



Technology for a Changing World

Ed Baker

Director Architectures

Emerging Markets East

Cisco Systems

CISCO VISION

Changing the way
the World Lives,
Works, Plays &
Learns

Three Key Market Transitions

**Future
of Work**



**Future
of Computing**



Future of Connected Life

Driven by Video and Collaboration

Future of Work

**Inter-Company
Collaboration**

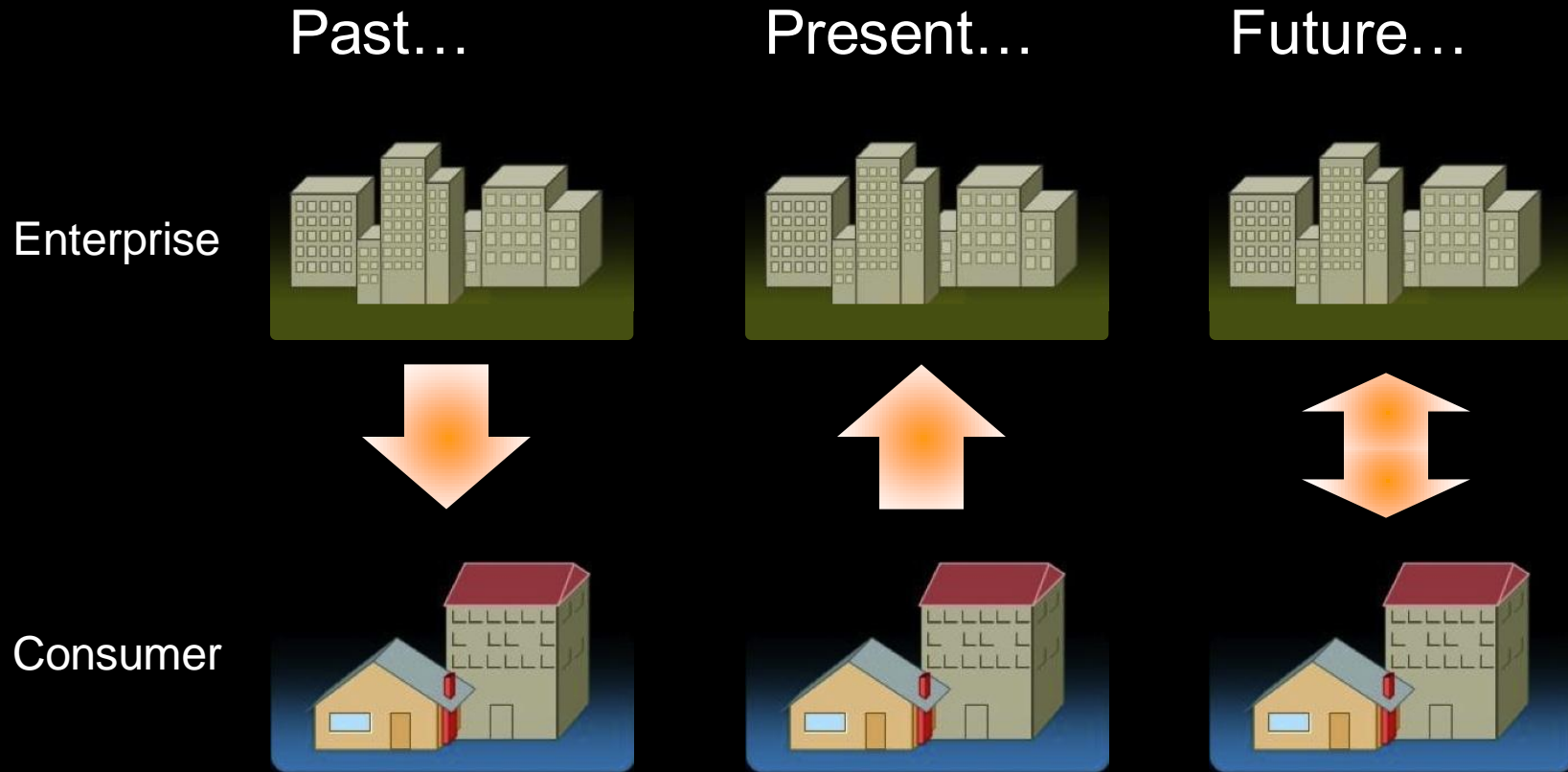
**Clusters
of Experts**

Millennials

**Mobile
Experience**



Innovation Flow between Consumer and Enterprise



Very Few Companies Understand Both of These Worlds

Future of Connected Life

**Internet
Mobility will
be Pervasive**

**Content
Sharing vs.
“Owning”**

Video

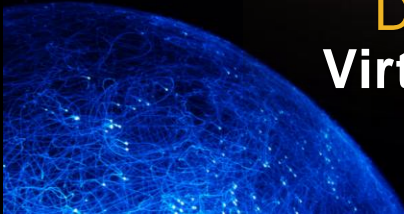
**Lifestyle
Optimization**



Future of Computing



Disruptor:
Virtualization



Web



Client Server



Minicomputer



Mainframe



Evolution of the Internet

**Cisco
Strategic
Focus**

Video

Collaboration

**Smart
Connected
Communities**

**Virtualization
→ Cloud**

**The Next
Internet**

**Media
Experience
Platform**

**Collaboration
Platform**

Sustainability

**Distributed,
Virtualized
Architecture**

Cisco Strategic Focus:

