

Cloud Computing Prospects & Challenges

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SPACE
H E L L A S
More than Technology



OUTLINE

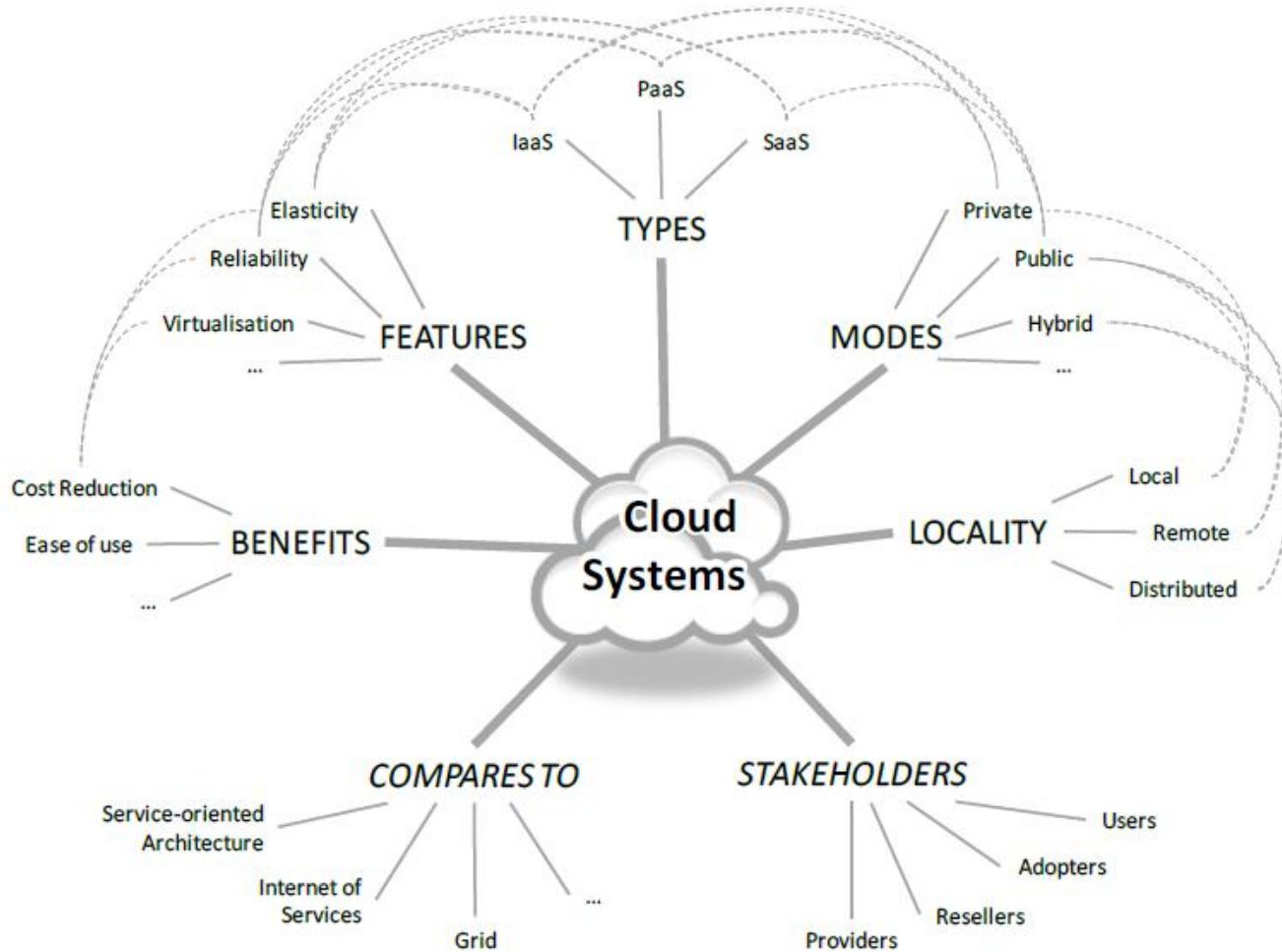
- ▲ Cloud Definition and Classification
- ▲ Deployment Types, Roles, and Capabilities
- ▲ Economic Benefits
- ▲ Technology Enablers
- ▲ Challenges
- ▲ Trends
- ▲ Roadmap
- ▲ Opportunities



WHAT IS A CLOUD ?

