



OpenStack: Simplest Way

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Agenda

- ▶ History of OpenStack ?
- ▶ What is OpenStack?
- ▶ Focus on OpenStack Private Cloud
- ▶ Compare Private Cloud
- ▶ Why OpenStack is ready for Enterprise
- ▶ Best practice of migration to OpenStack
- ▶ The Gap



HELLO!

Amir Baleghi

I am here because I love Cloud.





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History of Infrastructure & platform Cloud

► Amazon setup first Cloud Operating System in 2006

► Proprietary cloud OS

► Start with Compute and Storage service

► Start Open source project as amazon like system

▷ Eucalyptus
▷ OpenNebula
▷ CloudStack
▷ nimbus

► And Openstack Start in July of 2010



History of OpenStack

- ▶ was created during the first months of 2010
- ▶ **RackSpace & NASA**
- ▶ In September 2012, the **OpenStack** Foundation
- ▶ Free and open source software platform
- ▷ 13 releases since birth
- ▶ Release cycle is every 6 month
- ▷ Last release is **Newton**
- ▶ Next release is **Ocata**





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OpenStack
is
Cloud
Operation
System

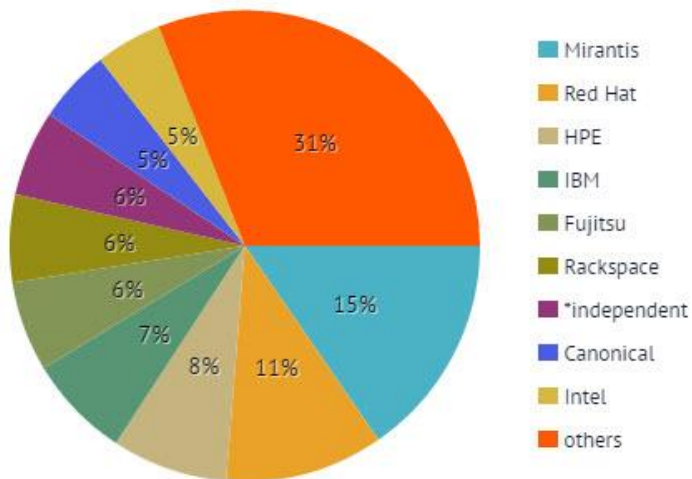
OpenStack was founded with four guiding principles

1. **Open Source:** A commitment to truly open source software with no editions which cripple or limit feature content.
2. **Open Design Process:** At regular intervals (6 months), the community holds a public design summit to gather requirements and write specifications.
3. **Open Development:** Code is publicly available throughout the development process.
4. **Open Community:** A commitment to maintain a healthy community, necessary to the ongoing development of OpenStack.

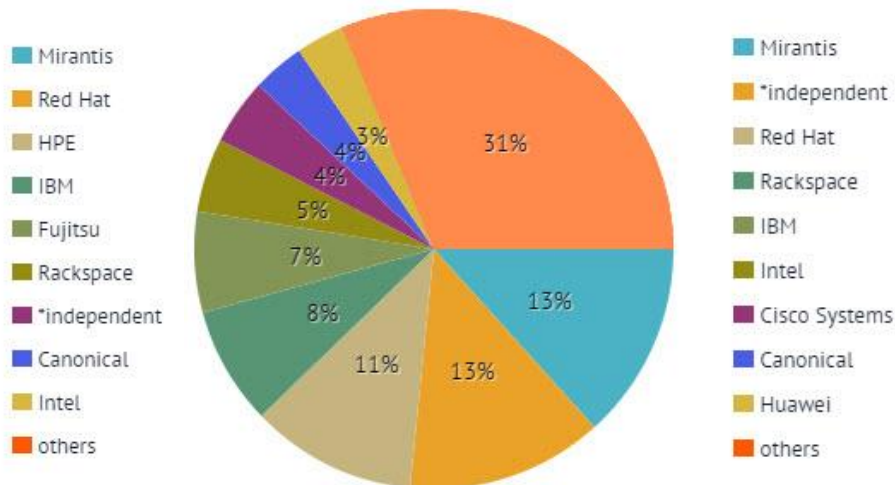


Community of OpenStack

- ▶ Actively driven by strong open source community
- ▶ 500 companies such as : **IBM, Red Hat, HP, Cisco, Intel, Dell, EMC**
- ▶ **VMware, Oracle, Canonical, Mirantis, Suse**



Newton version



Ocata version

60,843,230\$

Estimated Cost

6,523 developers

And a lot of developer

315,140 commits

Total success!

