



Contemporary Data Protection with iSCSI Arrays

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Abstract

This session will appeal to IT managers, administrators and architects who are focused on data protection and disaster recovery issues, and are interested in best practices and deployment considerations using contemporary iSCSI storage solutions available today.

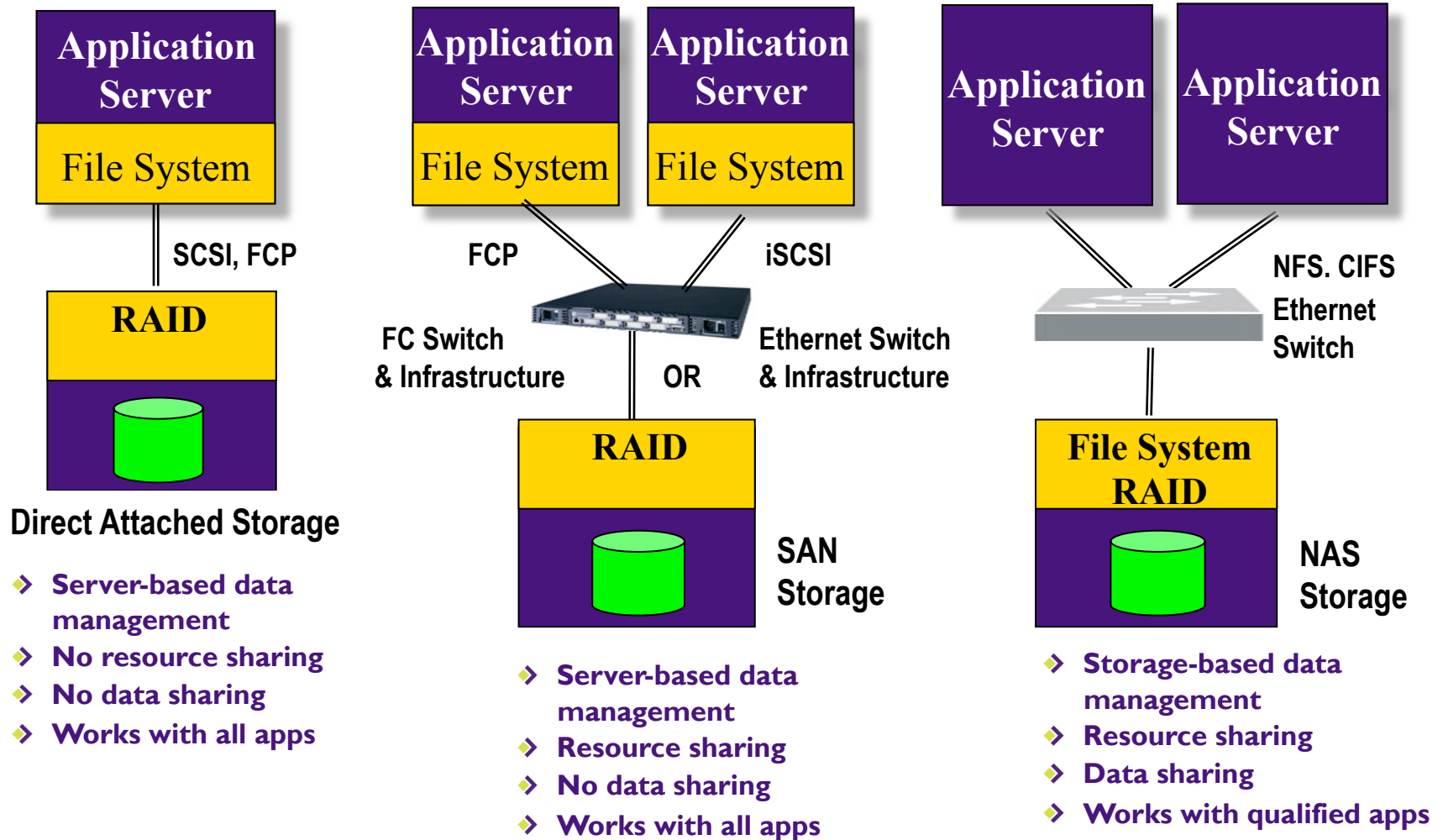
This presentation describes the data protection mechanisms delivered by contemporary iSCSI storage arrays, in terms of capabilities and how they work. It then goes on to describe typical “best practices” use cases, using real-world IT case studies, to illustrate the business benefits and radical operational streamlining that can be delivered by these capabilities.