“A cloud is a platform or infrastructure that enables execution of code (services, applications, ...) in a managed, automated and elastic fashion, delivered using Internet technologies”

WHAT IS A CLOUD ?





TERMINOLOGY

▀ Types of Clouds (based on Functionality Provisioning)

- Infrastructure, Platform, Software-Application

▀ Deployment Types (based on Cloud Usage)

- Private, Public, Hybrid, Community, Special Purpose

▀ Cloud Environment Roles

- Providers, Resellers, Adopters, Consumers, Tool Providers



TYPES OF CLOUDS

▀ Infrastructure as a Service (IaaS)

- Data and Storage Clouds
- Compute Clouds

▀ Platform as a Service (PaaS)

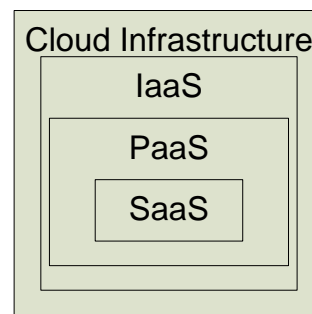
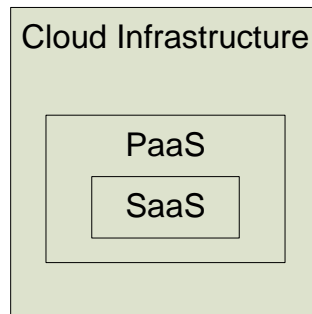
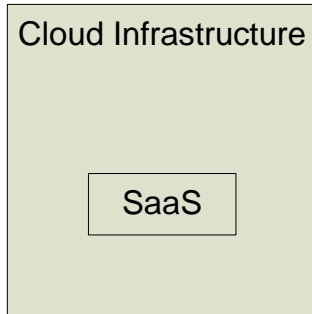
- A development and deployment platform delivered as a service to developers over the Web
- Consists of infrastructure software that includes database, middleware, development tools and APIs

▀ Software as a Service (SaaS)

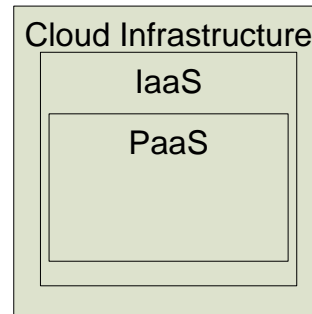
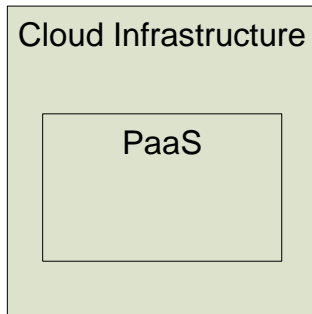
- Based on Infrastructure or Platform Clouds
- Offer specific Business Functions and Business Processes to multiple tenants



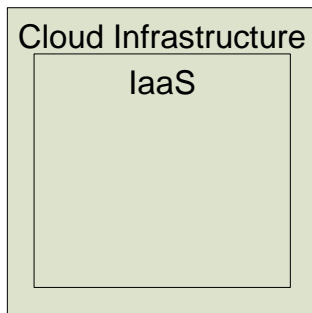
TYPES OF CLOUDS



Software as a Service
(SaaS)
Architectures



Platform as a Service (PaaS)
Architectures



Infrastructure as a Service (IaaS)
Architectures



DEPLOYMENT TYPES (CLOUD USAGE)

Private Clouds

- Usually owned by an Enterprise
- Functionality not exposed to the Customer

Public Clouds

- Enterprises use Cloud functionality from others
- Offer services to users outside of the Enterprise

Hybrid Clouds

- Mix of Private and Public Clouds
- Partial Resource Outsourcing for Cost Reduction
- Control over Sensitive Data & Code

Community Clouds

- Aggregation of Public Clouds or Resource Infrastructures

Special Purpose Clouds



CLOUD ENVIRONMENT ROLES

Providers

Resellers or Aggregators

Adopters or
(Software / Services) Vendors

Consumers or Users

Tool Providers



SPECIFIC CAPABILITIES of CLOUDS

/// Elasticity

- Horizontal and Vertical Scalability
- Rapid Up- and Down- Scaling
- Dynamic Integration of Physical Resources

