

2010 TREND MICRO ENTERPRISE SUMMIT

Securing the Virtualized Enterprise - Preparing for the Cloud

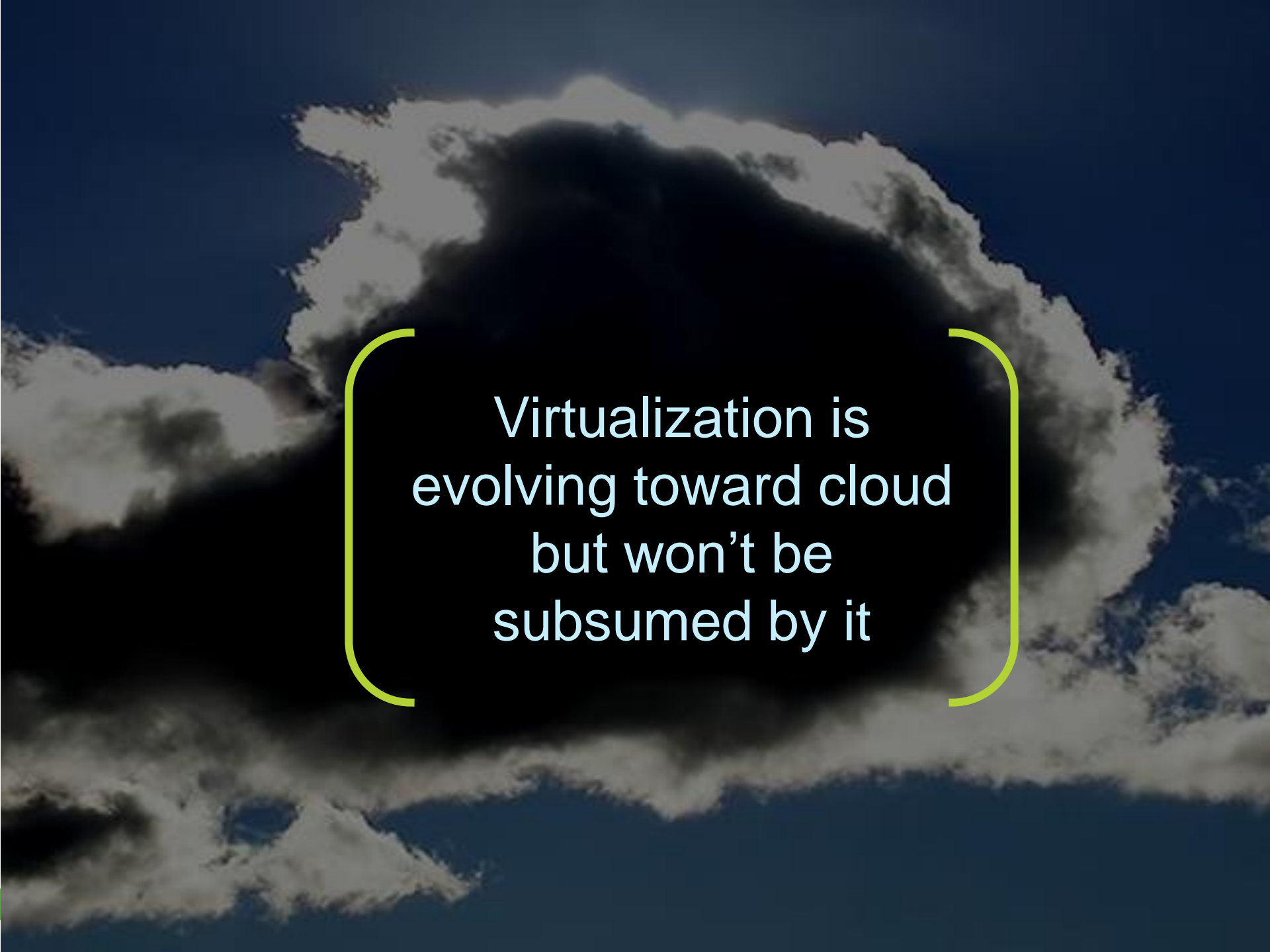
Understanding Virtualization and Cloud in the Enterprise

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Virtualization is
evolving toward cloud
but won't be
subsumed by it

What's different about the cloud?