Video

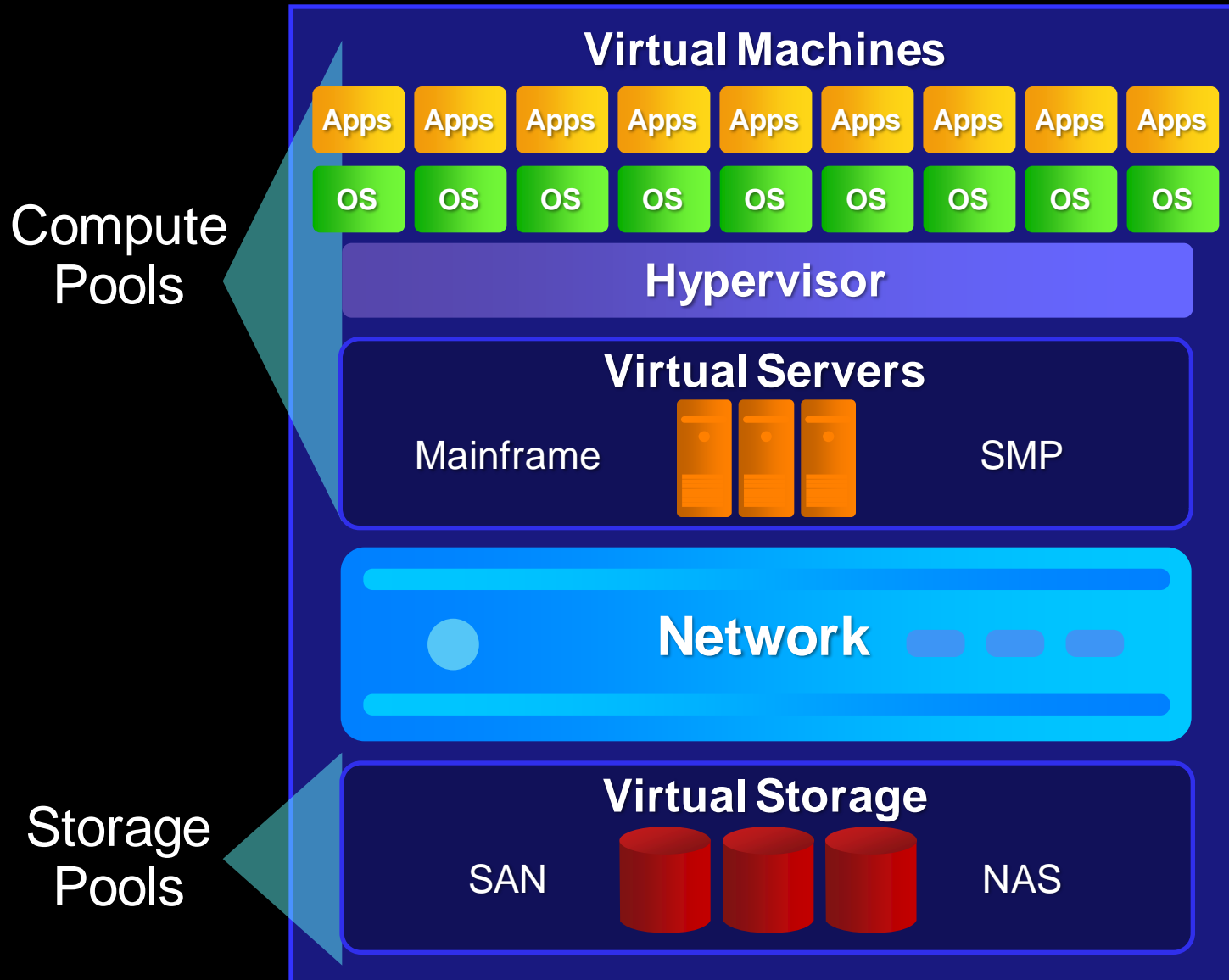
Collaboration

Sustainability

Virtualization

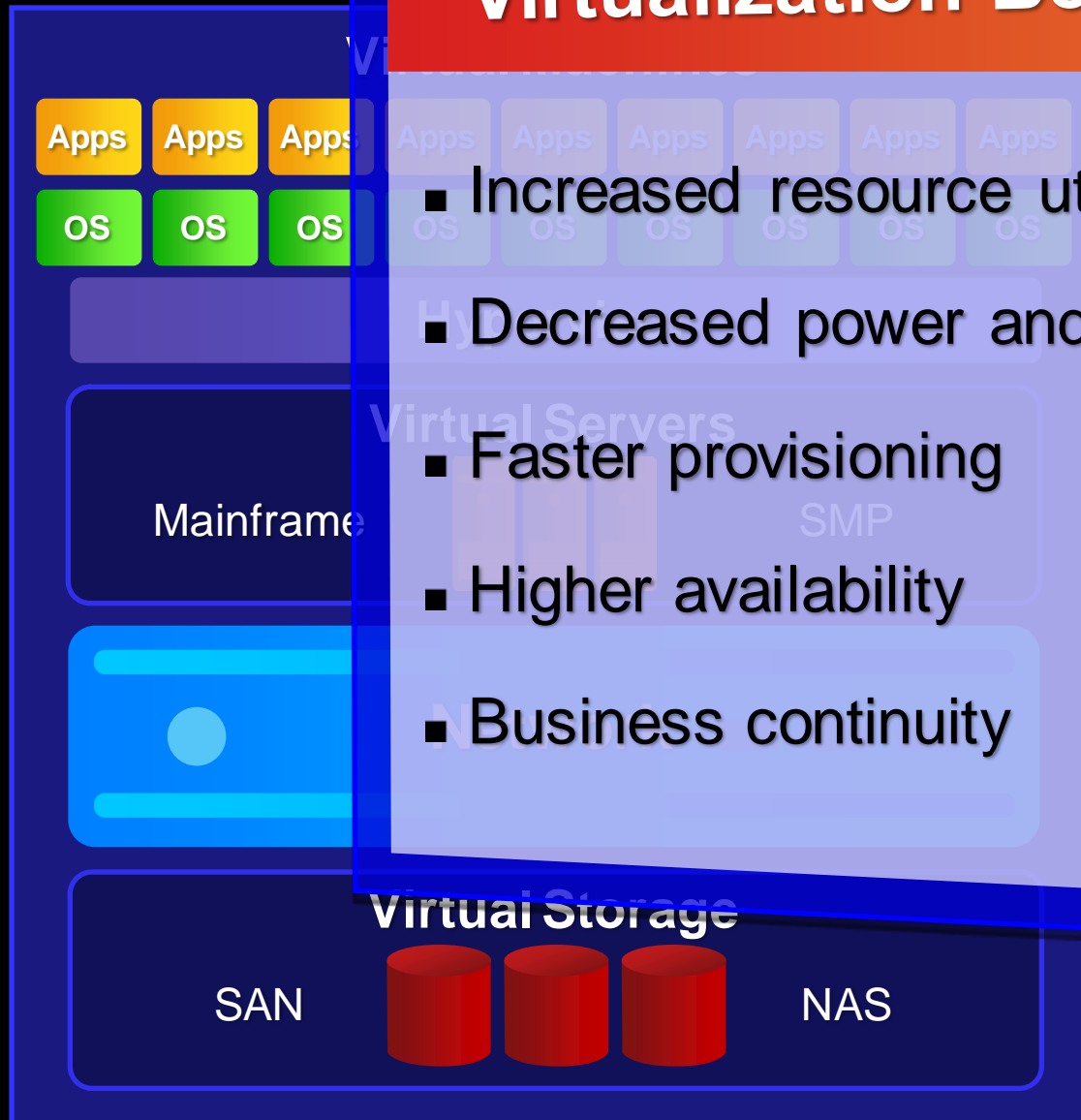


Separates Logical from Physical

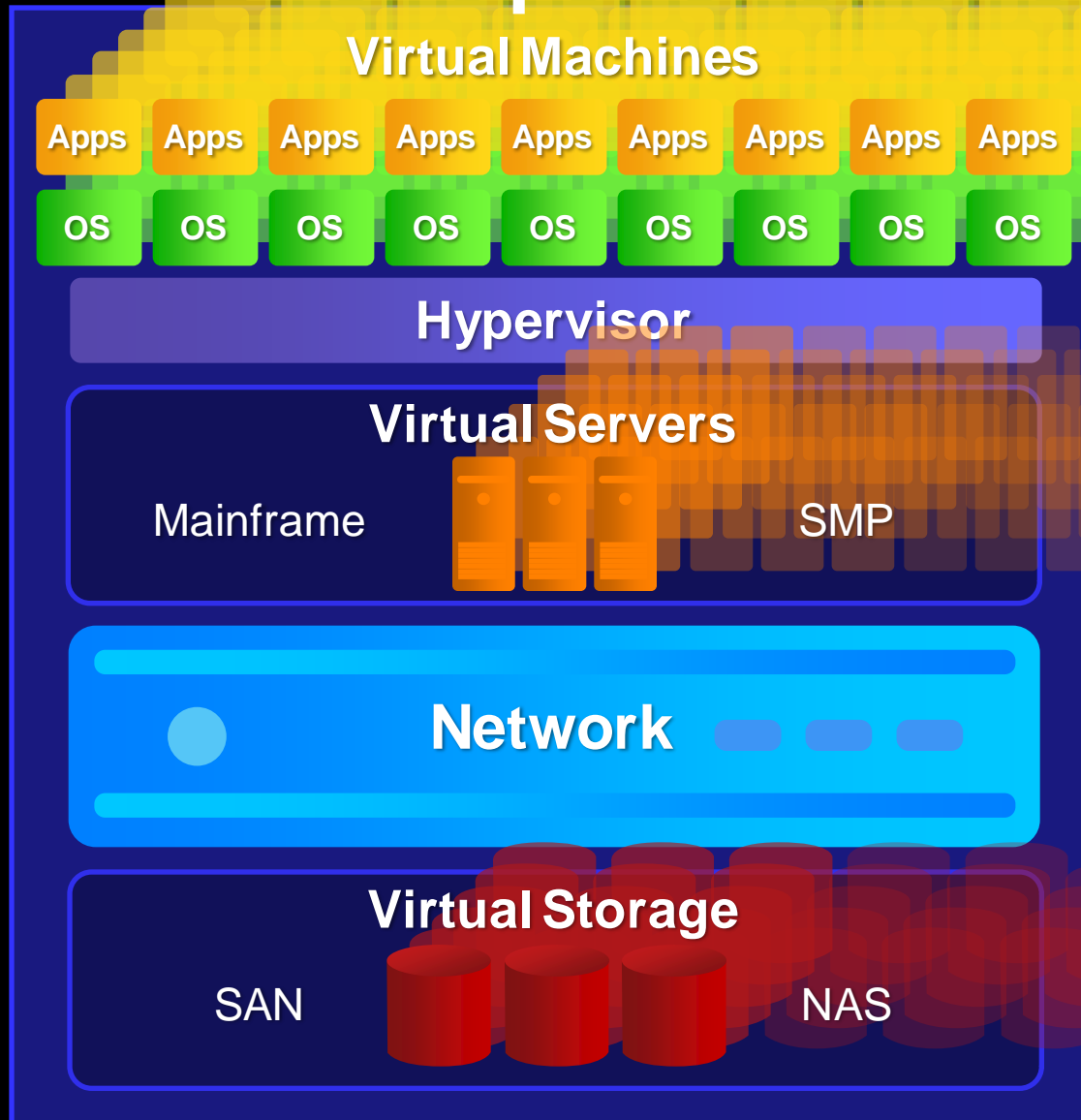


Virtualization Benefits

- Increased resource utilization
- Decreased power and cooling
- Faster provisioning
- Higher availability
- Business continuity

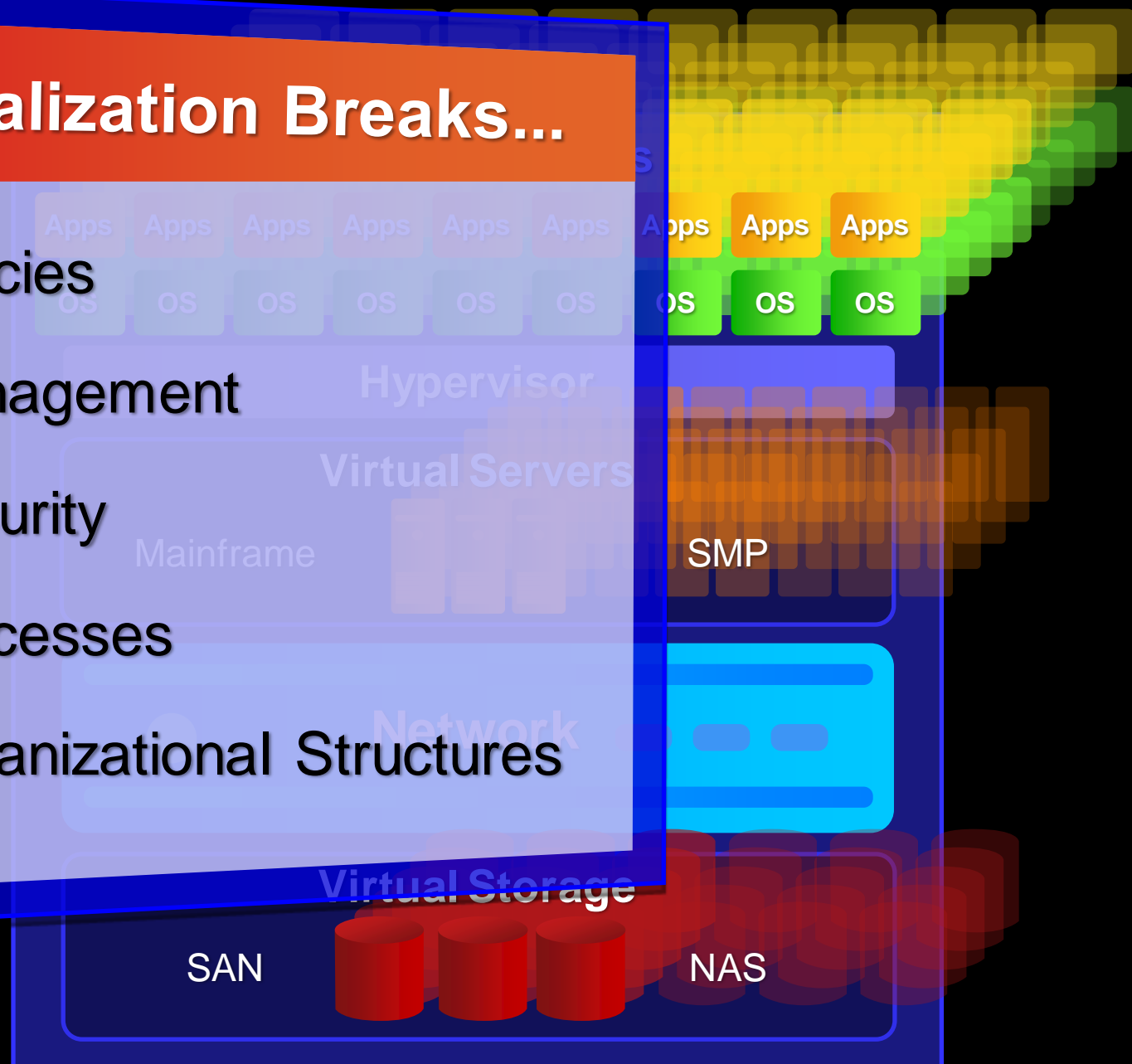


Virtualization Complex at Scale

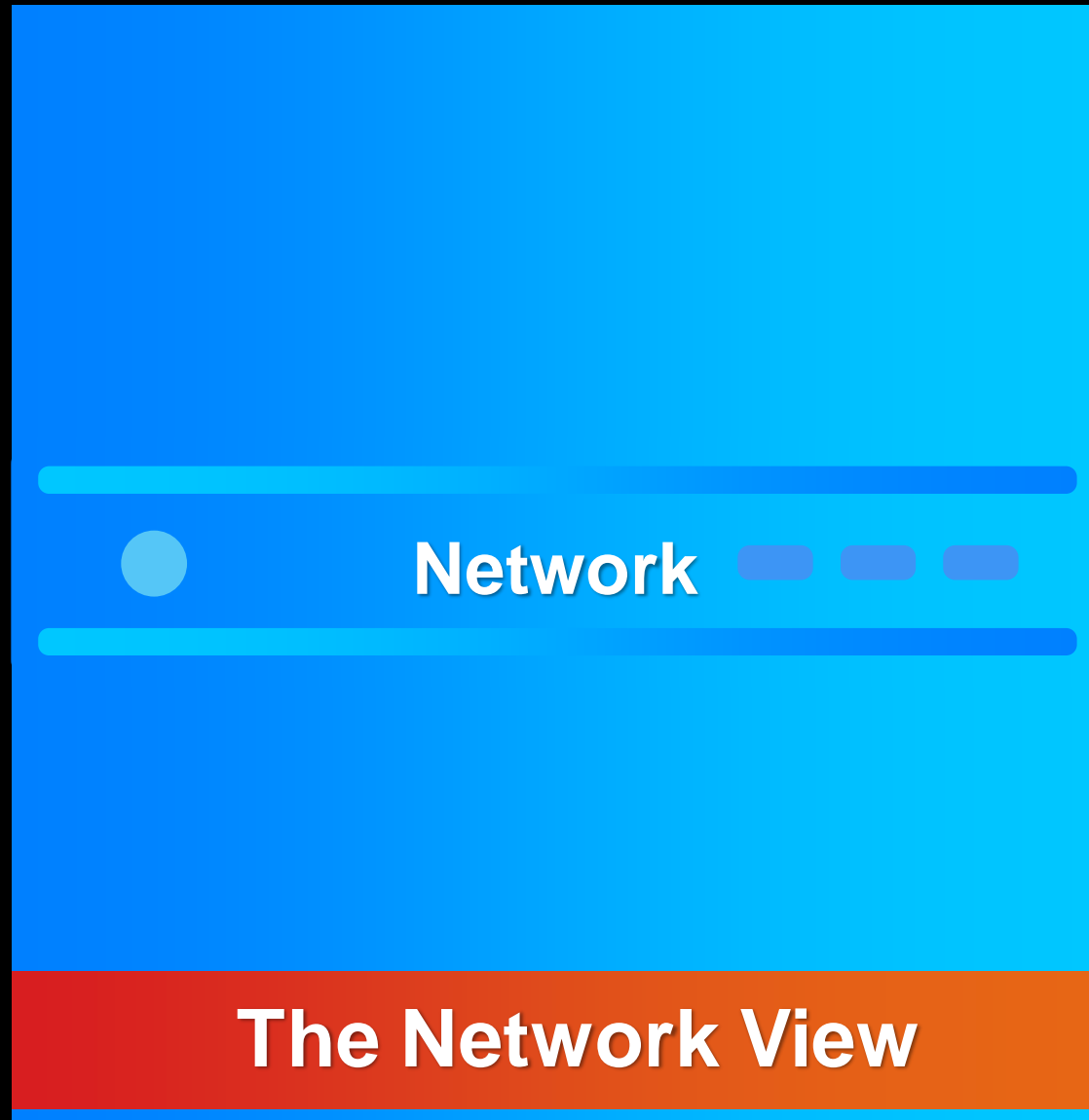


Virtualization Breaks...

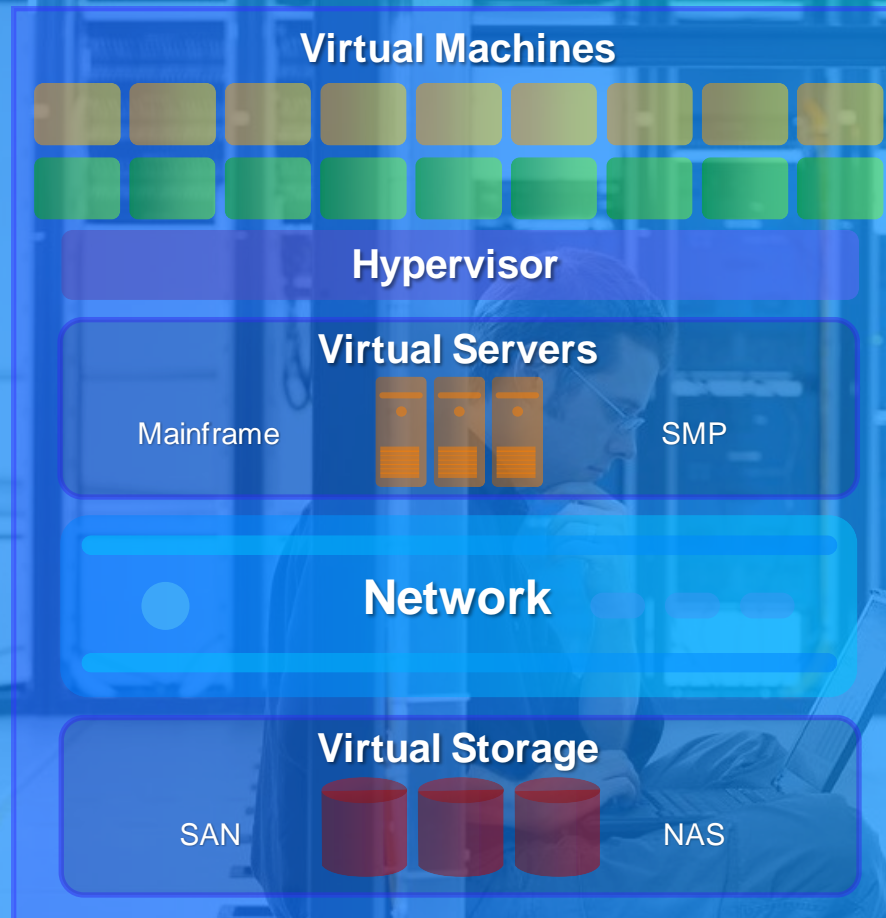
- Policies
- Management
- Security
- Processes
- Organizational Structures



Virtualization from the Inside-Out



Bringing Transparency to Virtualization



The Network View

Cloud Computing

Application

- SaaS



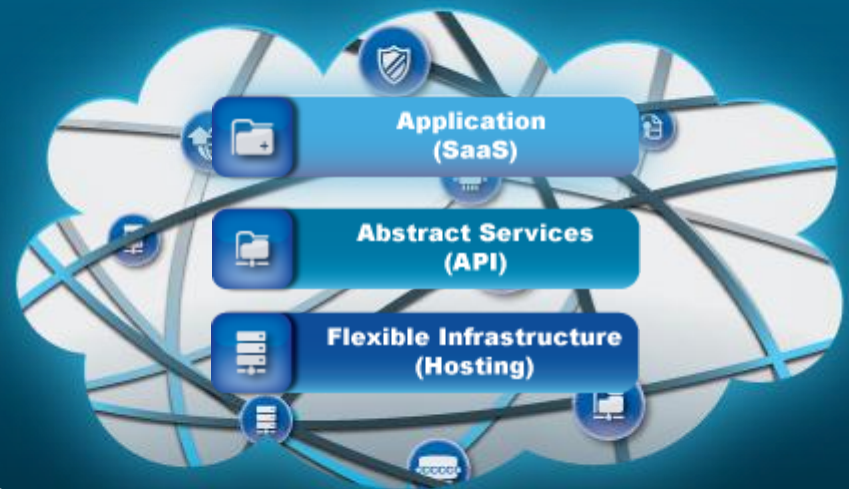
Abstract Services

- Services and Platforms for New Applications (via new APIs)



