

WELCOME



THE NETWORK MAKES THE CLOUD

Alcatel-Lucent Korea

December 12, 2013

TELECOM INDUSTRY TRENDS

FAST AND GROWING

+26.1%

FIXED BROADBAND
CONNECTIONS

589
million



2012

743
million



2016

+28.5%

APPLICATIONS
DOWNLOADS

73.3
billion



2012

200
billion



2016

+13.2%

MOBILE
CONNECTIONS

6.8 billion



2012

7.7 billion



2016

+98%

SMARTPHONE
SALES

730
million



2012

1.448
billion



2016

+104%

CARRIER WI-FI
ACCESS POINTS

4.8 million



2012

9.8 million



2016

+89%

PUBLIC CLOUD
SERVICE REVENUE

\$109.3 billion



2012

\$206.6 billion



2016

+900%

M2M
DEVICES

1.8
billion



2012

18
billion



2022

+115%

MOBILE VIDEO
SUBSCRIBERS

354
million



2012

763
million

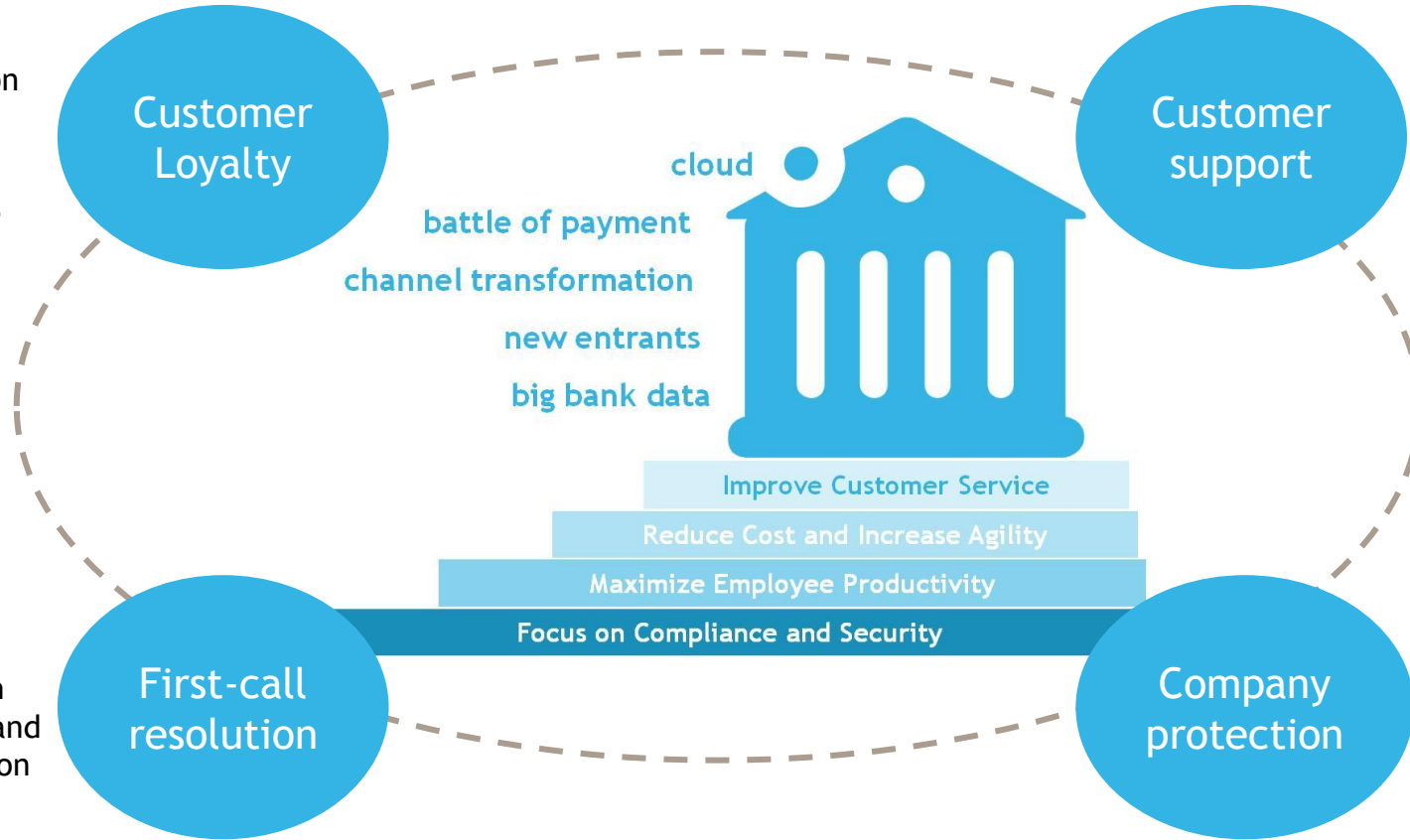


2016

BANKING & FINANCIAL SERVICES

TRENDS AND REQUIREMENTS

- Customers expect personalized attention over the most convenient channel
- Need to differentiate from competition



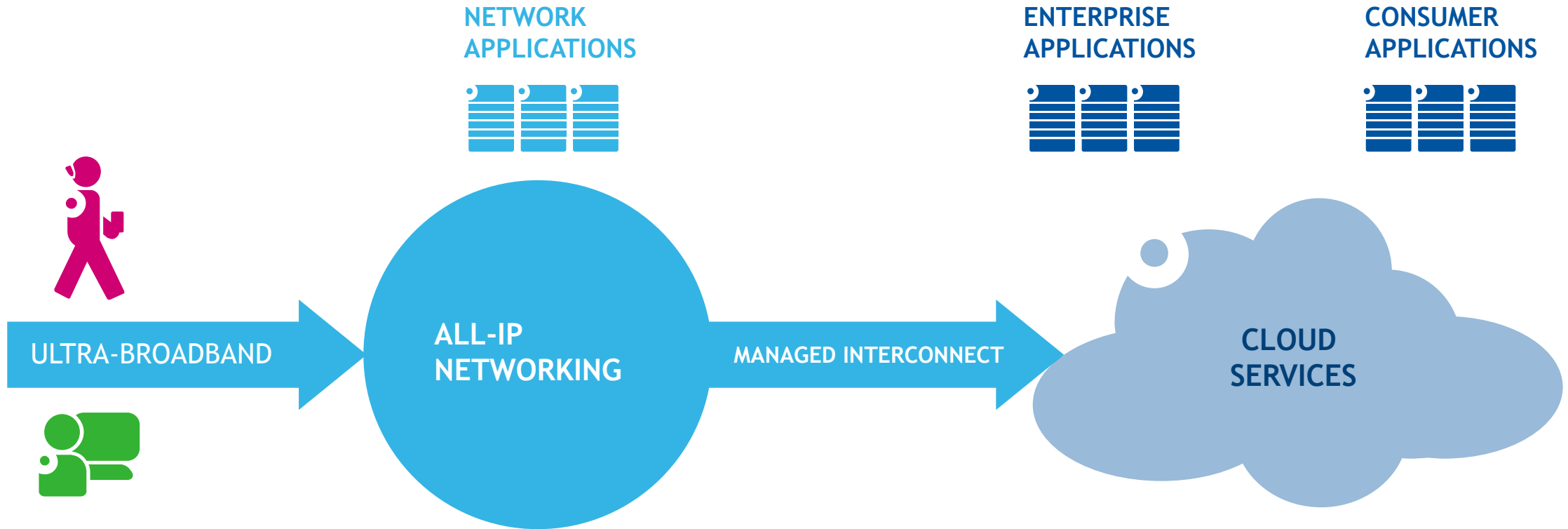
- Maintaining service levels at all times, including during peak traffic hours
- Lack of available expertise for all locations

