



# DATA CENTER INTERCONNECT SICHERER UND FLEXIBLER DATENAUSTAUSCH ZWISCHEN RECHENZENTREN

# AGENDA

1. Key Feature learning's from ancient Greece?
2. User challenges to be addressed for IT, Data Centre and Cloud
3. Security, Reliability and Key Feature Focus of our Solution



They couldn't demand for more resources!

They only had one Troja rely on!

They didn't think about all security threats!

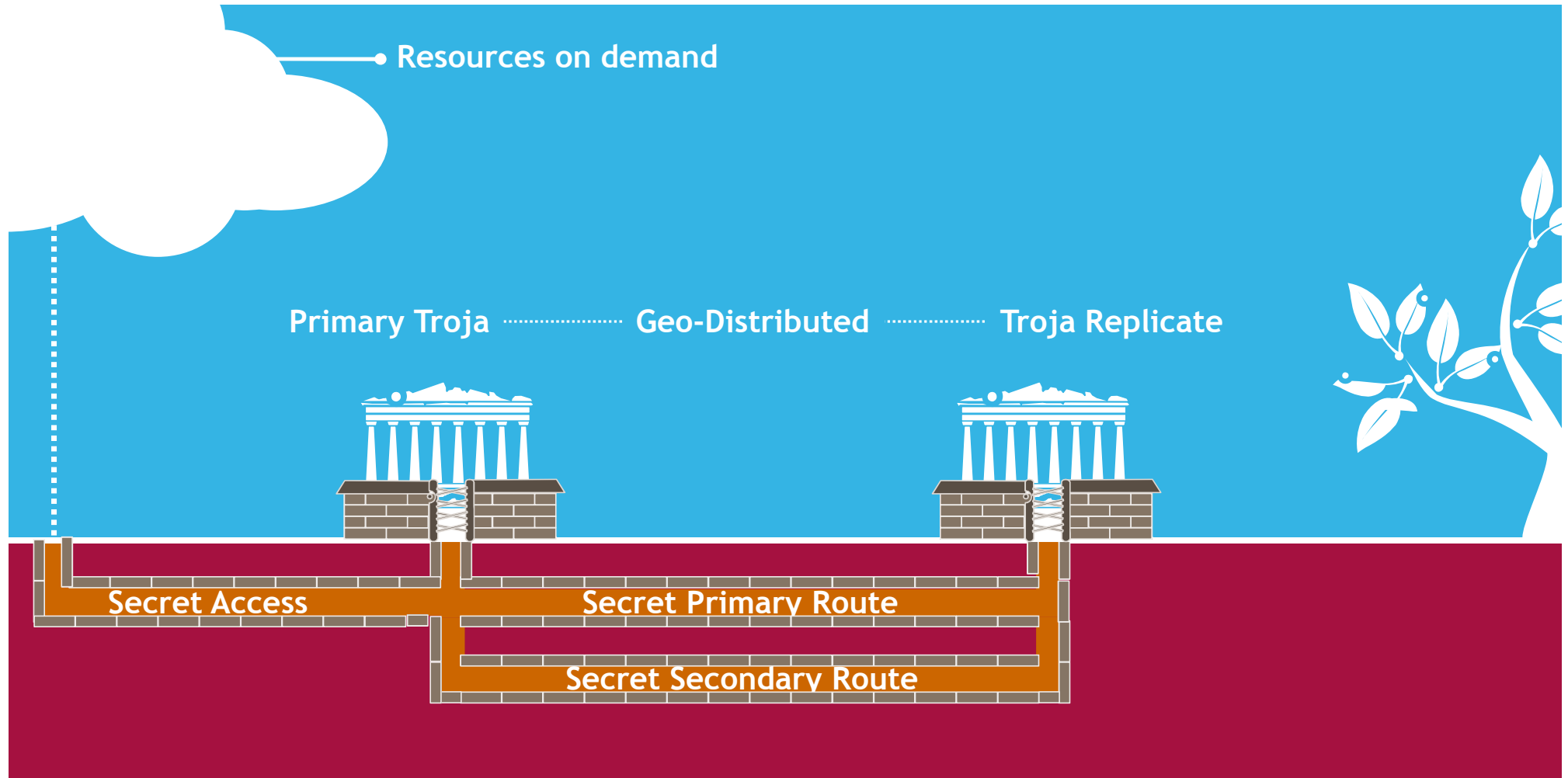
BEING INSPIRED BY ANCIENT GREECE

They had no secret route to escape!

