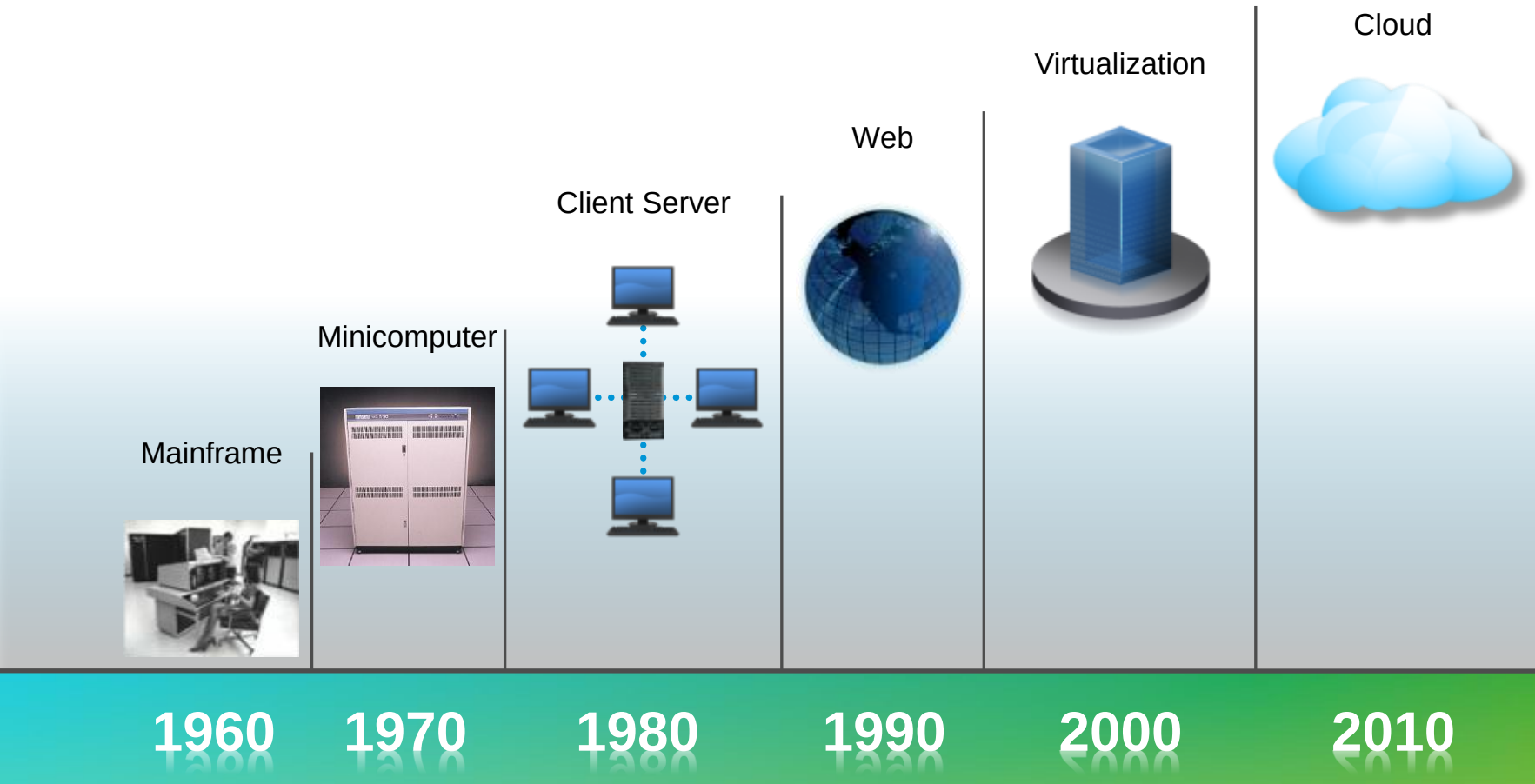

Cisco Expo 2011
Collaboration and Virtualization without Borders.
Changing the way we work, live, play and learn.

