

# Open Source Data Center Virtualisierung mit OpenNebula

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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

- 35 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



## Open Source Data Center Conference 17 – 18 April 2013

“Agile Infrastructures”

- Cloud & Big Data
- DevOps & Methods
- Infrastructure services



## 2nd Puppet Camp 19 April 2013

- 100 Teilnehmer (2012)
- Puppet best practices
- Aktuelle News rund um das Thema Puppet

Jobs



<http://jobs.netways.de>

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

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**NETWAYS**®

# VORSTELLUNG OPENNEBULA

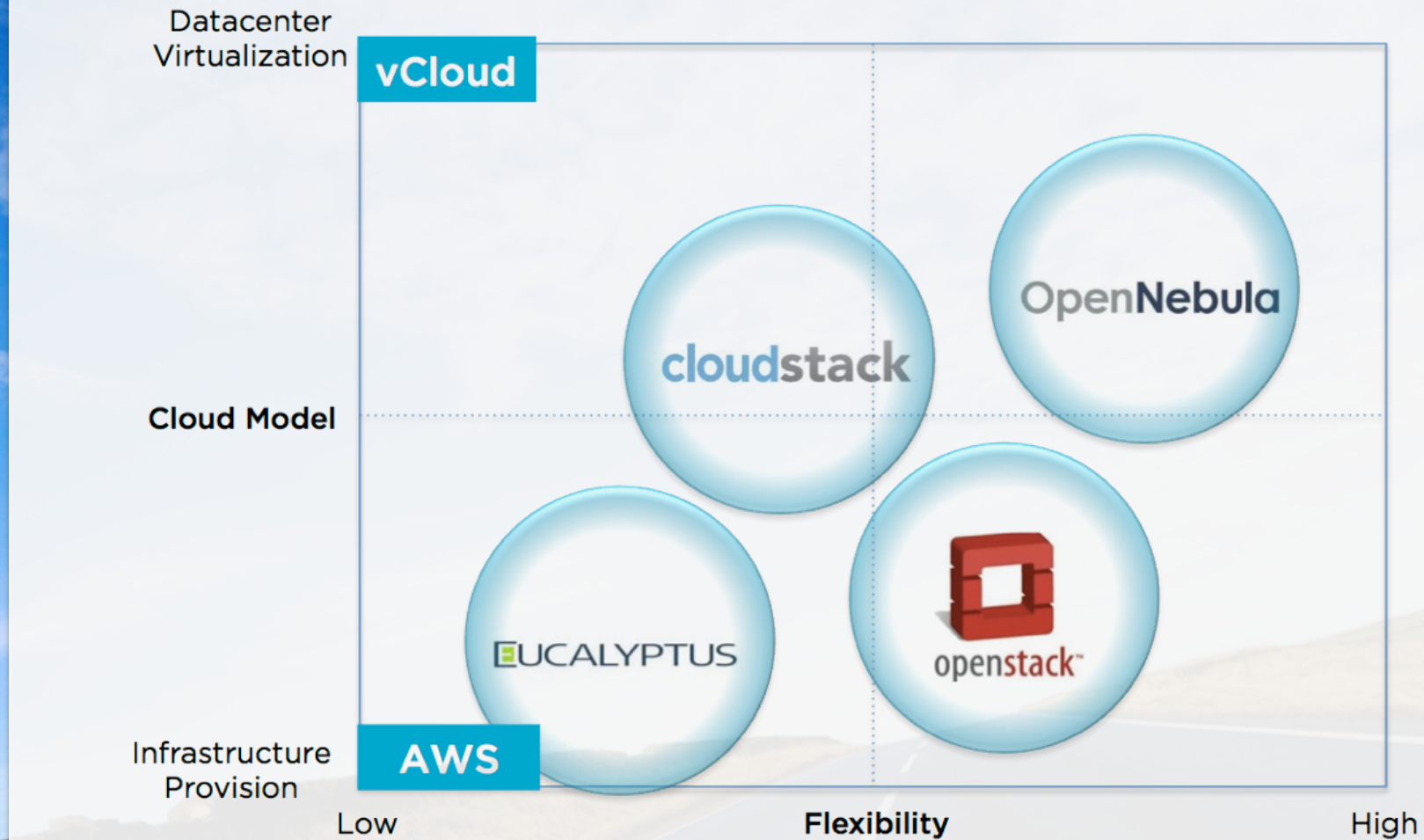


# OpenNebula - Überblick

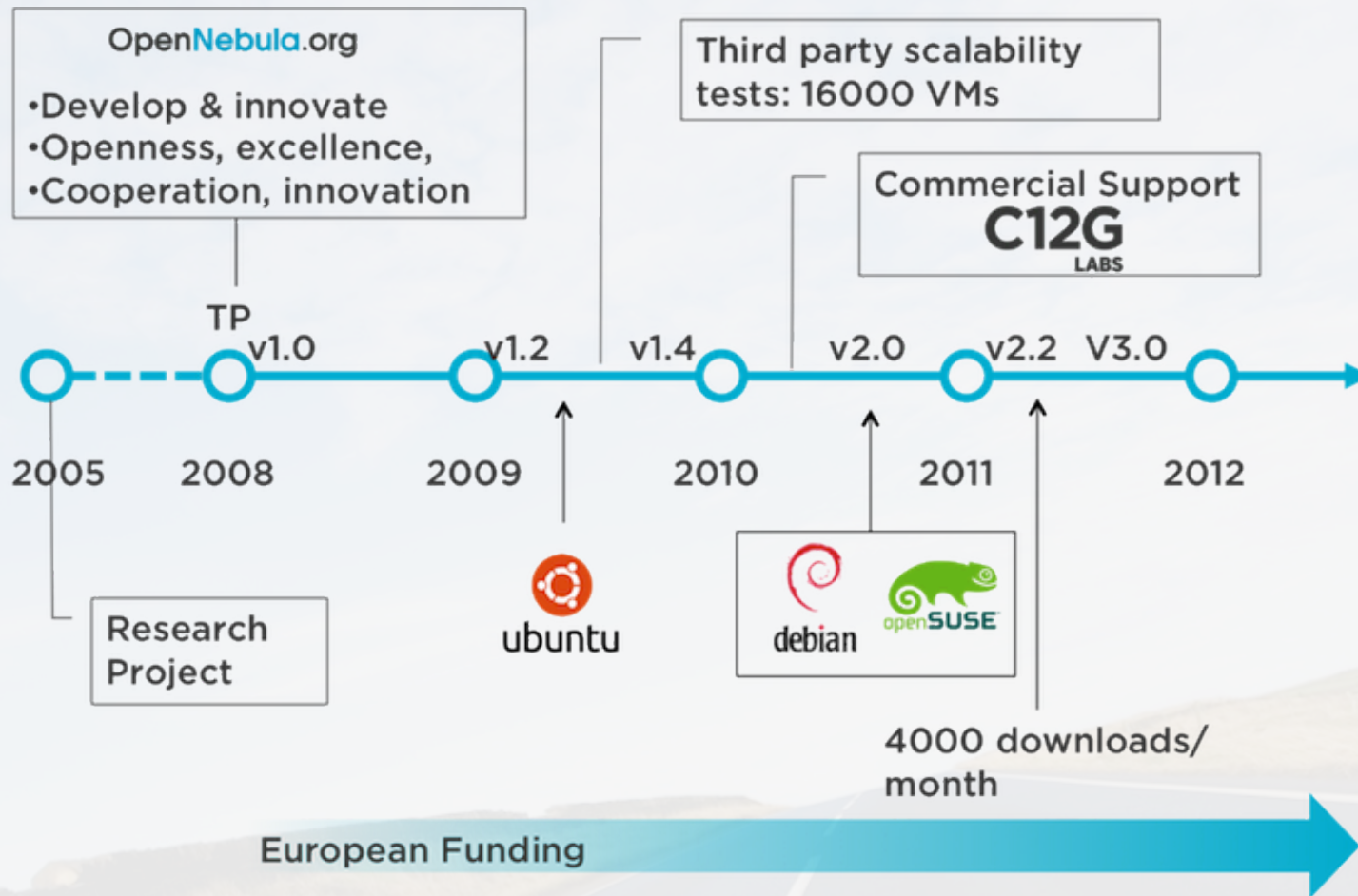
OpenNebula.org

Multi-tenancy, Elasticity and Automatic Provision on  