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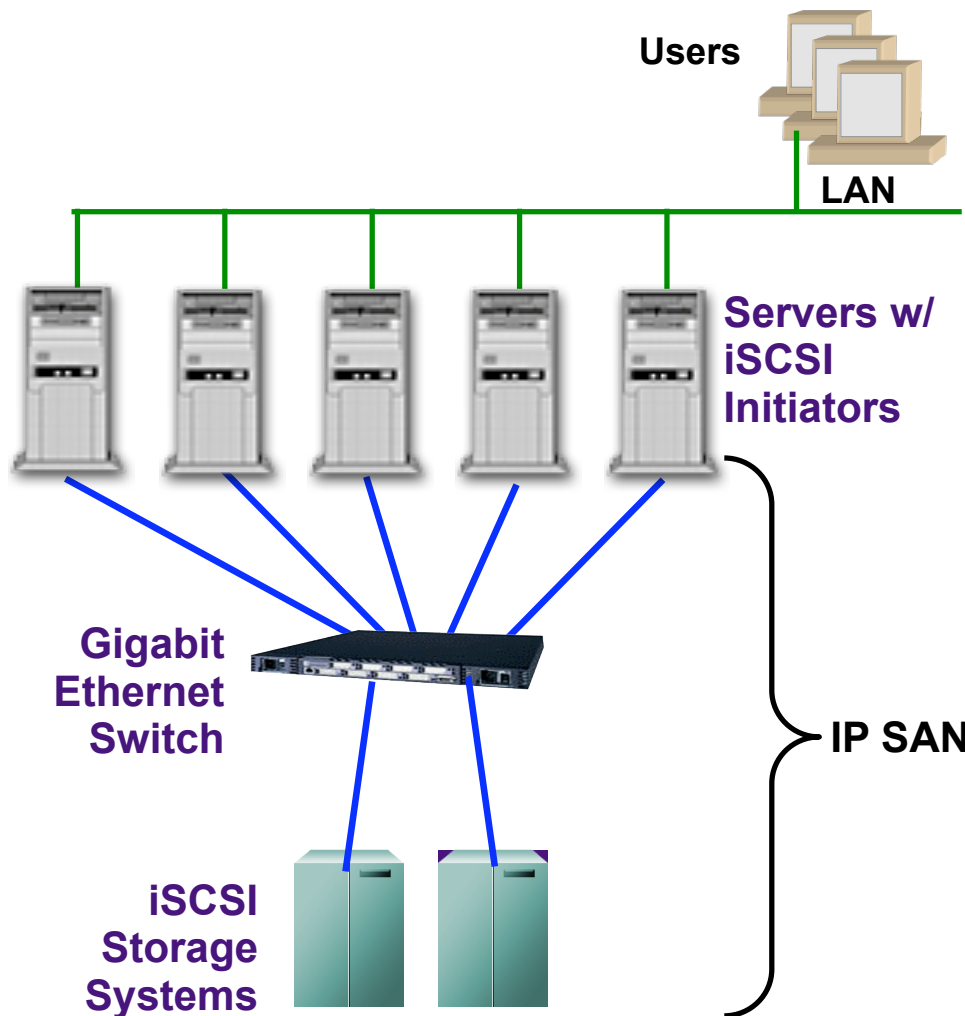
Contents

- Storage Architectures
- Benefits of iSCSI-based SANs
- Typical Array capabilities
- Contemporary Data Protection
- Customer Examples
- Where iSCSI Solutions Fit
- Summary

Storage Technologies



IP SAN Benefits



➤ Standard SAN storage

- ◆ Block storage access
- ◆ Supports all apps
- ◆ Transparent migration from direct attached storage

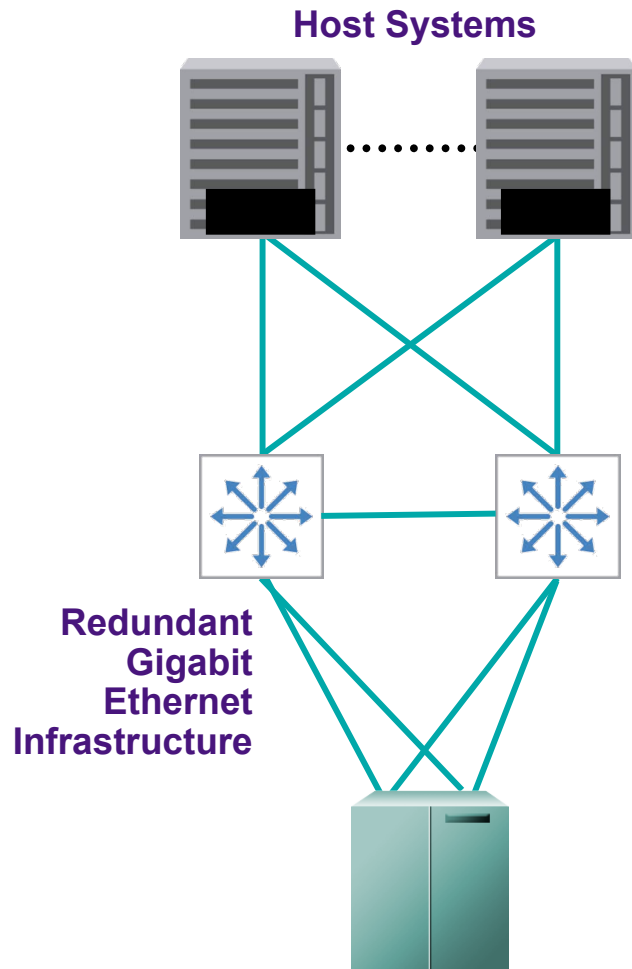
➤ Lower TCO than FC

- ◆ Zero host connection cost
- ◆ Less costly infrastructure
- ◆ Easier to manage