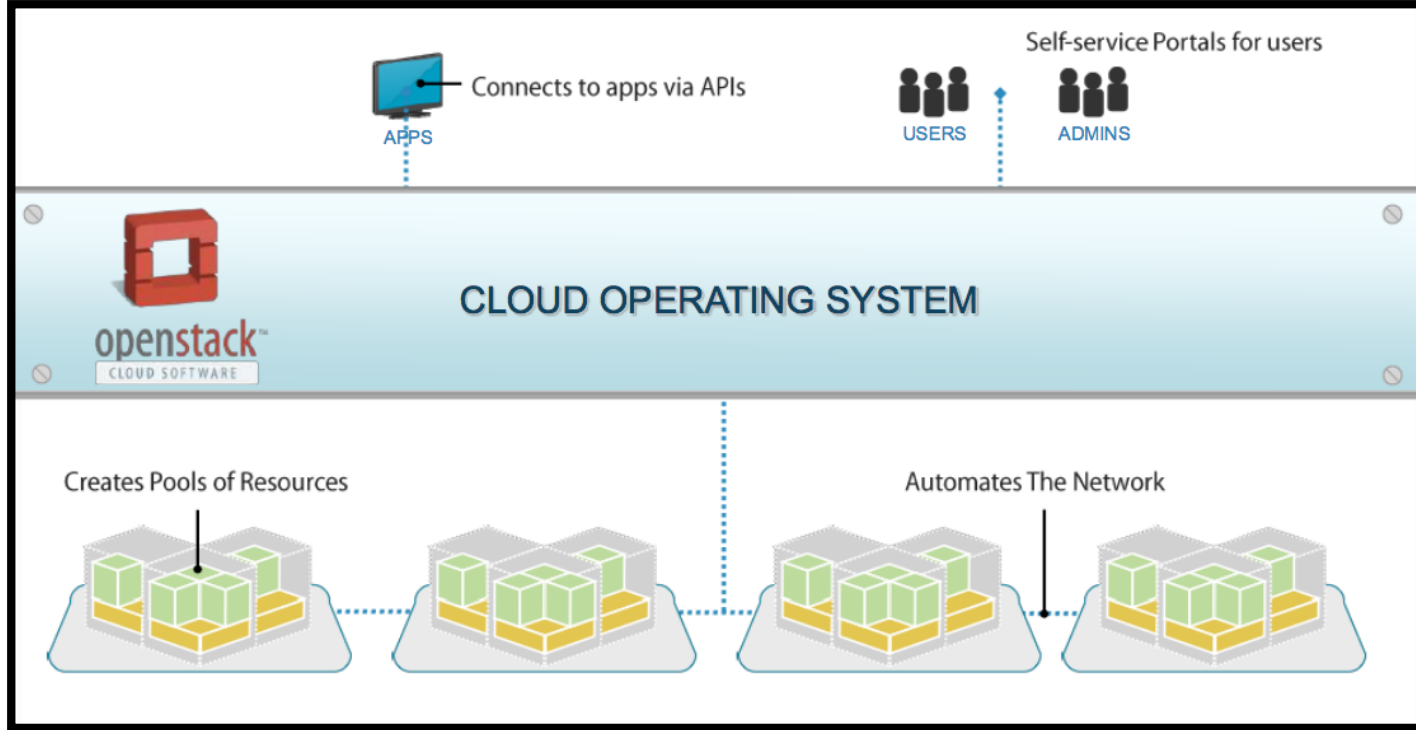


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“ OpenStack mission statement

