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Ubuntu Cloud

Can IaaS be used in your Labs

Nick Barcet <nick.barcet@canonical.com>
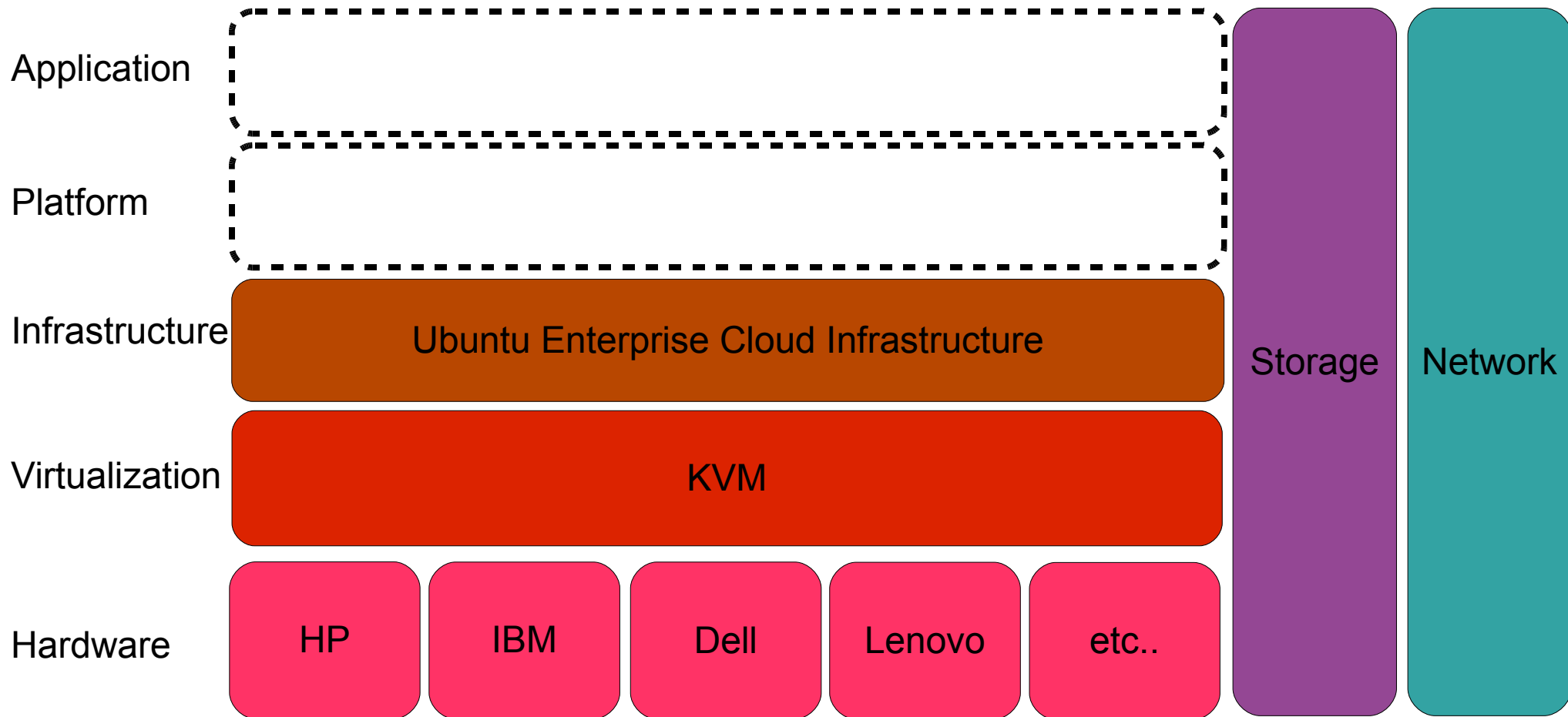Cloud Solutions Lead

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Cloud?

Cloud computing stack

						Storage	Network
Application	Salesforce.com, GoogleDocs, Office, etc...						
Platform	GoogleApps, Java, Azure, etc...						
Infrastructure	Amazon, GoGrid, 3Tera, Eucalyptus, etc...						
Virtualization	Xen	KVM	VMWare	HyperV	etc..		
Hardware	HP	IBM	Dell	Lenovo	etc..		

