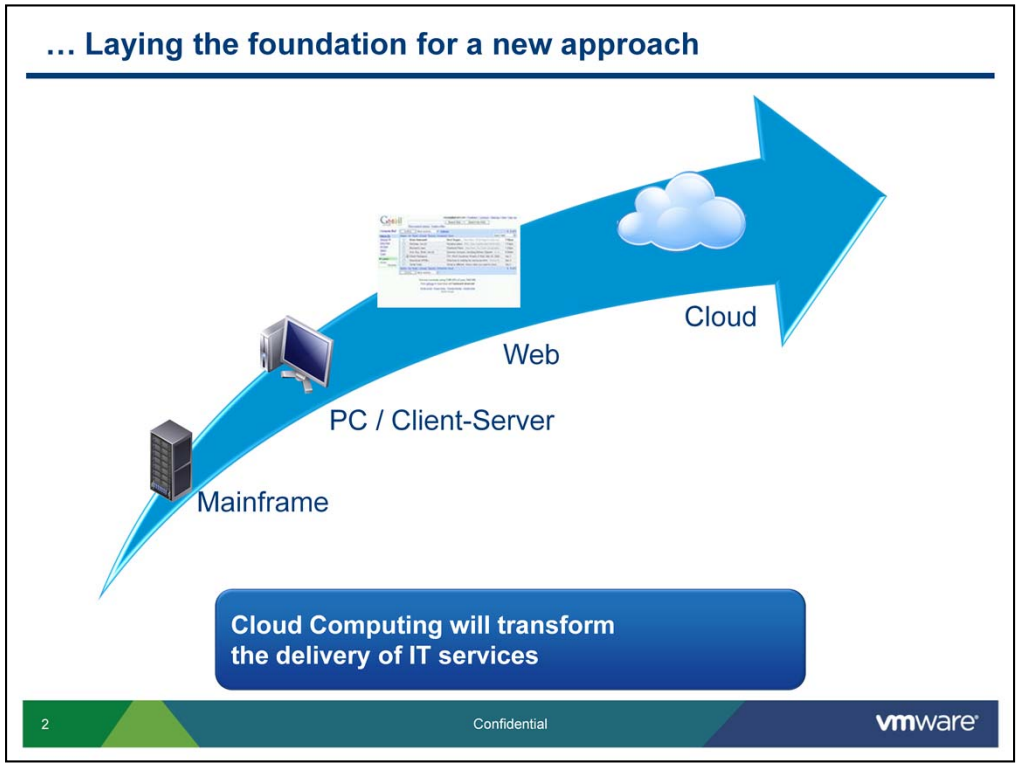
Centralized IT as a Cloud

David Toonders

VMware Director, Systems Engineering

June 7, 2011



That new era is characterized by the promise of cloud computing.

The “Web” completely changed the way we think about consuming services over the internet. But that was only half of the picture. The other half is how those services are delivered. That’s the focus of cloud computing, which completes the transformation of service delivery.

VMware, the customer-proven leader in virtualization, is aggressively helping businesses pave the path to “Cloud Computing”, which promises to be the new era in IT that finally addresses the compounding problem of complexity.

Is It *All* Smoke & Mirrors?

A lot of talk and blowing smoke in the market today. Everything is cloud! Is it really? Let's talk about real demands, real changes…

"IT success is no longer just about delivering cost savings, increased scalability and reduced complexity — it's about having a virtualization strategy that allows us to deliver programs and services that enable the business to be innovative and agile. With a cloud computing environment, we are able to focus on revenue-enhancing activities that directly impact profitability, best practices, and competitive advantage."

— **Tom Peck**
Senior Vice-President & CIO
Levi Strauss & Co.

Gartner CIO Priorities 2011

Ranking of Technologies That CIOs Selected as One of Their Top Five Priorities

CIO Technologies — Ranking of technologies that CIOs selected as one of their top five priorities

Ranking	Preliminary 2011	2010	2009	2008
Cloud Computing	1	2	14	*
Virtualization	2	1	3	3
Mobility	3	9	12	12
Business Intelligence	4	3	1	1
Infrastructure	5	*	*	*
IT Management	6	*	*	*
Network	7	4	6	7
Applications (not ERP)	8	*	*	*
Web 2.0/Social Media	9	5	8	15
Enterprise Applications (ERP)	10	6	2	2

2011 preliminary rankings based on >500 responses received

Gartner

CIOs and IT Operations Want to Virtualize More…

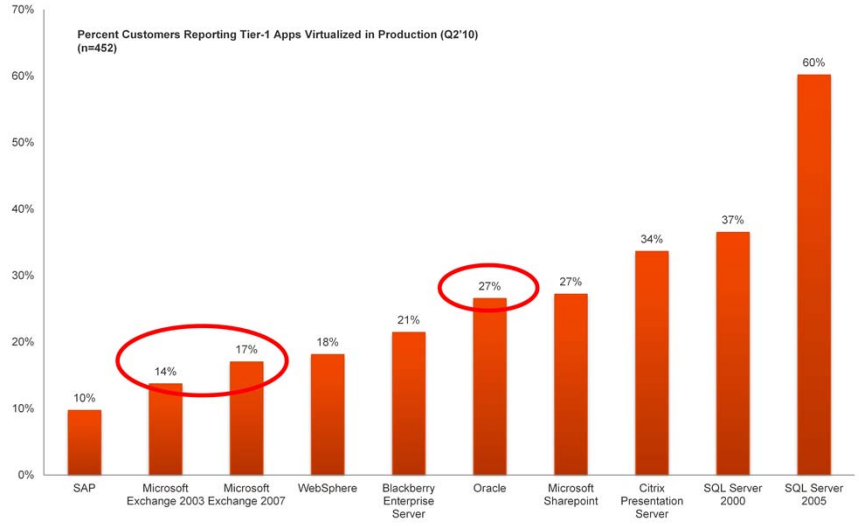
"Our CIO told the team that we need to virtualize as much as we can as soon we can"