/// Reliability

/// Quality of Service

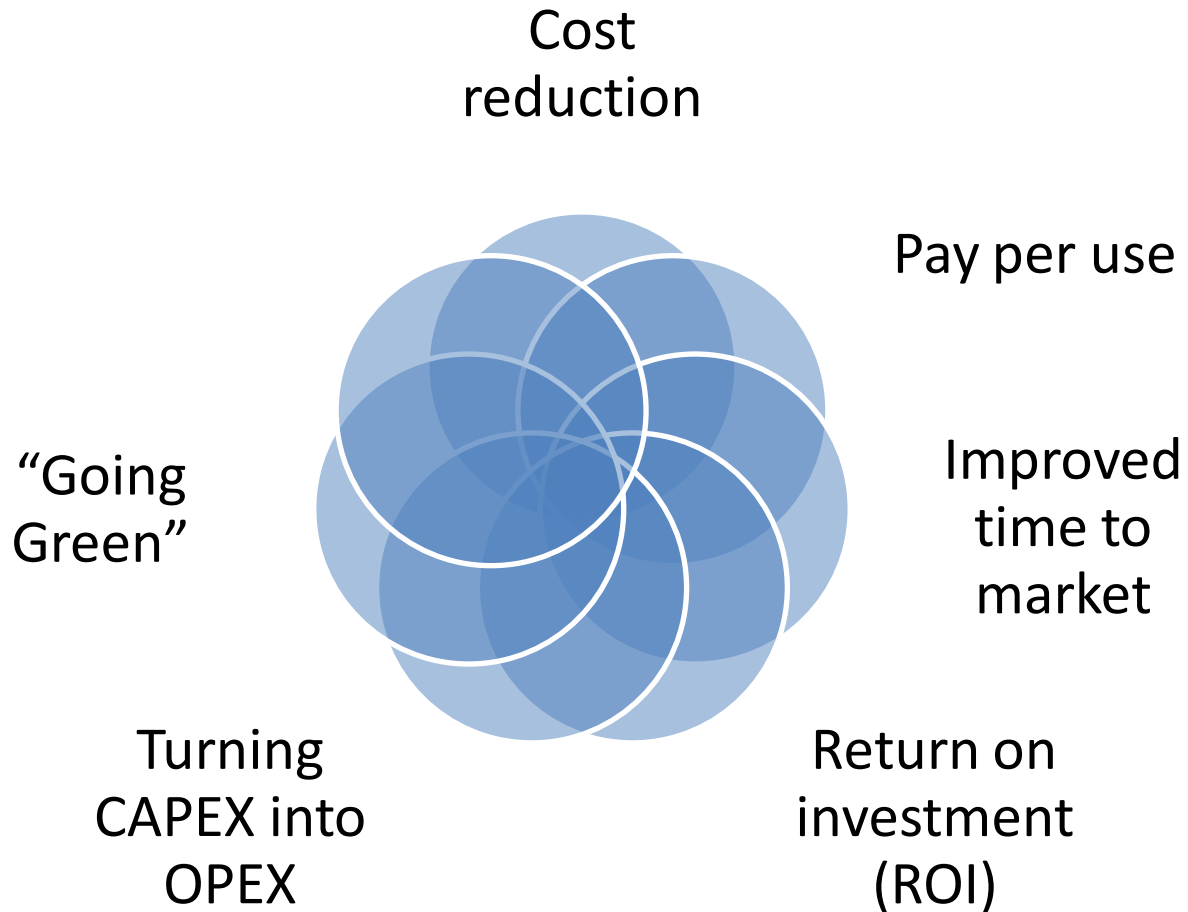
/// Agility and adaptability

- On-time reaction to changing numbers and size of requests

/// Availability



ECONOMIC BENEFITS





TECHNOLOGY ENABLERS

- /// Virtualization
 - Evolution to Fabrics of Computing
- /// Multi-tenancy
 - One application instance may be serving hundreds of companies
- /// Security, Privacy and Compliance
- /// Data Management
- /// APIs and / or Programming Enhancements
- /// Metering
- /// Tools