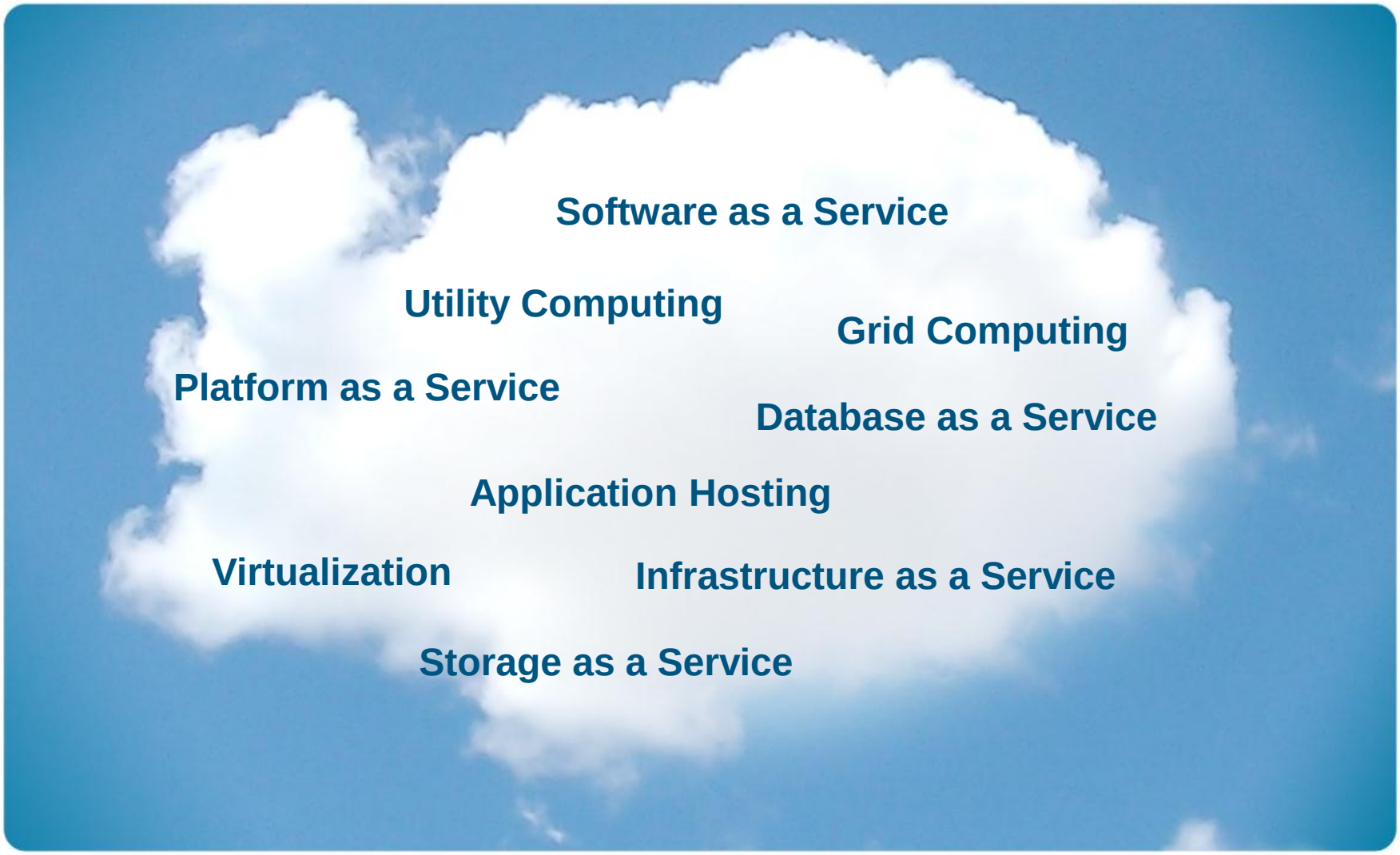
The Journey to the Cloud

Axel Clauberg, SE Director Solutions & Architectures,
CTO Emerging Markets

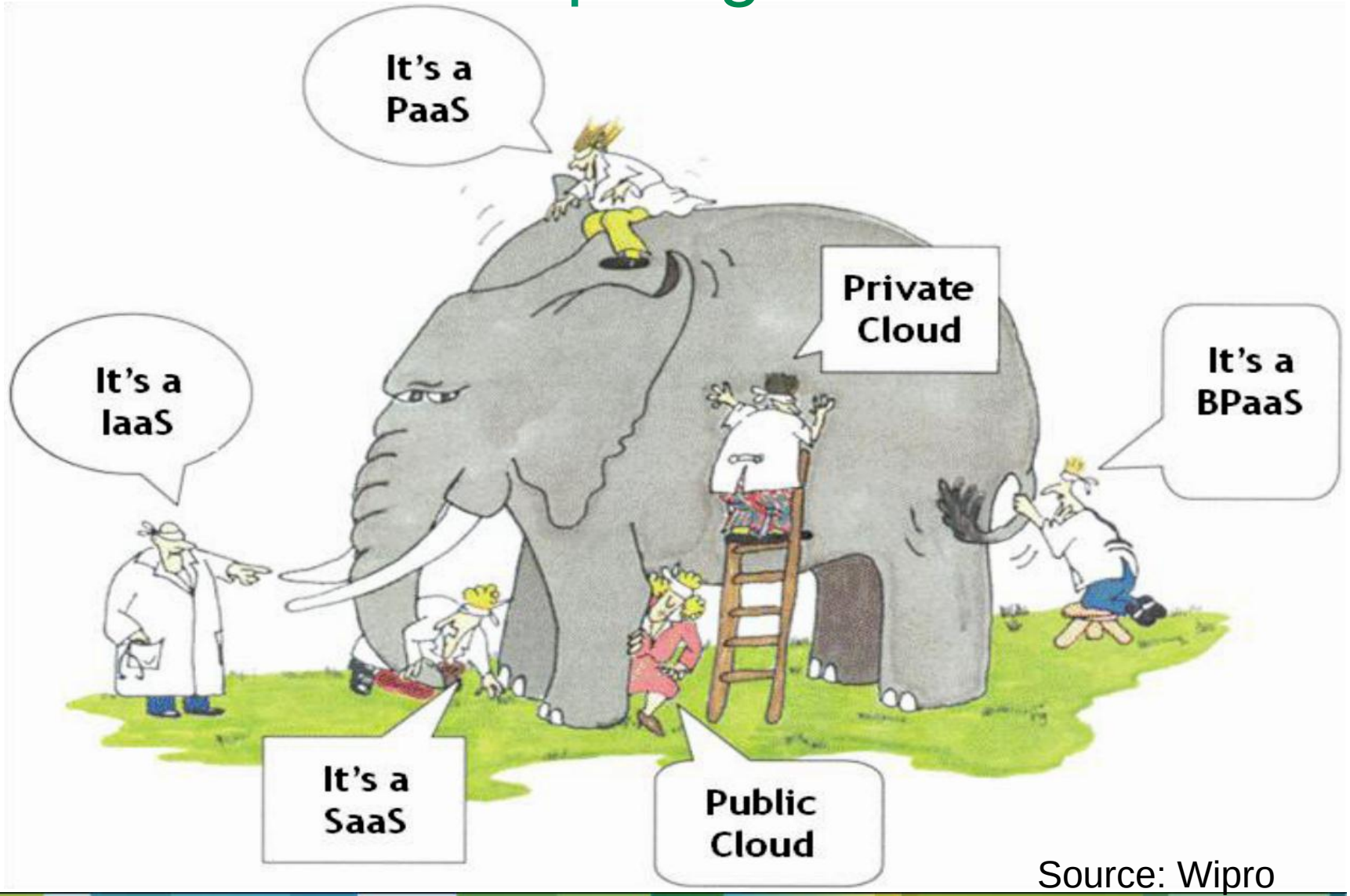
Cloud Computing Is the Next Big Step in the Evolution of Computing and the Internet.



Cloud covers a lot of territory

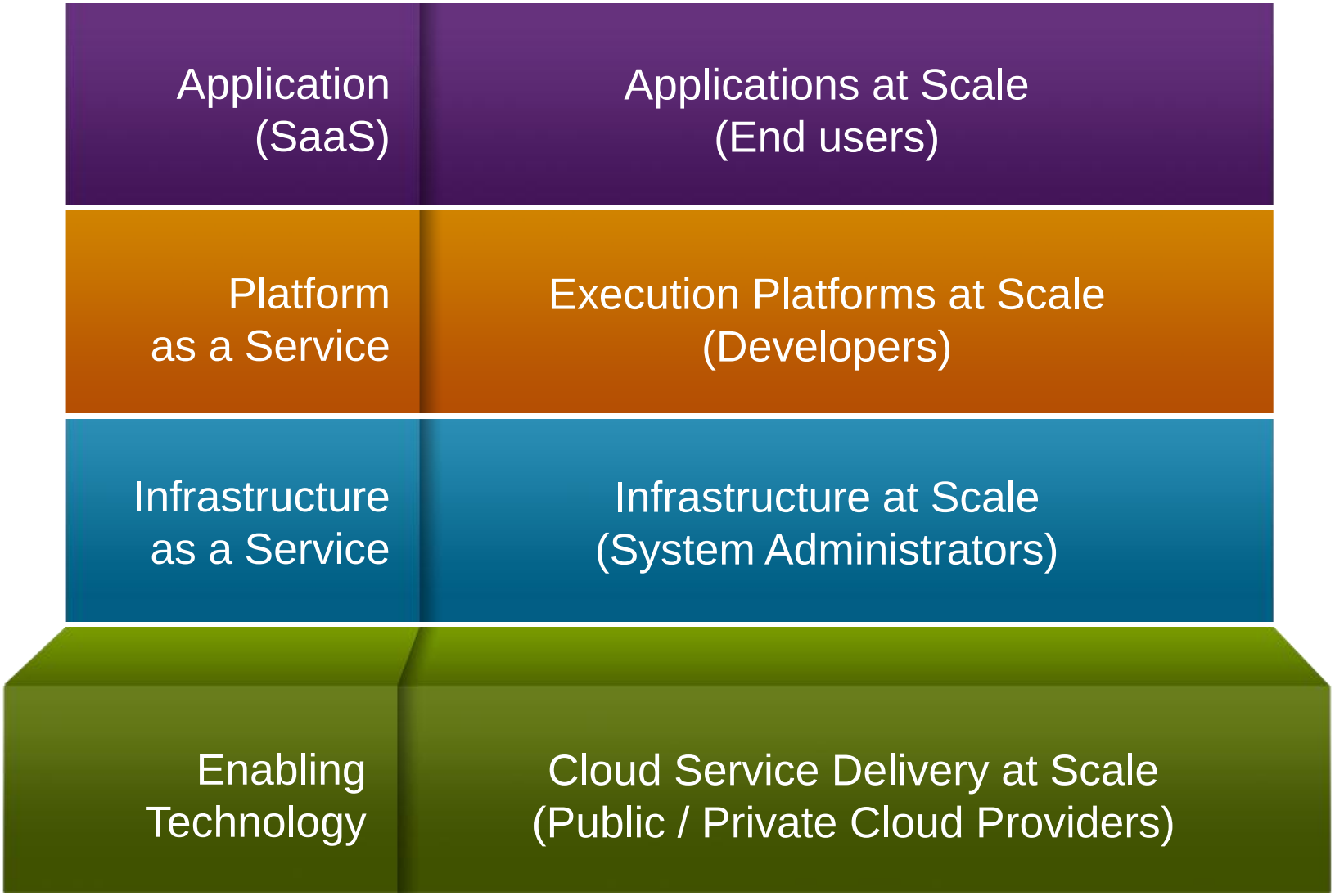


What Is Cloud Computing?



