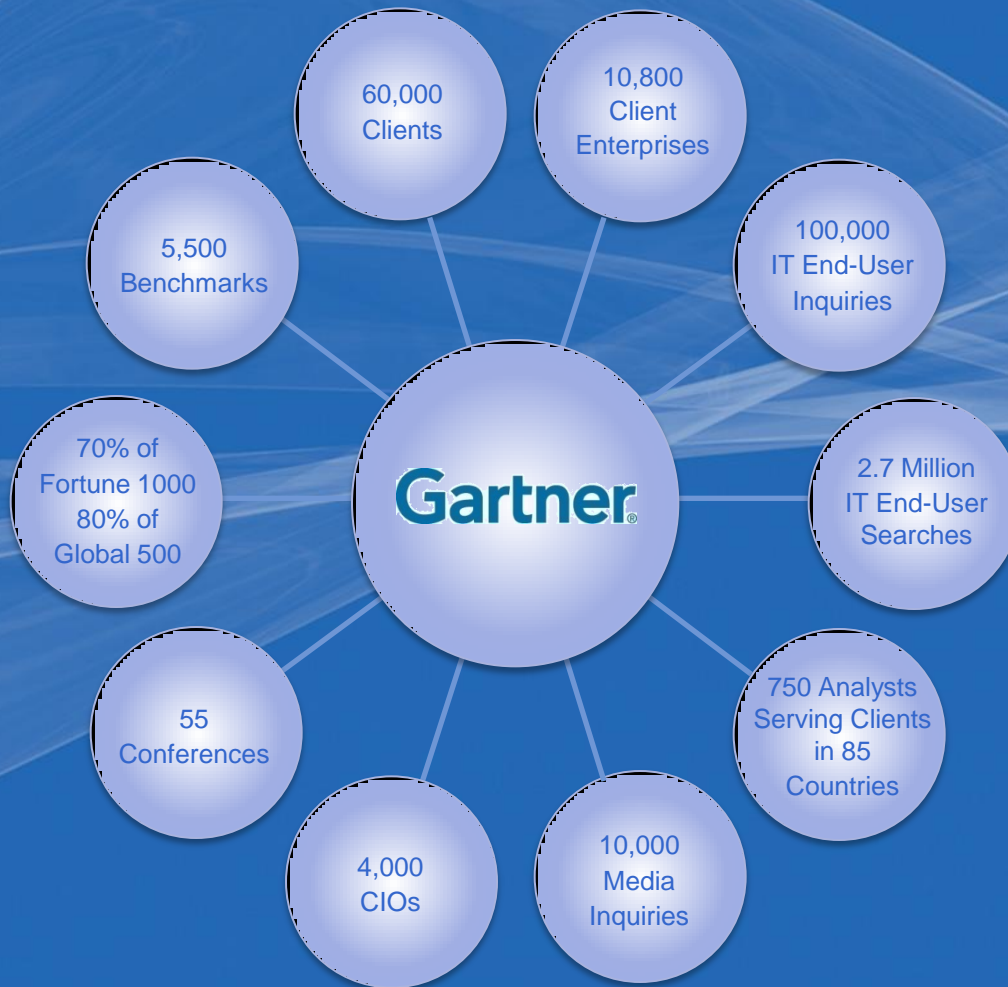


Welcome!

Thank you for joining us on today's Gartner webinar.





Private Cloud Computing: Driving a Strategy

January 20, 2011

Thomas Bittman

Gartner[®]

Why Private Cloud Computing?

Cloud is immature

Most service needs can't be met yet, and security, service-level issues still exist.

Cloud is evolutionary

Private cloud computing offers a stepwise migration to cloud computing — hybrid will become the norm.

Scale isn't everything

Quality, security, service levels and specific market needs will drive many solutions.

Cloud isn't always cheap

Service providers may have scale, but they also have profit needs.



However ...

IaaS vs. PaaS/SaaS

IaaS can be a tactical solution when a strategic change may be needed.