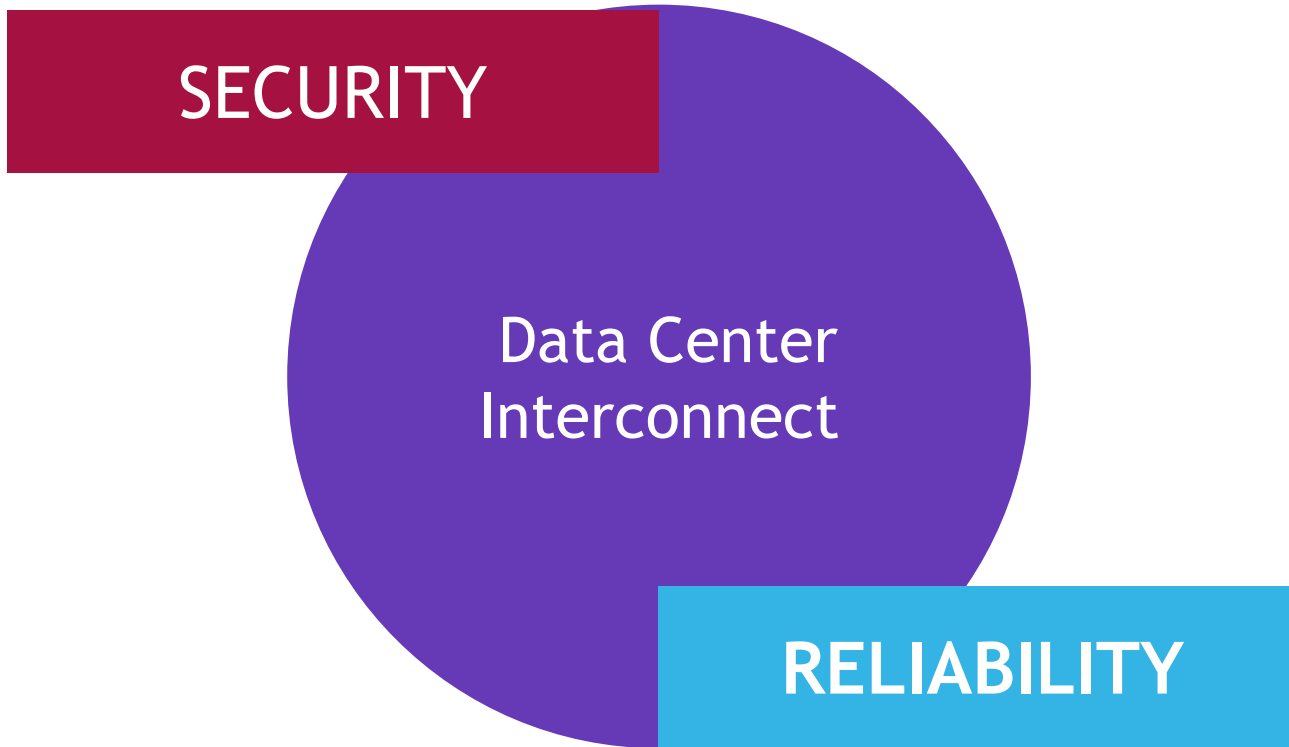
# WHY DID THE TROJANS FALL IN THEIR MISSION?

Resources on demand

Primary Troja ..... Geo-Distributed ..... Troja Replicate



# KEY FEATURE LEARNINGS FROM CHALLENGES IN ANCIENT GREECE?



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# USER CHALLENGES TO BE ADDRESSED FOR IT, DATACENTER AND CLOUD MISSION CRITICAL APPLICATIONS





