Source: Wipro

Cloud Delivery Models



Cloud Deployment Models

Public Cloud	Cloud infrastructure made available to the general public.
Private Cloud	Cloud infrastructure operated solely for an organization.
Hybrid Cloud	Cloud infrastructure composed of two or more clouds that interoperate or federate through technology
Community Cloud	Cloud infrastructure shared by several organizations and supporting a specific community

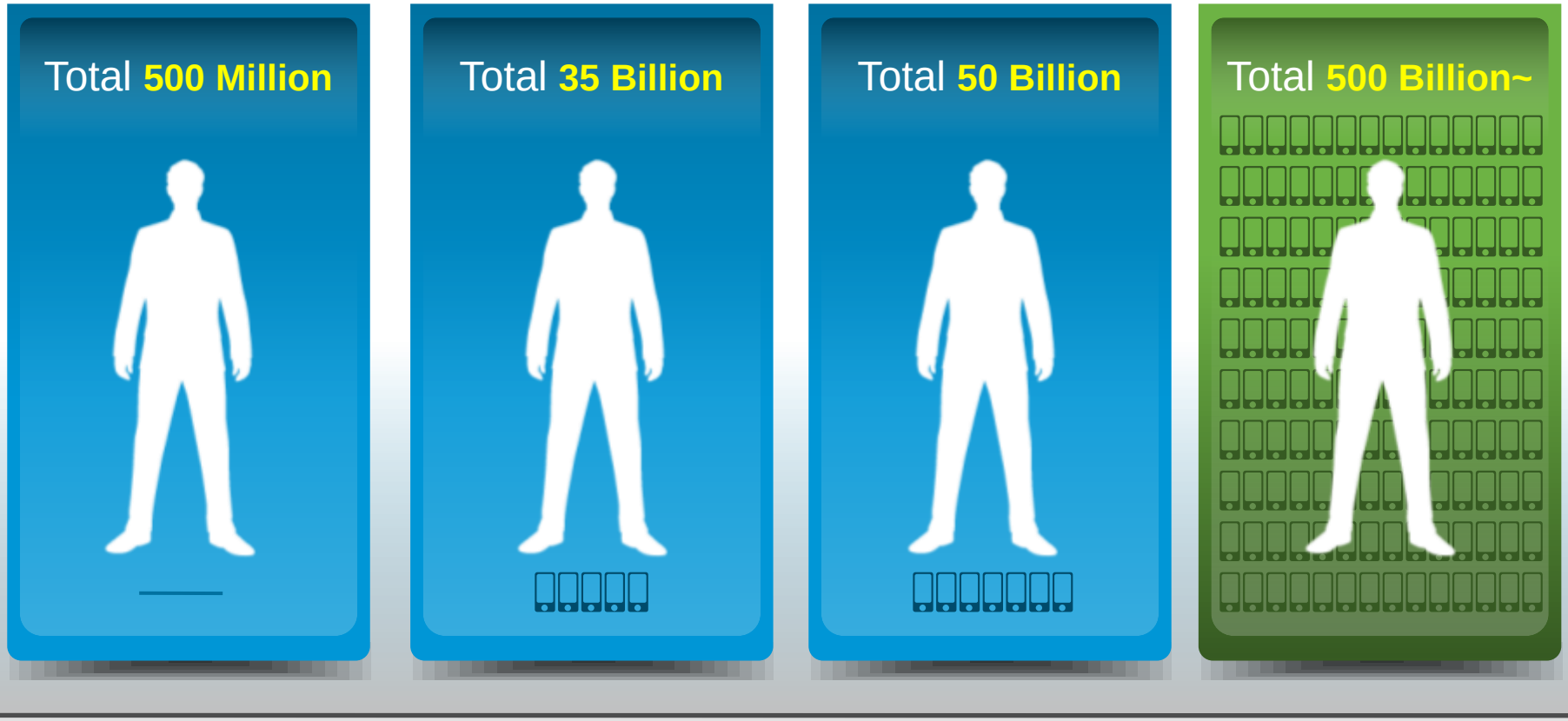
…and one other

Virtual Private Cloud	Cloud services that simulate the private cloud experience in public cloud infrastructure

Age of “Warehouse Scale” Machines

Google’s data center on the Columbia river, Oregon

Growth of Connected Devices



1/10th of a Device per Person on Earth	5 Devices per Person on Earth	7 Devices per Person on Earth	70~ Devices per Person on Earth
2007	2010	2013	2020

Source: Forrester Research, Cisco IBSG

An Even Larger Cloud Is on the Horizon

Reference: J. Rabaey, “A Brand New Wireless Day,” Keynote Presentation, ASPDAC Jan. 2008