Private cloud is hard

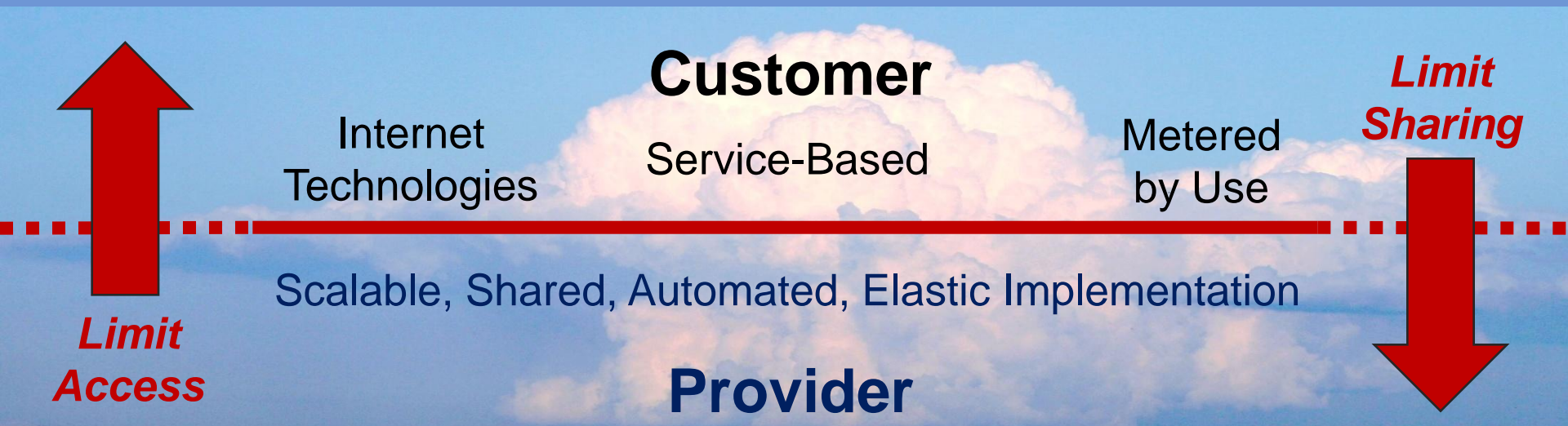
Automation, processes, funding model, service catalog, culture, politics — all are difficult.

Private cloud isn't cheap

Re-architecting infrastructure and data center management requires investment.

Cloud Computing: Definition and Key Attributes

A style of computing where scalable and elastic IT-enabled capabilities are delivered as a service to customers using Internet technologies

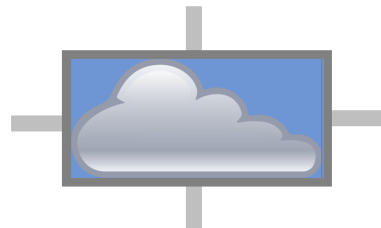


Public Cloud Service



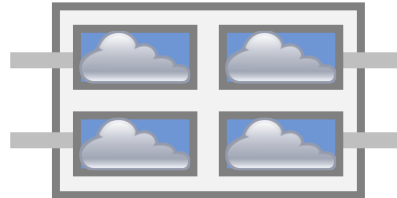
- Open access
- Fully shared

Community Cloud Service



- Limited access

"Virtual" Private Cloud Service



- Open access
- Limited sharing

Private Cloud Service



- Closed access

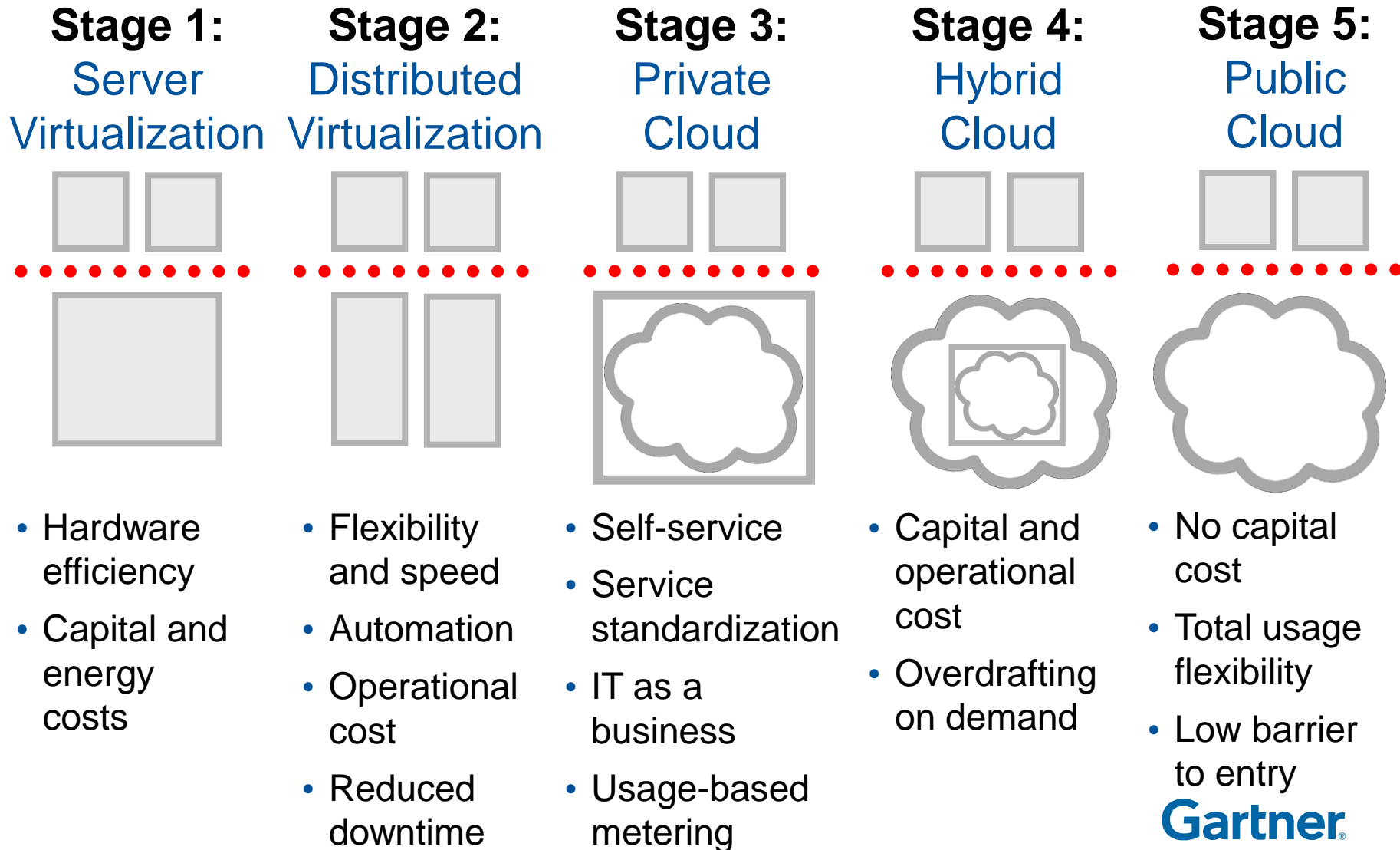
Virtualization Is a Modernization Catalyst and Unlocks Cloud Computing

