



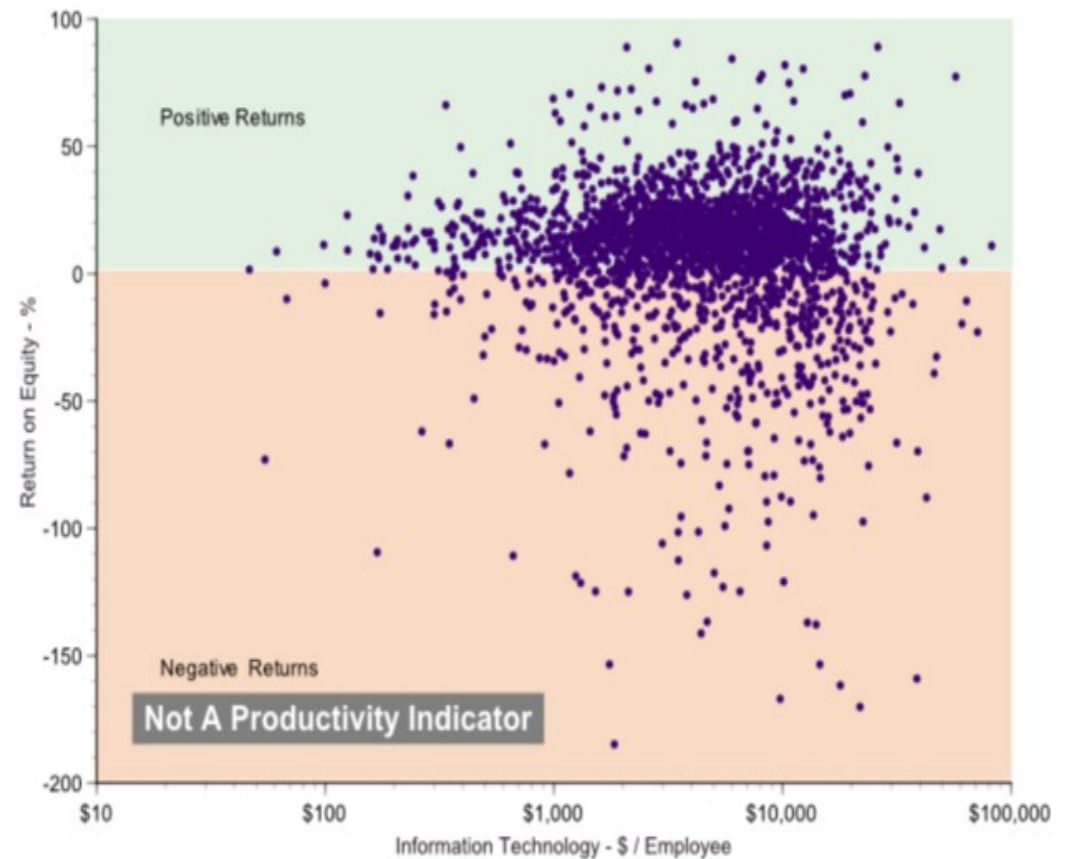
**Are enterprise ready to move to the
cloud?**

Nick Barcet

Ubuntu Server Product Manager

<nick.barcet@canonical.com>

Why is IT changing ?



Paul Strassmann

<http://www.strassmann.com/>

Why is IT changing?

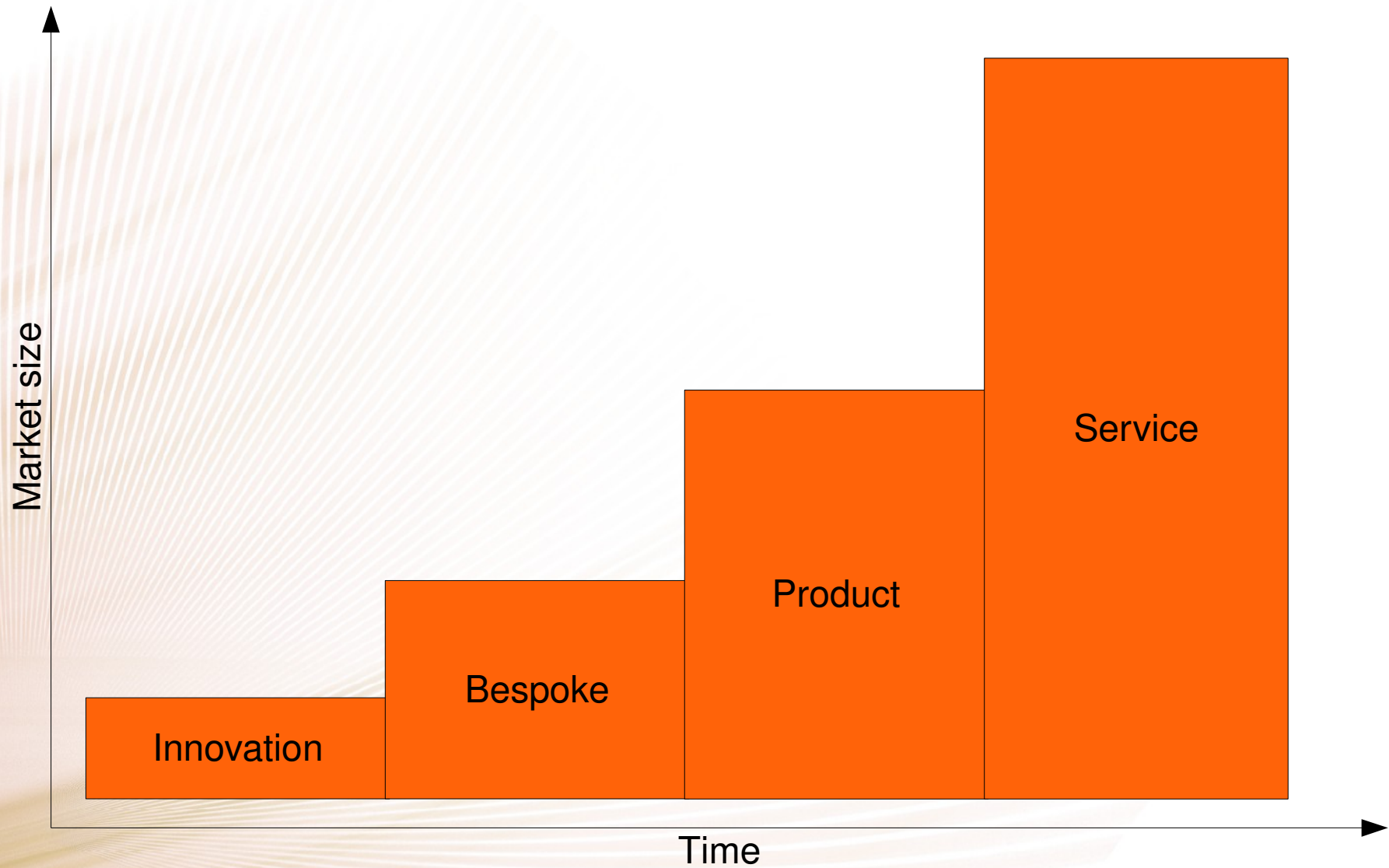


Not all IT is the same.

Not all IT has value!

Paul Strassmann

Why is IT changing?



EMERSON MUSEUM. AMERICAN MUSEUM OF NATURAL HISTORY. NEW YORK.