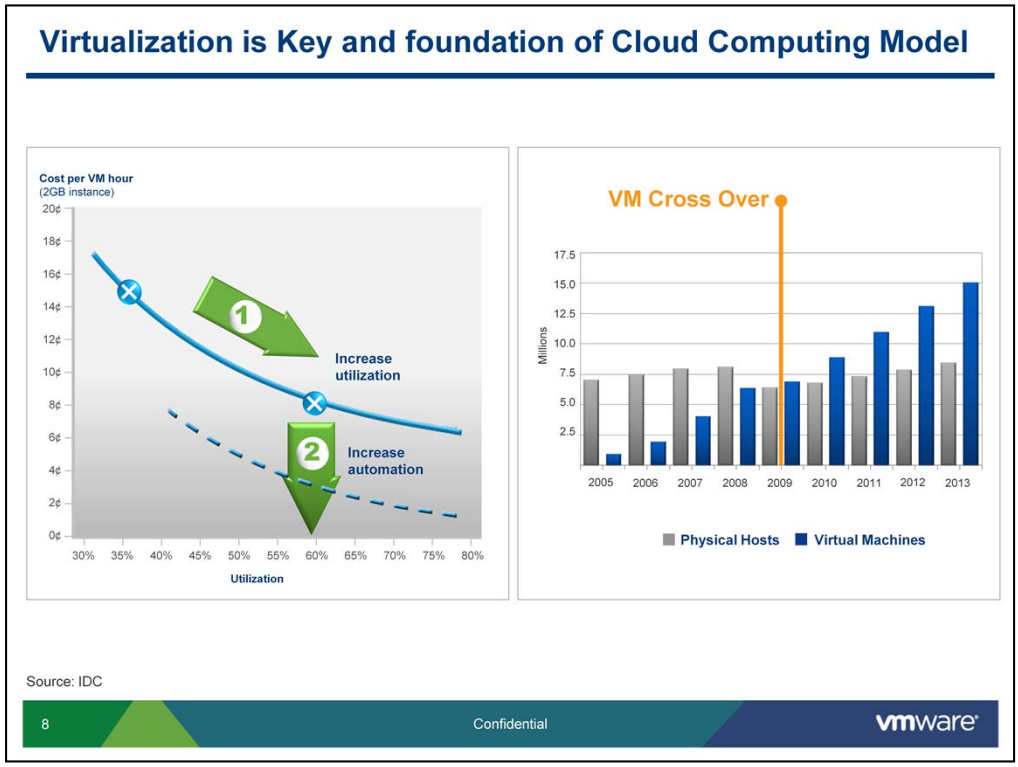
Admin, VMware Customer

Organizations are on the path to 100% virtualization

- **Consolidation and infrastructure efficiency**
- **Simpler management**
- **Built-in availability**
- **Greater Agility**

Virtualizing Tier-1 Apps



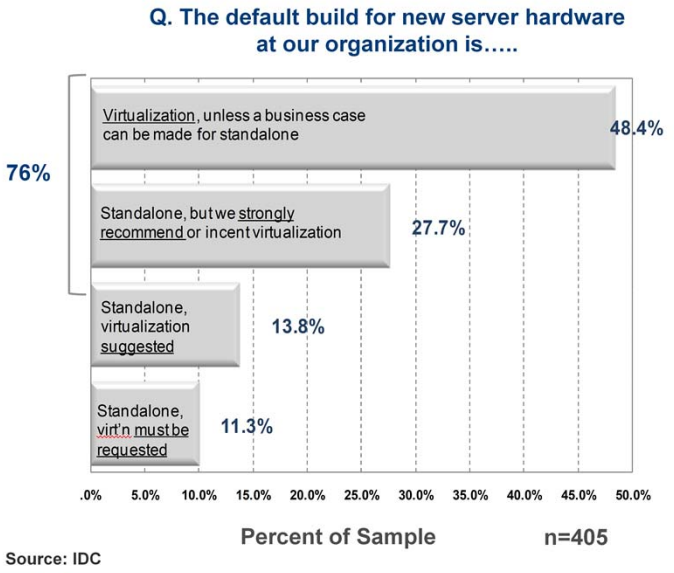


•The key to this shift is virtualization, the foundation of cloud computing.

•Virtualization simplifies the infrastructure eliminating time consuming and costly management of silos, increases efficiency through greater utilization, and enables new levels of automation, all of which significantly drives down the cost structure of IT.

•The evidence of this value is clear, just looking at how quickly virtualization has been adopted in Global IT organizations, now overtaking physical system deployment.

Virtualization First….



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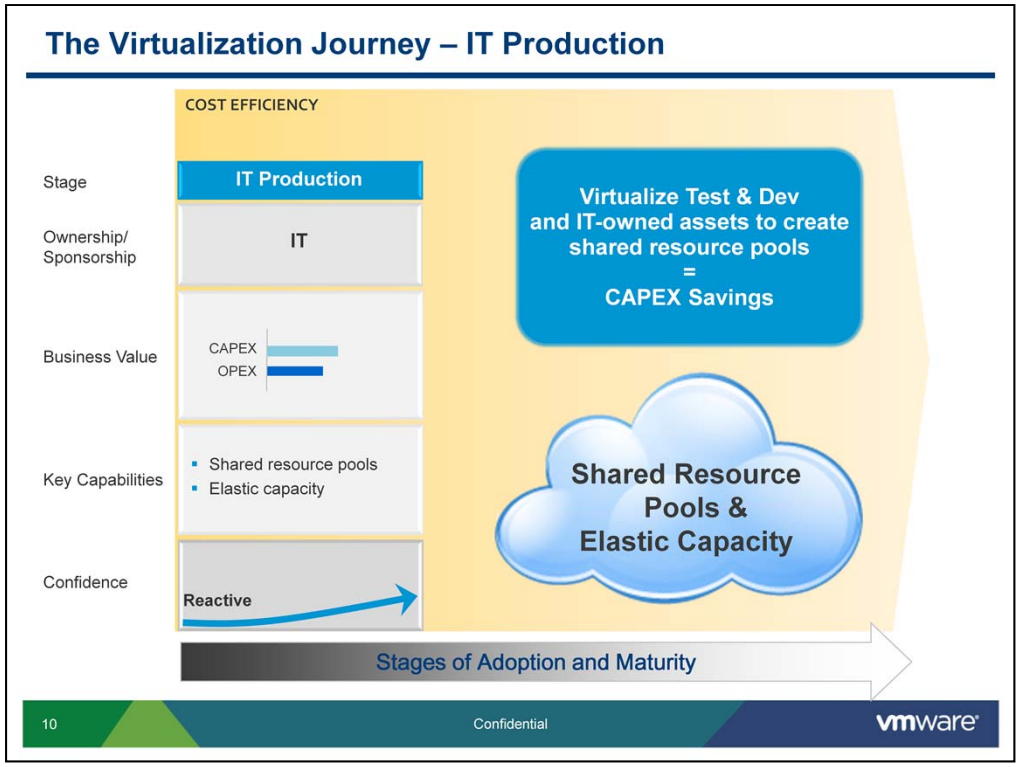


The first stage of the journey we call IT Production

> This is the *Cost-Efficiency* phase, building the core technology and skills base by virtualizing IT-owned applications, and benefiting from the value of server consolidation.

Sponsorship/Ownership

In the IT Production phase, IT organization virtualize what they own. In fact at this stage it is not really a matter of sponsorship, it is more matter of ownership. They are comfortable with the technology from previous experimentation or deployments and they are now ready to virtualize the applications where they don't need to ask permission to the business.

Confidence

At this stage, confidence can be characterized as *reactive*. The team reacts to a business trigger such as hardware refresh or data center consolidation by using virtualization technology. They typically deploy the VMware hypervisor and the core management platform and they start virtualizing the low hanging fruit: File,Print, Web servers, domain controllers, Test and Development servers. At this stage they are building up their virtualization skills. They don't tackle applications that are perceived to be riskier or that require them to fight tricky political and cultural battles.