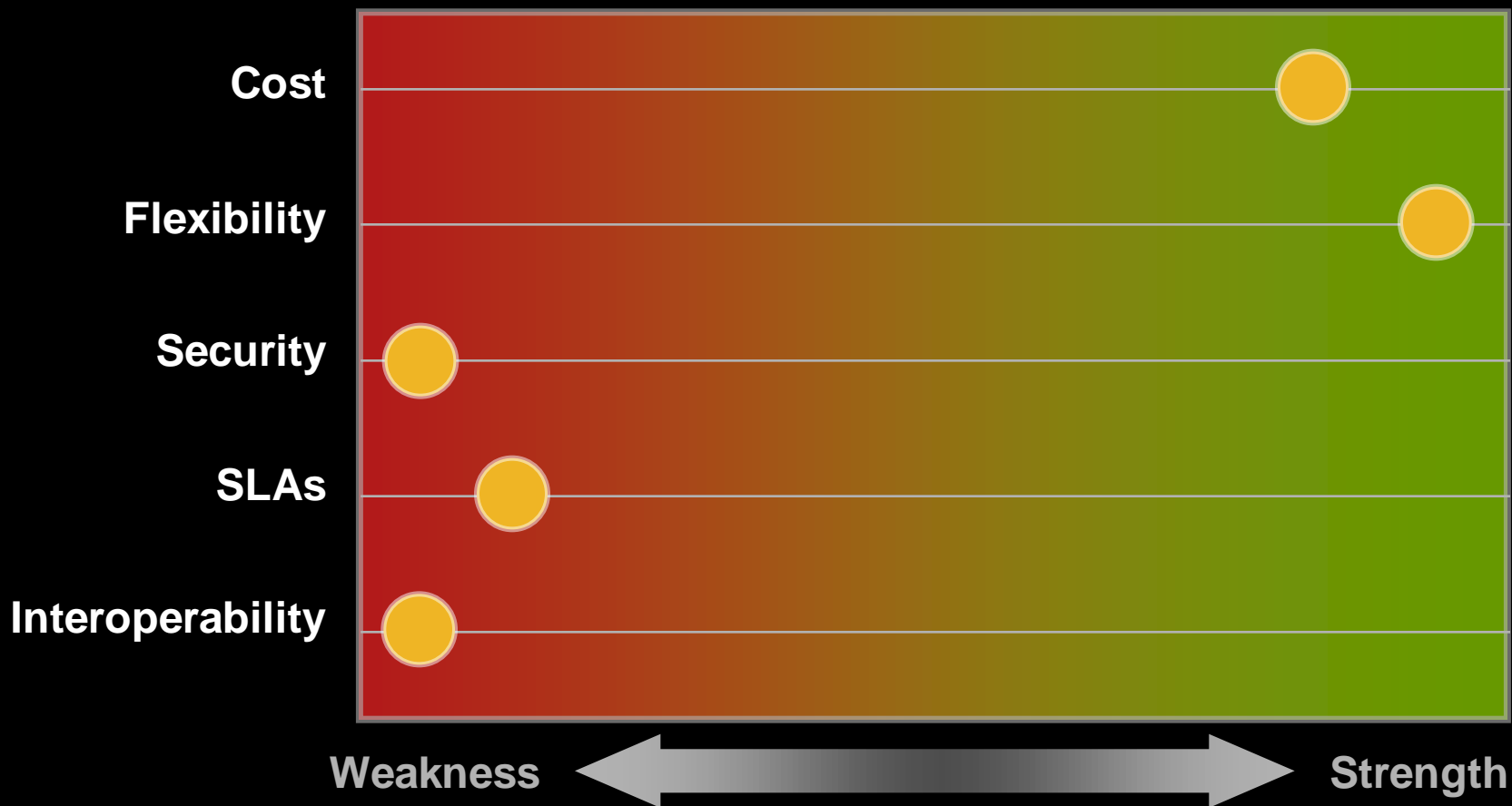
Flexible Infrastructure

- “Virtual Private Datacenter”
- Familiar DC Resources Delivered On-Demand



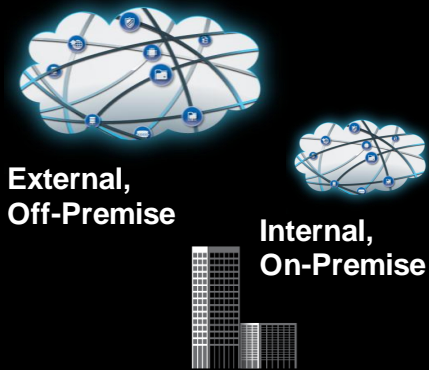
Today's Cloud Challenges

Input from Cisco Customers

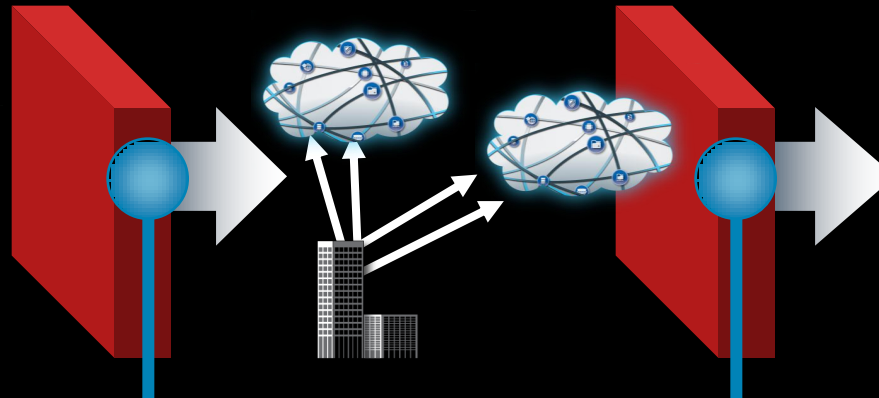


Virtualization at Scale Will Drive Cloud Adoption

Standalone Clouds



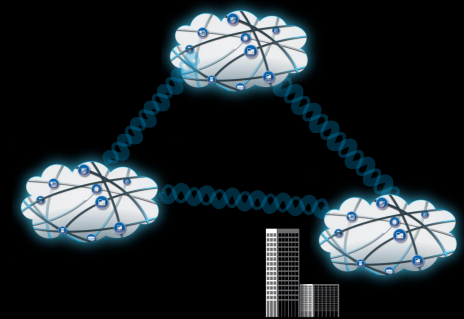
Enterprise-Class Clouds



Key challenges:

- Security
- SLAs
- Control

Inter-Cloud



Key challenges:

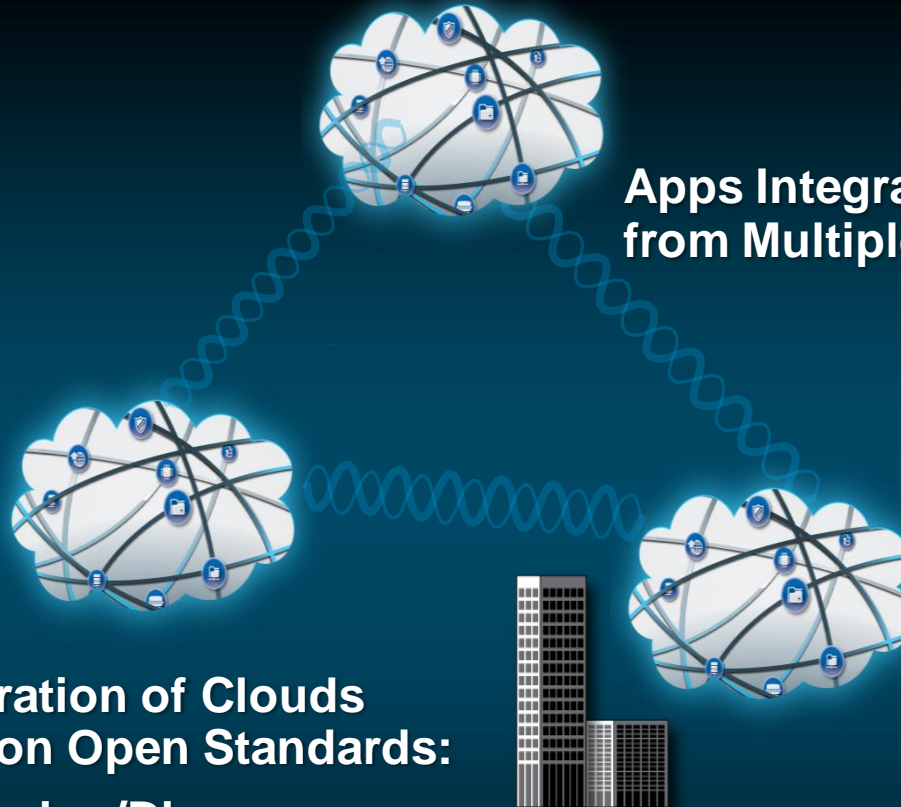
- Federation
- Portability
- Market

Vision: The Inter-Cloud

Flexible Infrastructure and a New Application Platform

**Dynamic
Workload
Migration**

**Apps Integrate Services
from Multiple Clouds**



**A Federation of Clouds
Based on Open Standards:**

- **Naming/Discovery**
- **Trust**
- **Exchange/Peering**

Key Take-Aways

- **Fundamental transformations in the next 5 years**

 - The Nature of Work and Enterprise will be different

 - New technology and business architecture for Compute, Application and Services delivery enabled by Virtualization

 - Connected Life and Sustainability imperative will be key drivers for innovation

- **The Next Internet must be built for**

 - Media Experiences

 - Collaboration

 - Sustainability

 - Distributed virtualized Architecture

- **The Network is the Platform to drive these transitions**



CISCO

Cisco Strategic Focus:

Video

Collaboration

Sustainability

Virtualization



Cisco Strategic Focus:

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Cisco Will Lead in Optimizing Networks for Rich Media Experiences



Consumer
"Connected life"



Service provider
"Any play"



Business
"Business video"