Virtualized Environments

# OpenNebula - Ausrichtung



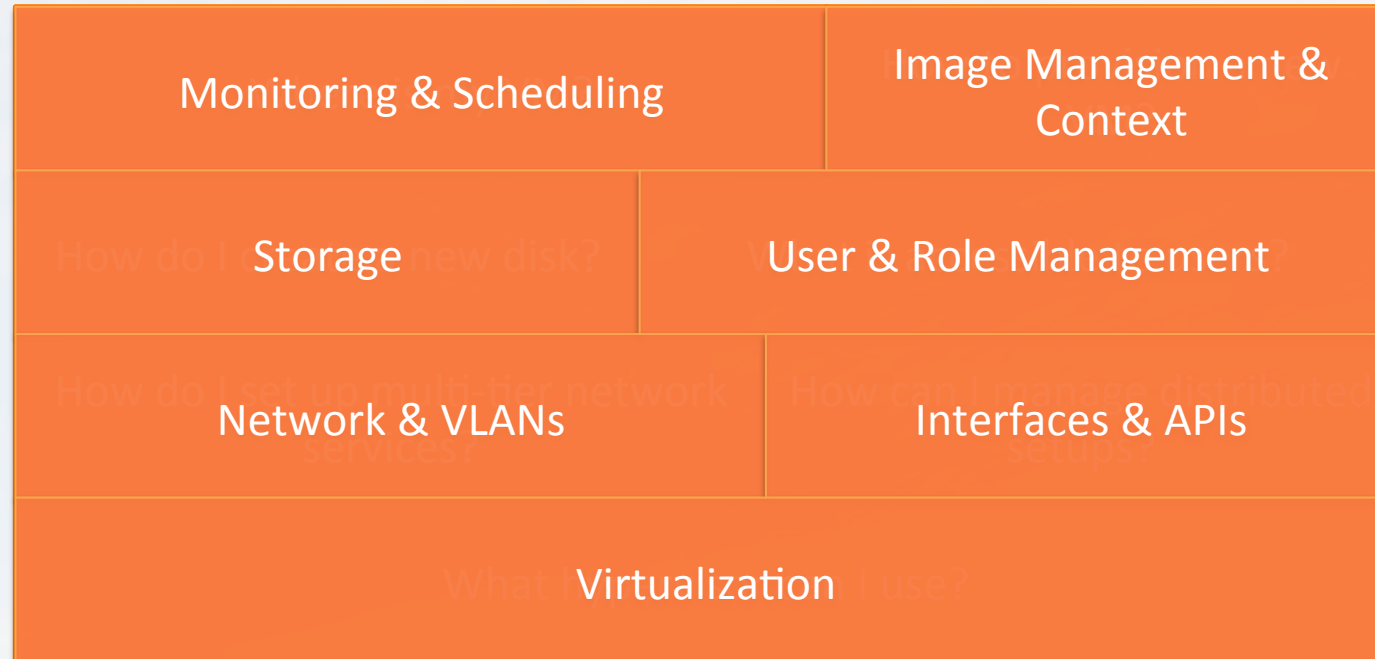
# OpenNebula - Geschichte





# CHALLENGES

# Cloud Challenges



**OpenNebula.org**

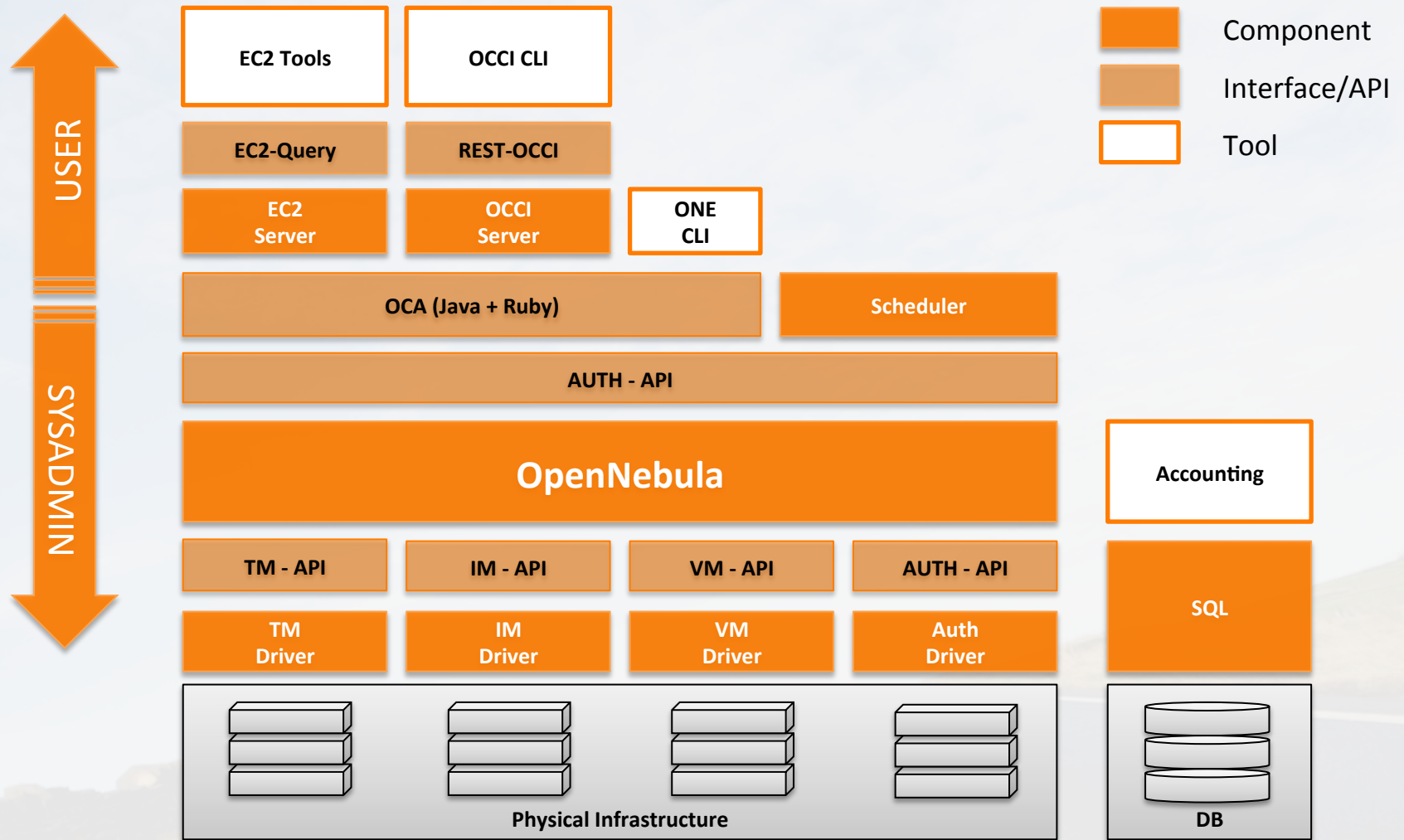
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# ARCHITEKTUR



