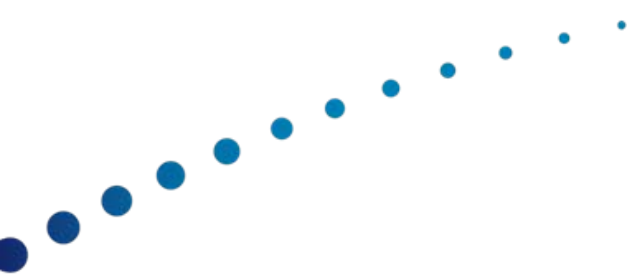




Cloud: App-Centric Scalability, Availability, Reliability and Security

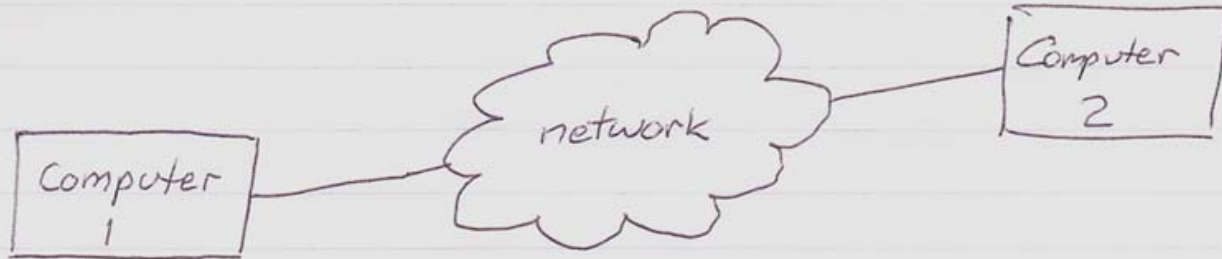
Prakash Sinha, Director, Product Management
October 27, 2009



Agenda

- Cloud Computing – Evolution
- Creating an Enterprise Cloud – Use Cases, Issues
- C3 Reference Architecture

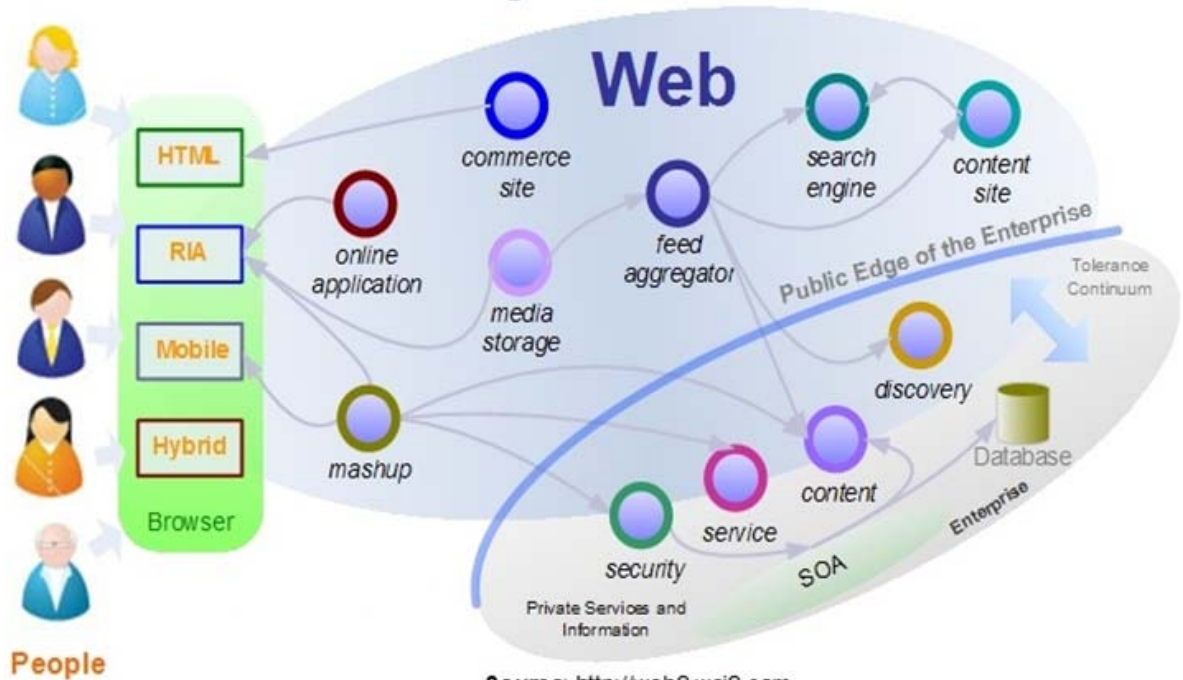




The cloud graphic has long represented 'any network' connecting two computers.