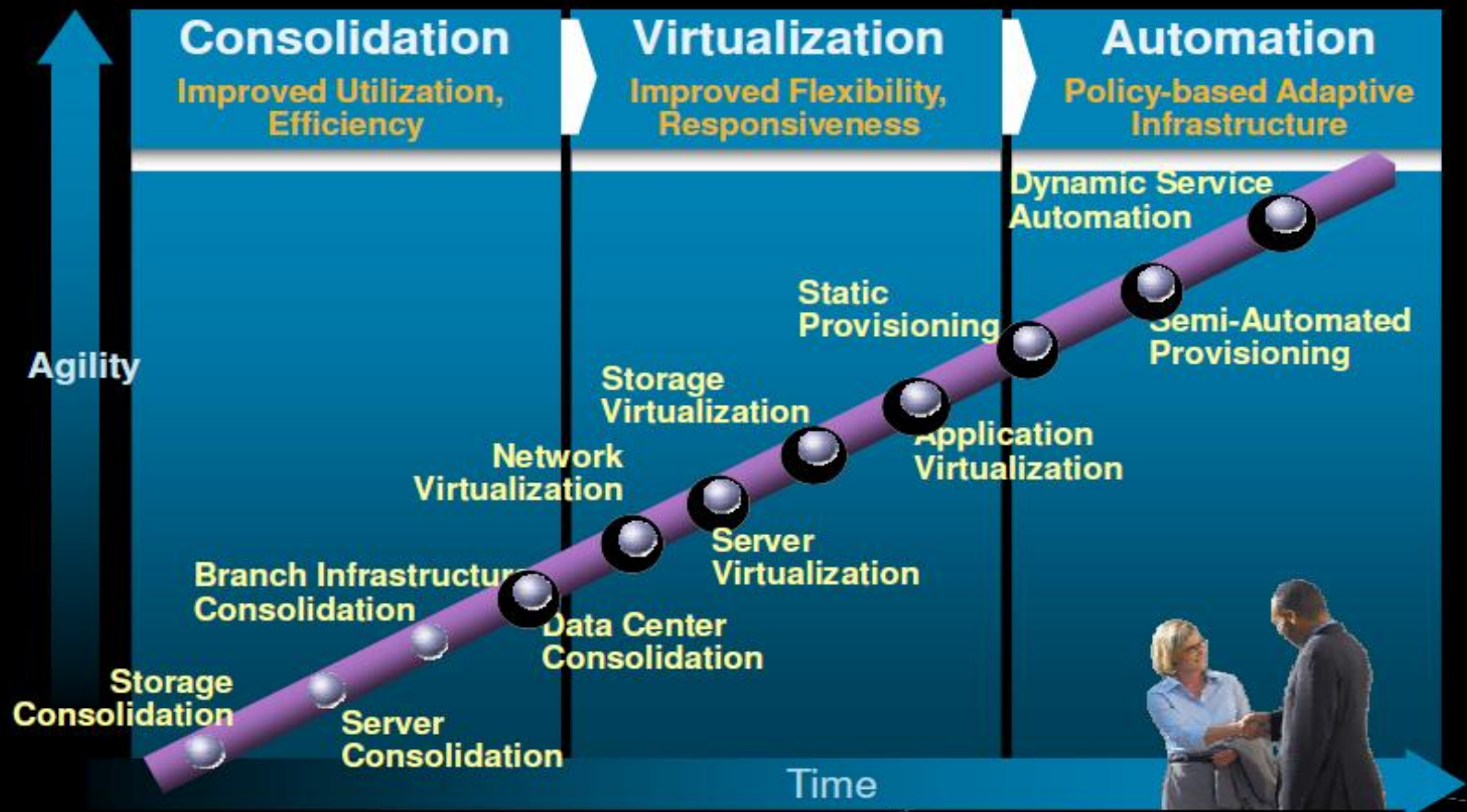


CHALLENGES

- ▲ Manageability and Automation
 - Optimal resource usage
 - Self-healing, Self-configuration, Self-optimization, Self-protection
- ▲ Data Management
- ▲ Immaturity of Technology Enablers
- ▲ Privacy & Security
- ▲ Federation & Interoperability
- ▲ Virtualization, Elasticity and Adaptability
- ▲ APIs, Programming Models & Resource Control
- ▲ Legislation, Government & Policies
- ▲ Economic Concerns