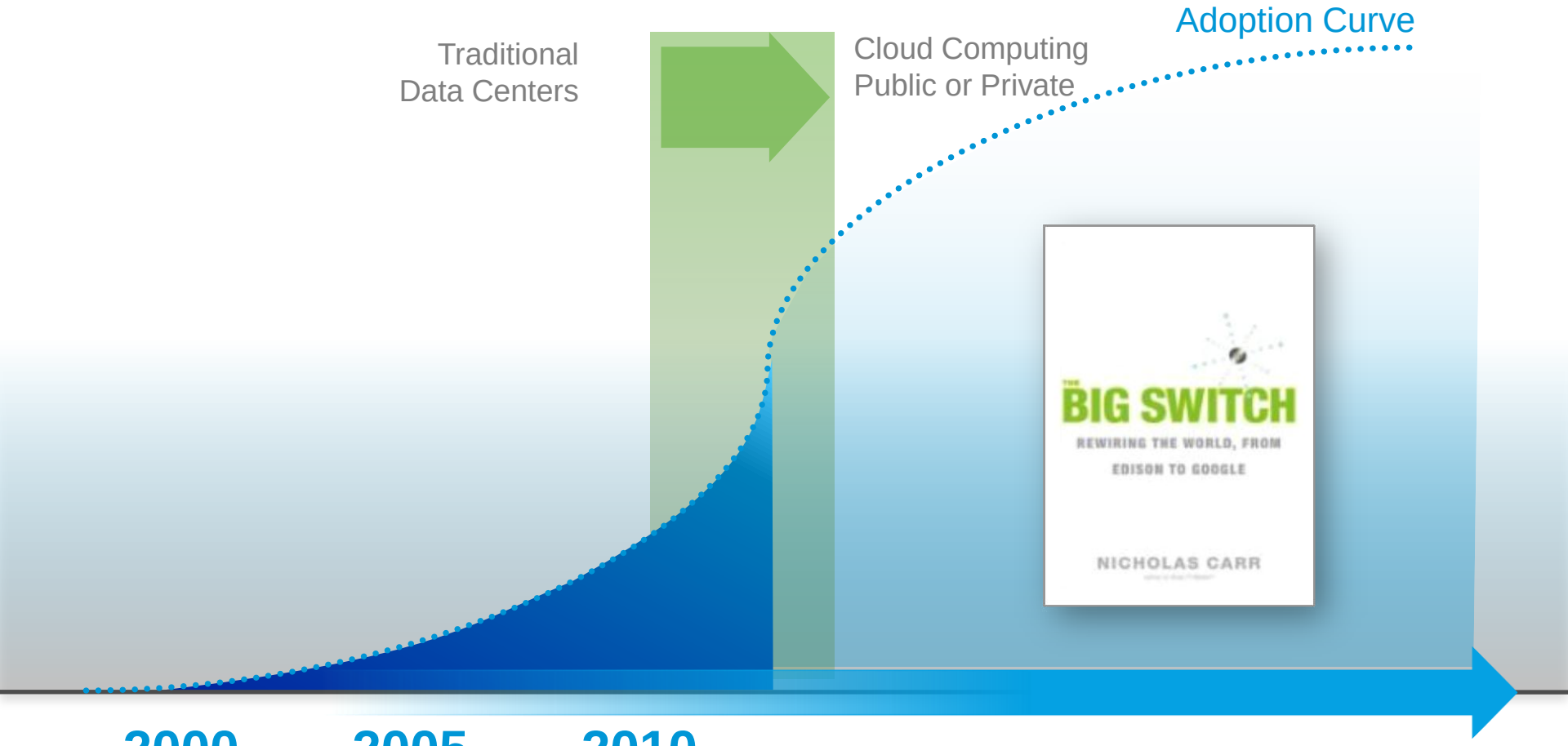
We Are Rapidly Approaching…

1 Trillion
Connected Devices

1 Million
Applications

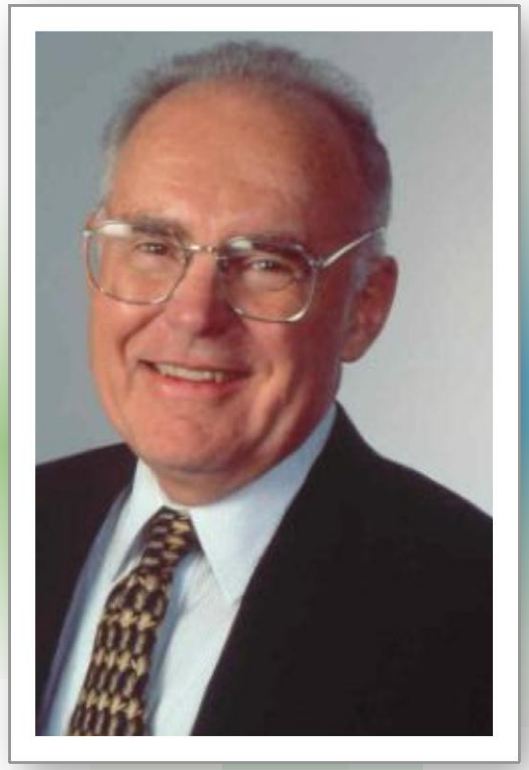
1 Zettabyte
1B Terabytes of Content

We Are at the Very Beginning of a Major Shift

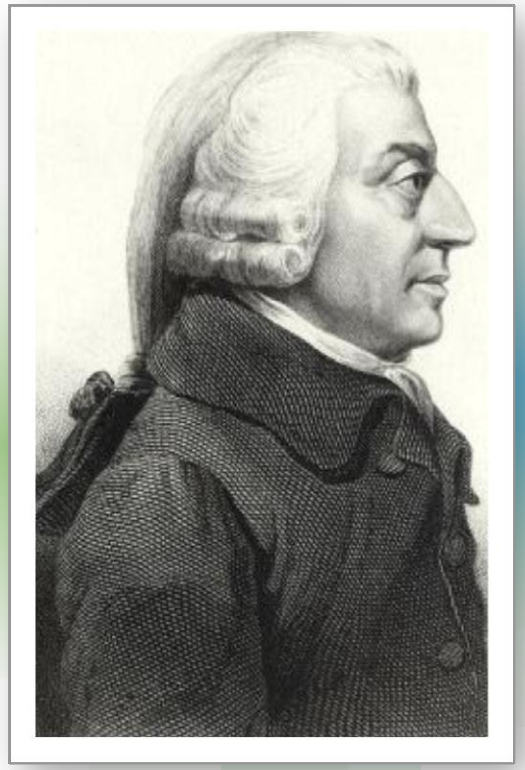


Prediction is very difficult, especially if it's about the future.
Niels Bohr

Driven by: Technology + Economics



Gordon Moore



Adam Smith

Cisco's Cloud Strategy

Essential Infrastructure for Building Clouds

For customers to build and operate public or private clouds

Solutions for Deploying Cloud Services

EMC² where information lives

bmcsoftware

vmware®

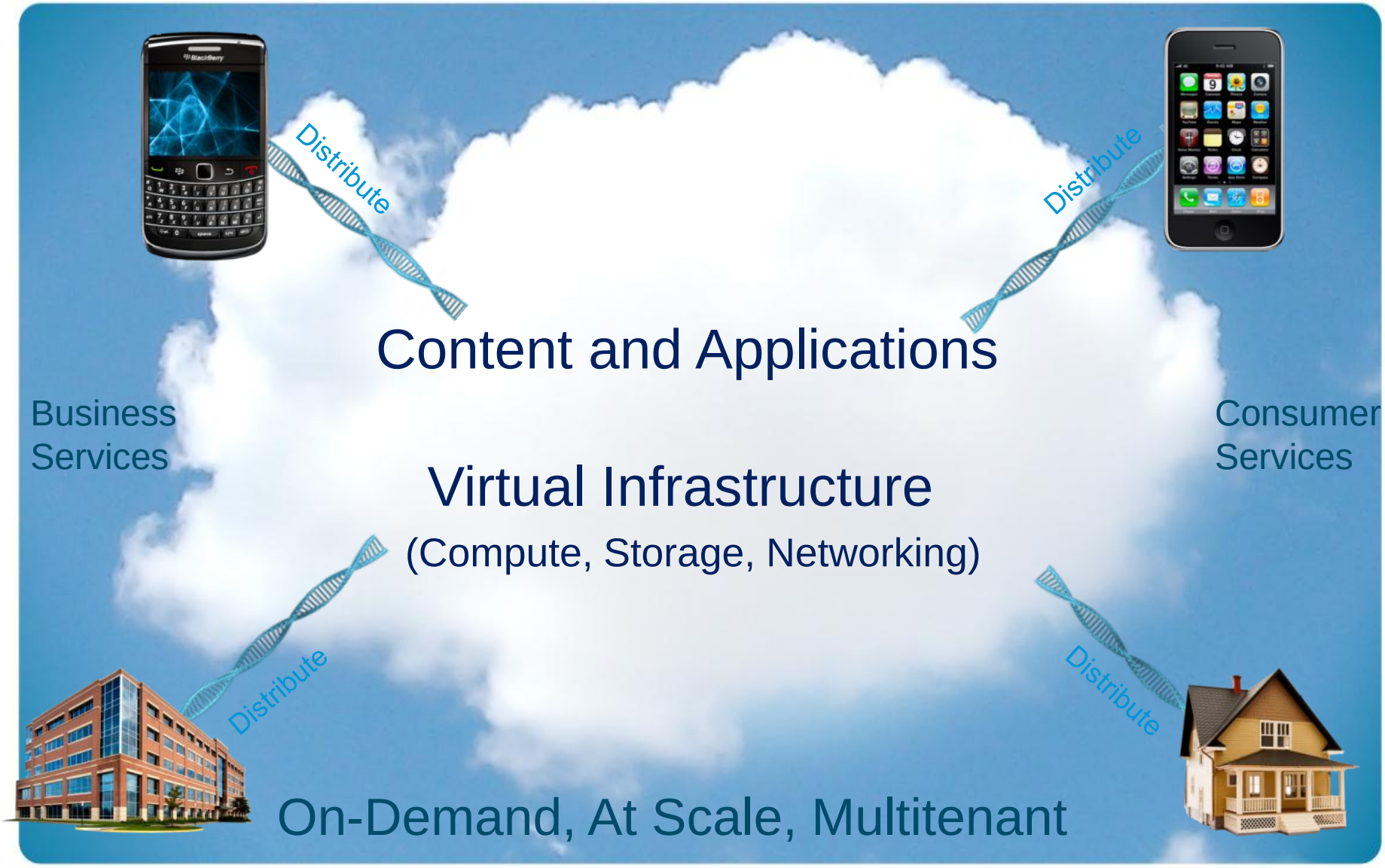
NetApp™

For customers to deploy fully-tested, best-of-breed cloud services