Improve Customer Service

Reduce Cost and Increase Agility

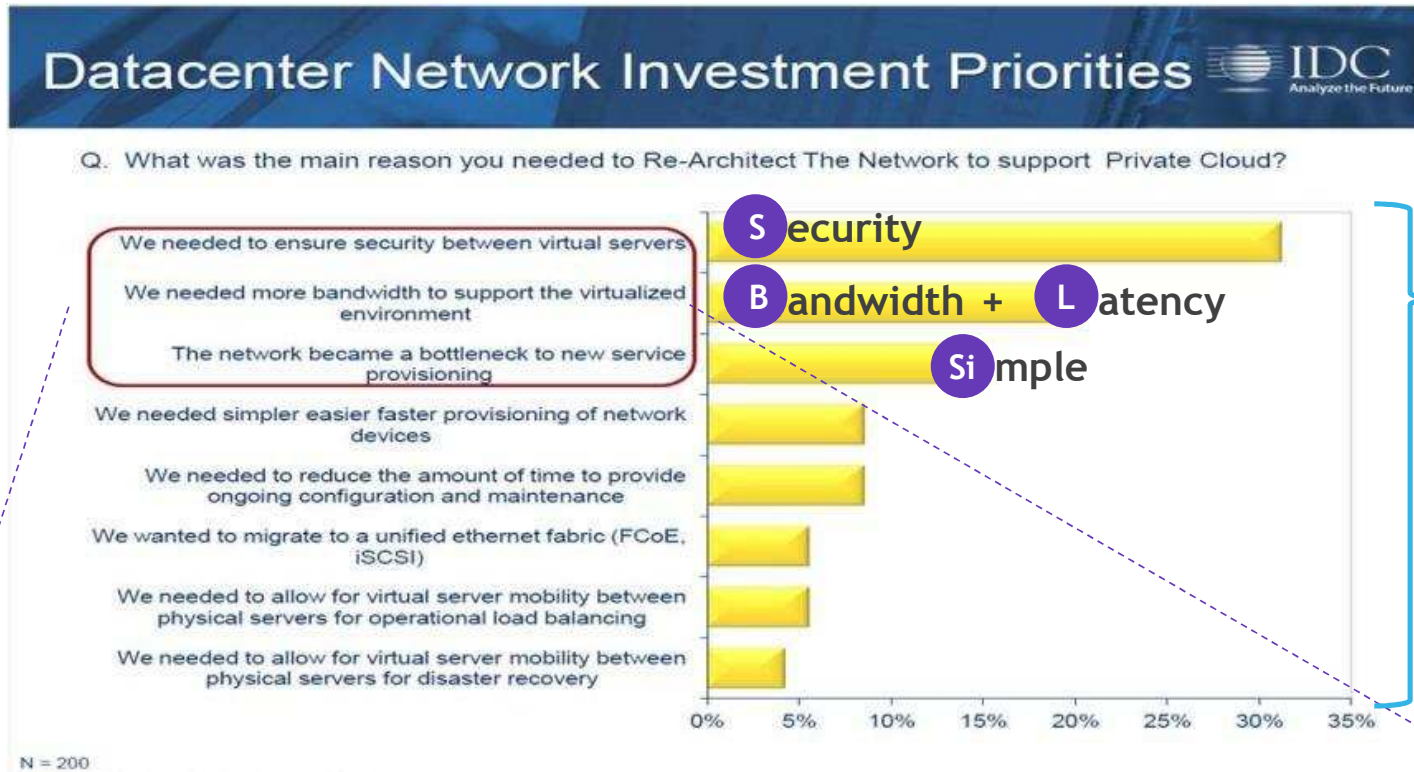
Maximize Employee Productivity

Focus on Compliance and Security

Bandwidth / Security / Availability / Reliability / Scalability / Latency / Adaptability / Lifecycle Network Management