➤ Leverages IP Expertise

- ◆ Expertise in existing staff
- ◆ Robust well-understood management software
- ◆ Easily enables remote integration of data assets

iSCSI Host Connectivity/Security



Connectivity

- Gigabit Ethernet (10Gb emerging)
- Jumbo frames (recommended)
- Link aggregation (bandwidth)

Security

- Host authentication (CHAP)
- Private network
 - ◆ Physical
 - ◆ VLAN (zoning)
- Array LUN masking
- Optional firewall
- Optional IPSec appliance

Typical iSCSI Array Capabilities

◆ Basic storage considerations

- ◆ Redundant components
- ◆ Dual active controllers with failover
- ◆ RAID
- ◆ SATA drives; FC drives; SAS drives

◆ Storage features

- ◆ Point in time copies (Snapshot)
- ◆ Network Boot
- ◆ Multi-path I/O for High Availability
- ◆ Remote data copy
- ◆ Asynchronous mirroring for disaster recovery

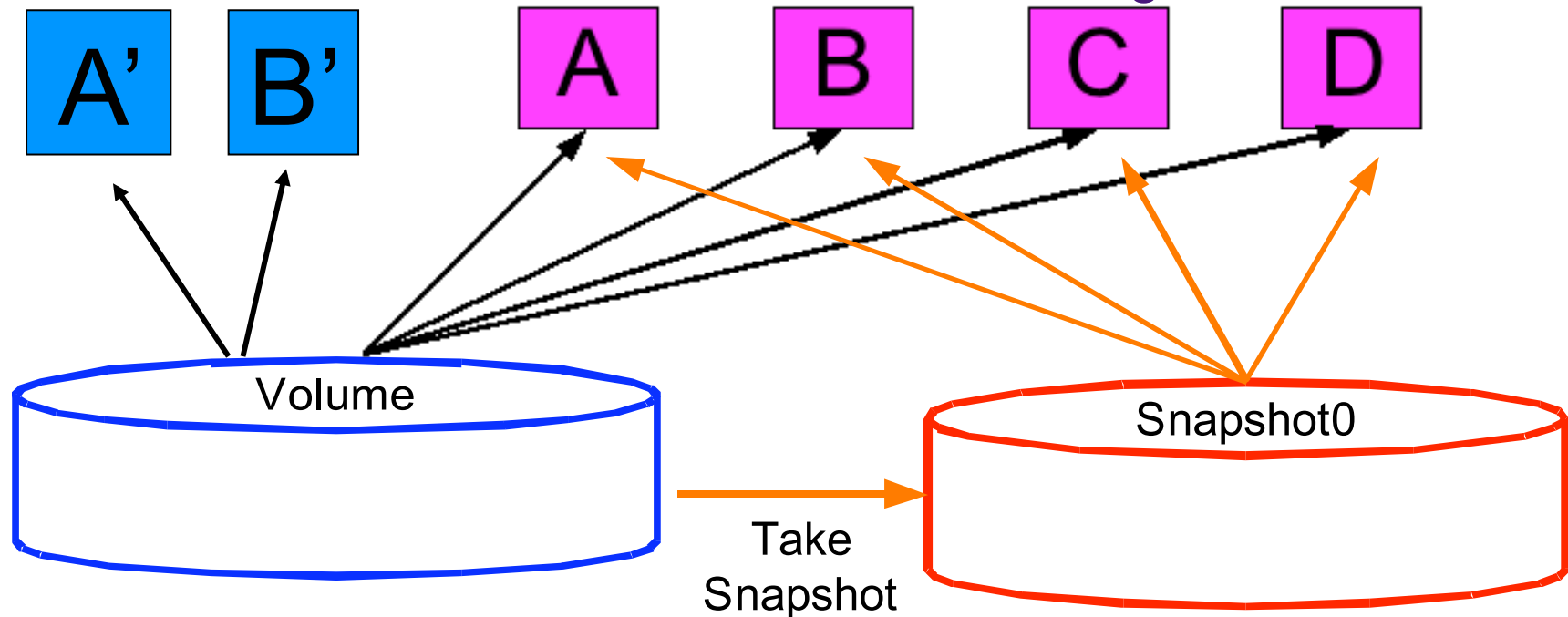
◆ Growth/scalability/configurability

- ◆ Capacity
- ◆ Performance
- ◆ Host integration

Backup using Snapshots

