

# Open Source Data Center Virtualisierung mit OpenNebula

22.05.2013 | LinuxTag Berlin



Bernd Erk  
[www.netways.de](http://www.netways.de)

**VORSTELLUNG NETWAYS**

**VORSTELLUNG OPENNEBULA**

**CHALLENGES**

**ARCHITEKTUR**

**TECHNISCHER ÜBERBLICK**

**VERTEILTE UMGEBUNGEN**

**WEB INTERFACE DEMO**

**ZUSAMMENFASSUNG**

**F&A**



# VORSTELLUNG NETWAYS

# NETWAYS

- Firmengründung 1995
- GmbH seit 2001
- Open Source seit 1997

- 38 Mitarbeiter

- Spezialisierung in den Bereichen Open Source Systems Management und Open Source Datacenter Infrastructure



# NETWAYS Kompetenzen

## OPEN SOURCE SYSTEMS MANAGEMENT

- Monitoring & Reporting
- Configuration Management
- Service Management
- Knowledge Management
- Backup & Recovery

## OPEN SOURCE DATA CENTER

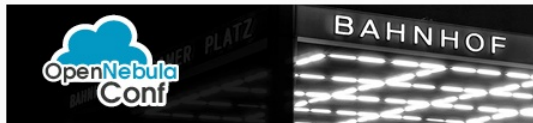
- High Availability & Clustering
- Cloud Computing
- Load Balancing
- Virtualization
- Database Management

MANAGED SERVICES

MONITORING HARDWARE

KONFERENZEN

# NETWAYS Konferenzen



OpenNebula Conf 2013

24 - 26 September in Berlin

## OpenNebulaConference 2013 24 – 26 September 2013

- [www.opennebula.conf](http://www.opennebula.conf)
- Aktuell läuft gerade der CFP



## Open Source Monitoring Conference 23 – 24 Oktober 2013

- 250 Teilnehmer (2012)
- Monitoring Best Practice
- Aktuell läuft gerade der CFP

Jobs

 **NETWAYS**<sup>®</sup>

jobs.netways.de

[www.netways.de](http://www.netways.de)