UTILITIES	OIL & GAS	TRANSPORT	PUBLIC SAFETY	GOVERNMENT	FINANCIAL	CLOUD & HPC → HT-Cloud	HEALTHCARE
							
DCI, WAN & MAN	DCI, WAN & MAN	DCI, WAN & MAN	DCI, WAN & MAN	DCI, WAN & MAN	DCI, WAN & MAN	DCI, WAN & MAN	DCI, WAN & MAN
Legacy to IP Migration	Legacy to IP Migration	Legacy to IP Migration	DC Consolidation	DC Consolidation	Low latency	Time of Day Allocation	Legacy to IP Migration
Network Convergence	Network Convergence	Network Convergence	Cloud Interconnect	Cloud Interconnect	Real time data	Collaboration	Collaboration
Secure Data 	Secure Data 	Video Sharing	Collaboration	Collaboration	Historical data	Real time data	Video Distribution
BC&DR	BC&DR	Low Latency	Real time data	Real time data	Order execution	BC&DR	Low Latency 
SCADA, Teleprotection	SCADA, Teleprotection	Real time data	Secure Data 	Secure Data 	High Frequency Trading	Low latency 	Real time data
Low latency 	Low latency 	BC&DR	BC&DR	BC&DR	Partner connect	CERN LHC: Connected to 10 Tier-1 sites for synchronized Databases.	Secure Data 
					Secure in-flight data 		BC&DR
					BC&DR		

# NETWORK CHALLENGES TO BUSINESS-MISSION-CRITICAL CUSTOMERS?



TRUST  
PRIVACY  
BE IN CONTROL

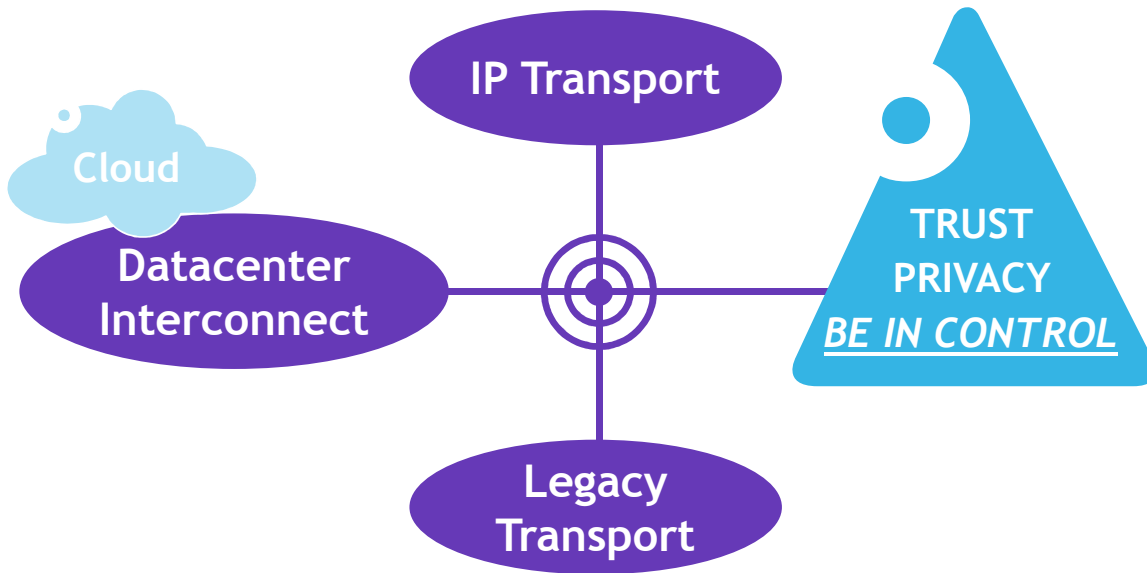
Re-Architect The Optical Network adding SIMPLE, SECURE Performance



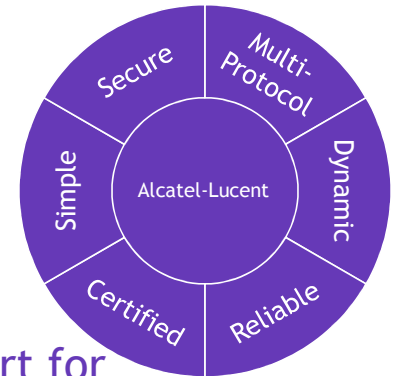
# AGENDA

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# WHY DO BUSINESS-MISSION-CRITICAL CUSTOMERS TURN TO ALCATEL-LUCENT?