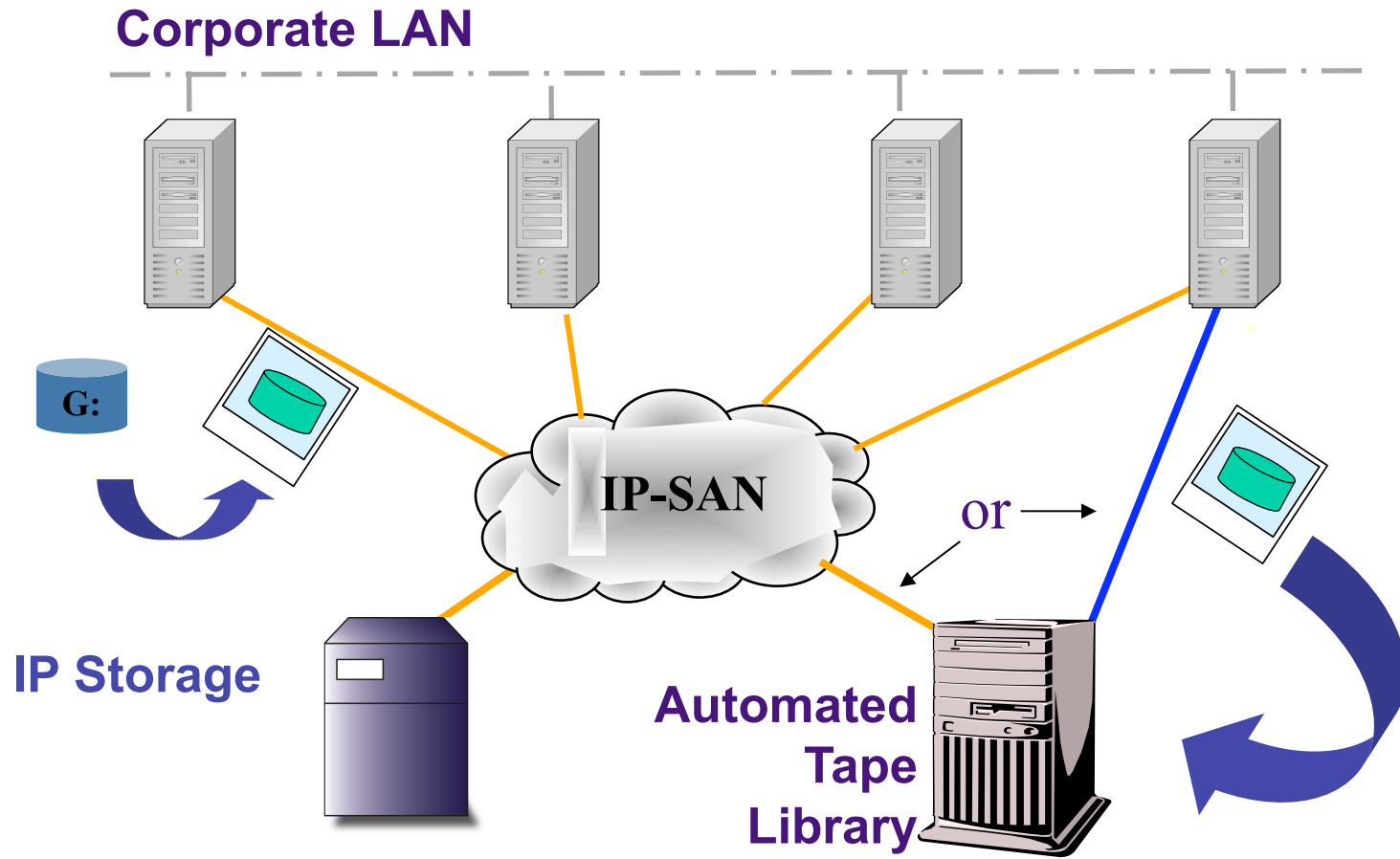
➤ Snapshot technology

Time Moves Forward – Blocks A and B Change on Volume

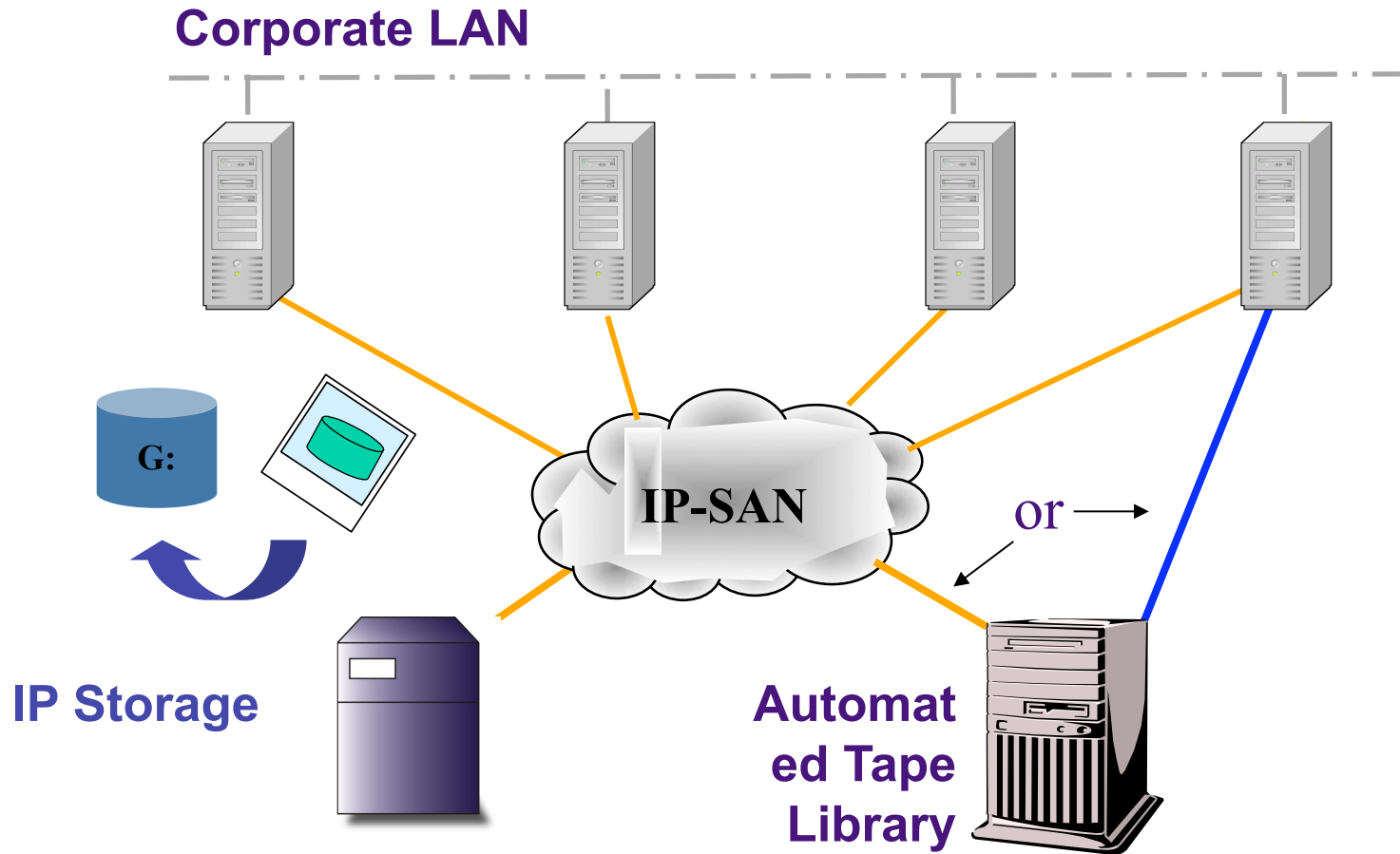


Volume and Snapshot Made of Same Blocks

Eliminating Backup Windows



Instantaneous Restore



Remote Replication for IP Storage

◆ Synchronous Replication

- ◆ Each write verified written to remote site before next write
- ◆ Remote site replica identical to primary
- ◆ Distance limited to around 100 KM (latency)

