



The OpenStack Opportunity

**MSP's guide to preparing
for the emerging cloud
management services**

By Nephos6, Inc.

Executive Summary

After several years of heavy marketing, the concept of Cloud emerged as a major inflexion point in the evolution of IT. Virtually all IT strategies today involve some type of Cloud delivered services or Cloud delivery platform. Cloud provides the agility of IT services needed by the business and enables IT organizations to evolve towards service orientation. IT leaders agree that for the time being, their cloud strategies will be hybrid in nature, involving both Public and Private cloud infrastructures.



Amazon firmly captured the Public cloud space while the Private and Virtual Private cloud space has seen several orchestration software packages vying to dominate the market. Over the past two years, OpenStack emerged as the leading orchestration and automation technology powering many enterprise and service provider environments. Many IT leading organizations made this open source project the cornerstone of their cloud strategy. IBM, Cisco, HP, Redhat, ATT, DT, Comcast are just a few of the organizations who fully committed to OpenStack and who will continue to drive the industry towards wide adoption of OpenStack.

Managing an OpenStack based cloud infrastructure is a significant undertaking. The necessary skilled staff is in short supply and the management tools and processes are still being developed. OpenStack private and virtual private clouds deployed by enterprises and service providers will require experienced, effective and scalable support. Internally managing this environment can dramatically change the cost structure of cloud based services to the point where its benefits might become significantly diminished.

OpenStack based cloud environments will rapidly add to the existing IT environments managed by MSPs and will generate entry points to new accounts. To be able to claim the ability to operate an IT environment with focus on services and end-to-end service delivery path, Managed Service Providers must develop the skills and the processes to operate OpenStack based cloud infrastructures as well.

The bottom line: **MSPs must add OpenStack support to their portfolio of services!**

What is OpenStack and Why is it Important?

According to the project webpage (www.openstack.org): “OpenStack is a global collaboration of developers and cloud computing technologists producing the ubiquitous open source cloud computing platform for public and private clouds. The project aims to deliver solutions for all types of clouds by being simple to implement, massively scalable, and feature rich. The technology consists of a series of interrelated projects delivering various components for a cloud infrastructure solution.” Originally started by Rackspace and NASA, OpenStack draws from a large, global community of developers and is backed by most leading IT focused organizations.

OpenStack is an open source project delivering the orchestration and automation software for private and public cloud infrastructures

OpenStack is the orchestration and automation engine for a cloud. Each of the interrelated projects mentioned covers a particular technology area in the Cloud infrastructure. For example, the Neutron project covers Networking while Quantum covers Compute. OpenStack releases are free however, installing OpenStack and operating it is not a trivial task. Companies such as Redhat, Mirantis and Canonical are packaging OpenStack to make it easier to install and they provide support for it.

Adoption of OpenStack has been accelerating over the past two years as shown in the survey ran by T. Bell, T. Fifield, R. Lane, J.C. Martin and presented at the OpenStack summit in May 2014:

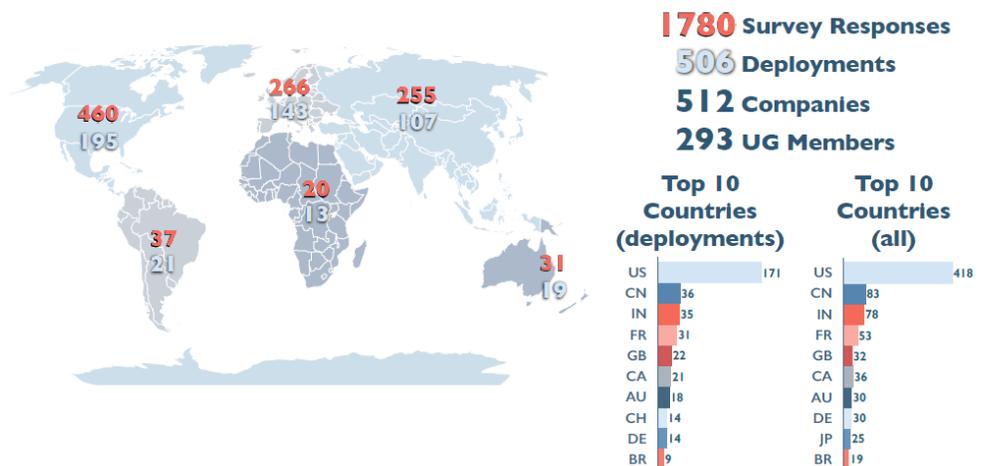


Figure 1. OpenStack adoption around the World (May 2014).

This trend is due in part to the fact that leading services and product organizations such as IBM, Cisco, HP and leading service providers and enterprises such as ATT, Comcast, Deutsch Telecom developed their entire cloud strategy and build their cloud environments on OpenStack. These organizations are also significant contributors to the OpenStack project. Besides the technology validation provided by these vendors, the cloud infrastructures they build will deliver Public and Virtual Private Cloud services that would more easily integrate with OpenStack based Private Cloud infrastructures. This is an important technology selection criteria considering the fact that most IT decision makers of medium and large IT organizations envision a Hybrid Cloud strategy that combines Private and Public infrastructures.