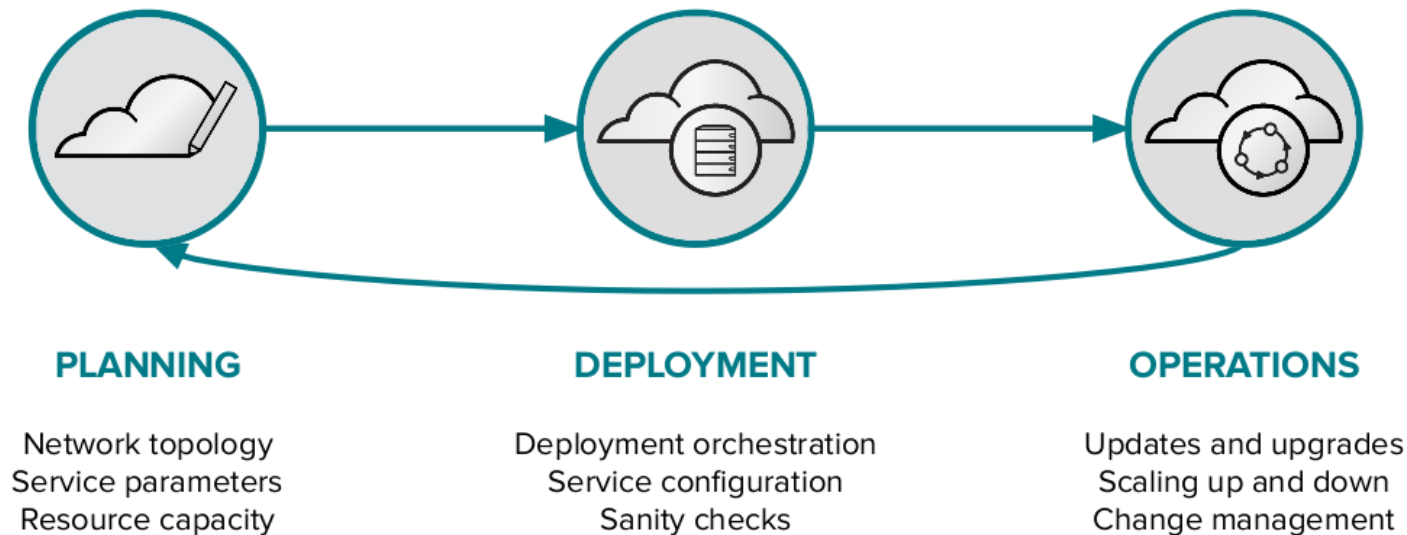
“To produce a ubiquitous Open Source Cloud Computing platform that is **easy to use, simple to implement, interoperable** between deployments, works well at **all scales**, and meets the **needs of users and operators** of both **public** and **private** clouds.”