Our current cloud offering

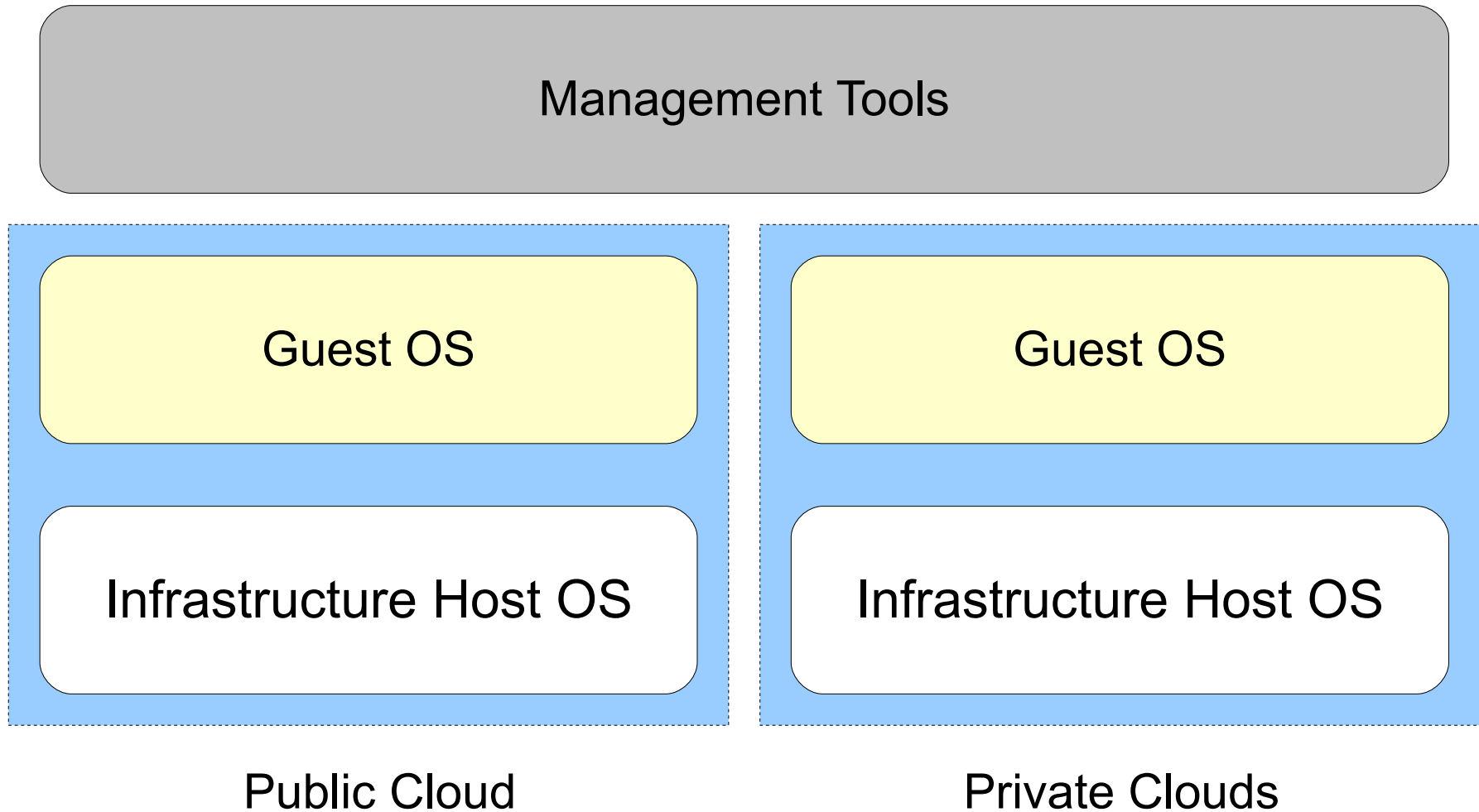|		Storage	Network
Application	*(dashed box)*		
Platform	*(dashed box)*		
Infrastructure	Ubuntu Enterprise Cloud Infrastructure		
Virtualization	KVM		
Hardware	HP IBM Dell Lenovo etc..		

Ubuntu's Strategy in the Cloud

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Strategy

- IaaS
    - Focus on infrastructure layer

- Bring the Ubuntu experience
    - Make it as easy as possible for Enterprises to try out cloud computing

- Standards
    - Support current dominant *de-facto* cloud standards

- Open and Lock-In Free
    - Ensure the cloud is based on open-source and lock-in free

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Product Overview

Management Tools

Guest OS

Guest OS

Infrastructure Host OS

Infrastructure Host OS

Public Cloud

Private Clouds

Product Overview

Landscape

Ubuntu AMI

Ubuntu AMI

Ubuntu Enterprise Cloud

Public Cloud

Private Clouds

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UEC in Labs?

Academic Labs

- Characteristics
  - Research and academic institutions have multiple labs
  - Each lab needs to have its own environment since each lab can have very different configuration
- Pain Points
  - Waste of infrastructure resources
  - Financial drain on the organization

- Consequences
  - Separate IT infrastructure for every lab
  - Since each environment is not utilized at all times, a great deal of equipment stands idle when not utilized
- How we help
  - Each lab can spin its own environment when needed and spin down when testing is done, while maintaining the environment it needs
  - Equipment utilization is maximized
  - Money is saved

