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# Benefits of Standard Cloud Interfaces for OpenNebula

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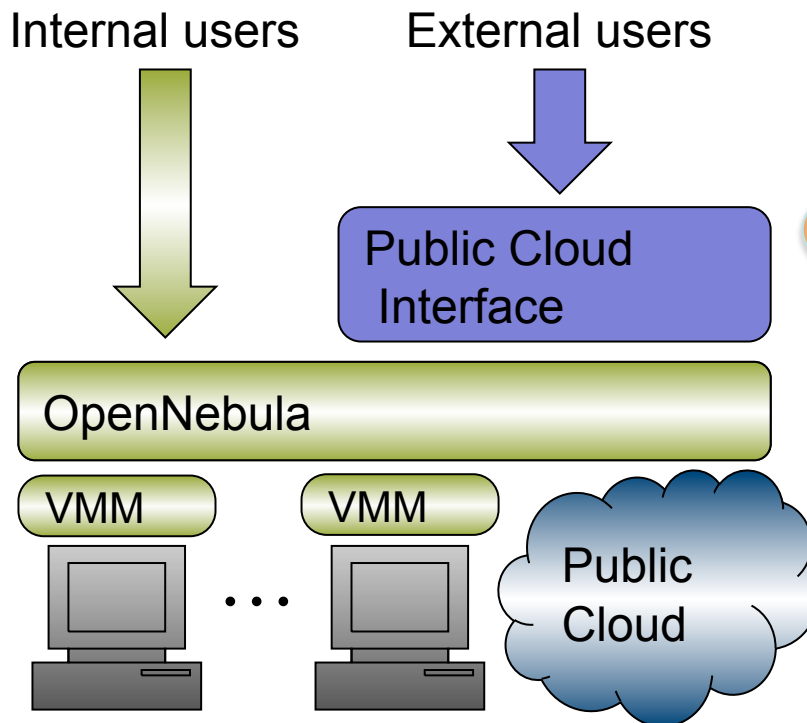


# What is OpenNebula?

## *Benefits of Standard Cloud Interfaces for OpenNebula*

### Extending the Benefits of Virtualization to “Distributed Infrastructures”

- Dynamic deployment and re-placement of virtual machines on a pool of physical resources
- Transform a rigid distributed physical infrastructure into a flexible and agile virtual infrastructure