Openstack: easy to use

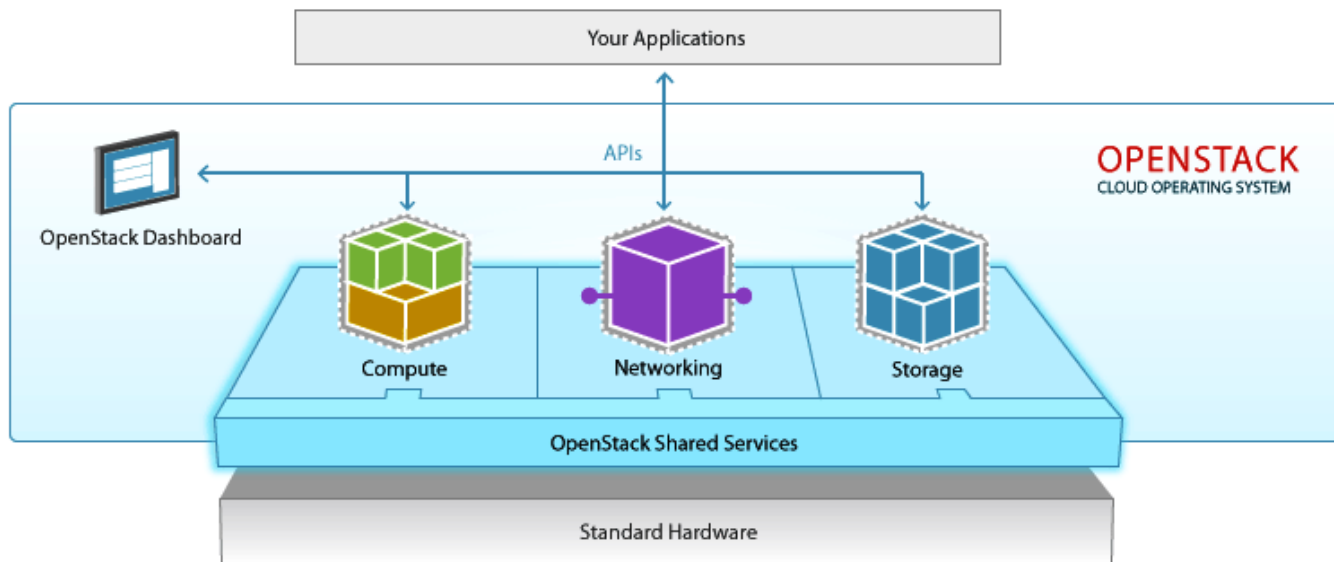


Openstack: easy to use

Automate every thing



Openstack: simple to implement



Openstack: works well at all scales



VirtualBox

VS

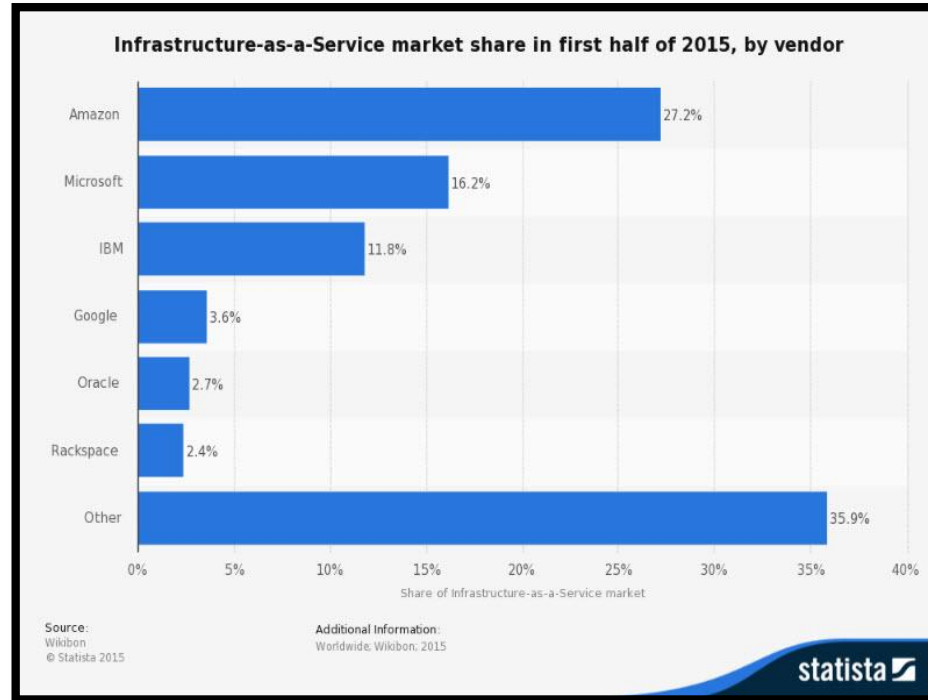


Openstack: meets the needs of **users** and **operators**

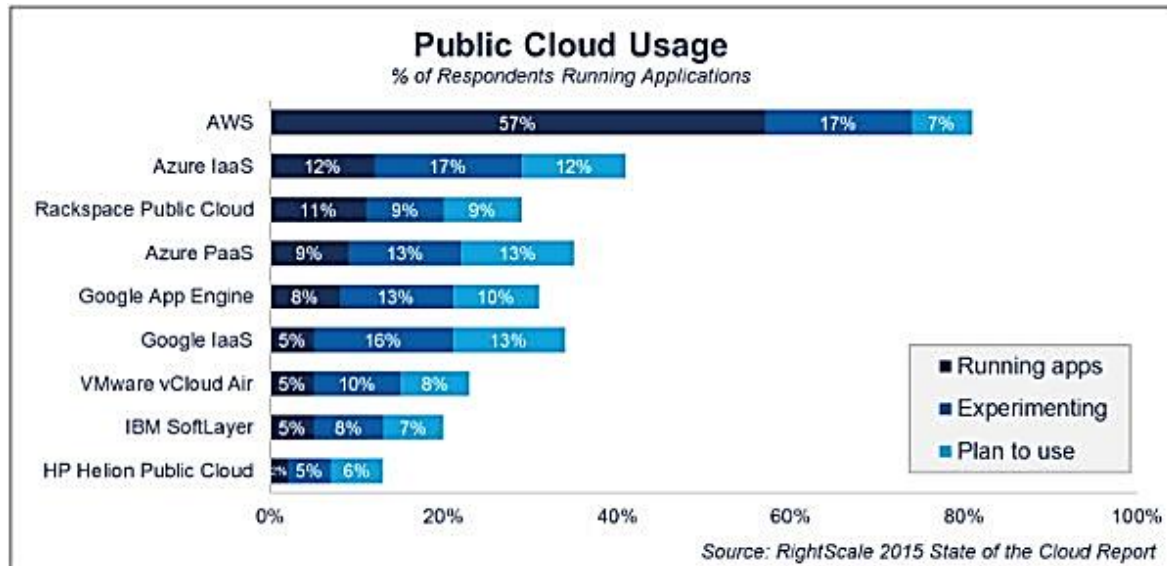
- ▶ Compute resources
 - ▷ Physical
 - ▷ Virtual
- ▶ Storage resources
- ▶ Network resources
- ▶ Orchestration all your resources
- ▶ Monitoring resource used
- ▶ Simple Dashboard
- ▶ Big Data as service
- ▶ Database as service
- ▶ Application catalog
- ▶ DNS as service
- ▷ ...