- Multimedia service performance through back-office support and unified communication

- Manage internal security with efficiency and without impacting customer service

Communication unlocks organizational knowledge for competitive advantage

NETWORK AND COMMUNICATION NEEDS RAPIDLY EVOLVING



NETWORK PROVIDERS (TELCOS AND CABLE COs)

- Highly reliable All-IP Networking
- Ultra broadband access
- New digital services delivery

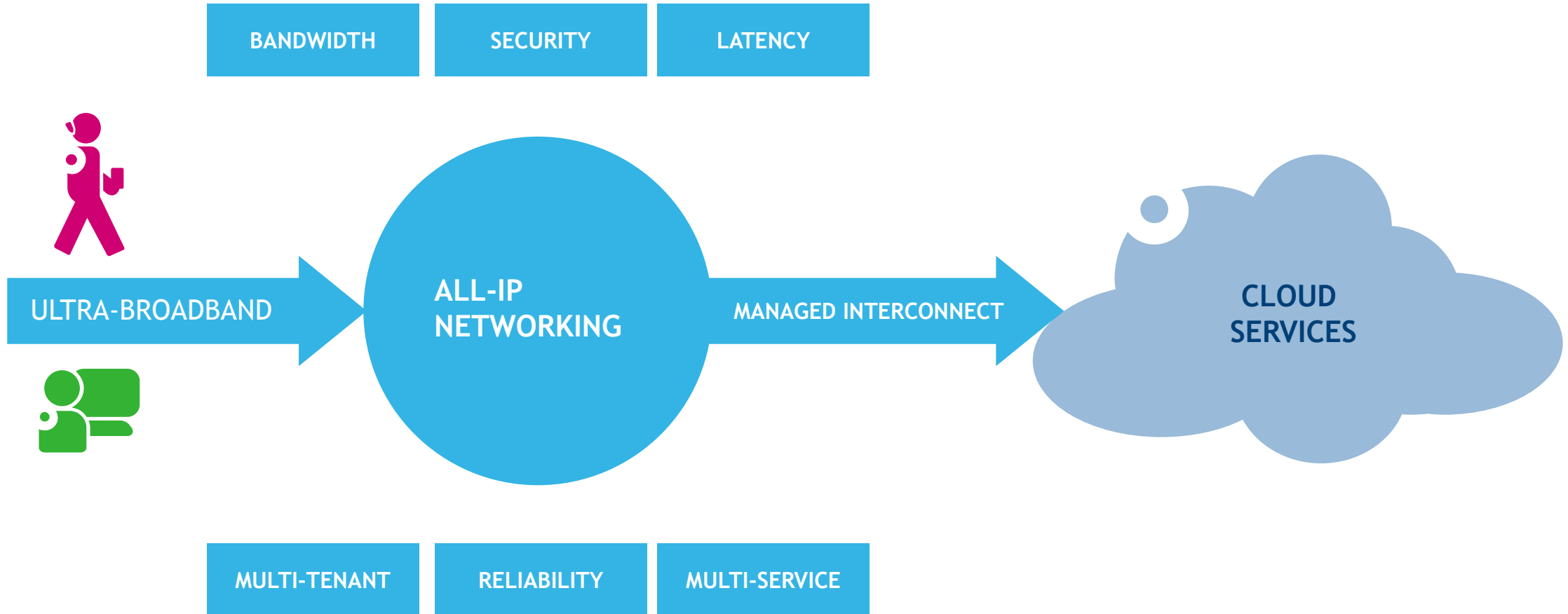
WEBSCALE COMPANIES AND LARGE ENTERPRISES

- Huge data centers
- Seamless IP interconnection
- Digital services delivery @ scale