Cloud-Computing Attributes:
Service-Based
Scalable and Elastic
Shared
Metered by Use
Internet Technologies

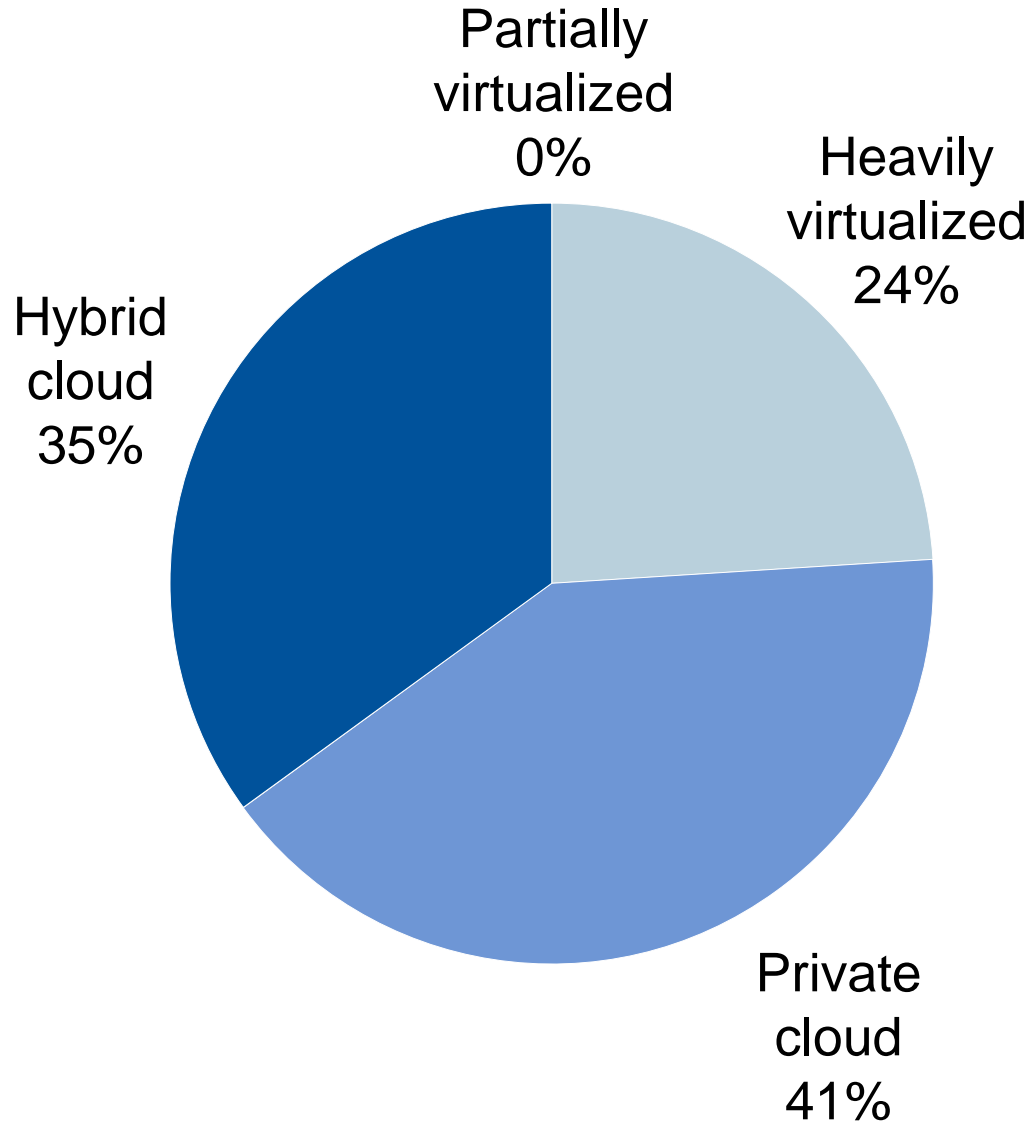


- Abstracts implementation details
- Forces service-level relationship
- From hoster to services provider
- Enables fast provisioning and resource flexibility
- Enables hardware sharing
- Enables economies of scale
- Breaks traditional software pricing and licensing models
- Motivates usage metering

Virtualization Leads Inexorably to Cloud Computing



Virtualization and Private Cloud Roadmap Plans



Gartner Data Center Conference Poll, December 2010:

*By 2015, how would you describe your virtualization progress (choose the one most applicable)?
(n=55)*

What Does Private Cloud Look Like?



User
management

Limit access, set user
policies



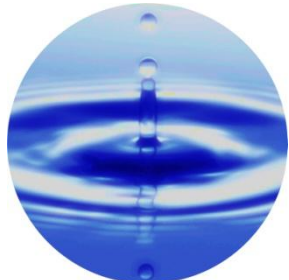
Self-service
catalog and
pricing

Menu of offerings, from raw
compute to ready-to-run
application images



Service
automation and
usage metering

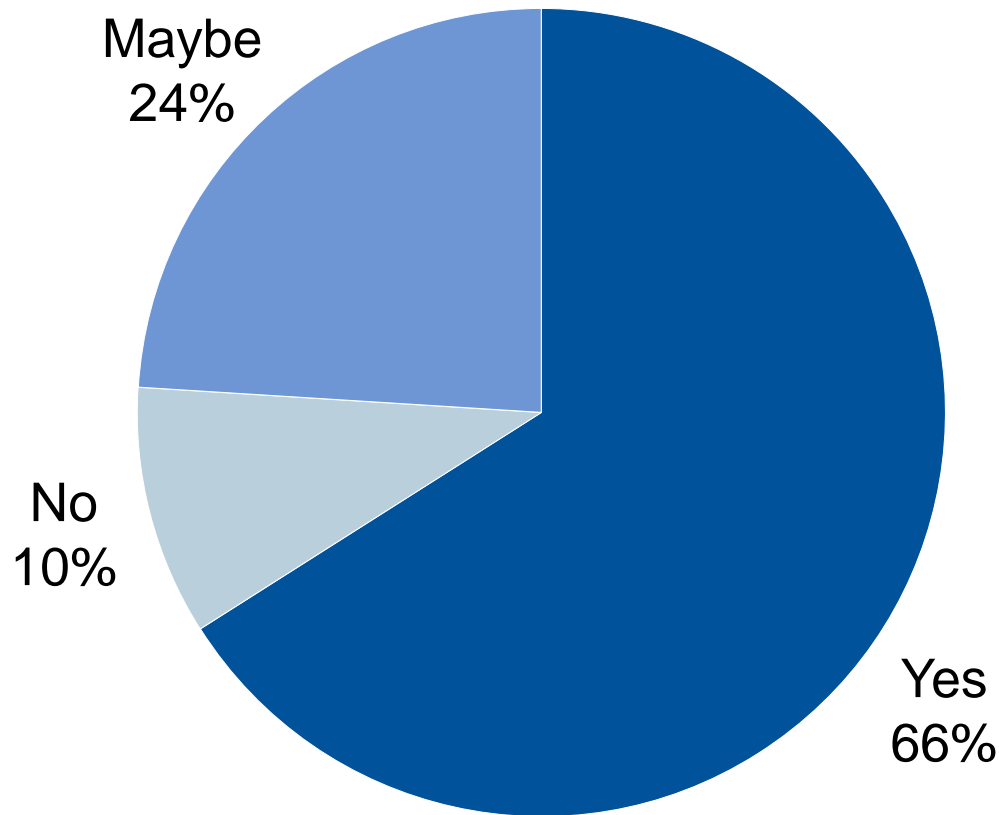
Automate service life cycle
from provisioning
to retirement



Resource
pool

"Virtualize" enterprise
resources (and not just
with VMs)

