SDxCentral

2015 SDx Cloud Management Report: OpenStack and More

Inside Cloud Orchestration, Management, Automation and DevOps

The Trusted News and Resource Site for SDx, SDN, NFV, Cloud and Virtualization Infrastructure

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Report Summary

The ***2015 SDx Cloud Management Report*** looks at the shifting role the cloud is playing in the software-defined infrastructure (SDxI) and the maturity of the platforms and tools available to help you maximize the efficiencies and value you can derive from your cloud data centers. The Report aims to help you understand the trends impacting the cloud data center's architecture and provide insights into market strategies and offerings designed to help you mitigate potential challenges.

Specifically, the Report focuses on cloud management, orchestration and automation solutions, providing you the key requirements to look for, as well as a sampling of vendor solutions on the market today, to help you make decisions that best meet the needs of your business and technical environment. The Report also includes perspectives from your peers within the SDxCentral community, as the Report unveils original research[1] conducted by the SDxCentral Research Team on current perceptions and experiences with cloud data center technologies.

In summary, if you read this Report, you will receive:

- An introduction to SDx Infrastructure and the role of the cloud data center.
- Potential benefits and challenges associated with cloud data centers.
- The increasing need for management, orchestration and automation/DevOps tools for cloud data centers.
- Results of the SDxCentral Survey on Cloud Data Centers.
- Profiles of management, orchestration, automation and DevOps solutions in the market, including key features available today.

Thank you for downloading this Report. We hope you find it a useful resource to reference as you build out your SDx Infrastructure. If you have feedback on the Report, we would love to hear it – please contact us at research@sdxcentral.com.

The Rise of Software-Defined Infrastructure

Over the past five years, a new technology paradigm has been emerging; one in which software is king and hardware platforms have become standardized and commoditized. With the advent of software-defined everything (SDx), we have seen software cut its strings to costly, proprietary hardware and start calling the shots.

SDx is loosely defined as any hardware function that can be performed or automated by software. When it comes to the infrastructure, this software helps connect users, devices (physical and virtual), and services and applications (on-premises and SaaS/cloud-based) to one another, to other networks, and to other users. It encompasses software-defined networking (SDN), as well as software-defined computing, storage, security, applications (network function virtualization (NFV), services, etc.

SDx is changing the way organizations buy, architect, build, maintain and manage their infrastructure, which collectively needs to scale to support and connect billions of users and devices to billions of services. SDx has turned everything on its head: instead of the infrastructure dictating what is and isn't possible, organizations can decide what they want to accomplish and then build the infrastructure to deliver the underlying requirements.

This fundamental shift has come at the perfect time, as clouds become mainstream (or perhaps this shift is possible because of the prevalence of the cloud), offering malleable resources that organizations can use to achieve their objectives. Organizations have a plethora of cloud options; they can buy the applications themselves, with software as a service (SaaS) offerings; the capacity they need, with infrastructure as a service (IaaS); or the development environment they are looking for, with platform as a service (PaaS). As SDx grows, so does the cloud, which is why it's important to understand its role and how to maximize its utility.

[1] SDxCentral conducted a survey on the SDxCentral site, www.sdxcentral.com, in which 104 respondents provided answers to multiple choice and open-ended questions on their experiences with cloud architectures and platforms. Survey respondents represented a sampling of enterprise and service provider end-users from large and small organizations.

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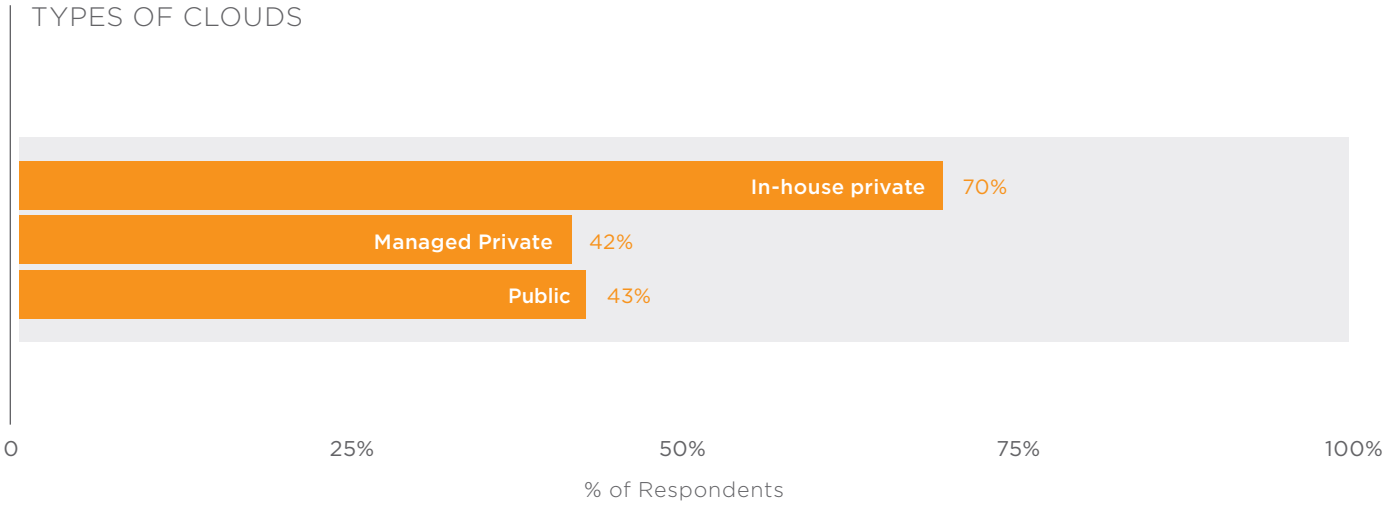
The Role of the Cloud Data Center in the SDx Infrastructure

Increasingly, organizations are relying on the cloud infrastructure, making it the epicenter of SDx innovation. The cloud uses data center servers (virtualized to allow one or more virtual server instance to run on a single physical device) and software networks to dynamically allocate resources to deliver applications to remote end-users.

The cloud is managed by software that allows users (cloud providers or enterprise customers) to control the compute, networking and storage resources and partitions them to let multiple-tenants or applications share and scale those resources. Typically, clouds come in three flavors:

- **Public –** providing network capacity, storage or applications over a public network, such as the Internet. Public cloud providers typically offer organizations a "slice" of their cloud data center's resources, enabling customers to benefit from the efficiencies derived from a shared (multi-tenant) infrastructure.
- **Private –** using a cloud infrastructure that is dedicated to a single company and accessible only via a private network connection. The infrastructure (servers and network) may be managed internally or by a third-party managed services provider (managed private clouds).
- **Hybrid –** combining public cloud with private cloud platforms. Organizations often deploy multiple clouds to support temporary capacity fluctuations, using a public cloud to handle bursts of activity that exceed their private cloud capacity, or to appropriately address the needs of different applications, using private clouds for more sensitive apps and public clouds for less critical services.

Most organizations do not have a homogeneous cloud environment. Respondents to a recent SDxCentral Survey noted they rely on a mix of public and private cloud platforms - 70% have in-house private cloud platforms, while 43% and 42%, use public and managed private clouds, respectively.



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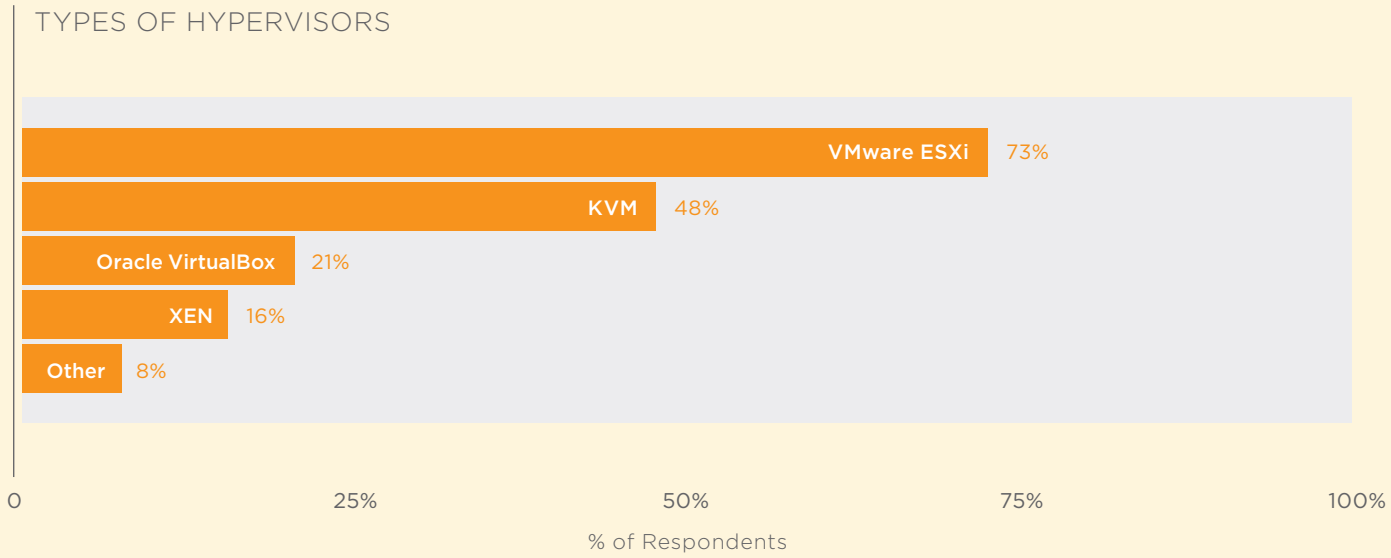
Technologies Deployed in Cloud Data Centers

