



IBM System Storage™ Technical University, Barcelona

Bridging your business over IP by Interconnecting your SANs

TTU0115

Daniel Ribeiro da Silva

Business Develop Manager - IBM

IBM Systems

LightSand : Agenda



- Introduction
- What is driving growth in Storage Networking?
 - We live in the world of ...
 - What the analysts predict ...
 - Business continuity trends
- LightSand Introduction
 - LightSand at a glance
 - Regulations build new SAN Requirements
- LightSand Technology
 - LightSand Technology “Any SAN to Any Wan”
 - Solving the problems of routing SANs over the WAN
 - FC-DAS and IP-NAS or Clusters over WAN
 - Protect and share Fabrics and Devices over WAN
 - Provide WAN Optimization and failover protection
- LightSand Products
 - LightSand Product Families
 - IBM Certifications of LightSand Products
- Questions ?



IBM System Storage™ Technical University, Barcelona

**LIGHT
SAND**

**What is driving growth in
Storage Networking?**

IBM Systems

We live in the world of ...

Complexity of Storage Networking

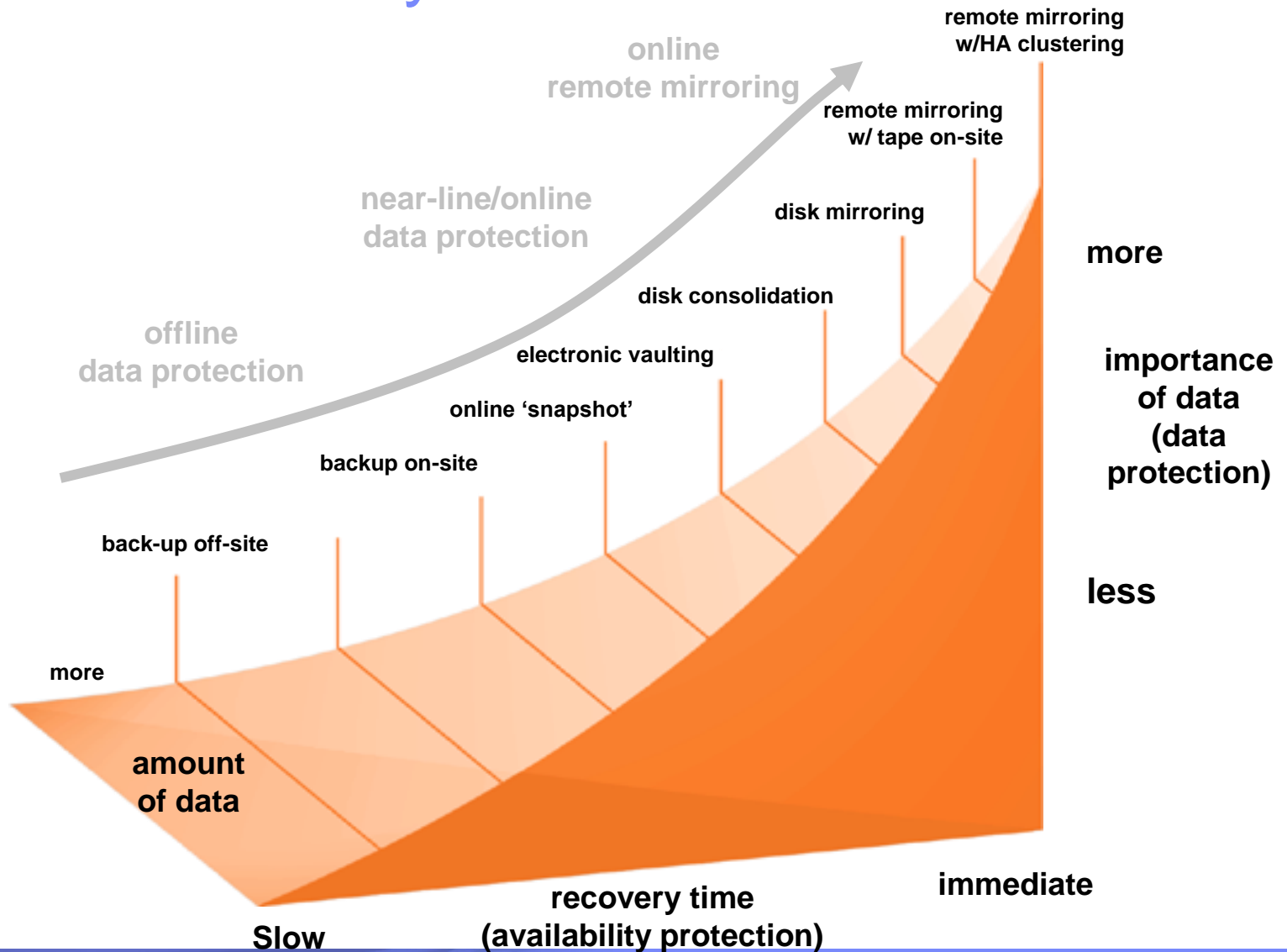
1. Interoperability of solution components
2. Growing quantity of data to be managed.
3. Costs of Wide Area Networking bandwidth
4. Limited availability of IT professionals.
5. Complexity SAN architectures solutions
6. Critical Information flows.