Private Cloud Intentions



**Gartner Data Center
Conference Poll,
December 2010:**

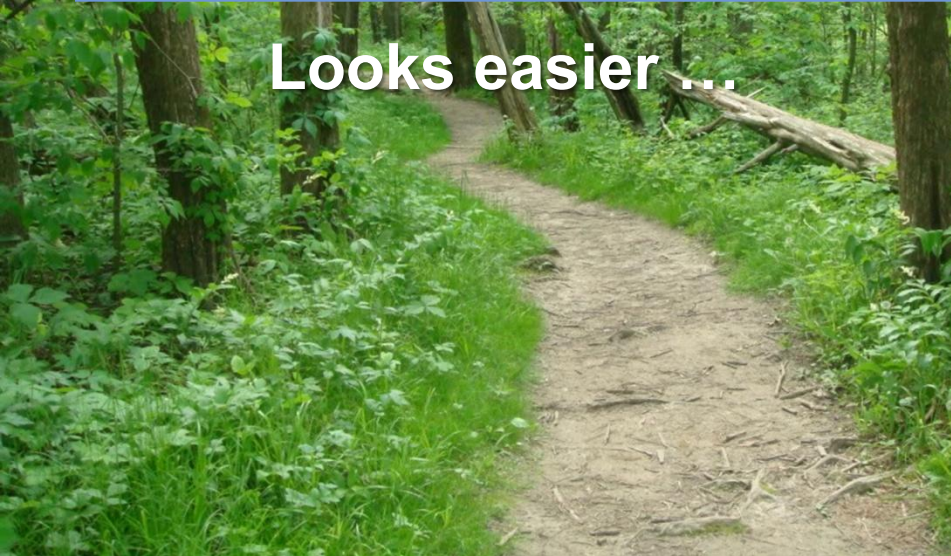
*Will your enterprise be
pursuing a private cloud
computing strategy by
2014?
(n=655)*

Strategic Planning Assumption

By 2015, the majority of virtualized deployments will evolve to support some private cloud computing capabilities, but less than 20% will be "complete" private cloud deployments.

Choosing the Right Path

Looks easier ...



Infrastructure as a Service

- **Easier:** To encapsulate an application, *but* ...
- **Harder:** New applications will require traditional development techniques — even for the cloud
- **Tactical:** The right solution for a static/legacy application — but not for an evolving, dynamic application

Looks harder ...



Platform as a Service

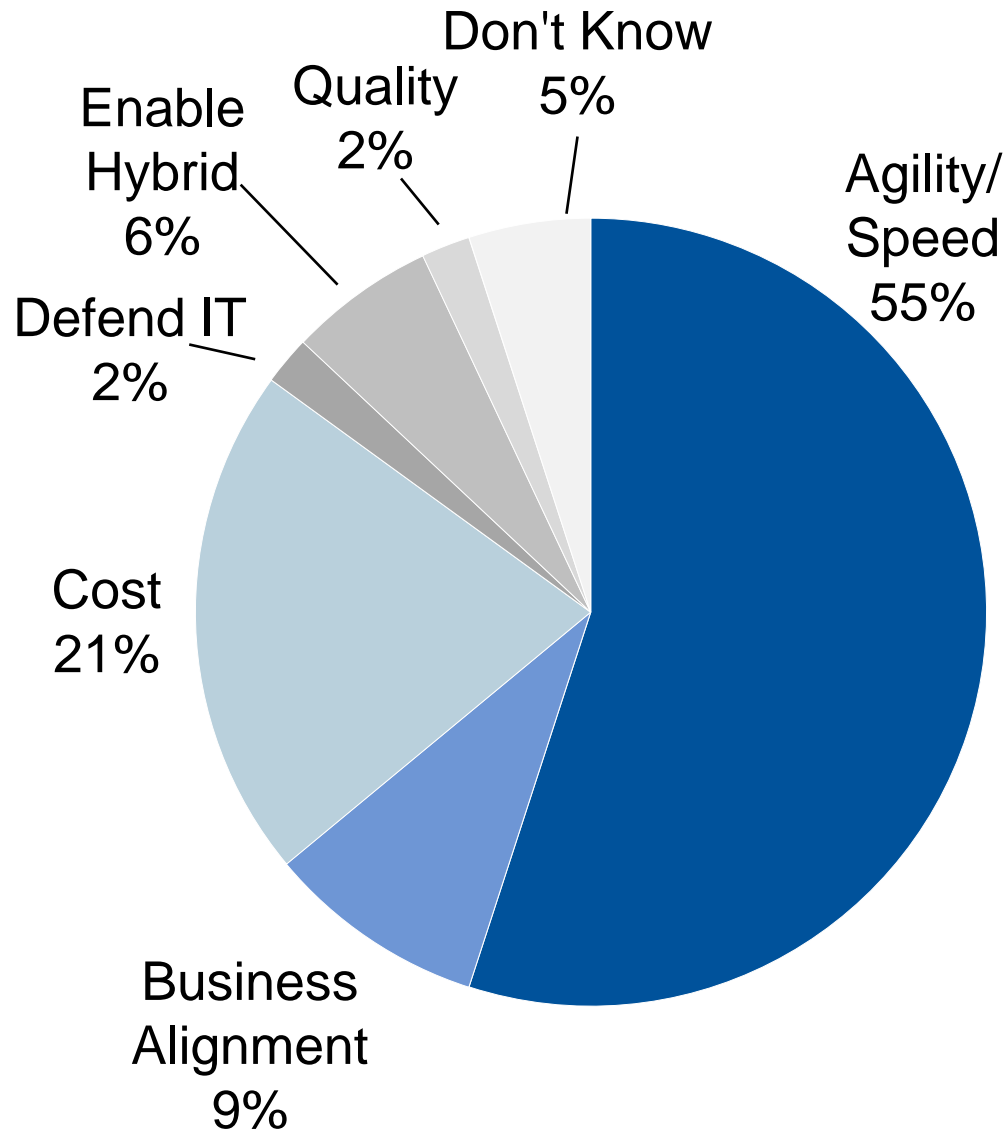
- **Harder:** Requires applications to be cloud-aware and cloud-enabled, *but* ...
- **Easier:** To develop and maintain new applications leveraging cloud services
- **Strategic:** Enables cloud-enabled scaling and flexibility

