? Does the vendor provide an image marketplace? Does the platform include a service catalog? Are other marketplace/community images supported? From which sources?
Operations management	Does the platform monitor container availability, performance, and events? How does it collect, store, present, and analyze data? Does it use any metrics to analyze data and send alerts? Does it trace API invocation? What metrics and dashboards are provided? How are product updates supported?
Security features	What is the security approach throughout the container life cycle? How are access, authentication, policies, and enterprise AD/LDAP enabled? Is image signing and verification supported? Are they certified or validated images and repositories? Which features are provided by third-party integrations?
User experience	How simple, intuitive, and customizable are UIs for developers and operators? What development environments/IDEs are supported? How much training do development and operations teams typically require? How complete and easily accessible are help, support, training, learning, and reporting documents?
App life-cycle management	How are application development and deployment workflows created and modified? How are users, tenants, and projects created and managed? How are applications promoted in different stages? How does it support testing and CI/CD? What application or microservice frameworks does it support?
Integrations and APIs	Does the platform integrate with other public and private cloud IaaS/PaaS platforms? Is the container platform aligned with or sold as part of an infrastructure platform? Does the container platform provide integrations with other public cloud services? Are all UI functions available via API?
Vision	How well does the product vision align with the current and future needs for clients to win, serve, and retain customers? Does the vision support client business outcomes? Is the company identifying and addressing competitive threats? Does its vision have support and visibility from senior execs?
Road map	How strong is its road map in terms of timeframes, milestones, and benchmarks? Does its product road map address key customer needs? Does it have a clear plan to execute innovation strategy, product and commercial model enhancements, and ecosystem expansion? Does it have the resources to deliver?
Market approach	Does the company show a successful go-to-market approach? Can it show tangible evidence of a successful approach to customer needs in terms of: revenue or customer growth, marketing messages, vertical or geographic market expansion, account momentum/growth, and commercial model?

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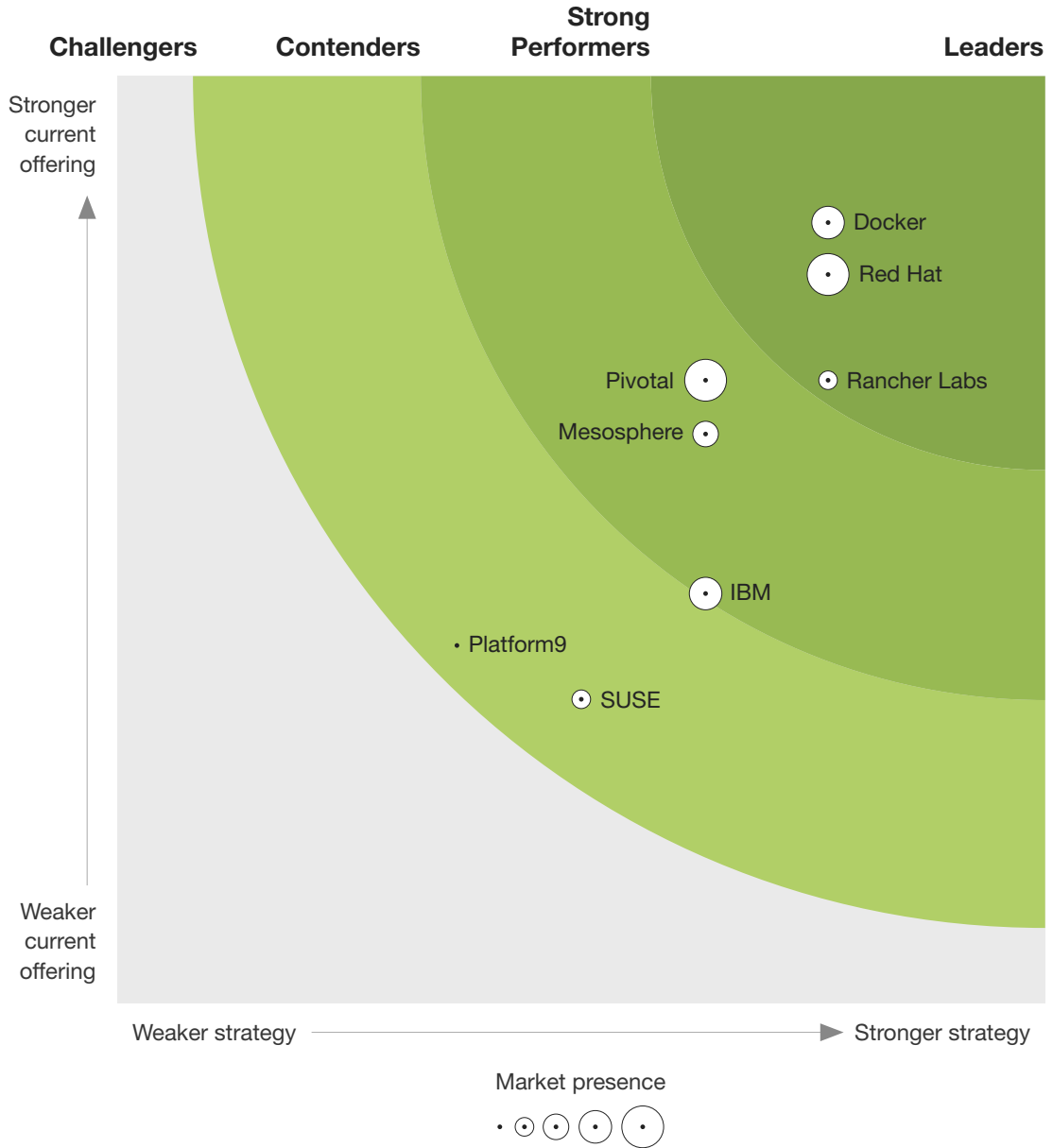
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FIGURE 2 Forrester New Wave™: Enterprise Container Platform Software Suites, Q4 2018