EVOLVING NETWORK AND COMMUNICATION NEEDS LEAD TO NEW TECHNOLOGY REQUIREMENTS

NETWORK

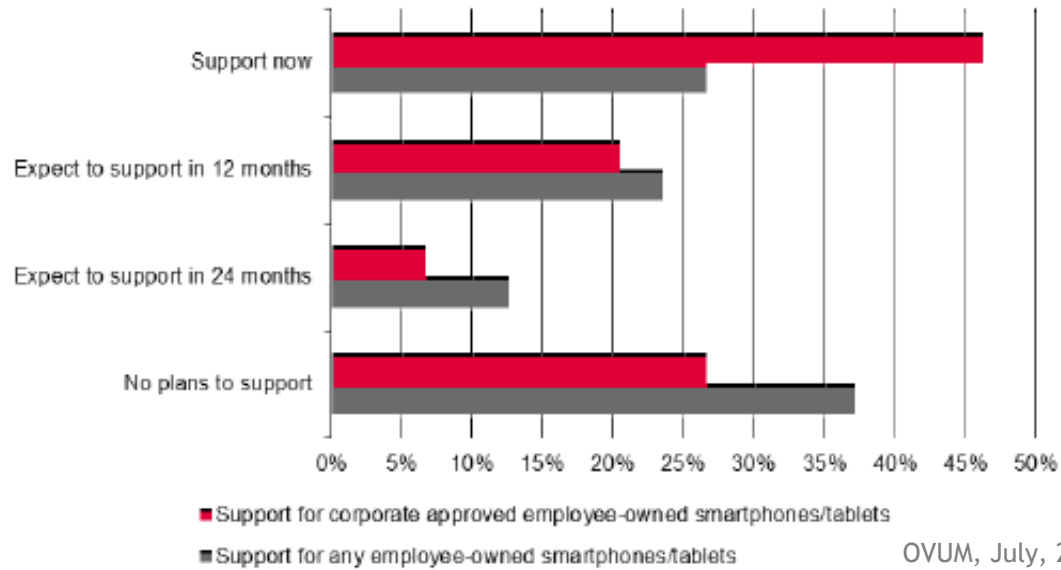
THE ESSENTIAL BRIDGE



END USER COMMUNICATION REQUIREMENTS

BYOD FOR USER AND BYOA FOR LINE OF BUSINESS

BYOD support: Please indicate your plans to support employee-owned smartphones and tablets.



OVUM, July, 2013 ref:TE007-000682



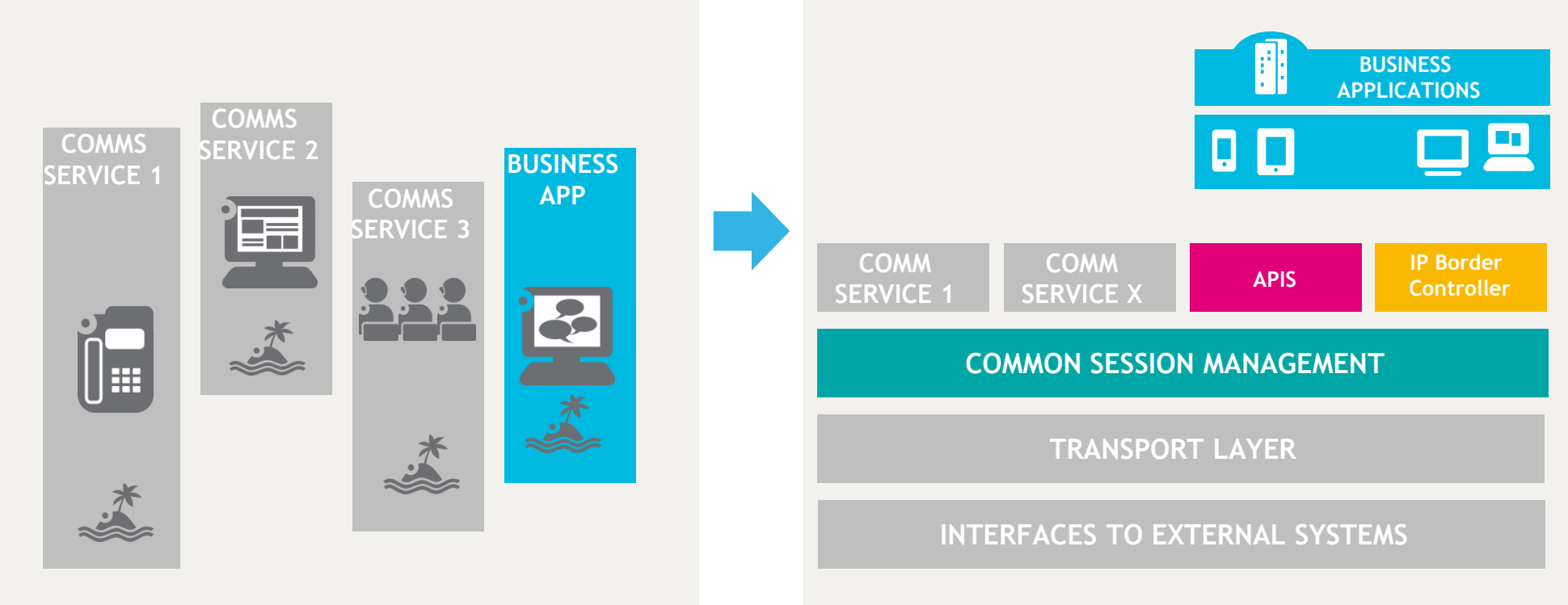
IMPACT TO EXISTING VENDOR MODEL

- Losing control of User Experience reduces control over infrastructure decisions
- Breaks the End-to-End model and opens best of breed vendor selection opportunities

IMPACT TO CIO/IT - Shift from Command/Control to Service/Support

- Must integrate 3rd party apps chosen by Line of Business into infrastructure
- Wide array of devices and web applications coming into the network

THE ANSWER: ADVANCED AND EFFICIENT PLATFORM BASED COMMUNICATIONS



KEY DATA CENTER NETWORK REQUIREMENTS

From the perspective of:	What they really want	Requirements placed on the network
Enterprise IT	FAST, UNRESTRICTED, EASY TO USE <ul style="list-style-type: none">• Let me, my users & my systems configure services to deploy applications quickly• Place & move applications across locations• Define access policies & ensure security• Maintain full visibility of my slice of resources• Secure, reliable extensions of private cloud	AGILE, BOUNDARYLESS, PROGRAMMABLE <ul style="list-style-type: none">• Streamlined definition of network services & enterprise policies• Immediate instantiation of network in sync with apps• Multi-tenancy with seamless VPN connectivity & DR• Analytics & performance reporting• Independence from DC HW/virtualization environment
Cloud Service Provider	DYNAMIC, MULTI-TENANT, SCALABLE <ul style="list-style-type: none">• Support full range of applications• Turn up network services very quickly• Across thousands of customers• Each with visibility & control of their slice• Optimizing utilization of DC & network assets	AUTOMATED, VIRTUALIZED, EFFICIENT <ul style="list-style-type: none">• Hybrid Cloud Services & seamless VPN connectivity• Automation of network service instantiation• Seamless fabric throughout & across datacenters• Traffic isolation, robustness & service availability• Full network virtualization & unrestricted workload mobility

