

Mainframe Tape Without Tapes – Users Share Their Perspectives

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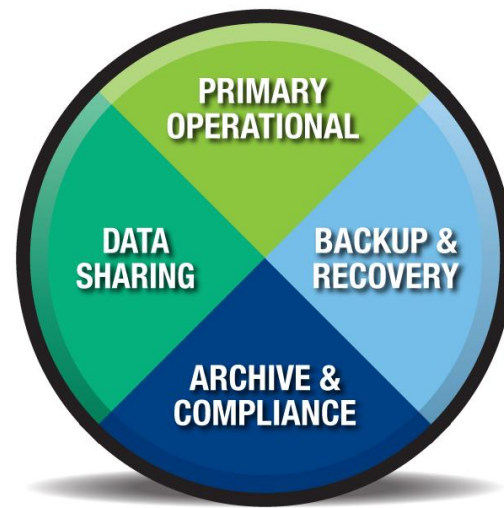
SHARE in Boston

Agenda

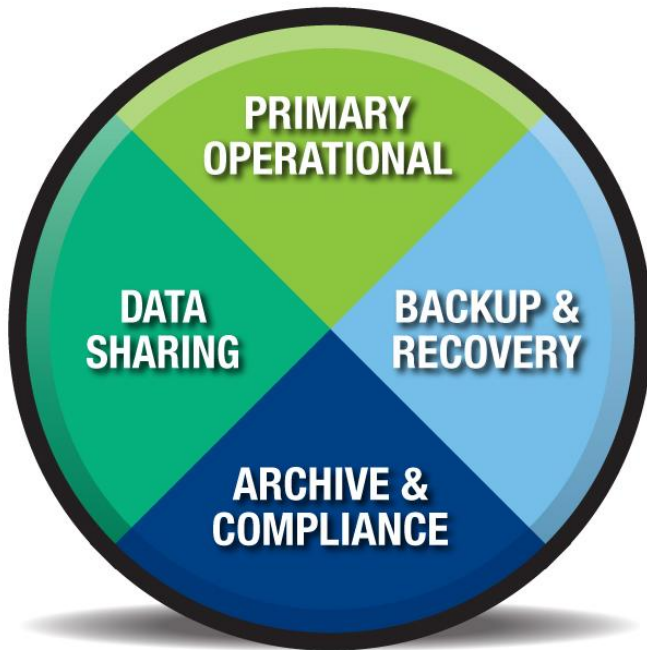
- What is Mainframe Tape?
- Why Physical Tape?
- Panel Discussion
 - Health Management Systems
 - EmblemHealth
 - BBVA
- Additional Q&A

What is Mainframe Tape?

- The traditional storage pyramid presents tape at or near the broad spectrum at the base
 - Tape Drives?
 - Tape Libraries?
 - Tape Media?
 - Virtual Tape Systems?
- What criteria and conclusions?
 - Cost? TCO?
 - Workflow? ILM?
 - Performance?
- Mainframe Storage World takes a customer usage perspective
- The Four Major areas for Mainframe Tape usage



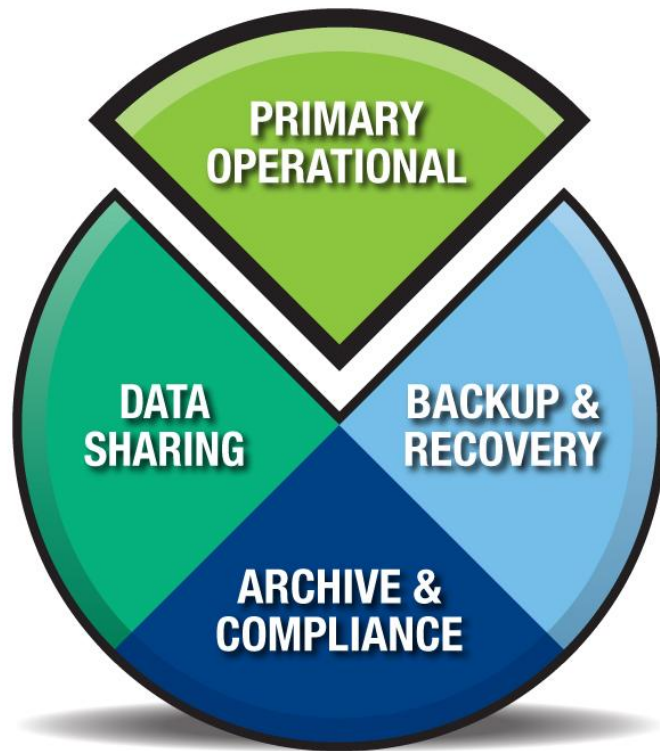
What is Mainframe Tape?