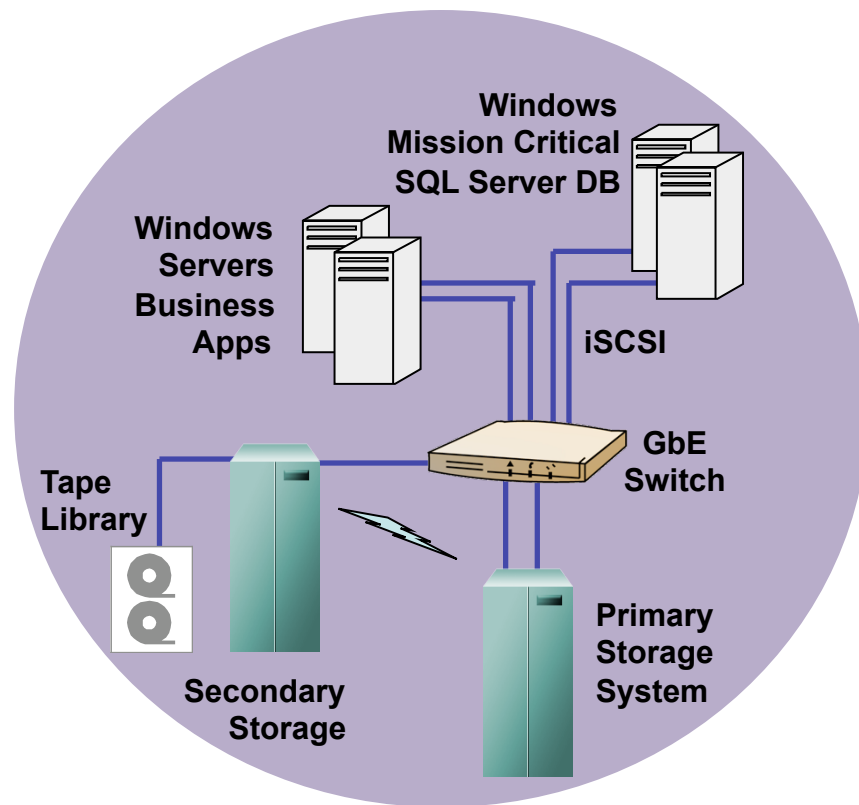
◆ Asynchronous Replication

- ◆ Writes allowed to queue to certain depth before no more writes allowed
- ◆ Remote site copy differs only by queued write depth
- ◆ Extends distance

◆ Remote Copy

- ◆ Initial remote copy made from primary volume.
- ◆ Incremental updates made with additional, scheduled snapshots
- ◆ No distance limits

Case Study: Automotive Dealership Support



➤ Application

- ◆ *SQL Server Databases; Business Apps*

➤ Pain Points

- ◆ *Difficult-to-manage infrastructure*
- ◆ *Mission critical data at risk*
- ◆ *Isolated storage islands*
- ◆ *Fragmented backup process*

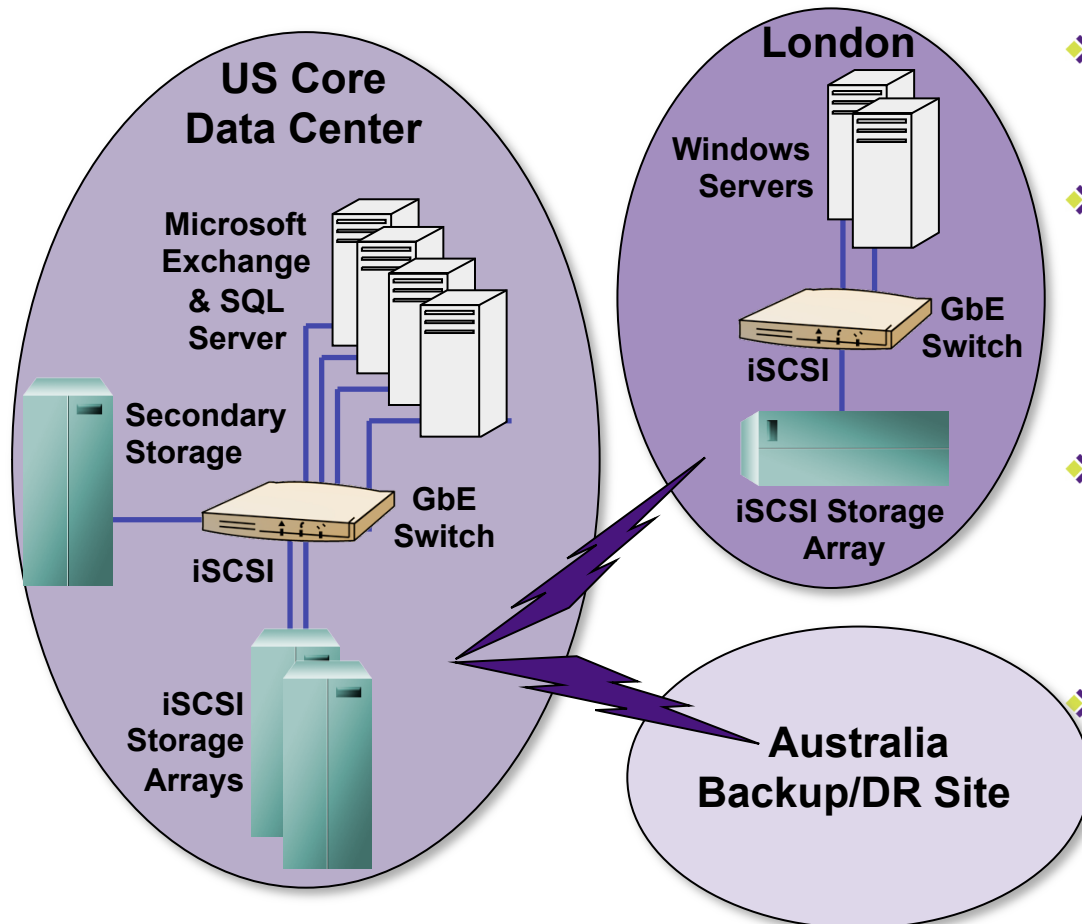
➤ Solution

- ◆ *IP SAN*
- ◆ *3-tier storage architecture*

➤ Benefits

- ◆ *High performance SQL databases*
- ◆ *100% data availability*
- ◆ *Highly flexible backup process*
- ◆ *User-initiated data restores*
- ◆ *Improved IT admin productivity*