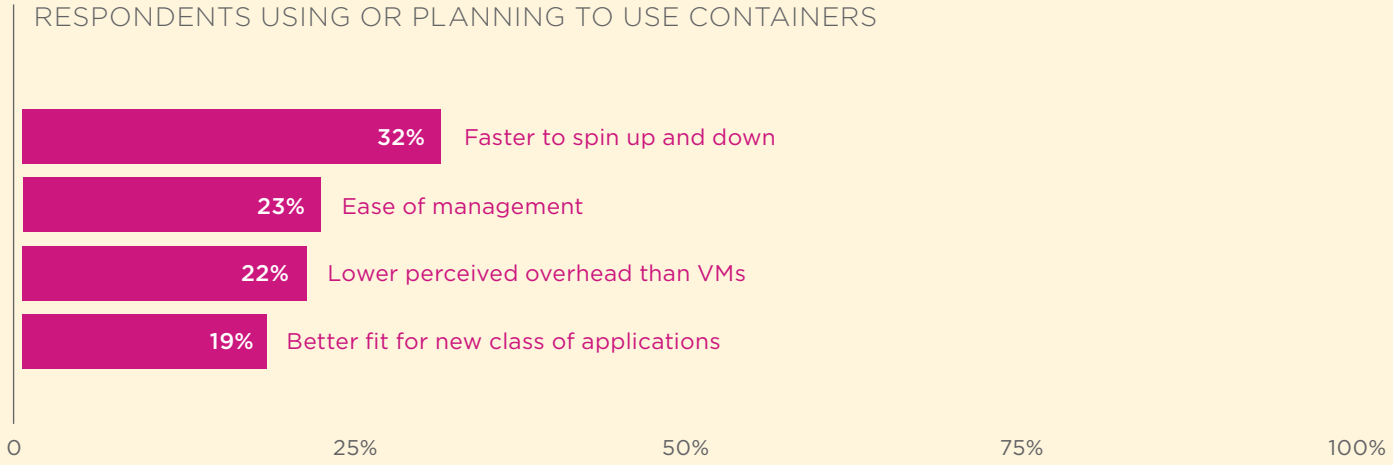
Hypervisors

Hypervisors are software capable of creating and running virtual machines on a bare-metal server platform, which emulates all the functionality of a specific computer system. Within cloud environments, organizations use a mix of hypervisor technologies. The recent SDxCentral Survey found the vast majority of organizations use VMware ESXi (73%), with KVM the second most popular choice (48%); 21% of respondents use Oracle's VirtualBox; 16% have XEN, while 8% noted they have another hypervisor solution deployed in their environment.



Containers

Containers go beyond virtual machines, packaging up an application, including all its dependencies, in a file system to isolate them from the underlying infrastructure. When asked if they plan to use container technologies in the next 12 months, respondents to our survey were split, 50-50. Of those who said they were using or going to use containers, 32% said it was because they were "faster to spin up and down" than VMs; 23% cited "ease of management"; 22% perceived they offered "lower overhead than VMs"; while 19% felt they were a "better fit for the new class of applications" in their environment.



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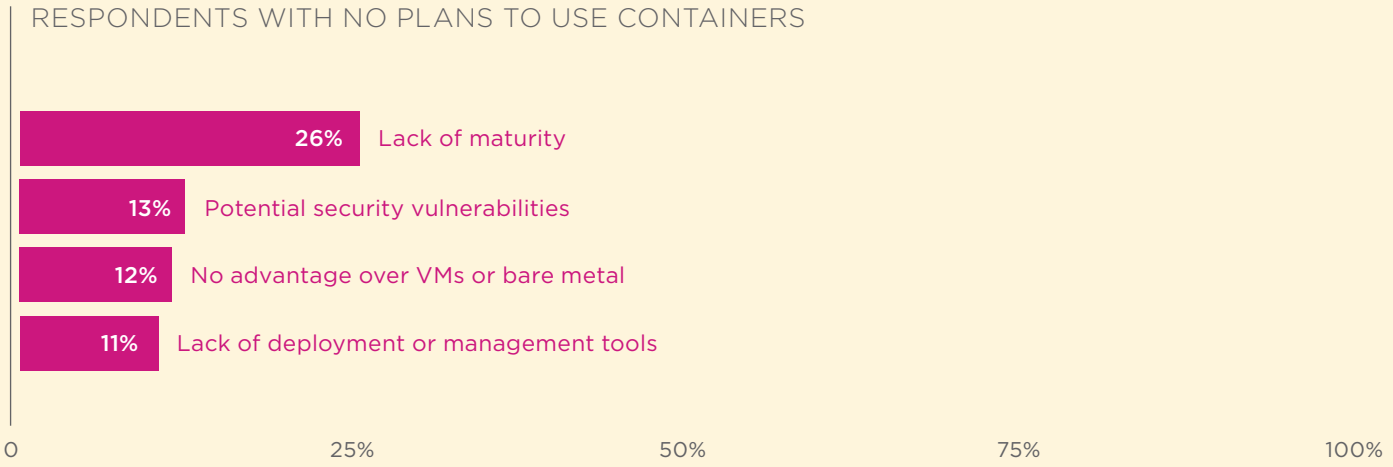
Of those who said they had no plans to deploy containers, 26% said it was due to the technology's "lack of maturity"; 13% cited "potential security vulnerabilities"; 12% saw "no advantage over VMs or bare metal"; and 11% pointed to a "lack of deployment or management tools". When probed on what container solutions could do to accelerate adoption, the general sentiment centered on vendors being able to demonstrate how they solve real customer problems and deliver value. One respondent explained, "We haven't found a good case to implement these."



The Benefits of the Cloud

The potential benefits of the cloud are fairly well understood; organizations have been migrating to cloud data centers to take advantage of their:

- **Cost-effectiveness –** migrating to a shared, cloud infrastructure (multi-tenancy) significantly reduces the capital outlay required to build out and maintain an organization's environment. The cloud turns capital investments (CAPEX) to operational expenses (OPEX), enabling organizations to pay for only the resources they need, when they need them. It also enables consolidation, which maximizes the utility of physical resources and helps organizations get the most out of their investments. For example, with:
    - ***Storage –*** virtualization vendors are using all flash or a combination of flash and spinning disks (plus de-dupe compression techniques) to improve the storage density, lower latency and increase throughput.
    - ***Networks –*** vendors are using SDN and network virtualization (NV) techniques to pack millions of tenants and separate workloads on the same infrastructure, breaking through the 4K VLAN limits of traditional architectures and providing much more topology flexibility, while maintaining the partitioning required for compliance and security.
- **Scalability –** leveraging a common infrastructure, which is based on proven architectures that have been validated by some of the most demanding software companies today (e.g. Google, Facebook, etc.), enables organizations to confidently scale operations, up or down, to meet changing demands (bursts).
- **Agility –** reducing the risks associated with rolling out or making changes to applications and resources, making it an incremental effort versus requiring a complete commitment (build-out of infrastructure, etc.). As a result, the cloud enables organizations to try new things or change direction to meet new market opportunities or requirements.

The cloud also supports flexible workload placement, with overlay networks that can stretch across machines, racks and even data centers to enable organizations to roll out, scale up or down resources as needs change.

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Challenges in Cloud Data Centers

The benefits of the cloud can only be realized if an organization is able to effectively manage and optimize the environment to support their objectives. The very attributes that make the cloud such a powerful platform – the ability to share, concentrate, scale up and down, and allocate/reallocate resources, as needed – also present the potential for inefficiency, complexity, misappropriation, etc.

An open-ended question in the recent SDxCentral survey asked respondents to describe what they see as the single biggest challenge with cloud platforms. The majority cited issues achieving security and predictable performance. Another common theme to the responses was a general lack of standards and visibility, which ultimately compound the security and performance problems.

The absence of coherent standards perpetuates unnecessary complexity and interoperability issues that impact the overall capabilities of the cloud. Currently, without them, we have very little "flexibility and portability between vendors, technologies and the capabilities of different cloud providers," said one respondent.

Little to no visibility into what is going on in the cloud, makes it extremely difficult to make adjustments to address any problems. One respondent pointed out, "There is a lack of visibility to the ISPs performance and the downstream impact on public cloud applications," while another noted we are missing "a single coherent view of the different aspects that impact performance (network & compute) from a service delivery performance perspective." Without visibility, it is hard to accelerate traffic, optimize routes, improve server utilization, complete capacity planning, etc.; all of which are necessary for a successful, cost-effective cloud deployment.

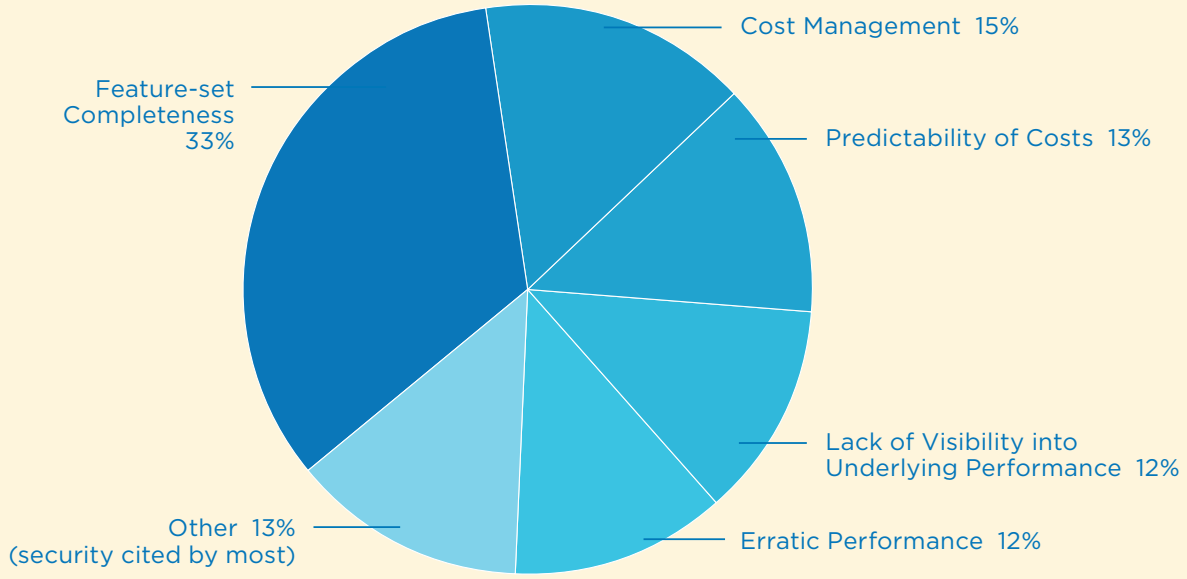
Is there a Difference between Public and Private Clouds?