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FIGURE 3 Vendor QuickCard Overview

Company	Runtime and orchestration	Image management	Operations management	Security features	User experience	App life-cycle management	Integrations and APIs	Vision	Road map	Market approach
Docker	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Red Hat	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Rancher Labs	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Pivotal	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Mesosphere	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
IBM	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
SUSE	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆
Platform9	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆	⬆

⬆ Differentiated
 ⬆ On par
 ⬆ Needs improvement

Vendor QuickCards

Forrester evaluated eight vendors and ranked them against 10 criteria. Here’s our take on each.

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Docker: Forrester’s Take

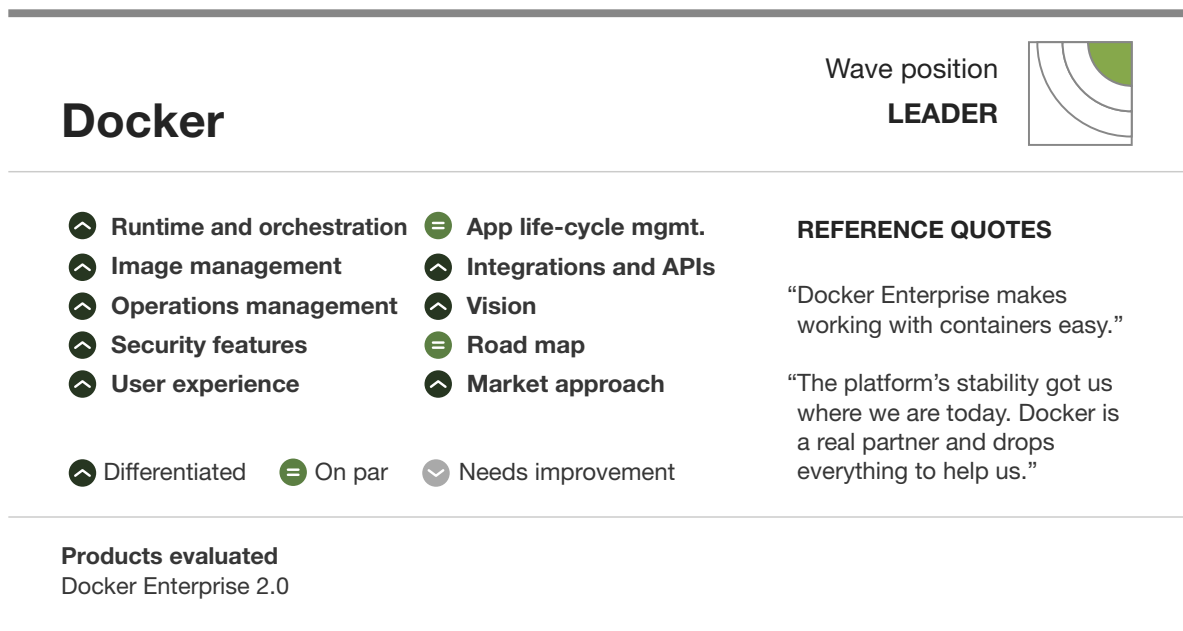
Our evaluation found that Docker (see Figure 4):