Storage Management Challenges

- **Cost of Ownership**
 - Am I spending what I should be on storage solutions?
- **Continuity Management**
 - Can I keep the business up and running, no matter difficult conditions.
- **Risk Management**
 - What is my recovery Point Objective ? **RPO**
 - What is my Recovery Time Objective ? **RTO**
- **Storage Architecture :**
 - Do I have the infrastructure and resources to respond to changing requirements of the business?

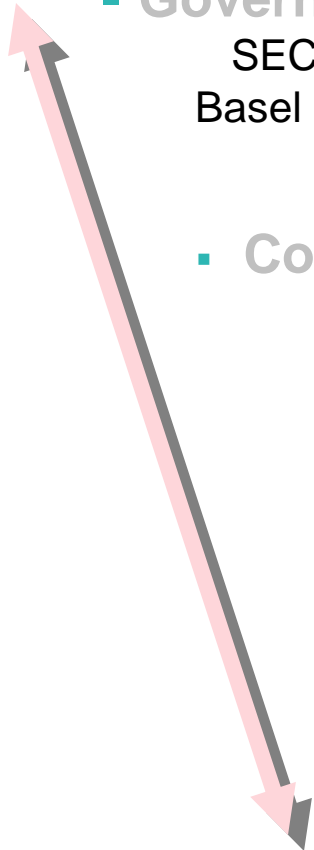


Business Continuity Solutions trends :





Regulations drive new SAN requirements



- **Government Regulations**

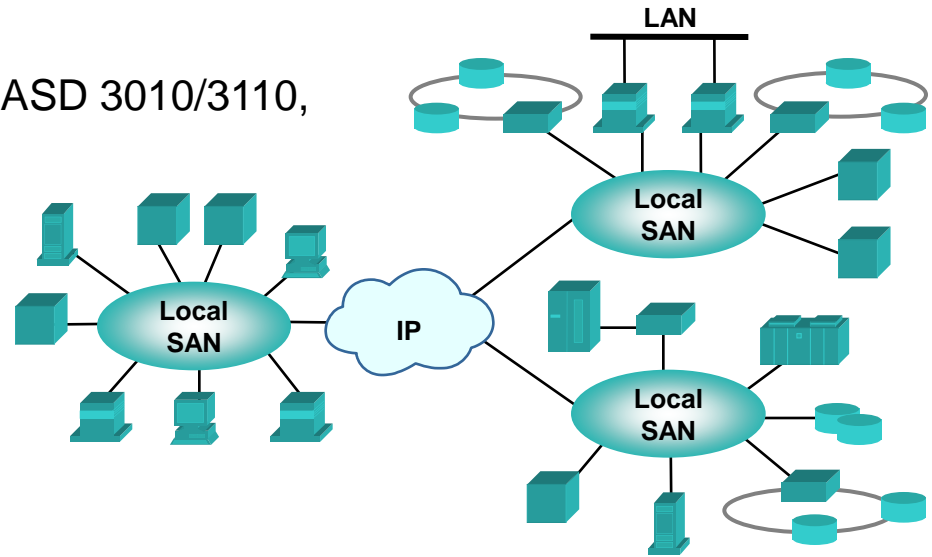
SEC 17 a4, Sarbanes-Oxley, NASD 3010/3110, Basel II, etc

- **Continuous Business**

Business continuity
Data mirroring
Enterprise backup/restore
Storage management

- **Enterprise-wide Storage Connectivity**

- Distributed data warehousing
- Remote web site content distribution
- Data centre & application migration
- FC SAN integration & management





IBM System Storage™ Technical University, Barcelona

LIGHT
SAND

Bridging **your businesses**
Interconnecting **your SANs**

Introduction

IBM Systems

LightSand At-a-Glance

■ **Company**

- 1999: Founded by Kumar Malavalli, Brocade co-founder
- 2003: LightSand acquires San Castle Technologies
- July 2005 : New European investors, Iris Capital and LC Capital, add \$7M in funding to grow market expansion