Systems/
experiences

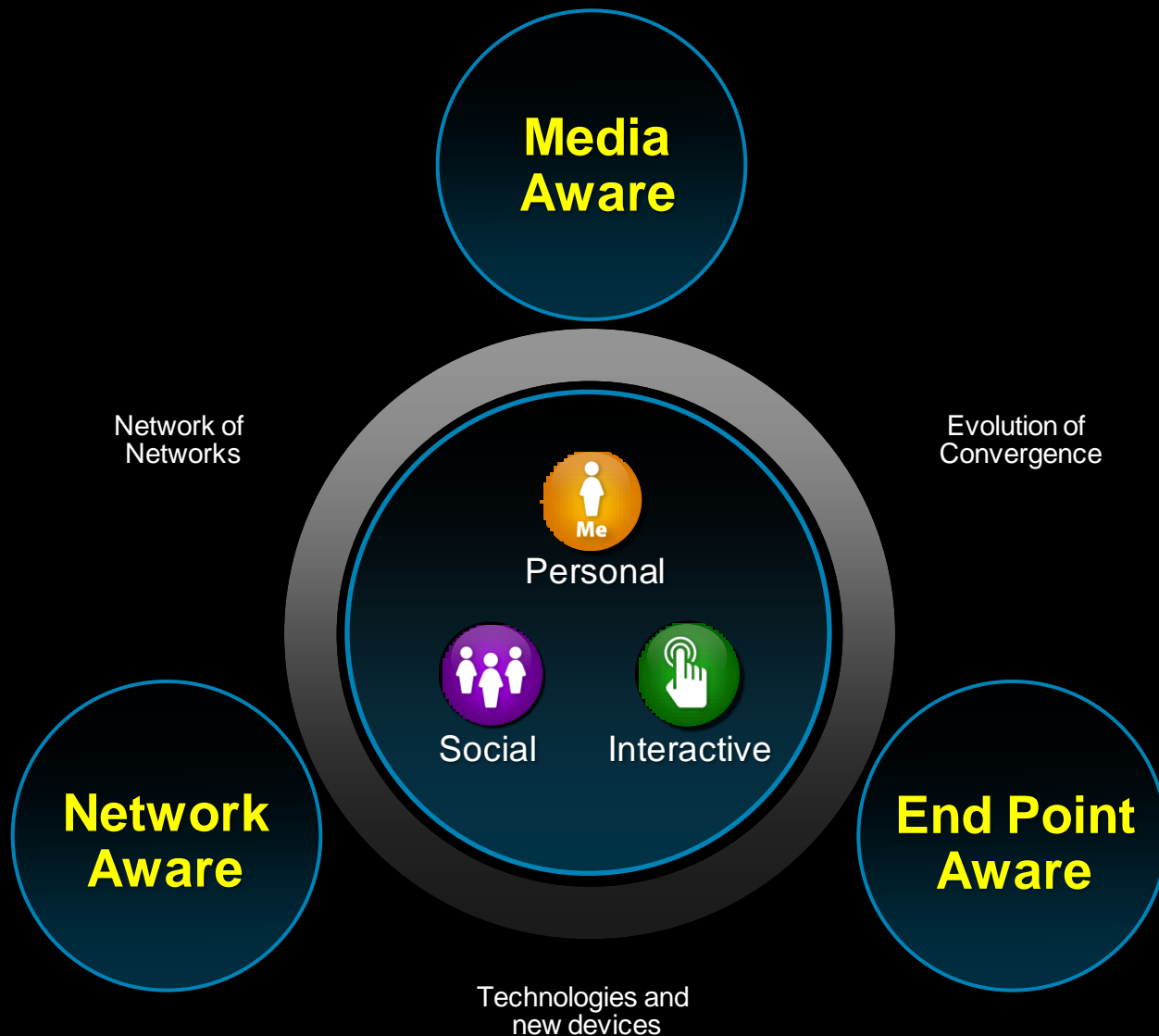
Visual networking



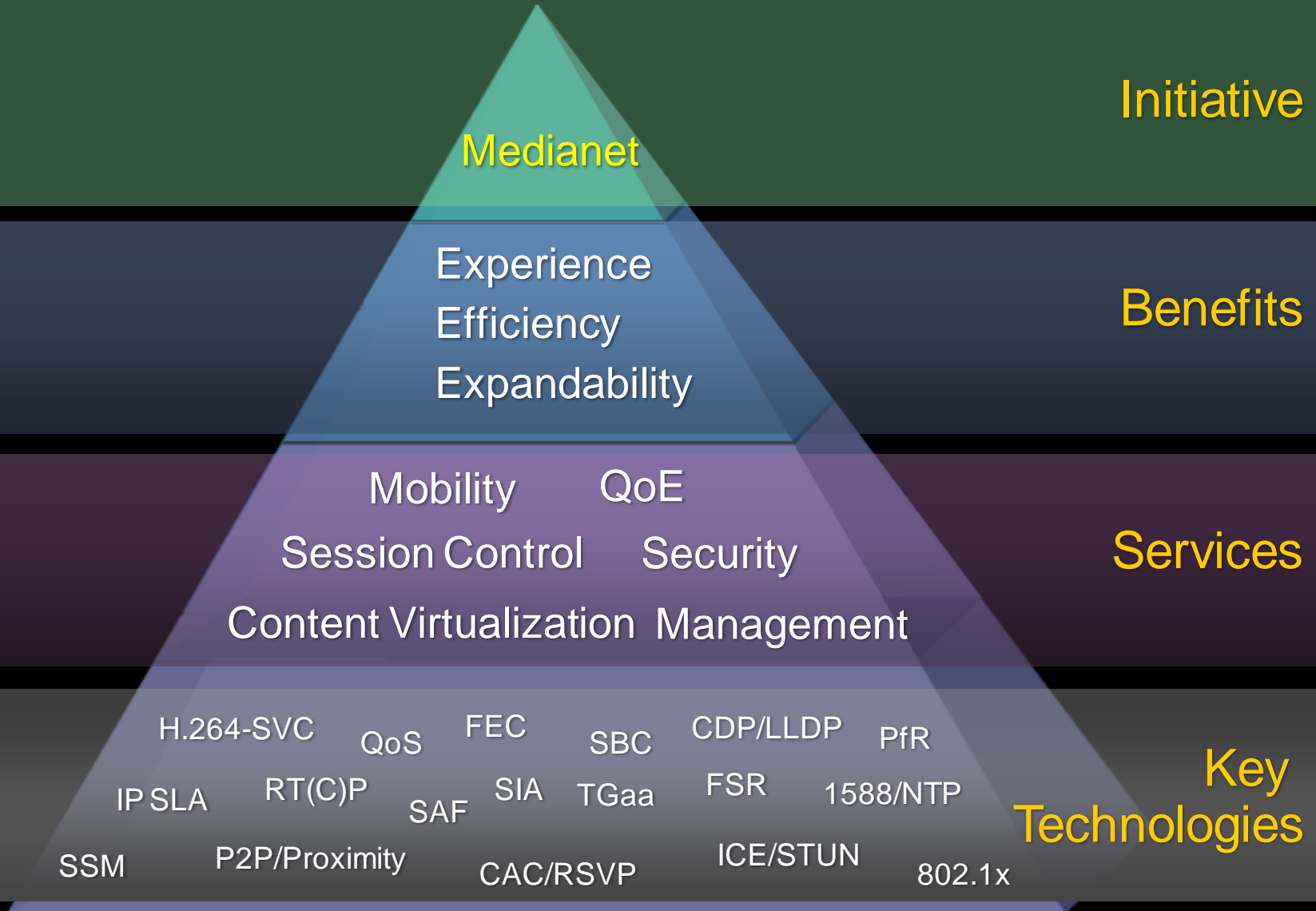
Technology
platform

Medianet

medianet is...



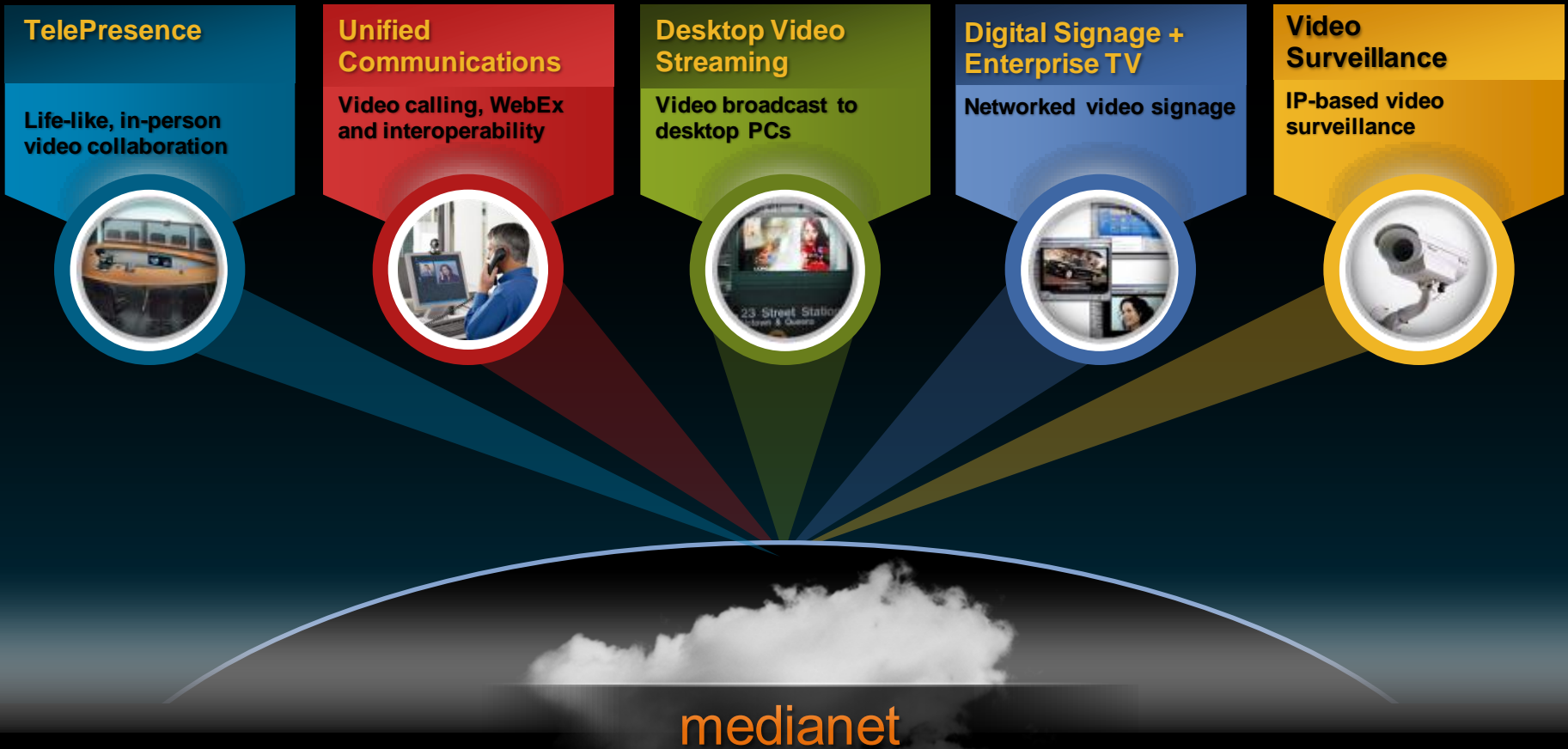
Medianet At-A-Glance



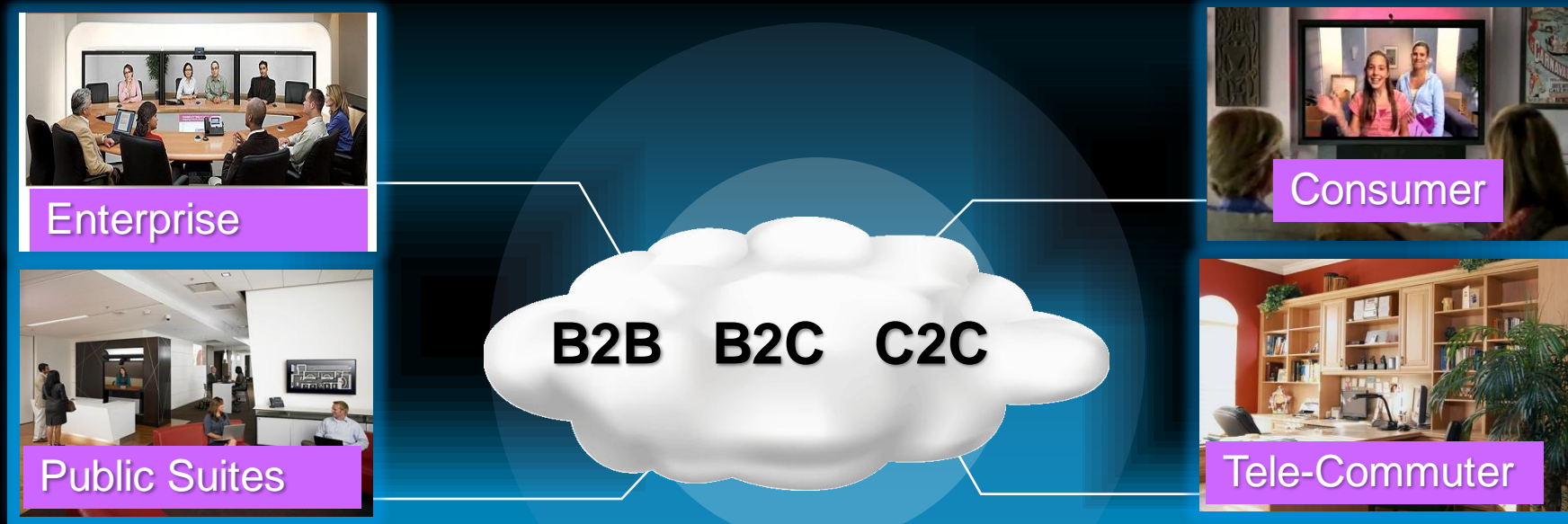
Cisco's Video Strategy



Cisco Business Video Systems



Synergy of TelePresence Solutions



Enterprise

Service Provider

Home

- Virtualizes meetings
- Leverages Corporate network
- Public Suites

- Directory, Presence
- Call Control, Interconnect, etc
- Privacy
- Social networking interaction

- Virtualizes family room and telecommuting
- Media Sharing
- Leverages BW to the home

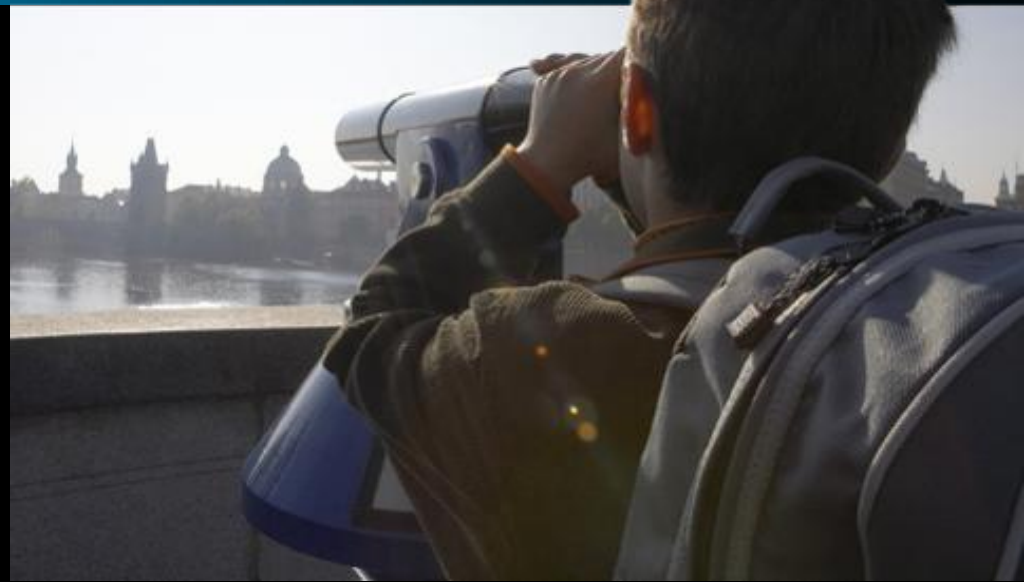
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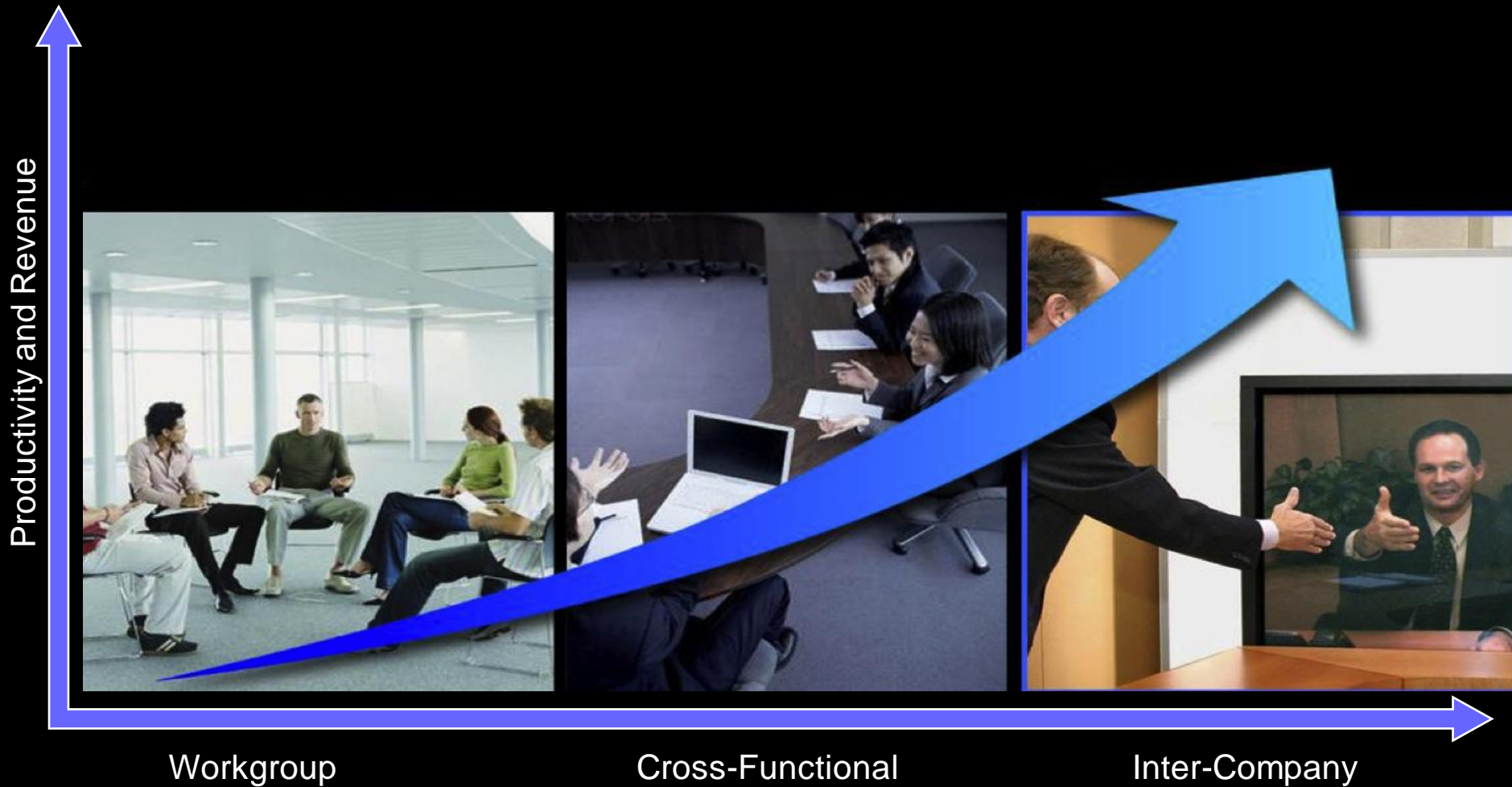
Collaboration

Sustainability

Virtualization



Collaboration Strategy



Cisco Collaboration Architectural Advantage

Workspace Devices



Policy

Applications & Mashups

iGoogle, Web Sphere, SharePoint, etc.