Simple, Secure and Performant Transport for Business Mission-Critical Applications



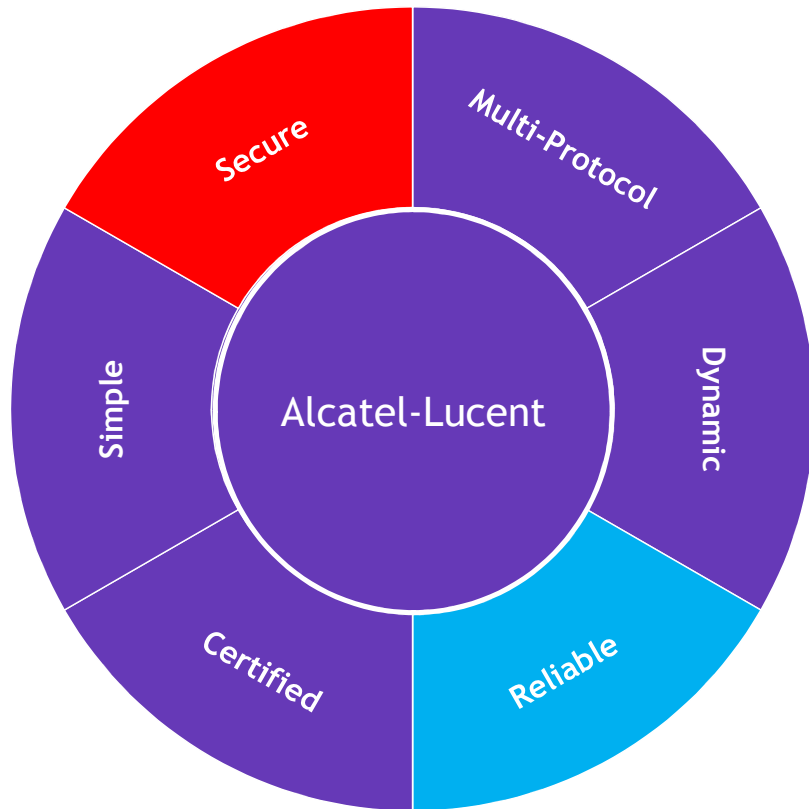
## TYPICAL MISSION-CRITICAL APPLICATIONS:

- Teleprotection & SCADA
- Railway signaling
- Communication Based Train Control
- Ground-Train Communications
- Real-time LAN



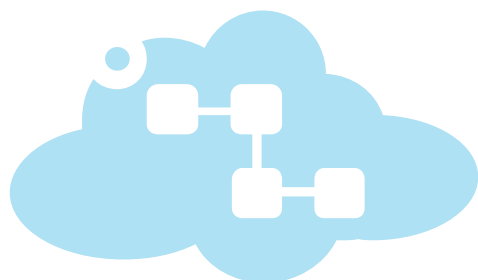
# KEY FEATURE FOCUS OF OUR SOLUTIONS

## DYNAMIC CONNECTIVITY FOR EVEN GREATER MOBILITY, AVAILABILITY & COLLABORATION



- WHY?
  - Secure, Compliance, Available
- HOW?
  - Secure Data Centre Interconnect and Access to Cloud over Redundant Routes
- WHAT?
  - Multiprotocol, low latency In-Flight Encryption while monitoring any breach
  - Key Management Tool
  - Wide range of transport protection schemes combined with OAM
- WHAT'S NEXT?

# ALCATEL-LUCENT ADDRESSING SECURITY IN-FLIGHT ENCRYPTION WHILE MONITORING ANY BREACH



Cloud Optimized  
Networking



Optical Intrusion  
Detection and  
**Low Latency  
Encryption**



Higher Adoption  
of Cloud Services

MORE \$\$  
REVENUES

sell and up-sell  
Keys-aaS

## In-Flight Encryption:



Low-latency In-flight AES256  
encryption combined w/  
intrusion Monitoring and Key  
Management Tool