The Mainframe Storage World

- Primary copies of data
- Backup and Recovery
- Archiving and Compliance
- Sharing data internally and externally

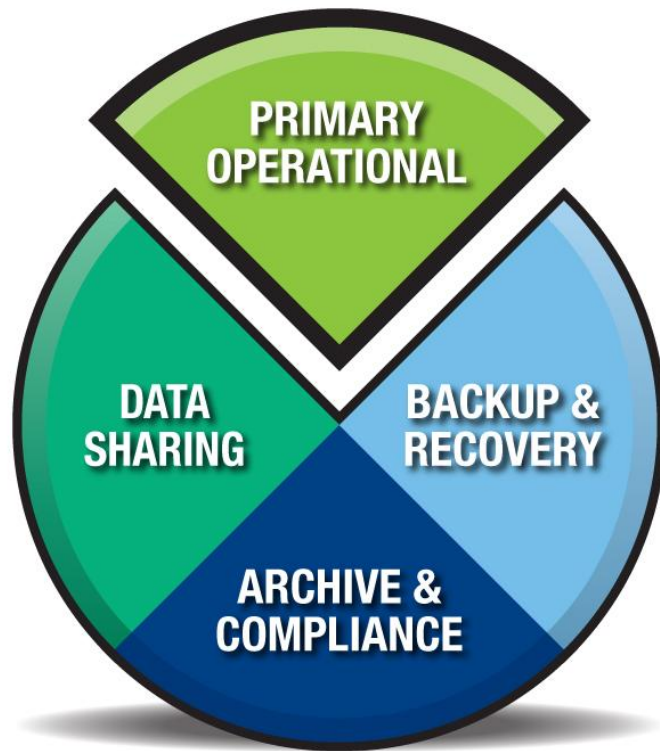
Why physical tape?



Most mainframe virtual tape products address this usage environment

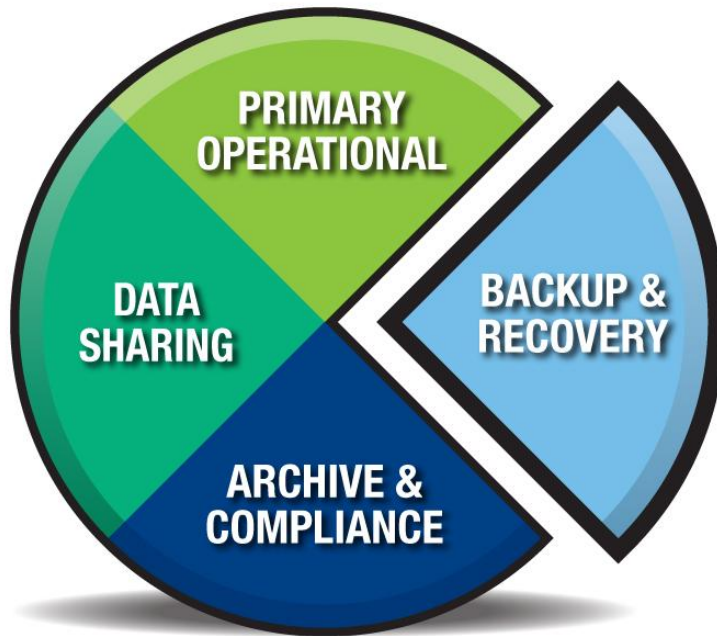
- Applications want disk-based response and performance with host tape management
- Tape drives designed and used like disk drives – 100% duty cycles with fast seek
- Virtual tape products eliminate media capacity waste

Why physical tape?



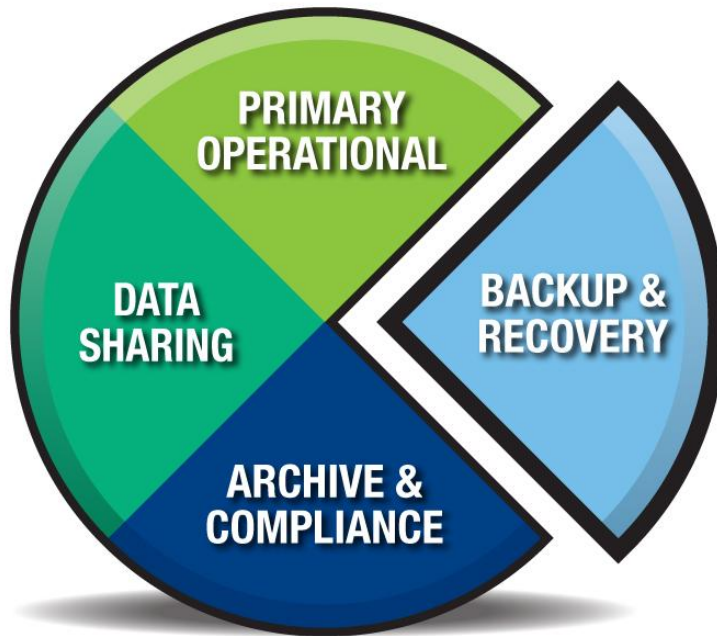
- For active data disk storage media is the naturally better fit than physical tape media
- What is the driving factor for physical tape media usage?
 - Portability?
 - Cost?
 - Power?
 - Performance?
 - Simplicity?
- For active data each goal can be served better without requiring physical tape media creation

Why physical tape?