Strategic Planning Assumption

Through 2015, more than 90% of private cloud computing deployments will be for infrastructure as a service.

By 2015, 20% of the applications that were migrated to infrastructure as a service will be rewritten to leverage a platform as a service offering.

Private Cloud Drivers

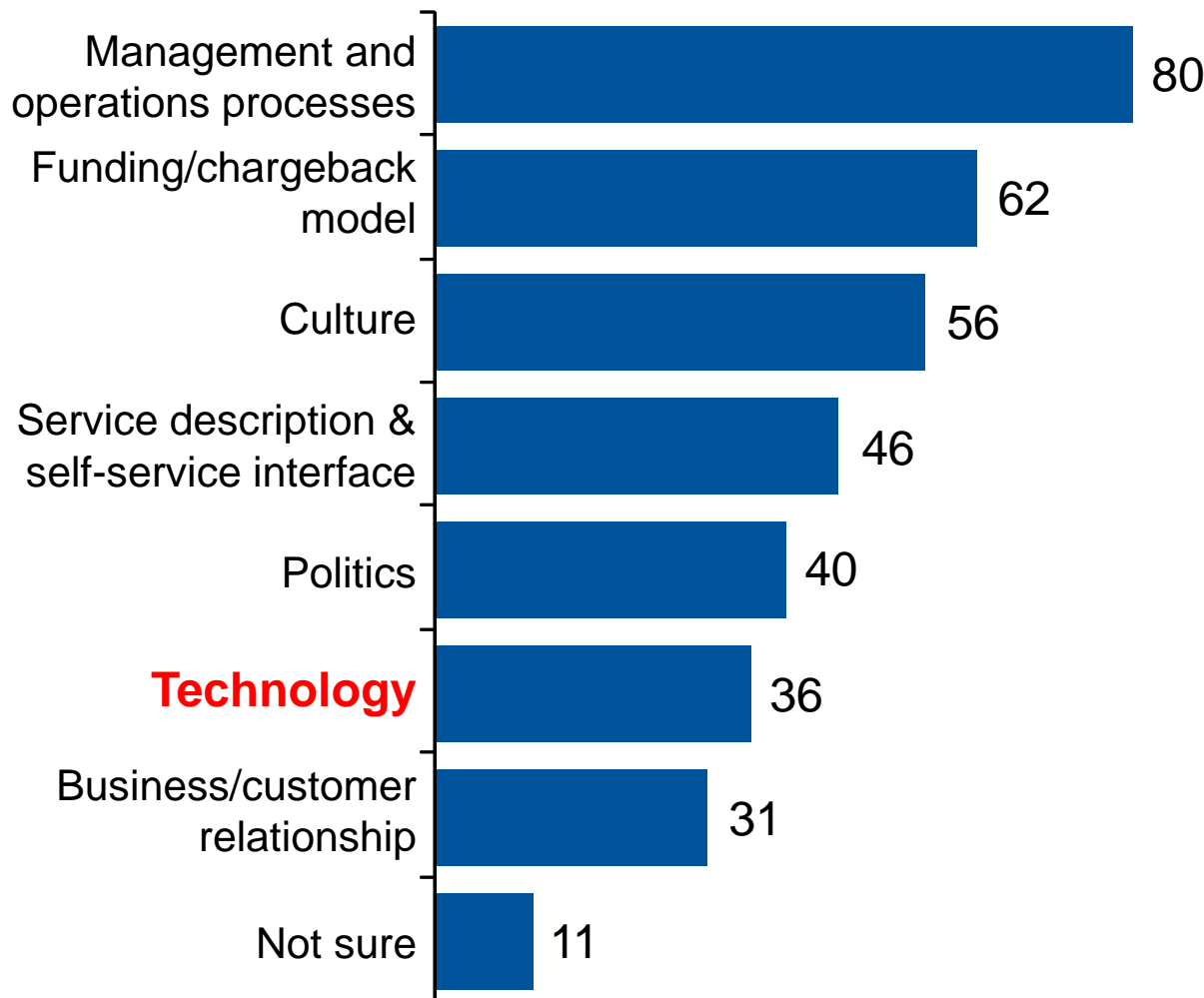


**Gartner Data Center
Conference Poll,
December 2010:
*What is your main
driver in moving to
private clouds?***

N = 170

Private Cloud Computing Challenges

Technology may be the easiest challenge!