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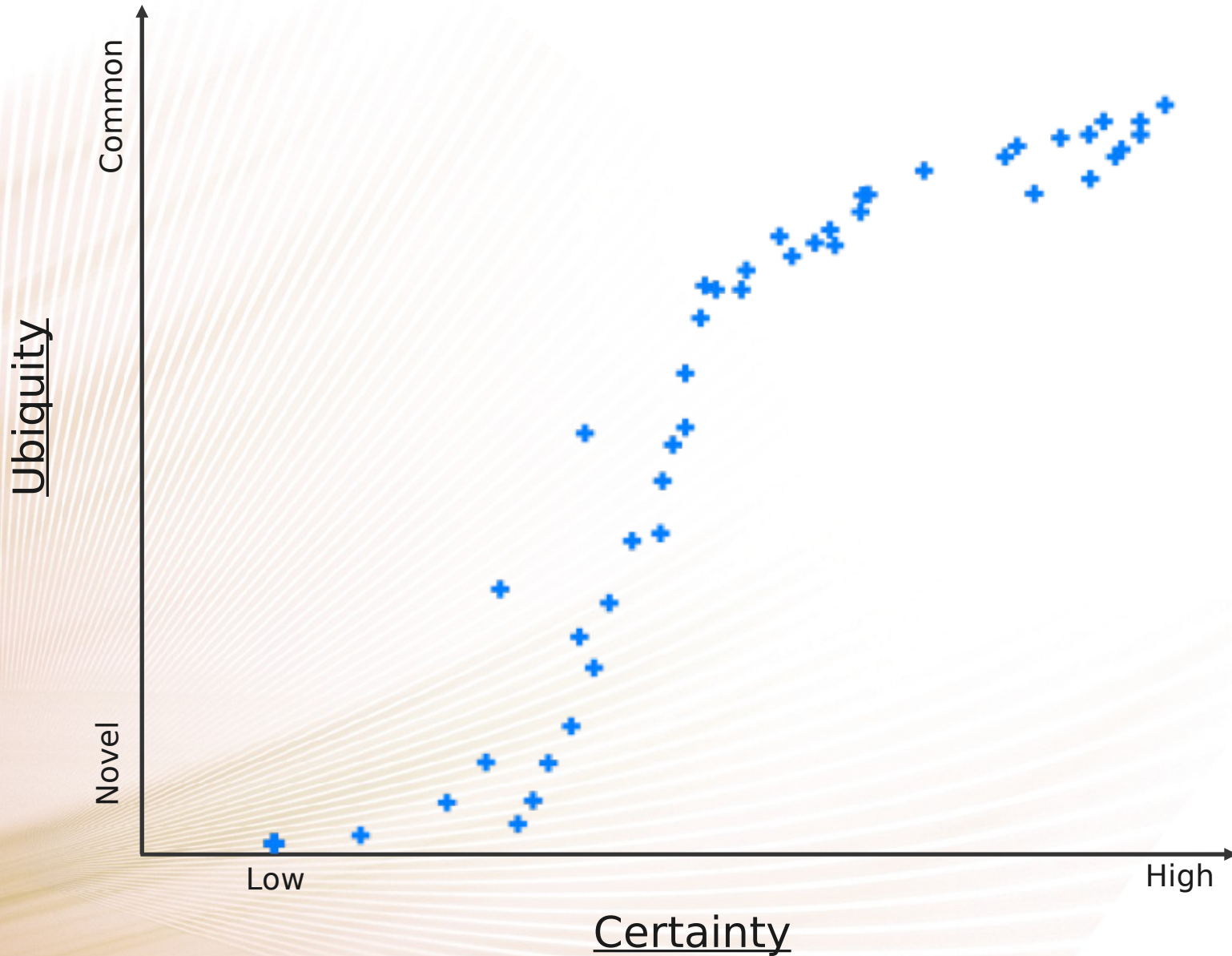
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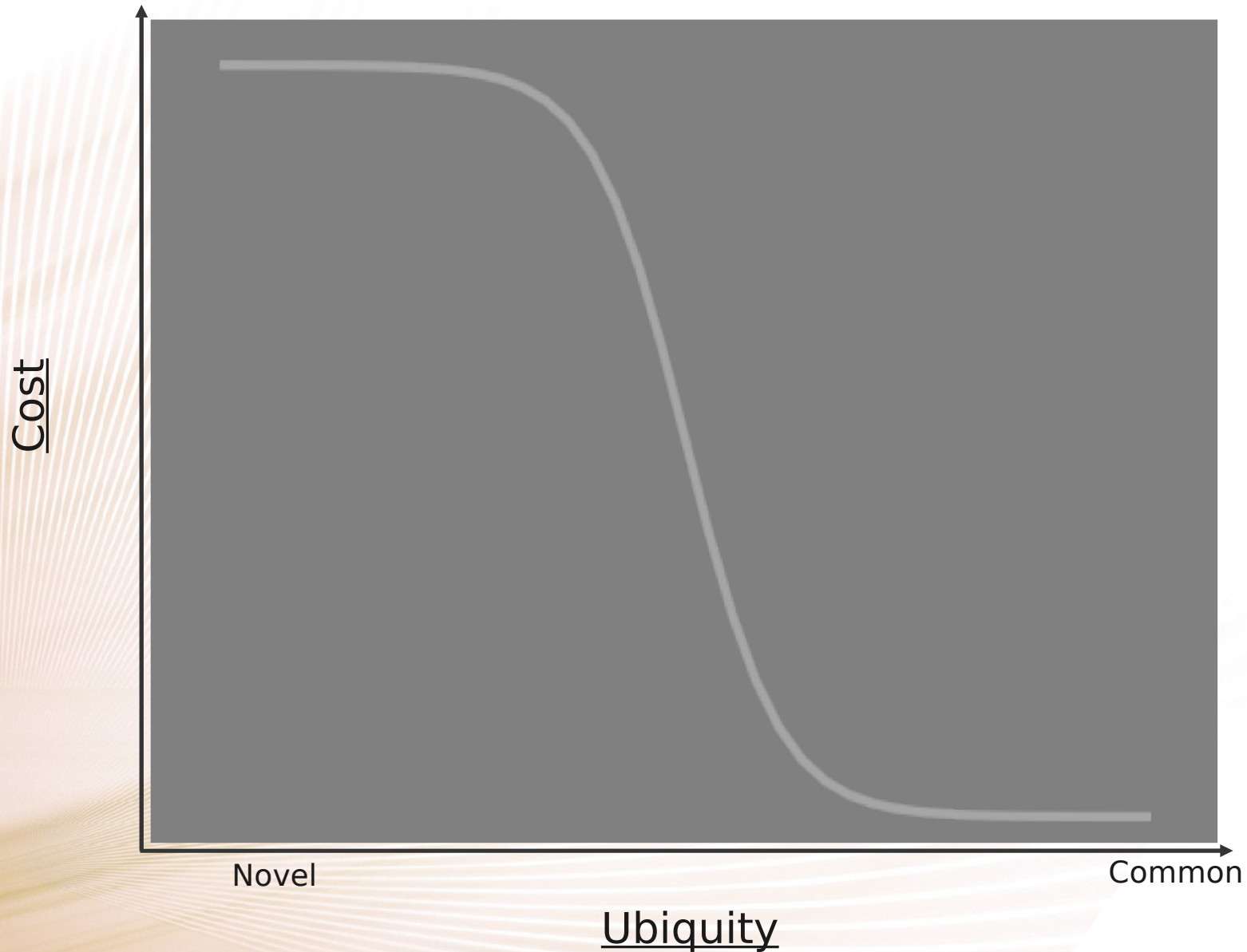
Nicholas Carr

“As IT becomes ubiquitous it has no strategic value”

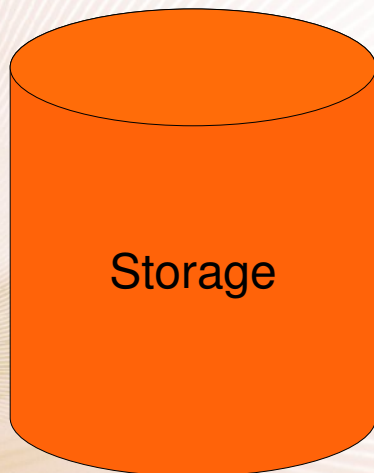
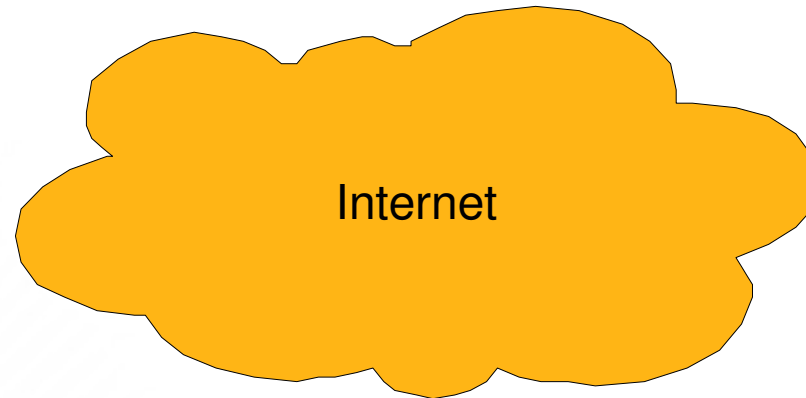
Why is IT changing ?