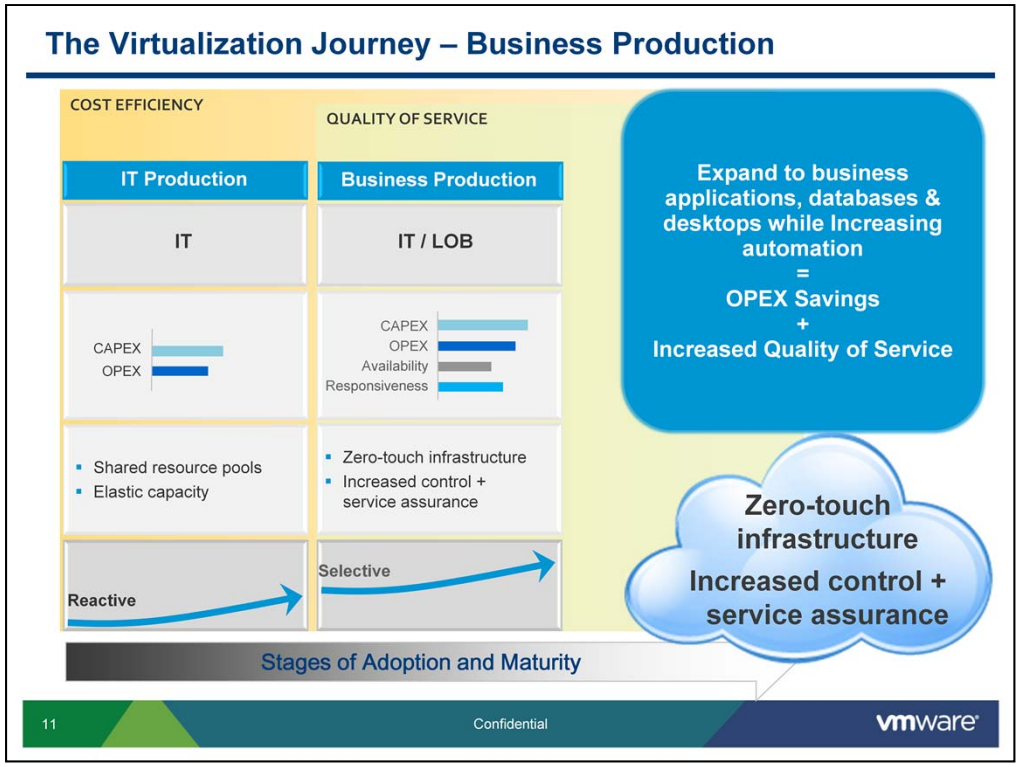
Value

The predominant value proposition in this phase is consolidation of IT infrastructure to save on hardware, space and cooling. Customers also end up with some nice by-product and capability such as faster provisioning, a better storage infrastructure (required to deploy

VMotion and other useful virtualization features). This creates the technical and knowledge platform to target more interesting applications and for future growth.

Key Capabilities

The key capabilities realized in this stage is the creation of shared resource pools and the ability to better manager capacity. IT learns that with pooled resources it is easier to "provision ahead" and have capacity available when it is needed. It is also easier to return capacity to the free pool by decommissioning virtual servers that are no longer needed and making the capacity available for new projects.



The second stage of the journey we call Business Production

This is the *Quality of Service* phase, tackling business applications (such as Microsoft Exchange, SAP, Oracle Apps, Databases etc) while adopting more of the VMware product stack (such as DRS, SRM or View) with a rapid switch of the value proposition towards better SLAs, business continuity, and overall quality of service.

Sponsorship

In this stage, IT must find a new level of sponsorship to virtualize business applications. The application owners need to become sponsors of virtualization and they have different concerns than IT. They are not so much worried about consolidation and cost efficiency but they are concerned about performance, about meeting SLA, and reducing downtime. They are concerned about ISV support. Gaining the support of app owners is the next major step in the sponsorship of the journey.

IT Confidence

We classify IT Confidence as Selective in this phase. IT carefully selects the applications to virtualize to minimize risk. They want to make sure they are prepared to provide the same or better levels of service to the app owner with virtualization as they did in the physical world. Triggers are important at this phase. Implementing new versions of applications is a key trigger as the new app may have been tested in a virtual environment and keeping it virtual is less risky. Hardware updates may also be triggers for app selection if the

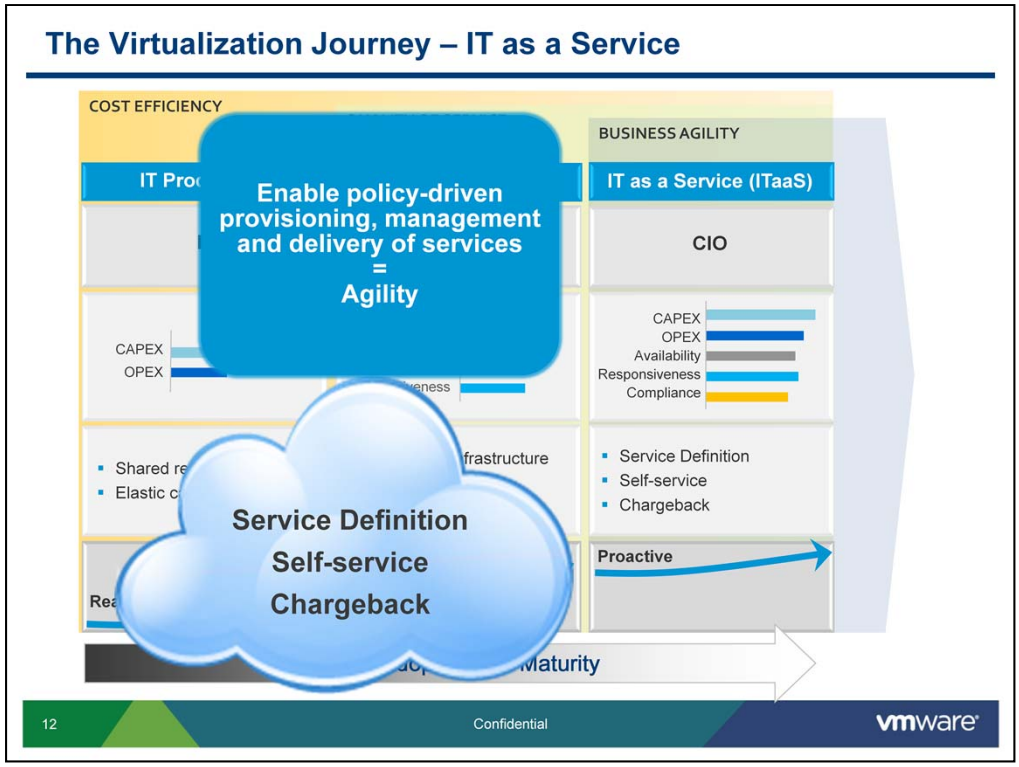
new hardware will cause problems running the old application. Virtualization can provide a safe environment for the old application while allowing the app to take advantage of the increased performance of the new hardware.

Value

At this stage, value becomes more than cost savings. Virtualization can improve the quality of service to application owners by providing better availability without costly clustering technologies, better performance for older applications on new hardware, and faster time to market for new applications due to reduced provisioning time.

Zero-touch infrastructure with increased control and service assurance

With Business Production comes higher levels of functionality in the virtual infrastructure. vCenter with features like DRS and Update Manager provides the ability to automate management features reducing the need to manually manage resources and scheduling. At the same time, automated backup and fail-over features provide enhanced control service assurance.



The final stage of the journey we call IT as a Service

In the *Business Agility* stage, virtualization is just part of what IT does. Everything new is deployed on virtual, and the value is all around time to market, process automation, and ultimately business agility.