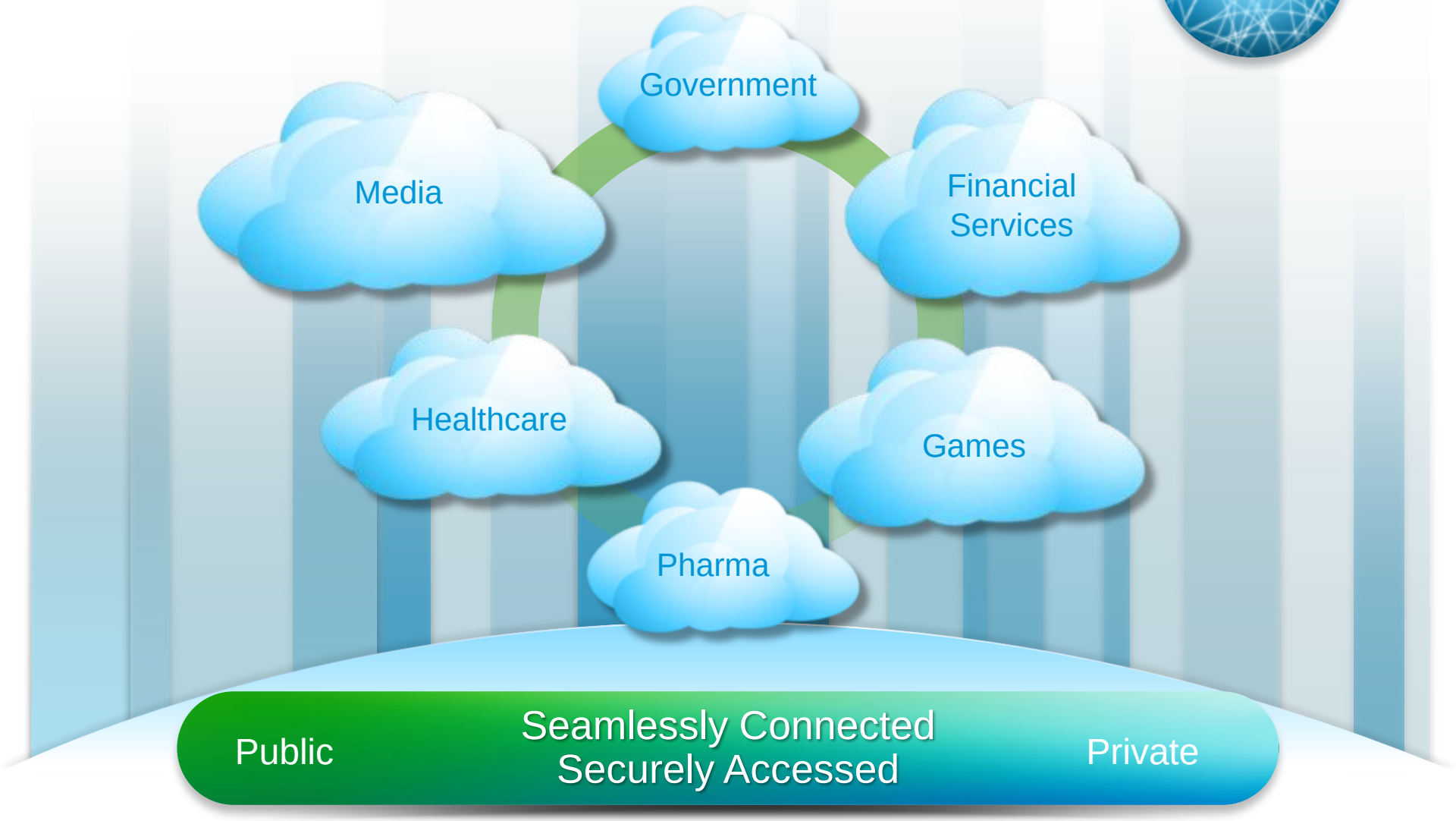
Innovation to Accelerate Use of Clouds

For users to access and collaborate using secure cloud services

Everything as a service in the cloud



A World of Many Clouds

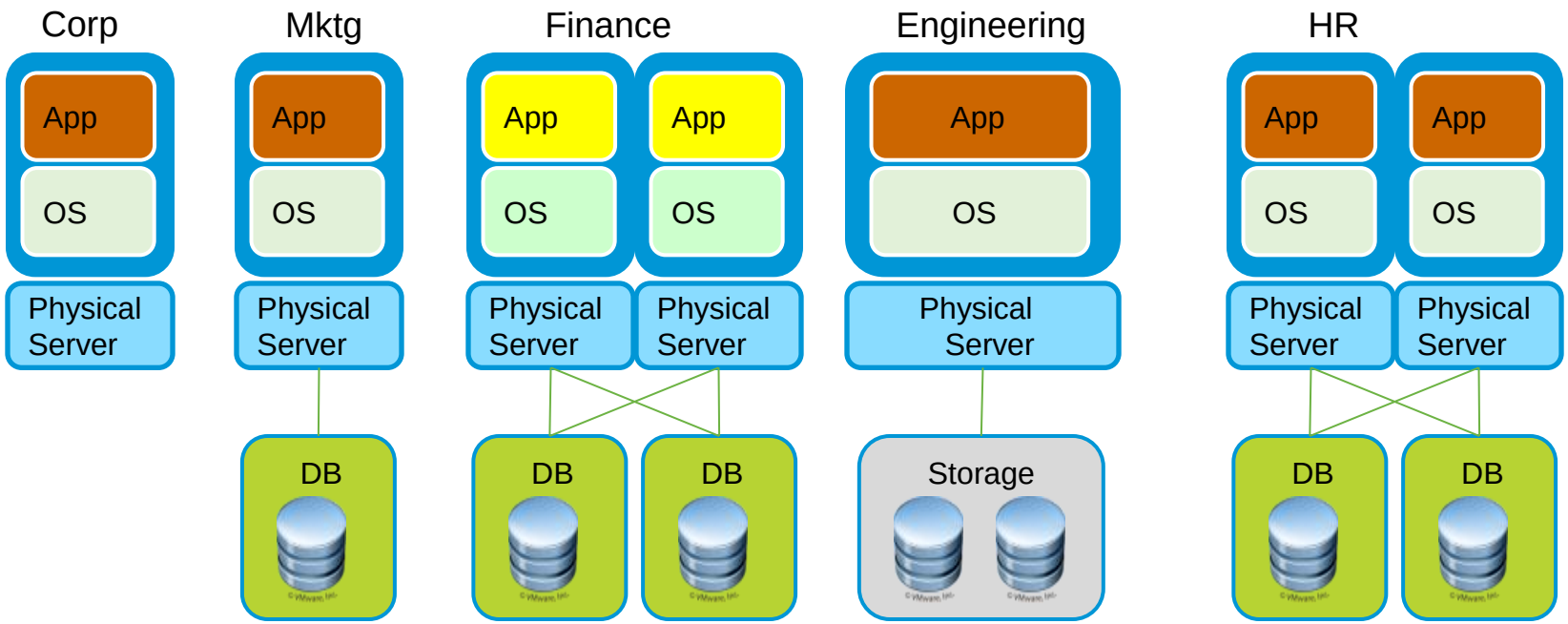


Why is the enterprise interested?

- Cloud computing is an operational model that arose out of the world of web applications needing massive, horizontal scale
- It's already taking off in new web-based companies where the economics favor a pay-as-you go financial model
- The economics of this has caught the attention of mainstream businesses
- Service providers are beginning to acknowledge the requirements for enterprise-class cloud computing
- In the meantime, can the cloud-computing model work in an on-premise, "private cloud"?