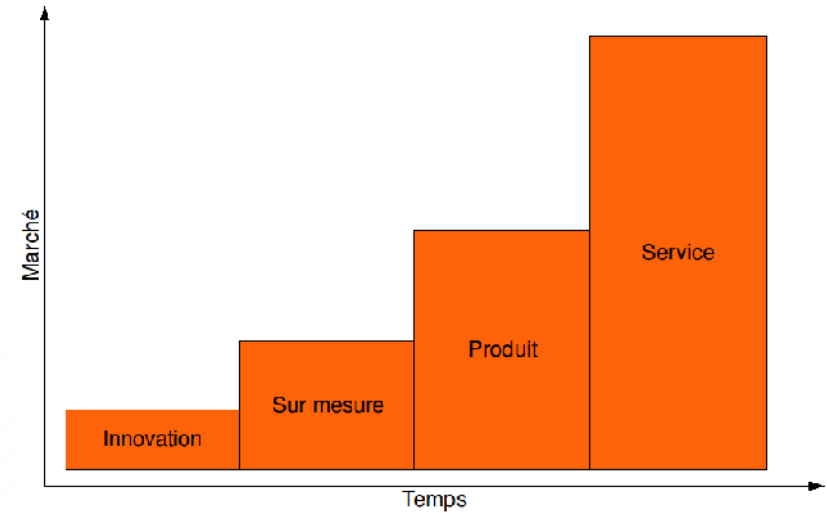
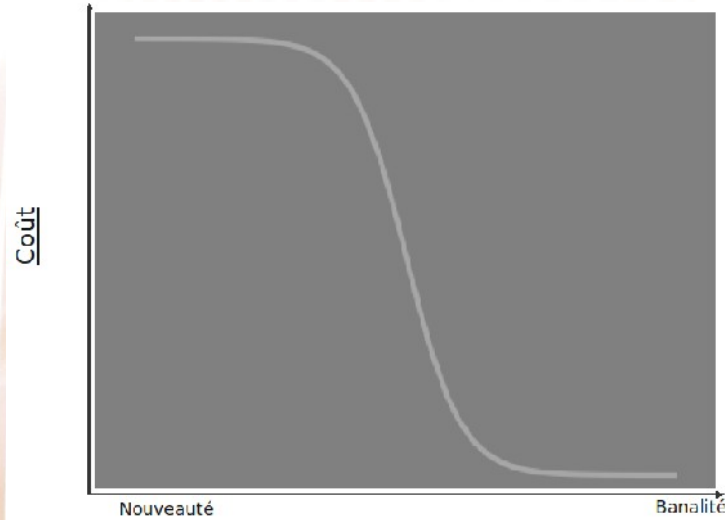
Why is IT changing ?



Examples



Why is IT Changing?



Commoditisation

Linux: a commoditisation instrument



Linux: a commoditization instrument



« You should also note that almost all of the newest hardware coming out has Linux support. The critical mass has been reached. Go download Ubuntu 8.10 and see for yourself what the fuss is about. You won't regret it. »

John Dvorak

<http://www.pcmag.com/article2/0,2817,2342703,00.asp>

Merryl Lawrenson, 56 ans, infirmière

« I wouldn't say that I'm a big computer user as I generally only use them for work. [...] The layout was also very clear, so perhaps Ubuntu is a little easier for somebody like me when compared with [...] Windows. »

<http://www.independent.co.uk/life-style/gadgets-and-tech/features/is-there-life-after-windows-1653198.html>

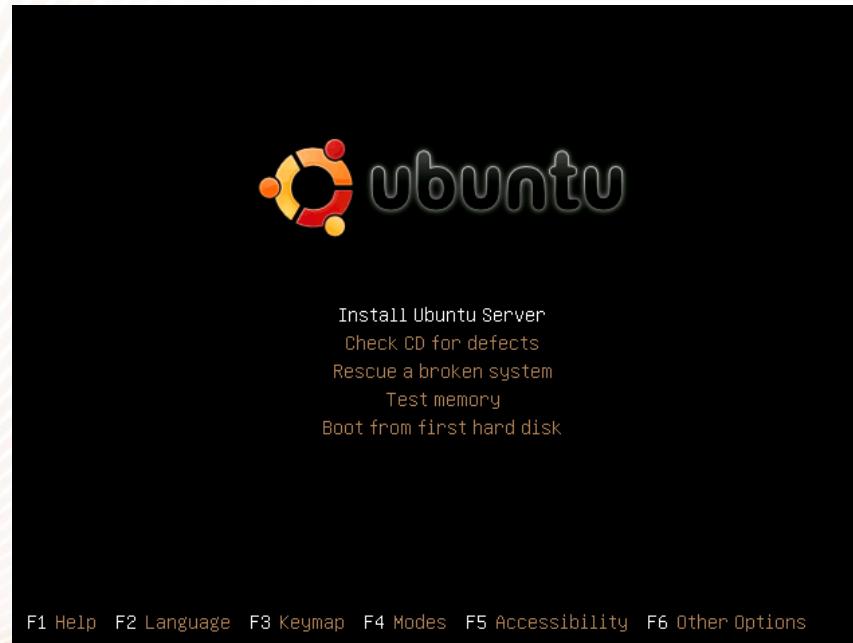


Linux: a commoditization instrument



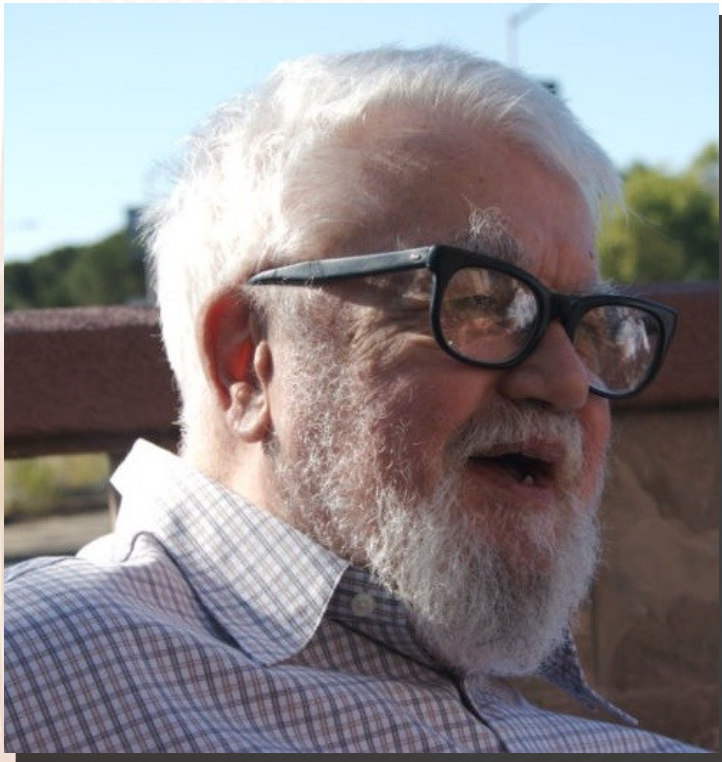
SeverWatch <http://www.serverwatch.com/stats/article.php/3806881>

« the **worldwide server market contracted 14 percent** in the final quarter of 2008. [...] Linux server sales were down 7 percent, while Windows server sales fell 17.8 percent »



« Our 100 servers running Windows have been replaced by 30 running Ubuntu »
Igor Chudov – Equitec Finance – Ubuntu Case Study (to be published)