OpenStack adoption is accelerating due to industry validation, features and the economics of open technology.

According to the same survey, organizations adopting OpenStack do so for a variety of reasons as shown in Figure 2.

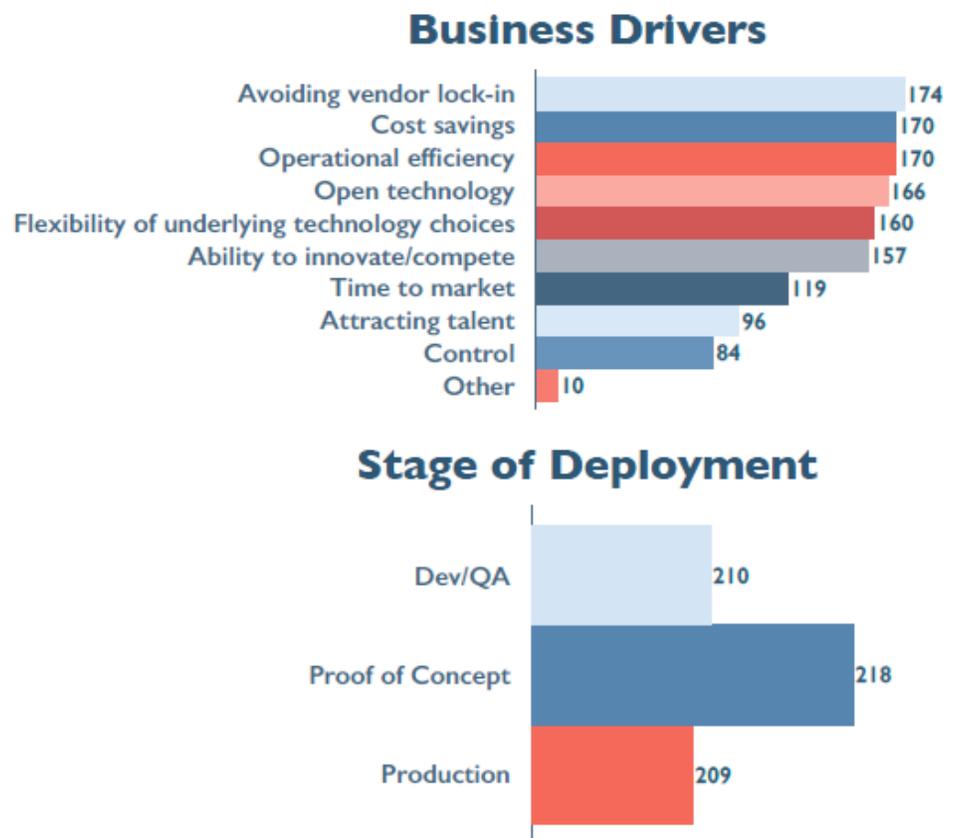


Figure 2. Business drivers for OpenStack Adoption

With OpenStack installation packages and formalized support becoming more available, the number of deployments is likely to increase rapidly,

with a shorter time between Proof of Concept and Production. Nevertheless, the challenges of operating cloud infrastructures and cloud services in general and OpenStack clouds in particular will become more and more apparent to IT decision makers.

The Opportunity for MSPs

MSPs can align with the ITaaS trend to deliver, higher value, end-to-end service management.

Cloud is emerging as one of the key elements of service delivery for IT organizations. Businesses are leveraging both public and private cloud for a wide range of applications some under the direct budgetary and operational control of the IT organization while others purchased and managed directly by users. The main drivers are:

- Time to capability
- Initial cost of acquisition

In the case of public cloud based services, the operational costs are not apparent to the purchasing entity however, in the long run, most SaaS applications will have to be integrated in the IT service portfolio as well. The IT organization will have to monitor performance, compliance and security.

In the case of private and virtual private cloud based services, the planning, deployment, monitoring and troubleshooting of the infrastructure will require a major commitment from the IT organization. Skilled staff to operate an OpenStack infrastructure is difficult to find, even by large organizations with IT being their core competency. The tools to manage such an environment are still being developed and they must be integrated in the end-to-end service management processes.

The earlier cited survey indicates that 66% of the organizations using OpenStack have fewer than 1,000 employees (Figure 3). For these smaller organizations, the cost of operating their own OpenStack infrastructure could quickly minimize the benefits of cloud.

Organization Size (employees)

66% of the OpenStack adopters are companies with less than 1000 employees.