Case Study: Airline Ticketing ASP



➤ Application

- ◆ SQL Server Databases
- ◆ Microsoft exchange

➤ Pain Points

- ◆ Challenge to meet SLAs with direct attached storage environment
- ◆ Affordable SAN storage for SQL Server Databases
- ◆ Affordable DR solution

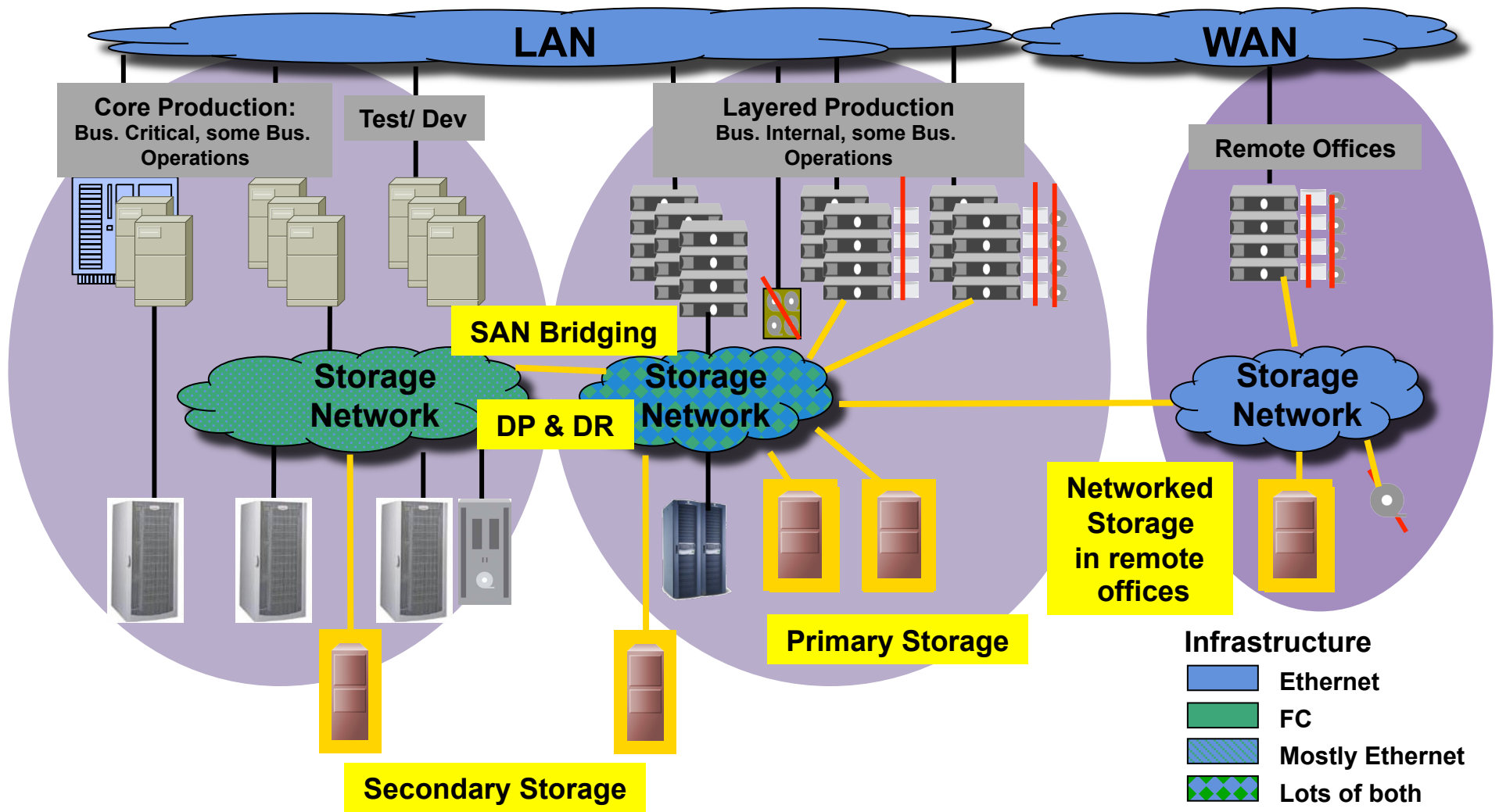
➤ Solution

- ◆ IP SAN in each location
- ◆ Multiple Snapshot backups per day to US core data center
- ◆ SnapMirror to DR site