■ **People/Locations**

- 40 employees worldwide with HQ in Milpitas, CA
- EMEA HQ in Paris

■ **Funding : Over \$70M invested**

- Lead investors include Baring Equity Partners, Concord Ventures, Fremont Ventures, Genesis Partners, Iris Capital and LC Capital



IBM System Storage™ Technical University, Barcelona

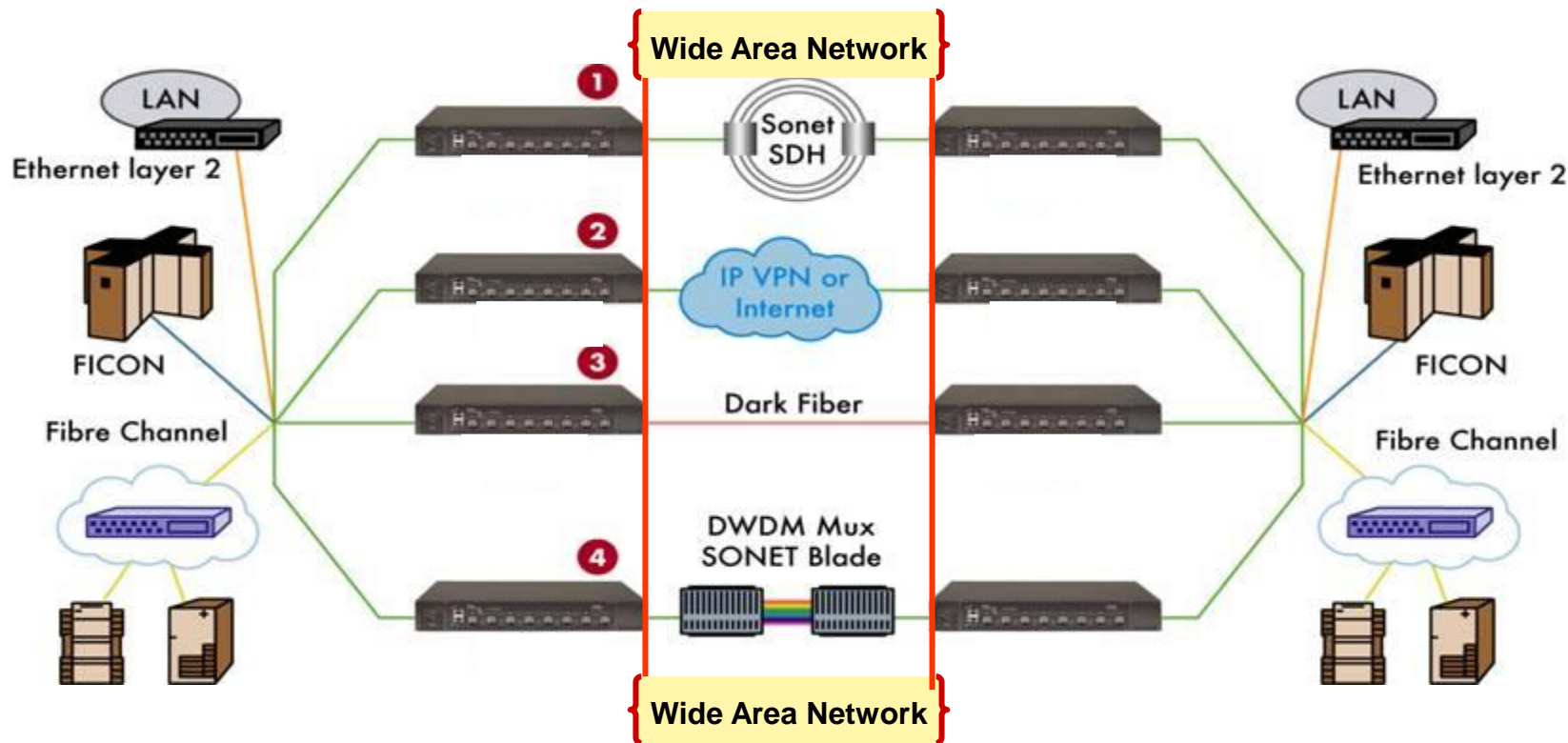
LIGHT
SAND

LightSand unique SAN extension Technology

“Connecting Any SAN to Any Wan”