Sponsorship

In this stage, the sponsor for the virtualization journey is all the way to the top of the organization (typically the CIO). Tracking the value delivered over time raised the visibility of the virtualization journey and it is now a top initiative for the CIO, sometimes with MBOs associated to virtualization penetration and speed of adoptions for the CIO's reports.

IT Confidence

Confidence is very high. Most of the product stack has been adopted, including SRM, DRS, Lab Manager, HA, FT and so on. The virtualization team is often folded back into the core server team as virtualization is just part of what IT does.

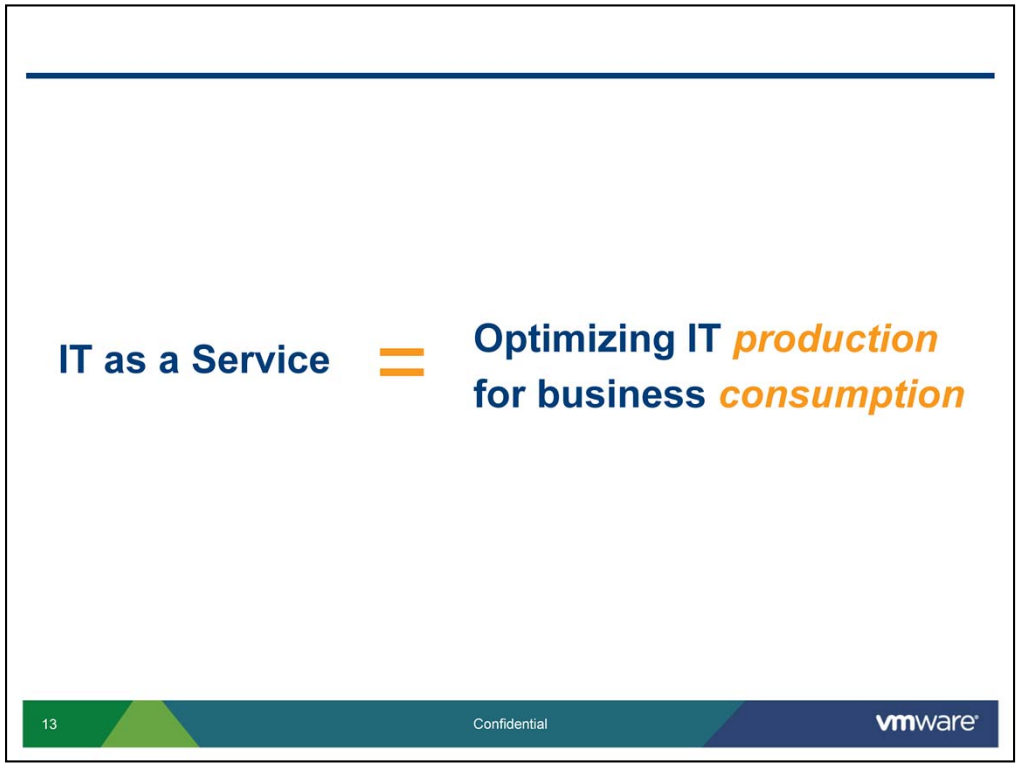
Value

At this stage organization are looking to scale their virtualization effort so that they can in turn scale the associated benefits that come from process automation, better resiliency, and increased quality of services.

Service Definition – Self Service and Chargeback

With Business Production comes higher levels of functionality in the virtual

infrastructure. vCenter with features like DRS and Update Manager provides the ability to automate management features reducing the need to manually manage resources and scheduling. At the same time, automated backup and fail-over features provide enhanced control service assurance.

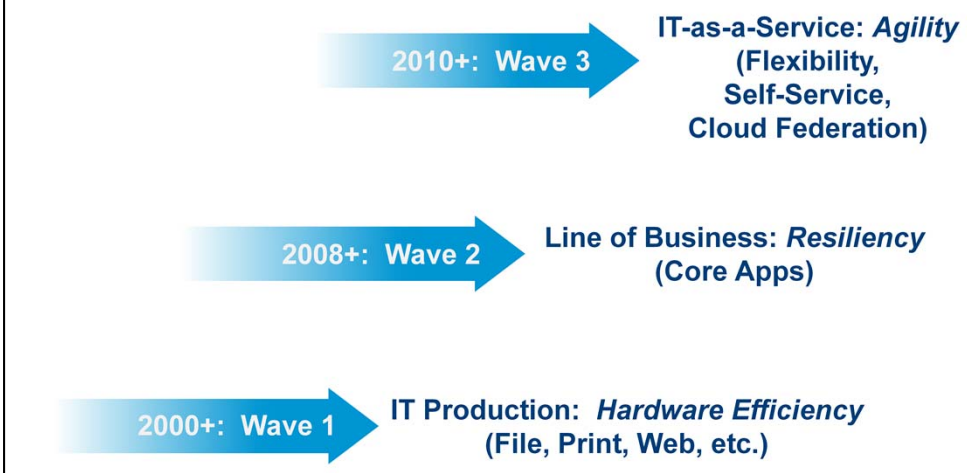


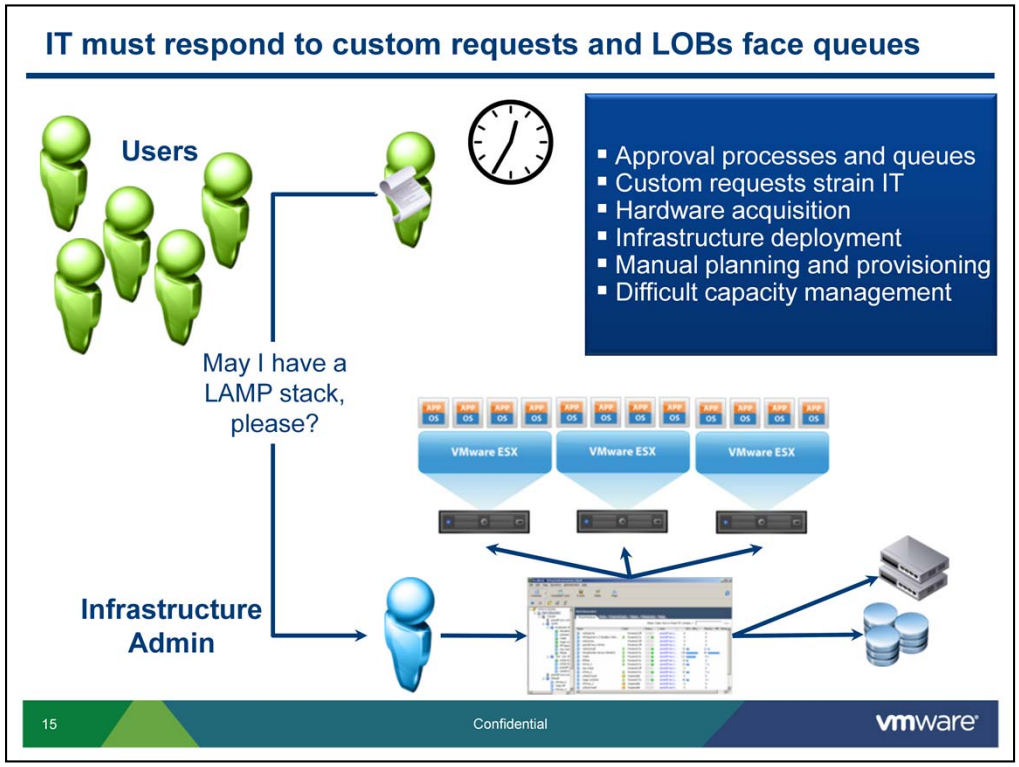
And this is the definition of IT as a Service.