THE ANSWER: THE UNCONSTRAINED DATACENTER NETWORK

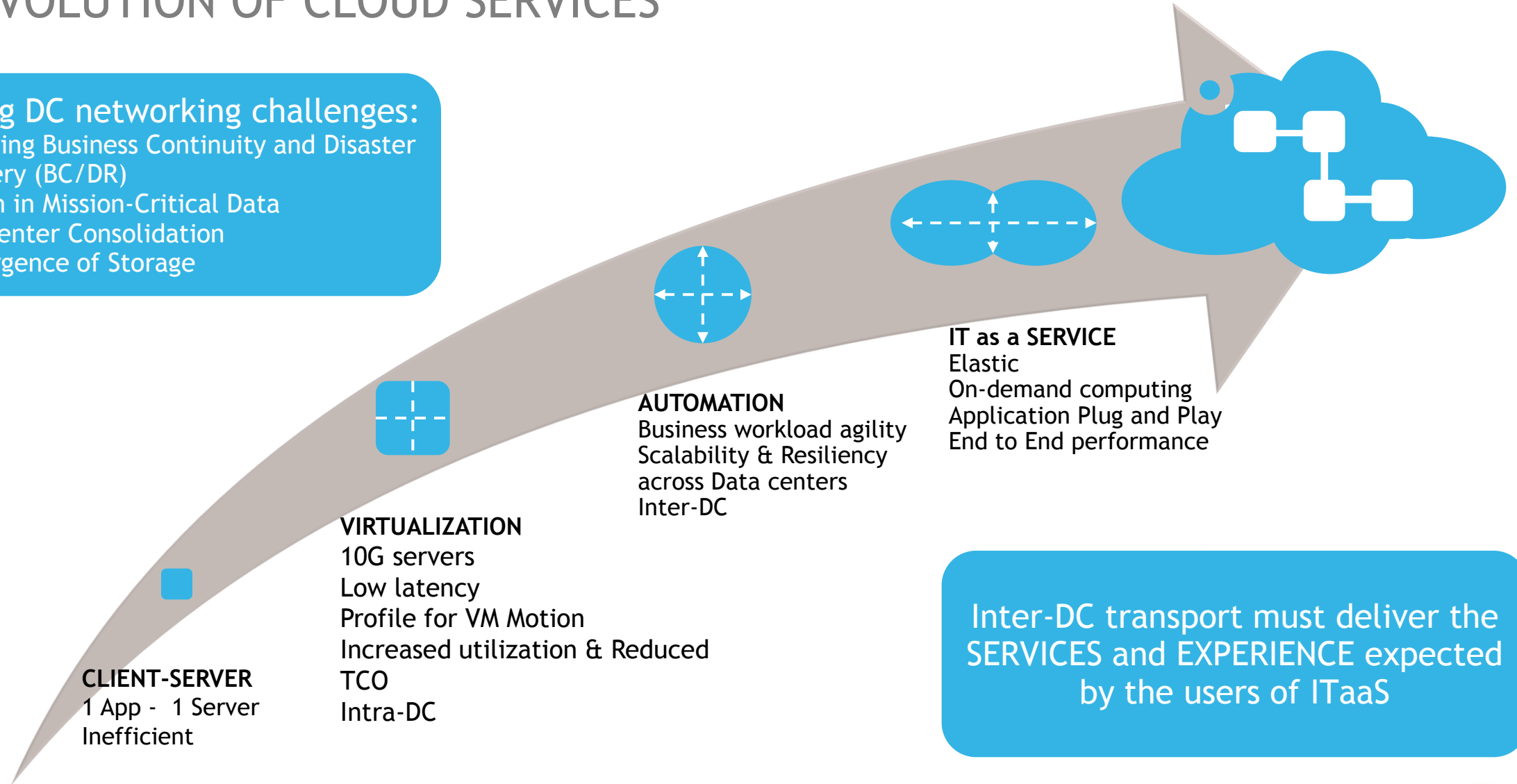
	Typical solutions today	What's Needed
Virtualization of network services	LAYER 2 ONLY	FULL NETWORK VIRTUALIZATION, L2 THROUGH L4
Breadth of Application Models	SIMPLE SCENARIOS	HYBRID CLOUD SERVICES, SEAMLESS VPN CONNECTIVITY
Availability & Scale	SINGLE -TENANT ONLY	ROBUST, THOUSANDS OF TENANTS
Reach & Mobility of network resources	ISOLATED ISLANDS	SEAMLESS VIRTUALIZED FABRIC, THROUGHOUT DATACENTER AND BEYOND
Network service turn-up time	SLOW & MANUAL	INSTANTANEOUS, AUTOMATED, POLICY-DRIVEN
Openness	VENDOR-SPECIFIC	INDEPENDENCE FROM HARDWARE CHOICES AND CLOUD MANAGEMENT

