

**BROCADE**



Migrate it Right  
with  
Brocade Services

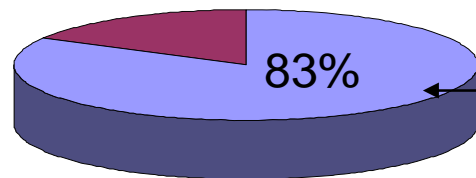
Tze Kiang Tan  
PMP, Manager, Professional Services  
Brocade

March 14th, 2007  
Beijing

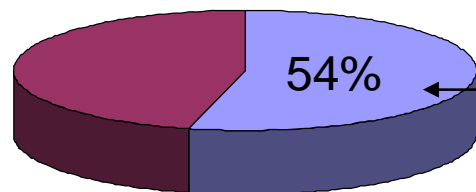
# Data Migration

## *Customer's Challenges with Data Migration*

According to research done by ESG about Data Migrations:

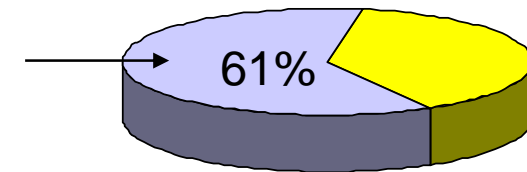


Exceeded planned staffing time

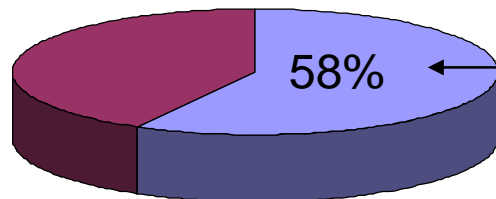


Exceeded planned downtime

Exceeded planned budget

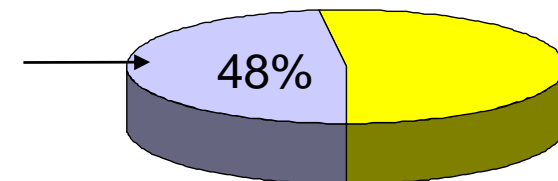


Of those who experienced Migration problems:



Experienced extended or unexpected downtime

Reported technical compatibility issues



**Data migrations continue to be performed constantly - and performed poorly.**

# Data Migration using DMM

## *Benefits from Brocade*

### Fast, Repeatable and Deterministic Migrations

- Minimizes risk associated with deployments
- Few dependencies makes planning & set-up more predictable
- SAN-based copy engine greatly minimizes time for migration
- Shortens overall migration time by up to 40%

### Broad Compatibility

- Broad compatibility with storage arrays and OS
- Support for heterogeneous arrays, OS's and SAN's

### Cost Effective

- Brocade SAN expertise leveraged in migrations
- Proprietary technology lowers project time

# Brocade Data Migration

*Is it suitable for you?*

## What is your current situation

Planned Storage Expansion

Storage Migration / Consolidation Plans

New DataCenter deployment or expansion

Need for Disaster Recovery Site plans

Storage Arrays coming off lease

## Value Proposition

Reduce configuration time for a migration saving labor and downtime

Deterministic Migration: Scripting of process

Reduce Migration time by up to 40%

Gain access to Brocade's latest and proven DMM technology through our services

## What are your Key considerations

What are your storage growth plans for the next year?

Would you be interested in reducing your data migration window?

Would you be interested in ensuring a more predictable migration window?