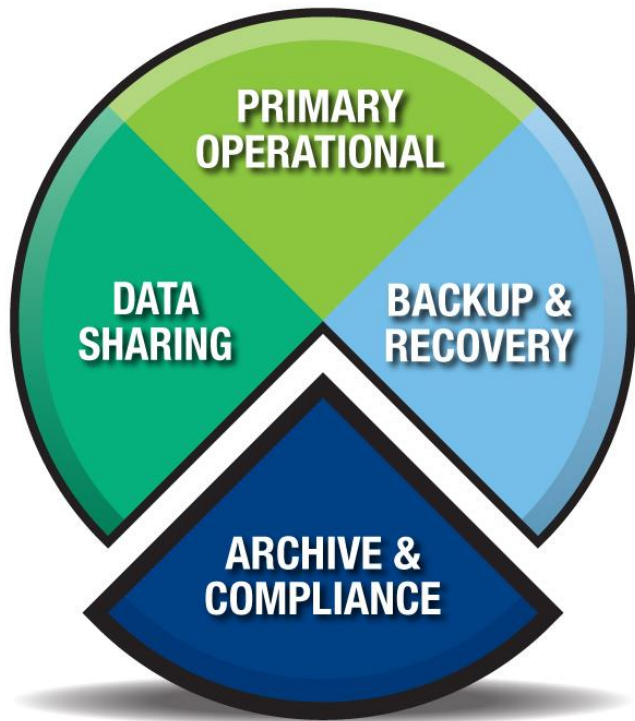
- Stand-alone and direct-attach library-based tape drives are commonly used
- Host-based backup software is able to fill physical media and stream large volumes quickly.
 - Large volume support not typical with traditional tape-dependent virtual tape systems
- Portability is a primary value with native mainframe format tapes

Why physical tape?



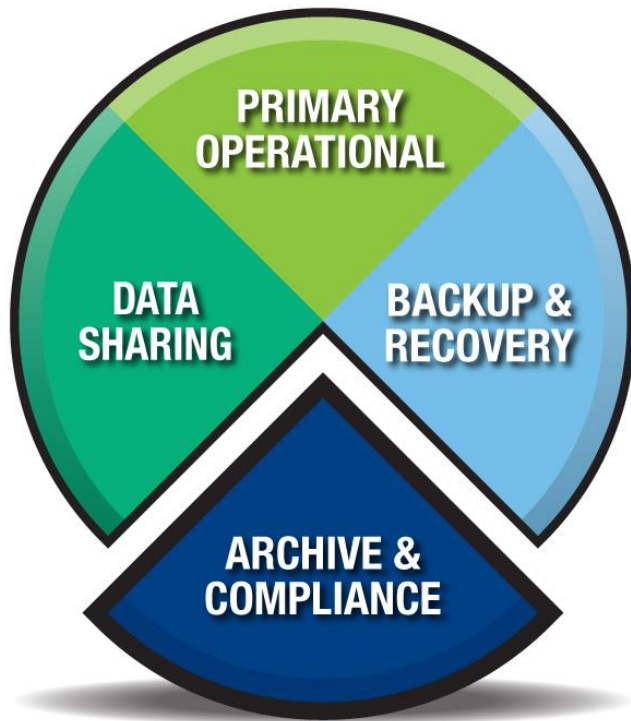
- Shipping unencrypted tapes has become a liability
- Open-systems infrastructure has demonstrated the viability of replicating backup data to remote recovery sites – especially with data deduplication
- Sharing network infrastructure with open-systems is viable (no channel extension) and simplifies enterprise IT operations
- RPO and RTO improved with disk-based replication vs. shipping tapes daily
- Local recovery is immediate

Why physical tape?



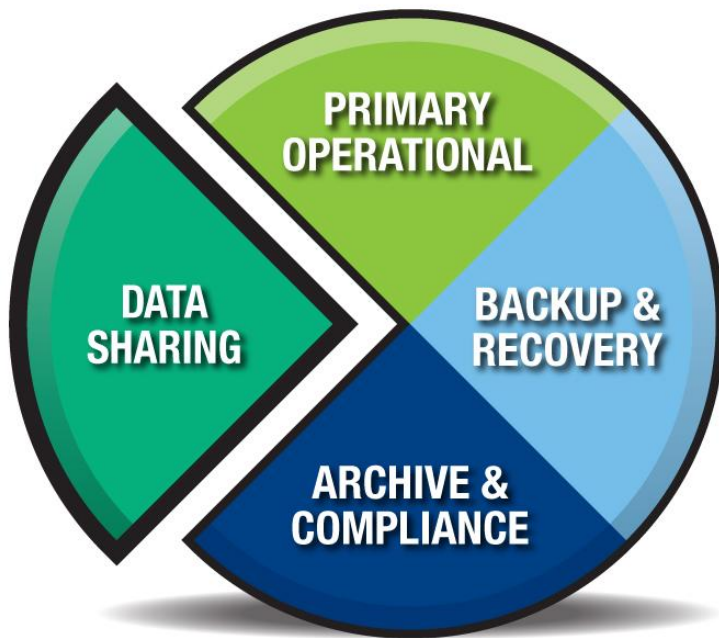
- Host archiving applications like HSM and OAM typically use direct-attached library based tape drives
 - Applications are intelligently designed to fill large physical tape media
- Shelf-based tape media is also common and viable

Why physical tape?