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Cloud academic sizing

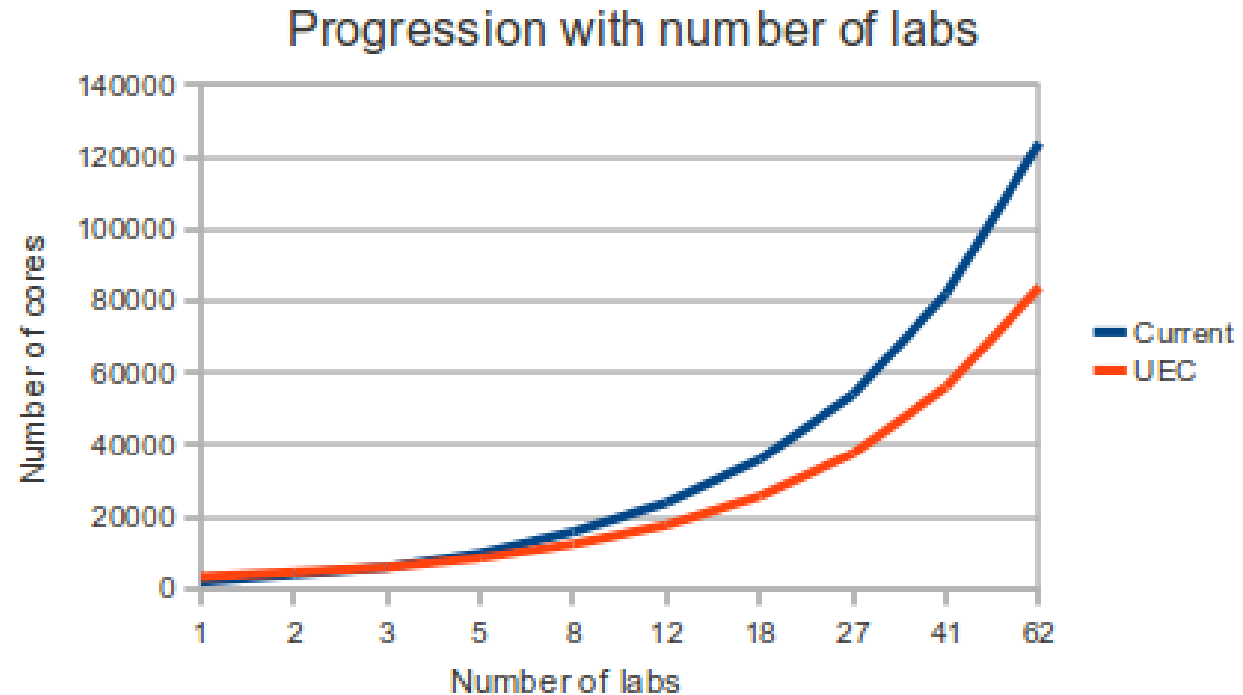- L = average number of instances/lab (single cores)

- X = Number of labs

Current cost

- L = 2000

- X = 20

  → (L x X) = 40000 cores

Projected cost with UEC

- M = 55% (average concurrent usage)

- V = 20% (virtualization overhead)

  → (1.2 x L x N x M) + L) / X / Y = 888 cores, **30% potential savings**

Progression with number of labs

What's your opinion?

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Thank you!

http://www.ubuntu.com/cloud
http://cloud.ubuntu.com ← blog aggregator
http://help.ubuntu.com/community/UEC ← tuto & doc

Twitter @ubuntucloud
         @nijaba ← me

Rich Interface

Example commands delivered by the euca2ools package:

euca-add-group	euca-delete-snapshot	euca-disassociate-address
euca-add-keypair	euca-delete-volume	euca-download-bundle
euca-allocate-address	euca-deregister	euca-get-console-output
euca-associate-address	euca-describe-addresses	euca-modify-image-attribute
euca-attach-volume	euca-describe-availability-zones	euca-reboot-instances
euca-authorize	euca-describe-groups	euca-register
euca-bundle-image	euca-describe-image-attribute	euca-release-address
euca-bundle-vol	euca-describe-images	euca-reset-image-attribute
euca-confirm-product-instance	euca-describe-instances	euca-revoke
euca-create-snapshot	euca-describe-keypairs	euca-run-instances
euca-create-volume	euca-describe-regions	euca-terminate-instances
euca-delete-bundle	euca-describe-snapshots	euca-unbundle
euca-delete-group	euca-describe-volumes	euca-upload-bundle
euca-delete-keypair	euca-detach-volume	euca-version

Cloud Computing vs Virtualization

- Self-service provisioning
- Virtual overlay network
- Security groups
- Elastic IPs
- Scalable, hierarchical storage semantics
- Multi-cloud interface compatibility
- Transactional nature of the APIs
- Flexible image management
- User and group management
- Accounting, quota, and auditing capabilities
- Instance self awareness of the infrastructure environment

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Ubuntu lifecycle

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |

Ubuntu 12.04 LTS — 12.04.1 ... 12.04.4

Ubuntu 11.10

Ubuntu 11.04

Ubuntu 10.10

Ubuntu 10.04 LTS — 10.04.1 ... 10.04.4

Ubuntu 9.10

Ubuntu 9.04

Ubuntu 8.10

Ubuntu 8.04 LTS — 8.04.1 ... 8.04.4

Legend: ■ LTS Desktop and Server   ■ Standard Release   ⬟ Point Release   ☐ LTS Server

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