Cloud Computing Evolution

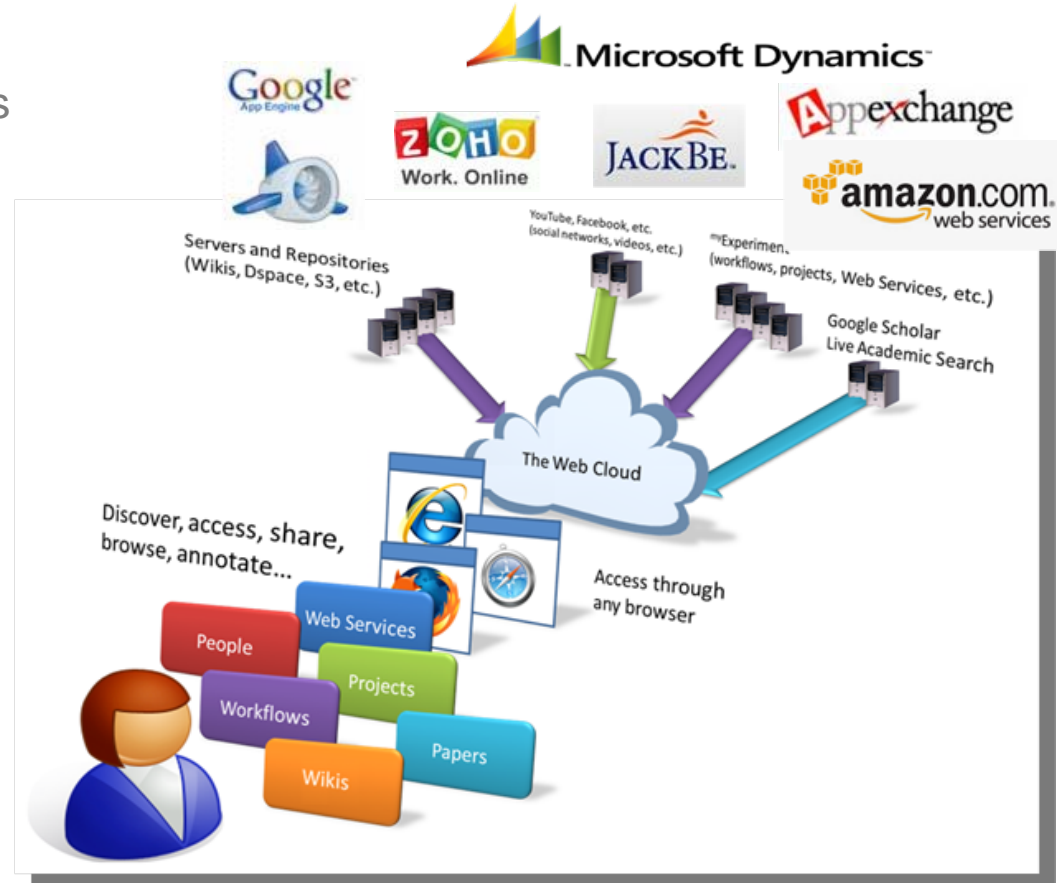
- A distributed fabric for computation, storage and communication over the internet
- Delivered as
 - Infrastructure as a Service (IaaS)
 - Platform as a Service (PaaS)
 - Software as a Service (SaaS)
- Deployed as
 - Public Cloud
 - Private Cloud
- Delivered services (apps) are consumed by Web clients