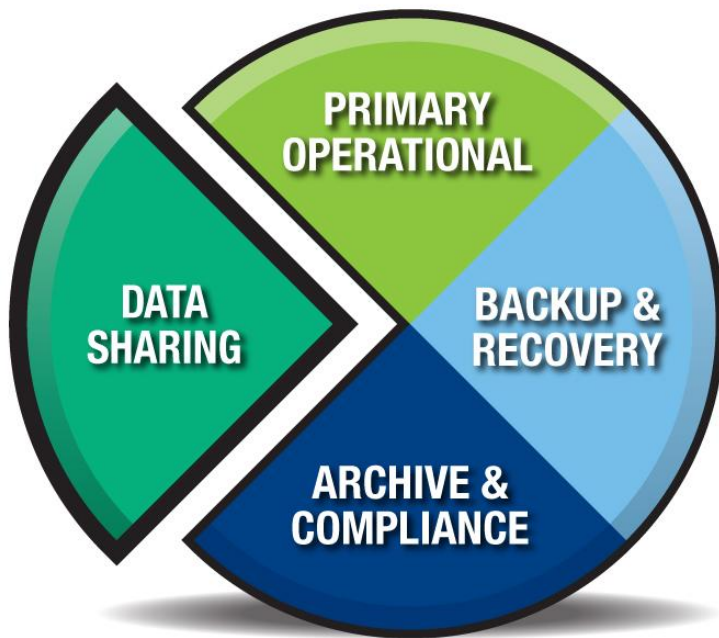
- The business need to access archive data quickly (internet response times) is growing
- Compliance requirements have generated an industry of capable disk-based archiving products
- A primary concern is long-term recoverability, which make industry standards more valuable than proprietary media solutions
- An evaluation of performance and TCO may yield surprising results for your environment, especially when leveraging the benefits of data deduplication

Why physical tape?



- Physical tape is often a common distribution media for sharing mainframe data to other internal hosts or to external customers and partners
- Multi-vendor common 36-track media formats are now quite old but are still being used
- FTP has taken over much of the external data distribution so that unencrypted physical tapes don't need to leave the datacenter

Why physical tape?



- Share datasets in-place between mainframes and open-systems networks and applications!
- Transfer data natively and efficiently using disk-based virtual tape for open systems access! Save CPU cycles compared to FTP by using channel-based transfers

Market Choices and Status

- Installed base of mainframe tape is primarily IBM and Oracle/Sun/StorageTek
- Leading virtual tape products (Sun VSM and IBM TS7740) primarily depend on physical tape
- There are several choices in mainframe disk-based virtual tape without physical tapes
 - Luminex Channel Gateway (with Data Domain deduplication since 2006)
 - EMC/Bustech. EMC DLM announced Feb 2008
 - IBM TS7720 announced Fall 2008
 - Sun VSM disk-based announced Spring 2009
 - IBM TS7680 with deduplication announced February 2010
 - CA-Vtape

Market Choices and Status

How do I choose between them?

- Customer Proven
- Replication
- Optimized Deduplication
- Scalability
 - Enterprise Capability
 - Entry-level options



Market Choices and Status

Where can I use the Channel Gateway?

- Improve disaster recovery RPO and RTO by replicating backups
- Improve performance for active and batch tape data
- Archive applications like hsm and OAM to benefit from virtualization and disk-based performance for recalls
- Simplify infrastructure and operations by creating common processes with open-systems
- Every datacenter that couldn't justify the cost to virtualize with traditional choices
- In VSE or to share infrastructure in multiple OS environments

Mainframe Tape without Tapes

- The benefits can't be ignored
- Today's Modern choices can't be dismissed
- Save \$, improve performance, reduce risk, improve RPO and RTO, and simplify infrastructure
- Your peers, large and small, have successfully reduced and eliminated physical mainframe tape already!
- The question has now shifted for every tape media created:

Why?



Health Management Systems

Michael O'Rourke –
Sr. Director of Data Center
Operations



SHARE in Boston



The Company

Background

- HMS is a wholly owned subsidiary of HMS Holdings
- We're the nation's leader in coordination of benefits and program integrity services for payors of healthcare services.
- Our clients include health and human services programs in more than 40 states.
 - Including commercial programs and plans, employers, and over 100 Medicaid managed care plans; the Centers for Medicare & Medicaid Services (CMS); and Veterans Administration facilities
- We recover in excess of \$1 billion for our clients every year.

What were our Goals and Objectives?

Challenges/Goals:

- ☐ Resolve performance limitations related to archiving with content addressed storage
- ☐ Implement a better disaster recovery plan
- ☐ Replace aging tape or virtual tape products