Linux: a commoditization instrument

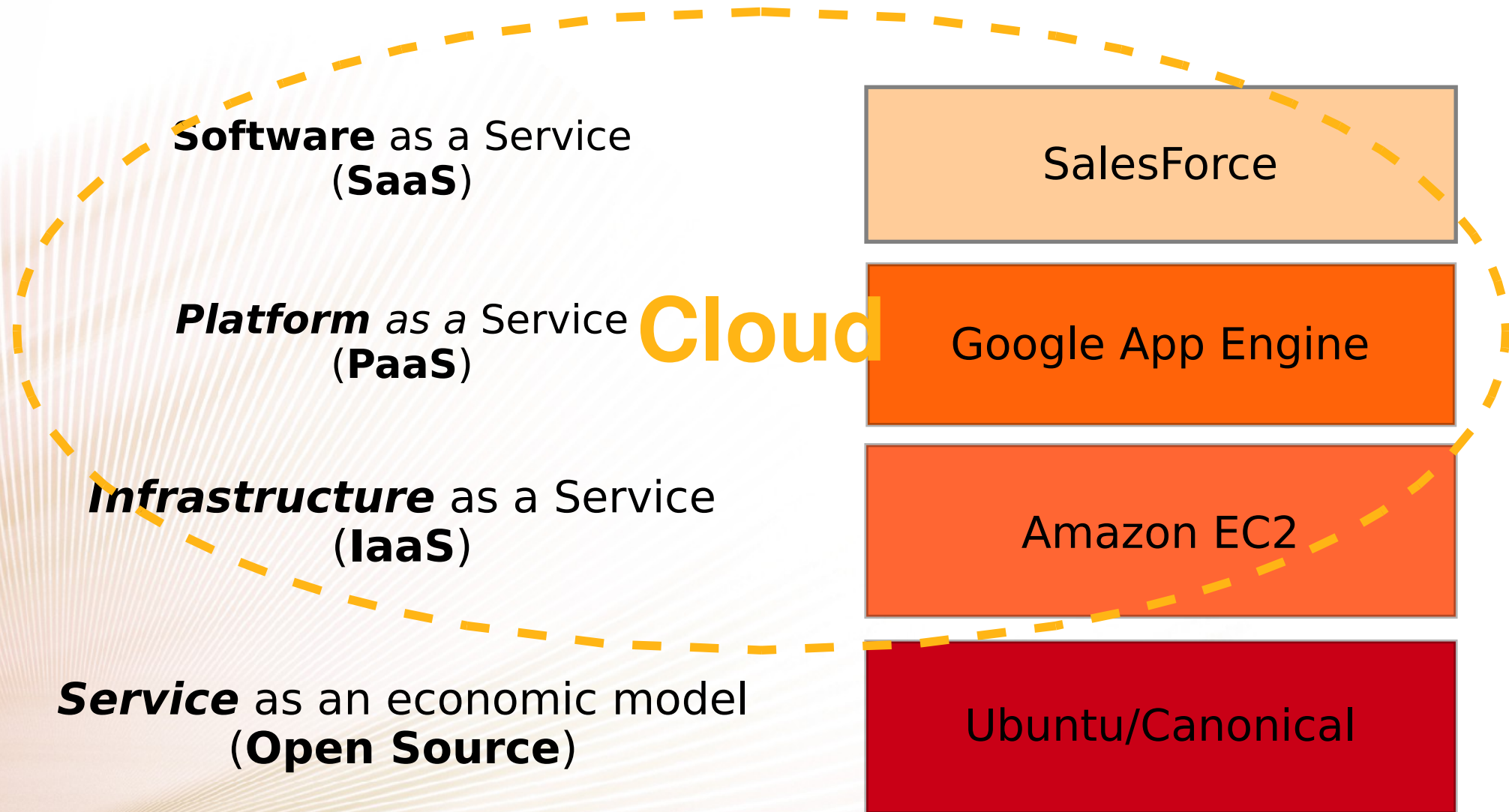


1960

John McCarthy predicts the evolution of computing towards a service model which he names

« **Utility Computing** »

Utility Computing



Problem

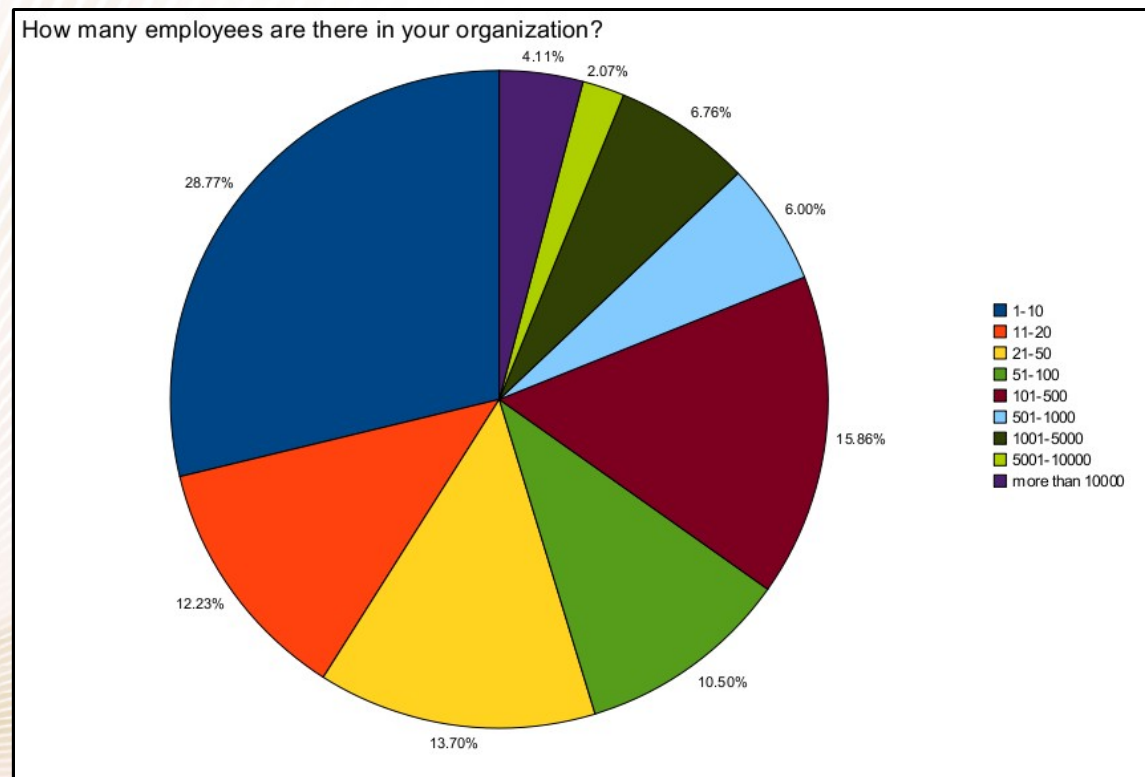


- Who are our users?
- What do they need?
- What are they doing with the tools we provide?

Online survey!