# OpenNebula – Übersicht

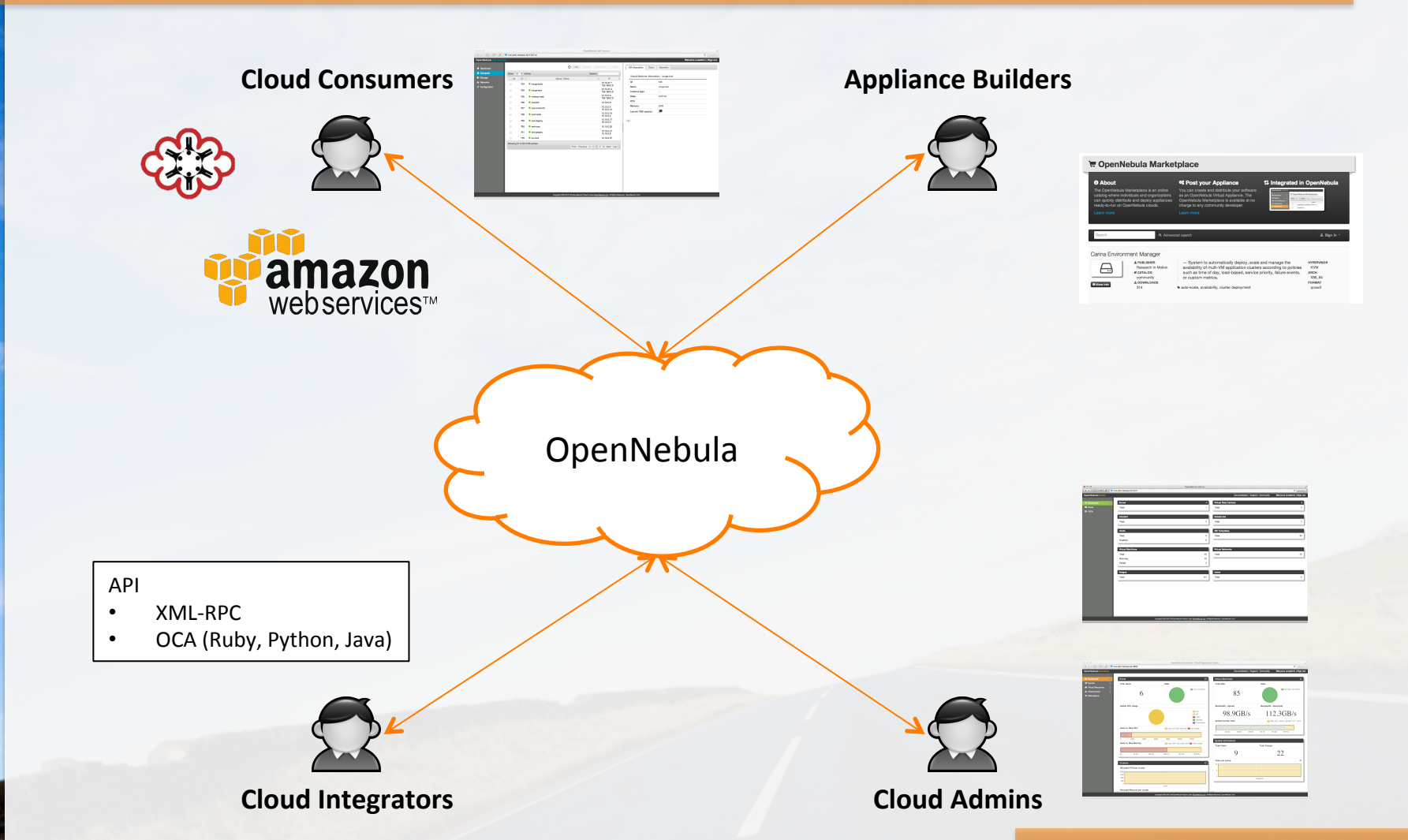




# TECHNISCHER ÜBERBLICK



# 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

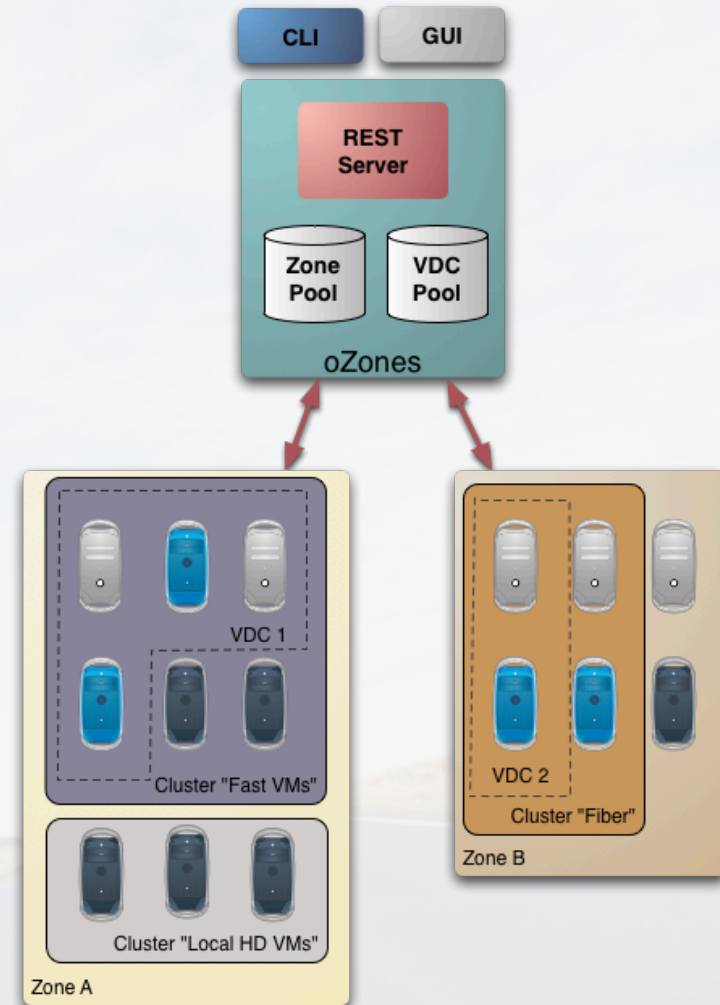
SQLite / MySQL



# 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



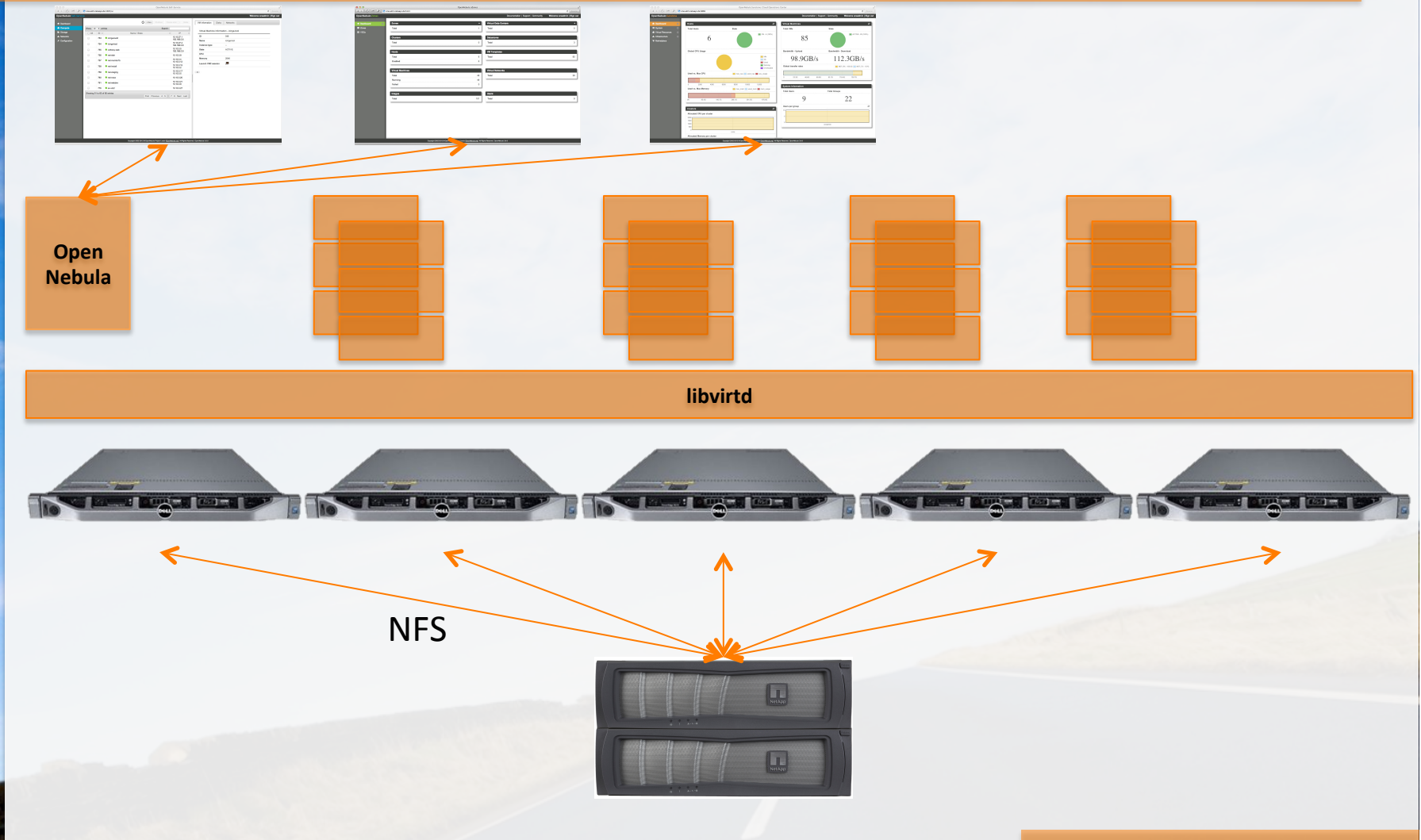
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**DEMO**

# NETWAYS – Cloud

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# AUSBLICK 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="#">edit</a>
Datastore	default
Type	CDROM <a href="#">edit</a>
Register time	12:04:00 02/20/2013
Persistent	no <a href="#">edit</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="#">edit</a>
Group	oneadmin <a href="#">edit</a>

#### Extended Template

<input type="text"/>	<input type="text"/>	<a href="#">Add</a>
DEV_PREFIX	e	<a href="#">edit</a> <a href="#">delete</a>



# OpenNebula – Sunstone 4.0

OpenNebula Sunstone

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DEV_PREFIX	e	<a href="#">✎</a> <a href="#">✕</a>

# 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

# 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

**Halle 6 Stand F16 (330)**



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