Pragmatic Path to Next-Gen Infrastructure

Incremental, Low Risk Evolution via Best Practices





EXPECTED TRENDS

Not everything can be moved
to cloud

Private clouds are the first to
come with hybrid to follow

Public clouds will mature
gradually

New applications must &
will appear based on SoA

Infrastructure will evolve to a
more abstract paradigm

X86 Architecture seems
to prevail



ROADMAP to CLOUD

IT Modernization through Virtualization

Analysis of services, SLAs, costs, future needs

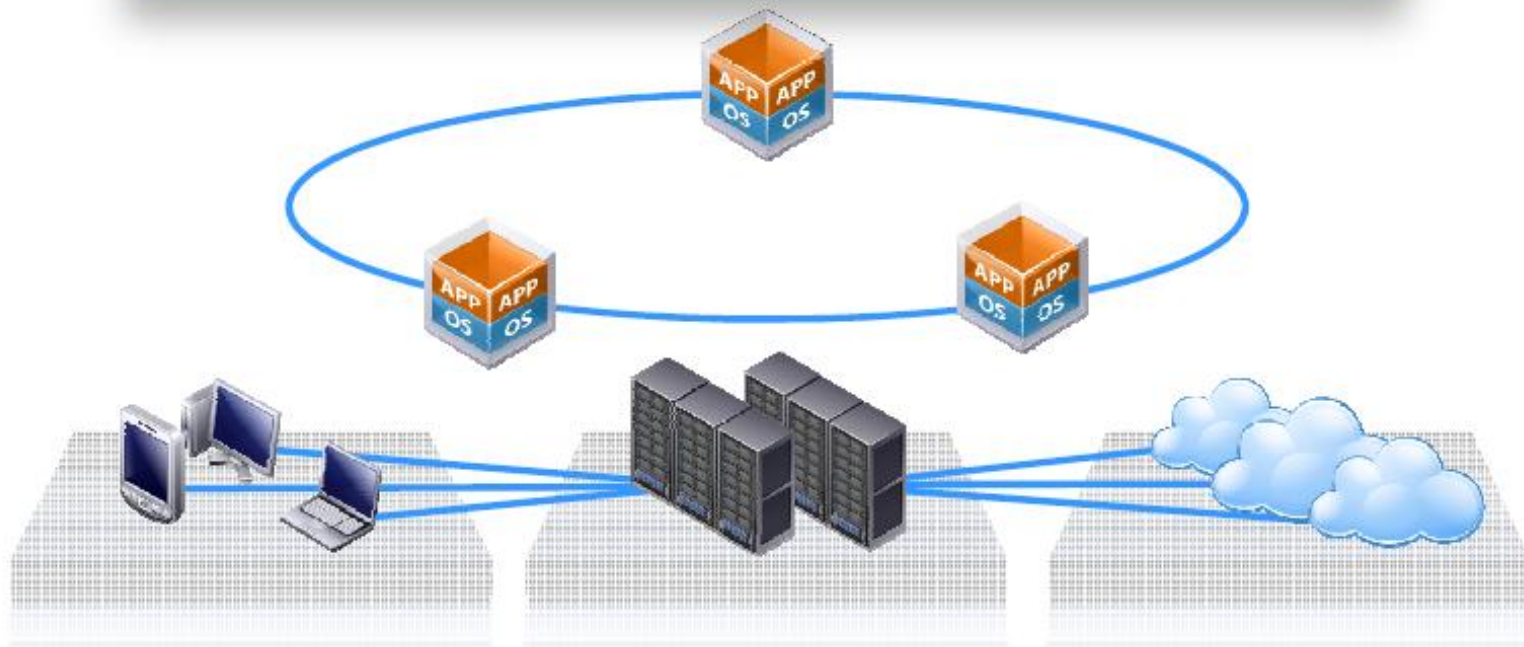
Development of a Cloud Strategy to services that fit