Openstack: **public** and **private**

▷ Market share:



Openstack: Public Cloud



Openstack: Public Cloud

▷Public Cloud:

OpenStack is necessary but not sufficient

For example:

- ▷ On-demand Tenant Monitoring
- ▷ On-demand billing
- ▷ Advanced & Customized Dashboard
- ▷ Auto sing up
- ▷



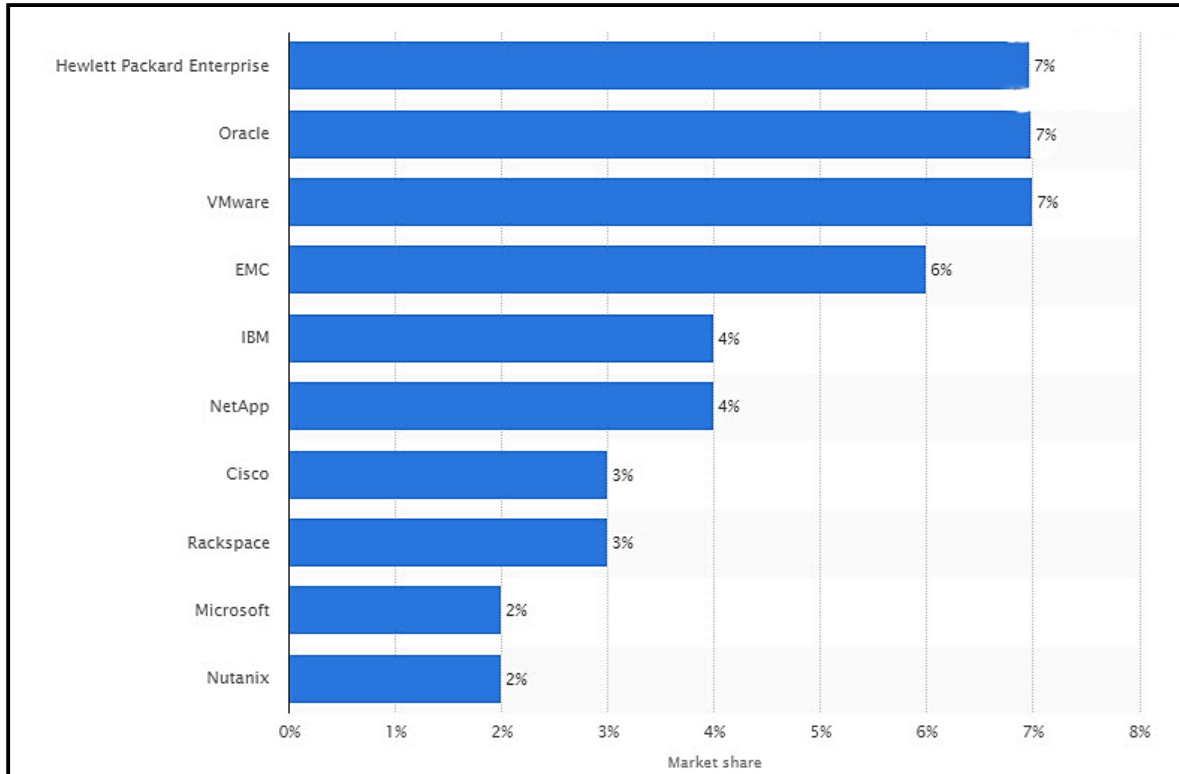


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OpenStack
Who starred in
the world's
best
Private Cloud



Openstack: private cloud market share



Openstack: private cloud

Vendor	Distribution name
Redhat	Red Hat OpenStack Platform
Mirantis	Mirantis OpenStack
Rackspace	Rackspace Private Cloud OpenStack
Oracle	Oracle® OpenStack for Oracle Linux
Cisco	Cisco Metapod
HP	HPE Helion
Suse	SUSE OpenStack
Canonical	Ubuntu Cloud
IBM	IBM Cloud
VMware	VMware Integrated OpenStack