Previous Mainframe Archiving Environment

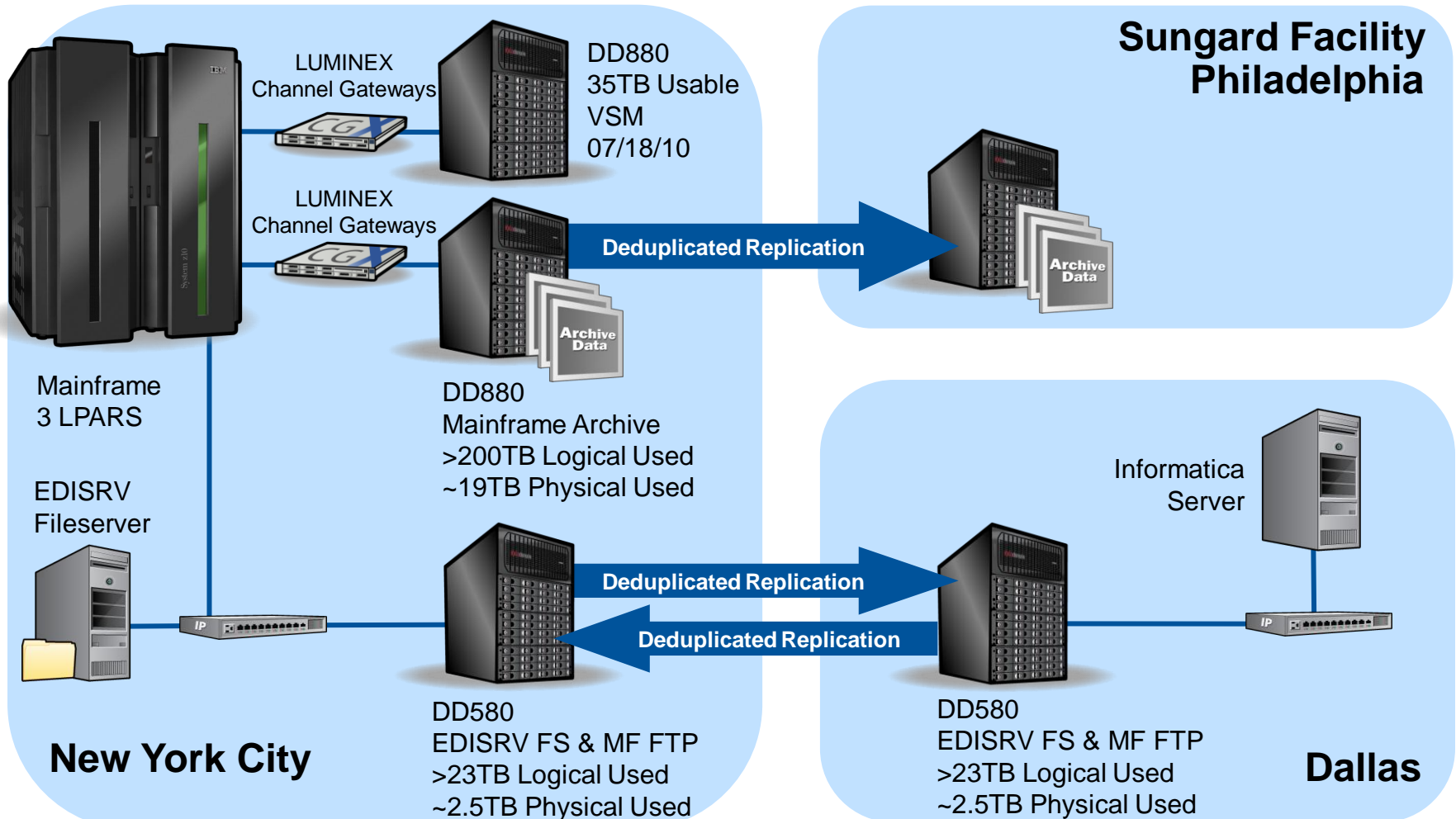
zSeries
Mainframe



Content Addressed Storage
For Archiving



Luminex - EMC|Data Domain Environment



Luminex - EMC|Data Domain Environment

Sungard Facility, Philadelphia

Single DD880
EA, VSM, & SMF
Up to 143TB Usable
Up to 14.2PB Logical



Mainframe - 3 LPARS



LUMINEX
Channel Gateways



LUMINEX
Channel Gateways



EDISRV
Fileserver



DD880
Mainframe
EA archive



DD880
VSM, SMF,
FTP & EDI

New York City

DD880



Watertown Facility



TSM/NBU Backup Environment



DD880
EDI, TSM, NBU, MF FTP
Up to 143TB Usable
Up to 14.2PB Logical



Informatica
Server

NFS/OST
Up to 5.4TB/hr



CIFS
Up to 2.5TB/hr



TSM/NBU Backup
Environment

Irving Facility

Data Deduplication Rates



Luminex Channel Gateways
with EMC|Data Domain Storage

EMC Auto-Support (7/2010):

Currently Used (GB):

• Pre: 234,608 Post: 19,266 Rate: 12.2x








Last 7 Days:

• Pre: 879 Post: 60 Rate: 14.5x

Last 24 Hours:

• Pre: 145 Post: 7 Rate: 20.7x

We Achieved Our Goals:

-  Replaced previous archiving solution with a higher performance virtual tape solution
-  New multi-site DR plan has been implemented for mainframes and open systems
 -  Recovery time has been improved
 -  Reduced cost for tape transportation, media and vaulting
-  No physical tape is required for DR
-  Reduced storage requirements via 12X+ deduplication
-  The solution performs better and does not need DB2 for archiving applications

EmblemHealth

Dennis R. Drewry
*Manager,
Information Systems,
Enterprise Storage
Engineering*



SHARE in Boston

The Company

EmblemHealth, Inc., through its companies Group Health Inc. (GHI) and Health Plan of NY (HIP) provide:

- Affordable, quality health care coverage and services to approximately 3.4 million people.
- Groups and individuals can choose a variety of PPO, EPO and HMO programs, prescription drug, dental and vision plans.
- Plans offer a choice of networks and access to 106,000 quality doctors and health care professionals and most of the leading hospitals across the Tristate region.