Private cloud Implementation

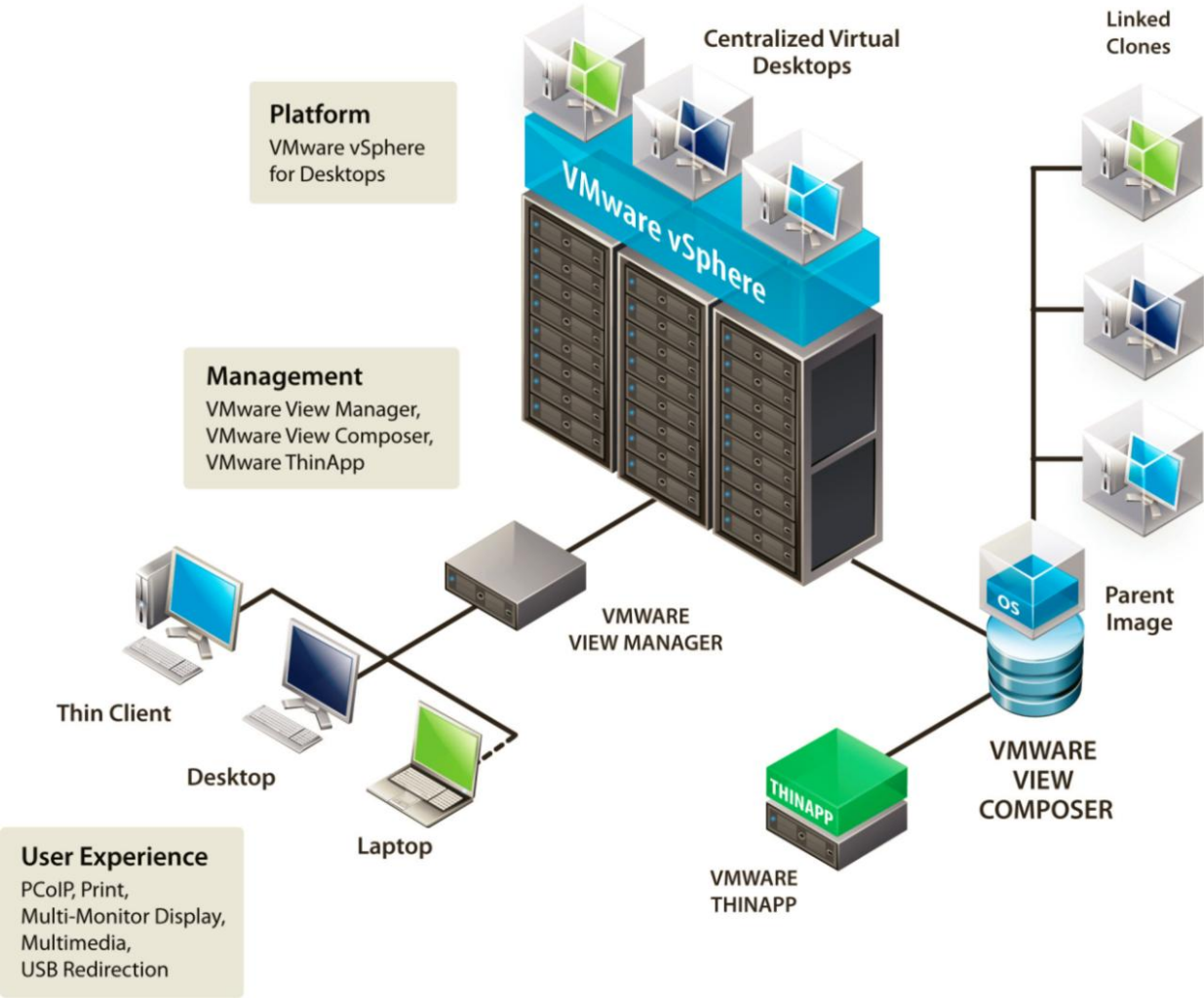
Identification of new opportunities that cloud computing offers

VIRTUALIZATION ADOPTION OPPORTUNITIES

Virtualizing all IT assets – from the desktop through the datacenter to the cloud – using a common virtualization platform, to create a dynamic, flexible infrastructure for the business