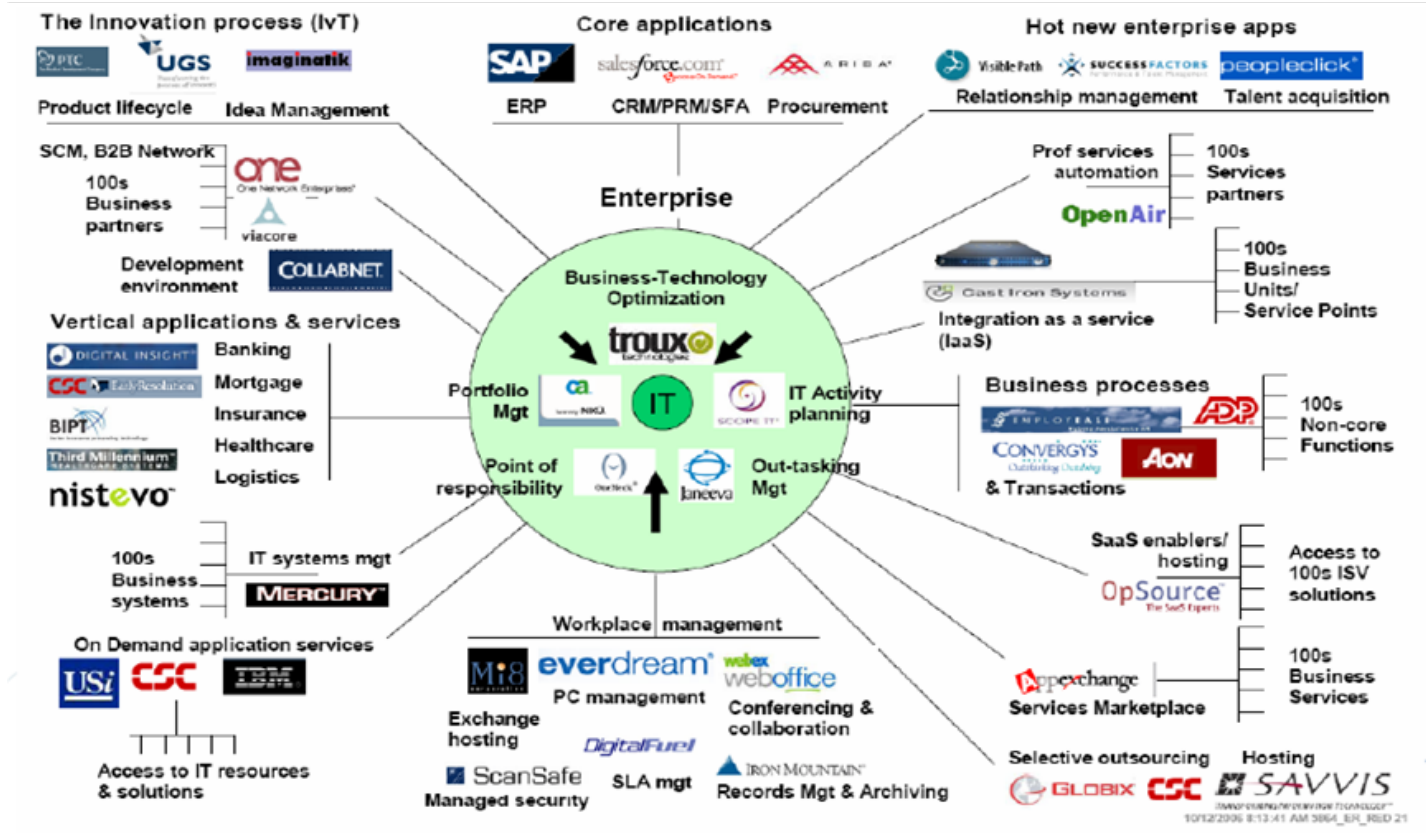
Source: <http://web2.wsj2.com>

Cloud: Accessing Network Resources

- Any delivered service - consumer applications formed from several network accessible sources
 - Public APIs – REST style as well as Web services
 - Feeds such as RSS and ATOM
 - HTML, XML, JSON data formats
- Application delivery profile
 - Managed Service Provider (MSP)
 - Application Service Provider (ASP)
 - Infrastructure Service Provider (ISP)