IBM Systems

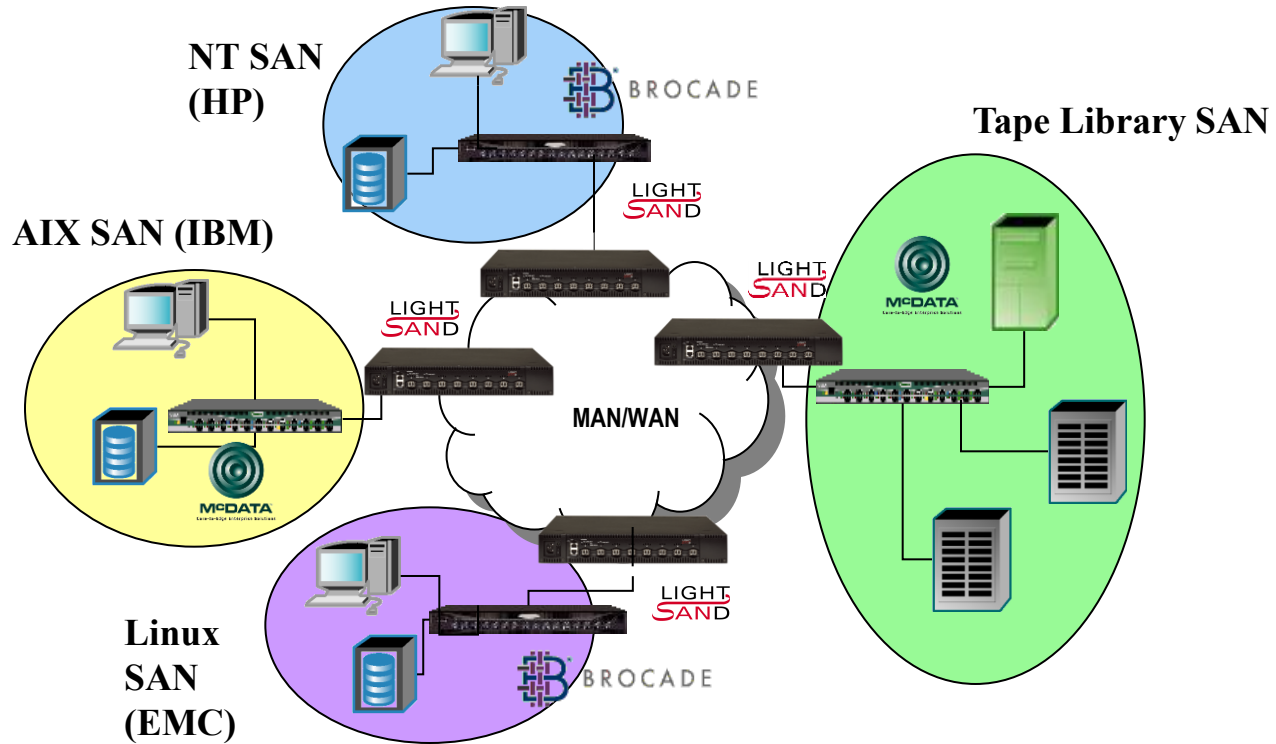
LightSand : Interconnect to ANY WAN



- SONET/SDH** : Deterministic Synchronous transmission over very long distance
- IP VPN** : Flexible and available and cost effective solution
- Dark Fiber** : Limited to 80 km, but often easy to implement when accessible
- DWDM** : High Performance solution for Metro Networks



LightSand : Interconnect ANY SAN



LightSand solves interoperability issues between FC Switches



IBM System Storage™ Technical University, Barcelona

LIGHT
SAND

LightSand :