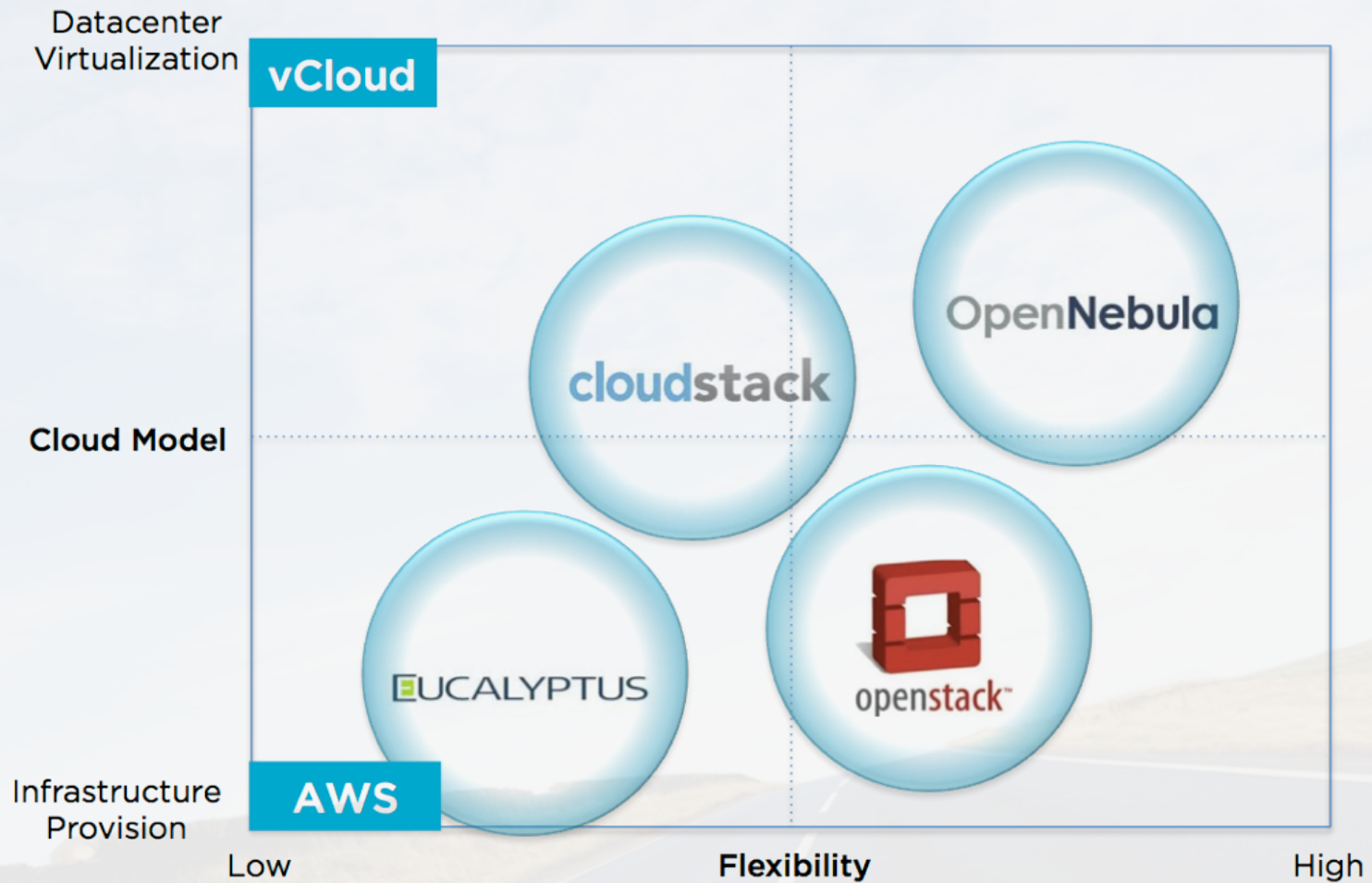
# VORSTELLUNG OPENNEBULA

# OpenNebula - Überblick

OpenNebula.org

Multi-tenancy, Elasticity and Automatic Provision on  
Virtualized Environments