Public Cloud Challenges

In terms of public clouds, respondents to the recent SDxCentral Survey said the biggest challenges include the following:

- "Feature-set completeness" (33%)
- "Cost management" (15%)
- "Predictability of costs" (13%)
- "Lack of visibility" and "Erratic performance" (at 12% each).

BIGGEST CHALLENGE IN PUBLIC CLOUDS



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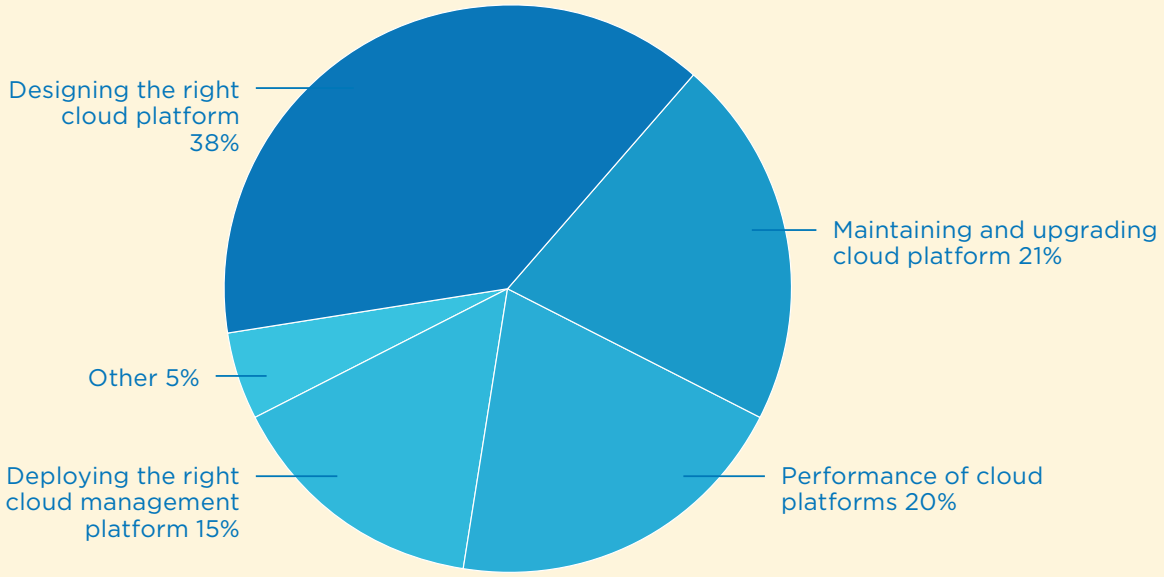
Private Cloud Challenges

When probed about the specific challenges associated with private clouds, the responses were mixed:

- 38% cited "designing the right cloud platform"
- 21% pointed to "maintaining and upgrading the cloud platform"
- 20% identified the "performance" of the cloud
- 15% noted they found it difficult to "deploy the right cloud management platform"

BIGGEST CHALLENGE IN PRIVATE CLOUDS



Increasing Importance of Management, Orchestration and Automation to Address Challenges

The complexity of the cloud data center continues to explode. There are more resources than ever before to manage, and these resources are often divided further into virtual machines and networks. The sheer volume of all the IP addresses, routes and security policies that need to be managed can be overwhelming, quickly running into the millions. You can add to that the exploding number of apps and users that need to be supported and the varying cloud environments (hybrid deployments) that need to be managed homogenously, and it quickly becomes clear that simple scripts and rudimentary tools are not going to cut it.

To address this, we have seen the rise of cloud-optimization vendors who help organizations maximize the ongoing operations of their cloud data centers. These vendors offer solutions that enable organizations to monitor activity, consolidate resources and schedule and manage workloads in a more efficient manner to lower costs across both public and private clouds and accelerate delivery. They help organizations determine what to place where, when and in what order to ensure optimal scale, performance and agility. This enables the cloud's SDx infrastructure to achieve the scale required by the Googles and Facebooks of the world. They help bring the knowledge from the mammoth Web 2.0 organizations to every enterprise and service provider, large and small.

Cloud optimization vendors layer in the intelligence required to effectively manage the provisioning of complex services, going beyond the orchestration of raw compute/capacity to enable advanced, application-level service delivery (such as database as a service (DBaaS), object store as a service, offline backup as a service, etc.). There are three flavors of optimization vendors: management, orchestration and automation, which are covered in the following sections.

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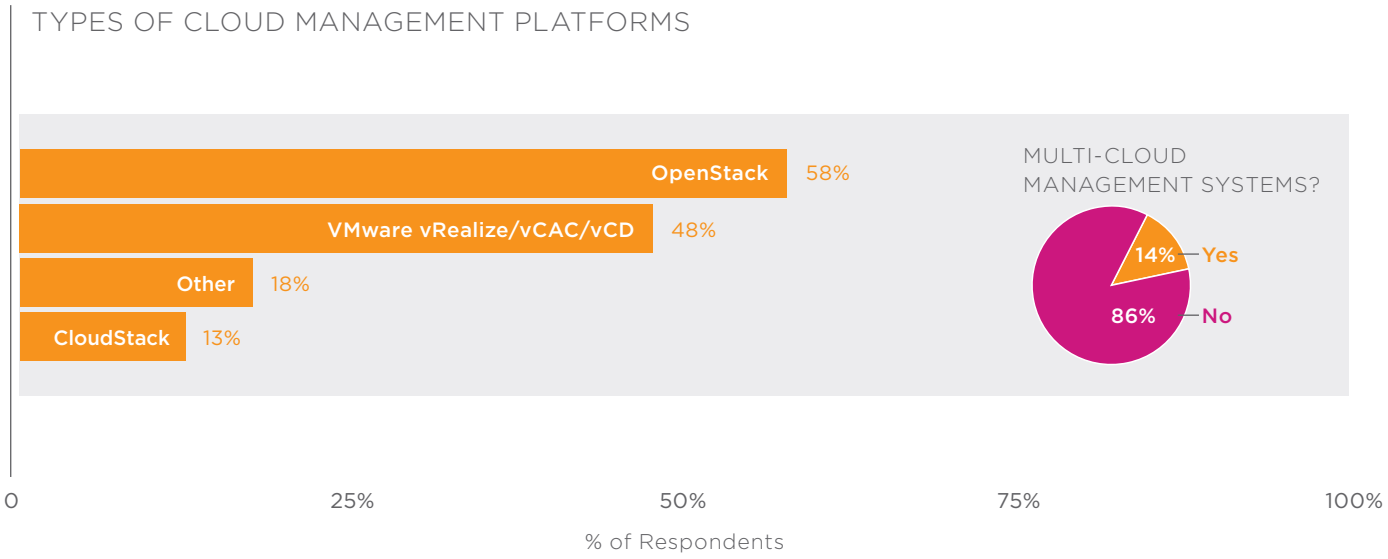
Cloud Management Platforms – OpenStack and Beyond

Cloud management platforms (CMPs) provide enterprises and service providers a way to manage the lifecycle of the cloud's resources. A CMP could be thought of as the cloud's operating system, giving organizations a way to control the pools of compute, storage and network resources in their cloud data center.

Through a single, cohesive interface, CMPs make it easier to provision and maximize the utility and value organizations can derive from their data center assets. CMPs use application program interfaces (APIs) to interact with network and storage resources (southbound) and applications (northbound). Today's market is made up of open-source and commercial offerings (sometimes those commercial offerings are based on open source platforms), designed to manage a single cloud; some CMPs can be used to manage multi-cloud deployments, however, they don't span private and public boundaries.

The most common open-source CMP is OpenStack, which can be deployed on standard hardware and scale to manage and automate pools the data center's computing resources. It uses template languages (Heat and TOSCA) that enable fast, "cookie-cutter" deployments and simple integration with a variety of legacy and third party technologies.

The most popular cloud management vendors among the respondents to our survey were OpenStack (58%) and VMware's (vRealize/vCAC/vCD).



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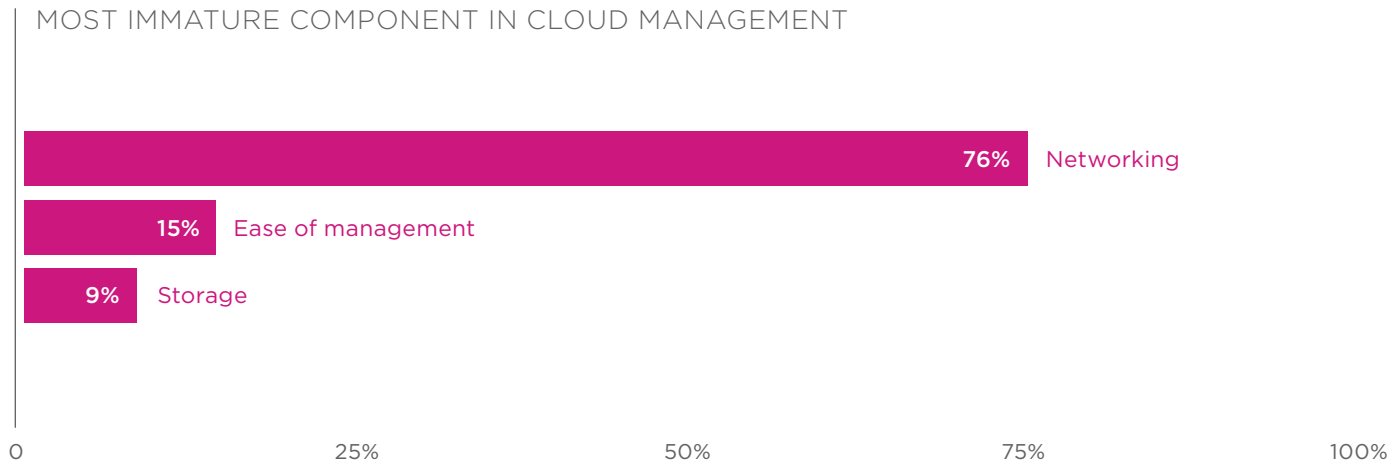
When asked what they felt was the most immature component in cloud management, the overwhelming response was the network at 76%; compute and storage got 15% and 9% of the vote respectively.