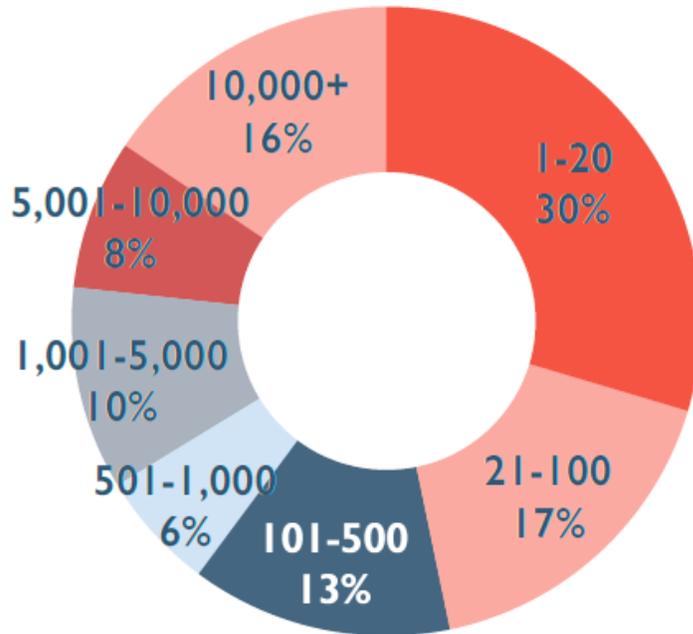


Figure 3. OpenStack adoption by organization size

IT organizations migrating towards a service oriented mode of operation, will employ more and more the services of MSPs to manage their entire service delivery chain, from the cloud, across the transport infrastructure to the users. A single point of contact for the full service delivery process becomes essential to selecting providers and the cloud infrastructure is a key component.

Cloud offers MSPs the opportunity to increase margins by covering more integrated and more complex environments. It also provides MSPs with an opportunity to align charging models with the cloud operational model where the customer pays for usage not per asset.

Since the most likely cloud environment that MSPs will face will be OpenStack based, it becomes paramount for MSPs to prepare for it.

Getting Ready for OpenStack

Similar to any other major technology shift, the preparation for OpenStack must touch on all three key elements of any IT environment: Technology, Processes and People (Figure 4).

Training is a key first step that an MSP should take in getting ready for the OpenStack IT environments.

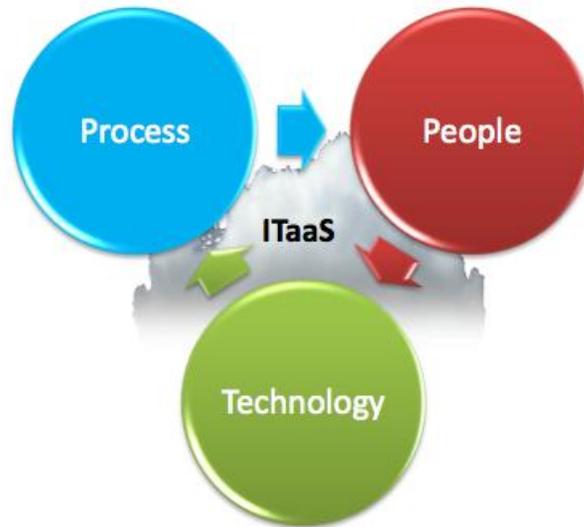


Figure 4. Preparing for OpenStack in the context of ITaaS transformation

People – First and foremost, MSPs must put in place an education strategy that will provide the relevant staff with the in-depth knowledge to deploy, operate and troubleshoot OpenStack. Choosing the right classes is very important. Many of the current training programs were quickly put together by vendors and are taught by individuals who do not understand or have experience with the technology.

Reference: OpenStack Troubleshooting – hands on, instructor led class ([OpenStack Troubleshooting Class](#))

Technology – Managing a complex environment such as a Cloud infrastructure requires a set of management tools that can deliver the complete view of its operation. Lack of a single product capable of covering all aspects of monitoring this highly virtualized infrastructure means that MSPs must evaluate the available tools in the context of a complete management framework and start integrating them.

It should also be noted that the tools needed to manage the OpenStack infrastructure must integrate with the tools used to manage the rest of the

service delivery path: networks, hosts, etc. An end-to-end perspective on service monitoring is essential for the successful MSP.

Reference: A user-experience monitoring tool that integrates with the OpenStack infrastructure is v6Sonar (www.v6sonar.com)

The cost model for operating an OpenStack private cloud aligns well with outsourced management IT strategies.

Processes – The industry at large has very little experience operating large scale OpenStack clouds. Even early adopters such as Rackspace have many areas that could use operational optimizations. This lack of best practices is a challenge for the industry and an opportunity for those MSPs who invest early in developing effective process for managing OpenStack.

As the early adopters are joined by the mainstream in the adoption of OpenStack for private cloud implementations, it will become more and more clear that operating such an environment is not trivial and the cost structure for running it is better aligned with outsourced operations.

Conclusion

Cloud based infrastructures and cloud based operating models are now becoming mainstream. Adoption is accelerating due to the well understood benefits it offers to the business. Industry validation and networking effects kicked off by OpenStack public cloud infrastructures are pushing OpenStack at the forefront of preferred technologies to implement public and private cloud infrastructures. Nevertheless, as more businesses deploy their own private or virtual private cloud infrastructures, the challenges of managing them will become apparent.

The cloud trend in general and OpenStack in particular provide MSPs a unique opportunity to expand the scope of existing services offered, to increase the value of their services by managing more complex environments and to take the role of managing end-to-end services rather than just components of the infrastructure.

To capitalize on this opportunity, MSPs must start as soon as possible preparing their teams, technologies and processes for the upcoming demand for OpenStack management services.

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