- › **Leads the pack with a robust container platform well-suited for the enterprise.** Docker Enterprise is based on Docker’s leading container runtime, with Kubernetes and Swarm orchestration options. Multicloud management is strong and consistent across many public cloud and on-premises infrastructure platforms.
- › **Needs to focus on operational experience and performance.** Docker could improve its automated day-2 operations for platform updates and should make its product road maps clearer.
- › **Is popular for modernizing both traditional and microservices applications.** Docker offers a secure container supply chain from the developer’s desktop to production and simplifies multi-OS and multischeduler container clusters.

Docker Customer Reference Summary

Docker’s customers appreciate the company’s deep commitment to and leadership of the leading open source communities. They highlight Docker’s approach to end-to-end image security, support for Windows, and support expertise.

FIGURE 4 Docker QuickCard



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Red Hat: Forrester’s Take

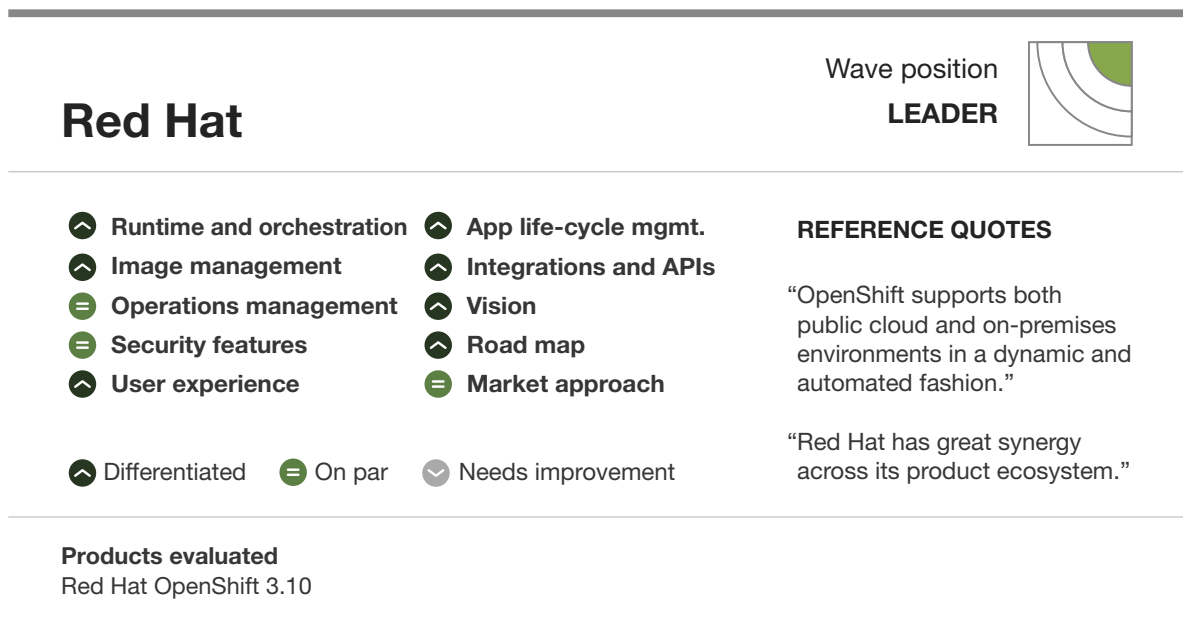
Our evaluation found that Red Hat (see Figure 5):

- › **Leads the pack with excellent user experience and integration capabilities.** OpenShift’s runtime, orchestration, and image management features are strong. It includes an intuitive operator experience and support for many Amazon Web Services microservice frameworks.
- › **Still needs to improve operations management.** Red Hat provides built-in logging and metrics and Prometheus dashboards but lacks a unified operations console. It should simplify upgrades.
- › **Is popular with Red Hat customers who prefer strong ecosystem synergy.** OpenShift is well-integrated with Red Hat Enterprise Linux, Ansible, OpenStack, and JBoss middleware.

Red Hat Customer Reference Summary

Red Hat’s customers praised the vendor’s ability to help them accelerate cloud-native application development and their pace of innovation, but they wish for better monitoring features.