LOB Apps that integrate SOA services

Custom Applications

WebEx Connect

Security

Web Services



Cisco Intelligent Network (On Premises + On Demand)

Cisco Strategic Focus:

Video

Collaboration

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The Network Evolves to Address Sustainability



- Electricity Use in Offices
- Appliances in Homes
- Traffic Flows in Cities



The Information/Communications (ICT) industries account for a small part of the world's greenhouse gases.

It's the responsibility of every industry to be greener...

The opportunity for ICT is to reduce our emissions while disproportionately helping others to reduce theirs.

Green Networks Vision

Make Every Connection a Green Connection

2007: 1.32B Internet users*
1B+ connections

2012: 2.5B Internet users
5B+ connections



*Source: Morgan Stanley Research, ITU, Euromonitor, CNNIC, June 2008

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Video

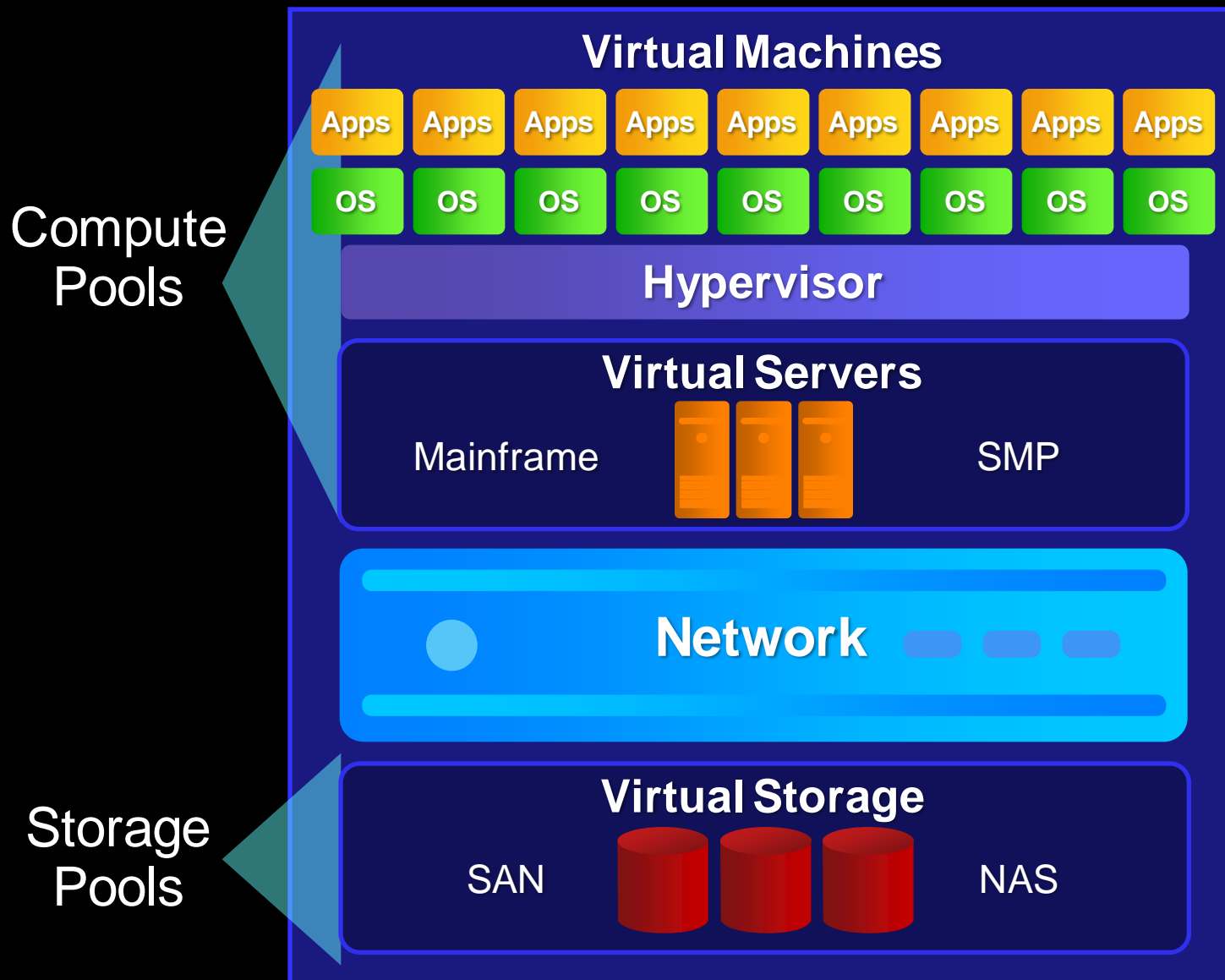
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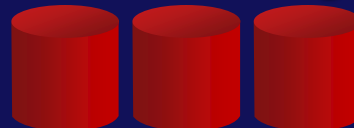
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Apps Apps Apps
OS OS OS