What are your three biggest challenges in creating a private cloud computing service?

Gartner Data Center Conference Poll, December 2010

N = 167

Cloud Computing: Private or Public?

The majority of private cloud computing services will evolve to leverage public cloud services in a hybrid mode by 2015.



Choose public

- Proven
- Total costs are less
- Meets requirements:
 - Service-levels
 - Security
 - Legal/data ownership
 - Regulatory compliance
 - Failure remediation/disaster recovery (including if the provider goes out of business)



Build private

- Public service unproven, immature
- Internal costs are lower — including if service use declines precipitously
- A business case can be built for investment
- Provider cannot meet service level, security, legal, compliance, remediation or disaster recovery requirements

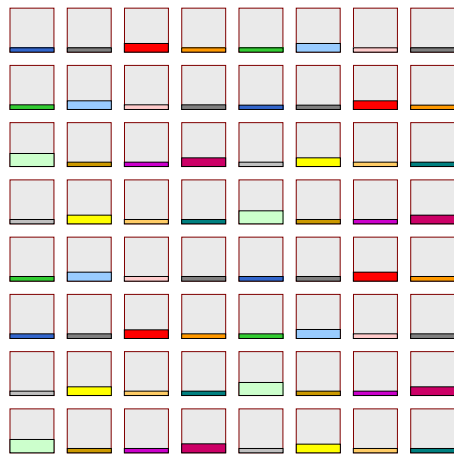
The Evolution of Infrastructure and Private Cloud Computing

Real-Time Infrastructure

Sprawled
Component Orientation

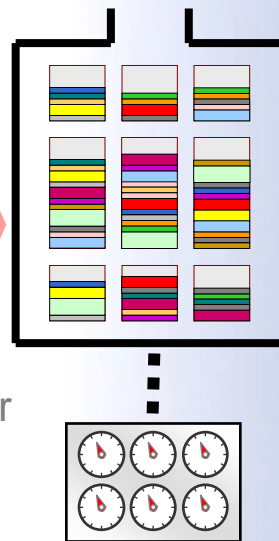
Virtualized
Layer Orientation

Automated
Service Orientation



Asset, power costs down, flexibility up

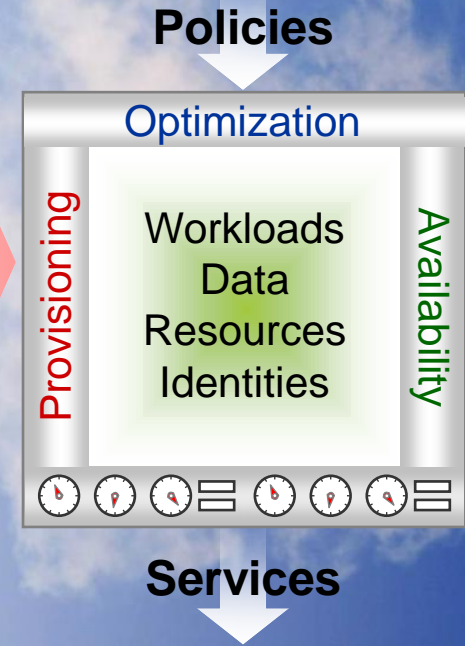
2002



Cloud-enabled

Service levels and agility up

2002 through 2012



2010 through 2020

Gartner

Private Cloud Computing Enabling Vendors: Points of Origin

Virtualization Management

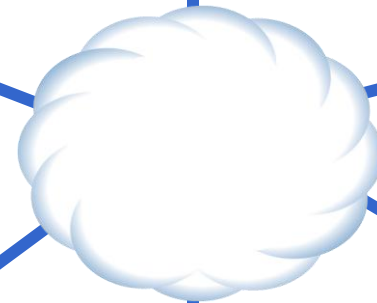
Akorri · CiRBA ·
DynamicOps · Hyper9 ·
fluidOps · ManageIQ ·
Quest Software · Reflex
Systems · rPath · Veeam ·
Virsto · Virtual Instruments ·
VKernel · VMTurbo ·
Xangati

Virtualization Infrastructure

Citrix · Parallels · VMware

Grid and Cluster

Adaptive Computing ·
Appistry · Tibco ·
Platform Computing ·
Univa UD



Traditional Management

BMC · CA
Technologies · HP ·
IBM · Netuitive ·
SolarWinds · UC4

Cloud Management

Abiquo · Cloud.com · Cloupia ·
Elastra · Enomaly · Eucalyptus
Systems · Flexiant · Hexagrid ·
Intalio · Joyent · Morph Labs ·
newScale · Nimbula ·
OSS/Nimbus ·
OSS/OpenNebula ·
OSS/OpenStack · RightScale ·
Virtustream · Zimory

Infrastructure Providers

Cisco · Dell ·
Microsoft · Novell ·
Oracle · Red Hat

Strategic Planning Assumption

By 2015, six vendors will account for at least 50% of private cloud computing revenue.