INTRA - AND INTER DATACENTER VIRTUALIZATION REQUIREMENTS

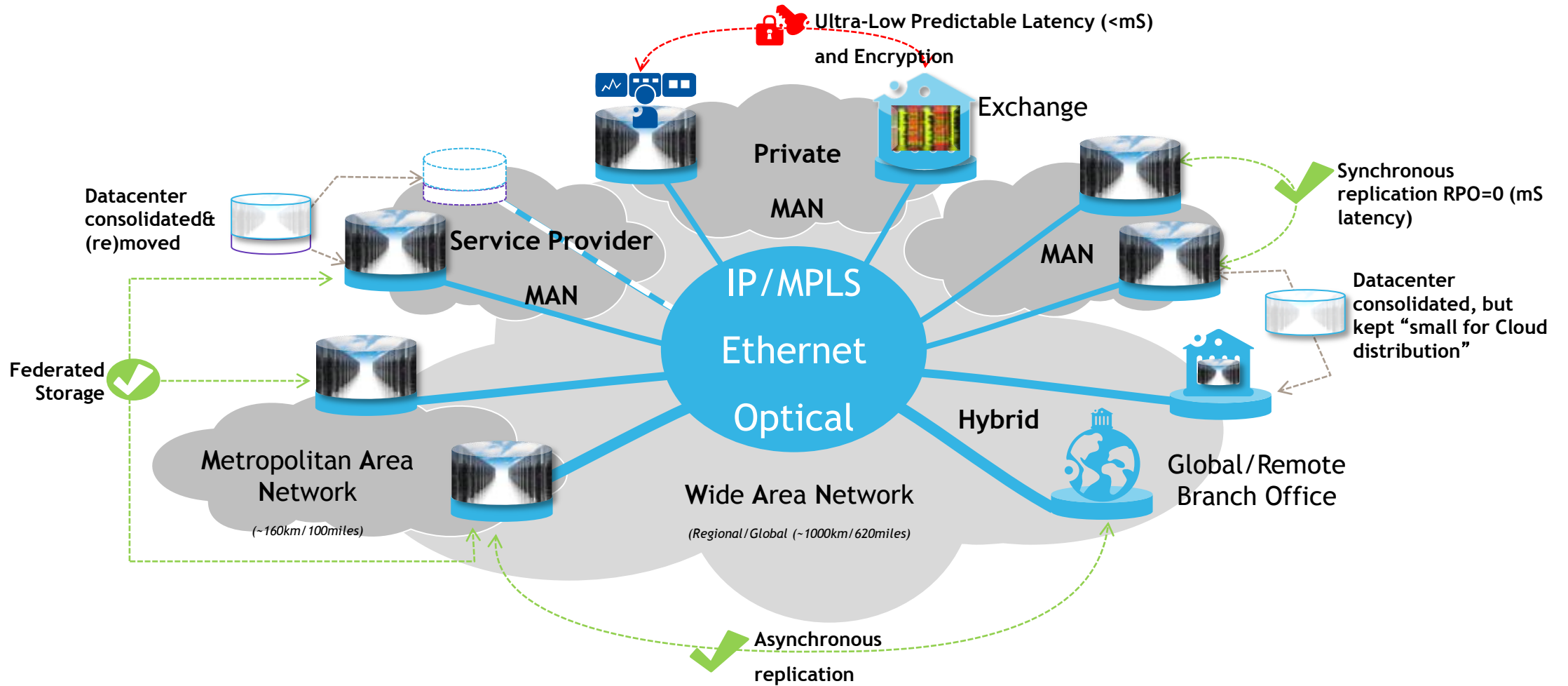
THE EVOLUTION OF CLOUD SERVICES

Banking DC networking challenges:

- Improving Business Continuity and Disaster Recovery (BC/DR)
- Growth in Mission-Critical Data
- Data Center Consolidation
- Convergence of Storage



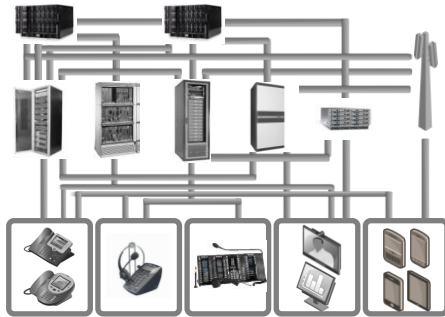
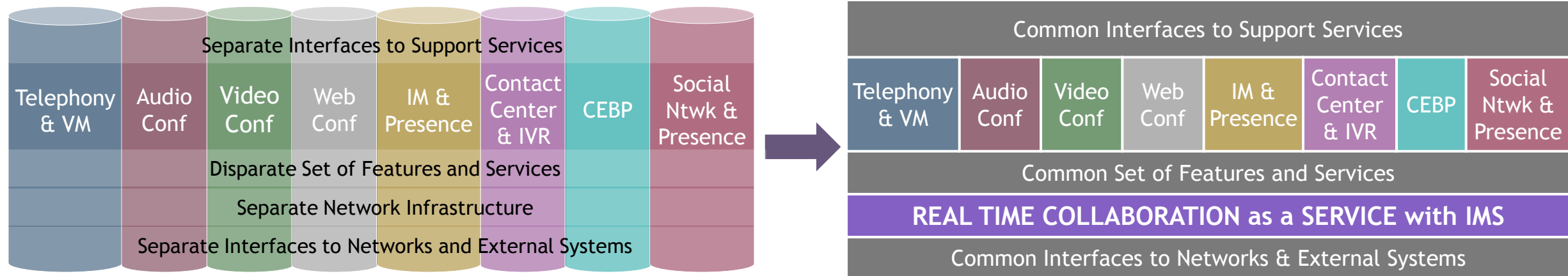
THE ANSWER: AGILE IP/OPTICAL NETWORKING



NETWORK AND COMMUNICATION SOLUTIONS FOR THE UNCONSTRAINED ENTERPRISE

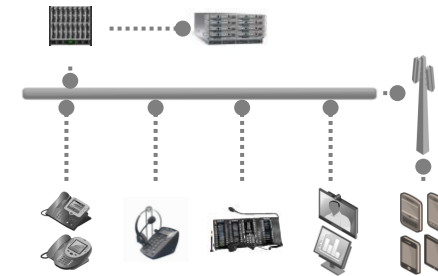
IP MULTIMEDIA SUBSYSTEM - SESSION MANAGEMENT PLATFORM

SOLUTION FOR THE OPEN ENTERPRISE



Network based integration model

- Disjointed end user experiences
- Vertical technology silos with considerable effort to maintain each silo
- Complex & expensive to create cross-silo applications