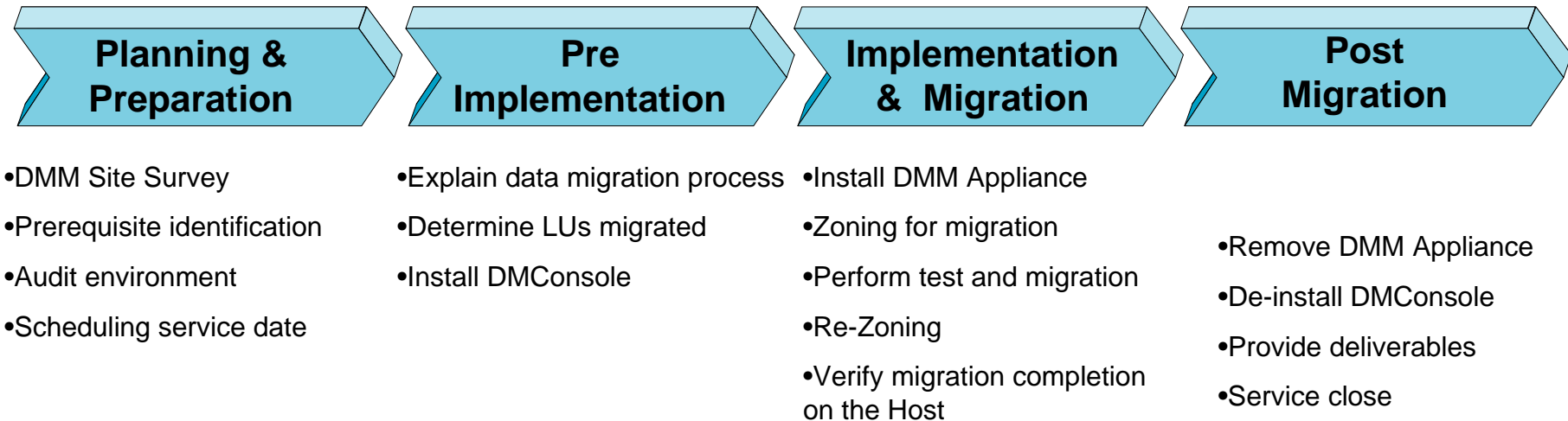
**---What is the impact to your business when a data migration exceed the planned time?---**

# Data Migration Steps

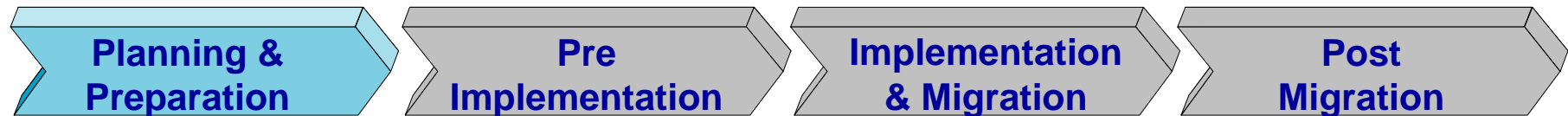
DMM Data Migration Service realizes data migration on your environment that are heterogeneous storages, operation systems and venders

16 high speed ASIC-based “copy engines” enable hundreds GB-per-hour migration speeds

Realize data migration across fabrics using Multiprotocol Router



# Planning and Preparing



## DMM Site Survey

- Data Migration Requirement
  - Locations of Source and Destination Array
  - A permissible time for migration
  - Online / Offline Migration
  - Total capacity of data migration
  - Total number of LUs of data migration
  - Schedule date etc...

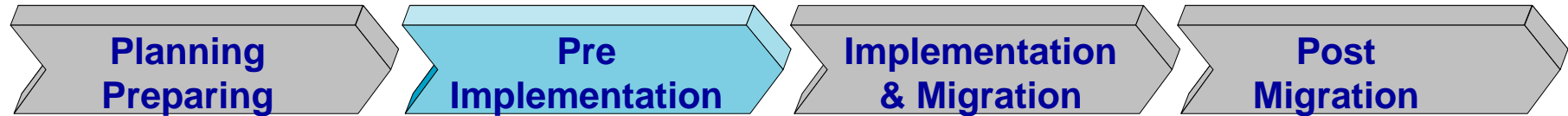
## Check the prerequisite

- Availability of SAN ports for Data Migration
- Single fabric, across fabric or across WAN
- How many Virtual Initiators can the Storage Ports support

## Gather information and Audit existing environment

- Status of SAN
  - Any errors? Healthy?
- Configuration of SAN
  - Domain ID
  - Zoning
  - Storage Port WWN
  - LU Numbers
- Any other information of SAN
  - Any other system information