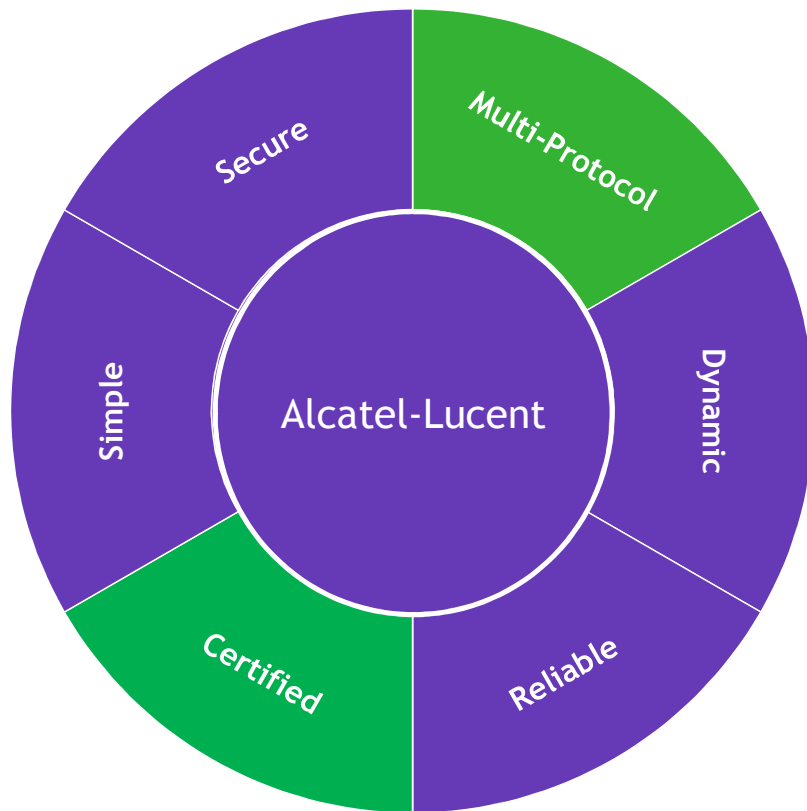
“Security still remains the  
biggest identified barrier to cloud  
services adoption (63%) ...

Colt: European CIO Cloud Survey



# KEY FEATURE FOCUS OF OUR SOLUTIONS

## MULTIPROTOCOL & CERTIFIED TRANSPORT FOR CONTINUOUS AVAILABILITY



- WHY?

- Data Center connect uses many different protocols
- « synchronous replication », business continuity, disaster recovery are mission critical applications

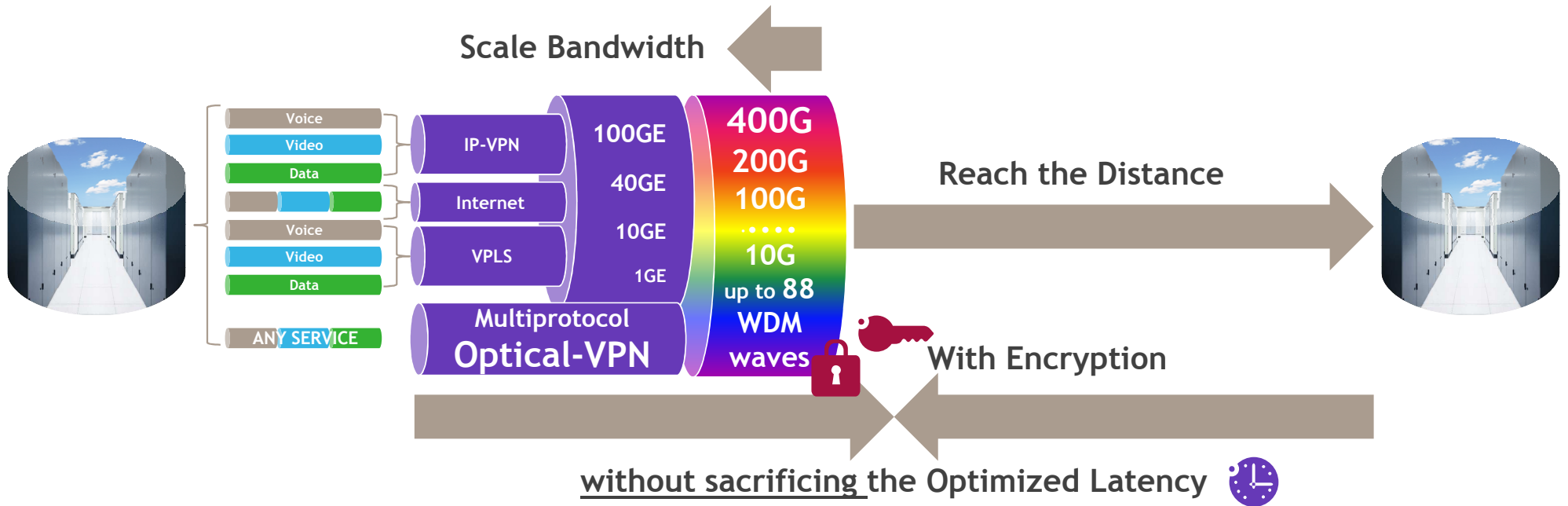
- HOW?