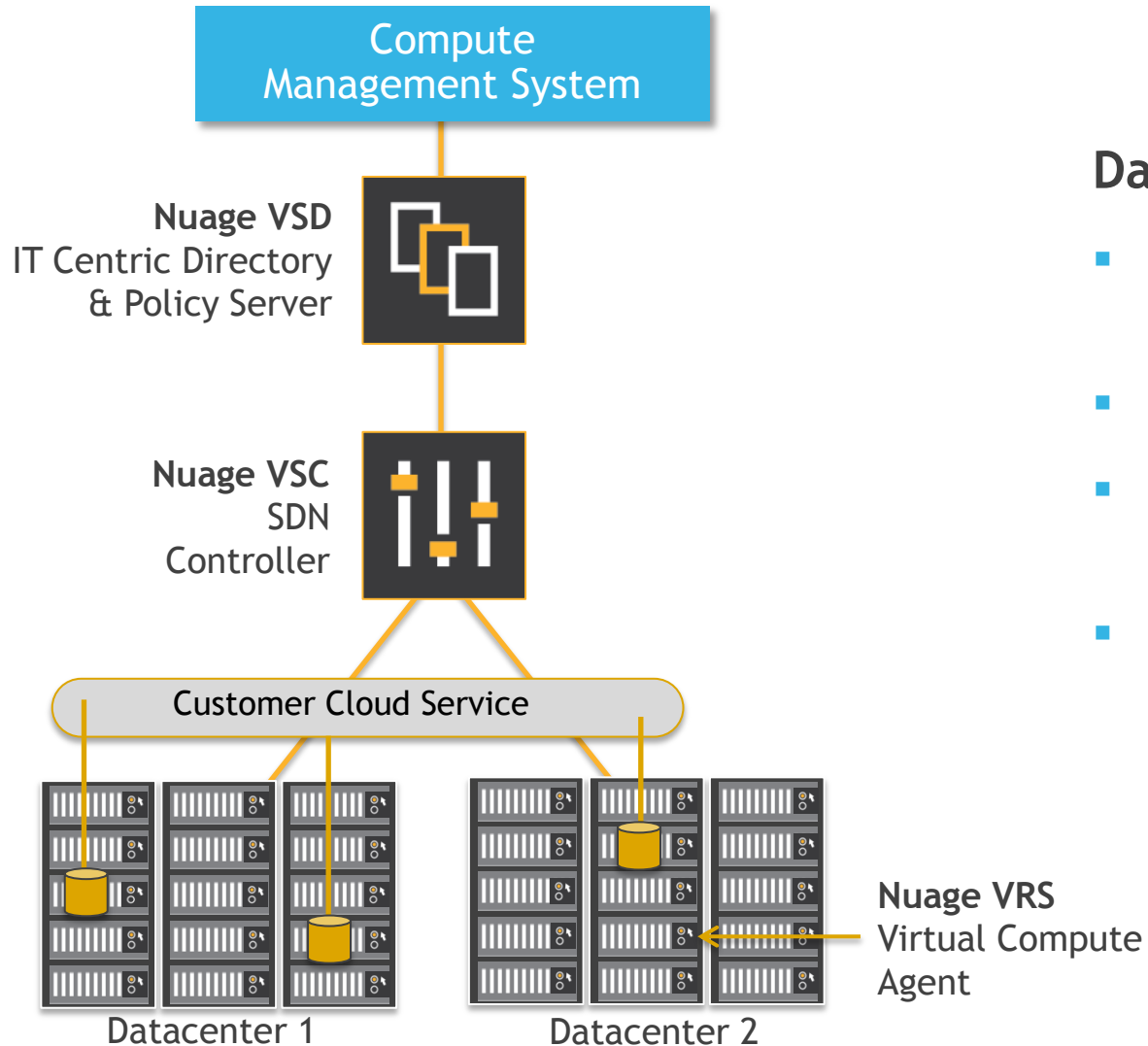


Web service delivery model

- Low cost, flexible Service Oriented Architecture
- Consistent end user experience across multiple modalities and devices

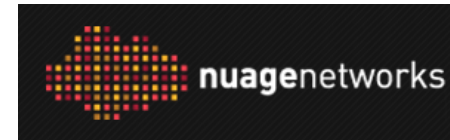
VIRTUAL SERVICES PLATFORM

ELIMINATING DATACENTER NETWORK CONSTRAINTS



Datacenter Network

- IT language service directory and policy server
- SDN controller with robust 'IP' heritage
- Per-compute agent to initiate network paths
- Network is as consumable as compute



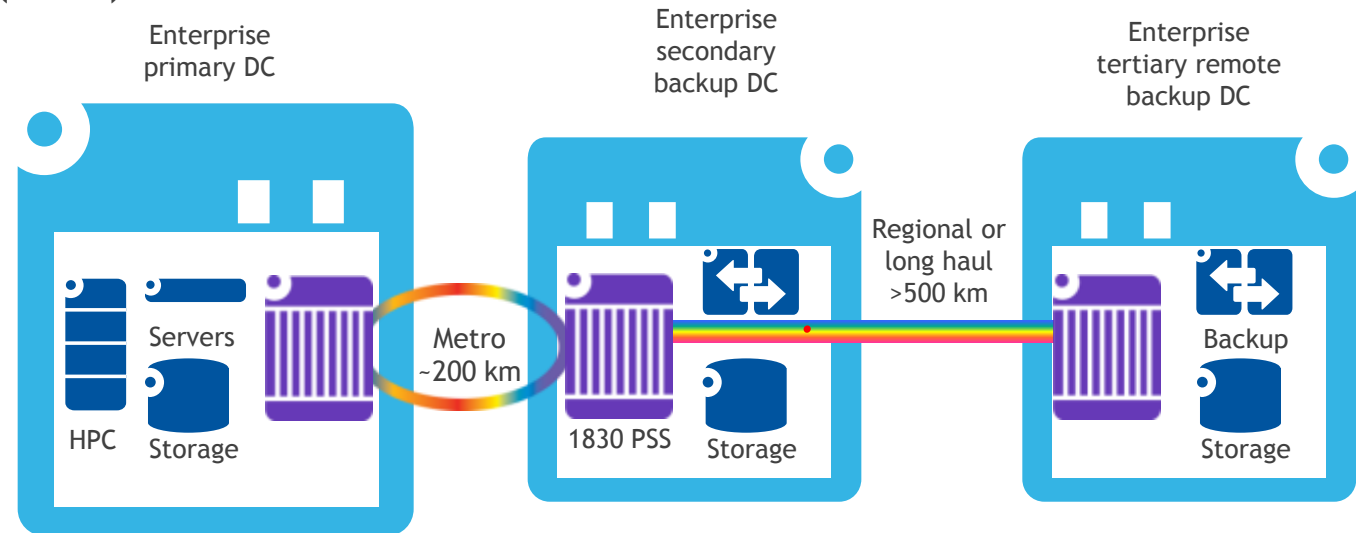
AGILE IP OPTICAL NETWORKING FOR STORAGE DISTRIBUTION, BUSINESS CONTINUITY, DISASTER RECOVERY, HIGH FREQUENCY TRADING

Financials applications in Metropolitan Area (MAN)

- High Frequency Trading (HFT)
- High Performance computing (HPC)
- Workload rebalancing
- Business Continuity & Disaster recovery
- Synchronous Mirroring
- Local and remote read/write (async storage)

Financials applications requirements

- Primary and backup DC across MAN
- Typically point-to-point topologies over dark fiber
- Zero loss for mission-critical data
- Lowest latency for HFT
- High availability
- Security and privacy requirements



100G Optical DWDM solution provides

- Very low latency (no FEC ~ few μ s) - Each μ s gained means increased profits in High Frequency Trading
- Very high capacity (up to 10 services) transport on a single card
- Scalable and secure in-flight encryption of mission critical data

CONCLUSIONS

ACTIONABLE TAKE-AWAYS

1. Network is a strategic asset for Large Banking & Finance Enterprises

- You need scalable, reliable, secure IP network and communication solutions to deliver new digital services at scale

2. Challenge the technology status quo

- New IP technologies address your future network and communication requirements and help transform your business faster and better