Typical web site

Your app: virtualized

- 3-tier deployment in your compute pool
- Significant capacity against forecasts traffic pattern
- Clustered database
- Fixed IP addresses
- Oracle or IBM app servers
- 99.999% SLA
- 30 ms latency QoS SLA
- Our security

Your app: in the cloud

- All VMs somewhere on the West coast
- Elastic scaling. Low start cost but big traffic = big bill
- Single database (no clustering)
- Elastic IP addresses (that expire)
- Open source app servers
- 99.95% SLA
- No QoS SLA
- Semi-secure, multitenant environment

What's different about the cloud?

HPC

Your app: Virtualized

- Grid-based app
- Dedicated environment (servers and storage)
- Dedicated network (low latency between servers and developers)
- Large dedicated, physical nodes
- High speed storage connectivity
- Tiered, high capacity, contiguous storage environment
- 99.999% SLA

Your app: in the cloud

- Grid-based, but difficult to set up
- Shared environment (commodity servers and storage)
- Shared network (with frequently busy neighbors)
- Small nodes that can disappear... at any time
- No storage latency SLA
- Block storage (local hard drive), Object storage (on slow network)
- “Where'd my nodes go?”

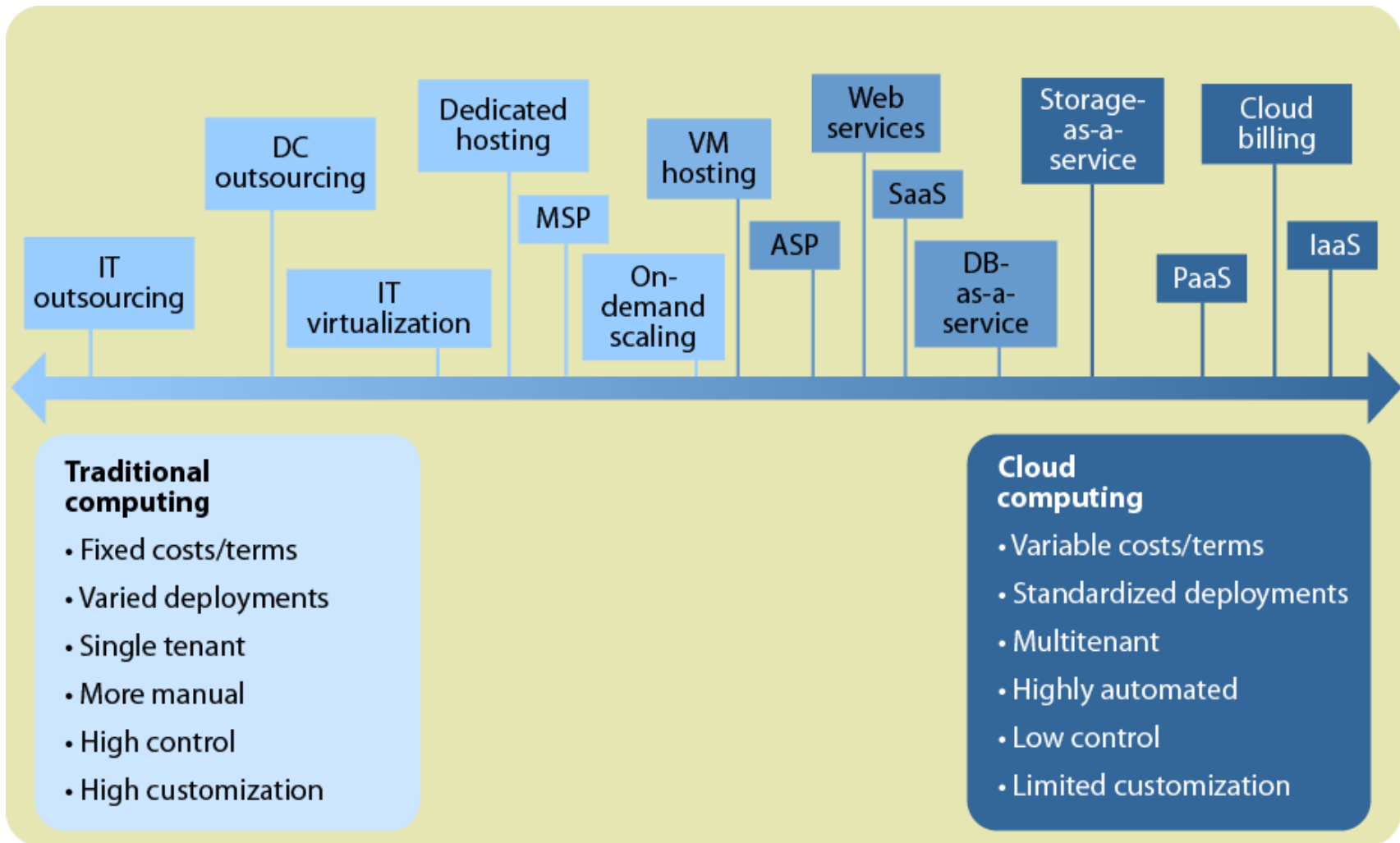
Four myths about the cloud that you shouldn't fall for