Examples of Delivered Services



Web 2.0

Web 1.0

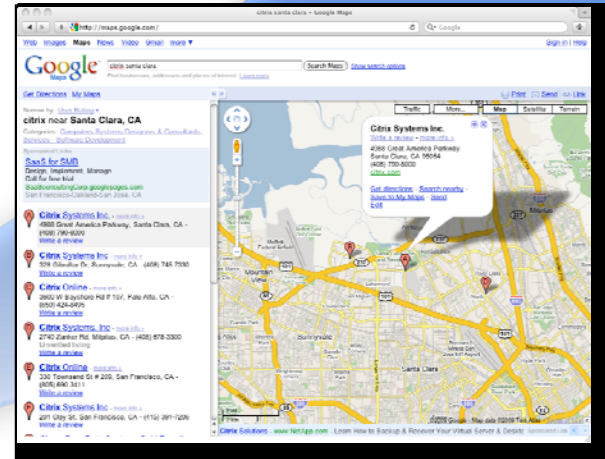
Early Web



Publish



Simple Transactions



Complex Interaction

Virtualization

HPC

Clustering

Data Mining

Grid

Mesh

RAC

Autonomic
Computing

Utility
Computing

IaaS

SaaS
PaaS

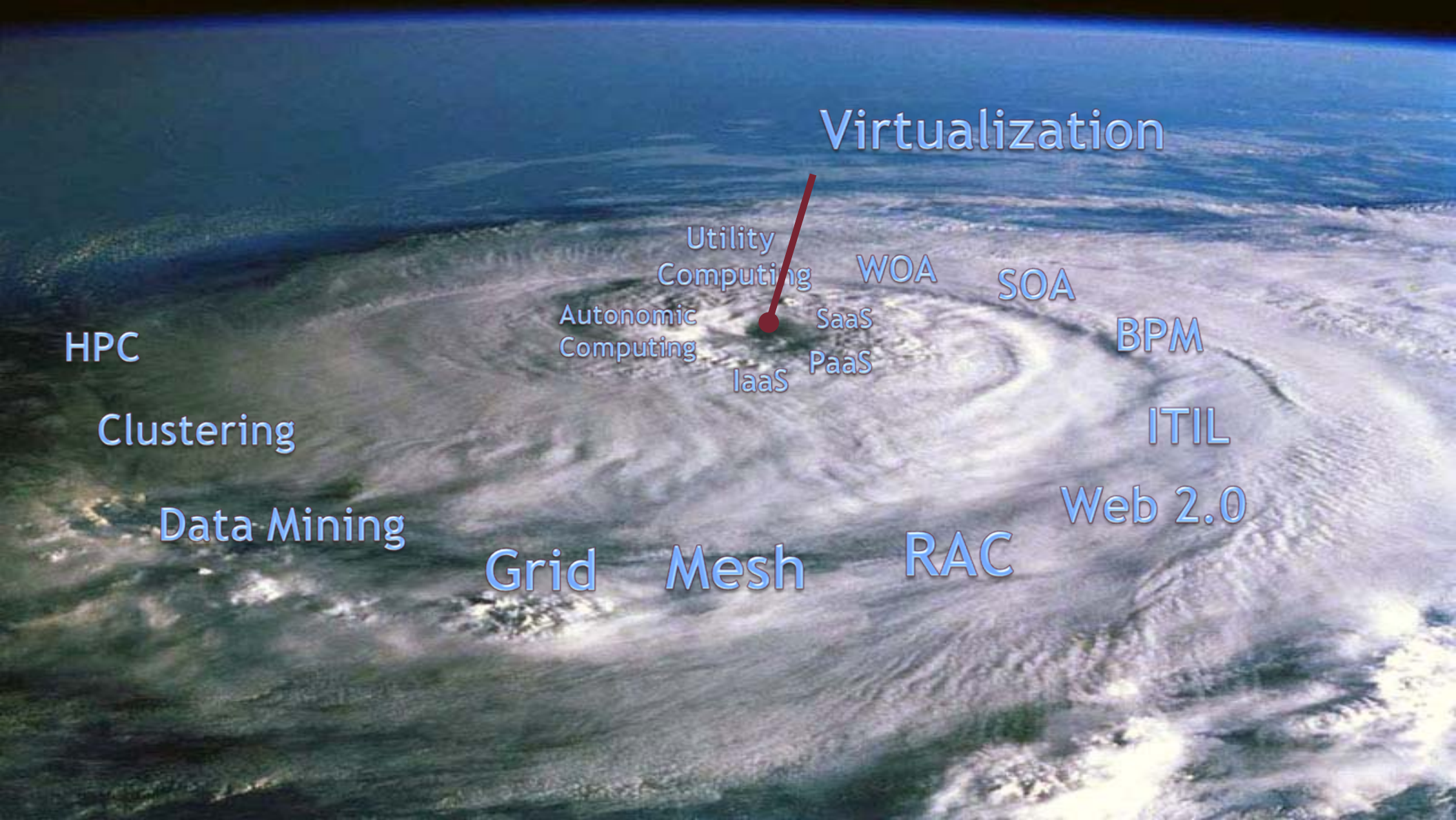
WOA

SOA

BPM

ITIL

Web 2.0



Cloud

Software as a Service



Infrastructure as a Service



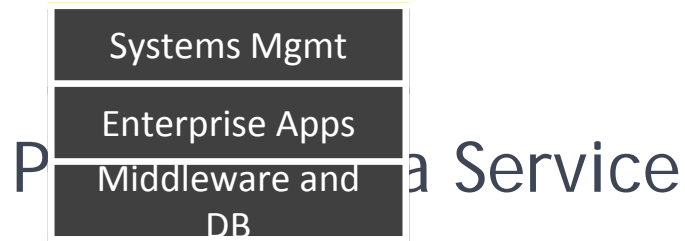
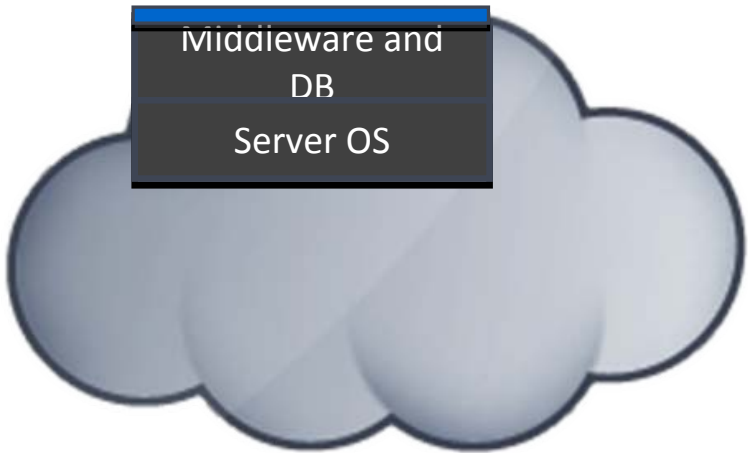
Platform as a Service



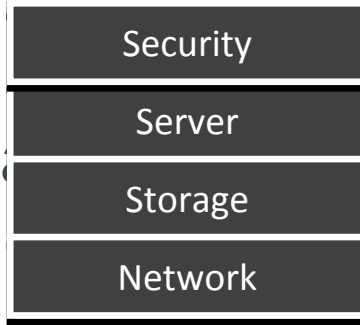


Microsoft
Azure Services Platform





IaaS as a Service



Network

Cloud: Economics of the Web

Storage



\$0.15/GB/mo

VS.