# Pre Implementation Activities



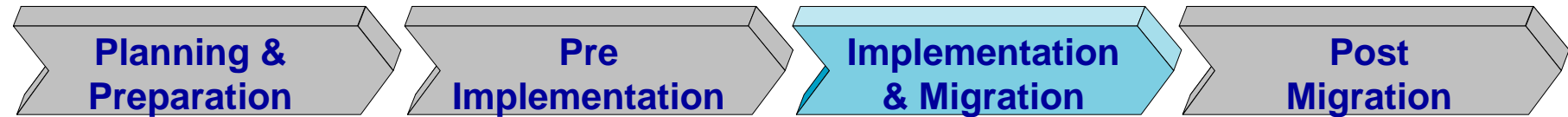
Explain steps of migration using DMM

- Analyse existing environment
- Time estimation of Data Migration
- Understand Data migration procedure
  - Join DMM to existing environment
  - Change Zoning for DMM
  - LUN Masking
  - Disconnect DMM from existing environment
  - How to verify DATA migrated
- Determine the order of LU pairs for effective Migration

Install DMConsole

- Install DMConsole or admin PC to operate DMM
- Check correct console operations

# Implementation & Migration



## Install DMM

- Join DMM to a SAN environment
- Apply Zoning for migration
- Check storage port WWNs
- Change LUN Masking for migration
- Apply migration setting on DMM for each LU

## Perform Data migration

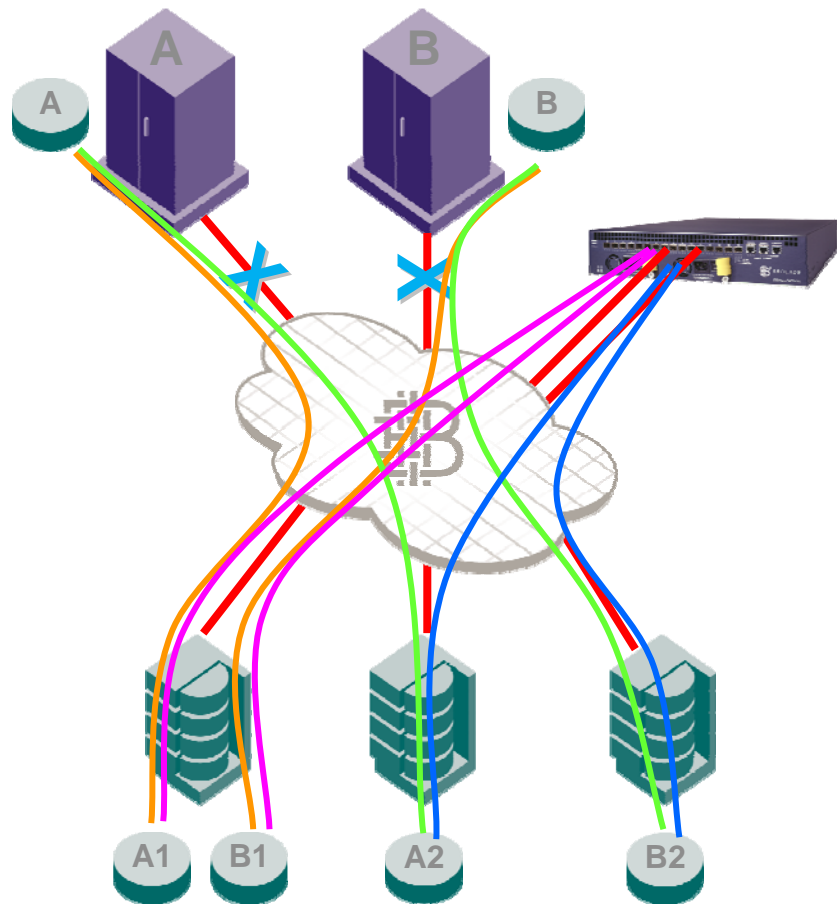
- Test migration for actual time estimation if possible
- Perform Data migration by DMM (Online or Offline)
- Monitor migration status and take action if necessary, until completion of migration

# Field Performance Data

	Drug Manufacturers in IL	Bank in APJ	Bank in NY
<b>Source</b>	EMA 12000	HDS 9980V	Symmetrix
<b>Destination</b>	EVA 5000	CX700	EVA
<b># of ISLs</b>	4	4	4
<b># of VI's</b>	16	16	16
<b># of LUNs</b>	10	5	142
<b>LUN Size</b>	100 G	100 G	30 G
<b>Total TBs</b>	1 TB	500 G	4.2 TB
<b>Throughput</b>	850 GB/hr	667 GB/hr	810 GB/hr