SAN Connectivity and Routing Solutions

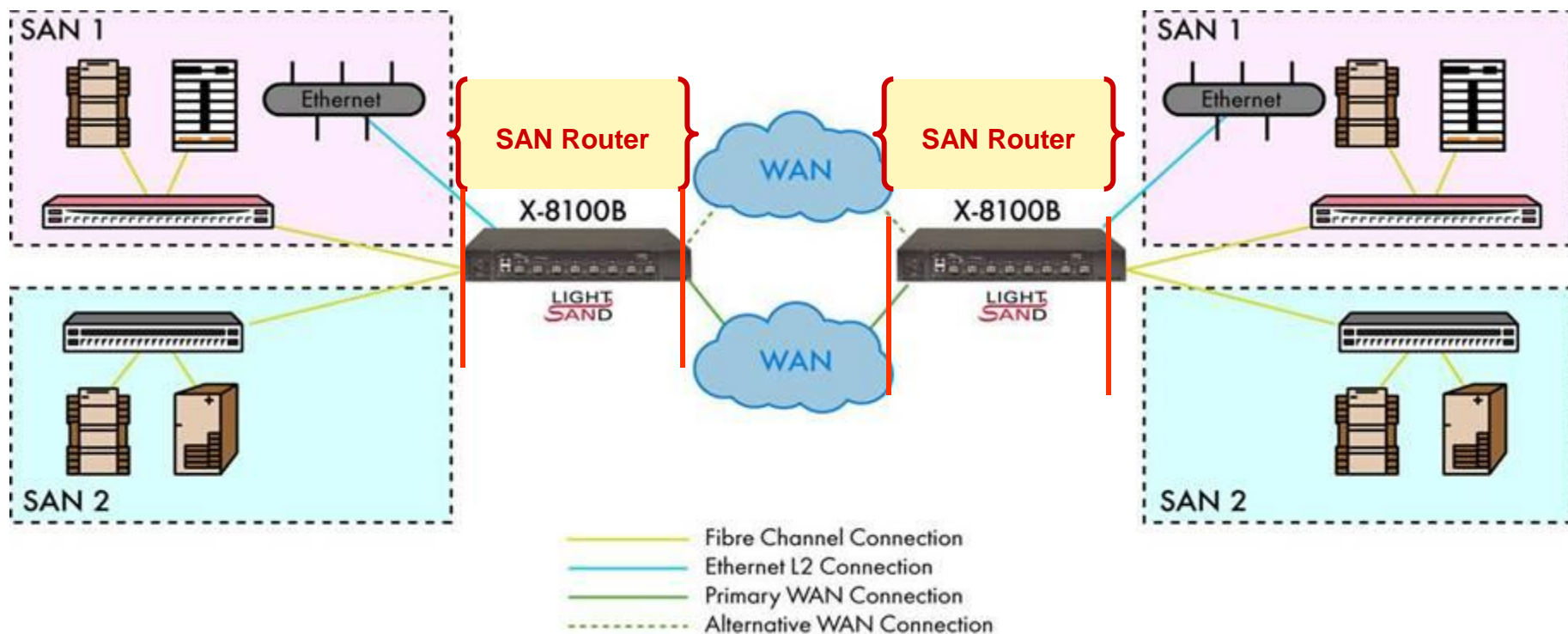
IBM Systems

What are the Problems to solve, routing SAN over the WAN ?

- **Connecting SAN to WAN requires :**
 - **Converting** FC, FICON and **Ethernet** protocol to any WAN protocol (SONET/SDH/DWDM/Ethernet)
 - **Build** a highly available architecture resisting to WAN disruptions.
 - **Protect** local SANs from WAN intrusions.
 - **Reduce** costs of WAN infrastructure.
 - **Maximize** WAN available bandwidth.
 - **Optimize** Data Transfer