The transformation in focus from how IT is produced, to how businesses consume it.

-EMPHASIS: It's all about the consumer, and business users are the consumers of IT.

Virtualization: The Journey is Accelerating…

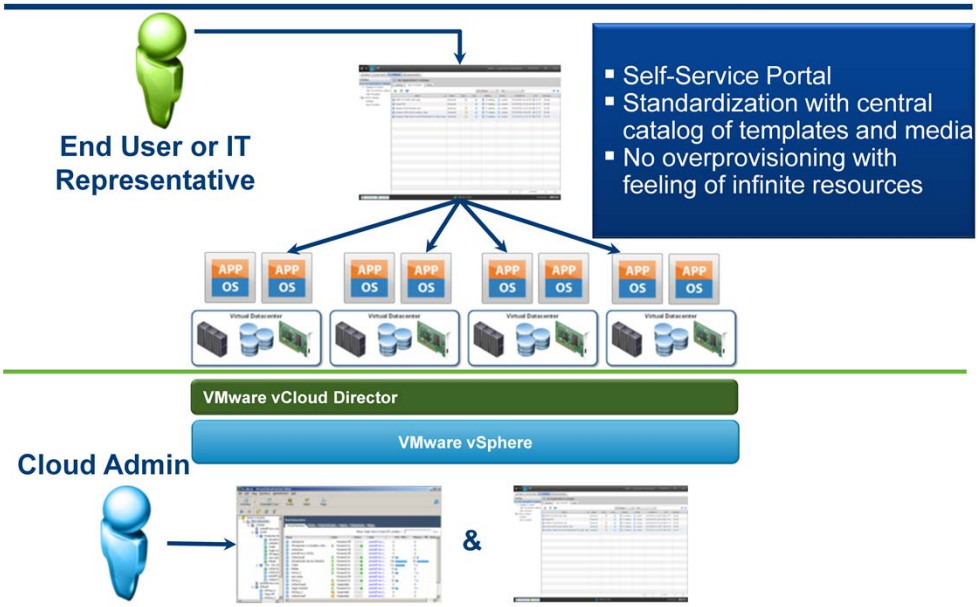


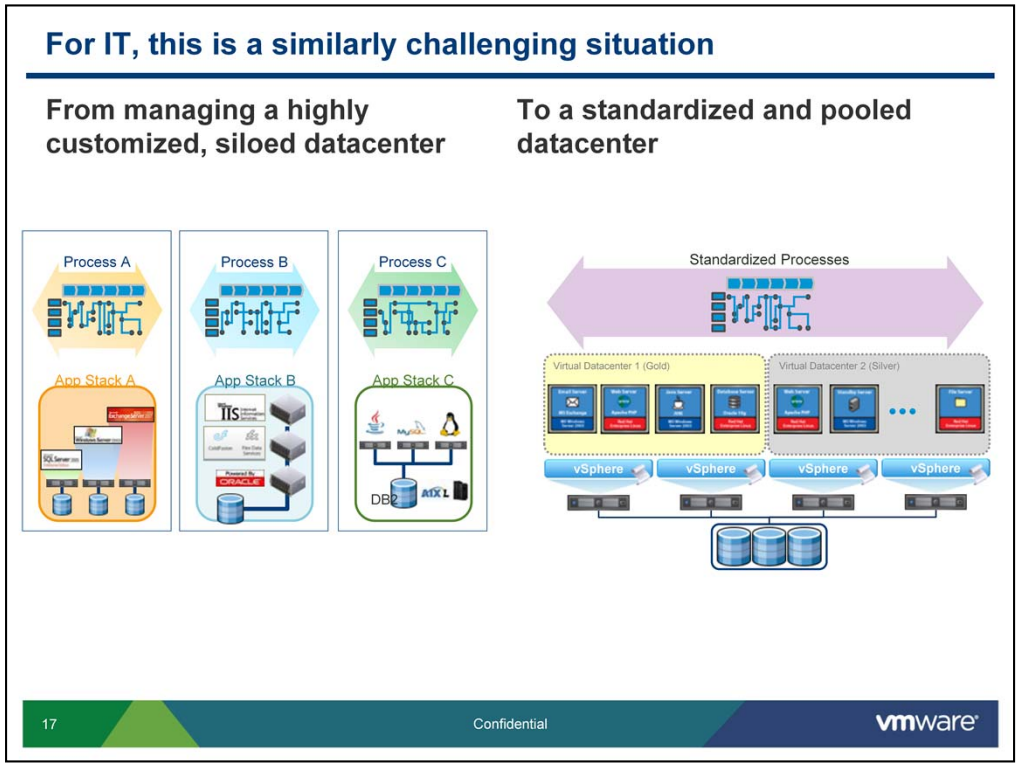


- **VMware vCloud Director also changes the way that organizations consume IT services. Instead of filing service desk tickets and waiting in queues, application and line-of-business owners can utilize self-service portals to access their own virtual datacenters. VMware vCloud Director enables users to consume these resources as a catalog-based service through a web portal and programmatic interfaces.**

- **IT teams can define multiple consumption models using the same infrastructure, ranging from capacity-as-you-go to reserved pools. These can be delivered at an appropriate cost model through integration with VMware vCenter™ Chargeback, which helps drive accountability and enables granular usage monitoring.**

Granting self-service access reduces dependency on IT





- **Instead of providing organizations with siloed physical infrastructures, IT teams can deliver isolated virtual datacenters based on common physical infrastructure. By pooling these physical resources on the back end, hardware utilization and consolidation increases. Similarly, underlying infrastructure can be pooled into tiers and offered to users at discrete service levels and prices.**