3. Have an integrated IT and Network approach to Cloud and Virtualization

- Network Virtualization consistent with IT Virtualization in order to gain the real benefits of the Cloud era

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ALCATEL-LUCENT

A HERITAGE OF INNOVATION



MORE THAN
30,700
ACTIVE PATENTS

2,900
PATENTS
IN 2012

R&D BUDGET
€2.3B

8
BELL LABS
LOCATIONS

7
NOBEL
PRIZES

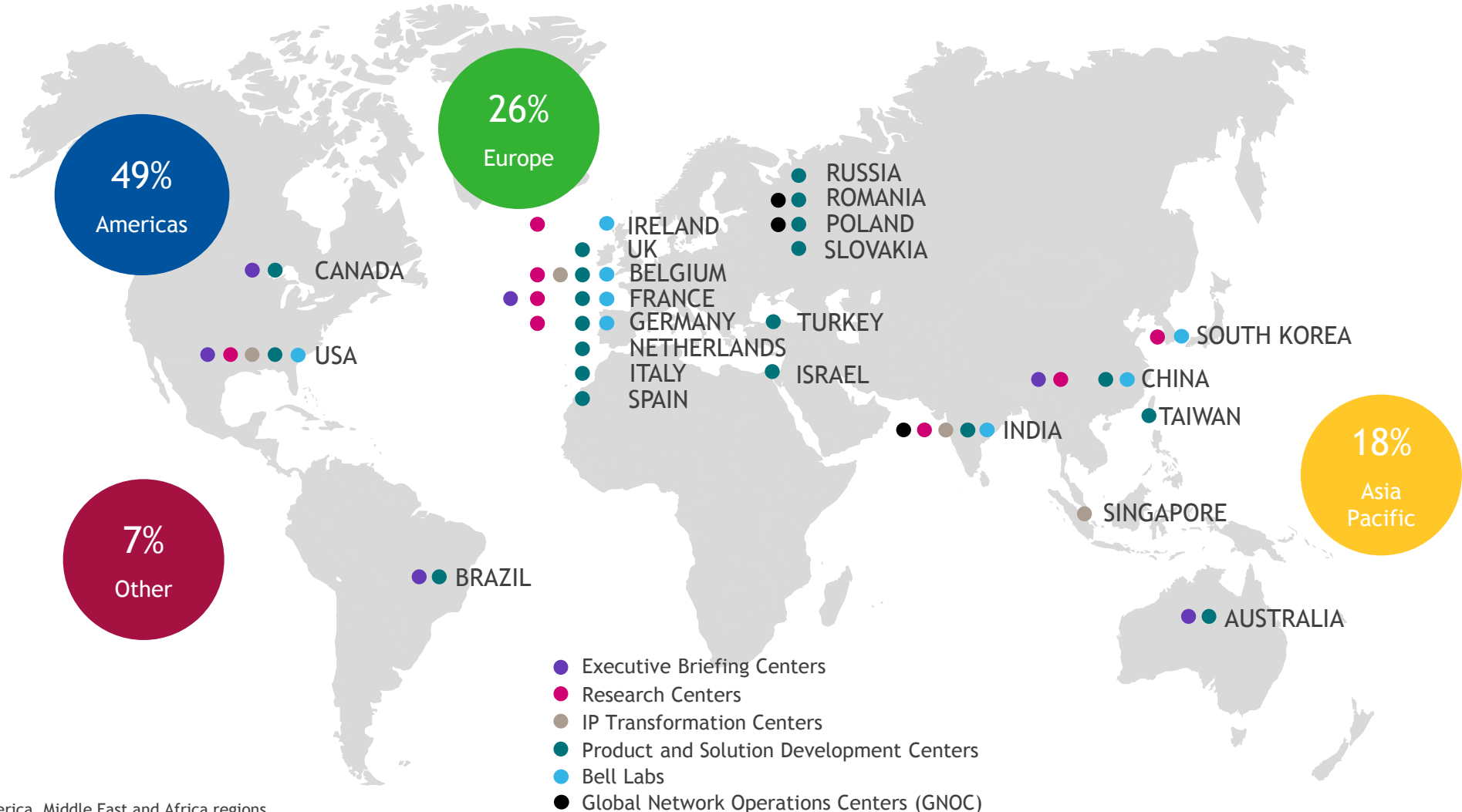
COLLABORATE
WITH
250+
universities

TR50
MOST INNOVATIVE
Companies 2012

LEADING EDGE RESEARCH AND DEVELOPMENT

ALCATEL-LUCENT GLOBAL REACH

PERCENT OF 2012 REVENUES



Other: Central and South America, Middle East and Africa regions

STRATEGIC DRIVERS FOR IMS BASED REAL TIME COLLABORATION

OPEN

Significantly reduce high cost of a disparate set of vertical with a standards-based, common session management layer based on IMS

CARRIER SCALE

IMS is built for carrier scale and multiple application delivery model

CARRIER RELIABILITY

Core session management across entire enterprise requires product with regulatory measured 5 9s uptime and organization to support it