# OpenNebula - Ausrichtung



# OpenNebula - Vergleich



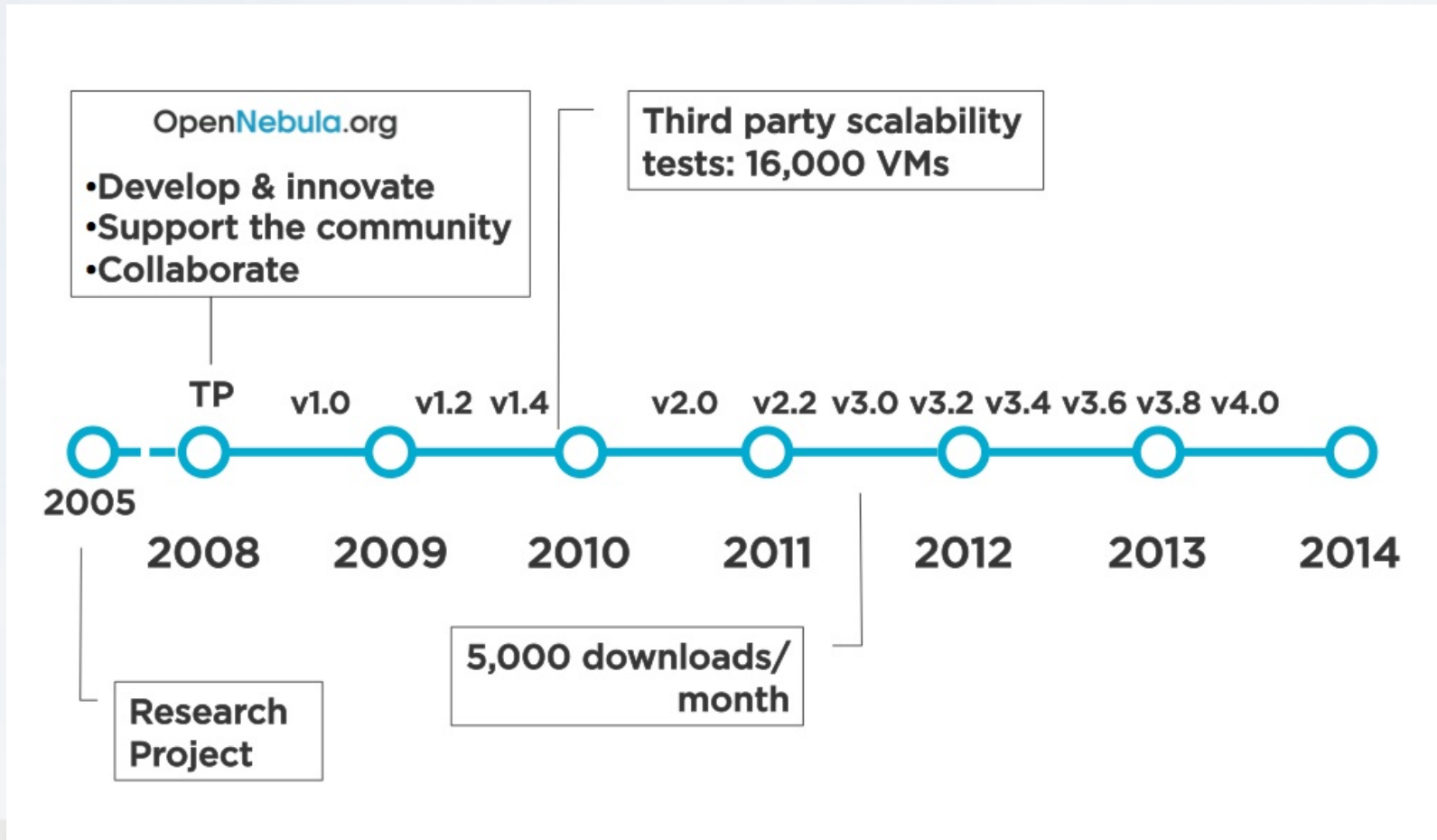
OpenStack



OpenNebula

*Nigel Beighton (Rackspace) verwendete den Vergleich von OpenStack zu anderen Lösungen*