**LightSand SAN Routing solutions
satisfy all these requirements!**

LightSand : FC-DAS and IP-NAS or Clusters over WAN



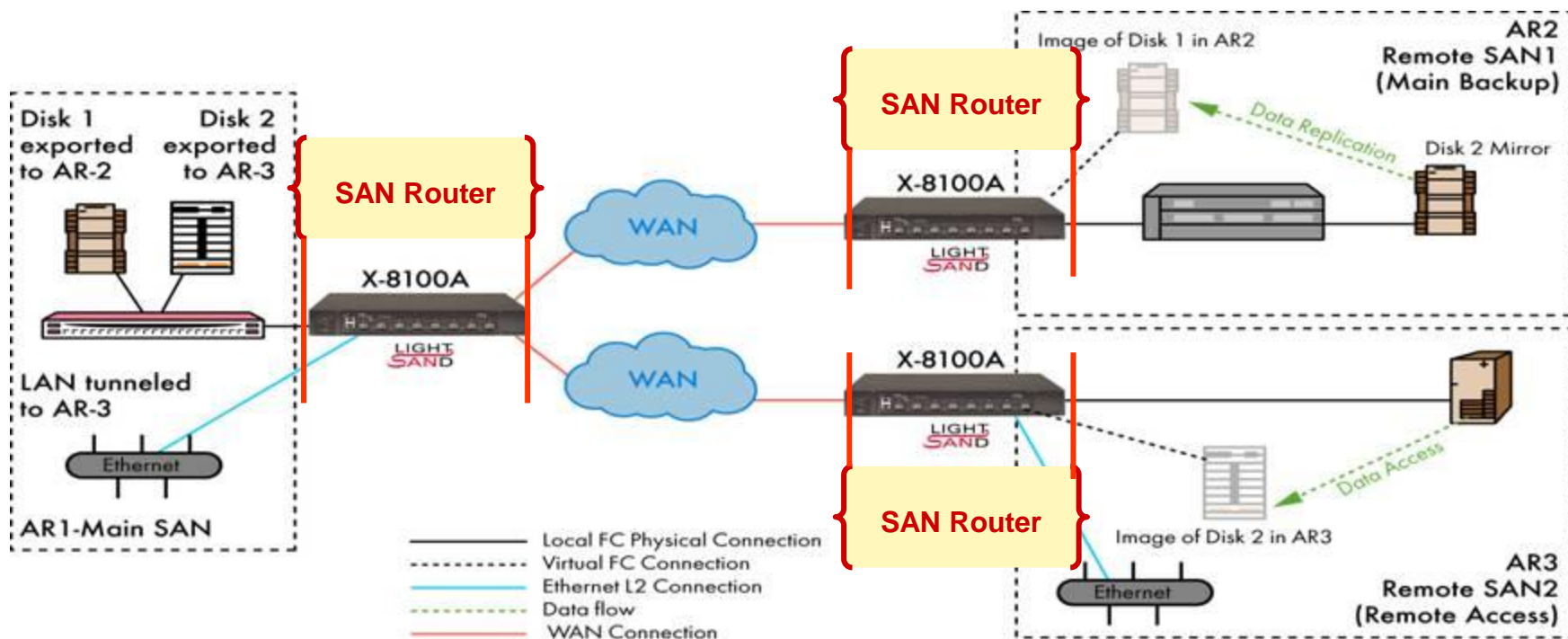
Technology Benefits

1. FC/Ethernet protocol extension
2. WAN **Compression** 1:24 ratio
3. Local FC **switching** capabilities. (E version).
4. DAS,NAS,Cluster **extension** over WAN
5. WAN Failover protection for DAS, NAS.

Customer TCO/ROI Benefits

1. No need of dual (IP/FC) WAN connection.
2. WAN Speed acceleration.
3. No need of FC switches if not present.
4. No Ethernet Layer-2 hardware required.
5. No WAN protection hardware required.