Traditional Data Center Approach

Complexity Grows With Number of Apps

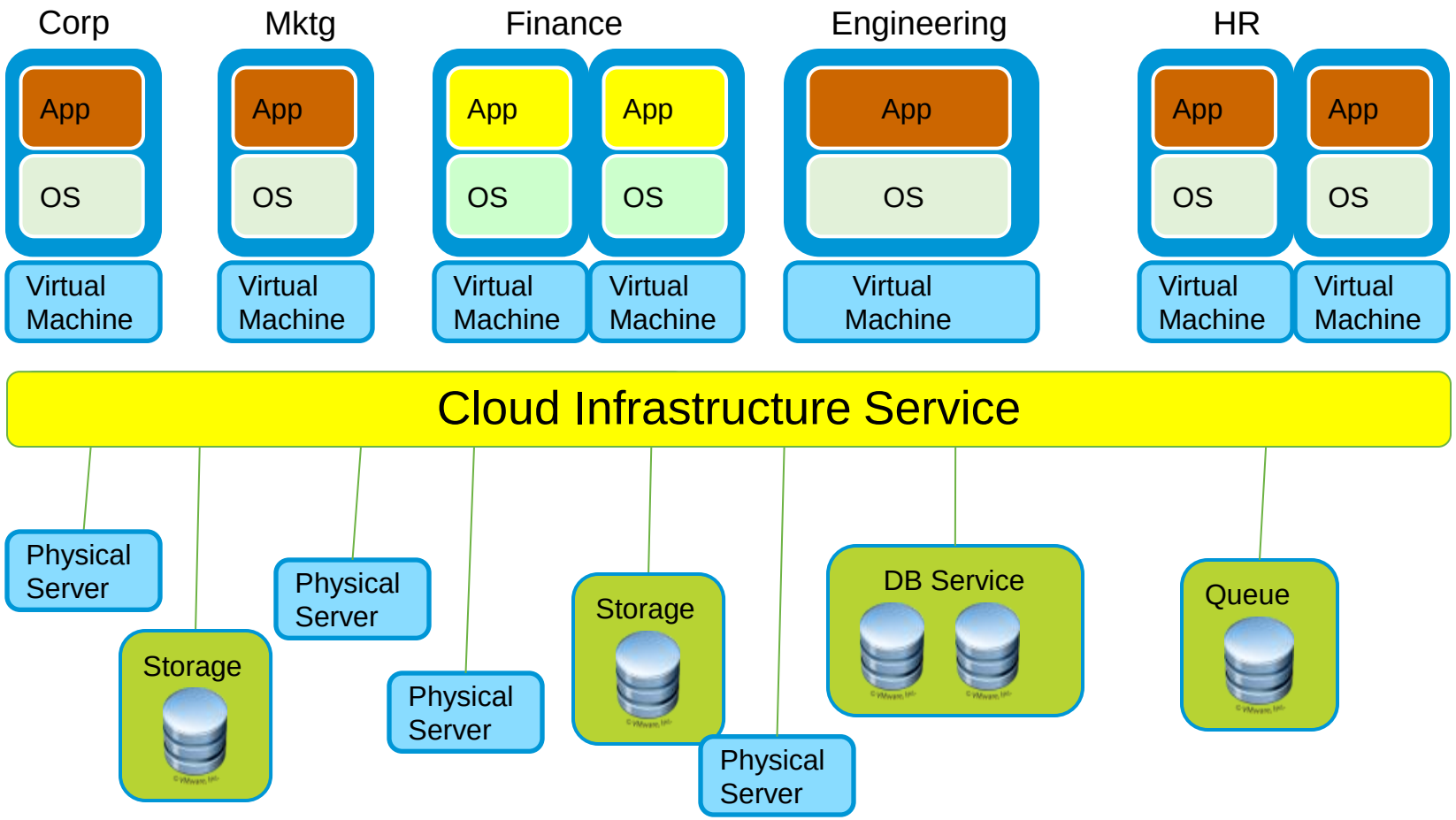


Poor Utilization

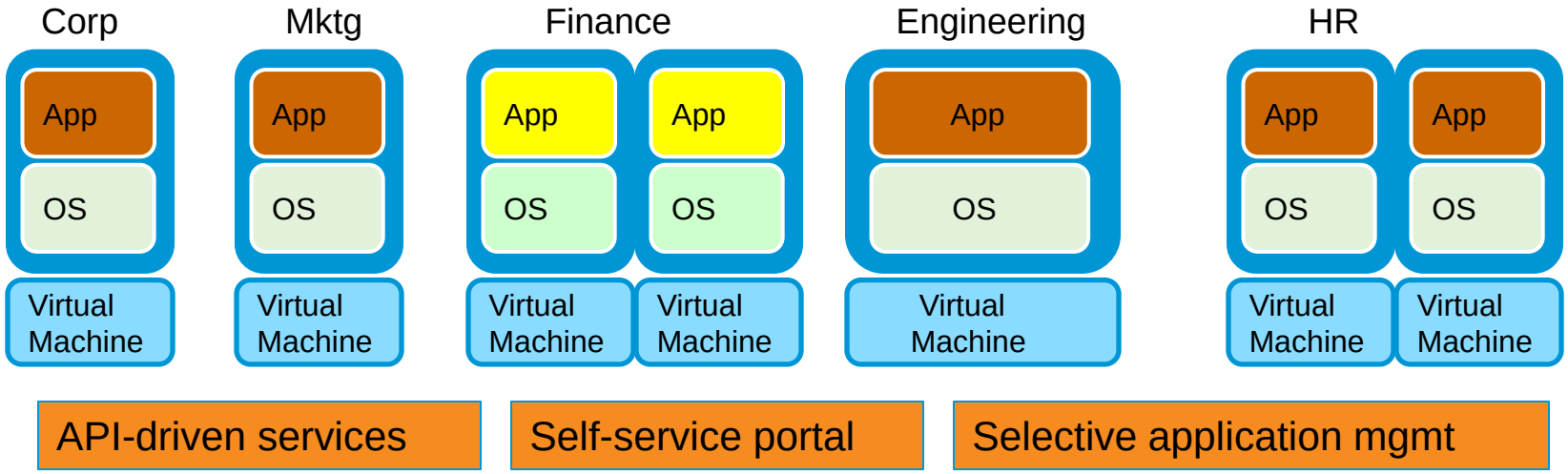
Inflexible Infrastructure

Cloud-based IT Delivery Model

Applications Run on Virtualized Infrastructure

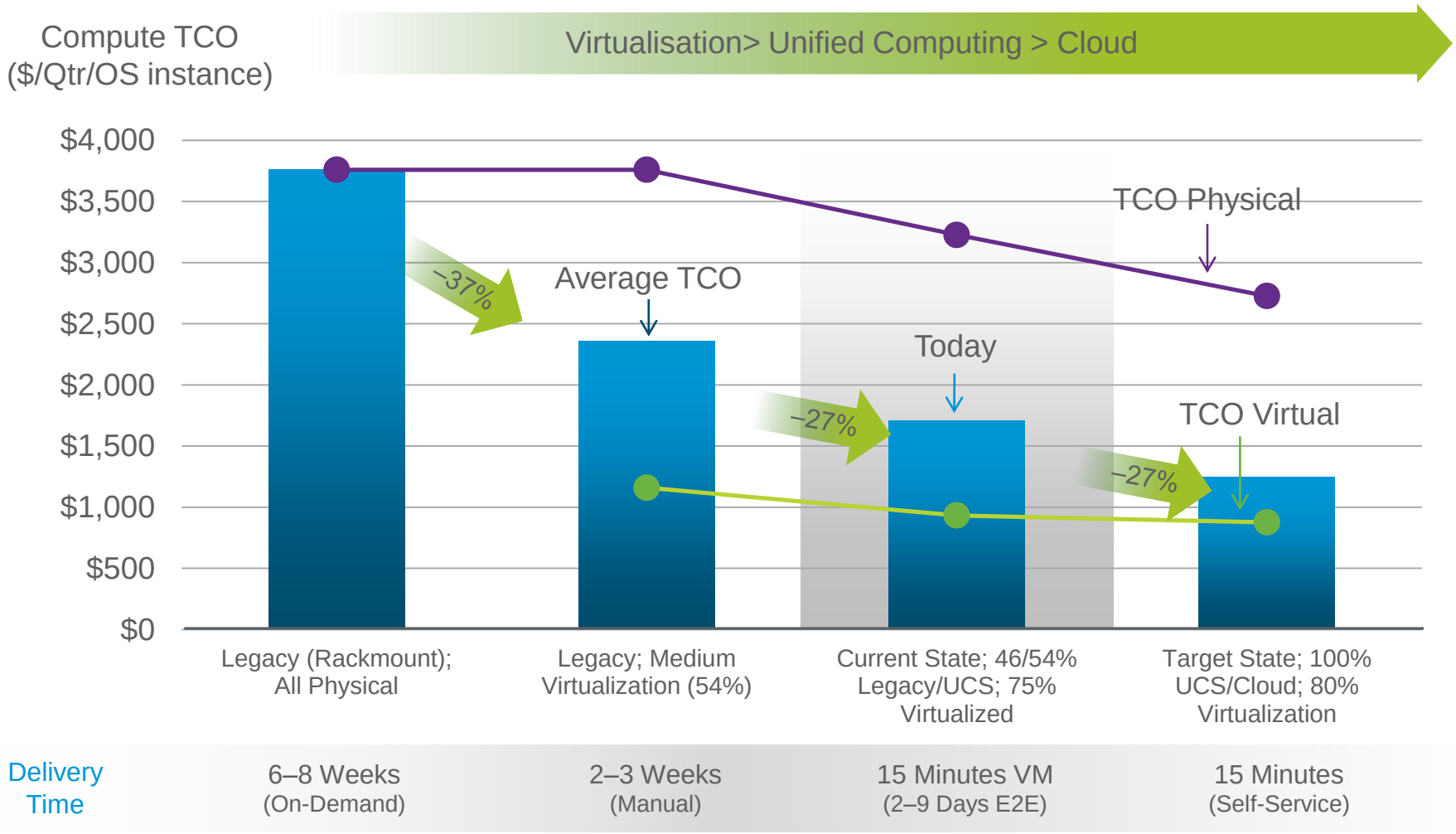


Infrastructure Becomes Scalable & Efficient