Mainframe

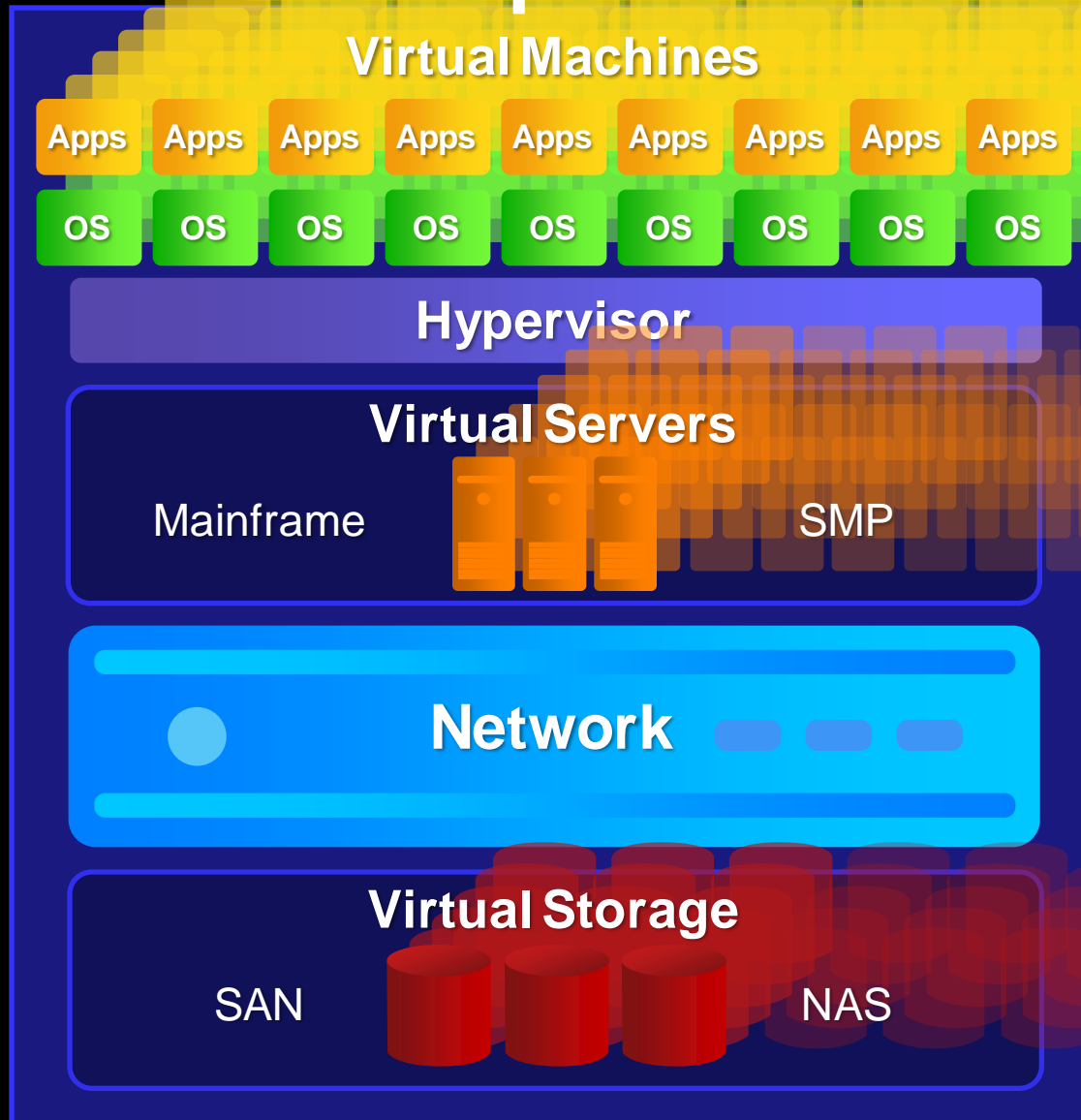
Virtual Storage

SAN



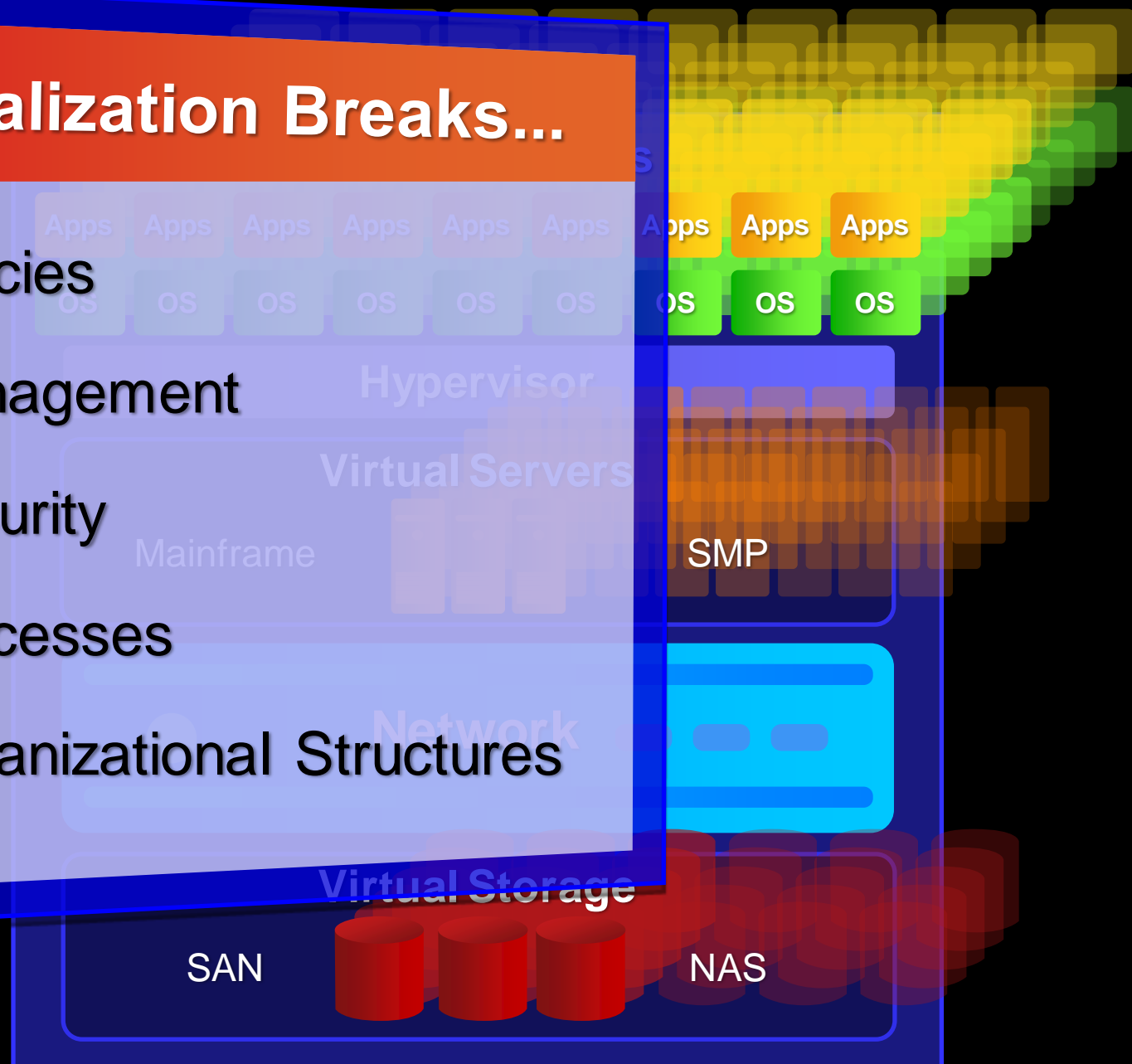
NAS

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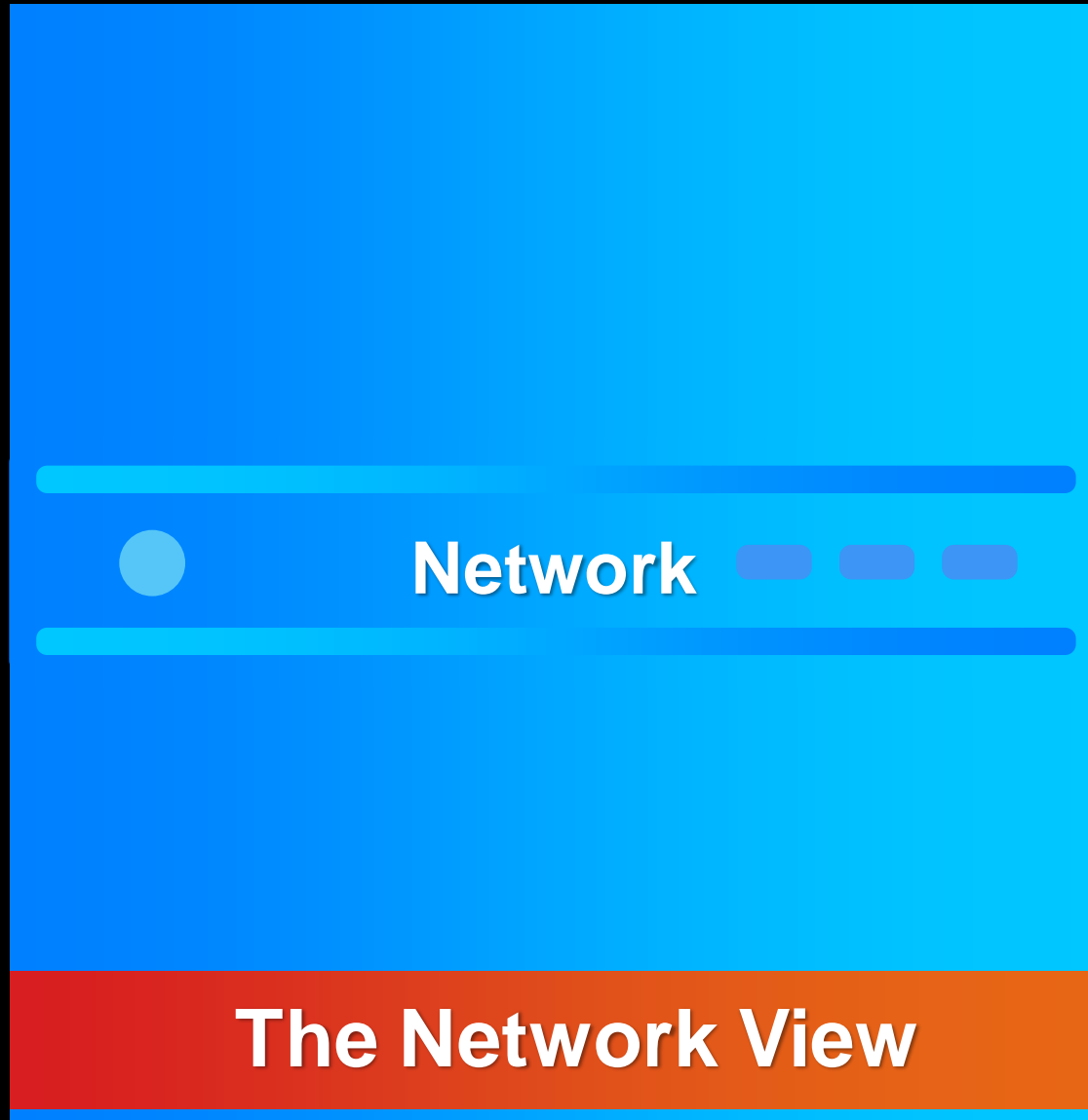


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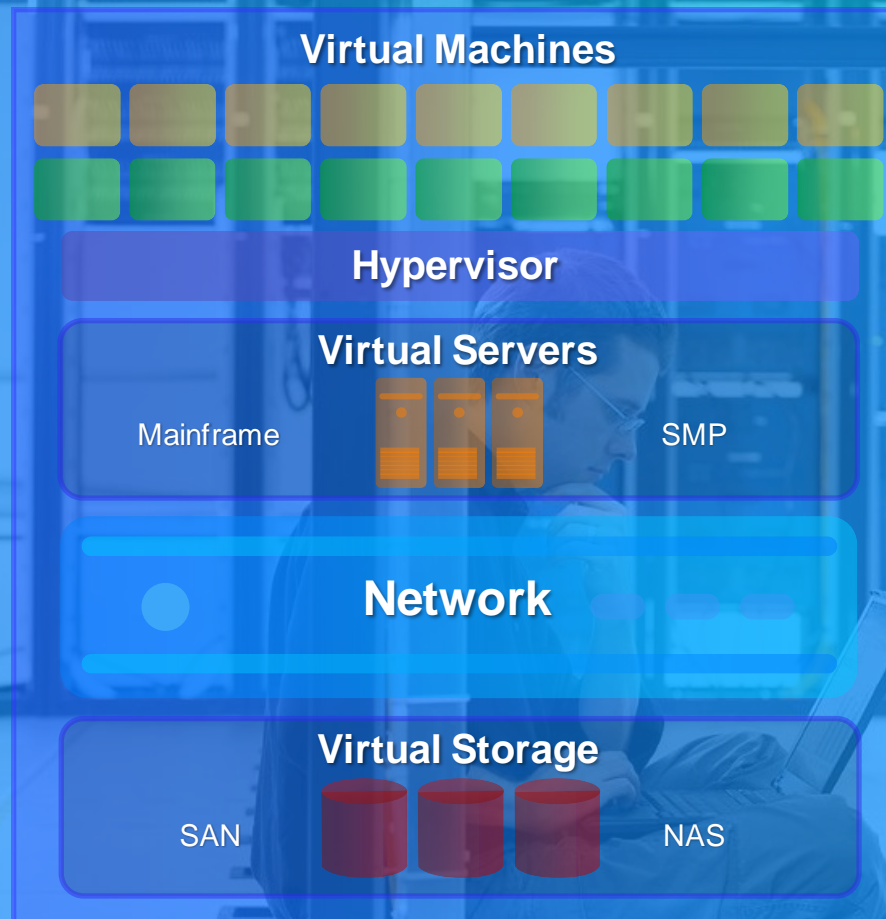
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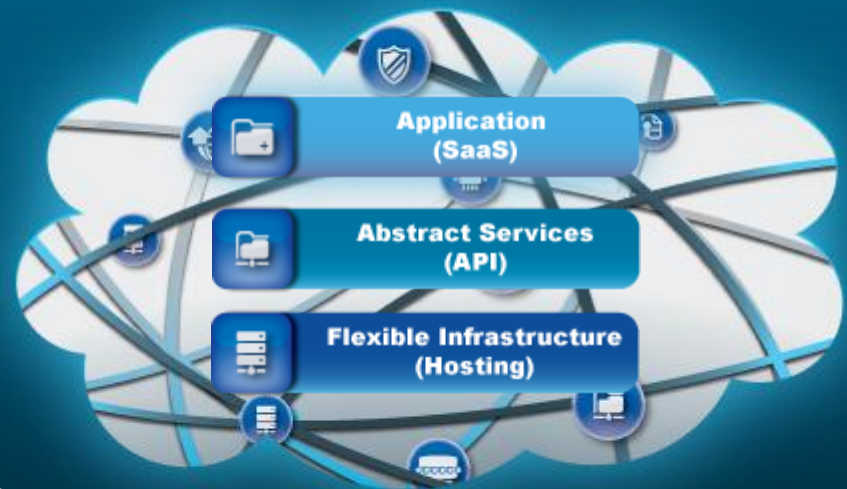
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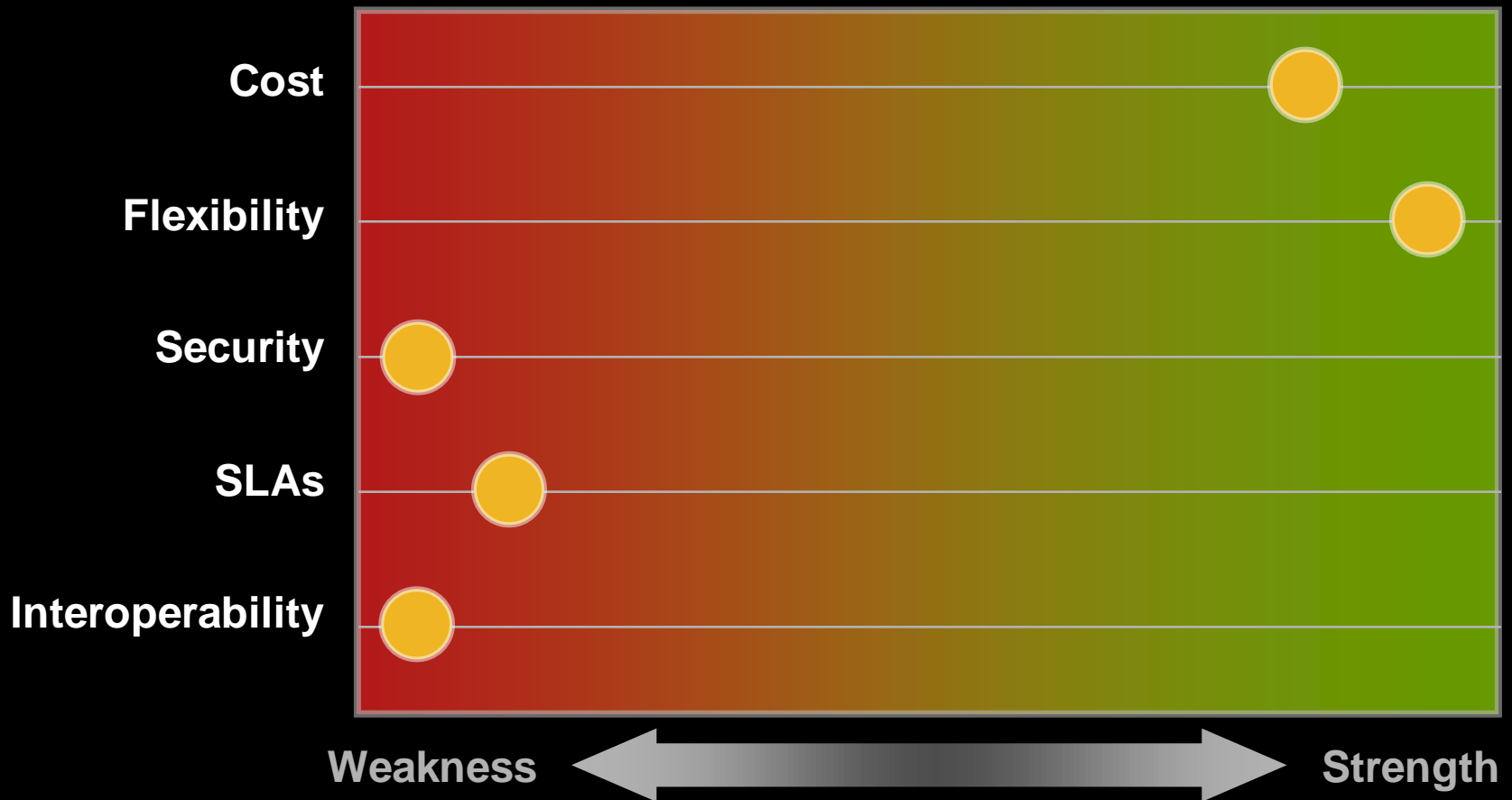
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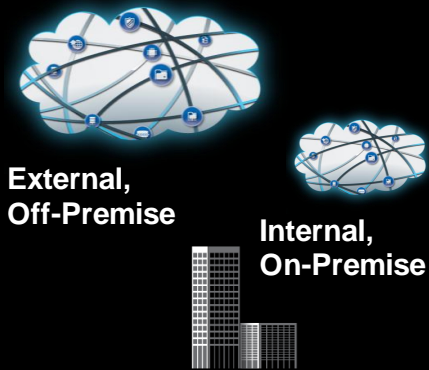
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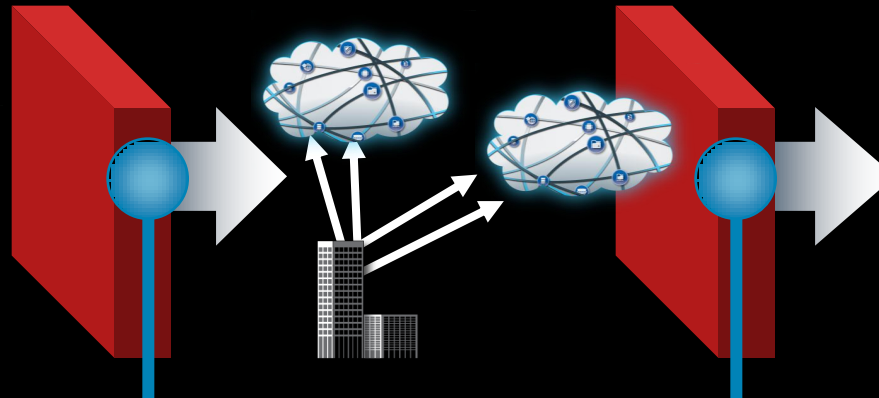


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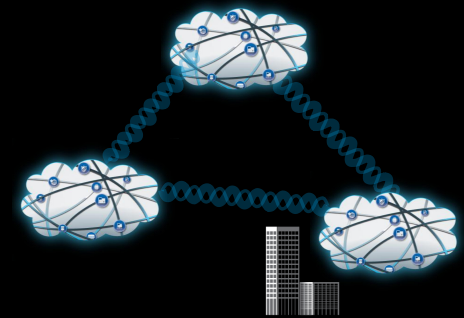
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Inter-Cloud