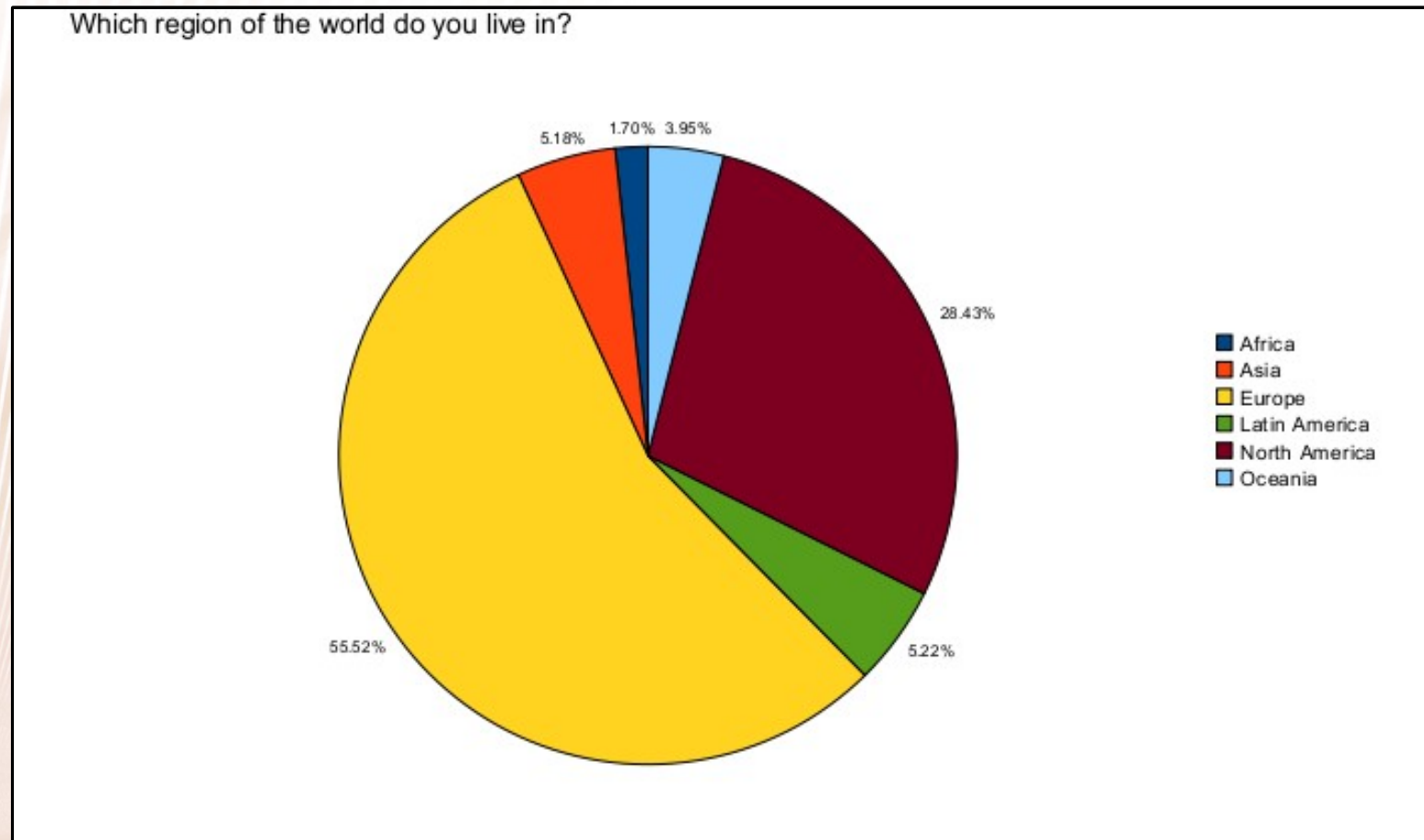


- 50 questions, 20 to 30 minutes
- Specific to server users
- Almost 7000 full responses



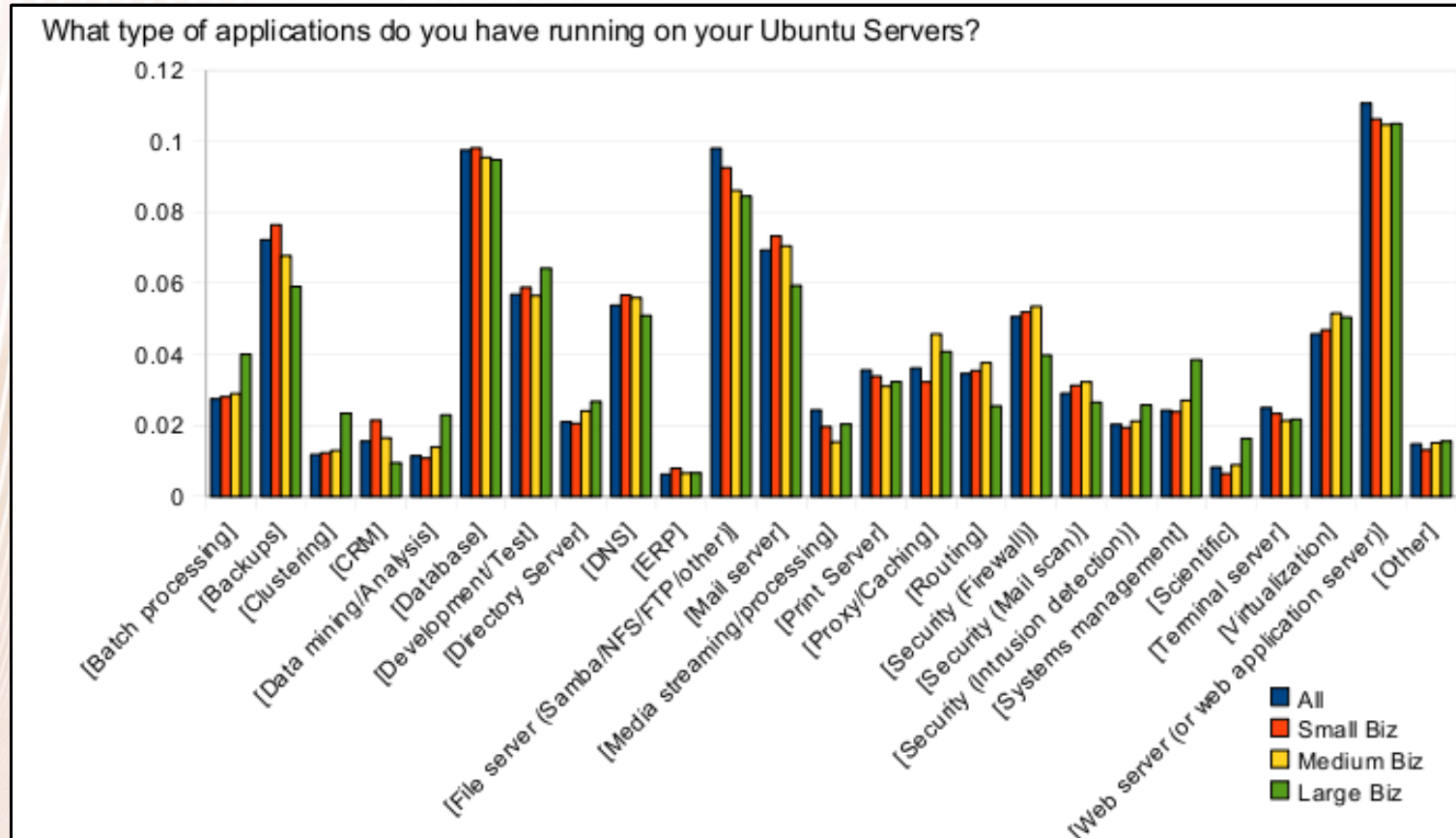
<http://www.ubuntu.com/products/whatisubuntu/serveredition/surveyresults-view>

Where are our users?