Regardless, OpenStack continues to make progress and vendors are aggressively addressing the network gap, using OpenStack's Neutron plugin architecture to provide both open-source and commercial solutions that support network virtualization in OpenStack environments.

Many vendors today provide their own CMP solutions by repackaging OpenStack and providing proprietary extensions, or bundling professional services and integration services. For example, cloud service provider Rackspace chose to migrate their cloud management systems to OpenStack to offer a wide variety of services. With over 100 companies contributing to the codebase, OpenStack has significant momentum and is a natural choice for the CMP in any private enterprise cloud deployment; it is also the leading candidate for building out a public cloud business.

Beyond OpenStack, there are other open-source CMPs:

- CloudStack (purchased by Citrix and subsequently open-sourced under the Apache Foundation) has waned in popularity, but still holds ground in some cloud service providers outside North America.
- Eucalyptus (recently purchased by HP) is another open-source CMP that provides Amazon Web Services-type APIs. It has enjoyed some popularity with enterprises but its future remains to be seen.
- OpenNebula is a less known open-source CMP that has seen limited traction in the marketplace.

Outside of open-source CMPs, many large cloud service providers have their own proprietary systems. Amazon Web Services, Google Compute Cloud, Microsoft Azure are all based on their own proprietary cloud management systems. Sometimes the major cloud service providers utilize significant open-source projects or share their code as an open-source project with the community (e.g. Google and Kubernetes shared their container management solution).

When SDxCentral spoke with end-users around the selection of a CMP, we found they had a consistent set of questions they used to help them evaluate CMP solutions, whether proprietary or open-source. Note, some of these questions related to extensions and commercial applications that are not applicable to the open-source CMPs.

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Key Attributes to Look for When Evaluating a Cloud Management Platform	
Attributes	**Questions to Ask Vendors**
Features	• Can it manage resources across public clouds? • Are template capabilities supported? • Are cross hypervisor templates available? (taking into account difference be • Future support for containers? • What self-service capabilities are customizable? • Does the solution provide a built-in service catalog? • If it's based on OpenStack, what additional features does it provide over and above OpenStack? • Is there a white-label offering for easy branding? (relevant for cloud-service providers looking to offer their own branded cloud servers)
Compatibility	• What hypervisors does it work with? • What physical storage solutions does it work with? • Can the product manage bare-metal resources as well? • Is it based on OpenStack? • What compute, networking and storage hardware are supported? • What level of network virtualization is supported? • Does it support integration with other systems via RESTful API?
Scaling	• How does the solution scale?? • Is automatic scaling supported? • How has the performance been tested/validated?
Reliability	• Is high availability supported? • What happens in the event connectivity goes down? • Can updates be applied without downtime?
Management	• What specialized capabilities are available for compute resource management? • What specialized capabilities are available for network resource management? • What specialized capabilities are available for storage resource management? • What can be accomplished from the user interface? • How easy is the solution to customize? What kinds of capabilities can be customized? • What is entailed in deploying the solution? • How are updates applied?
Visibility	• What kind of reporting does the solution support? • Does the system provide built-in metering? (for chargebacks and accounting) • What kind of abstraction is available? (between hypervisors and across the cloud resources)
Security	• How is traffic secured? • Are role-based controls supported? o Can it integrate with enterprise directories for consistency? (which ones?) • What auditing capabilities are available?

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Cloud Orchestration Solutions

Cloud orchestration solutions simplify the management of multiple clouds and locations, which can span private and public cloud platforms. These solutions will interact with CMPs to orchestrate workload placement, as well as handle migrations and cross-cloud provisioning. These solutions may also coordinate the software and required networking hardware to support the delivery of applications and services across multiple clouds.

Very few organizations have adopted multi-cloud management systems – according to the recent SDxCentral's survey, only 14% of survey-takers manage multiple clouds. We expect the trend towards multiple-clouds to expand over time and the role of cloud orchestration solutions to become increasingly important.

While a boon for enterprises that are looking for a way to manage their hybrid cloud needs, cloud orchestration solutions are still maturing, so the richness of feature-sets is not consistent among vendor offerings. Often not all underlying features of a CMP are supported and there's a danger that solutions will drop down to address only the most common CMP capabilities versus the more advanced, truly innovative features.

In conversations with end-users, we heard concerns about the cloud orchestrator's ability to keep up with the constant API changes and evolving capabilities of CMPs and public clouds. Nonetheless, cloud orchestration will continue to grow, driven by enterprise needs, and we expect them to become a larger slice of the cloud management and orchestration ecosystem.

We expect to see continual improvement in feature-sets, particularly around the use of analytics to improve workload placement to optimize their performance and costs. We also expect to see better templating to allow for single-click deployments of enterprise applications across disparate clouds. We present the following list of attributes to consider when evaluating a cloud orchestration solution, which were gathered from our interviews and conversations with enterprise users.

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Key Attributes to Look for When Evaluating a Cloud Orchestration Solution	
Attributes	**Questions to Ask Vendors**
Features	• Can the solution manage multiple clouds of different flavors? (public, private, hybrid) • How does it manage resources across public clouds? • Are template capabilities supported? • Are cross-cloud templates supported? • What self-service capabilities are customizable?
Compatibility	• What CMPs and public clouds can it work with? (which are directly and indirectly supported?) • What resources can the product manage across clouds? • What level of network virtualization is supported? • Does it support integration with other systems via RESTful API? • What third party integration tools are available?
Scaling	• How does the solution scale?? • Is automatic scaling supported? • Does the scaling work across clouds? • How has the performance been tested/validated?
Reliability	• Is high availability supported? • What happens in the event connectivity goes down? • Can updates be applied without downtime?

Management	• How does it manage public clouds/multiple clouds?
	  o What can be accomplished from the user interface?
	  o What kind of service catalog support does the solution support? (to make it easy for users to pick applications and for IT staff to publish applications and services)
	• What kind of service catalog support does the solution support? (is it easy for users to pick applications and for IT staff to publish applications and services)
	• How easy is the solution to customize? What kinds of capabilities can be customized?
	• What is entailed in deploying the solution?
	• How are updates applied?

Visibility	• What kind of reporting does the solution support? • Does the system provide built-in metering? (for chargebacks and accounting)
Security	• How is traffic secured? • Are role-based controls supported? o Can it integrate with enterprise directories for consistency? • What auditing capabilities are available?

Automation Solutions – Rise of DevOps

Automation solutions are configuration management systems or advanced scripting systems that reduce manual command line configuration steps to accelerate the delivery of functions (service updates, policy changes, etc.) in the cloud. They tend to run at a lower-level in the stack than management and orchestration solutions, which may integrate or interact with the automation tools to perform the final configuration steps during the provisioning of key resources – e.g. applications being brought up on compute instances that are provisioned by the cloud management platforms.

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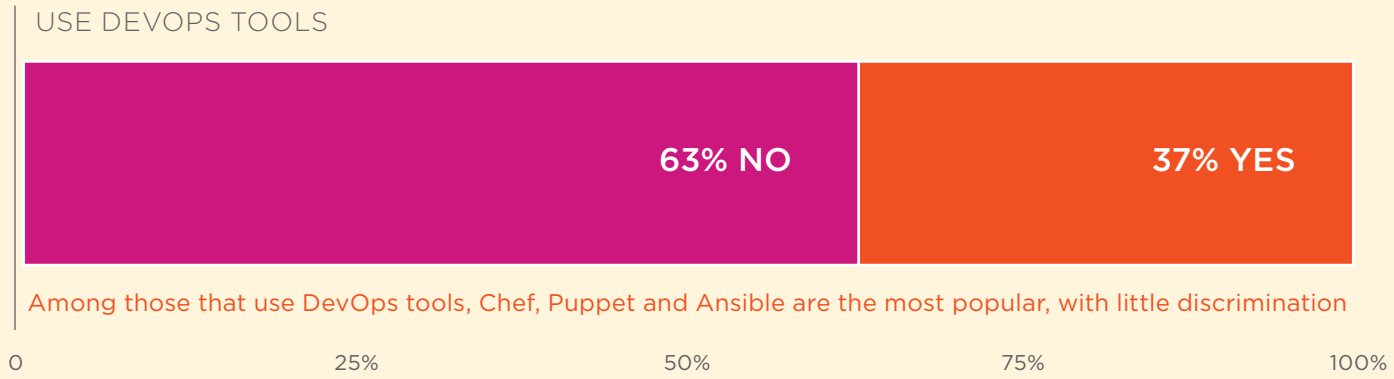
These tools have helped drive the popularity of DevOps. For many of our networking-centric readers, you may be less familiar with DevOps. Over the last 18 months, we've seen DevOps become increasing important in networking, with the roll out of SDN and NFV deployments in enterprise and service provider production environments. As we are see more and more technology that enables operators to quickly deploy an infrastructure that can perform at cloud scale, without having to hire an army of engineers, we will see more and more enterprises adopt and rely on the DevOps function. We strongly recommend network architects and engineers familiarize themselves with these tools.

The Rise of DevOps

Just as SDx has changed the way organizations buy, build, manage and maintain their infrastructure, it has also changed who is involved. Organizations are bringing together a number of stakeholders to deploy 'solutions;' soon to be gone are the days where individual components are the sole responsibility of individuals (network architect, application developer, security analyst,) in the organization.