1. Cloud = server virtualization
2. Cloud = hosting, or outsourcing or the future of both
3. All cloud computing platforms are created equal
4. Clouds cost less

Definition: cloud computing

- ▶ A standardized IT capability (services, software, or infrastructure) consumed in a pay-per-use, self-service way

Not everything is or should be cloud



August 2010 “Justifying Your Cloud Investment: Test And Development”

The realities of cloud economics

Optics matter

Clouds cost more, the more you use them

Clouds allow you to bring the bill down to zero

Public cloud is about two things

Agility

- Simplicity
- Speed of deploy
- Flexibility

Outsourcing

- CapEx to OpEx
- Freeing up people
- Focus on business innovation

What unites these aims:

- Standardization of the function or need
- Growing complexity and cost of on-premise operation
- Financial pressures

Cloud's Achilles heel:

- Limited customization
- You adapt to the cloud; it doesn't adapt to you
- Local privacy and protectionist bounds

Secure cloud computing is an uneven handshake

**Vendor
responsibility**

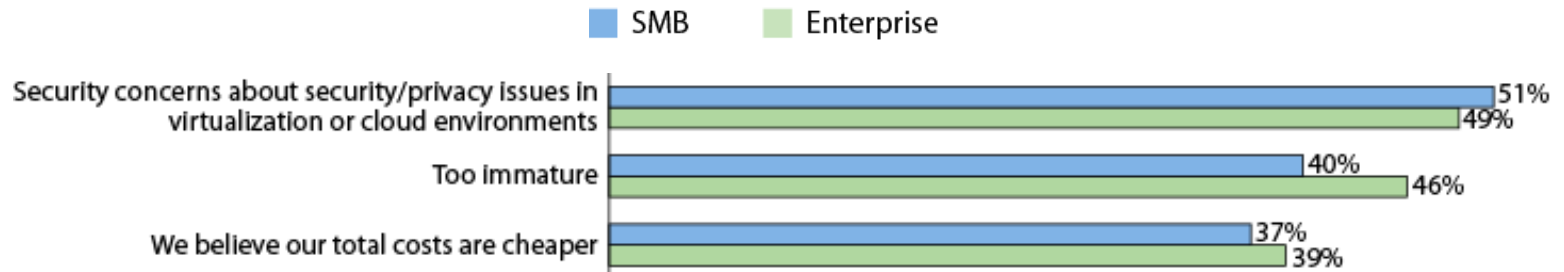


**Business
responsibility**

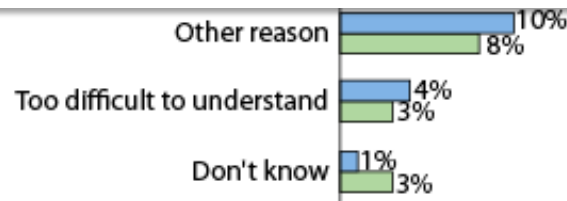
- Physical support infrastructure (facilities, rack space, power, cooling, cabling, etc)
- Abstracted services (SaaS application, hosted framework, hypervisor, virtual firewall,, etc)
- Physical and virtual infrastructure security and availability (servers, storage, network bandwidth, etc)
- Basic monitoring
- Element management
- Your application
- Architectural views (e.g., scalability, availability, recovery, data quality, and security)
- Governance (who has authority / responsibility to make changes and how)
- Lifecycle management (birth, growth, failure, and recovery)
- Enterprise integration (Identity management, access control, etc.)
- Testing, monitoring, diagnosis, and verification
- Network of metadata (categories, capabilities, configurations, and dependencies)

Most enterprises don't trust public clouds

"Why isn't your firm interested in pay-per-use hosting of virtual servers (also known as cloud computing)?"