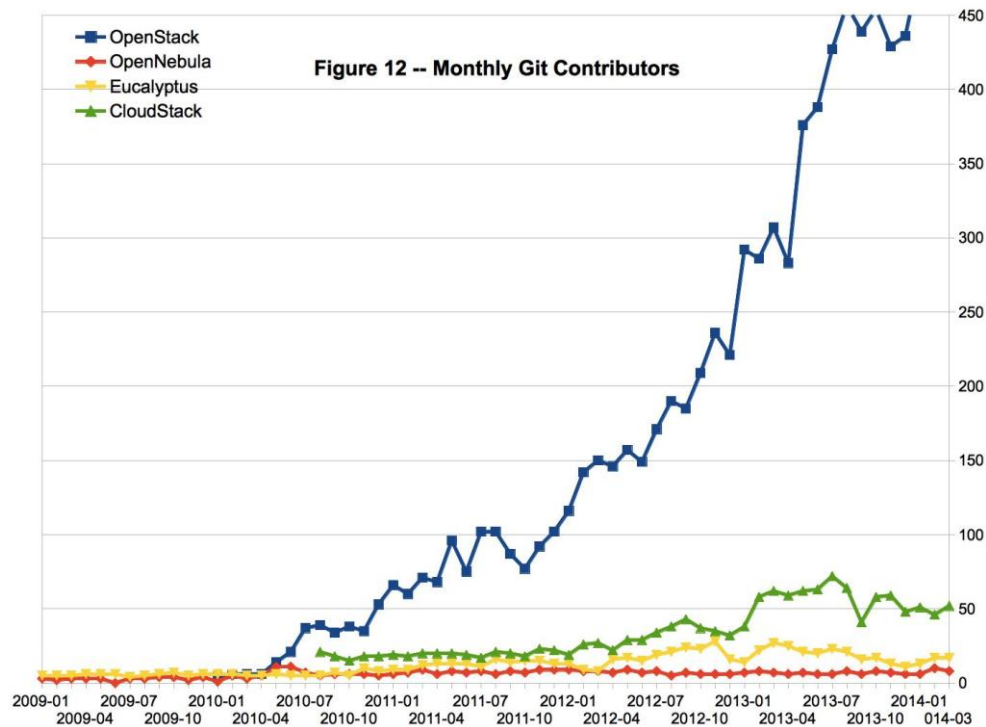
Openstack: private cloud, levels

IaaS is virtualization !!!

OS Level	Linux , windows , Solaris....	
Tools Level	Virtual Compute tools	KVM , Vmware Vcenter , Vmware ESXi ,Microsft , Virtual Network tools...
	Virtual Network tools	Openvswitch, linux bridge , vmware vswitch ,...
	Storage tools, container orchestration tools, Bare metal manager tools, ...	
Cloud OS Level	OpenStack ,VMware Vcloud , CloudStack, Microsoft Private Cloud...	



Why OpenStack is **best** open source cloud project ?



OpenStack or

	Openstack	VMware vCloud Director	Microsoft Private Cloud
First release	Mid-2010	AUG 2010	2012
Contributor	6,523	VMware only	Microsoft only
Market share	24%	7%	3%
Comprehensive	Lots of drivers	Only VMware product	Only Microsoft product
Completeness	×	×	×
Cost	Support only	license fee , support	license fee , support
Backend virtualization	KVM, Vcenter, Xen, docker,...	Vcenter ,Esxi	HyperV, VMware Esxi , VMware Esxi



OpenStack or

Functional mode

	Openstack	VMware vCloud Director
Auto Deployment	✓	✓
High Availability	✓	✓
Upgrade plan	✓	✓
PaaS	✓	×
Programmable API	✓	✓
Federated Identity	✓	✓
Bare metal provisioning	✓	×
Container provisioning	✓	×



VMware is one of **Biggest** contributor of **Openstack** (9th)

#	Company	Lines of code
1	Mirantis	220518
	*independent	220038
2	Red Hat	185518
3	Rackspace	131709
4	IBM	112386
5	Intel	82553
6	Cisco Systems	73792
7	Canonical	58429
8	Huawei	54158
9	VMware	51389

Ocata version



3 Reason for it.

why
OpenStack is
now ready for
the
enterprise?



why **OpenStack** is now ready for the **enterprise**?

- ▶ **OpenStack** Technology Has Come a Long Way in 6 Years.
 - ▷ Stability has improved
 - ▷ installation and deployment process
 - ▷ support for high availability services
 - ▷ make upgrades simpler.



why **OpenStack** is now ready for the **enterprise**?

- ▶ The **OpenStack** Community and User Base Have Matured
- ▶ Industry Leading Vendors Are Filling in the Gaps





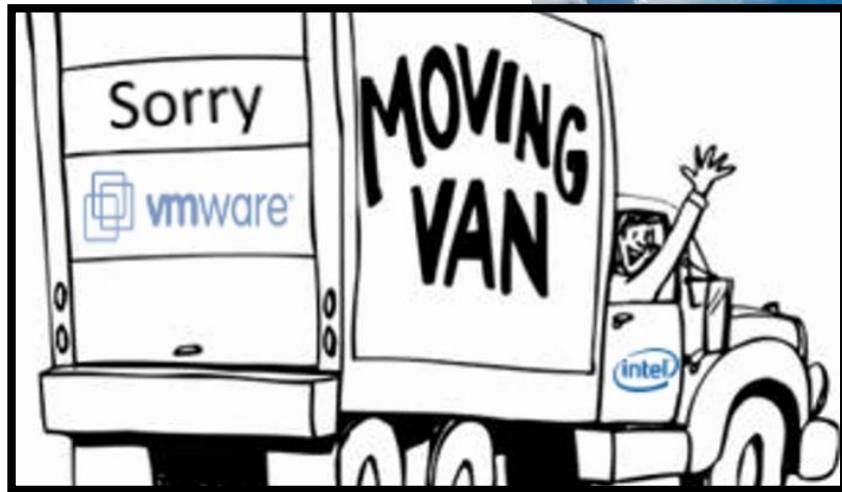
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Best Practice **Migration** to OpenStack