- Flexible use of bandwidth in-between DCs and among Services
- Optimize (plan) and Measure (on-demand) e2e Latency

- WHAT?

- Multi-Protocol transport of:
  - Fibre Channel (Storage),
  - Infiniband (HPC Storage)
  - Ethernet (VM) Services

# ALCATEL-LUCENT ADDRESSING PERFORMANCE SCALE, REACH AND ENCRYPT AT MARGINAL INCREMENTAL COST



Fast service activation (whatever is the protocol)

**IT IS THE USER-EXPERIENCE, MACHINE-TO-MACHINE AND APPLICATIONS THAT SETS THE REQUIREMENTS OF E2E PERFORMANCE**

# 1830PSS CERTIFIED TRANSPORT SUPPORT ADDRESSING INTEROPERABILITY CHALLENGE

CERTIFICATION PROGRAM  
KEEPS LATEST CARDS AND  
RELEASES CERTIFIED VS  
3rd PARTY VENDORS

MULTI-MILLION  
DOLLAR  
INVESTMENT IN  
R&D AND LAB  
INTEROP FACILITIES



1830 PSS

CERTIFIED INTEROP FOR  
REPLICATION OF MISSION  
CRITICAL CLOUD  
APPLICATIONS

CERTIFIED INTEROPERABILITY FOR REPLICATION  
OF MISSION CRITICAL CLOUD APPLICATIONS



## GDPS CERTIFICATION

- certified (200km w/ encryption)
- System z/ IBM storage interop.



Geographically  
Dispersed Parallel  
Sysplex  
=> G5/G6 and zSeries



## STORAGE ARRAYS

- eLabs certified
- SRDF/MirrorView replication, VPLEX (future)

VPLEX



VMAX / Symmetrix



## SAN FC SWITCHES

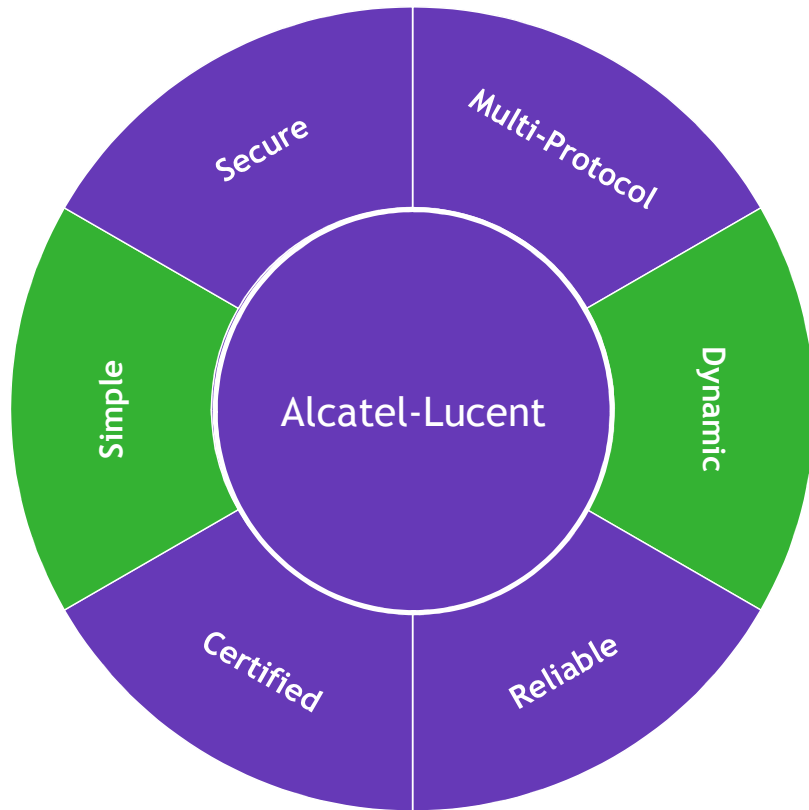
- Self & Brocade certified →
- Focus on ISL trunking

includes all OEMs  
from Brocade to:  
**EMC IBM FUJITSU**



# KEY FEATURE FOCUS OF OUR SOLUTIONS

## DYNAMIC CONNECTIVITY FOR EVEN GREATER MOBILITY, AVAILABILITY & COLLABORATION



- **WHY?**

- Fast service activation up-grade
- Flexible use of bandwidth in-between DCs and among Services