Thus:
They want private cloud



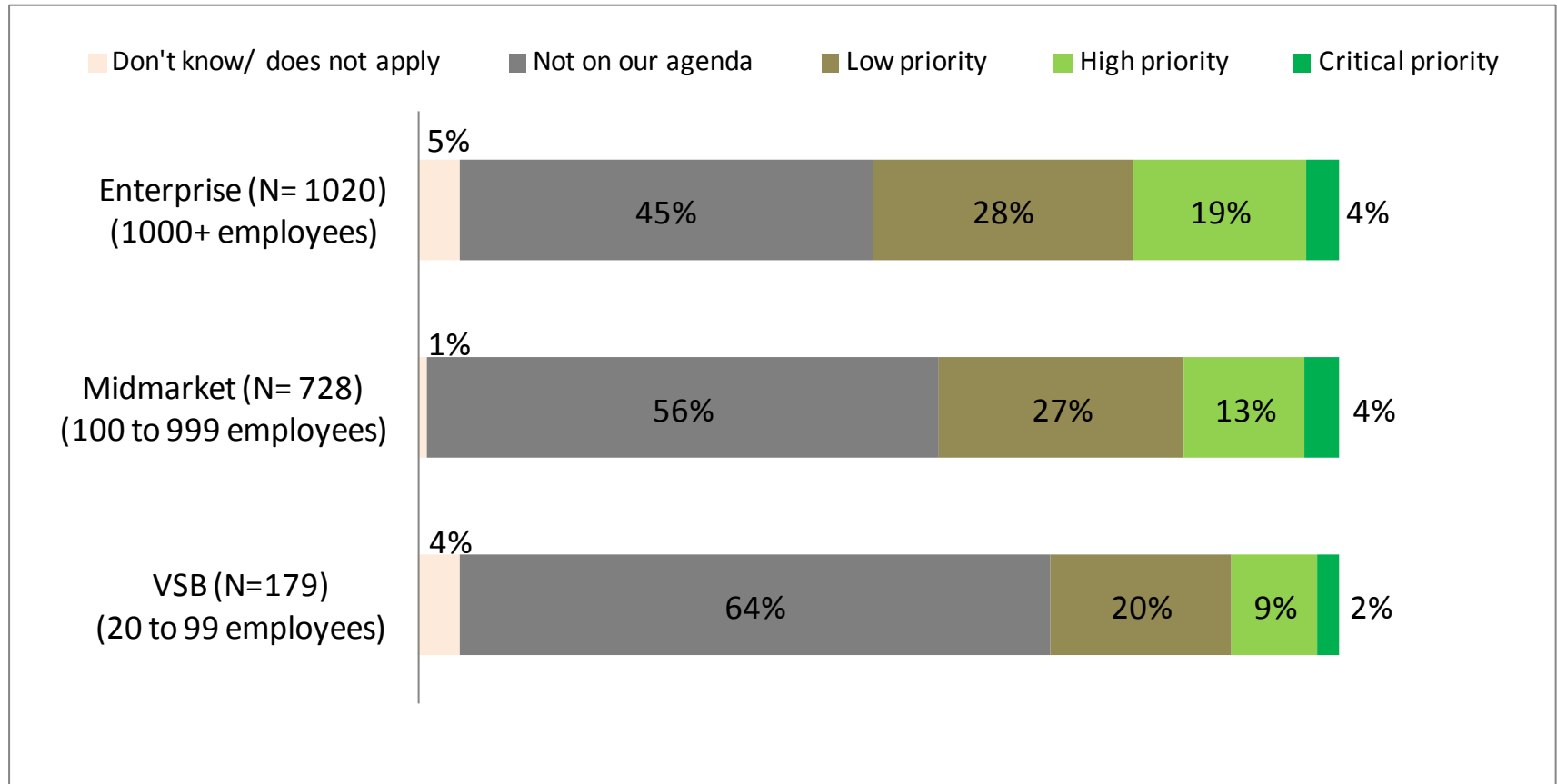
Base: 267 SMB and 275 enterprise hardware decision-makers

Source: Enterprise and SMB North America and European Hardware Survey, Q4 2009

Private clouds are a top priority for 25% of large enterprises

Which of the following initiatives are likely to be your firm's/organization's top hardware/IT infrastructure priorities over the next 12 months?