Our Experience

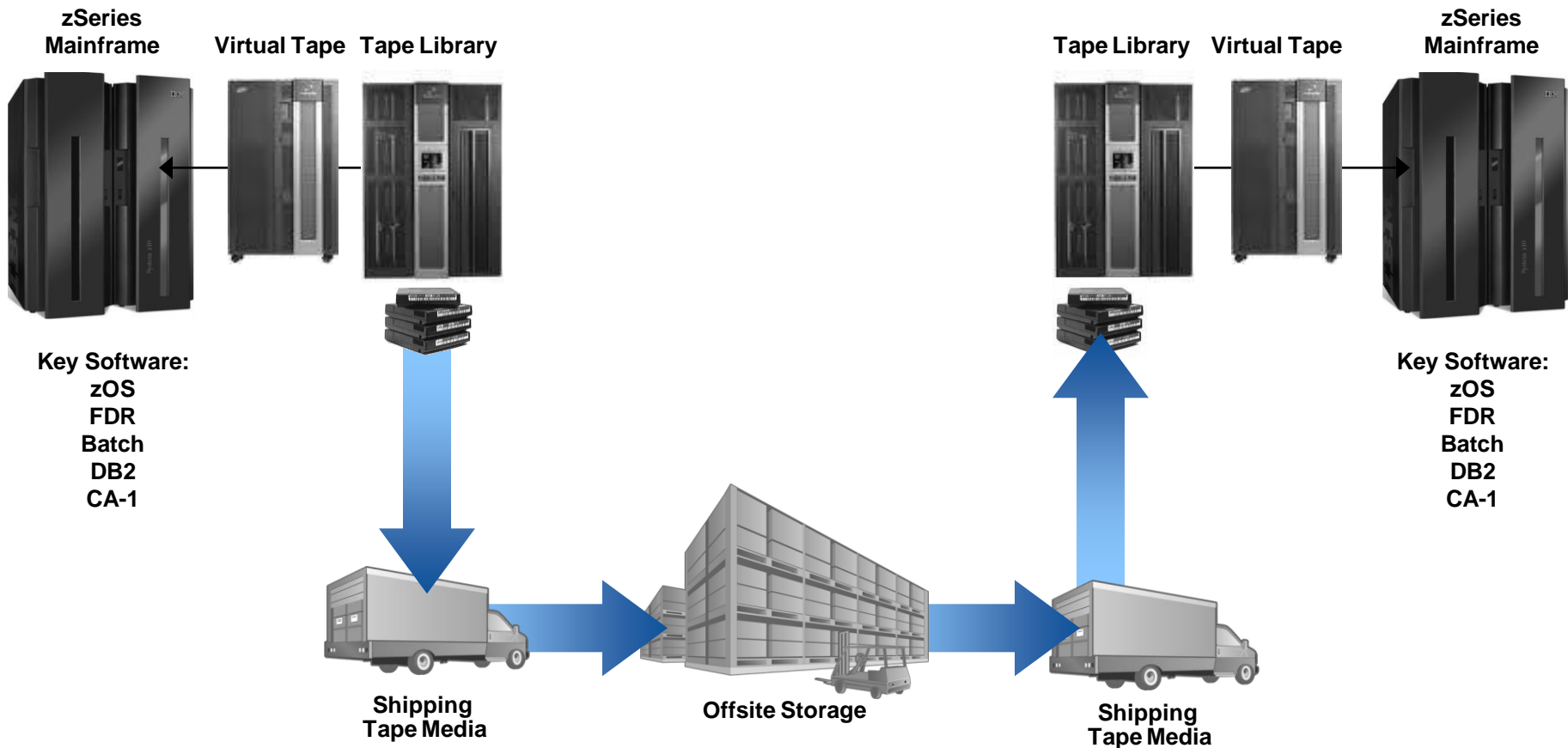
Challenges/Goals:

- ☐ Eliminate previous tape reliability issues
- ☐ Improve tape and virtual tape performance
 - ☐ Virtual tape buffer size was too small
 - ☐ Physical tape mount requirements slowed down data retrieval
- ☐ Remote replication (tape) for DR was cost prohibitive
- ☐ Less tape or tape-less environments were preferred
- ☐ Reclaim IT floor space at the production and DR site
- ☐ Improve tape security and reduce the complexity of tape encryption and key management