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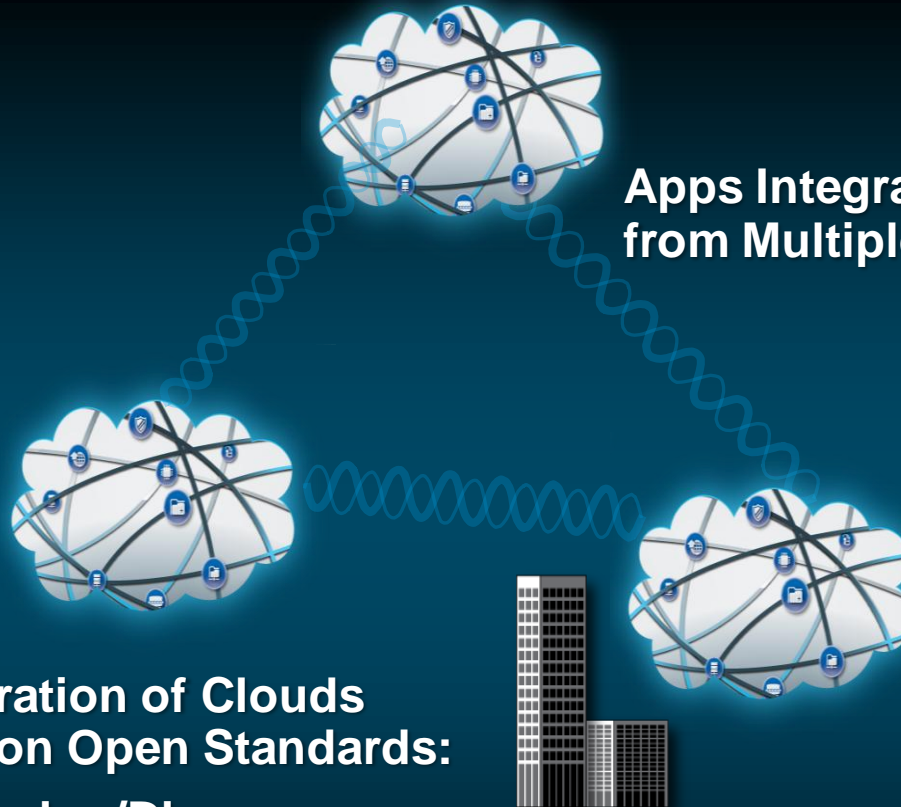
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Cisco Strategic Focus:

Video

Collaboration

Sustainability

Virtualization



It is a Cloud Service when...



It is Auto/User provisioned

It creates an illusion of infinite resources
Scale up/down
Elasticity

It has a pay when you use model

Cloud Service Models

Application

- SaaS



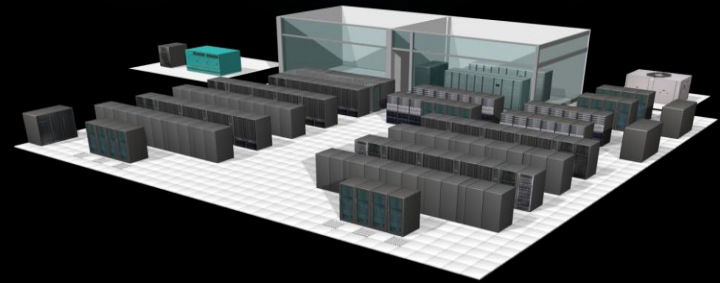
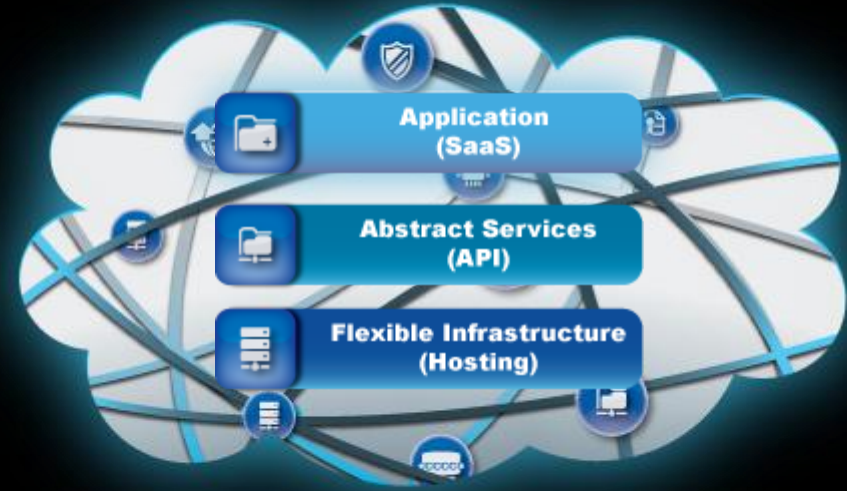
Abstract Services – PaaS

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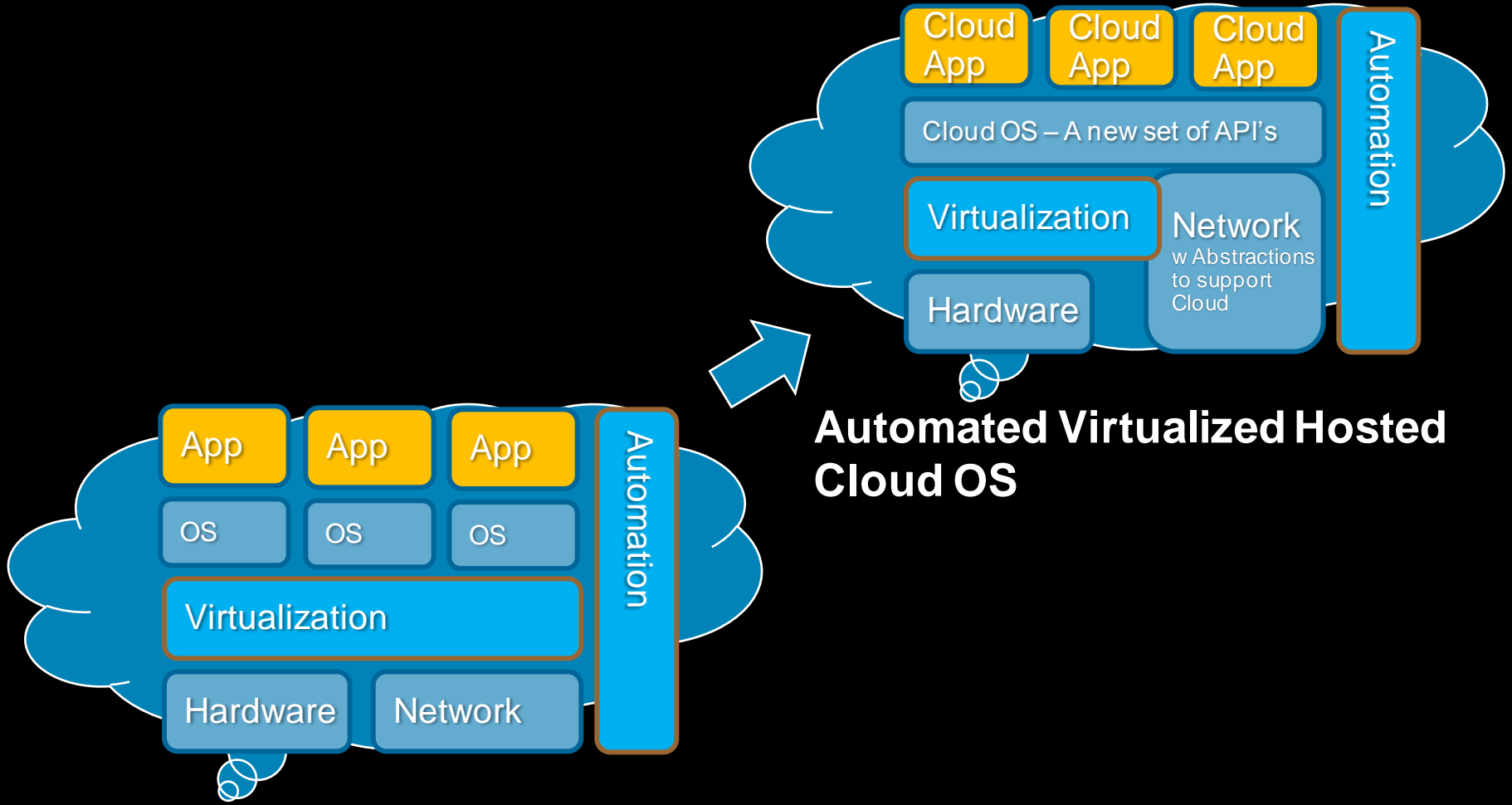
Flexible Infrastructure – IaaS

- “Virtual Private Data Center”
- Familiar DC Resources Delivered On-Demand



IT Foundation

Foundations for Cloud: Cloud OS



**Automated Virtualized Hosted
Deployment**

**Automated Virtualized Hosted
Cloud OS**

Landscape: Major Cloud Players



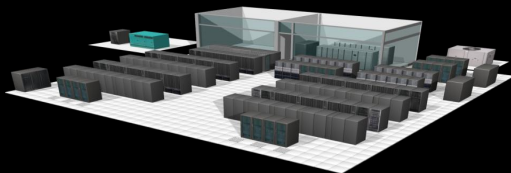
Application
(SaaS)



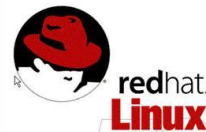
Abstract Services
(API)



Flexible Infrastructure
(Hosting)