Build an internal or private cloud operated by IT (not a service provider)



Base: North American and European hardware decision-makers

Source: Enterprise And SMB Hardware Survey , North America And Europe, Q3 2009

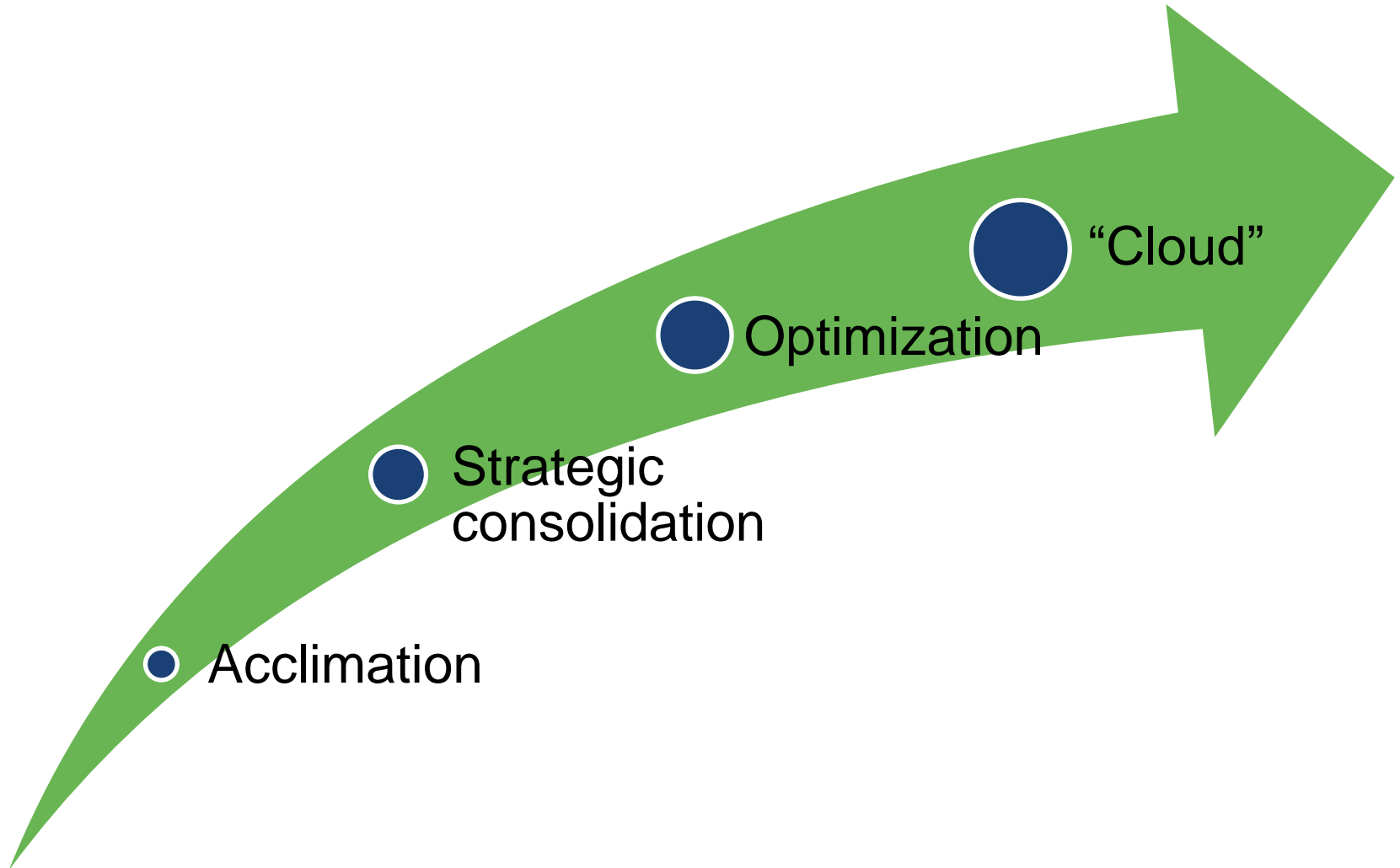
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Internal cloud reality check: Barely any enterprises are ready for it

- Cloud infrastructure requires:
 - Standardized operating procedures.
 - Fully automated deployment and management.
 - Self-service access for deployers.
 - Business units sharing the same infrastructure.