FIGURE 5 Red Hat QuickCard



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Rancher Labs: Forrester’s Take

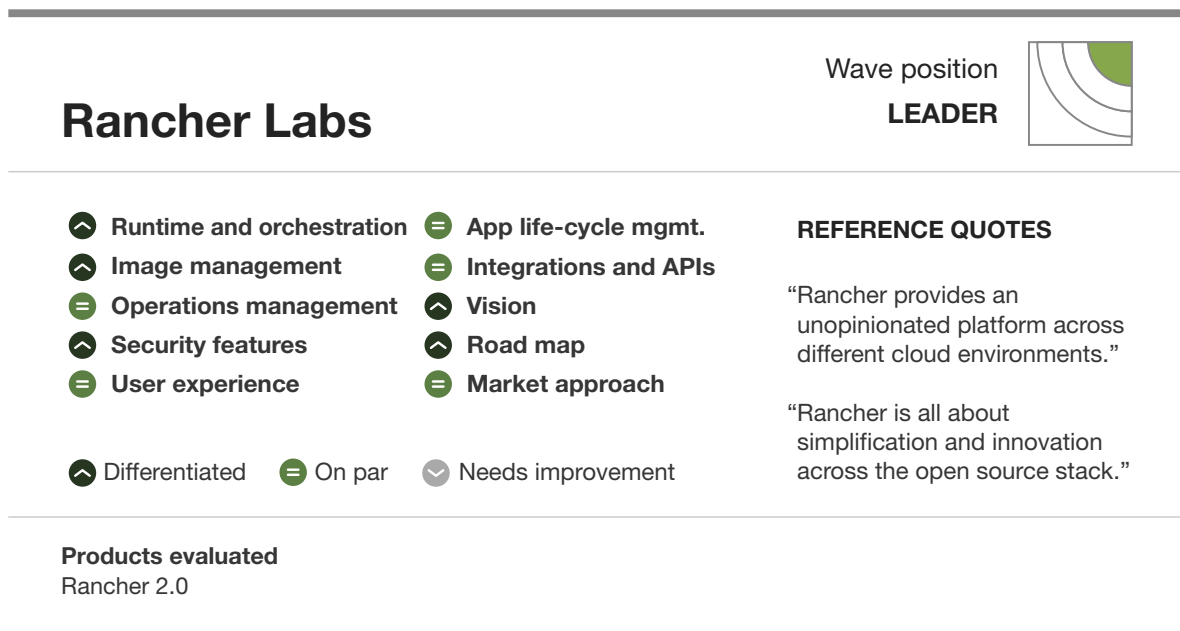
Our evaluation found that Rancher Labs (see Figure 6):

- › **Excels with robust multicloud orchestration and security features.** Rancher’s unified multicluster Kubernetes management platform supports many public and on-premises infrastructure platforms. It includes highly customizable access controls, policy enforcement, resource isolation, and image scanning.
- › **Needs to strengthen application life-cycle management and service integration.** We’d like to see more cloud-native application development automation, support for Istio, and broader integration with native public cloud development services.
- › **Is best for firms seeking an open source, cross-cloud Kubernetes control plane.** Rancher offers a strong combination of multicloud cluster management, simplified platform operations, and policy enforcement on a stable, well-supported container platform.

Rancher Labs Customer Reference Summary

Customers appreciate Rancher’s unified experience across cloud platforms, its support, and its Kubernetes expertise, but would like to see application life-cycle capabilities improve.