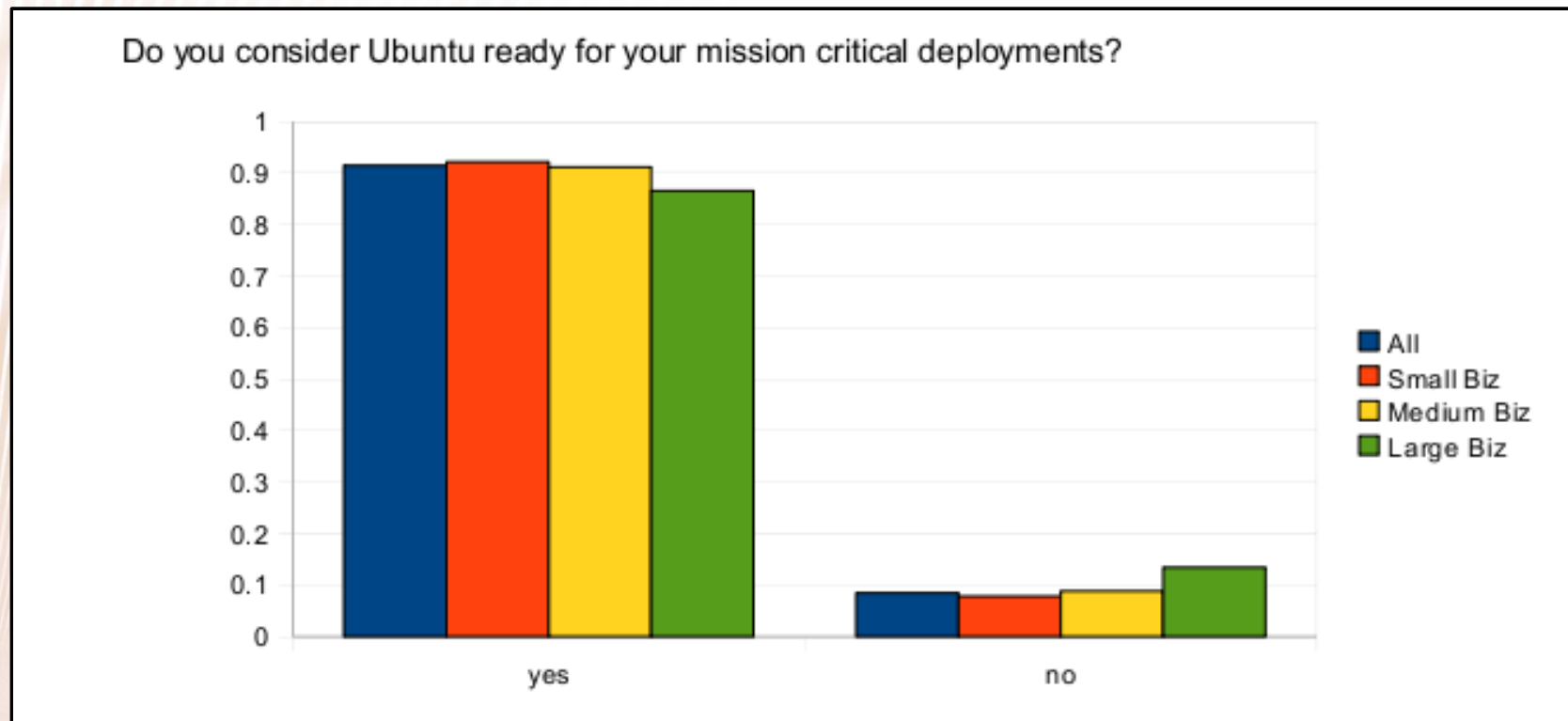
<http://www.ubuntu.com/products/whatisubuntu/serveredition/surveyresults-view>

What are they running?



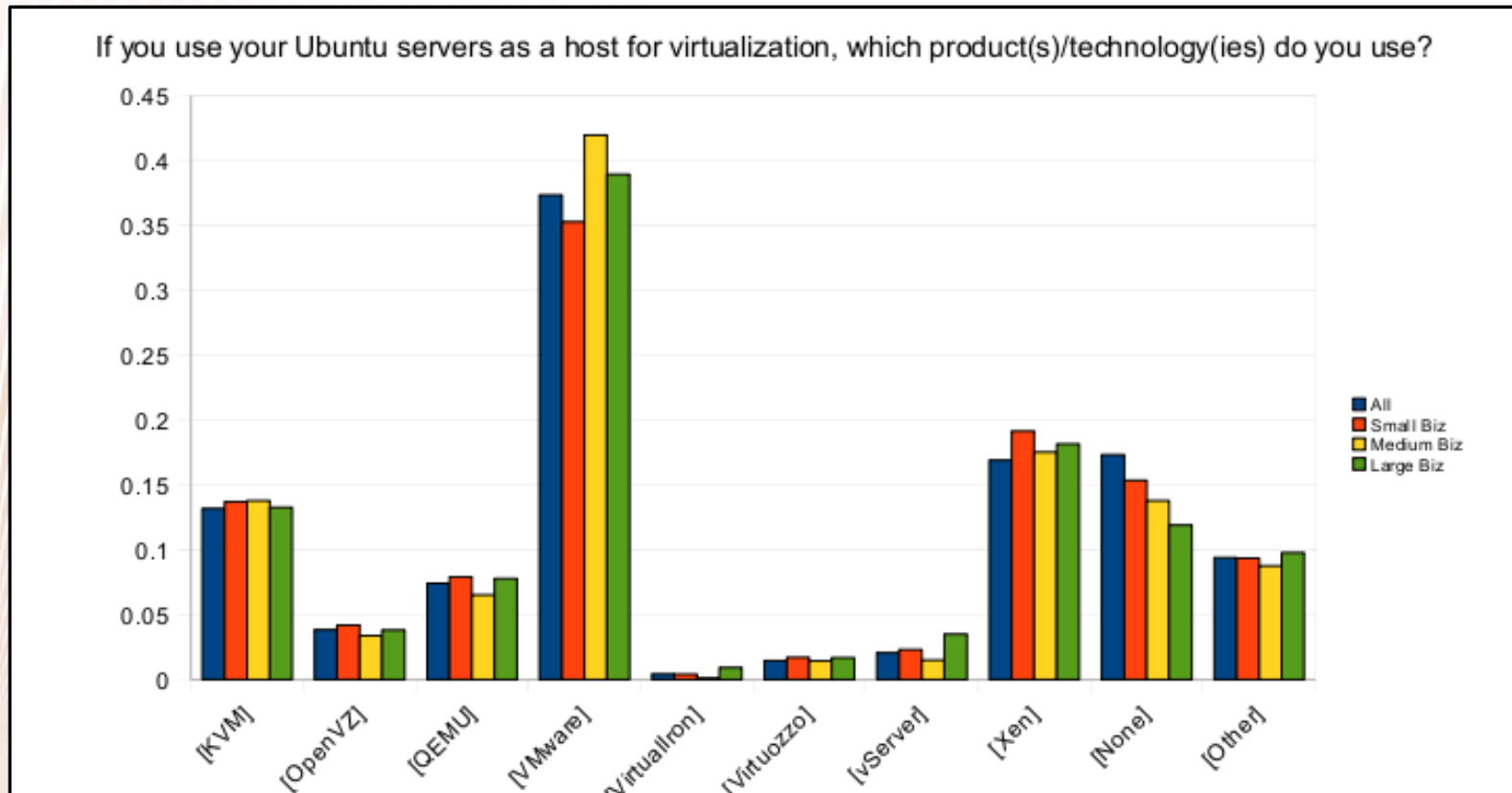
<http://www.ubuntu.com/products/whatisubuntu/serveredition/surveyresults-view>

Are we mission critical ready?



<http://www.ubuntu.com/products/whatisubuntu/serveredition/surveyresults-view>

What hypervisors?