Only **5%** of enterprises are here today

Virtualization maturity is a journey



Virtualization maturity stages

- **Stage 1: Acclimation**
 - Get comfortable with it as a concept and tool
 - Deploy for test/dev
 - Deploy for non-business critical DR
 - Some production deployments
 - but tactical
 - No change to operations processes
 - Limited virtualization tool deployments
- **Stage 2: Strategic consolidation**
 - Comfortable with concept, use, maturity, stability
 - Shift mindset from server to virtual server
 - Spread production deployments widely
 - Begin deployment for some business critical DR
 - Painfully transition from server sprawl to virtual server lifecycle management
 - Experimenting with live migration and automation.

Virtualization maturity stages

■ **Stage 3: VM movement**

- Using live migration, starting to trust policy-based automation
- Can utilization rates be increased?
- Deploy for business critical DR
- Begin bifurcating applications between priority and non-priority
- Developing new operational efficiencies
- Process improvement spreading/butting up against: network, storage, security, development

■ **Stage 4: Internal Cloud**

- Highly automated
- Multitenant
- Chargeback/utility tracking
- SLA and QoS focus
- Self-service provisioning
 - Test & Dev
 - Then production
- Some mission critical DR deploys

Virtualization maturity takes time

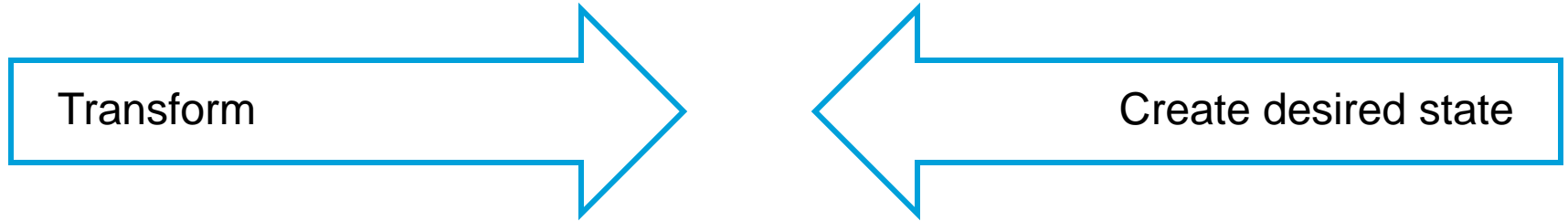


The struggle: how to get there from here...faster

	Current state
Model	IT-centric
Time to deploy	Wks-months
Standardization	None-minimal
Utilization	5-30%
Operations	Mostly manual
Application model	Various (all)
Business services	Undefined

Desired state
Business centric
Hours
Strict
70-99% with on-demand capacity
Fully automated
Composable templates, SOA
Consistently composed models

Two approaches



Current state
Must drive process change
Retrain and re-skill
Rebuild
Retrofit/overlay
Rationalize
Phase transitions
Result: Slow, expensive

Desired state
Create new processes from business desire
Start new, hire new
New infrastructure
All new tools and dashboards
Leaves legacy behind
Start now
Result: Speed, no continuity

Internal and public aren't the only options

	Public cloud	Hosted cloud	Internal cloud
Where it resides	Internet-connected data centers	Internet-connected data centers	Corporate data center
Tenancy model	Multiple clients	Multiple clients	Single company
VMs reside on	Shared infrastructure	Dedicated but hosted infrastructure*	Dedicated infrastructure
Security model is	Common across all customers, with limited configurability	Common across all customers, with greater configurability	Unique to the customer
Cloud managed by	Provider	Provider or IT ops	IT ops
Infrastructure managed by	Provider	Provider	IT ops
Billed by	Consumption	Monthly for dedicated infrastructure, excess billed by consumption	Consumption-based metering for BU chargeback or allocation

*Infrastructure may be fully dedicated or partially shared.

Source: See the April 2009 “Which Cloud Computing Platform Is Right For You?” report.

Not all clouds are created equal

■ Areas of Choice

- Hypervisor
- Infrastructure type
- Network
- Security capabilities
- Data center type & location
- Management tools provided

■ Areas of Differentiation

- SLA
- QoS guarantees
- Recovery services
- Enterprise connectivity
- Managed services provided
- Additional cloud services provided
- Hybrid options
- Pricing & billing options

Where to start:

Turn test & dev into a self-service center

- Use RBAC deployment tools
 - Surgient, VMware Lab Manager, Life Cycle Manager, HP Insight Orchestration, Tivoli Provisioning Manager
- Maintain library of VM templates
- Leverage resource scheduling tools
- Build to practices that automate promotion to QA, then production

So, what should you do?