FIGURE 6 Rancher Labs QuickCard



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Pivotal: Forrester’s Take

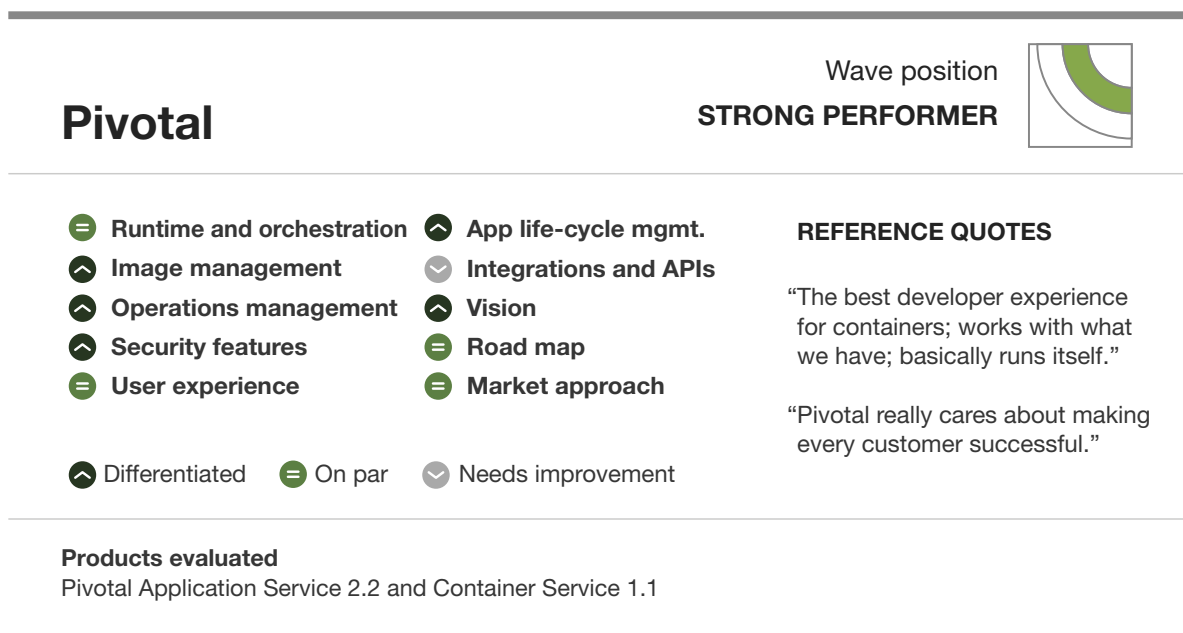
Our evaluation found that Pivotal (see Figure 7):

- › **Leads with the best developer experience and operations management.** Pivotal has the most successful implementations of Cloud Foundry-based container deployments and excels at helping clients radically improve software delivery on its complete platform-as-a-service, including a rich app service catalog.
- › **Needs to provide a more consistent experience across container platforms.** Pivotal Container Service (PKS), the Kubernetes offering Pivotal developed with VMware, has a less mature developer experience than Pivotal Application Service (PAS).
- › **Is best for firms seeking faster software delivery on enterprise infrastructure.** Pivotal leverages VMware’s networking, security, and storage services, plus its BOSH configuration management tool for both PAS and PKS operations.

Pivotal Customer Reference Summary

Customers turn to Pivotal to teach them how to build software faster and integrate container platforms into their existing enterprise infrastructure but wish for a clearer product road map.

FIGURE 7 Pivotal QuickCard



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Mesosphere: Forrester’s Take

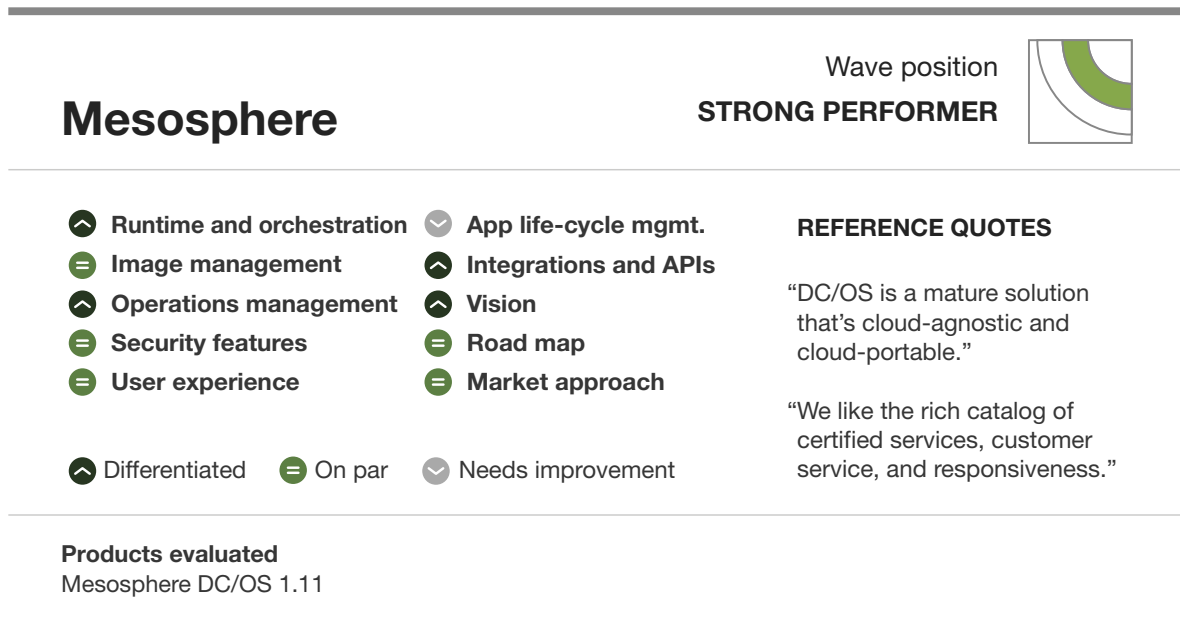
Our evaluation found that Mesosphere (see Figure 8):