Cisco Private Cloud Brings Agility &Cost Benefits

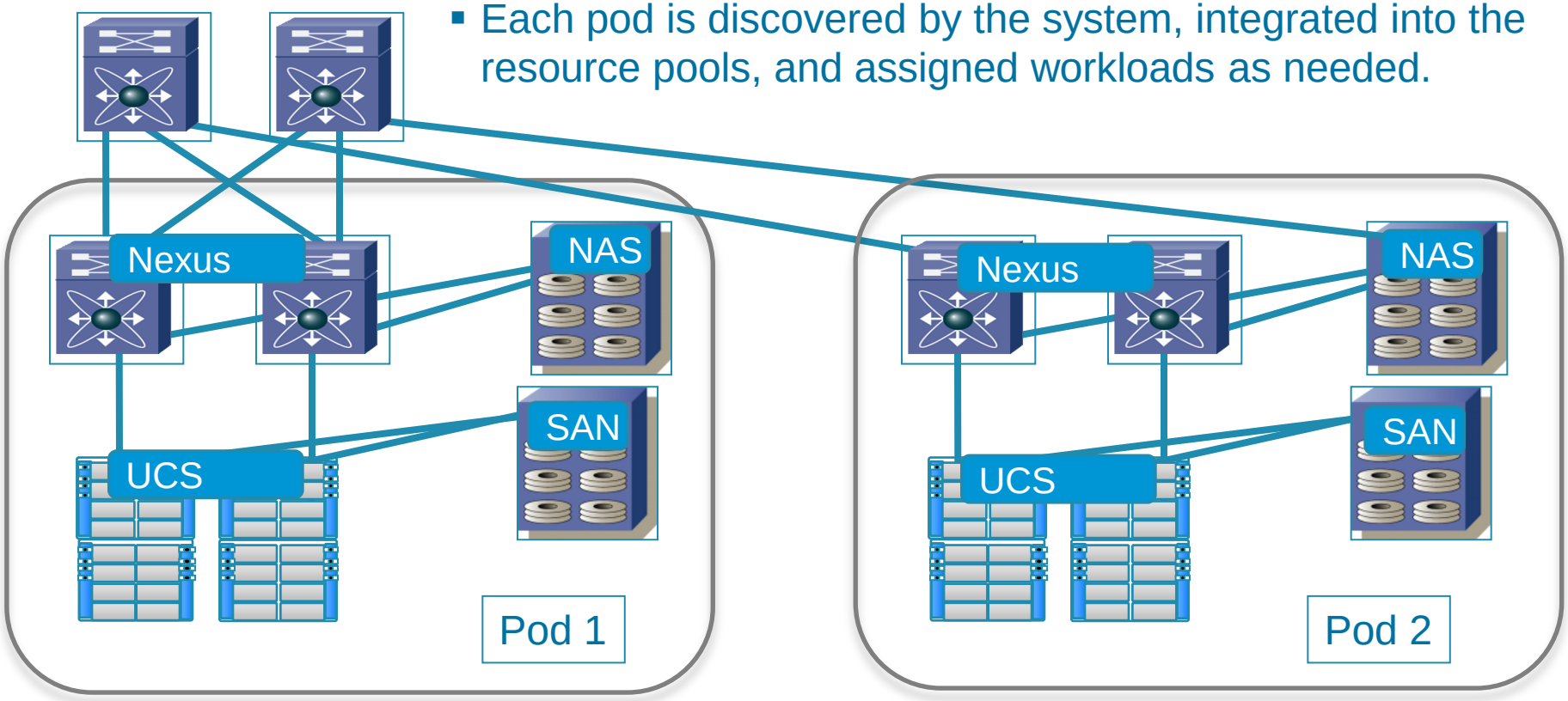
TCO and Provisioning Times



Updated Q2FY11.

Add Capacity via Pre-defined Building Blocks

- Network, Compute and Storage Resources Pre-Integrated into “pods”
- System adds capacity by adding pods
- Each pod is discovered by the system, integrated into the resource pools, and assigned workloads as needed.