Build a cloud leverage team

- Invite your most innovative thinkers
- Use hybrid architectures to optimize deployments
- Build a cloud management model

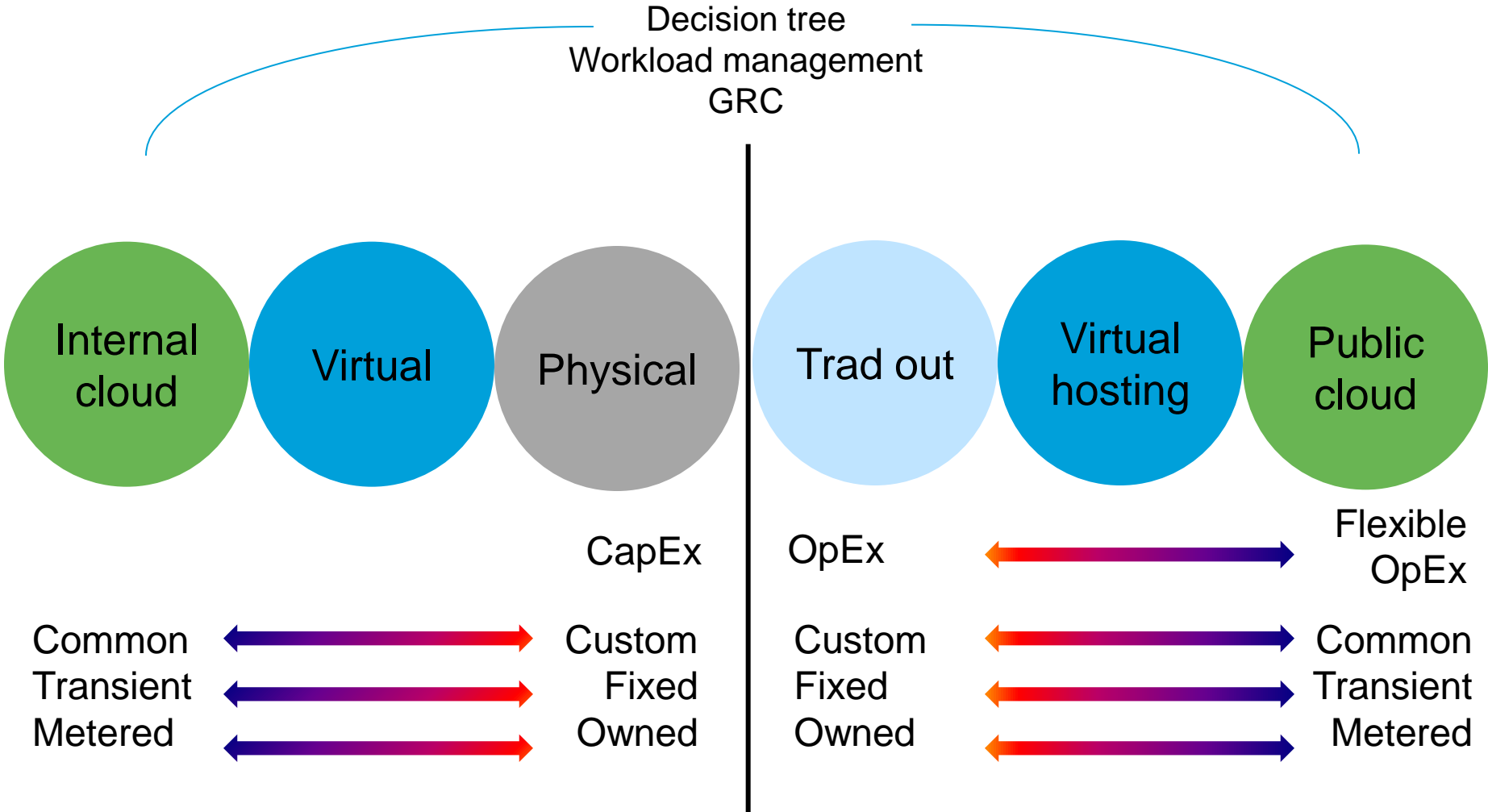
Start in pockets

- Test and development
- New web-based projects (green field)
- HPC (loosely coupled, grid-based)
- Highly volatile web sites

Create a cloud migration road map

- Optimize IT by taking a portfolio approach

Take a portfolio approach



Thank you

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