# OpenNebula - Geschichte





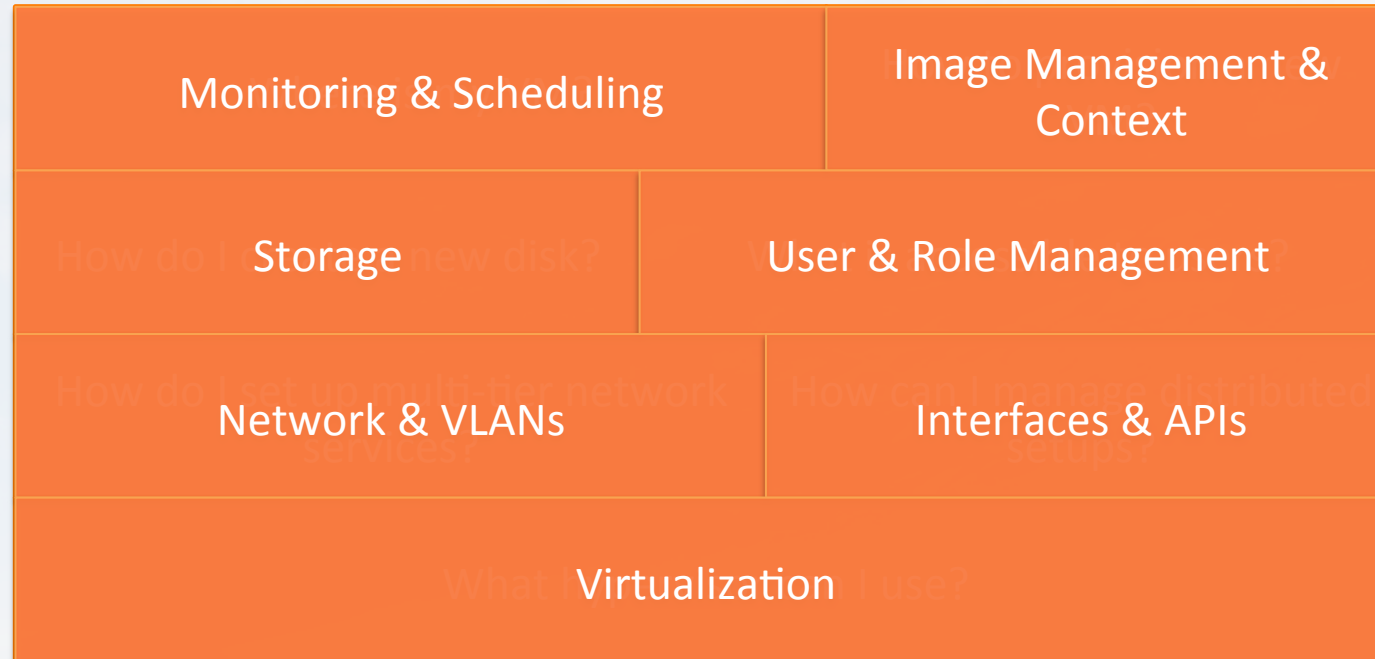
# CHALLENGES

# Cloud Challenges

Cloud != Virtualisierung

No Peak != No (Public) Cloud

# Cloud Challenges



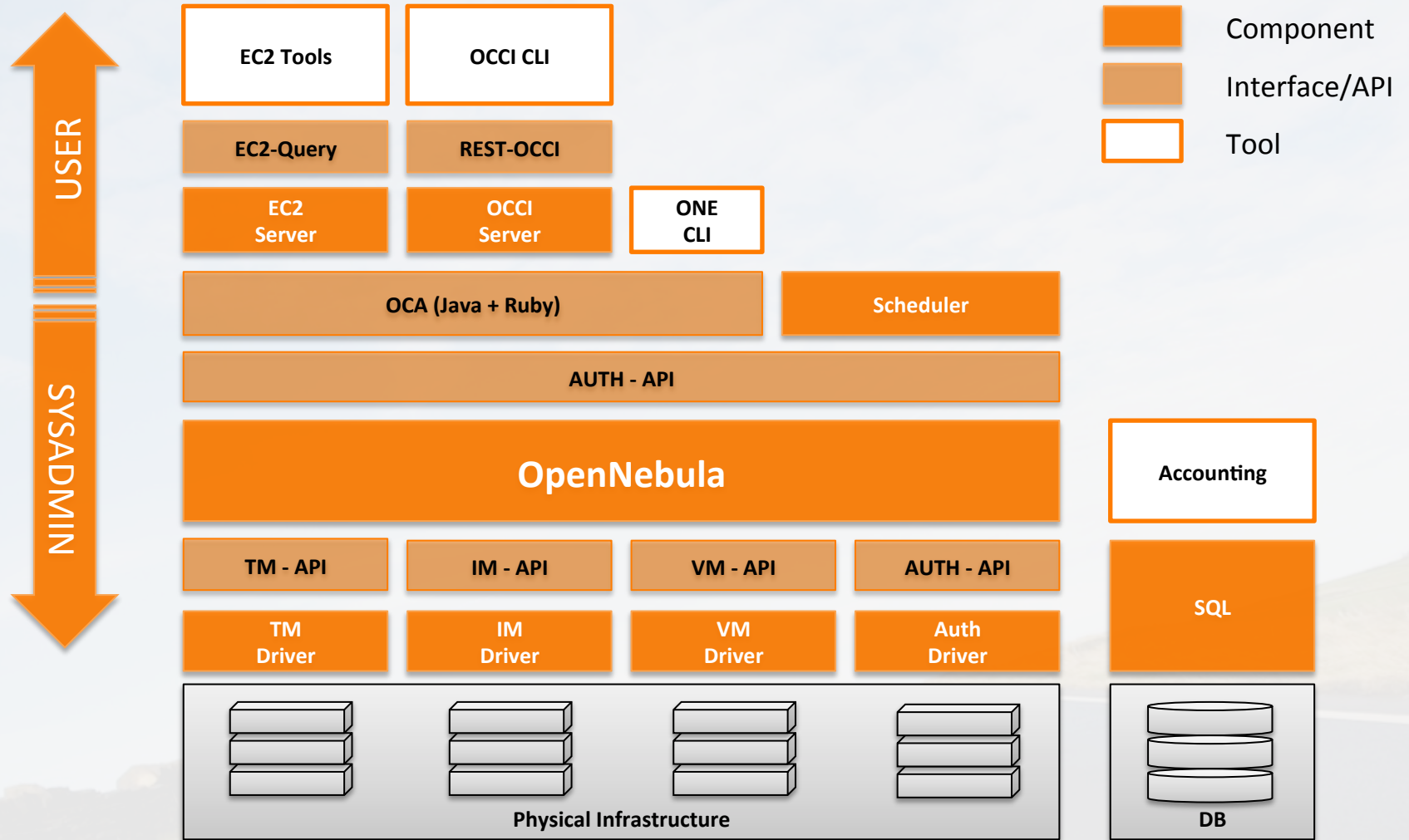
**OpenNebula.org**

The logo for NETWAYS, featuring the word "NETWAYS" in a bold, white, sans-serif font. To the left of the text is a vertical orange bar with a white triangle pointing to the right at the top. A small registered trademark symbol (®) is located to the right of the top of the orange bar.