The confluence of roles and responsibilities has given rise to Development Operations (DevOps), who are responsible for orchestrating the interdependent processes associated with software development and IT operations to speed up the production and deployment of products and services. DevOps tools and processes are designed to facilitate communication and collaboration to create a more flexible and responsive infrastructure that can support the business' needs.

The recent SDxCentral survey found the adoption of DevOps is still not mainstream, with only 37% of respondents indicating they use DevOps tools in their environment. It appears no vendor has claimed the market yet, with Chef, Puppet and Ansible referenced fairly equally. When asked what they saw as the single biggest challenge with DevOps tools today, most respondents didn't cite issues with the tools themselves, but rather described a general lack of talent/expertise available to perform the DevOps function and work with the tools.



In the land of DevOps, mainstays like Puppet, Chef, Ansible, SaltStack, Vagrant and the venerable CFEngine have become household names with developers and deployment engineers alike. There are also less known but equally critical products that provide automation for the infrastructure of the data center (both network and storage). While not typically treated as DevOps, these automation products provide similar capabilities to automate the provisioning and management of data center resources.

Choosing the right solution depends on many elements. We've seen "religious wars" between infrastructure engineers over the preferred DevOps model (declarative vs imperative, agent vs agentless, etc.). The reality is business drivers and infrastructure needs (and compatibility) are the key elements that should dictate decisions. We also will need to see a shift in the culture and mindset of the workplace, as more and more functions become interconnected. In the meantime, we have created a list of criteria to help organizations get started as they look to select automation/DevOps solutions.

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Key Attributes to Look for When Evaluating an Automation Solution	
Attributes	**Questions to Ask Vendors**
Features	• Can the solution manage configurations? • Can the solution remotely execute? • Can the solution complete general resource orchestration? • What is the configuration model used? (how does it define directives/scripts to execute) • What is the distribution and control model used? • What type of sequencing controls does the solution offer? • What compute infrastructure is supported? • What storage products are supported? • What networking solutions are supported? • How rich is the template and configuration library?
Compatibility	• Is there an open source version available? • Does it integrate with OpenStack? • Does it integrate with Linux Containers? • Does the solution require an agent on the device/server being managed? • Does it support integration with other systems via RESTful API? • What kind of operating systems are supported? • Any specialized support for applications? • If controlling appliances and hardware devices – have these been tested and verified? • What third party integration tools are available?
Scaling	• What is the performance of the solution? • How has the performance been tested/validated?
Reliability	• Is high availability supported? • What is the failback or rollback mechanism? • What happens in the event connectivity goes down? • Can updates be applied without downtime?
Management	• How is the solution managed? (UI) • How does the solution provide built-in handling for notifications? • How does the solution provide built-in exception handling? • What is entailed in deploying the solution? • How are updates applied?
Visibility	• What kind of reporting does the solution support? • How does the solution provide verification the function has been completed?

Security	• What type of control model exists? (Is it inline with your organization's philosophy?)
	• How is traffic secured?
	  o Does the solution support mutual authentication?
	  o Is the messaging/command control infrastructure encrypted?
	• What auditing capabilities are available?

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Management, Orchestration and Automation Vendor Profiles

The following sections of this Report profile some of the vendors offering cloud management, cloud orchestration, as well as DevOps and automation solutions. The selection of the products contained in the Report was based on nominations from readers, as well as research conducted with enterprises and service providers to identify the more popular solutions in the marketplace. Extended profiles can be viewed online.

The information contained in the Report was gathered via a collaborative effort between the SDxCentral's Research Team and the vendor's appropriate product experts. While every attempt has been made to validate the capabilities listed in the profiles, SDxCentral advises end users to verify the veracity of each claim for themselves in their actual deployment environments. SDxCentral cannot be held liable for unexpected operations, damages or incorrect operation due to any inaccuracies listed here.

SDxCentral welcomes feedback and additional information from end users based on their real-world experiences with the products and technologies listed. The SDxCentral Research Team can be reached at research@sdxcentral.com.

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Bright OpenStack (Click for online version)

http://www.brightcomputing.com/Solutions-OpenStack

BRIGHT COMPUTING
http://www.brightcomputing.com

Description: Bright OpenStack is an OpenStack distribution that works with Bright Cluster Management software to build, manage, and maintain private clouds. Bright OpenStack lets customers deploy a complete OpenStack cloud on bare metal and manage it effectively. It provides single pane-of-glass management for the hardware, the OS, the cloud software, and users. With Bright OpenStack & Bright Cluster Manager admins can get their private clouds up quickly and keep them up reliably through all lifecycles.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: May 2015	**Production Deployments Today** ☑
Based on: OpenStack	**Customers:** http://www.brightcomputing.com/Bright-Computing-Testimonials
Compatible Hypervisors: KVM	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☑	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☐	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☐	**Resource Management Drag/Drop Configuration** ☑
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☐

Ubuntu OpenStack (Click for online version)

http://www.ubuntu.com/cloud/ubuntu-openstack

CANONICAL
http://www.canonical.com

Description: Ubuntu is an operating system for OpenStack. Ubuntu OpenStack helps you easily build, manage and monitor your cloud using The Canonical Distribution of Ubuntu OpenStack. The web-based wizard, also known as Ubuntu Autopilot, guides you through the configuration, enabling you to build a working cloud on your hardware in minutes, and recommending the best utilization of your resources.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: Not Disclosed	**Production Deployments Today** ☑
Based on: OpenStack	**Customers:** Not Disclosed
Compatible Hypervisors: KVM, ESXi, Xen	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☑	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☑	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☑	**Resource Management Drag/Drop Configuration** ☐
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☐

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Citrix CloudPlatform (Click for online version)

CITRIX SYSTEMS, INC.
http://www.citrix.com

http://www.citrix.com/products/cloudplatform/overview.html

Description: Citrix CloudPlatform, based on Apache CloudStack, is integrated cloud orchestration software to quickly setup, manage and operate cloud infrastructure. It's vendor agnostic and production-proven around the globe in very large deployments.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: October 2012	**Production Deployments Today** ☑
Based on: CloudStack	**Customers:** Autodesk, BT, KT, Disney Interactive and others
Compatible Hypervisors: KVM, ESXi, Xen, Hyper-V	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☑	**Role-Based Access Control** ☐
Specialized Handling for Linux Containers ☑	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☑	**Resource Management Drag/Drop Configuration** ☑
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

Hybrid Cloud 2.0 (Click for online version)

EMC CORPORATION
https://www.emc.com

https://www.emc.com/cloud/hybrid-cloud-computing/index.htm

Description: EMC Hybrid Cloud solution integrates EMC and VMware products and services. It enables IT organizations to implement hybrid cloud while still allowing choice for the compute and networking infrastructure within the data center. The solution caters both to customers who want to further leverage their existing infrastructure and those who want to build out new infrastructures dedicated to a hybrid cloud.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: June 2014	**Production Deployments Today** ☑
Based on	**Customers:** Inovalon Energy Future Holdings University of North Texas Medtronic
Compatible Hypervisors: ESXi	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☑	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☐	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☑	**Resource Management Drag/Drop Configuration** ☐
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

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HP Helion OpenStack Carrier Grade (Click for online version)

HEWLETT-PACKARD COMPANY
http://www.hp.com

http://www8.hp.com/us/en/cloud/nfv-solutions.html

Description: HP Helion OpenStack Carrier Grade (HCG) is a carrier grade OpenStack, compute, and network virtualization offering for network functions virtualization (NFV). It enables CSPs to deploy NFV applications on open-source software platforms. HCG is built on the same foundation as the HP Helion OpenStack Enterprise Edition, and adds significant enhancements in three key areas, namely carrier grade features and manageability, availability, and performance.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: July 2015	**Production Deployments Today** ☑
Based on: OpenStack	**Customers:** Not Disclosed
Compatible Hypervisors: KVM, ESXi	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☐	**Role-Based Access Control** ☐
Specialized Handling for Linux Containers ☑	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☐	**Resource Management Drag/Drop Configuration** ☐
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

Huawei FusionCloud (Click for online version)

HUAWEI
http://www.huawei.com/en/

http://e.huawei.com/us/solutions/technical/cloud-computing

Description: The Huawei FusionCloud offering made up of Huawei's FusionSphere cloud operating system, FusionCube converged infrastructure "in-a-box" and various other technologies surrounding their overall cloud solution. FusionCloud is managed by FusionManager that handles resource management, system monitoring, log management, system backups, rights management and hardware remote management.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: February 2013	**Production Deployments Today** ☑
Based on: OpenStack	**Customers:** African Union International Conference Center, Bank of China South Africa Branch, Shanghai Unicom, Philippines APC University, Spain Madrid Hospital
Compatible Hypervisors: KVM, Xen	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☐	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☐	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☐	**Resource Management Drag/Drop Configuration** ☐
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☐
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☐

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Mirantis OpenStack (Click for online version)

https://www.mirantis.com/products/mirantis-openstack-software/

MIRANTIS
https://www.mirantis.com

Description: Mirantis supplies an OpenStack distribution that is easy to deploy and manage, easy to onboard workloads and is resilient at scale. It is validated against a wide ecosystem of 3rd party software and drivers. Mirantis offers support, professional services and training.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: October 2013	**Production Deployments Today** ☑
Based on: OpenStack	**Customers:** http://content.mirantis.com/case-study-landing-page.html
Compatible Hypervisors: KVM, ESXi, VirtualBox	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☑	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☑	**Auditing Built into Platform** ☐
Cross-hypervisor Templates Support ☑	**Resource Management Drag/Drop Configuration** ☑
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

Oracle Cloud Infrastructure (Click for online version)

https://cloud.oracle.com/leverage_infrastructure?tabID=1386140403329

ORACLE CORPORATION
http://www.oracle.com

Description: Oracle Cloud Infrastructure as a Service (IaaS) offers a set of core infrastructure capabilities like elastic compute and storage to provide customers the ability to run any workload in the cloud. Specifically for developers, infrastructure services will include compute service to leverage elastic compute capacity, a storage Service to provide a secure, scalable, reliable and simple storage solution to meet all of your enterprise needs and a messaging service.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: May 2010	**Production Deployments Today** ☑
Based on	**Customers:** https://cloud.oracle.com/customers
Compatible Hypervisors: Xen	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☐	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☐	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☐	**Resource Management Drag/Drop Configuration** ☐
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☐
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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Platform9 Managed OpenStack (Click for online version)