• Public Cloud: Remote interfaces to private clouds

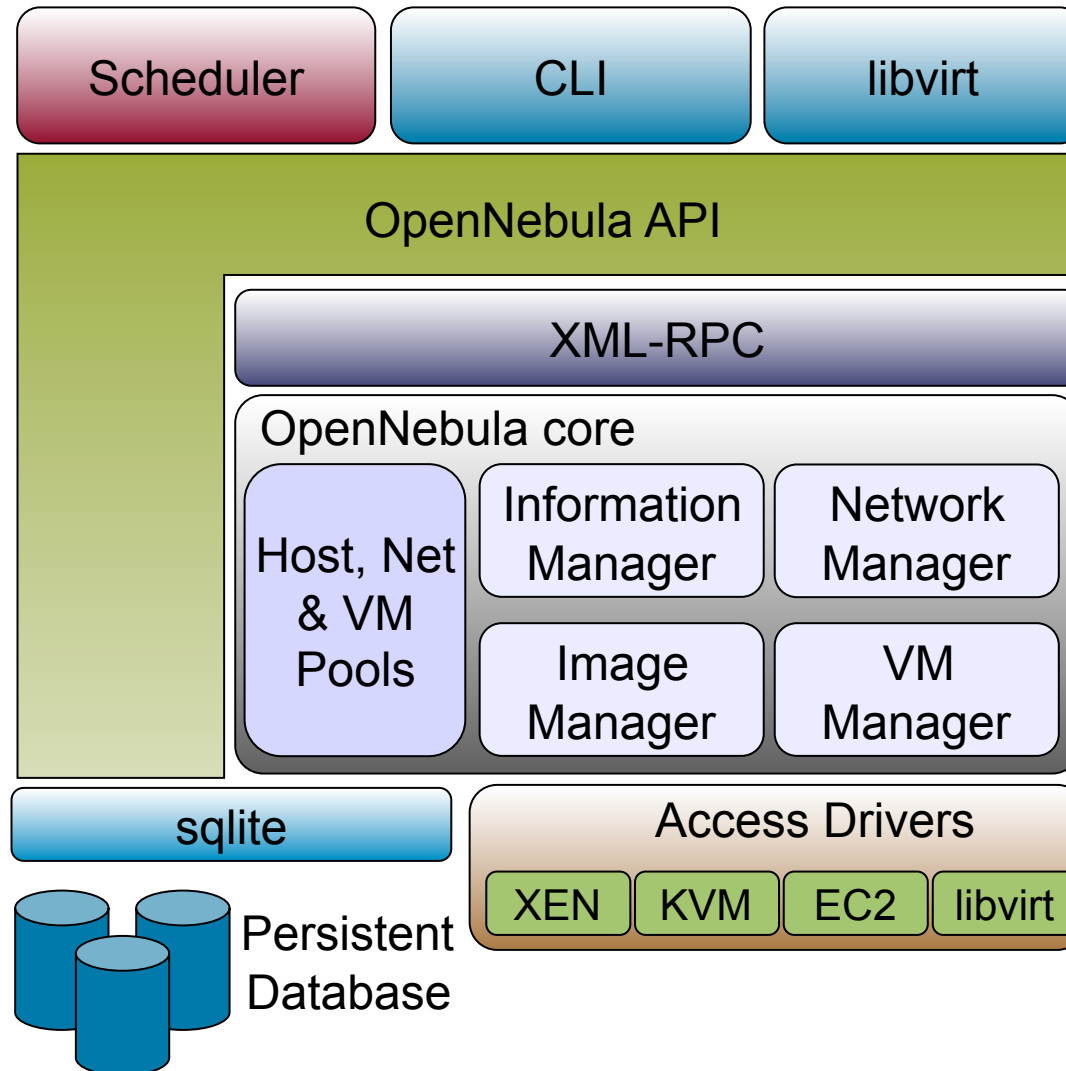
• Private Cloud: Virtualization of cluster or data-center for internal users