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# ARCHITEKTUR

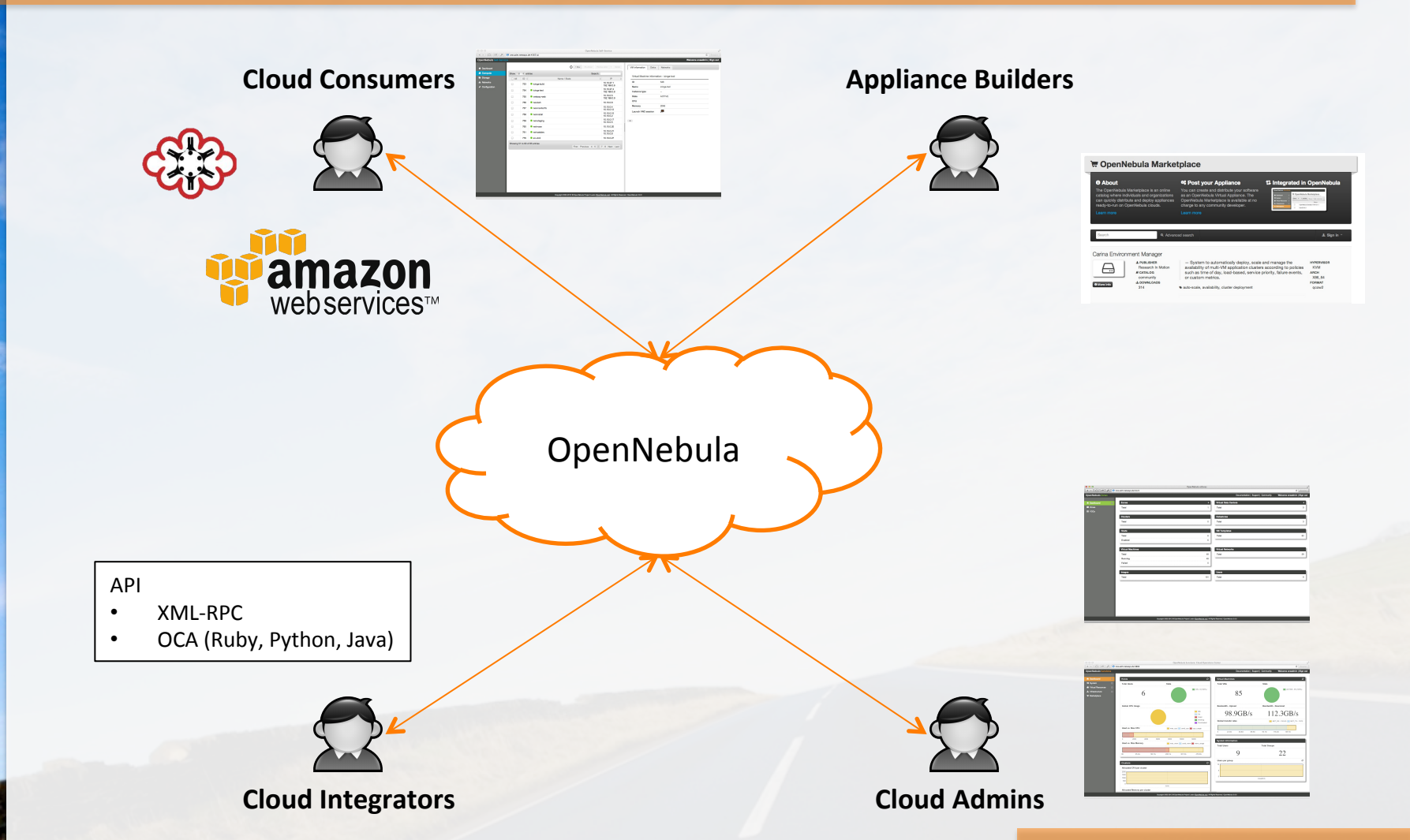
# OpenNebula – Übersicht





# TECHNISCHER ÜBERBLICK

# OpenNebula – Interfaces



# OpenNebula – Standards

## Monitoring

- Internal
- Ganglia

## Storage

- DFS like Lustre, GlusterFS, ZFS, GPFS, MooseFS
- iSCSI, LVM
- VMware

## Network

- 802.1Q VLANS
- Etable
- Open vSwitch
- VMware network

## Virtualization

- Xen
- KVM
- VMWare

## Hybrid

- Amazon EC2

## Auth

- Password
- ssh
- X509
- LDAP/AD

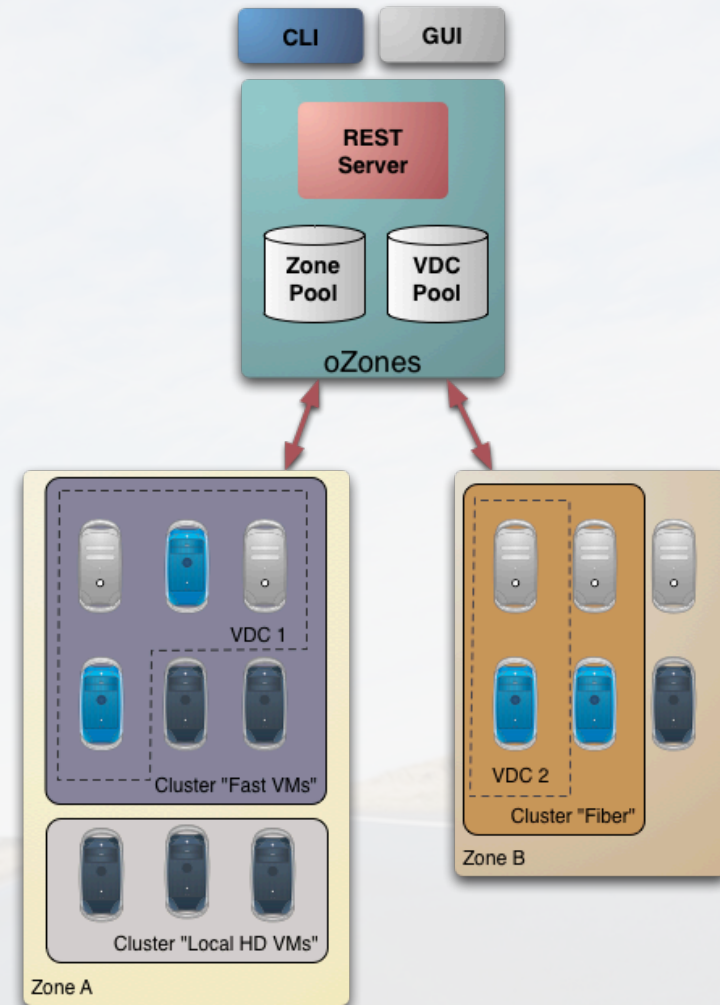
SQLite / MySQL



# VERTEILTE UMGEBUNGEN

# Cluster, VDC's und Zones

- Cluster
  - ▶ Gruppe von Hosts mit entsprechenden Ressourcen
- VDC's
  - ▶ Virtueller Zusammenschluss innerhalb eines Clusters
- Zonen
  - ▶ Virtueller Zusammenschluss verschiedener Gruppen und Einzelressourcen