\$3.75/GB/mo

Servers



1 admin/20,000

VS.

1 admin/100

Network



\$10/megabit

VS.

\$500/megabit

Apps



**1 image x 1M users
x 4 upgrades/yr**

VS.

**230 apps x 5 versions
x many upgrades**



Enterprise Cloud



But it's just not that simple

Cloud is not secure
Loss of IT control
Limited SLAs
A Threat

An obvious possibility is to take images of all servers in the Data Center start them in the cloud in the case of a disaster



Disaster Recovery

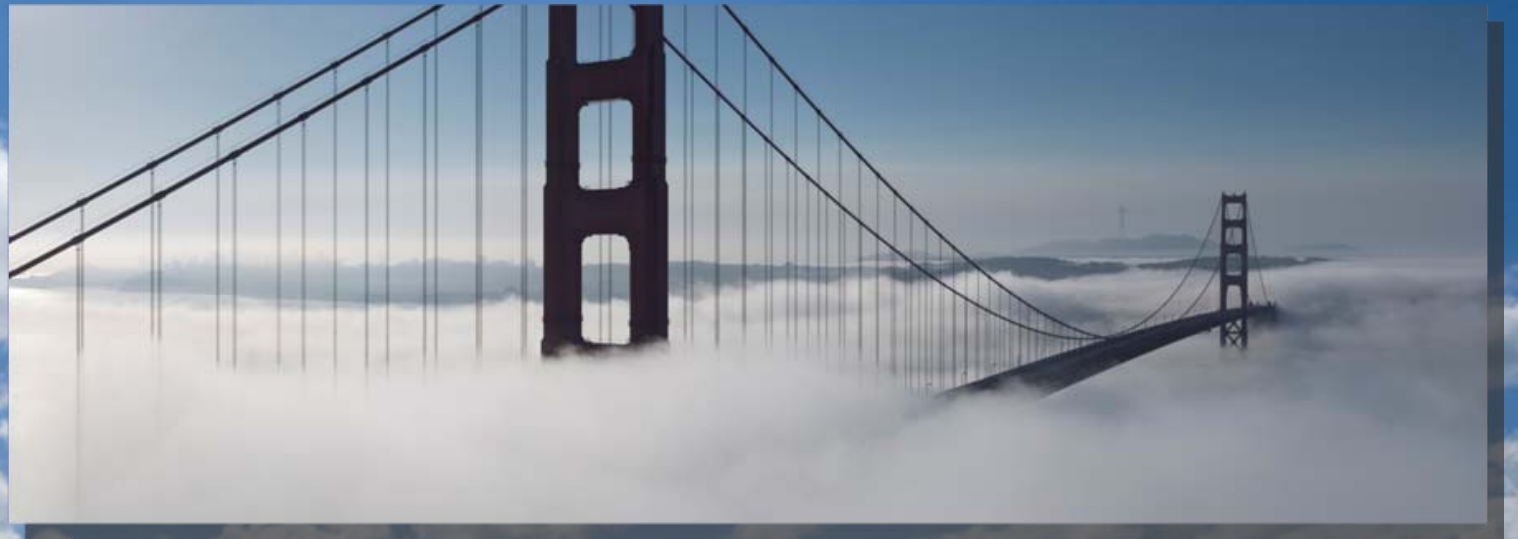
“Cloud-burst”

An example of enterprise Cloud-burst might be when a physical application farm is at its limit, the farm could be configured to automatically transfer new sessions to the cloud.



“Cloud Bridge”

Apps in cloud; Data stays on premise



Technical Use Cases “in” the Cloud



Enterprise Datacenters

Rate Limiting/SLA/Metering
Reverse AJAX
Routing, SLB, SSL Offload



Spillover/Bursting
Routing



XML/Ajax Security



Web 2.0/Rich Client Support



Consumers

Consolidation & Virtualization
Scalability & Management
Web App Security, Routing, LB
SLA/Rate Limiting/Metering
Reverse Ajax/Push
Automated Provisioning



Cloud Providers (MSP, ASP, ISP)