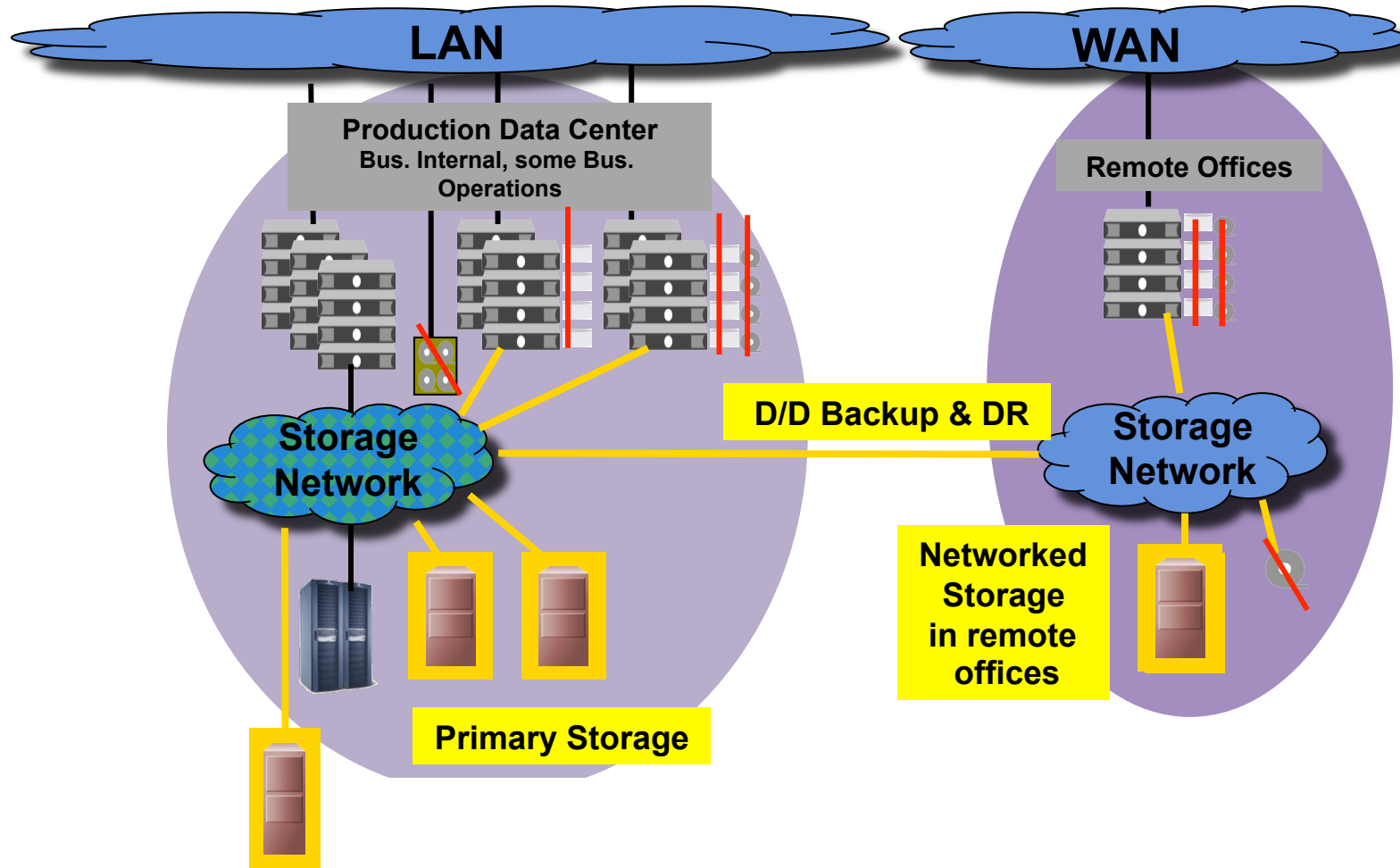
➤ Benefits

- ◆ High performance solution
- ◆ Simple, cost-effective storage network
- ◆ DR between existing data centers
- ◆ Enhanced ability to meet demanding airline customer SLAs

Where IP Storage Fits - Large Enterprise



Where IP Storage Fits – Medium/Small Enterprise



Summary – iSCSI-based Data Protection

- Sophisticated data protection solutions for low-end and mid-range server environments
- Takes advantage of existing IT knowledge base
- Provides simpler, more affordable SAN infrastructure
- Improves data availability and recoverability
- Integrates distributed data and resources
- Enables automation of multi-site backup and recovery
- Solutions are deployed in many thousands of companies around the world

Questions ??