• Hybrid Cloud: On-demand access to public clouds



# Open and Flexible Architecture

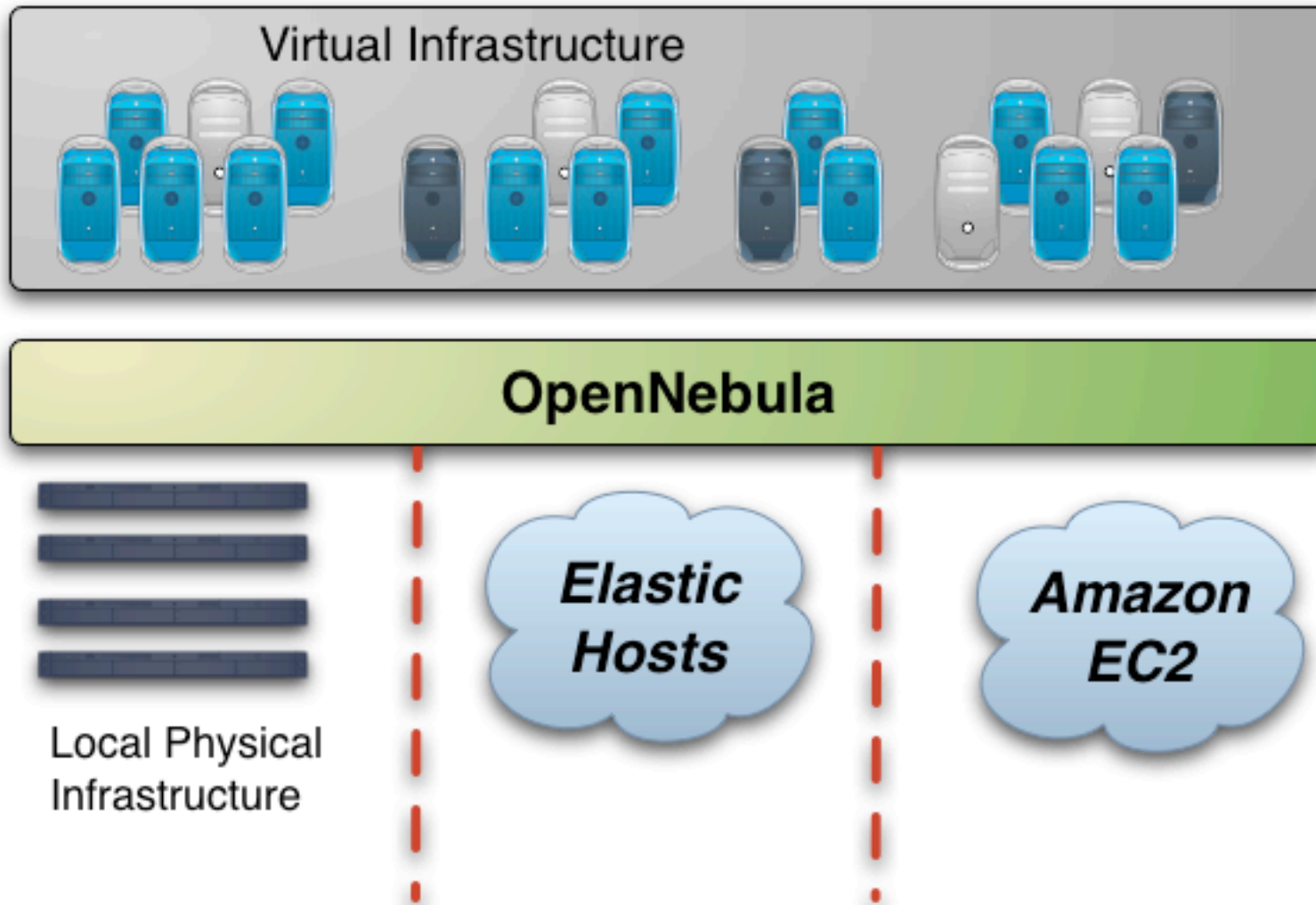
*Benefits of Standard Cloud Interfaces for OpenNebula*



# Cloud Interoperation

*Benefits of Standard Cloud Interfaces for OpenNebula*

Service running on geographically distributed resources





# How do we achieve Interoperation

## *Benefits of Standard Cloud Interfaces for OpenNebula*

### Common template

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- Richer attributes for local deployment
- Specific section for each cloud provider with limited attributes

### Image Management

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- Need to preregister images in S3 / Drives API
- Checkpointing not allowed: no migration
- Different possibilities: EC2 1 image, EH multiple

### Network Management

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- Local VMs = total control
- EC2, EH = public IPs
  - SGE Use Case: Need to set up VPN

# How do we achieve interoperability

## Benefits of Standard Cloud Interfaces for OpenNebula

### Mapping of VM life-cycle commands

OpenNebula	Amazon EC2	ElasticHosts Server API
create	ec2-run-instances	/servers/create
shutdown	ec2-terminate-instances	/servers/ SERVER/shutdown
cancel	ec2-terminate-instances	/servers/SERVER/ destroy
save	N/A	N/A
restore	N/A	N/A
migrate	N/A	N/A
poll	ec2-describe-instances	/servers/ SERVER/info

# Conclusions

*Benefits of Standard Cloud Interfaces for OpenNebula*

## Benefits of OCCI WG for OpenNebula

### Public Cloud

- Integration with the emerging ecosystem that will be created around OCCI WG
- Reference implementation on top of OpenNebula (in the context of RESERVOIR)

### Hybrid Clouds

- Single interface to access different providers
- Develop a plug-in to access OCCI
  - will provide access to all standard compliant clouds



# The OpenNebula VM Manager

THANK YOU FOR YOUR ATTENTION!!!  
More info, downloads, mailing lists at  
[www.OpenNebula.org](http://www.OpenNebula.org)

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[www.reservoir-fp7.eu/](http://www.reservoir-fp7.eu/)

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