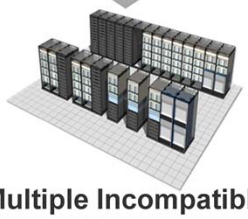
Attributes of Today's Data Centers

Trusted

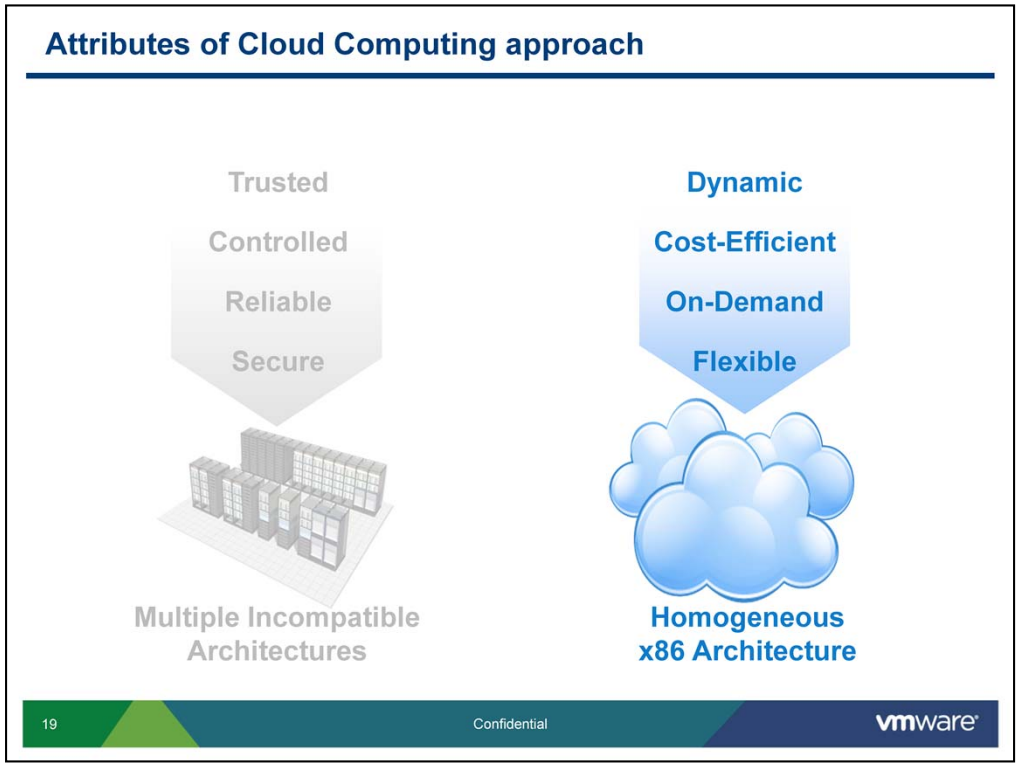
Controlled

Reliable

Secure

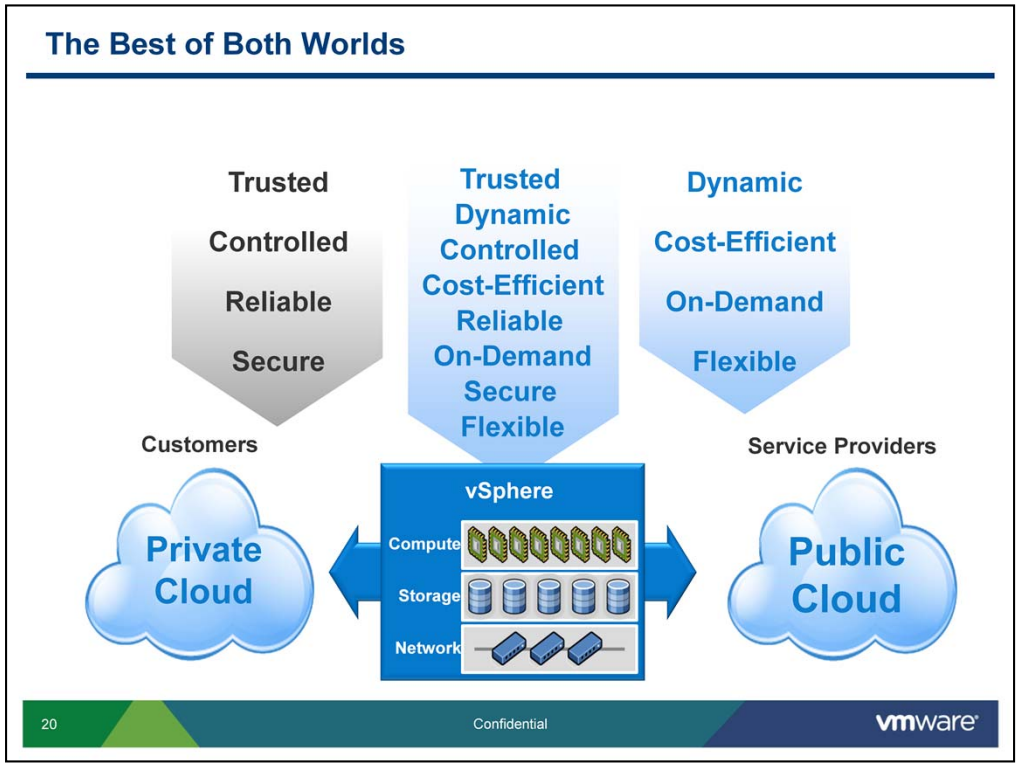


Multiple Incompatible Architectures



Multiple architectures Vs X86 architectures.

Most Recent NHM-EX/7500 – more capable than largest mainframe



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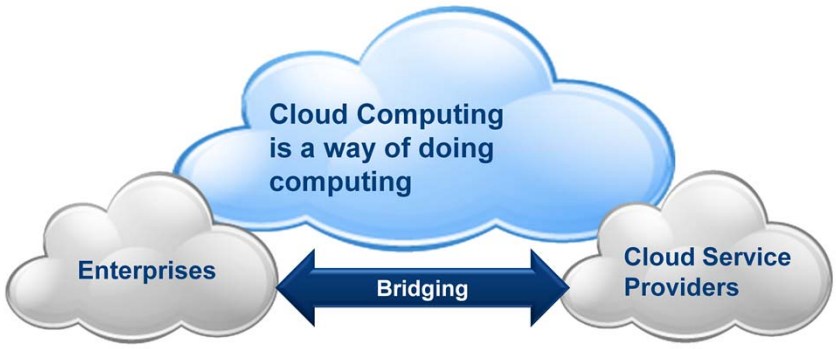
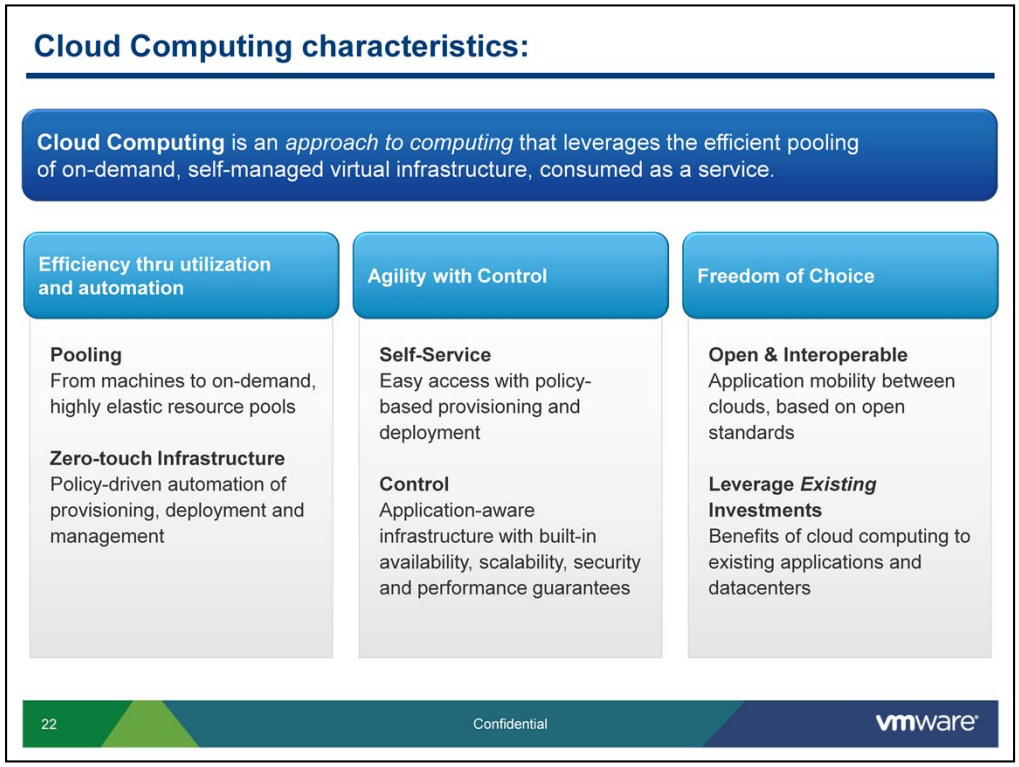
The cloud Computing Model is the best capture these benefits