BYOD and BYOA

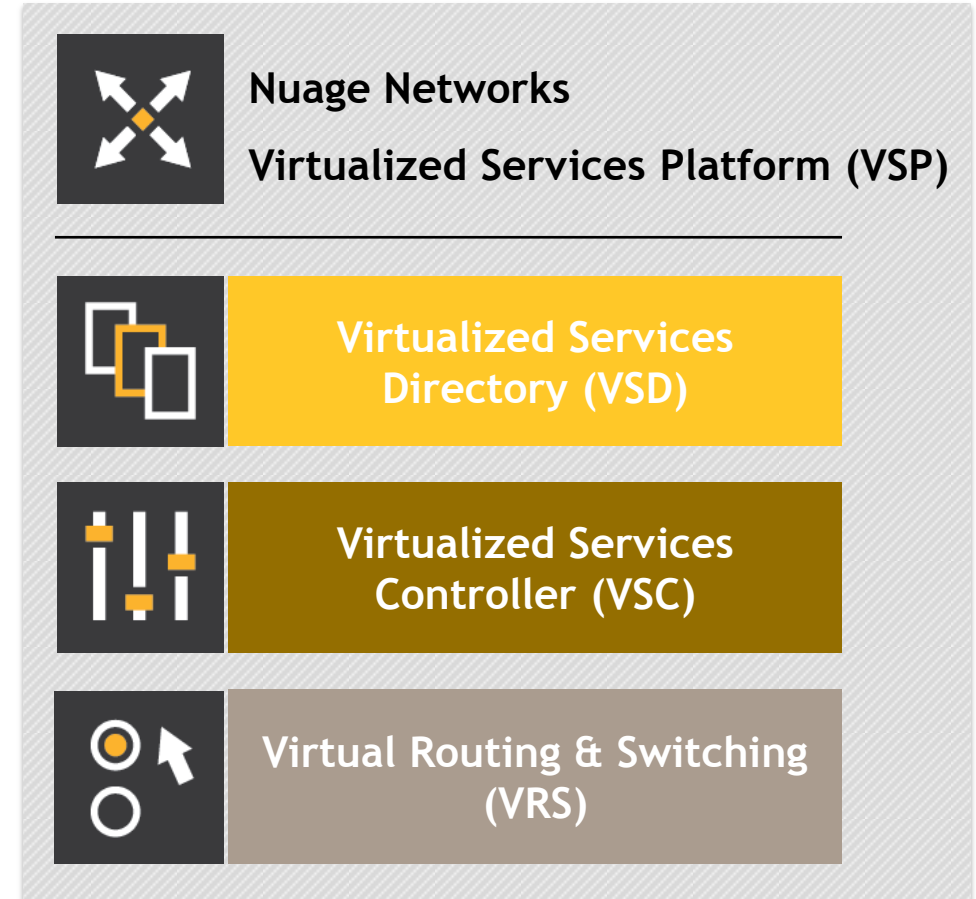
Cost effective, repeatable and consistent delivery of communications services for user driven end points and LOB chosen applications

...CONSISTENT THEMES ACROSS LARGE ENTERPRISES

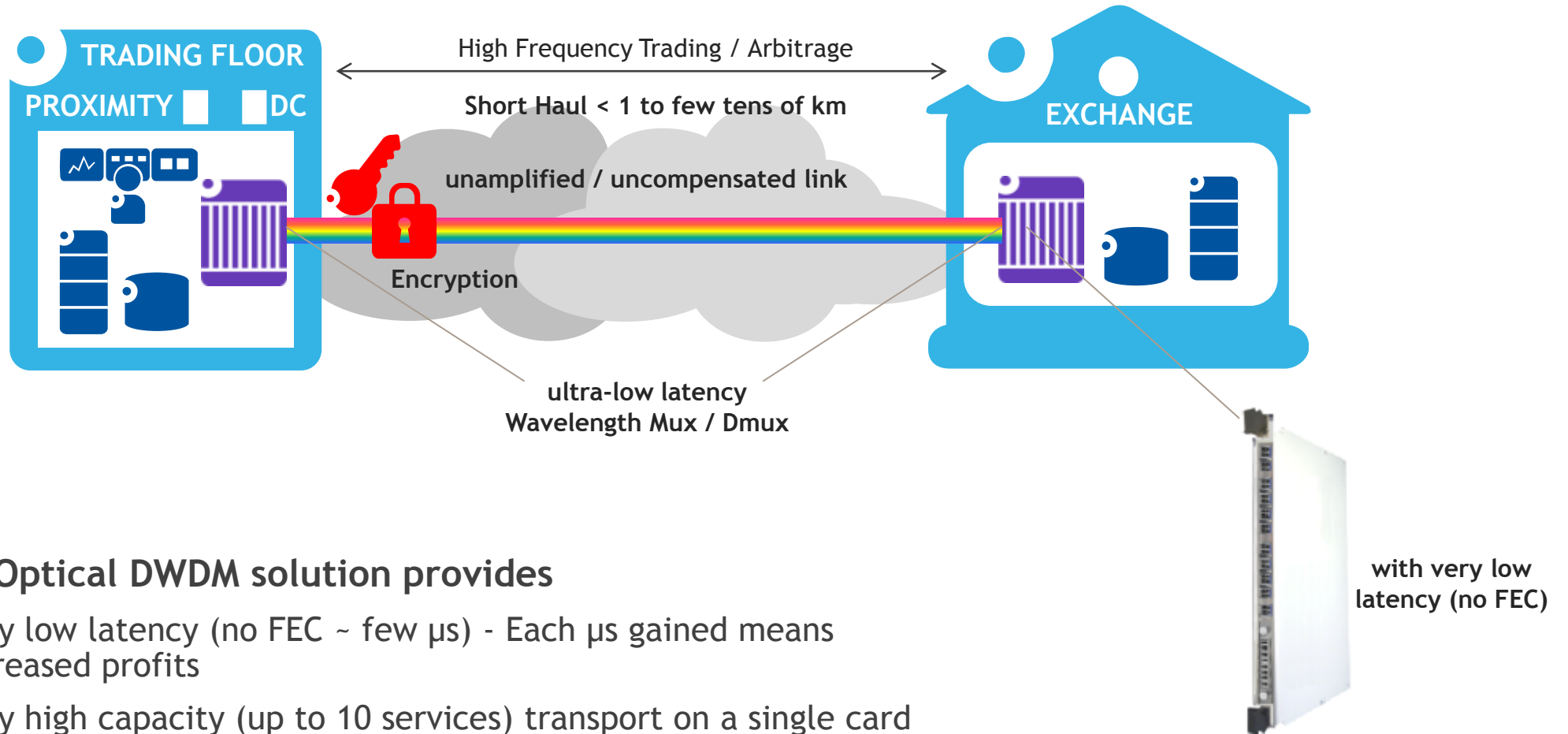
THE BENEFITS OF A VIRTUALIZED SERVICES PLATFORM



- **The VSP eliminates the constraints that have held back the responsiveness & efficiency of the datacenter network by**
 - Making the datacenter network as dynamic & consumable as compute infrastructure through automated instantiation of network services
 - Eliminating cumbersome configuration-driven processes for datacenter networking that are today's norm
 - Separating and simplifying the definition of network service requirements and policies from the manner in which network services are established
 - Virtualizing ANY existing datacenter network infrastructure (Layer2 through Layer4)
 - Scaling to meet the demands of thousands of tenants with unique application requirements and enterprise policies



SECURE HIGH FREQUENCY TRADING AND BANKING APPLICATIONS



100G Optical DWDM solution provides

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- Very high capacity (up to 10 services) transport on a single card
- Scalable and secure in-flight protection of mission critical data