Solutions for Cloud

Business Application Solutions

Hosted Collaboration Solution

vmware CITRIX EMC² where information lives NetApp

Virtual Desktop Infrastructure (VDI)/ Cisco VXI

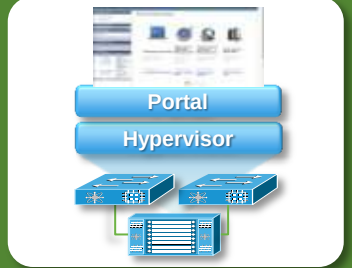
ORACLE SAP Microsoft

Tier-1 Business Applications

Integrated Computing Stacks

vBlock

FlexPod



Cloud Starter

Unified Data Centre Networking

Unified Fabric

Unified Network Services

Unified Computing

Cloud Management

CISCO

bmcsoftware

ca

Microsoft

vmware

IBM

Network-Wide Virtualization

VXI End-to-End System Architecture

= Collaboration

= Borderless Networks

= Data Center

Cisco Collaboration Applications

MS Office

Microsoft OS

Desktop Virtualization Software

CITRIX vmware

Hypervisor

CITRIX vmware Microsoft

WAAS

Nexus

Virtual Unified CM

Virtual Quad

Hypervisor

Compute

UCS

ACE

EMC² NetApp

Branch

CDN

Cisco WAN

WAAS

Cisco Clients

Cius Business Tablets

Cisco Desktop Virtualization Endpoints

Thin Client Ecosystem

LIGEL

WYSE

End-to-End Security, Management and Automation

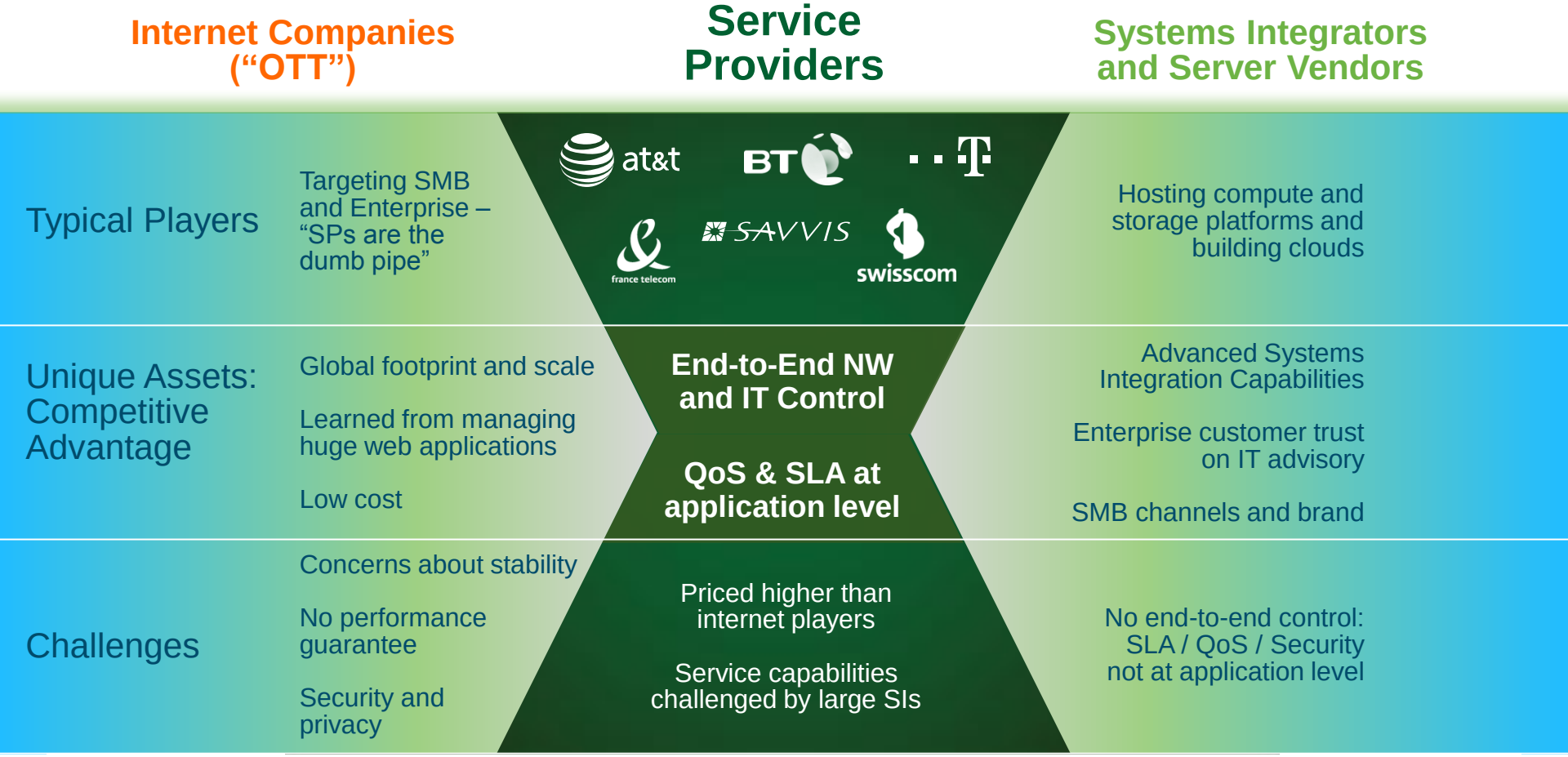
Who delivers the Cloud ?

Enterprise & Public Sector

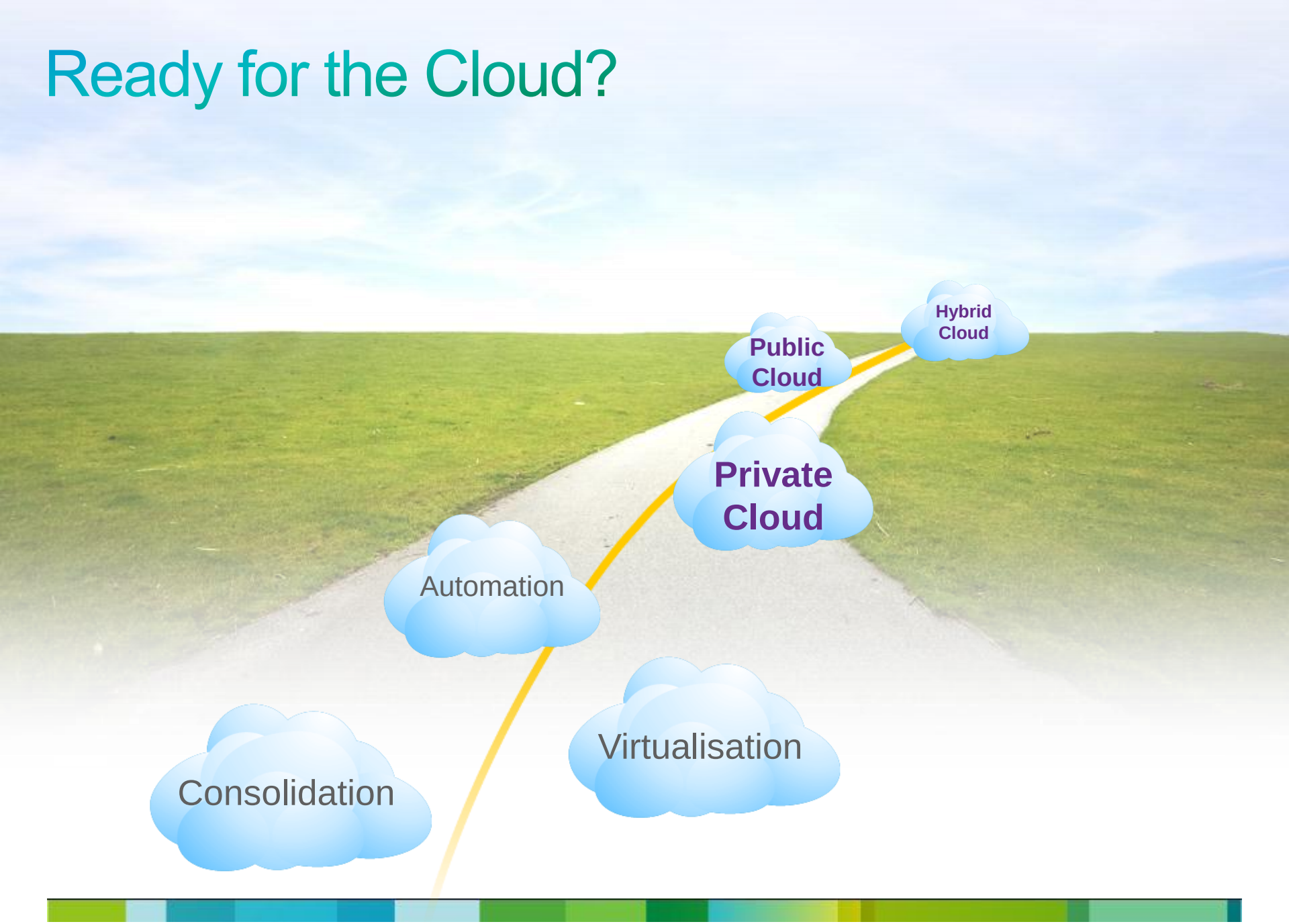
- Be clear on your core competences, focus & requirements
  - SLAs
  - Security
  - Data Protection
  - Business Needs, Application Skills
- Many large Enterprises decided to build a Private Cloud – move some services out into a Public Cloud
  - Long Term vision: Hybrid
- Many government entities build their Community Cloud or contracted a Service Provider to build it
- Most Services Providers entered the market by building their Private Cloud, in preparation for Virtual Private Cloud/Public Cloud Services

Who delivers the Cloud ?

Sustainable Differentiators



Ready for the Cloud?



The Network is the Computer, once again…