Private Cloud
Operated solely for an organization, typically within the firewall

Hybrid Cloud
Composition of 2 or more interoperable clouds, enabling data and application portability

Public Cloud
Accessible over the Internet for general consumption



•Cloud computing is an overused term and it raises skepticism with some customers but only until we define more specifically what we mean with cloud computing.

•When we do so, the conversation become much more constructive and productive, even with the most skeptical ones.

•So what is Cloud Computing?

•It is NOT a destination! It is an approach to computing…

•We believe that adopting cloud computing at the core of IT, based on VMware solutions, will dramatically improve efficiency and agility while maintaining customer choice.

•There are 6 core characteristics of cloud computing that VMware solutions deliver…

Pooling – leveraging virtualization to change the model from machine-based to highly elastic shared resource pools that are shared across applications and users, enabling on-demand resource allocation in the most efficient manner

- **Zero-touch Infrastructure** – policy-driven management automates routine operational tasks, minimizing operational expense and overhead
- **Self-Service** – provisioning and deployment are dramatically simplified through self-service model, within the parameters of defined business and governance policies, while management of systems and infrastructure is dramatically reduced through policy-driven automation

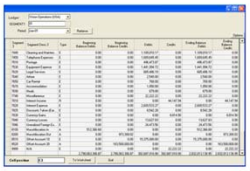
Control – built on a robust platform that is architected for high availability, with the ability to optimize resource allocations to ensure service levels; built-in disaster recovery mechanisms to ensure business continuity; a security model that encompasses dynamic infrastructure and boundaries; and application-aware infrastructure to self-optimize application performance

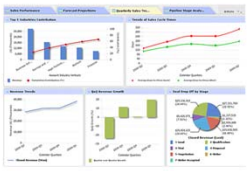
- **Open & Interoperable** – application mobility between clouds within a common management model, based on open standards, extending to large ecosystem of public cloud providers

- **Leverage Existing Assets** – the ability to bring existing applications and all of IT into the cloud computing model in an evolutionary manner, starting internally with a private cloud

IT as a Service = From how IT is *produced* to how IT is *consumed*





Existing Apps

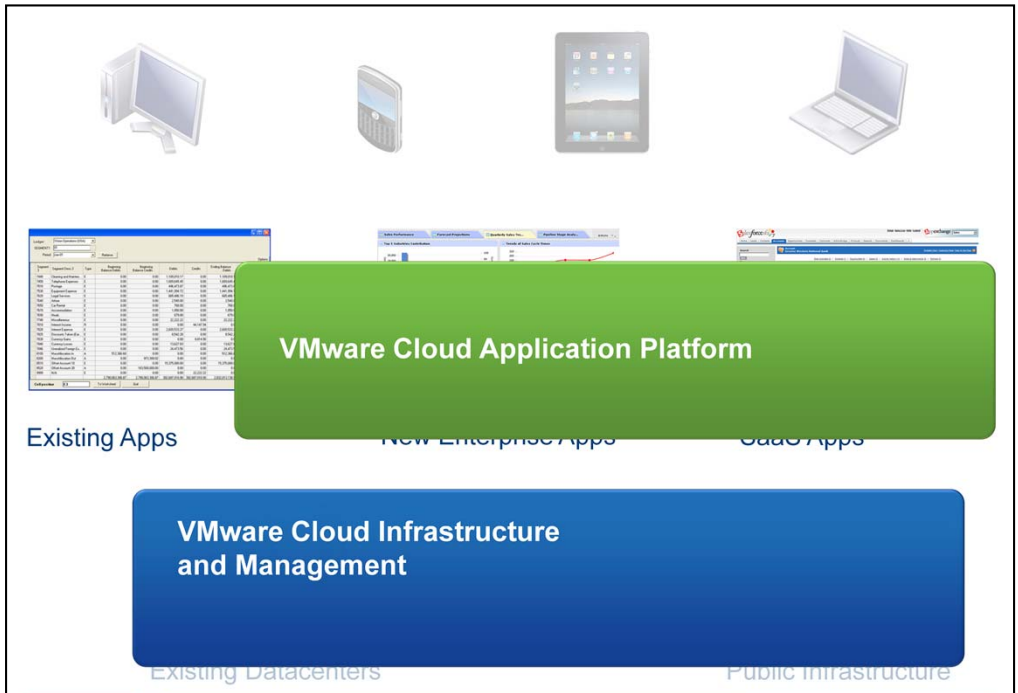

New Enterprise Apps


SaaS Apps


Existing Datacenters


Public Infrastructure


Existing Apps
New Enterprise Apps
SaaS Apps
VMware Cloud Infrastructure and Management
Existing Datacenters
Public Infrastructure