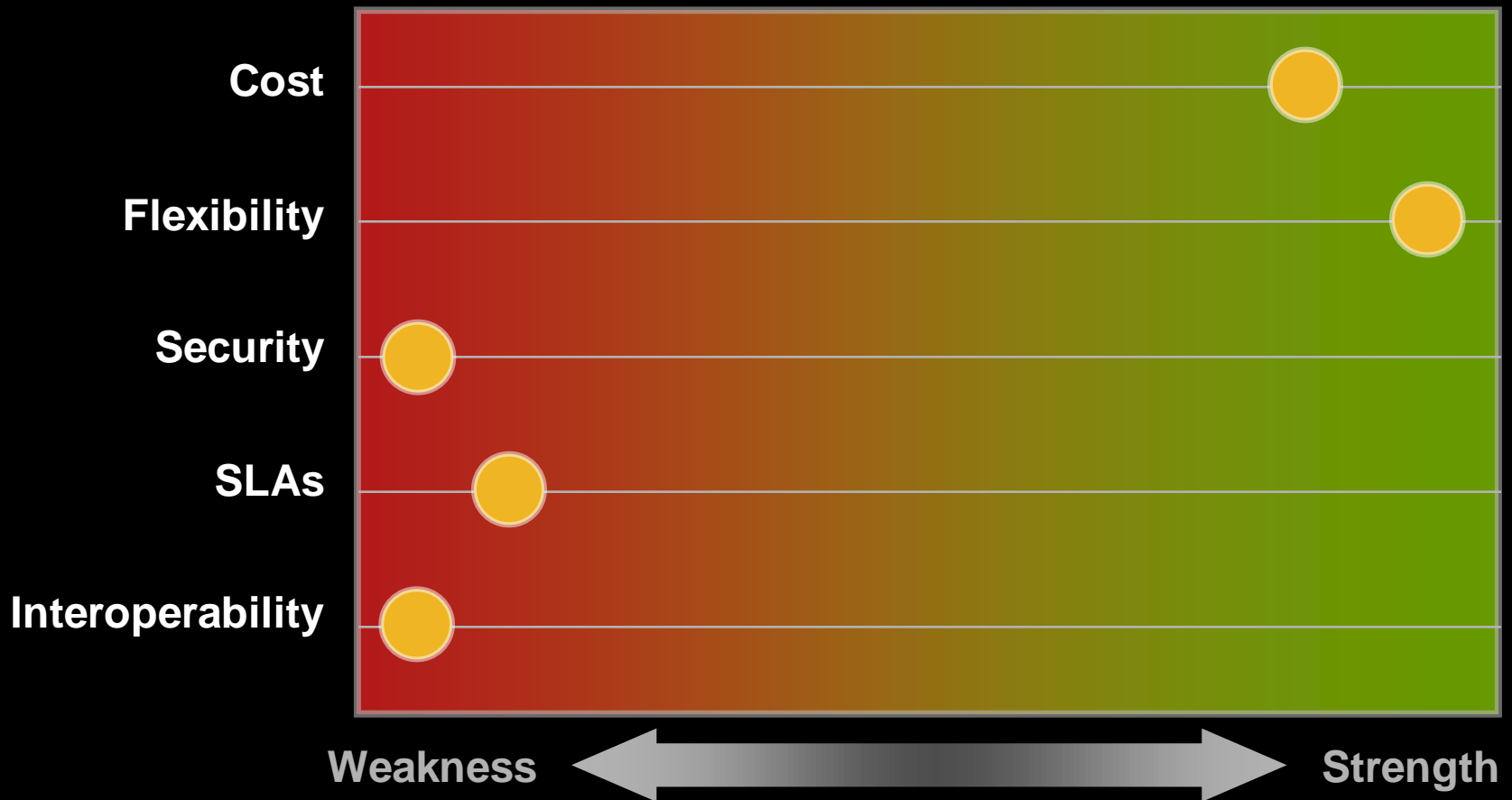


IT Foundation



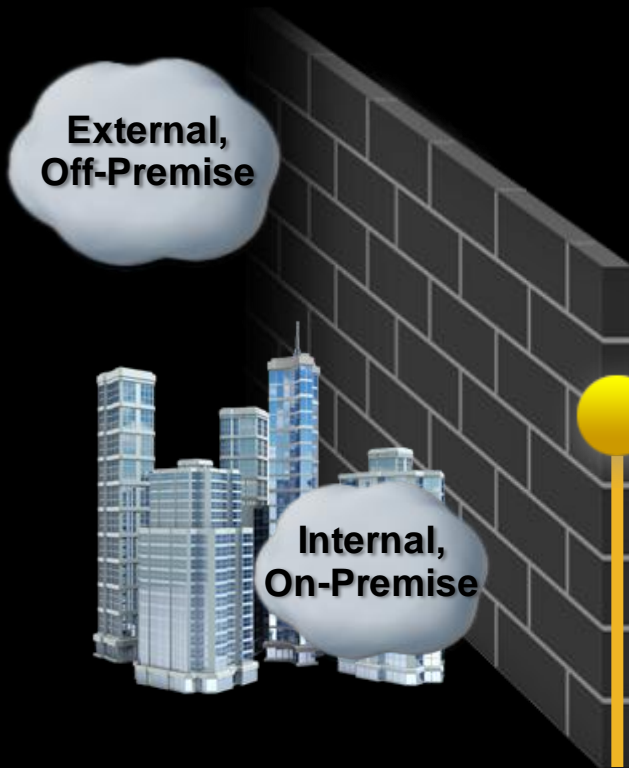
Today's Cloud Challenges

Input from Cisco Customers



Cloud Adoption Phases

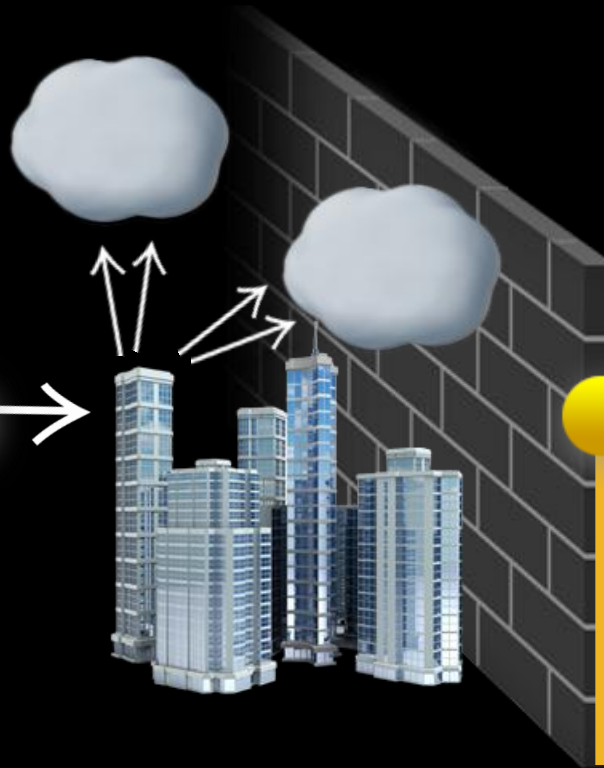
Stand-alone Clouds



Key Challenges:

- Security
- SLAs
- Interoperability

Private Clouds



Key Challenges:

- Federation
- Portability
- Market

Inter-Cloud



Cisco Cloud Strategy

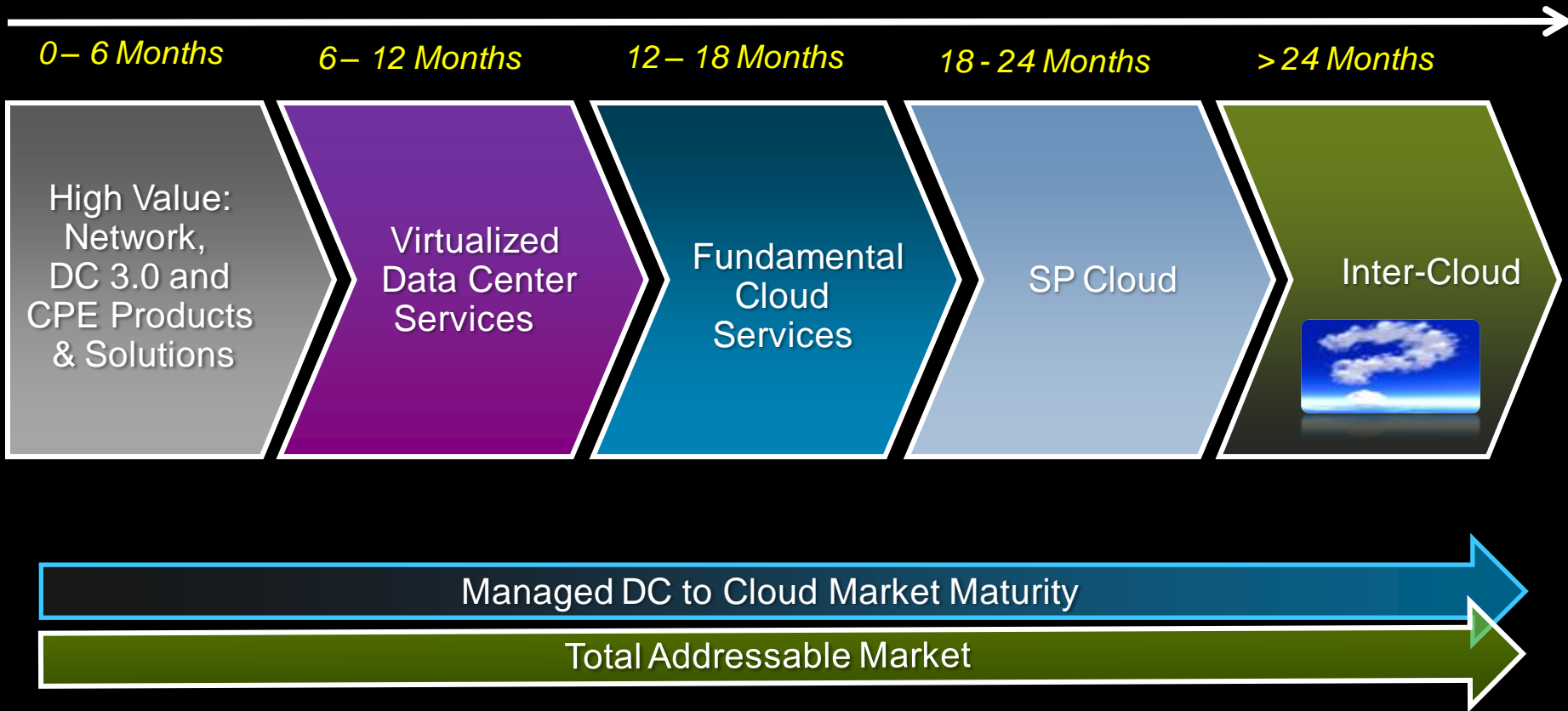


Deliver infrastructure to Enterprises to build their own “Private Clouds”

Enable Service Providers to deliver Infrastructure-as-a-Service (Virtual Private Cloud Services)

Deliver “Cloud Services” to customers (WebEx, IronPort, PostPath)

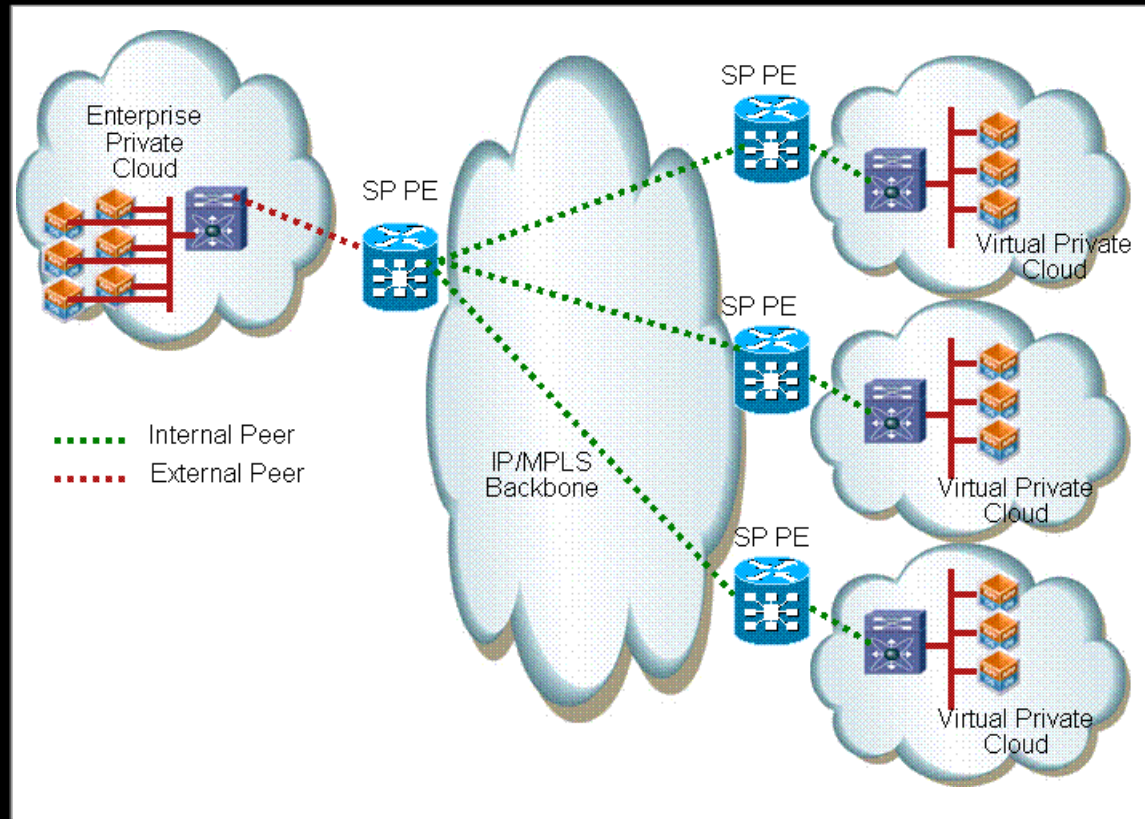
Cloud Market Transitions



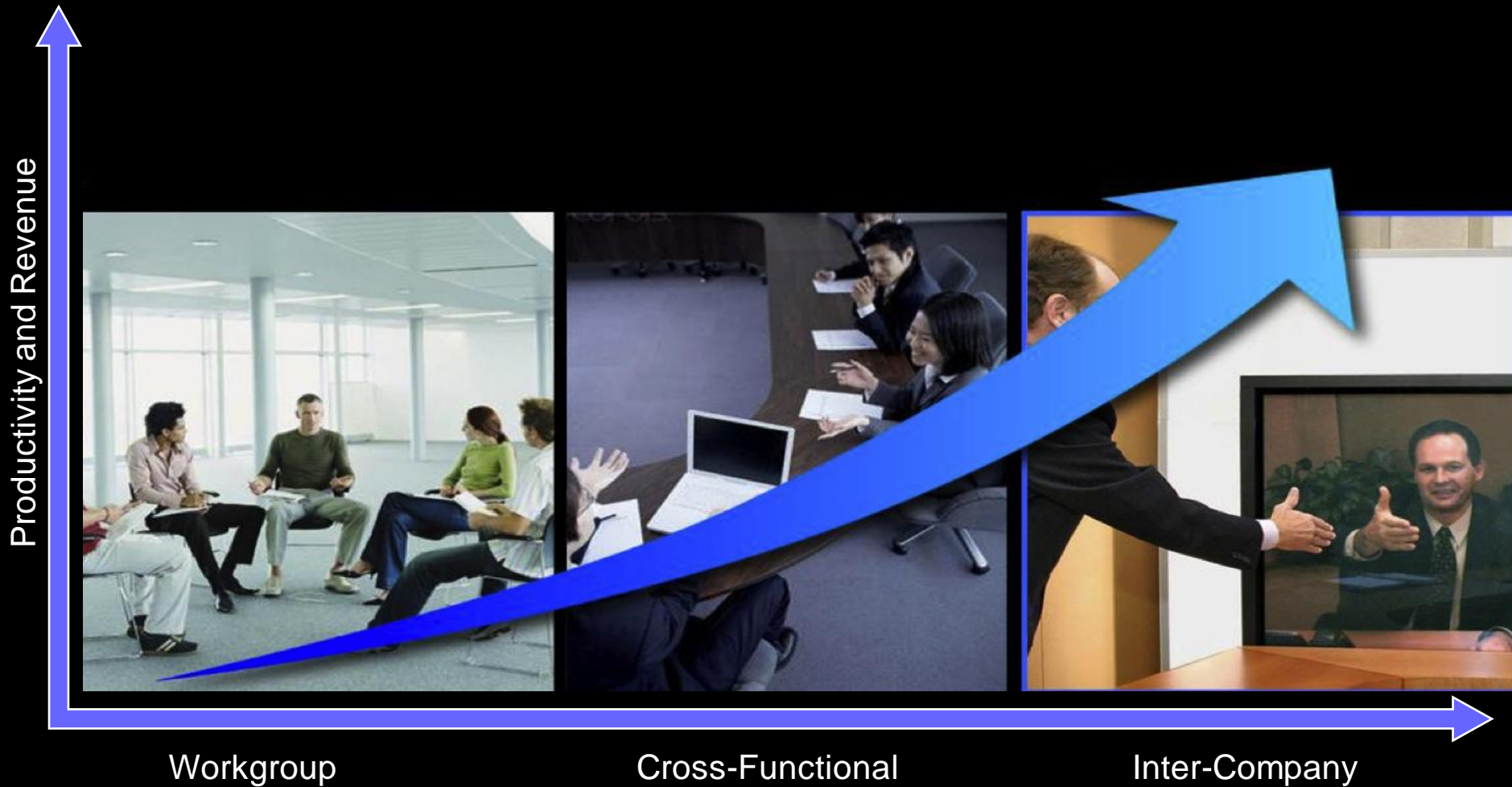
Now is the Time to Pursue this Business Vigorously

Network Virtualization Uses

- Enterprise leverages SP Cloud to acquire Compute resources
- Connectivity must be transparent and secure
- Virtual machines co-exist in the Private Cloud and Virtual Private Cloud

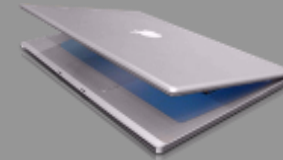
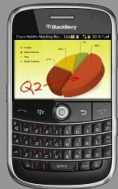


Collaboration Strategy



Cisco Collaboration Architecture

Collaborative End Points



Connected Workforce Experience

People

Communities

Information

Collaboration Services

Voice

Email

Directory Services

Calendar, Schedule

Team Space

Wikis, Blogs

Forms & Workflow

Index, Search

IM and Chat

Video

Call Control

Groups, Projects

RSS Feeds

File Sharing

ECM Store

Application Services

Network as a Platform Services

Dynamic Social Graph

Presence and Location

Media QoS, Transformation, and Recording

Policy and Identity

Security and Encryption

On Premises
(Cisco Intelligent Network)

Federation

On Demand
(Cisco WebEx MediaTone Network)

NSP Move Into IT Services Encounters Shifting Sands