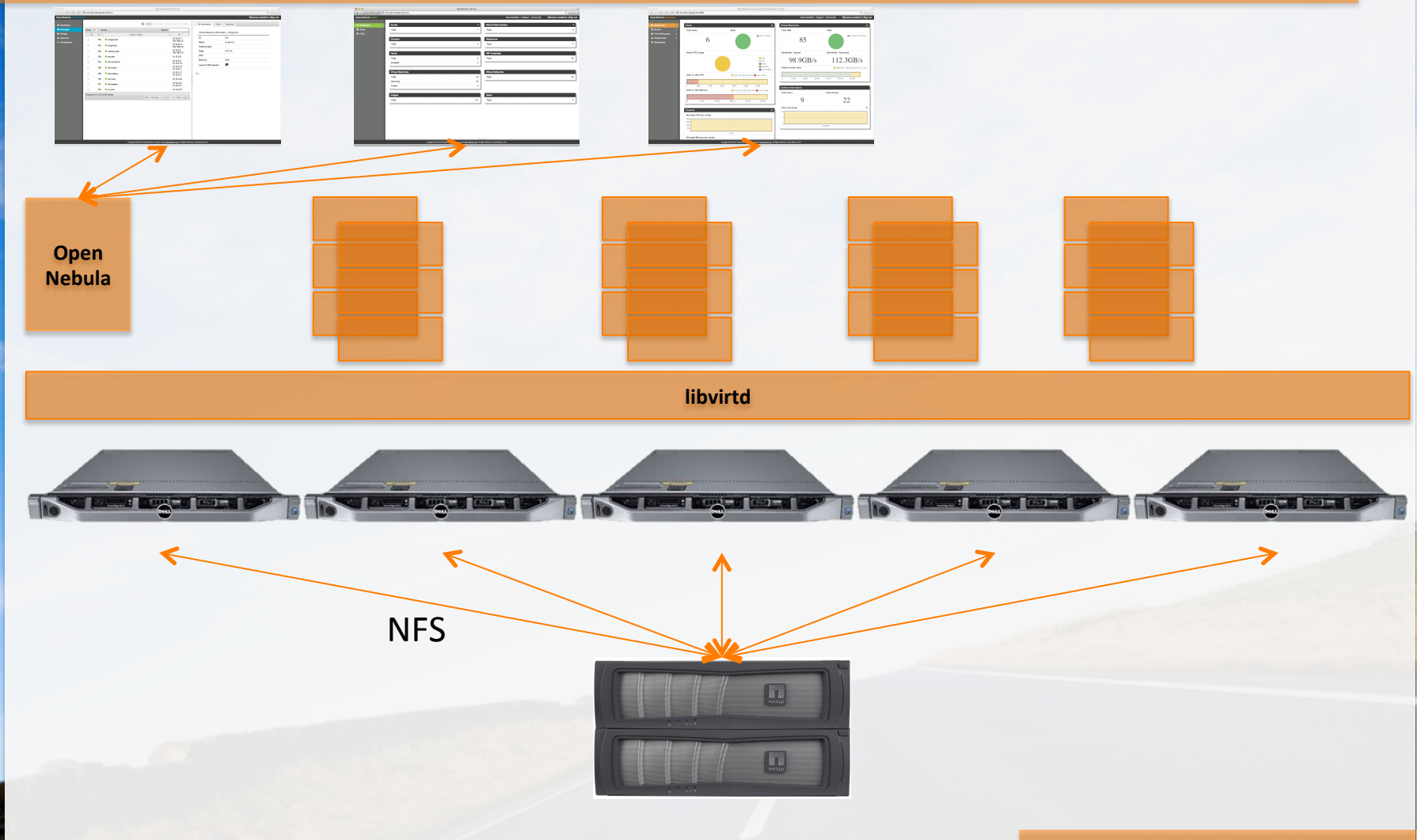


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**DEMO**

# NETWAYS – Cloud





# OPENNEBULA 4.0

# OpenNebula – Sunstone 4.0

OpenNebula Sunstone

- Dashboard
- System
- Virtual Resources
  - Virtual Machines
  - Templates
  - Images**
- Infrastructure
- Marketplace

## Images

[Refresh](#) [Create](#) [Clone](#) [More](#) [User](#) [Delete](#)

<input type="checkbox"/>	ID	Owner	Group	Name	Datastore	Type	Persistent	Status	#VMS
<input type="checkbox"/>	0	serveradmin	oneadmin	Ubuntu.12.10	default	CDROM	no	USED	1
<input type="checkbox"/>	1	oneadmin	oneadmin	CentOS.6.5	default	OS	no	USED	1

Showing 1 to 2 of 2 entries « Previous **1** Next »