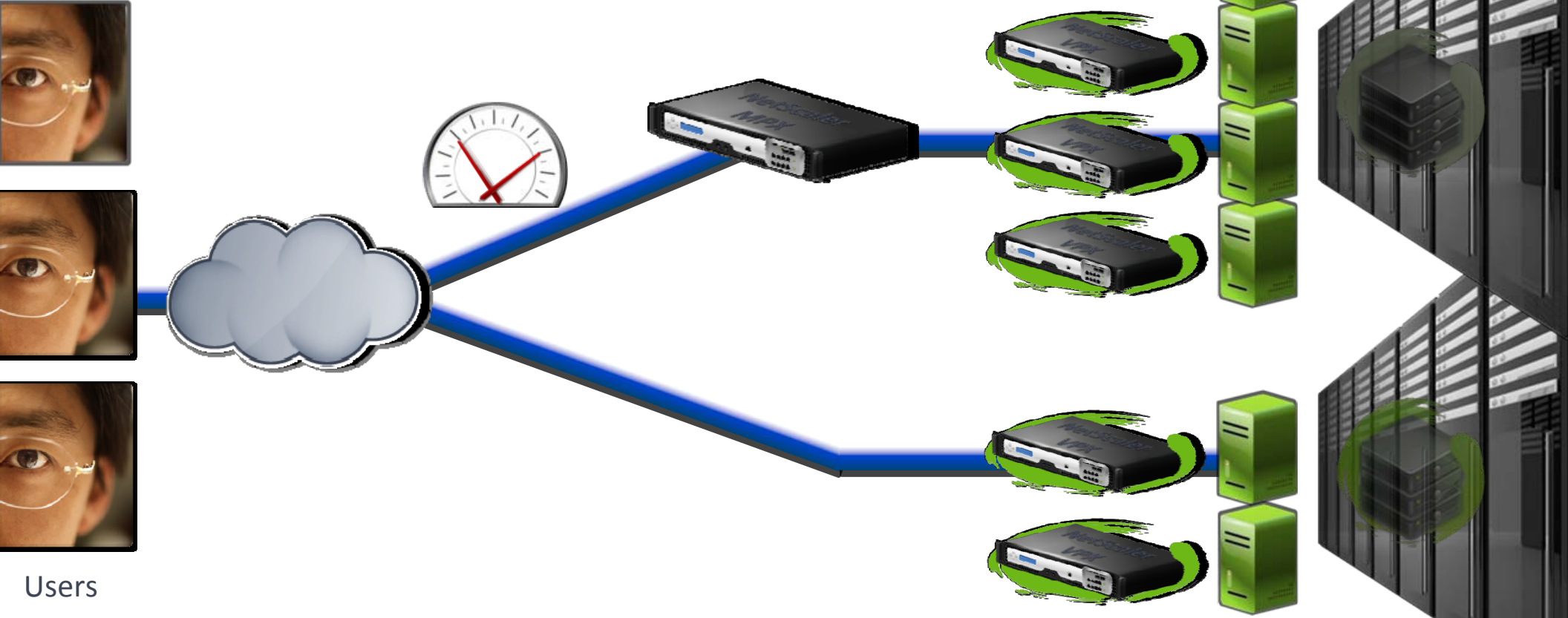
Server Consolidation and Scaling the Web App Fabric