LightSand : Protects and share Fabrics and Devices over WAN



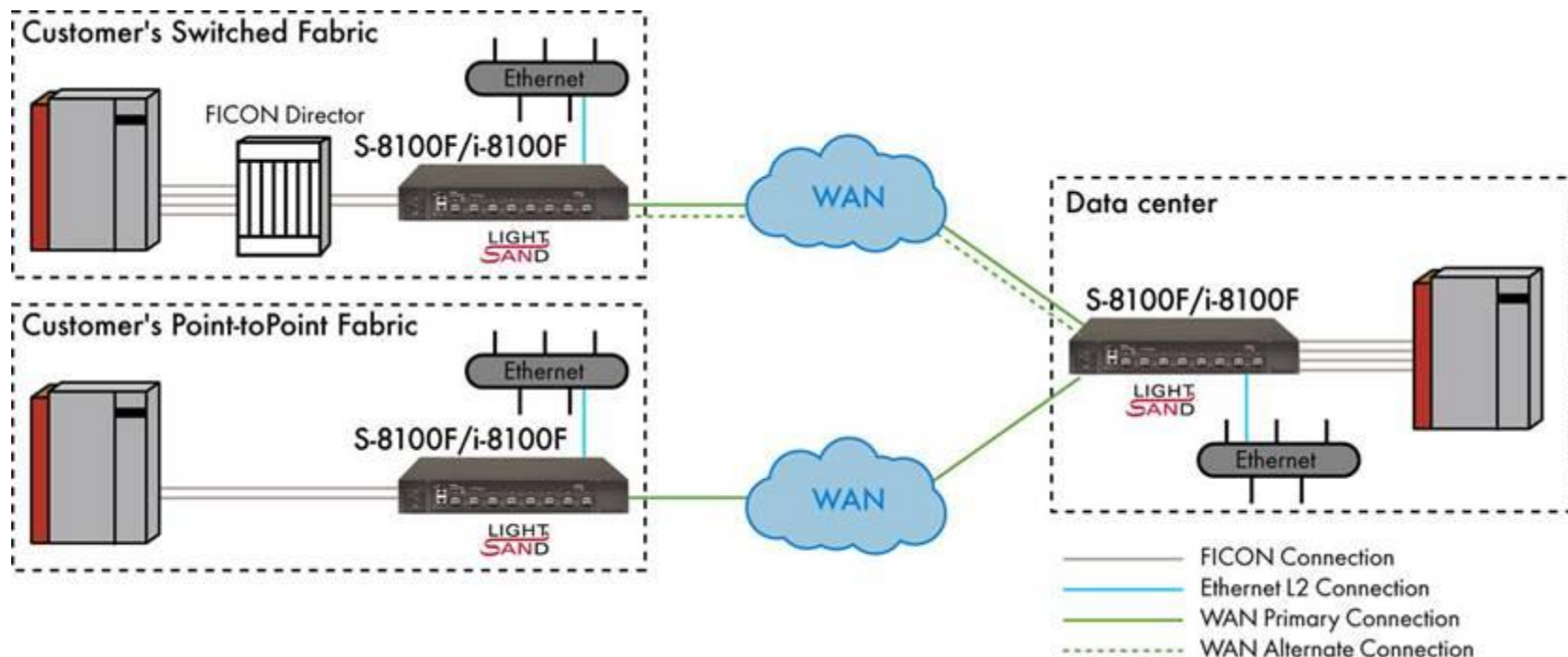
Technology Benefits

1. Heterogeneous Fabric Interconnection.
2. SAN Isolation and logical segmentation. AR/DAT
3. WAN Devices, Zone, Region sharings over WAN
4. DAS,NAS, SAN,Clusters, **extension** over WAN
5. WAN Failover protection for DAS, NAS.

Customer TCO/ROI Benefits

1. No need to have same switch vendors.
2. Each SAN for Each Business activity.
3. Simple access to remote storage.
4. No Ethernet Layer-2 hardware required.
5. No WAN protection hardware required.

LightSand : Provides WAN Optimization and failover protection



Technology Benefits

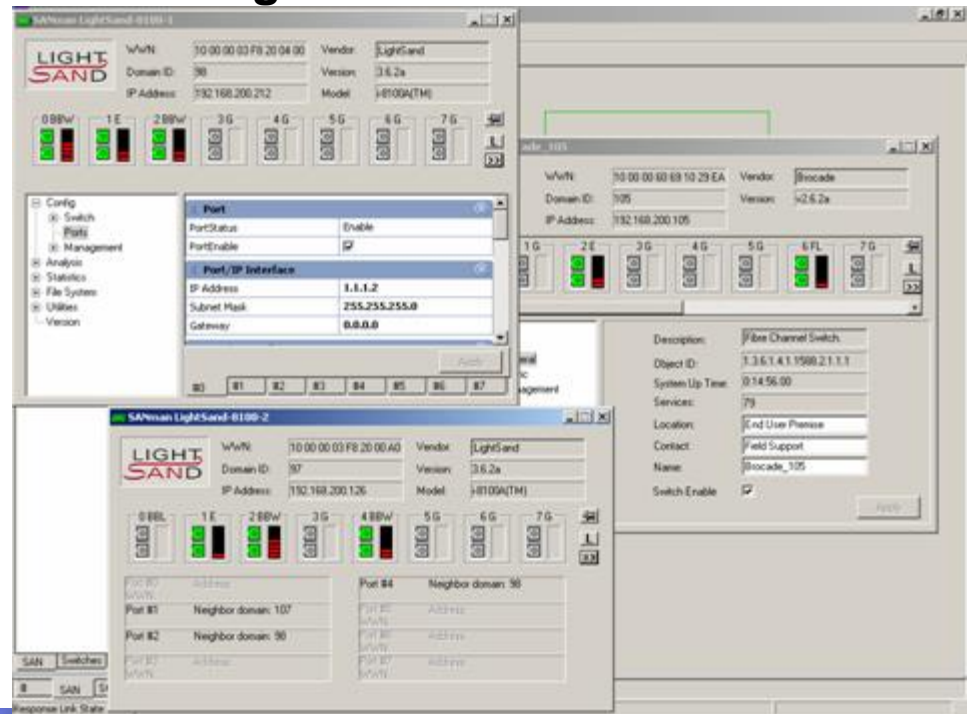
1. FICON extension over WAN
2. FICON and Ethernet layer-2 over WAN
3. WAN traffic congestion avoidance.
4. Multiple FICON/Ethernet over WAN
5. WAN Failover protection Mainframe, Clusters.

Customer TCO/ROI Benefits

1. No need to have FICON director
2. Same link for Mainframe and Op.Syst.
3. Max use of available bandwidth
4. Multiple Hosts shared extension.
5. No WAN protection hardware required.

LightSand SANman

- SANman is GUI application. It provides easy access to Lightsand devices for configuration and monitoring purposes
- SANman is Windows based, “C”- code written application
- SANman provides restricted configuration and monitoring devices of main FC vendors (Brocade, McData, CISCO)
- SANman allows visualization and monitoring whole FC fabric
- The main feature set includes:
 - Topology view
 - Performance monitoring window
 - Name, Login servers viewer
 - Zoning configuration facility
 - AR/DAT configuration facility
 - Long-run performance and event viewer application