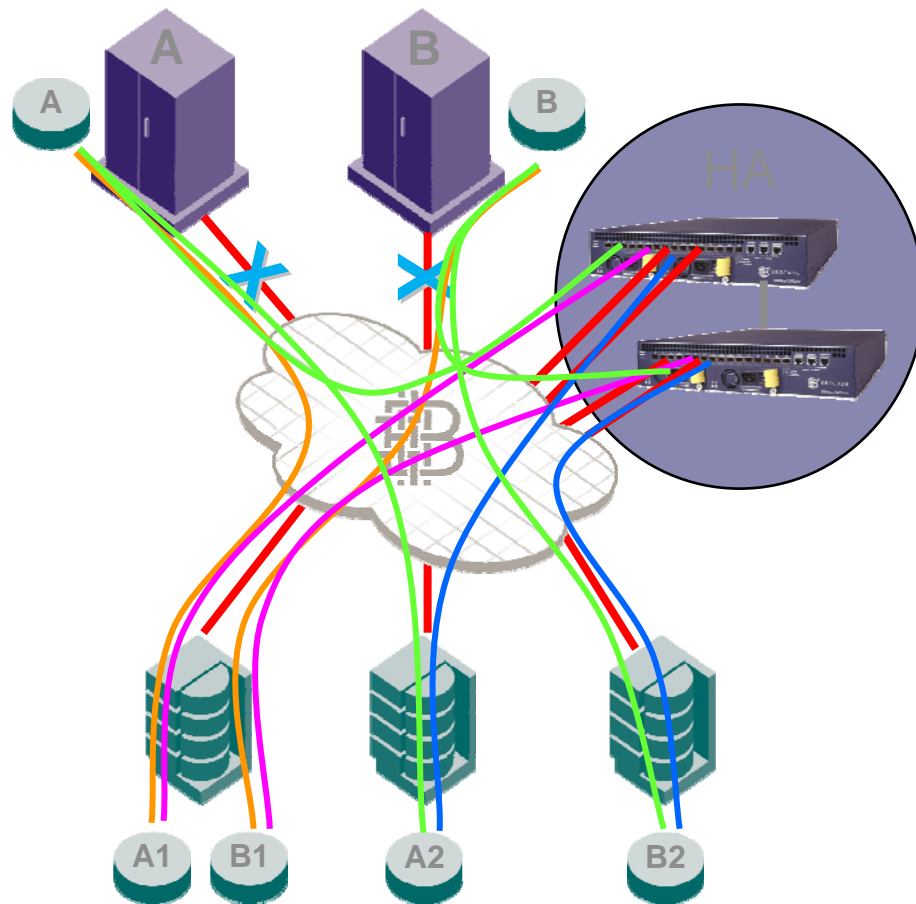
# Offline Migration – Animated Overview



## Steps to Offline Migration

- Map Source and Target LUNs to DMM
- Disconnect Server from LUNs
  - Stop Application Access to LUNs
- Perform Block Data Migration
- Commit Block Data Migration
- Remap Server to Target LUNs
  - Includes Zoning & LUN Masking
  - Restart Application

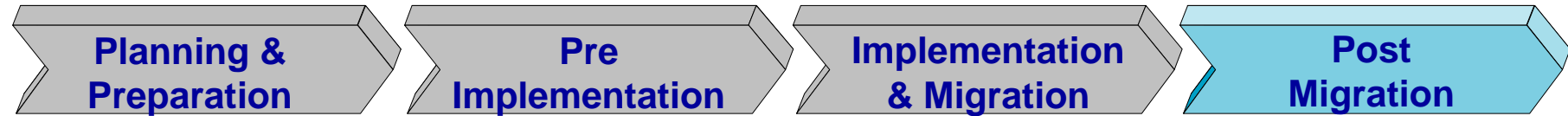
# Online Migration – Animated Overview



## Steps to Online Migration

- Map Source and Target LUNs to DMM
- Disconnect Server from LUNs
  - Stop Application Access to LUNs
- Map Virtual LUNs to Server
  - Restart Applications
- Perform Block Data Migration
  - Concurrent Host I/O
- Commit Block Data Migration
  - Disconnect Server from Virtual LUNs
  - Remap Server to Target LUNs
    - Includes Zoning & LUN Masking