Previous Tape Environment

Production Site - NY

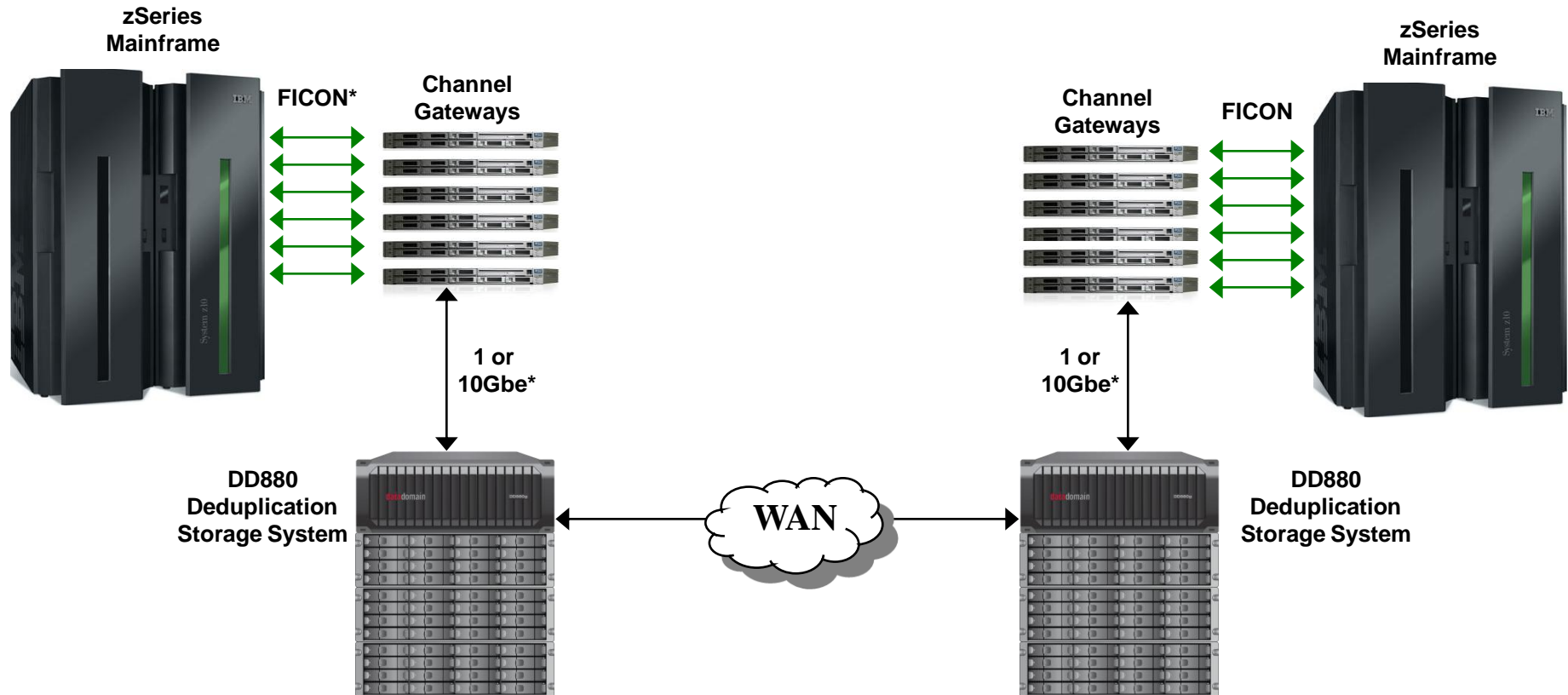
DR Site – Sungard, NJ



New Virtual Tape Solution (single rack)

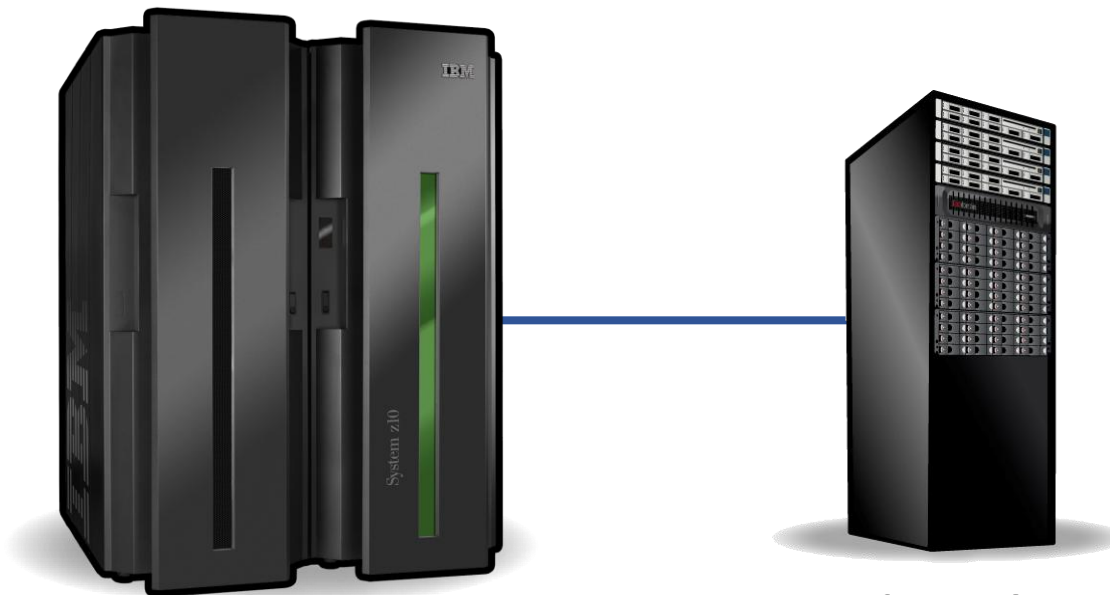
Production Site - NY

DR Site – Sungard, NJ



* The FICON and GigE connectivity is via a related switch.