<http://www.ubuntu.com/products/whatisubuntu/serveredition/surveyresults-view>

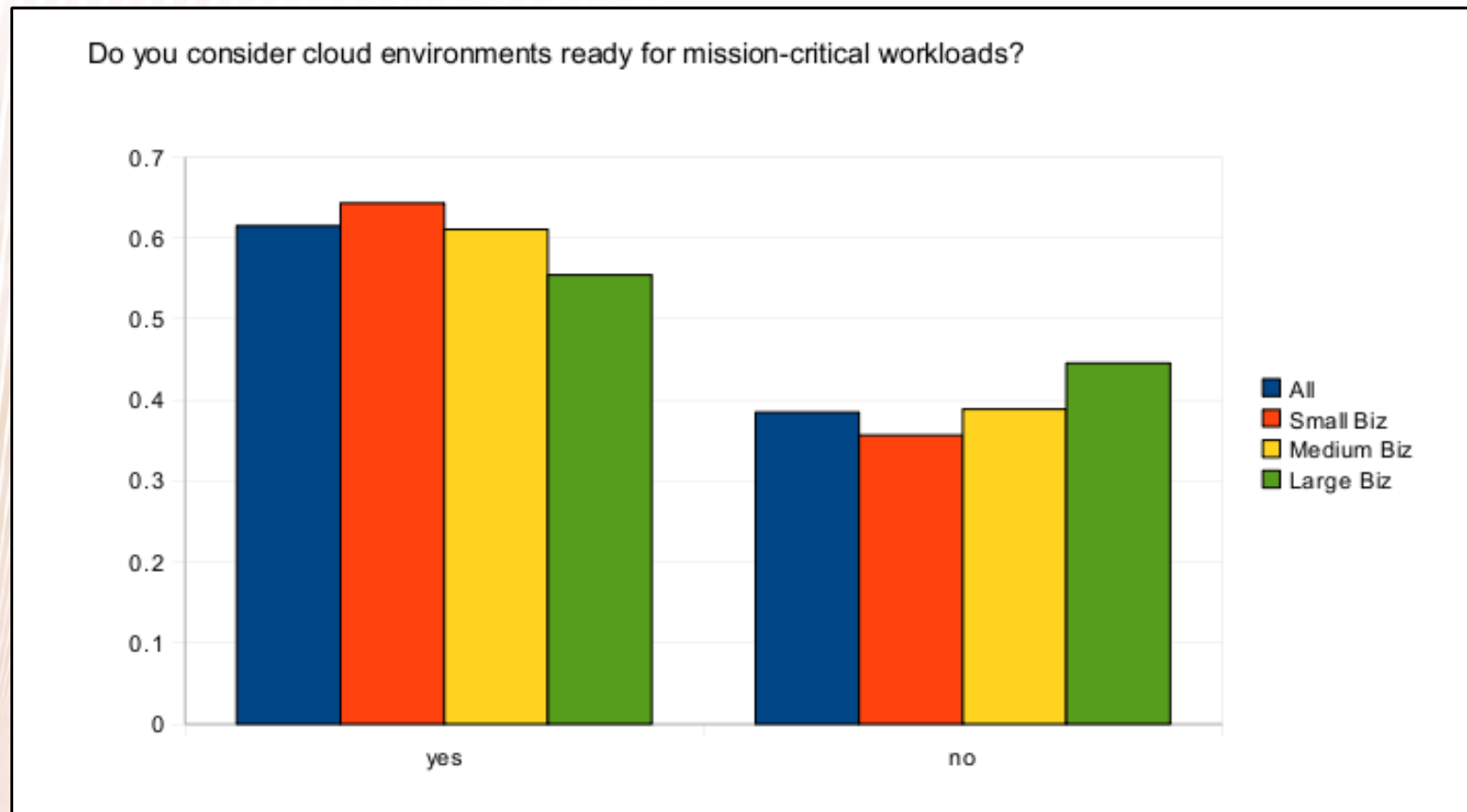
Ubuntu on Amazon EC2



- Beta available since Janvier
- about 2000 participants to the mailing list
- Final version with release of 9.04, 3 images:
 - 8.04LTS
 - 8.10
 - 9.04 (slight delay)
- Free* et maintained
With the same life-cycle as Ubuntu Server Edition
- Supported
Canonical offers support for Amazon Machine Images
- Integrated with Landscape:
The next release of Landscape (Q1'09) will include AMI management

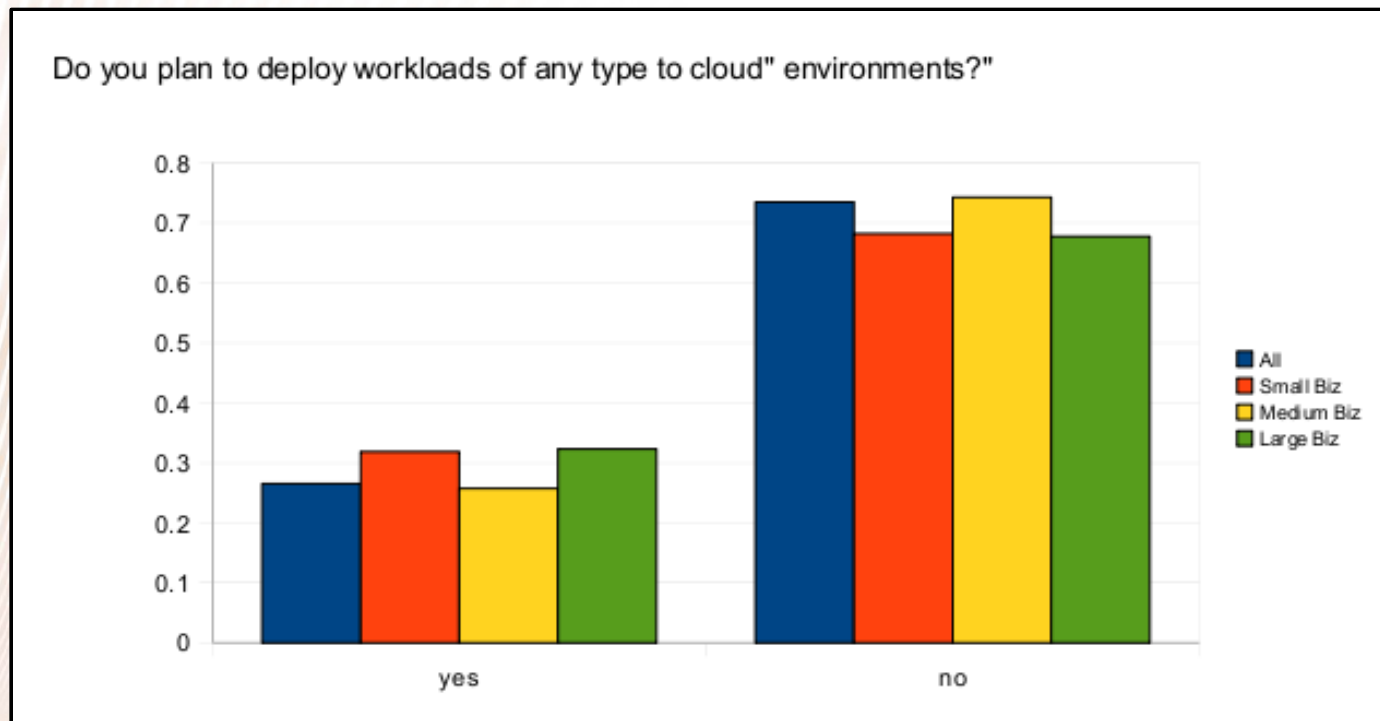
* Amazon bills usage of its infrastructure totally independantly of Canonical

Is the cloud ready?



<http://www.ubuntu.com/products/whatisubuntu/serveredition/surveyresults-view>

Will they deploy on cloud?



<http://www.ubuntu.com/products/whatisubuntu/serveredition/surveyresults-view>

Why not?



- Scared of vendor lock-in
- Worried about data exposure
- Cost is too high
- Use cloud only for external applications
- Existing investments have to be used

However, cloud computing is a natural tendency toward a service model...

3 rules happy on the cloud



Rule 1

I want to run the service on my own machines.

Rule 2

I want to easily switch between my machines and a cloud provider.

Rule 3

I want to easily switch between cloud providers.

Freedom to the cloud!



- Only free software will allow enforcement of these 3 rules
- Commoditization is our strength
- Our fuel is providing services

Ubuntu Enterprise Cloud (based on Eucalyptus)



- Deploy a cloud in your own network
- First technical preview with Ubuntu 9.04
- Offers Amazon's EC2 main services:
 - Instance model (but using KVM)
 - S3 (network storage)
 - EBS (virtual disks)

Provide free components for cloud computing

Allowing to satisfy, in fine, our

3 rules happy for cloud computing

Koalas eat Eucalyptus leafs



Let the cloud dance

- Allow images to freely move from one cloud to another
- Manage placement rules for automatic load balancing

Let the cloud breathe

- Let server suspend and resume automatically base on ressource usage
- Sub contract non critical loads dynamically when needed