# Post Migration Activities



## Restore all changes

- Restore Zoning
- Restore LUN Masking
- Return storages
- Verify effectiveness of migration from OS and applications point of view

## Clean up

- De-Install DMConsole
- De-Install DMM from SAN

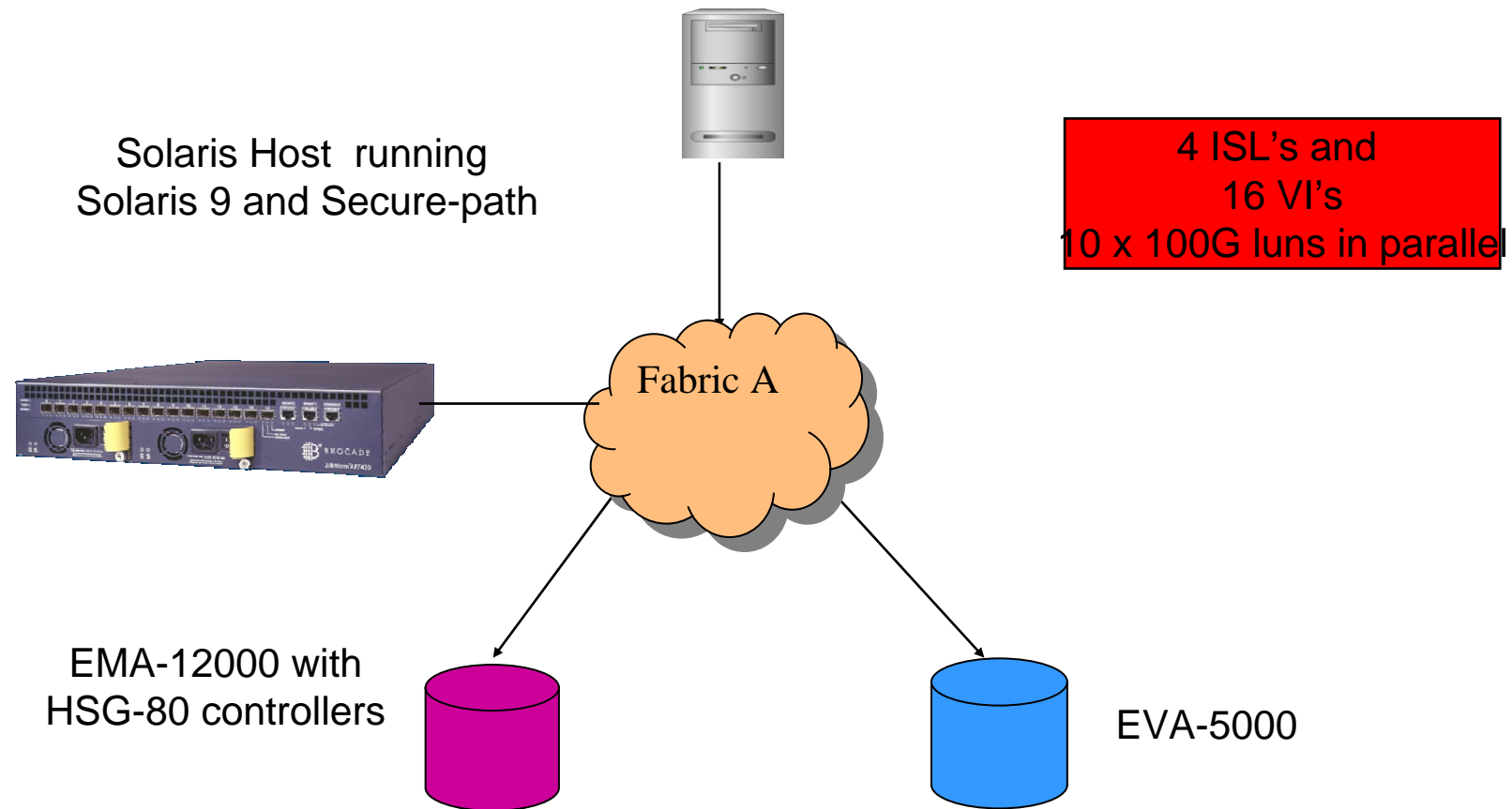
## • Update SAN Documentation

- Planning and actual result sheet
- LU and storage information of source
- LU and storage information of destination
- Mapping sheet of LUs
- Logs of data migration