- › **Leads with cluster management and automation for data-driven apps.** Mesosphere offers a rich catalog of services used to build and run traditional Java apps, containerized apps, and analytics, with a particular focus on data-intensive workloads.
- › **Still needs to improve user experience and application life-cycle management.** DC/OS is a strong infrastructure management platform for Kubernetes cluster management. Platform security is powerful, but developer experience and containerized application security needs improvement.
- › **Is best for adding data-driven services to both stateful and stateless apps.** Mesosphere’s broad range of reference use cases includes edge and multicloud federation, workload bursting, and disaster recovery.

Mesosphere Customer Reference Summary

Mesosphere’s customers like its commitment to Kubernetes standards and its automated cluster life-cycle automations, predictable performance, stability, and multicloud portability.

FIGURE 8 Mesosphere QuickCard



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IBM: Forrester’s Take

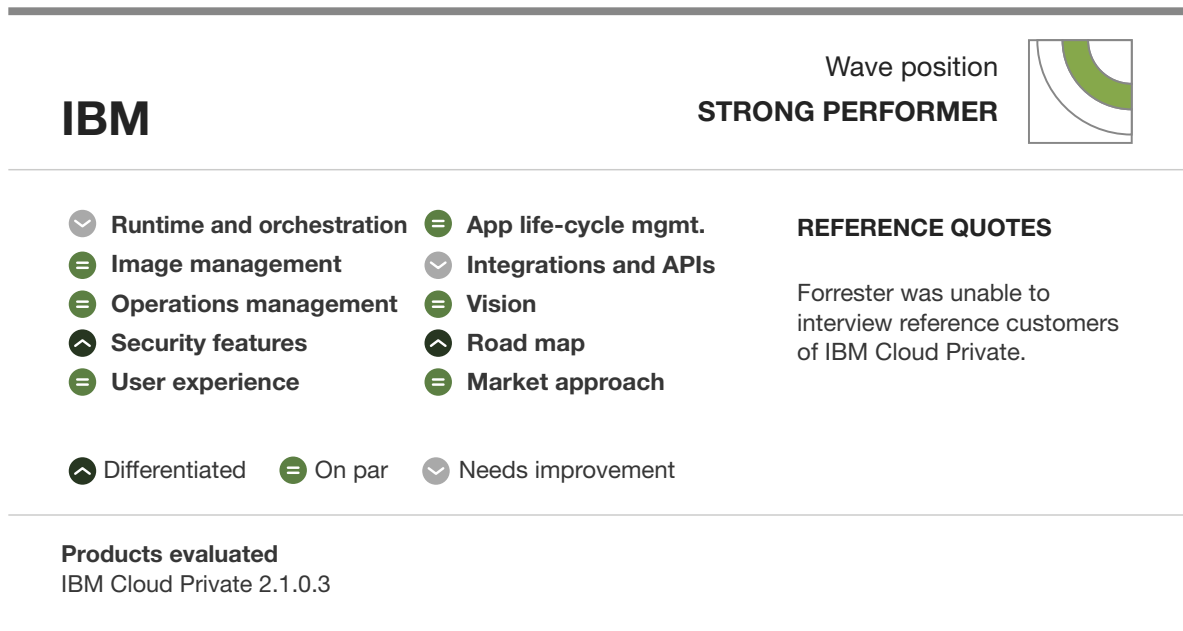
Our evaluation found that IBM (see Figure 9):

- › **Combines transformation services with a range of platform options.** IBM Cloud Private includes app portfolio analysis (Transformation Advisor), strong image security scanning (Vulnerability Advisor), and a Kubernetes-based container platform aimed at enterprises seeking to modernize legacy applications behind the corporate firewall.
- › **Needs to simplify its product portfolio and improve operations management.** Multicloud Kubernetes management features are not differentiated, but we expect them to improve with the release of IBM Multicloud Manager (not available as of July 1, 2018).
- › **Focuses on existing IBM customers with complex legacy integration needs.** IBM Cloud Private includes containerized versions of IBM middleware and secure integrations with IBM public cloud services such as Watson and blockchain.