PLATFORM9
http://platform9.com

http://platform9.com/product/openstack-integrated-with-vmware-vsphere.html

Description: OpenStack made simple and easy; and delivered with interoperability for any hardware and virtualization platform. Differentiators:1. OpenStack-as-a-Service: By delivering OpenStack as a SaaS solution, Platform9 takes care of installation, 24/7 monitoring, troubleshooting and upgrades. 2. Guaranteed SLA: Platform9 owns the OpenStack SLA contractually. 3. Cross-platform: Supports KVM and VMware vSphere, Docker support is coming. 4. No HCL 5. 100% interoperable w/ existing environments.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: January 2015	**Production Deployments Today** ☑
Based on: OpenStack	**Customers:** PubMatic, Arizona State University, The Rubicon Project, Moz, The Richards Group
Compatible Hypervisors: KVM, ESXi	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☐	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☑	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☐	**Resource Management Drag/Drop Configuration** ☑
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

RightScale (Click for online version)

RIGHTSCALE
http://www.rightscale.com

http://www.rightscale.com/products-and-services/products/cloud-management

Description: RightScale's cloud brokering platform includes capabilities including self-service provisioning, governance, automation, operations, and financial management. RightScale provides a unified solution for enterprises to manage diverse infrastructure. RightScale's vision is to manage any cloud, any service, any virtual machine, any server, and any container. We call this universal cloud management.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: December 2006	**Production Deployments Today** ☑
Based on:	**Customers:** Audi, VW, Coty, Technicolor, Pinterest
Compatible Hypervisors: KVM, ESXi, Xen, Hyper-V, VirtualBox	**MANAGEMENT AND SECURITY**
Bare-metal Resource Management ☑	**Role-Based Access Control** ☑
Specialized Handling for Linux Containers ☑	**Auditing Built into Platform** ☑
Cross-hypervisor Templates Support ☑	**Resource Management Drag/Drop Configuration** ☑
Automatic Scaling ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

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SUSE OpenStack Cloud (Click for online version)

SUSE
https://www.suse.com

https://www.suse.com/promo/cloud/suse-openstack-cloud.html

Description: Based on OpenStack Juno, SUSE OpenStack Cloud 5 delivers enhanced networking flexibility and improved operational efficiency. SUSE OpenStack Cloud 5 is integrated with SUSE Enterprise Storage and SUSE Linux Enterprise Server 12 giving you the latest in data center innovation.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: 2011	**Production Deployments Today** ☑
Based on: OpenStack	**Customers:** https://www.suse.com/success/#cloudcomputing
Compatible Hypervisors: KVM, ESXi, Xen, Hyper-V	
Bare-metal Resource Management ☐	**MANAGEMENT AND SECURITY**
Specialized Handling for Linux Containers ☐	**Role-Based Access Control** ☑
Cross-hypervisor Templates Support ☐	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
High Availability ☑	**Built-in Service Catalog** ☑
	RESTful API for External Integration ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

Vblock Systems (Click for online version)

VCE
http://www.vce.com

http://www.vce.com/products/converged/vblock/overview

Description: Vblock integrates best-in-class compute, network, and storage technologies from industry leaders Cisco, EMC, and VMware, Vblock Systems provide dynamic pools of resources that can be intelligently provisioned and managed to address changing demands and fleeting business opportunities. The portfolio is built on a single, highly secure, standardized, market-leading infrastructure. Pre-integrated, tested, and validated, the systems can be quickly deployed, distributed, and are predictable.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: 2010	**Production Deployments Today** ☑
Based on	**Customers:** http://www.vce.com/about#featured-customer
Compatible Hypervisors: ESXi	
Bare-metal Resource Management ☐	**MANAGEMENT AND SECURITY**
Specialized Handling for Linux Containers ☐	**Role-Based Access Control** ☑
Cross-hypervisor Templates Support ☐	**Auditing Built into Platform** ☑
Automatic Scaling ☐	**Resource Management Drag/Drop Configuration** ☐
High Availability ☐	**Built-in Service Catalog** ☐
	RESTful API for External Integration ☑
	Customizable, Built-in Self-service Capabilities ☐
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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category: ■ cloud management - public clouds

Amazon Web Services (Click for online version)

http://aws.amazon.com

AMAZON WEB SERVICES, INC.
http://aws.amazon.com

Description: Amazon Web Services offers a broad set of global compute, storage, database, analytics, application, and deployment services that help organizations move faster, lower IT costs, and scale applications. These services are used by the largest enterprises as well as start-ups to power a wide variety of workloads including: web and mobile applications, data processing and warehousing, storage, archive, and many others.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: 2006	**Production Deployments Today** ☑
Multiple Cloud Management ☐	**Customers:** Expedia, Netflix, Coursera, Unilever
CMPs Supported	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☐	**Role-Based Access Control** ☑
Cross-cloud Template Support ☐	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☐	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

Kubernetes (Click for online version)

http://www.kubernetes.io

GOOGLE
http://www.google.com

Description: Kubernetes is an open-source platform for automating deployment, scaling, and operations of application containers across clusters of hosts. It is used for managing containerized applications in a clustered environment. It aims to provide better ways of managing related, distributed components across varied infrastructure.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: July 2015	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Box, eBay, RedHat, Samsung, and Zulily
CMPs Supported: VMware, OpenStack, CloudStack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☐	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☐
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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category: ■ cloud management - public clouds

Microsoft Azure (Click for online version)

https://azure.microsoft.com/en-us/?rnd=1

MICROSOFT
http://www.microsoft.com

Description: Windows Azure is an open and flexible cloud platform that enables users to quickly build, deploy, scale and manage applications across a global network of Microsoft datacenter. It enables the user to build applications using multiple languages, tools, and frameworks. Key Use Cases of Microsoft Azure: Web Applications; Cloud Storage; Big Data & HPC; Mobile App Development, Media Creation, Management, and Distribution in the Cloud.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: October 2008	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** NBC, GE, EasyJet, 3M, Xerox
CMPs Supported	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

Rackspace Cloud Orchestration (Click for online version)

http://www.rackspace.com/cloud/orchestration/

RACKSPACE
http://www.rackspace.com

Description: Rackspace Cloud Orchestration is powered by OpenStack Heat. It has direct access to OpenStack Compute (Nova) and OpenStack Object Storage (Swift). With broad access to these diverse tools, it lets you quickly and easily deploy infrastructure (and even manage its lifecycle) in a consistent, repeatable way using fully configurable templates. With Custom Templates, you can modify the configuration of your stack simply by editing the template and running an update.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: October 2014	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** http://www.rackspace.com/en-us/managed_hosting/support/customers
CMPs Supported: VMware, OpenStack, Compute (Nova), OpenStack Object Storage (Swift)	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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category: ■ cloud orchestration

Cloud Lifecycle Management (Click for online version)

http://www.bmc.com/it-solutions/cloud-lifecycle-management.html

BMC
http://www.bmc.com

Description: BMC Cloud Lifecycle Management automates the provisioning of multi-tier IT services across cloud and non-cloud platforms. Cloud Lifecycle Management integrates to IT processes like change management, the CMDB, compliance, and patching to optimize agility while maintaining essential governance and compliance for mission-critical cloud workloads.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: Not Disclosed	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** http://www.bmc.com/customers/success-stories.html
CMPs Supported: VMware, OpenStack, Hyper-V	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

CA Automation Suite for Clouds (Click for online version)

http://www.ca.com/us/products/detail/ca-automation-suite-for-hybrid-clouds.aspx

CA TECHNOLOGIES
http://www.ca.com

Description: Transform your existing infrastructure to deliver public and private cloud services with our cloud automation solution. CA Automation Suite for Clouds is an enterprise-wide cloud service delivery and automation platform designed to help you deliver cloud services so you can accelerate time to market and ease your transition to the cloud.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: July 2011	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Fujitsu, Logicalis
CMPs Supported: VMware, Citrix CloudPlatform	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☐	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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CloudCenter (Click for online version)

CLIQR TECHNOLOGIES
http://www.cliqr.com

http://www.cliqr.com/platform/

Description: CliQr CloudCenter is an application-defined cloud management platform that securely deploys infrastructure and applications to more than 15 datacenter, private and public cloud environments. The older approach of forcing applications to conform to the unique requirements of each deployment environment doesn't scale. CliQr solves the problem with a cloud-agnostic application profile that defines the deployment and management requirements for any application stack to any public or private cloud.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: June 2012	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** NTT, Baylor University School of Medicine, Trimble Communications, Directv, Pratt Miller
CMPs Supported: VMware, OpenStack, CloudStack, Cisco UCS Director, VMware vCloud Director	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☐
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☐	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

CSC Agility Platform (Click for online version)

CSC
http://www.csc.com

http://www.csc.com/cloud/offerings/53410/104965-csc_agility_platform_cloud_management

Description: Agility Platform is a fully integrated offering with multiple product modules, cloud adapters, SDK, command line interface, and a robust API. The core platform includes hybrid cloud governance, security, and orchestration capabilities consumed by each product module, exposed via API and implemented via adapters for all cloud environments.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: Not Disclosed	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** http://www.csc.com/success_stories
CMPs Supported: VMware, OpenStack, CloudStack. Click for online version to see more	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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Dell Cloud Manager (Click for online version)

DELL SOFTWARE
http://www.enstratius.com

http://www.enstratius.com

Description: Dell Cloud Manager enables provisioning, deployment, management, and automation of applications across the leading public and private cloud platforms. Cloud Manager makes it easy to extend security and governance policies to the cloud, while delivering the business agility that users require.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: September 2008	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Majority of customers are not public. Some names include Valtira, Carmichael Lynch, and Read Naturally
CMPs Supported: VMware, OpenStack, CloudStack, Windows Azure Pack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