Intel Migrates **17,000** VMware VM's to OpenStack with Astonishing Results



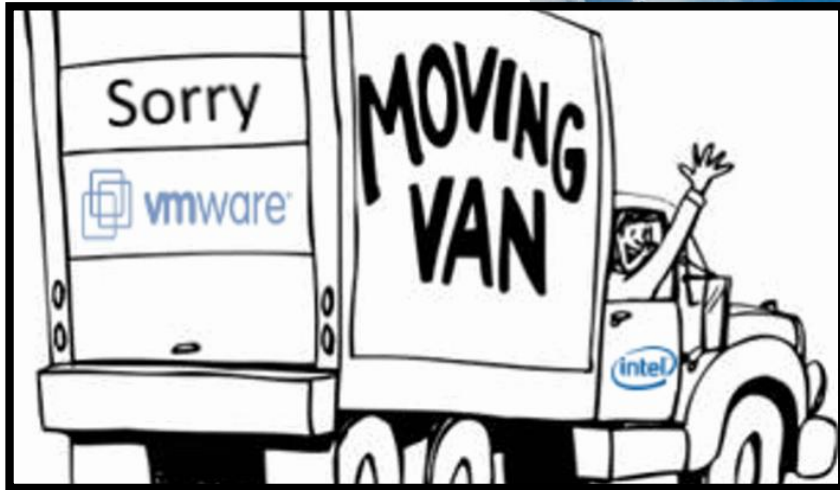
- \$21 million in cost savings (to date)
- Virtual server provisioning was reduced from 90 days to 30 minutes (yes, you did read that correctly)
- 90% reduction in provisioning service tickets
- 90% reduction in developer wait time for infrastructure



Intel Migrates **17,000** VMware VM's to OpenStack with Astonishing Results



- Delivery of self-service automation of server, storage and network provisioning
- Enablement of Agile Methodologies, DevOps, and Continuous Integration / Continuous Deployment (CI/CD) and dramatically reduction in time-to-market for applications



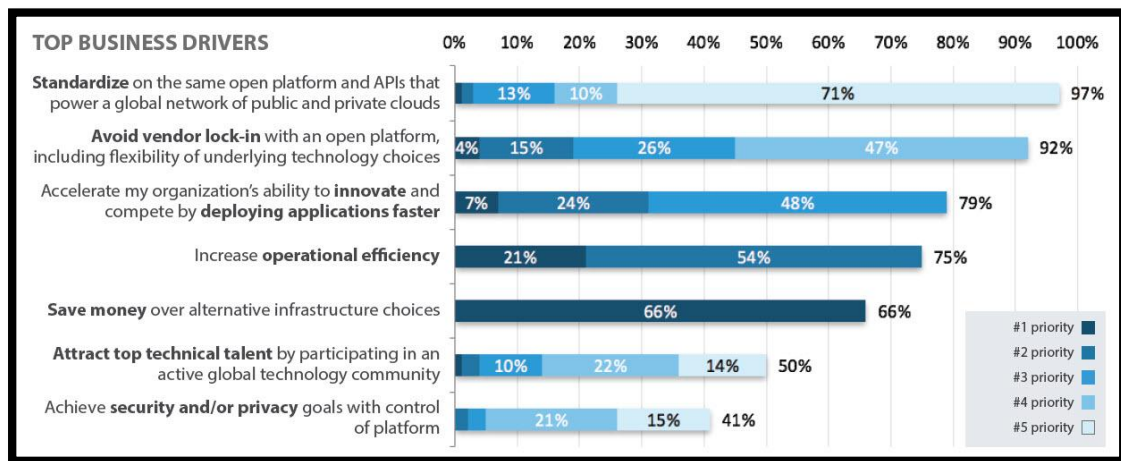
Paypal To Drop VMware From **80,000** Servers and Replace It With **OpenStack**

- ▶ **4,100** standardized x86 servers
 >> **162 million** customers
- ▶ Companies like Ebay / Paypal spend millions on its data center infrastructure and view it as a **competitive advantage**.