IBM Customer Reference Summary

Forrester was unable to interview IBM Cloud Private reference customers for this evaluation.

FIGURE 9 IBM QuickCard



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SUSE: Forrester’s Take

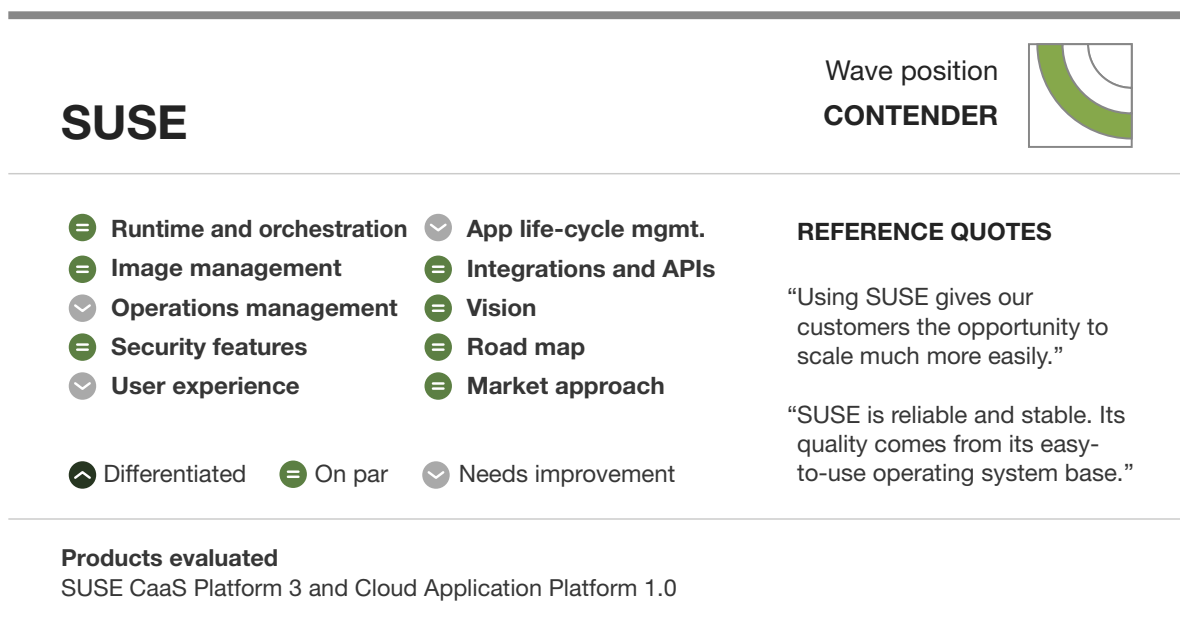
Our evaluation found that SUSE (see Figure 10):

- › **Features robust container orchestration and security capabilities.** SUSE CaaS Platform supports the creation of multiple master clusters in public and private cloud environments. It also provides security features in diverse components, such as role-based access control, image scanning, etcd database protection, and enabling TLS on all connections.
- › **Needs to improve its user experience.** SUSE Cloud Application Platform and SUSE CaaS Platform have different features and user interfaces. We’d like to see a more seamless integration between them for a unified cloud-native experience.
- › **Is best for customers that need a complete solution with flexible entry points.** SUSE’s solution includes optimization for large deployments with simplified end user interactions. It also has a strong commitment to the Linux, Cloud Foundry, and Kubernetes open source communities.

SUSE Customer Reference Summary

SUSE’s customers praised the quality of its products, rooted in its trusted Linux brand. They’d like to see faster innovation speed and features on application life-cycle management and operational tools.