Egenera Cloud Suite (Click for online version)

EGENERA
http://www.egenera.com

Description: Egenera Cloud Suite is a full cloud management platform that enables IT organizations and service providers to design, request, provision, protect and manage IT as a service. Designed to address the needs of both enterprises and service providers. Egenera Cloud Suite transforms static infrastructure into a flexible cloud service so that organizations and service providers can provide near-instant access to the computing resources users require.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: October 2006	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Commerzbank, Standard Chartered, U.S. Census Bureau, BroadRiver Communications Corporation
CMPs Supported: VMware	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☐
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

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vCommander (Click for online version)

EMBOTICS
http://www.embotics.com

Description: Embotics vCommander is an easy-to-use, platform-neutral CMP with the fastest time-to-value in the industry—it can be implemented within one hour. It allows IT organizations to deliver IT-as-a-Service (ITaaS) from a single console while continuously monitoring resources to optimize the automation, deployment, and configuration of IT services across private, public and hybrid clouds.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: 2006	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Peak 10, NASA, Deloitte, Lockheed Martin, careerbuilder.com
CMPs Supported: VMware, OpenStack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

Ericsson Cloud Manager (Click for online version)

ERICSSON
http://www.ericsson.com

http://www.ericsson.com/ourportfolio/products/cloud-manager?nav=product-category008

Description: Ericsson Cloud Manager provides an integrated platform for managing a cloud computing infrastructure that may be geographically distributed by enabling the creation, orchestration, activation and monitoring of services running on virtualized resources. It provides orchestration of physical and virtual infrastructure resources for both private and public clouds. Ericsson Cloud Manager works with Ericsson Network Manager (ENM) which provides the integrated hybrid management and orchestration of physical and virtualized applications which compose a network slice.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: March 2014	**Production Deployments Today** ☐
Multiple Cloud Management ☑	**Customers:** For the moment only 1 public reference is available. http://www.ericsson.com/news/1898448
CMPs Supported: VMware , OpenStack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☐	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Built-in Service Catalog** ☑
Scaling Across Public and Private Clouds ☐	**RESTful API for External Integration** ☑
High Availability ☑	**Customizable, Built-in Self-service Capabilities** ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

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IBM Cloud Orchestrator (Click for online version)

IBM
http://www.ibm.com

http://www-03.ibm.com/software/products/en/ibm-cloud-orchestrator

Description: IBM Cloud Orchestrator provides cloud management for your IT services. Based on open standards, it reduces the number of steps to manage public, private and hybrid clouds by using an easy-to-use interface. It includes ready-to-use patterns and content packs – helping to speed configuration, provisioning and deployment. It integrates management tools such as metering, usage, accounting, monitoring, and others.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: March 2013	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Novatec, Visennsa, Toshiba, and WuxiLake
CMPs Supported: VMware, OpenStack, Amazon EC2, PowerVM, IBM SoftLayer	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

Contrail (Click for online version)

JUNIPER NETWORKS, INC.
http://www.juniper.net/

http://www.juniper.net/us/en/products-services/sdn/contrail/

Description: Juniper Networks' Contrail is an open and agile Cloud Network Automation platform that implements secure multi-tenancy and enables dynamic service chaining in private, public, and hybrid clouds. The Contrail solution is composed of two products: Contrail Networking and Contrail Cloud Platform.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: September 2013	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** NTT Innovation Institute Inc. (NTT i3), Orange Business Solutions (OBS), Symantec, CloudWatt, Lithium Technologies
CMPs Supported: VMware, OpenStack, CloudStack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☐	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☐	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

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CloudForms (Click for online version)

RED HAT
http://www.redhat.com

http://www.redhat.com/en/technologies/cloud-computing/cloudforms

Description: Red Hat CloudForms provides unified cloud management that enables organizations to rapidly transform their existing virtual infrastructures into highly scalable, private clouds as well as take advantage of public cloud resources. CloudForms reduces execution time by automating key processes, accelerating service delivery, increasing agility, improving service levels, and maximizing resource efficiency.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: June 2012	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Corvestra, Penn State, Telefónica, CBTS, Union Bank
CMPs Supported: VMware, CloudStack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

SaltStack Enterprise CloudOps (Click for online version)

SALTSTACK
http://www.saltstack.com

http://saltstack.com/enterprise-2/saltstack-enterprise-cloudops/

Description: SaltStack Enterprise CloudOps manages any public or private cloud and abstracts any infrastructure from any application, code, virtualization or container, making efficient cloud deployment and orchestration an attainable reality. SaltStack delivers predictive cloud orchestration, brokerage, and workload migration (all with native configuration management) to deliver the best CloudOps automation.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: March 2015	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** https://www.youtube.com/playlist?list=PL9svBjLDUl_8gmIDdmYVGuEfRyETbCWx_
CMPs Supported: VMware, OpenStack, CloudStack, RackSpace	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☐
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☐
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☐

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FishDirector (Click for online version)

http://www.sardinasystems.com/products/fishdirector

SARDINA SYSTEMS
http://www.sardinasystems.com/

Description: FishDirector is a management and automation system designed for OpenStack that enables you to operate your data center flexibly and optimally at scale. FishDirector is focused on energy-optimizing and utilization-improving OpenStack management. FishDirector will enable data center operators to save costs, increase operations agility, increase ROI, reduce servers and associated software CapEx, and enable organizations to flexibly focus on core business objectives.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: May 2014	**Production Deployments Today** ☑
Multiple Cloud Management ☐	**Customers:** Not Disclosed
CMPs Supported	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☐	**Role-Based Access Control** ☑
Cross-cloud Template Support ☐	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☐	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☑
	Built-in Metering for Chargebacks ☑

Scalr Cloud Management Platform (Click for online version)

SCALR
http://www.scalr.com

Description: Enterprises turn to cloud for agility and cost benefit but struggle with security and maintaining control. The Scalr Cloud Management Platform offers a single console to manage and automate application deployment across multiple public and private clouds. With Scalr, users can enjoy a powerful multi-cloud API and a comprehensive policy engine.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: April 2008	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** http://www.scalr.com/resources/case-studies
CMPs Supported: OpenStack, CloudStack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☐
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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vCloud Suite Enterprise (Click for online version)

https://www.vmware.com/products/vcloud-suite/

VMWARE
https://www.vmware.com

Description: VMware vCloud Suite is an integrated offering for building and managing a VMware vSphere-based private cloud that can dramatically improve efficiency, agility and control for IT organizations.

PRODUCT DETAILS	CUSTOMERS
Date of Initial Release: Not Disclosed	**Production Deployments Today** ☑
Multiple Cloud Management ☑	**Customers:** Linkedin, Orange, Facebook, Twitter, TeliaSonera
CMPs Supported: VMware, OpenStack	**MANAGEMENT, INTEGRATION AND SECURITY**
Resource Management Across Public Clouds ☑	**Role-Based Access Control** ☑
Cross-cloud Template Support ☑	**Auditing Built into Platform** ☑
Automatic Scaling ☑	**Resource Management Drag/Drop Configuration** ☑
Scaling Across Public and Private Clouds ☑	**Built-in Service Catalog** ☑
High Availability ☑	**RESTful API for External Integration** ☑
	Customizable, Built-in Self-service Capabilities ☑
	White-label Offering for Easy Branding ☐
	Built-in Metering for Chargebacks ☑

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category: ■ devops/automation

Moab HPC Suite – Enterprise Edition (Click for online version)

ADAPTIVE COMPUTING
http://www.adaptivecomputing.com

http://www.adaptivecomputing.com/products/hpc-products/moab-hpc-suite-enterprise-edition/

Description: Moab 8.1 for HPC systems and HPC cloud continually meets enterprise priorities through increased productivity, automated workload uptime, and consistent SLAs. It uses the Moab intelligence engine to automatically balance the complex, mission-critical workload priorities of enterprise HPC systems.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management, Remote execution, General resource orchestration	**Production Deployments Today** ☑
Date of Initial Release: Not Disclosed	**Customers:** IBM, Los Alamos National Lab, SciNet
Open-source Version Available ☐	**MANAGEMENT AND SECURITY**
Open-source License Type	**Mutual Authentication Support** ☑
Primary Language(s): C/C++	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☐	**Auditing Built into Platform** ☑
OSs Supported for the Agent	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

Affirmed Service Automation Platform (ASAP) (Click for online version)

AFFIRMED NETWORKS
http://www.affirmednetworks.com

Description: ASAP orchestrates and automates the deployment of network services. ASAP services are supported on both virtualized and non-virtualized systems. ASAP helps in provisioning, de-provisioning, or obtaining the information for a service, using a custom-defined procedure called a Recipe. ASAP's key objective is to support SMEs in the carrier network by simplifying the process of creating new network services without the need for service-specific coding or additional professional services assistance.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management	**Production Deployments Today** ☐
Date of Initial Release: October 2015	**Customers**
Open-source Version Available ☐	**MANAGEMENT AND SECURITY**
Open-source License Type	**Mutual Authentication Support** ☑
Primary Language(s): Java	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☐	**Auditing Built into Platform** ☑
OSs Supported for the Agent	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

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category: ■ **devops/automation**

Ansible Tower (Click for online version)

ANSIBLE
http://www.ansible.com

http://www.ansible.com/tower

Description: Ansible is a task-based automation engine that brings simple, agentless automation to the masses in an easy-to-use markup language. Ansible Tower extends Ansible by adding the control, security, and delegation features needed to scale out automation from the IT team to the entire enterprise.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management, Remote execution, General resource orchestration, Application Deployment	**Production Deployments Today** ☑
Date of Initial Release: October 2013	**Customers:** http://www.ansible.com/
Open-source Version Available ☑	**MANAGEMENT AND SECURITY**
Open-source License Type: GNU	**Mutual Authentication Support** ☑
Primary Language(s): Python	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☐	**Auditing Built into Platform** ☑
OSs Supported for the Agent	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

CFEngine (Click for online version)