Users



Cloud Bursting and Cloud Balancing



Users

Orchestration and Automation



Users



Datacenter Flexibility and App Migration

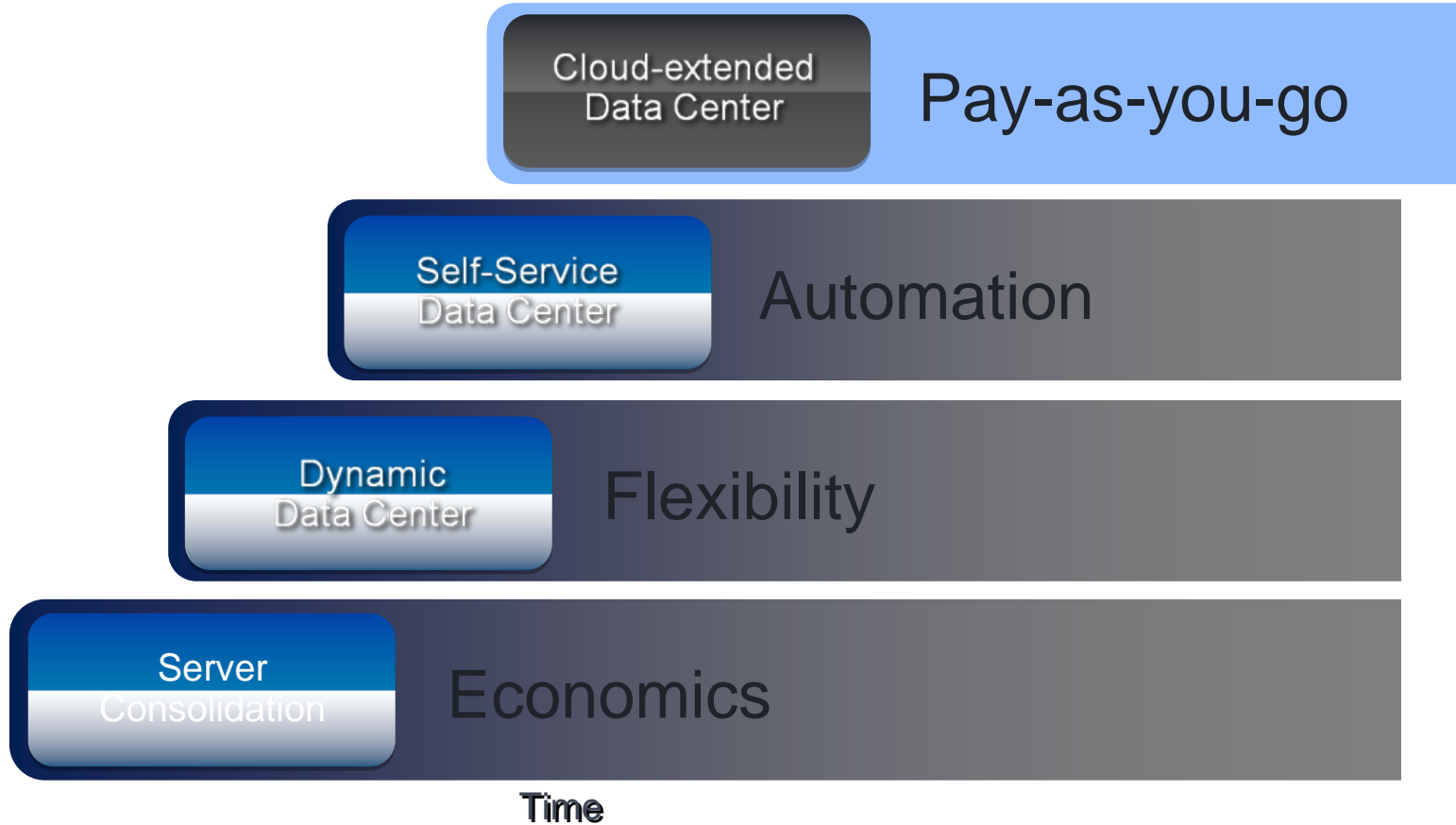


Users

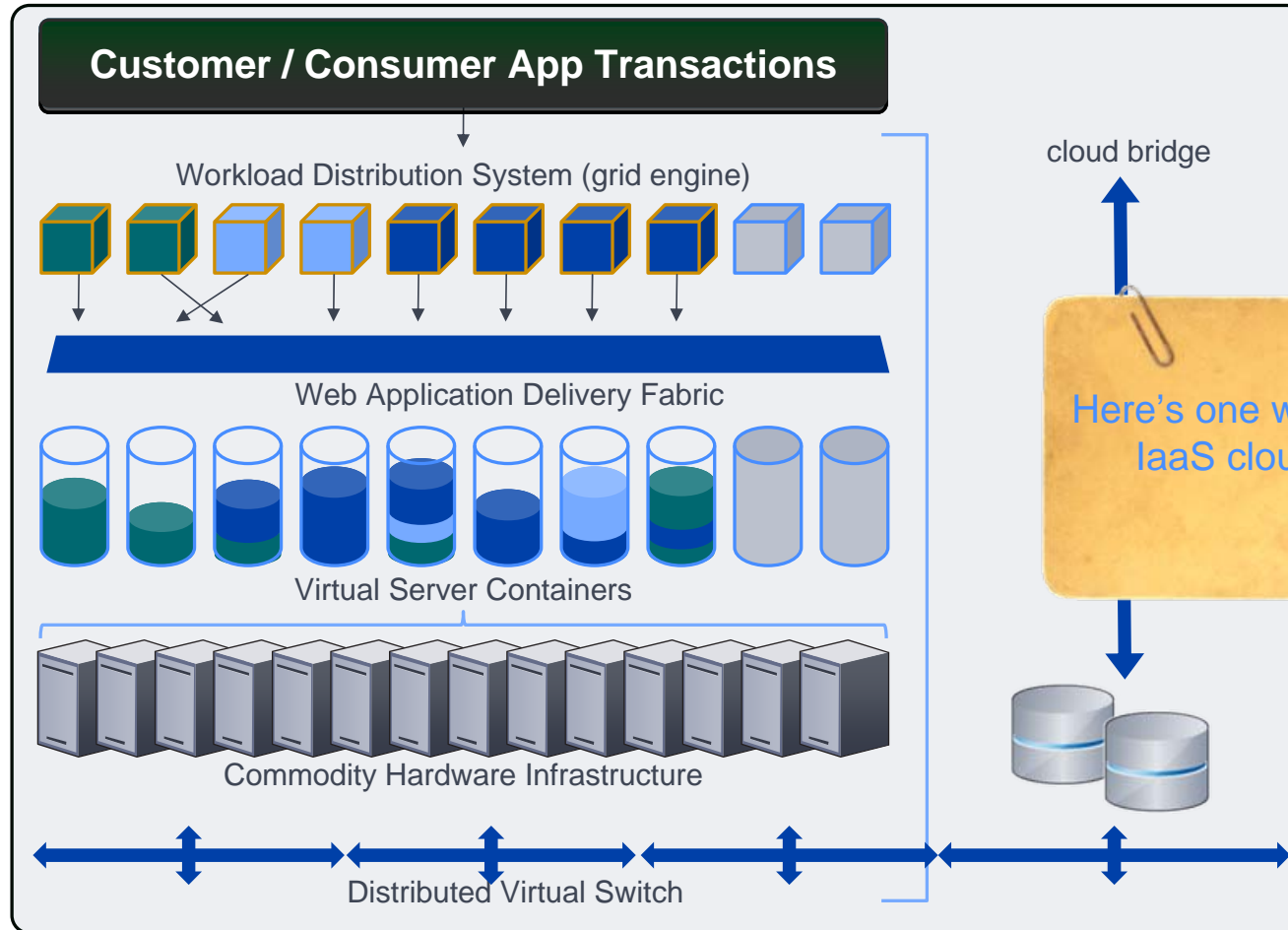


Cloud Data Center