FIGURE 10 SUSE QuickCard



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Platform9: Forrester’s Take

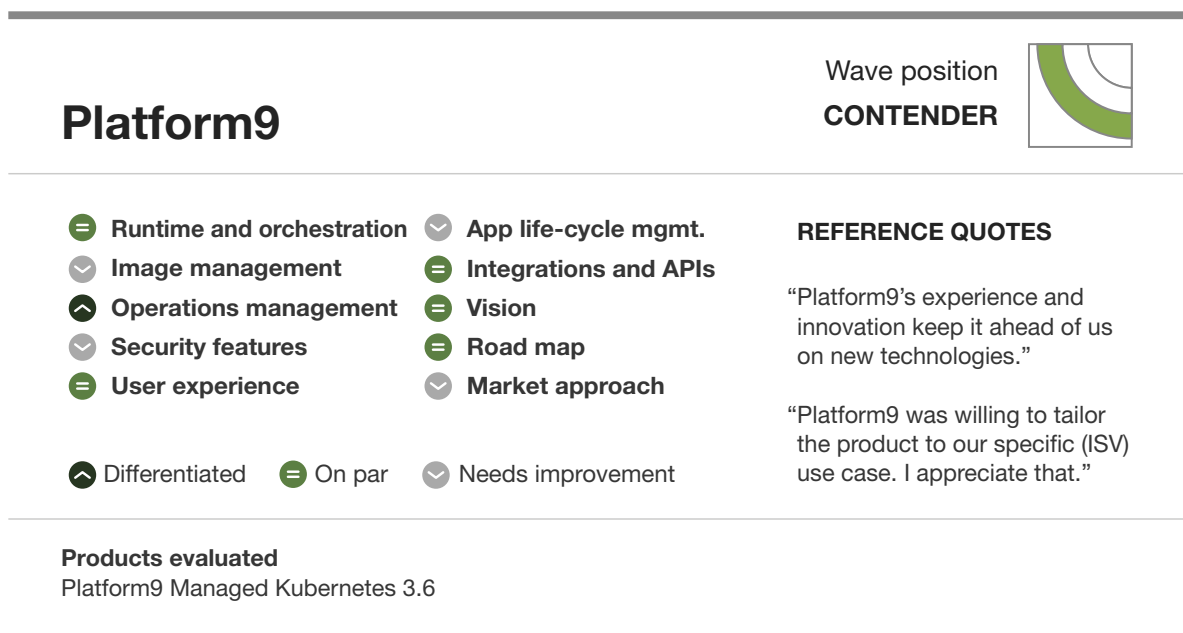
Our evaluation found that Platform9 (see Figure 11):

- › **Stands out with a fully managed Kubernetes cluster service.** The Platform9 Managed Kubernetes Service is a software-as-a-service control plane for deploying multiple container clusters on customer-owned or public cloud infrastructure. All provisioning, multitenancy, logging, and upgrades are fully managed by the Platform9 team.
- › **Must expand mindshare among enterprise customers new to containers.** Most enterprises have little Kubernetes experience but may not be ready for a fully managed service while they are still experimenting with container-based application architectures.
- › **Is best for ISVs and firms seeking highly available Kubernetes.** Zero-touch rolling upgrades, remote monitoring, and dynamic resource allocations are operated by Platform9 on behalf of customers, simplifying all Kubernetes operations.

Platform9 Customer Reference Summary

Independent software vendor (ISV) customers appreciated Platform9’s staff expertise, reliable Kubernetes “dial tone,” and strong commitment to open source standards.

FIGURE 11 Platform9 QuickCard



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Supplemental Material

The Forrester New Wave Methodology

We conducted primary research to develop a list of vendors that met our criteria for the evaluation and definition of this emerging market. We evaluated vendors against 10 criteria, seven of which we based on product functionality and three of which we based on strategy. We also reviewed market presence. We invited the top emerging vendors in this space to participate in an RFP-style demonstration and interviewed customer references. We then ranked the vendors along each of the criteria. We used a summation of the strategy scores to determine placement on the x-axis, a summation of the current offering scores to determine placement on the y-axis, and the market presence score to determine marker size. We designated the top-scoring vendors as Leaders.

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Integrity Policy

We conduct all our research, including Forrester New Wave evaluations, in accordance with the [Integrity Policy](#) posted on our website.

Endnotes

- ¹ See the Forrester report "[Now Tech: Enterprise Container Platforms, Q2 2018.](#)"
- ² See the Forrester report "[Navigate The Kubernetes Ecosystem.](#)"
- ³ See the Forrester report "[Vendor Landscape: Container Solutions For Cloud-Native Applications.](#)"
- ⁴ See the Forrester report "[The Top 10 Facts That Every Tech Leader Should Know About Cloud Standards And Open Source.](#)"
- ⁵ See the Forrester report "[The Three Faces Of Platform-As-A-Service.](#)"

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