# DMM Customers

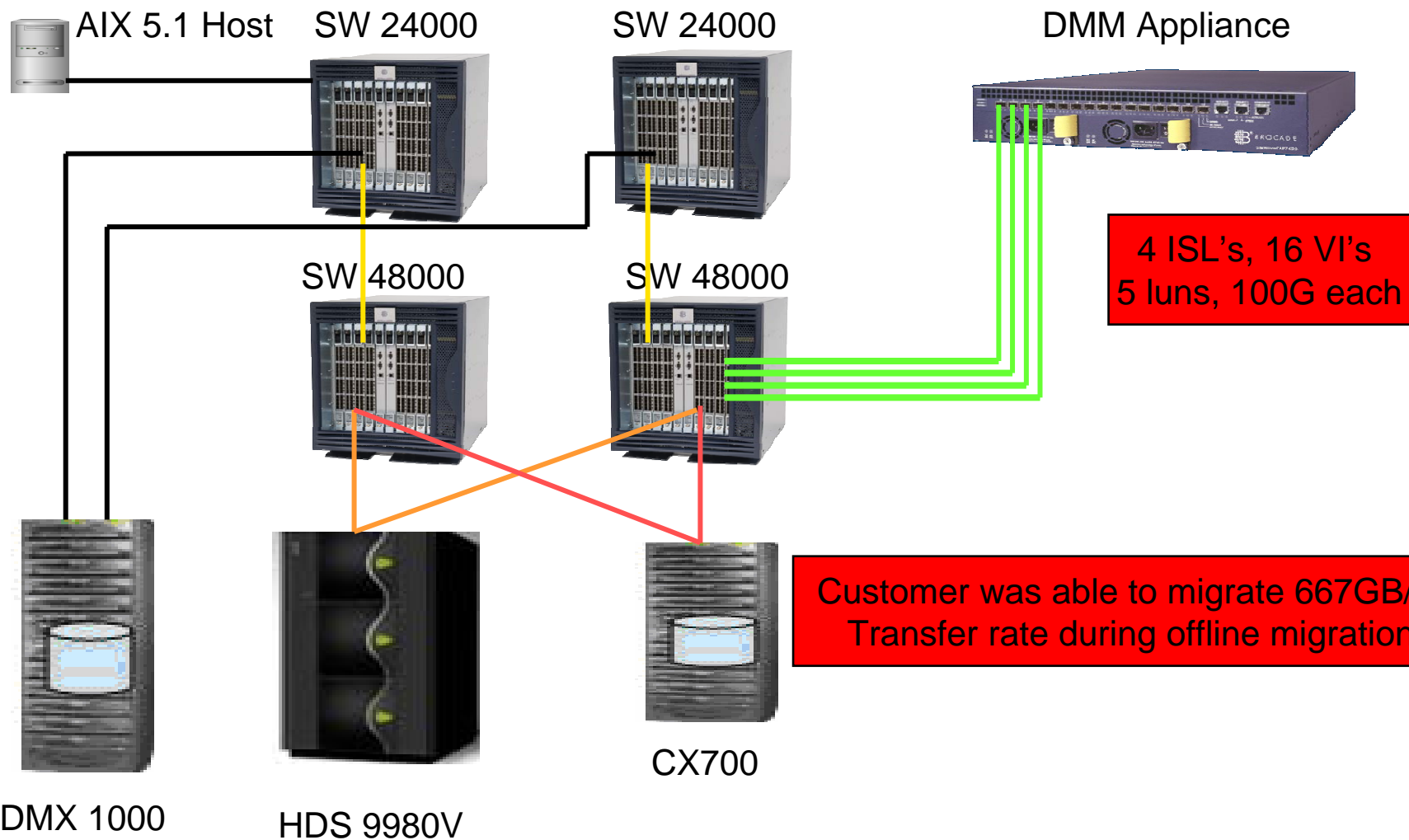


# Customer Success Stories – USA Mid-west



Customer was able to see 850GB/hr. transfer rate during offline migration

# Financial Institution in Asia Pacific



# Financial Institution in Asia Pacific

## Customer Requirements

- Data Centre includes Server Farms connected to a SAN which realizes data sharing on various storage platforms.
- Business needs resulted in rapidly growing data requirements
- Roll out of new applications require frequent need to migrate data between different disk array.
- A tool to migrate data from different storage without consuming host I/O resource on limited planned downtime windows.
- Only 1.5 hours planned downtime window for finishing data migration from HDS 9980V to EMC cx700(5 LUNs, Total capacity 500GB)

## Value from Brocade

- Ability to migrate between heterogeneous storage systems
  - High performance data migration to minimize data moving window.
  - Easy way to migrate from product's data to testing environment. save time and reduce the cost of storage resource.
  - To finished Data migration in the customer has planned downtime window.
- “ Took just 45 minutes to finish the data migration process”*



# Medical Institution in the USA

## Customer Requirements

- Cost-effective migration of critical financial information from one data center to another data center while maintaining data integrity
- Concern that slow performance of the legacy system could interrupt data services if they migrated the information across the production SAN.
- Availability of reports from a Decision Support System that executives use daily to develop budget and business strategies.
- Use operational, not capital budget.
- Expertise to complete the transfer quickly without disrupting data services.
- Minimise risks associated with transfer.
- Complete the project within one weekend

## Value from Brocade

- Utilized DMM and the 4100 Switches to migrate data seamlessly to a Dell CX500 within 24 hours.
- DMM performs block-level migration while leveraging the security of Fibre Channel protocols.
- Linked two DMM platforms to the source array for maximum redundancy and performance,
- Created a Brocade SAN fabric dedicated to the migration and independent of existing fabrics.
- Temporary SAN flexible configuration and validation the environment without impacting the production SAN.
- Transparent removal of one critical array and the deployment of another transparent