Private Cloud Architecture

Access Management

- Self-service/programmable interface
- Subscriber management
- Identity and access management

Service Management

- Service catalog
- Service-level management
- Service demand and financial management

Service Governor

Resource Management

- Configuration management
- Performance management
- Security

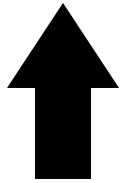
Resources

- Physical and virtual resources
- Component managers

External Management APIs



Private Cloud Computing: Getting From Here to There



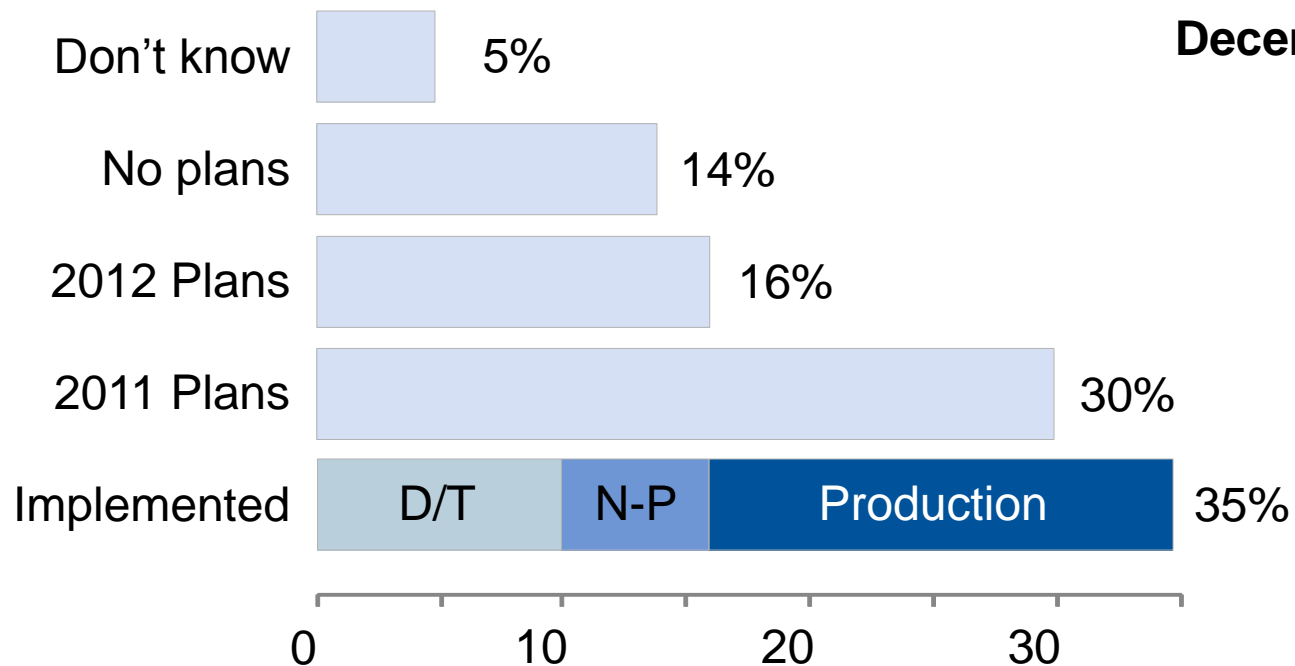
**You Are
Here**



1. Service inventory and architecture
2. Service levels/requirements
3. Determine service costs
4. Build service road maps
5. Evaluate (and predict) cloud services
6. Build a business case
7. If ROI, build a private cloud service
8. Constantly benchmark

Private Cloud Computing Progress

Gartner Data Center
Conference Poll,
December 2010



Where are you with private cloud computing? (n=81)

Action Plans

CIOs and I&O leaders should ...

- **Now**

- Focus early on strong leadership — an organizational ability to evolve culturally and politically is critical.
- Portfolio your services (inventory, SLAs, costs).
- Develop strategies for services and private cloud.

- **Your Next 90 Days**

- Examine PaaS before going IaaS.
- Be careful of vendor capability gaps — determine your private cloud requirements before you align your strategy with a vendor.

- **Your Next 12 Months**

- Based on your requirements, consider a private cloud architecture that is less than perfectly "cloud."
- Think long-term and hybrid when developing a private cloud architecture.

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