### Information

Image "Ubuntu.12.10" information	
ID	0
Name	Ubuntu.12.10 <a href="#">✎</a>
Datastore	default
Type	CDROM <a href="#">✎</a>
Register time	12:04:00 02/20/2013
Persistent	no <a href="#">✎</a>
Path	/etc/hosts
Filesystem type	--
Size (MB)	1
State	USED
Running VMS	1

Permissions:	Use	Manage	Admin
Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Ownership

Owner	serveradmin <a href="#">✎</a>
Group	oneadmin <a href="#">✎</a>

### Extended Template

<input type="text"/>	<input type="text"/>	<a href="#">Add</a>
DEV_PREFIX	e	<a href="#">✎</a> <a href="#">✕</a>

# OpenNebula – Sunstone 4.0

OpenNebula Sunstone

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<input type="text"/>	<input type="text"/>	<a href="#">Add</a>
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# Support für Ceph

```
# The 'one' pool must exist
> ceph osd lspools
0 data,1 metadata,2 rbd,6 one,
```

```
> cat ds.conf
NAME = "cephds"
DS_MAD = ceph
TM_MAD = ceph
POOL_NAME = one
HOST = cephfrontend
```

```
> onedatastore create ds.conf
ID: 101
```

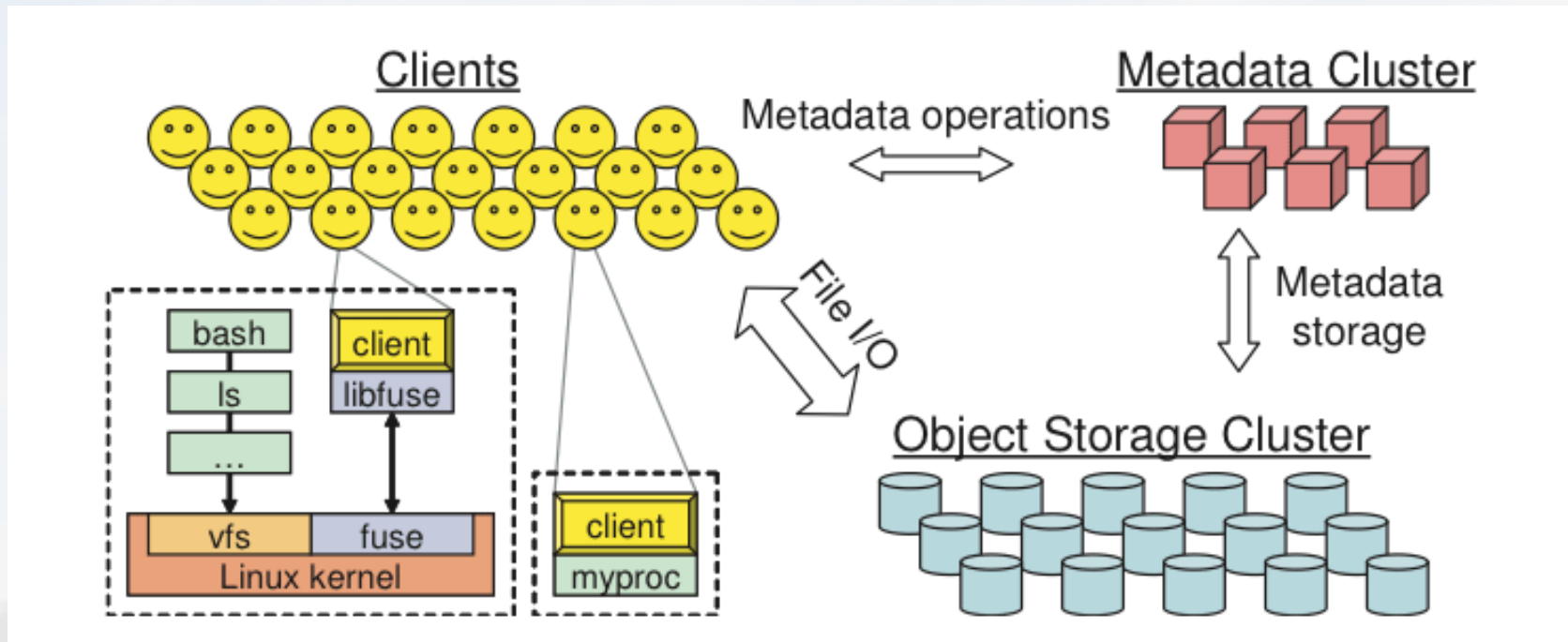
```
> onedatastore list
```

ID	NAME	CLUSTER	IMAGES	TYPE	TM
0	system	none	0	fs	shared
1	default	none	3	fs	shared
100	cephds	none	0	ceph	ceph