→ Roadmap for Ubuntu 9.10 (Karmic Koala) and next versions



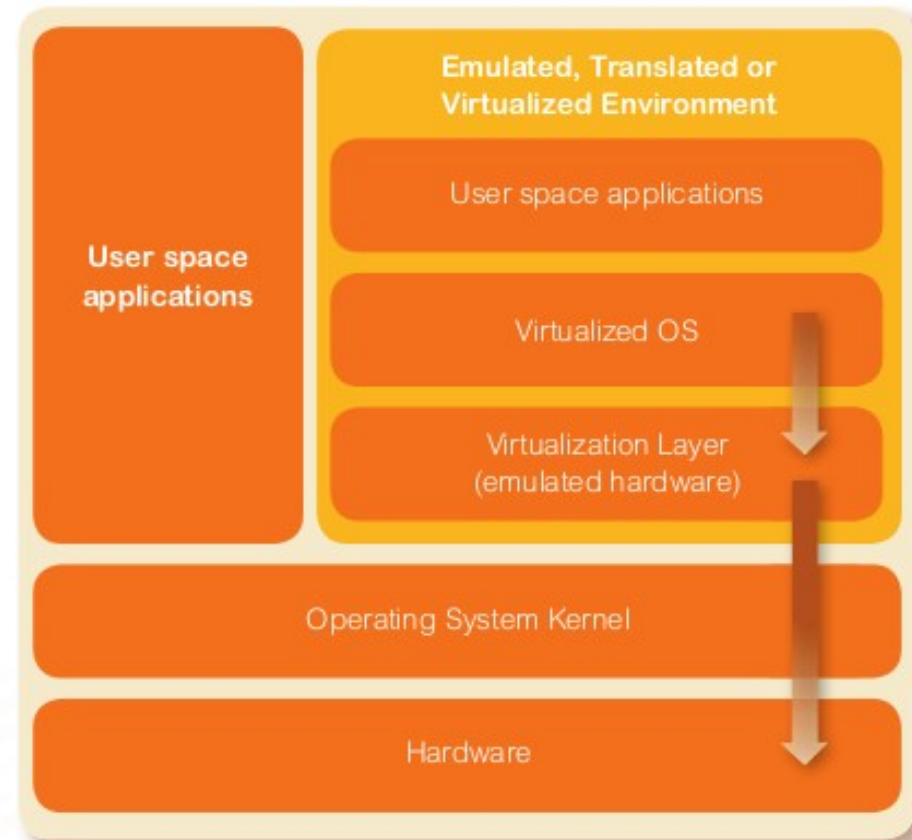
Merci

Hypervisor: KVM



Why ?

- No special kernel
- Works with any AMD-V or Intel-VT equipped machine (90% of the market)
- Can be managed remotely
- VirtIO optimizations: performs almost at same speed as bare hardware
- Can be use to run all x86 or x86_64 market OS
- Code included in the vanilla kernel
- Ubuntu was the first distribution to officially select KVM, more than a year ago...



Management: Libvirt



- One interface, multiple hypervisors
 - KVM (!)
 - Xen
 - QEMU
 - LXC
 - OpenVZ
 - UML
- Remote management with TLS et X509, Kerberos, SASL
- CIM compatible (DMTF)
- API in C, Python, etc...
- Storage management too
 - IDE
 - SCSI
 - USB
 - Fibre
 - LVM
 - ISCSI
 - NFS
 - ...
- XML configuration

KVM + Libvirt: Advanced functions



- Live migration from one physical server to another
- Dynamic resources allocation
RAM/CPU
(for supporting OS)
- Imbrication
Virtual machines within virtual machines (9.04)
- PCI passthrough
Direct access to dedicated PCI hardware (9.04)
- Kernel shared memory (KSM)
Identical memory blocks are aggregated between different virtual machines (9.04)

JeOS: Ubuntu's modularity



- A specific kernel
- A minimal installation
 - 100 Mo of packages to install
 - 300 Mo once installed
- Benefits:
 - Better performances on identical setup
 - Smaller footprint (less disk and RAM)
 - Less update (since it has less packages)
- Thousands of appliances built on top of JeOS
 - VMWare Market Place
 - Amazon EC2

VMBuilder: the appliance generator



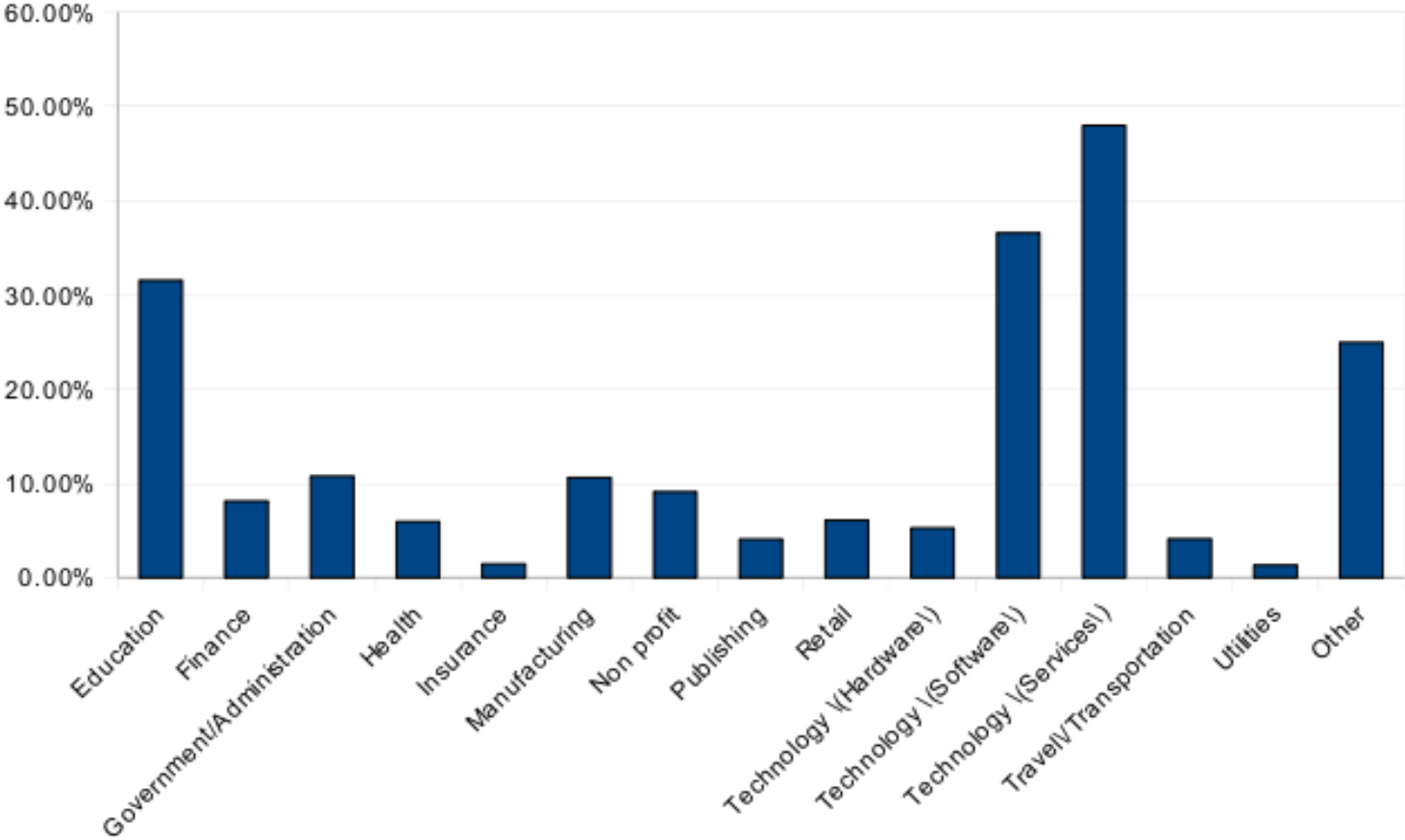
- Command line utility to create VMs in less than a minute
- Supports: KVM, Xen, VMWare, VMWare ESX (9.04), Amazon EC2
- Almost everything is configurable
- Examples:
 - Dynamic customized VM creation for ISP
 - Included in a make script for ISV
 - Used for rapid deployment in Grid type environments

Tutorial: <https://help.ubuntu.com/community/JeOSVMBuilder>

Ubuntu - Which Industries?



What sector is your organization involved in?



What Sized Organisations?



Graphs

Please estimate how many of the following server OS' are running in your organization.