CFENGINE
http://cfengine.com

http://cfengine.com/product/

Description: CFEngine is a configuration management and automation framework that lets you securely manage your mission critical IT infrastructure. It helps ensure compliance, automate changes and updates and runs across every node of the infrastructure and on any size of device.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management, Remote execution	**Production Deployments Today** ☑
Date of Initial Release: April 2009	**Customers:** Intel, Chevron, Linkedin, Samsung, Comcast
Open-source Version Available ☑	**MANAGEMENT AND SECURITY**
Open-source License Type: GPL	**Mutual Authentication Support** ☑
Primary Language(s): C/C++	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☑	**Auditing Built into Platform** ☑
OSs Supported for the Agent: Linux, Windows, Solaris, AIX	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

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category: ■ **devops/automation**

CHEF (Click for online version)

https://www.chef.io/chef/

CHEF SOFTWARE INC.
https://www.chef.io

Description: Chef turns infrastructure into code. With Chef, you can automate how you build, deploy, and manage your infrastructure. Your infrastructure becomes as versionable, testable, and repeatable as application code.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management	**Production Deployments Today** ☑
Date of Initial Release: January 2009	**Customers:** Facebook, GE, Nordstrom, Splunk
Open-source Version Available ☑	**MANAGEMENT AND SECURITY**
Open-source License Type: Apache	**Mutual Authentication Support** ☑
Primary Language(s): Ruby, Erlang	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☑	**Auditing Built into Platform** ☑
OSs Supported for the Agent: Linux, Windows, Solaris, Mac OS X, BSD, AIX	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

Cisco UCS Director (Click for online version)

http://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-director/index.html

CISCO SYSTEMS
http://www.cisco.com

Description: Cisco UCS Director abstracts hardware and software into programmable tasks that can be tailored to a customer's specific business needs. The IT department uses these tasks to create workflows spanning hypervisor, computing, network, and storage components. This process relieves IT staff of the need to manually configure and manage these layers.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management, General resource orchestration	**Production Deployments Today** ☑
Date of Initial Release: December 2012	**Customers:** Intel, Chevron, Linkedin, Samsung, Comcast, http://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-director/case-study-listing.html
Open-source Version Available ☐	**MANAGEMENT AND SECURITY**
Open-source License Type	**Mutual Authentication Support** ☑
Primary Language(s): Ruby, Python, Java	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☑	**Auditing Built into Platform** ☑
OSs Supported for the Agent: Linux, Windows, VMware, ESXi	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

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category: ■ **devops/automation**

Citrix Lifecycle Management (Click for online version)

CITRIX SYSTEMS, INC.
https://www.citrix.com

https://www.citrix.com/products/citrix-lifecycle-management/overview.html

Description: Citrix Lifecycle Management is a cloud-based service lifecycle management solution that helps accelerate and simplify the design, deployment and ongoing management of Citrix workloads and enterprise applications. Based on application blueprints, the product allows IT administrators to: Support agile development and DevOps. Incorporate best practices for application deployments. Include homegrown scripts with support for multiple languages. Support version-control and rollback of blueprints. Test products in sandbox environments.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management, Remote execution, General resource orchestration	**Production Deployments Today** ☑
Date of Initial Release: August 2015	**Customers:** Not Disclosed
Open-source Version Available ☐	**MANAGEMENT AND SECURITY**
Open-source License Type	**Mutual Authentication Support** ☐
Primary Language(s): Java	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☑	**Auditing Built into Platform** ☐
OSs Supported for the Agent: Linux, Windows	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

Docker (Click for online version)

DOCKER, INC.
https://www.docker.com

https://www.docker.com/whatisdocker

Description: Docker allows you to package an application with all of its dependencies into a standardized unit for software development.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management	**Production Deployments Today** ☑
Date of Initial Release: March 2013	**Customers:** https://www.docker.com/customers
Open-source Version Available ☑	**MANAGEMENT AND SECURITY**
Open-source License Type: Apache	**Mutual Authentication Support** ☐
Primary Language(s): Ruby, Python, Java	**Command Messages Encrypted** ☐
Agent on the Device/Server Required ☐	**Auditing Built into Platform** ☐
OSs Supported for the Agent	**Built-in User Interface** ☐
Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☐
	Built-in Exception Handling ☐

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category: ■ **devops/automation**

Pivotal Cloud Foundry (Click for online version)

PIVOTAL
http://pivotal.io

Description: Pivotal's Cloud Foundry platform consists of an integrated Application Framework, Platform Runtime, and Infrastructure Automation capabilities. The goal is to unify and accelerate a company's software delivery process. In addition, operations teams have access to the visibility and control of the deployments through the platforms policy environment and automated lifecycle management capabilities.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Remote execution	**Production Deployments Today** ☑
Date of Initial Release: April 2013	**Customers:** Philips, Verizon, Allstate, Lockheed Martin, GE
Open-source Version Available ☑	**MANAGEMENT AND SECURITY**
Open-source License Type: Apache	**Mutual Authentication Support** ☑
Primary Language(s): Ruby	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☑	**Auditing Built into Platform** ☑
OSs Supported for the Agent: Linux	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

Puppet Enterprise (Click for online version)

https://puppetlabs.com/puppet/puppet-enterprise

PUPPET LABS
https://puppetlabs.com

Description: Puppet Enterprise automates the provisioning, configuration and ongoing management of virtual machines and the software running on them. It enables rapid, repeatable changes and automatically enforces the consistency of systems and devices – across physical and virtual machines, on premise or in the cloud. Nearly 25,000 IT organizations have adopted Puppet Enterprise and Open Source Puppet to automate the configuration and ongoing management of systems and the software on them.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management	**Production Deployments Today** ☑
Date of Initial Release: April 2005	**Customers:** https://puppetlabs.com/about/customers
Open-source Version Available ☑	**MANAGEMENT AND SECURITY**
Open-source License Type: Apache	**Mutual Authentication Support** ☑
Primary Language(s): Ruby	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☑	**Auditing Built into Platform** ☑
OSs Supported for the Agent: Linux, Windows, Solaris, Mac OS X, BSD, CentOS, Oracle Enterprise Linux, Red Hat Enterprise Linux, Scientific Linux, Suse Linux Enterprise Server, Solaris, AIX, Ubuntu LTS	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

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category: ■ **devops/automation**

SaltStack Enterprise DevOps (Click for online version)

http://saltstack.com/enterprise-2/saltstack-enterprise-for-devops/

SALTSTACK
http://saltstack.com

Description: SaltStack Enterprise DevOps helps IT organizations orchestrate the efficient movement of code into production and keep complex infrastructures fine-tuned for optimal business service and application delivery. SaltStack provides a tool-centric approach to realizing value in continuous delivery. SaltStack orchestrates the DevOps value chain and helps to deploy and configure dynamic applications, and the general-purpose infrastructure they run on, faster and easier than ever.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management, Remote execution, General resource orchestration, Continuous deployment and integration; Microservices and application container orchestration; Management of Puppet manifests and Chef recipes	**Production Deployments Today** ☑
Date of Initial Release: March 2015	**Customers:** https://www.youtube.com/playlist?list=PL9svBjLDUl_8gmIDdmYVGuEfRyETbCWx_
Open-source Version Available ☑	**MANAGEMENT AND SECURITY**
Open-source License Type: Apache	**Mutual Authentication Support** ☑
Primary Language(s): Python	**Command Messages Encrypted** ☑
Agent on the Device/Server Required ☐	**Auditing Built into Platform** ☑
OSs Supported for the Agent	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☐
	Built-in Exception Handling ☑

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category: ■ vendor specific automation

NetScaler Control Center (Click for online version)

CITRIX SYSTEMS, INC.
http://www.citrix.com

http://www.citrix.com/products/netscaler-application-delivery-controller/overview.html

Description: NetScaler Control Center is a purpose-built, production grade, application that enables provisioning of NetScaler load balancing and application delivery services from SDN and cloud orchestration platforms. By providing integration of NetScaler, NCC enables IT to rapidly deploy and manage NetScaler through a single cloud orchestration interface, to ensure the availability, security and performance of business applications.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: Configuration management	**Production Deployments Today** ☐
Date of Initial Release: May 2015	**Customers:** No public references for NCC specifically. It is in proof of concepts labs and test deployments.
Open-source Version Available ☐	**MANAGEMENT AND SECURITY**
Open-source License Type	**Mutual Authentication Support** ☑
Primary Language(s): Python	**Command Messages Encrypted** ☐
Agent on the Device/Server Required ☐	**Auditing Built into Platform** ☐
OSs Supported for the Agent	**Built-in User Interface** ☑
End Goal Achieved Verification ☑	**Built-in Handling for Notifications** ☑
	Built-in Exception Handling ☑

Active Fabric Manager (Click for online version)

DELL INC.
http://www.dell.com

http://www.dell.com/us/business/p/dell-fabric-manager/pd

Description: Active Fabric Manager (AFM) is a key Dell software application that automates tasks associated with designing, building and monitoring data center fabrics, thereby reducing fabric deployment time by up to 86 percent. AFM enables enterprises to immediately deliver a highly-automated Ethernet fabric with ease. Users can now design and deploy both Layer 2 & Layer 3 fabrics within a matter of minutes.

PRODUCT DETAILS	CUSTOMERS
Product Capabilities: General resource orchestration, Design, configuration and deployment of Ethernet switches	**Production Deployments Today** ☑
	Customers: Not Disclosed
Date of Initial Release: May 2013	**MANAGEMENT AND SECURITY**
Open-source Version Available ☐	**Mutual Authentication Support** ☐
Open-source License Type	**Command Messages Encrypted** ☑
Primary Language(s): Python, Java	**Auditing Built into Platform** ☑
Agent on the Device/Server Required ☐	**Built-in User Interface** ☑
OSs Supported for the Agent	**Built-in Handling for Notifications** ☑
End Goal Achieved Verification ☑	**Built-in Exception Handling** ☑

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SDNCentral, LLC
955 Benecia Avenue
Sunnyvale, CA 94085
USA
www.sdxcentral.com

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