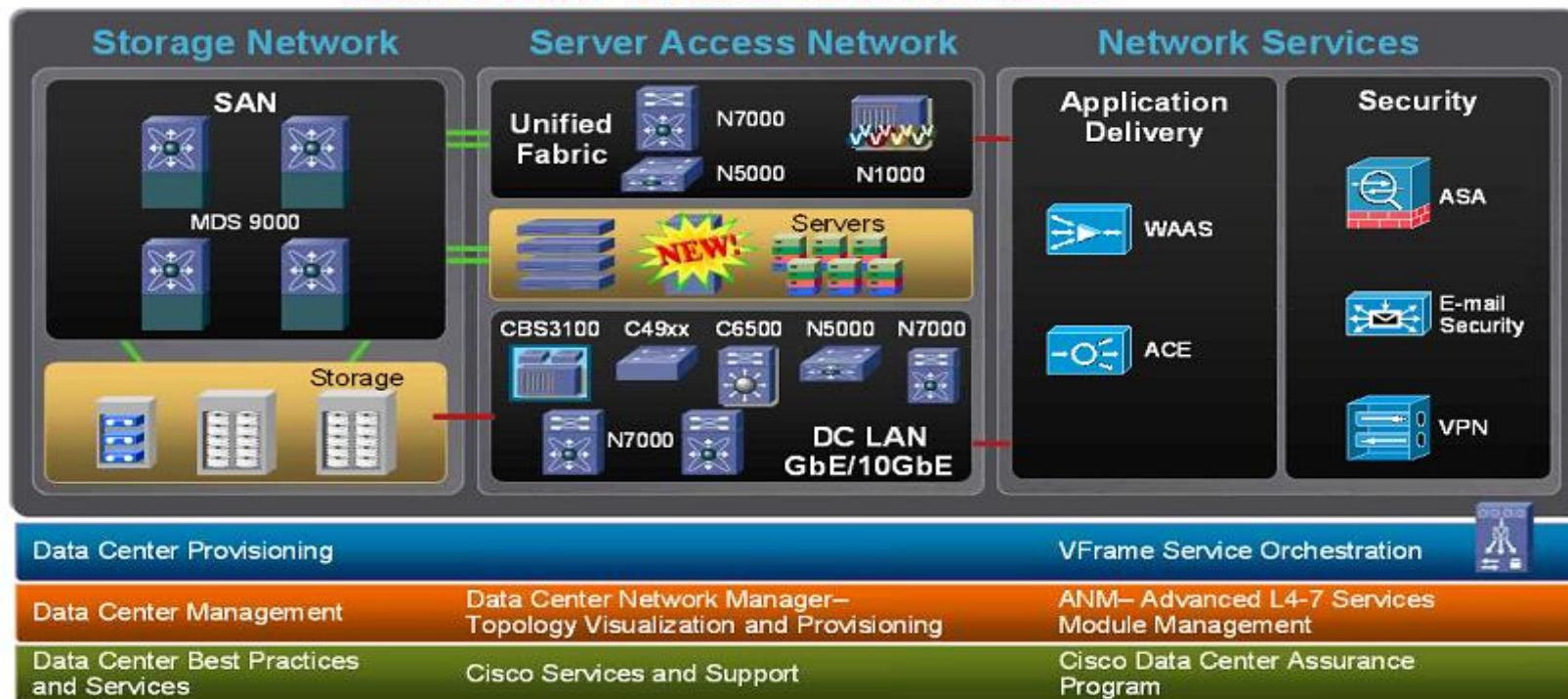
From the CLIENT...



...to FABRICS of COMPUTING

Cisco Data Center 3.0 Network Architecture

Data Center virtualization solution





FUTURE OPPORTUNITIES

GLOBAL CLOUD ECOSYSTEMS

NEW BUSINESS MODELS AND EXPERT SYSTEMS

HOLISTIC MANAGEMENT &
CONTROL SYSTEMS

CLOUD SUPPORT TOOLS

MEDIATION OF SERVICES &
APPLICATIONS ON CLOUDS


GREEN IT

COMMODITY AND SPECIAL PURPOSE CLOUDS

OPEN SOURCE CLOUDWARE

TRANSITION FROM GRID TO CLOUD

START-UP NETWORKS



Space Hellas is a **leading System Integrator** in the ICT market servicing a **broad base of loyal customers** for the past **25 years**. Space Hellas implements a wide array of IT solutions and adopts all new IT trends that are able to offer its customers a **strong competitive edge**, backed by a **strong technical team of certified and highly skilled personnel**.

Virtualization

- Datacenter
- Desktop

Storage Management

- Consolidation
- Unification
- Tiering

Disaster Recovery

Infrastructure & Application Upgrades

- OS Upgrades
- Application Upgrades

Data Management

- Backup/Restore
- De-duplication
- VTL
- Archiving

THANK YOU!



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