- **HOW**

- Modular & Software Defined Design
- Flexibility handled by OAM Tools & Applications

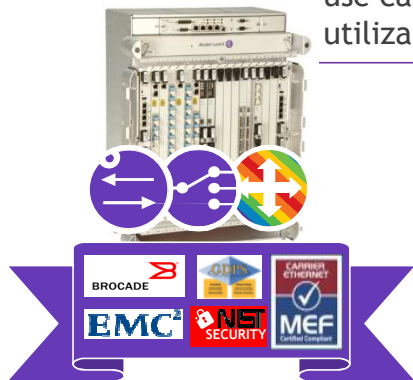
- **WHAT?**

- Photonic & Service Aware Network Management
- Wavelength Tracker



# ALCATEL-LUCENT 1830PSS MAKING IT SIMPLE USING PROVEN HIGHLY INTUITIVE & AUTOMATED OPTICAL SYSTEM

Modular & Software Defined Design  
- same card many certified  
use cases / chassis for optimal  
utilization



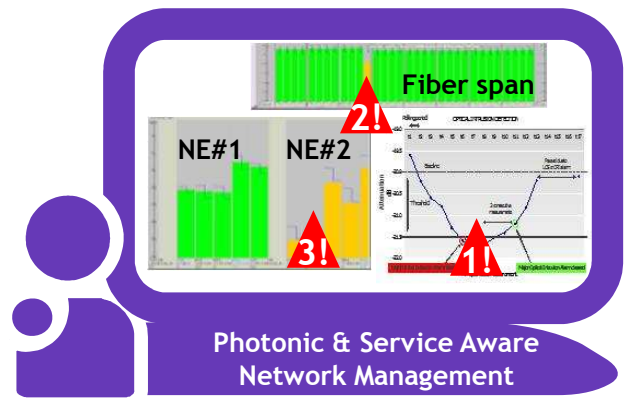
+

Design Tool  
verifies  
architecture  
& fiber

Actual and  
guaranteed  
dark fiber  
data



+



“Facilitate Make  
or Buy”

STRATEGY

“Plan once -  
Deploy Many”

DESIGN

“Deploy Proper Once -  
Deploy Many at Marginal Cost”

DEPLOY

“Avoid costly  
trips to Field”

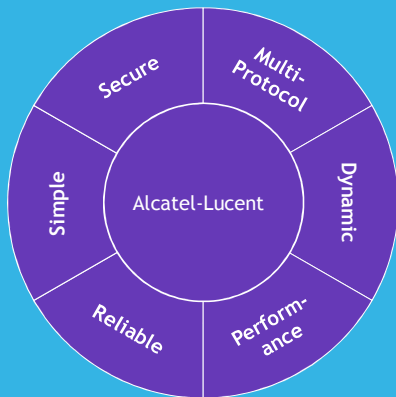
OPERATE

## WE HELP CUSTOMERS DEFINE AND BUILD PRIVATE OPTICAL NETWORKS ONE NETWORK SOLUTION RE-ARCHITECTING MANY USECASES

### BY ADDING SIMPLE, SECURE PERFORMANCE

- De-risked, using proven Intuitive & Automated Optical system
- In-flight Encryption while monitoring any breach
- Scale, Reach and Encrypt at marginal incremental cost

### TO BE IN CONTROL OF BUSINESS-MISSION-CRITICAL CHALLENGES AHEAD



Where do we begin your  
transformational journey?



Improve Customer Service

Reduce Cost and Increase Agility

Maximize Employee Productivity

Focus on Compliance and Security

[www.alcatel-lucent.com](http://www.alcatel-lucent.com)