# Education Customer in the USA

## Situation

- Emergency migration to replace failed array
- 13 TBs, 45 servers, 100+ LUNs
- HP EVA to EVA
- Traditionally used RoboCopy at 50 GB/hour

## Plan

- DMM Offline migration
- Friday night to Monday morning migration window
- 2-3 hours of training
- Several test migrations

## Results

- 13 TBs migrated in 2.5 days
- Applications re-directed to new LUNs
- Up and running by Sunday afternoon
- 40% time savings over plan

*“We had planned for the migration to take from Friday to Monday to complete and were extremely impressed to find that Brocade’s Tapestry DMM enabled us to easily, rapidly, and reliably complete our migration in record time by Sunday morning”*

- Randy Simons, Director of Data Center Operations  
Rancho Santiago College District

# About Brocade Services

*Maximizing the value of your data assets with innovative solutions from Brocade*

## Deep SAN Services Expertise

- >600 Direct Support Contracts, > 150 Professional Services/Qtr
- 60+ Resident Consultants supporting customer data centers
- Brocade trained and certified

## Uniquely Aligned Objectives

- Reduced Cost, Complexity
- Uptime, Network Speed & SAN performance

## Business Enablement

- Growing Impact on Business Strategy
  - Increased Reliability, Security, and Data Protection
  - Lower Cost, greater flexibility and better compliance
  - Improved business continuity

## Proven Methodology

- Assess, Design, Implement, Manage and Evolve

## Global Presence

- 24 Worldwide Offices/50+ countries and growing

## Building the Data-Connected Enterprise

- Optimization through a combination of industry leading, minds-on, hands-on attentive services



# Data Migration – Benefits from Brocade

## Key Deliverables

- Define scope and schedule of the data migration
- Identify the hardware needed for migration
- Gather source and destination Logical Unit Number(LUN) information and map the topology for data migration
- Establish a contingency plan
- Perform data migration and verify data integrity

## Key Benefits

- Provides the flexibility of online and offline migration
- Preserves data integrity to support business continuity
- Enables migration in remote and/or heterogeneous environments
- Minimizes the impact on users during migration
- Leverages Brocade experts reduce the time, cost and risk of data migration
- Frees up technical staff to focus on core business activities