VMware Cloud Application Platform
Existing Apps
VMware Cloud Infrastructure
and Management
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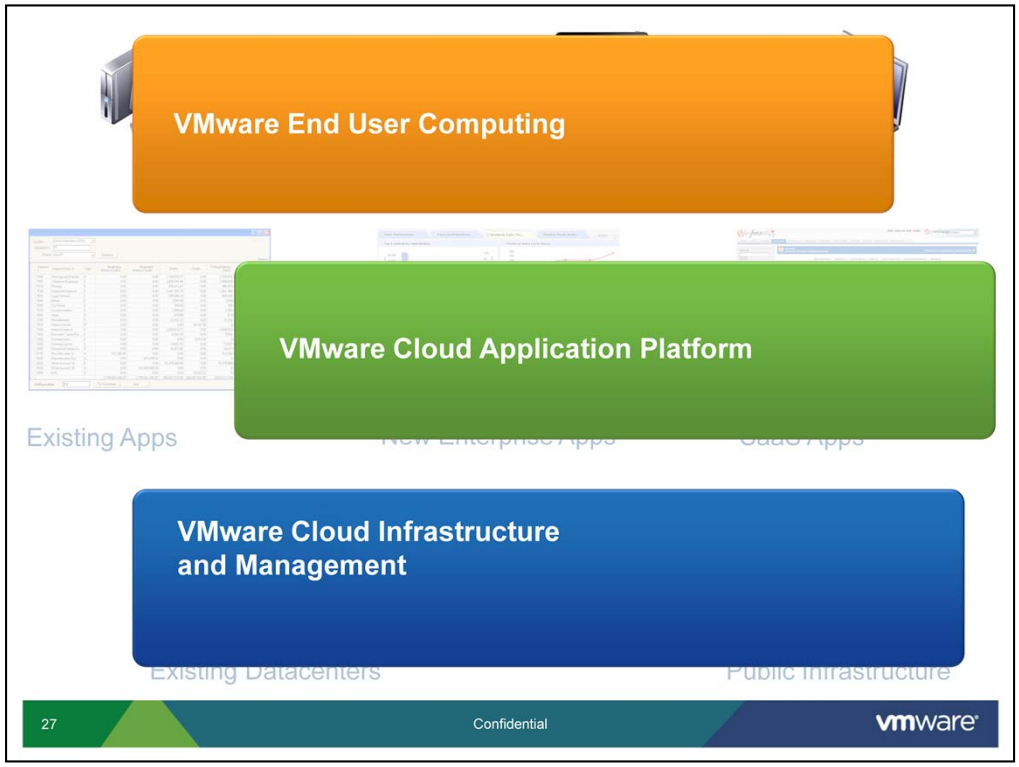
VMware End User Computing
VMware Cloud Application Platform
Existing Apps
VMware Cloud Infrastructure
and Management
Existing Datacenters
Public Infrastructure
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Confidential
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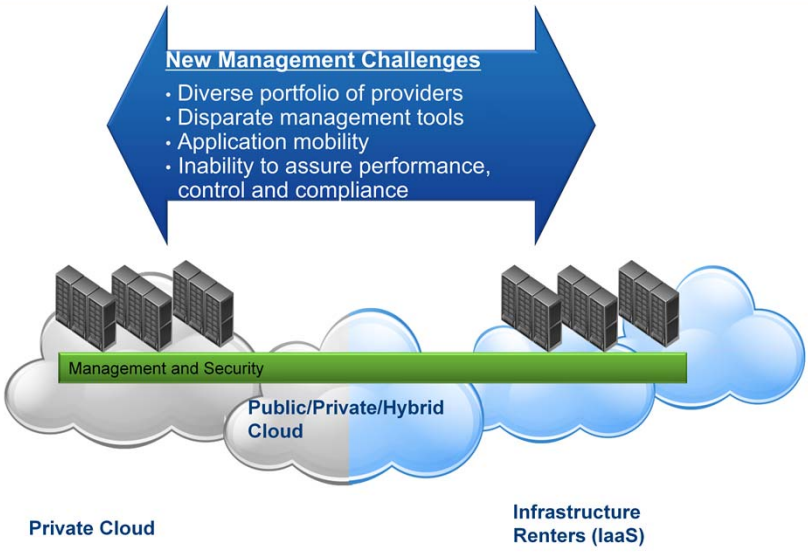
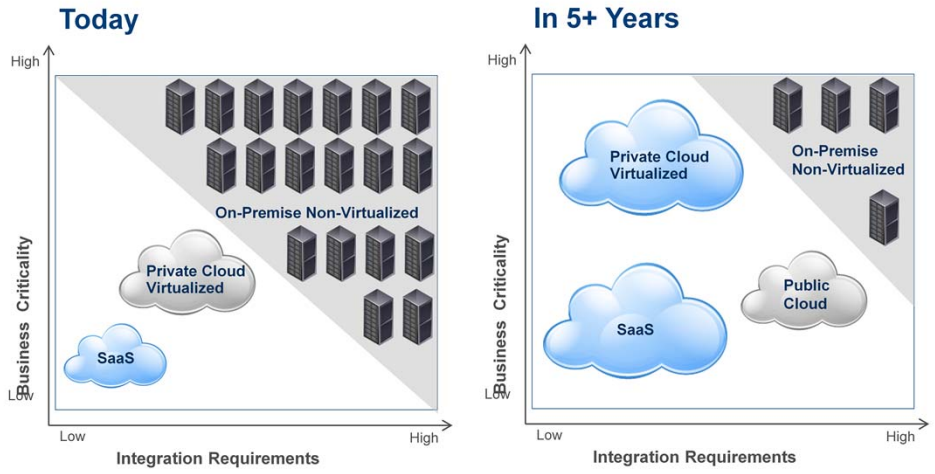
IT Management Is Changing in the Cloud Era

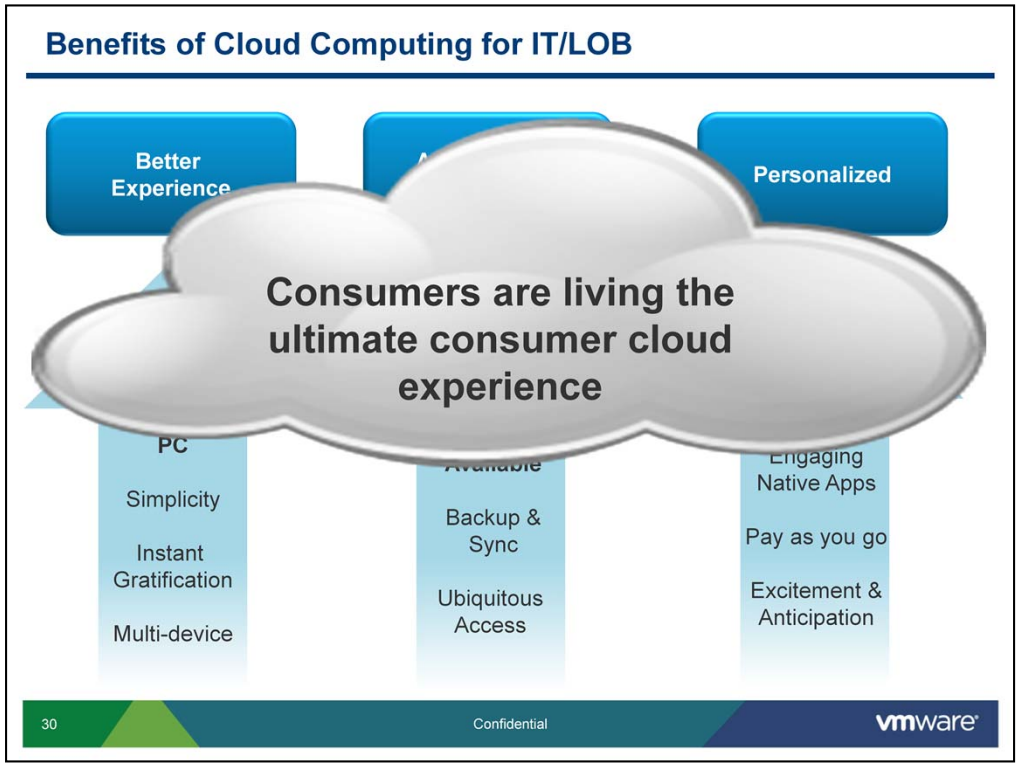


How Cloud is Evolving in IT Sector



Key IT Issues: Integration, Management and Security

Need to Develop IT Architecture to Enable Cloud Computing



The Cloud End User Benefits

Post Windows Experience

Simplicity-Ease of use

Instant Gratification

Always on, extreme availability

Automatically Backed up & Synched

Ubiquitous Access

Small, Engaging Native Applications

Pay as you go

Amazing anticipation and excitement for the next thing/app/device

Thank you