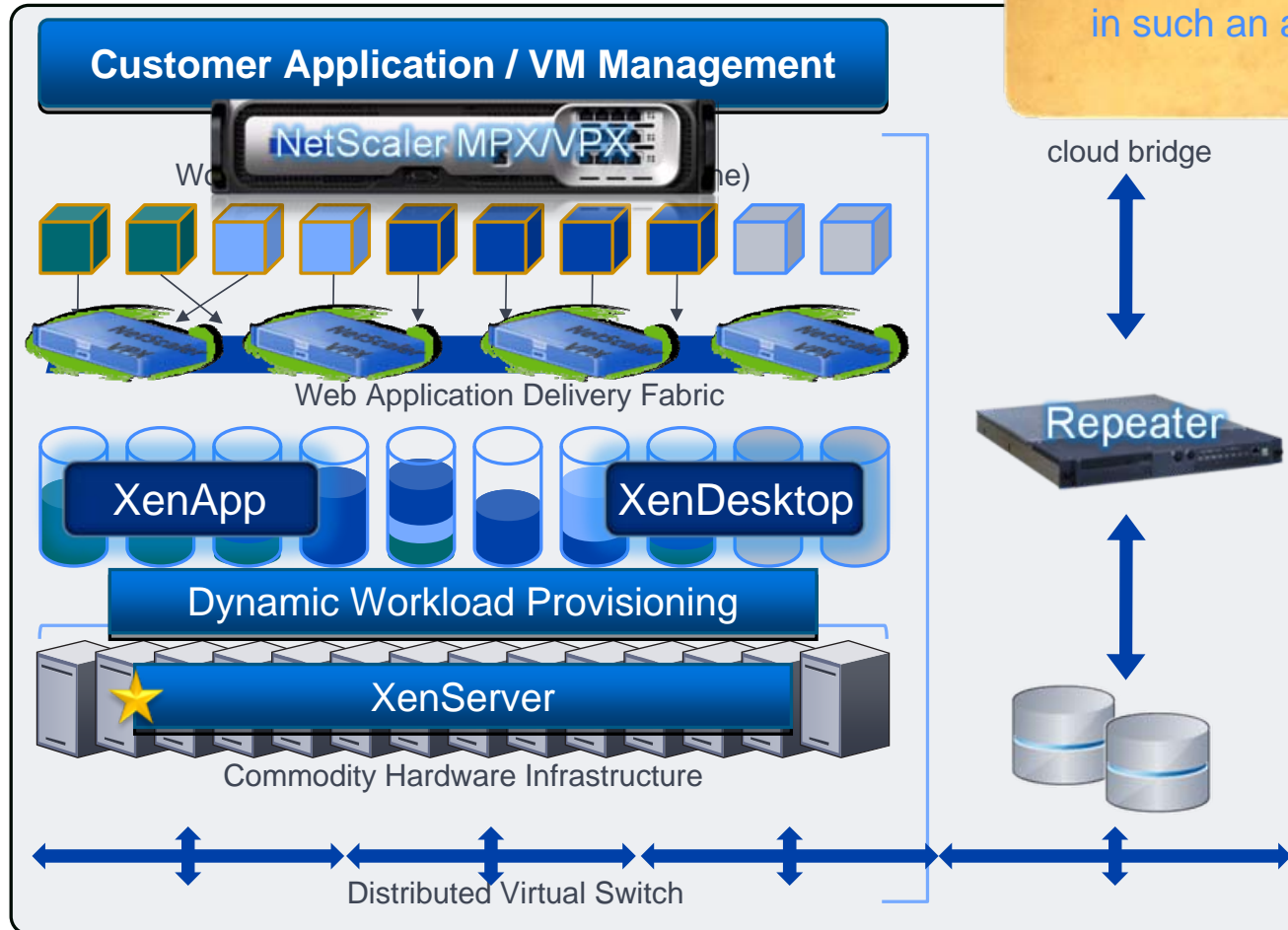
Data Center Virtualization



Citrix Cloud Center (C3) Reference Architecture



C3 Reference Architecture



And here's how the Citrix Cloud Center can be delivered in such an architecture.



CITRIX[®]