LightSand : Benefits summary

- Intelligent **FCIP solution** over long distance. Up to 3000 km at 4 x 1 Gb/s.
- Up to **4x1 Gb/s FC extension** over distance.
- **(FC + Ethernet-Layer-2)** traffics multiplexed over the same IP link.
- **Local switching** capabilities with FCIP at no additional costs
- **B-Port trunking** over single/multiple WAN links.
- Powerful SAN routing between **heterogeneous vendor fabrics**.
- **FICON extension** without use of FICON director switches.
- **Low IP bandwidth** support and optimization. (up to DSL speed).
- **InBand remote management** with easy to use SAN Management GUI.
- **SNMP** support.
- Transparent **WAN Link failover** support.
- WAN **Congestion avoidance** support.
- **1:24 data HW** compression over IP.
- **High availability** configurations support.
- **SMB version available (3xinput+1xWAN)** with enterprise class capabilities



IBM System Storage™ Technical University, Barcelona

LIGHT
SAND

LightSand :

Product Families and IBM Certifications

IBM Systems

Lightsand product families

Family	Model	Main function		WAN connectivity
i-8100X-SMB	i-8100B-SMB			FC over IP
	i-8100E-SMB			
	i-8100A-SMB			
x-8100	x-8100B	FC extension gateway		FC over IP
	x-8100E	FC switching gateway		
	x-8100A	Inter-fabric-routing gateway		
	x-8100F	FICON extension gateway		

i-8100x / S-8100x Series

IP

i-8100B

i-8100E

i-7100F

i-8100A

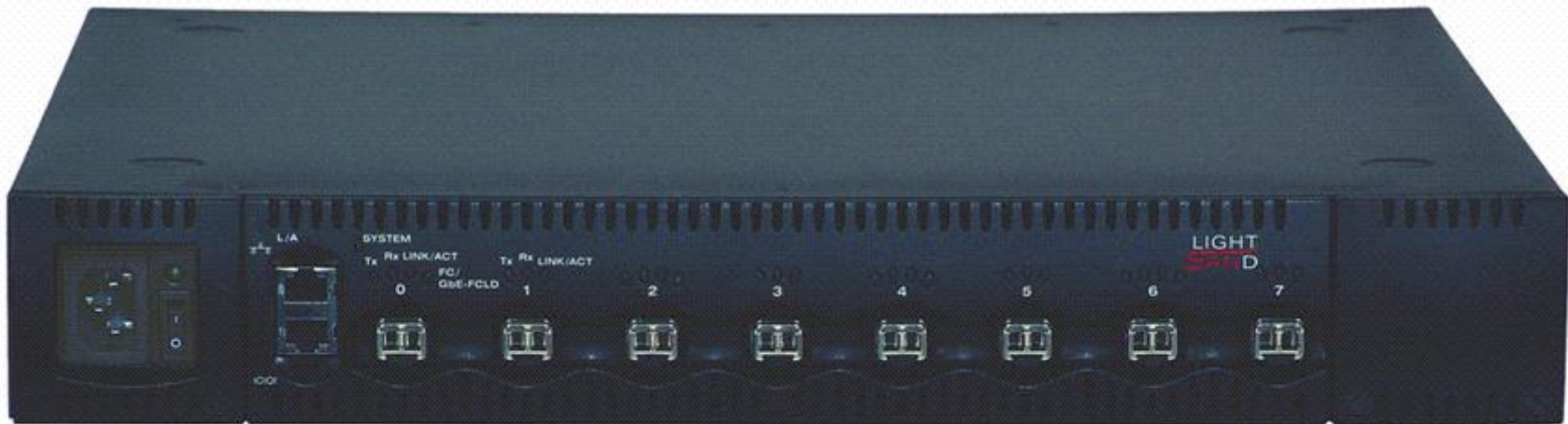
SONET/SDH

s-8100B

s-8100E

s-8100F

s-8100A



IBM Certifications of LightSand Products :



LightSand solutions have received multiple IBM TotalStorage Proven, IBM System Storage Proven and IBM Total Server Proven certifications. Specific environments tested were as follows:

- **XRC in Multi-system environment (ESS-800, DS-8300, HDS) with LightSand i-7100F FICON extension gateways**
- **XRC for ESS-800 with LightSand i-7100F FICON extension gateways**
- **xSeries DiskCopy FAStT-600 (DS-4300) with LightSand SAN extension gateways**
- **zSeries DiskCopy for DS-8300 over MAN/WAN with LightSand FICON extension gateways**
- **xSeries Remote Tape Backup LTO with LightSand SAN extension gateways**
- **iSeries Remote Tape Backup LTO with LightSand SAN extension gateways**



IBM System Storage™ Technical University, Barcelona

Questions ?

IBM Systems

© IBM Corporation



IBM System Storage™ Technical University, Barcelona



Bridging your businesses
Interconnecting your SANs

**LIGHT
SAND**
SAN Connectivity

Visit www.lightsand.com

IBM Systems