Top Business Drivers

- ▶“Saving money”
- ▶“Operational efficiency”
- ▶“Being more agile / innovative”
- ▶“Avoiding vendor lock-in”



workloads and frameworks are running on OpenStack

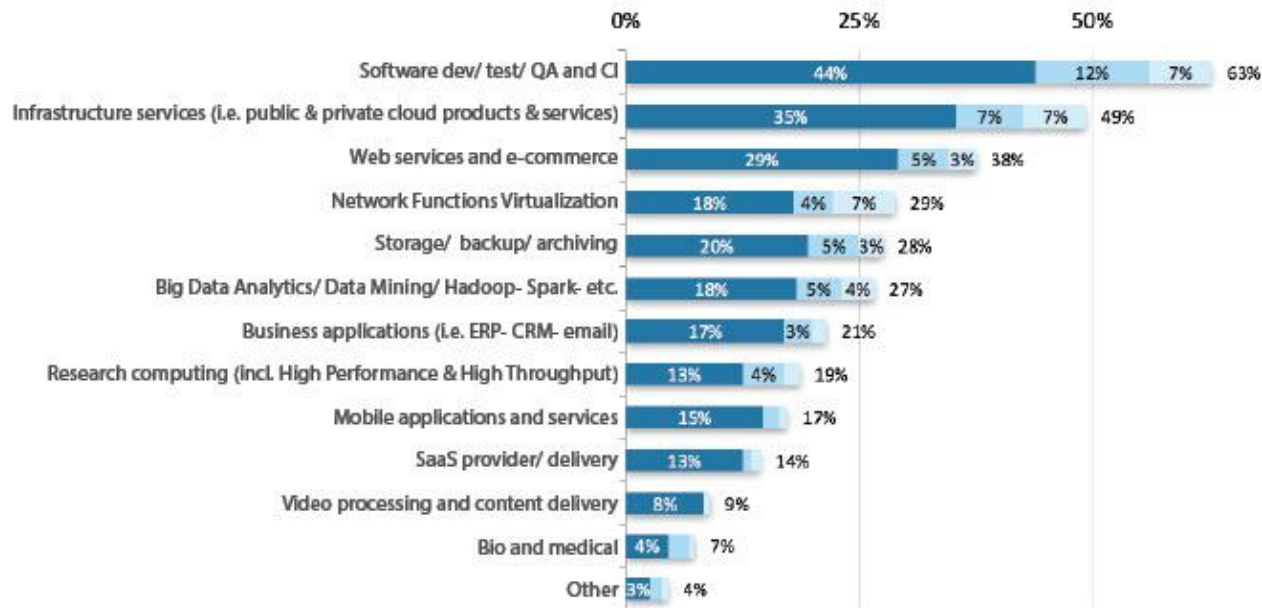
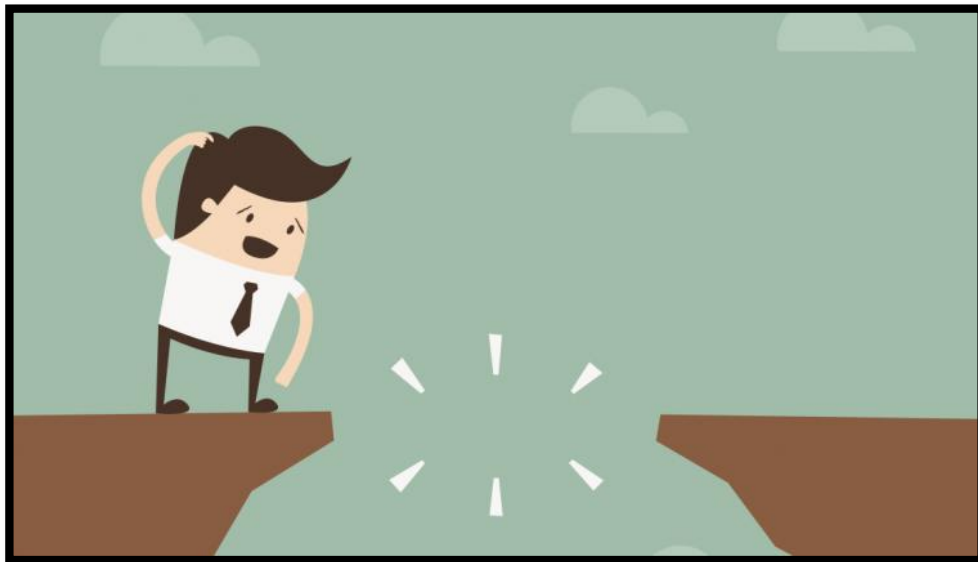


Figure 4.10 n=312



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IT Manager:

Linux, Windows

Oracle, SQL Server

Vmware esx

Kvm

SDN

Docker

Openstack

مدیران ارشد:

بومی سازی راهکارها

انعطاف پذیری سازمانی

محیطی با ثبات و بدون تغییر

حفظ امنیت و محرمانگی در سازمان

بستر ابری

زیر ساخت ابری





THANKS!

Any questions?

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