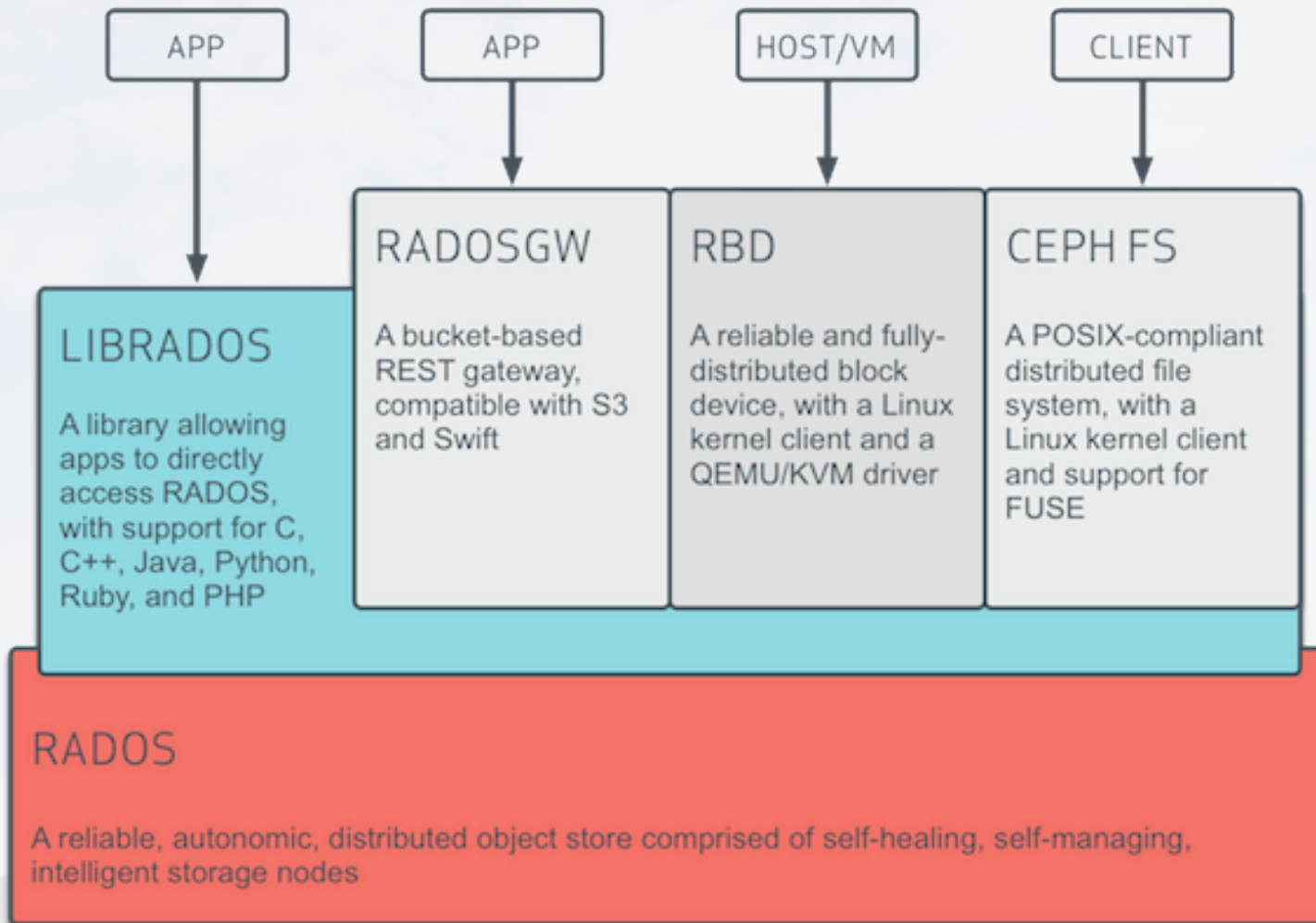
# Ceph



<http://ceph.com/docs/master/start/>



# Ceph



# Globaler Scheduler

```
$ onevm shutdown 0 --schedule "05/25 17:45"  
VM 0: shutdown scheduled at 2013-05-25 17:45:00  
+0200
```

```
$ onevm cancel 0 --schedule "05/25 18:00"  
VM 0: cancel scheduled at 2013-05-25 18:00:00  
+0200
```

```
$ onevm show 0
```

## SCHEDULED ACTIONS

ID	ACTION	SCHEDULED	DONE	MESSAGE
0	shutdown	05/25 17:45	-	
1	cancel	05/25 18:00	-	



# ZUSAMMENFASSUNG

# Warum OpenNebula?

Weil OpenNebula...

- ... sich auf Datacenter Virtualisierung spezialisiert
- ... als produktionsfähiges Paket bereitgestellt wird
- ... sehr schnell weiterentwickelt wird
- ... infrastrukturunabhängig ist
- ... praxisprobleme löst!



# FRAGEN & ANTWORTEN



OpenNebula  
Conf

24 - 26 Sept 2013

in BERLIN

Enterprise Cloud  
and Datacenter  
Virtualization

CALL FOR  
PAPERS  
until June 15th

EARLY BIRD  
until June 30th

[opennebulaconf.com](http://opennebulaconf.com)

presented by



OpenNebula

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