Data Deduplication Rate



Luminex Channel Gateways
with EMC|Data Domain Storage

EMC Auto-Support (7/2010):

Currently Used (GB):

- Pre –376,799 , Post – 48,508 - **7.8x**

Last 7 Days:

- Pre –44,065 , Post – 2,354 - **18.7x**

Last 24 Hours:

- Pre – 6,282 , Post – 297 - **21.1x**

Our Experience

We Achieved Our Goals:

- ✓ Improved tape (Virtual Tape) reliability
- ✓ Better performance for batch, recalls and backup
 - ✓ No longer limited to a small virtual tape buffer/disk cache
 - ✓ Tape robotics have been replaced by fast access virtual tape
- ✓ Improved remote DR plan
 - ✓ Deduplication makes it practical to use remote replication
 - ✓ We've already successfully conducted our remote DR test
- ✓ We've reduced physical tape use and cost
- ✓ Reclaimed floor space at the production and DR site
- ✓ Improved tape security and reduced complexity

Solvan / BBVA

Roberto Ortiz
Director Comercial
Solvan



SHARE in Boston



- Solvan - Storage System Integrator for BBVA Bancomer Bank
- BBVA Bancomer is the largest financial institution in Mexico
- Founded -1932 as Banco de Comercio (Bancomer), since 2000 its main stockholder is BBVA

What were our Goals and Objectives?

Challenges/Goals:

- ☐ Implement a better remote disaster recovery plan
- ☐ Implement virtual tape (w/o physical tape) for batch processing, HSM and archiving
- ☐ Reduce the huge volume of physical tape required for archiving

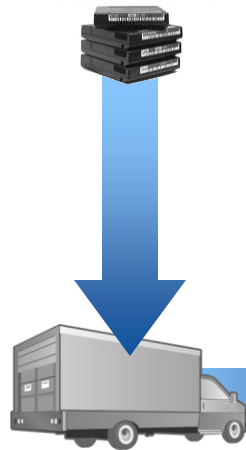
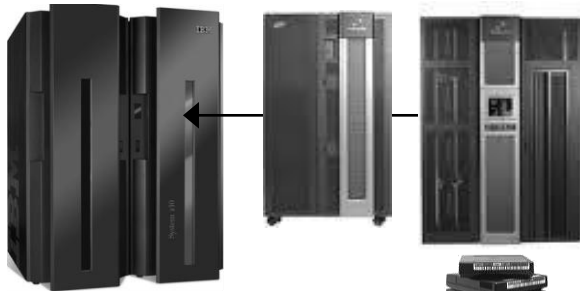
Previous Tape Environment

Mexico City, Mexico

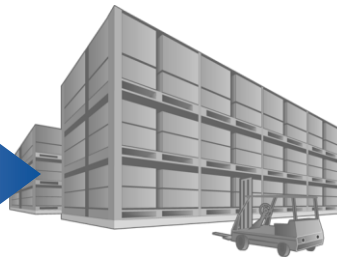
zSeries
Mainframe

(4) Virtual
tape

(4) Tape
Libraries



Shipping
Tape Media



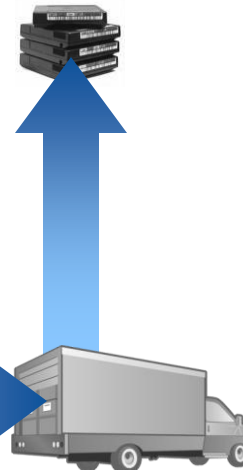
Offsite Storage

Monterrey, Mexico

(4) Tape
Library

(4) Virtual
Tape

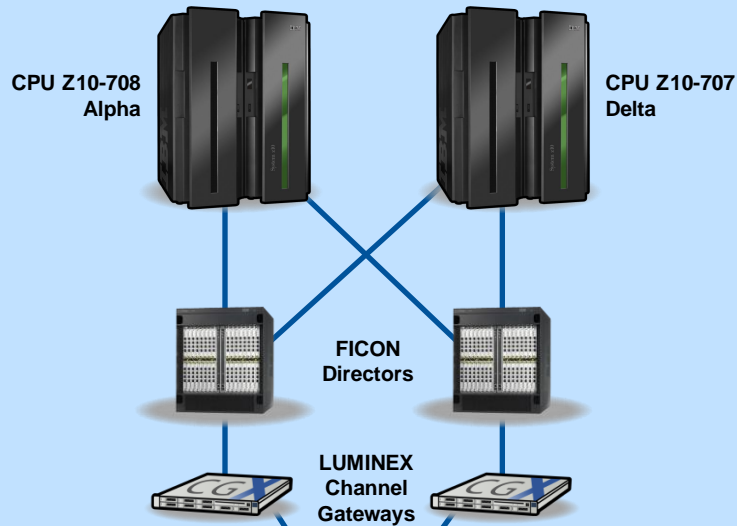
zSeries
Mainframe



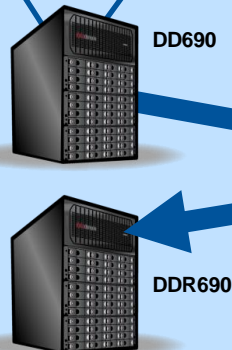
Shipping
Tape Media

México City – Monterrey Disaster Recovery Configuration

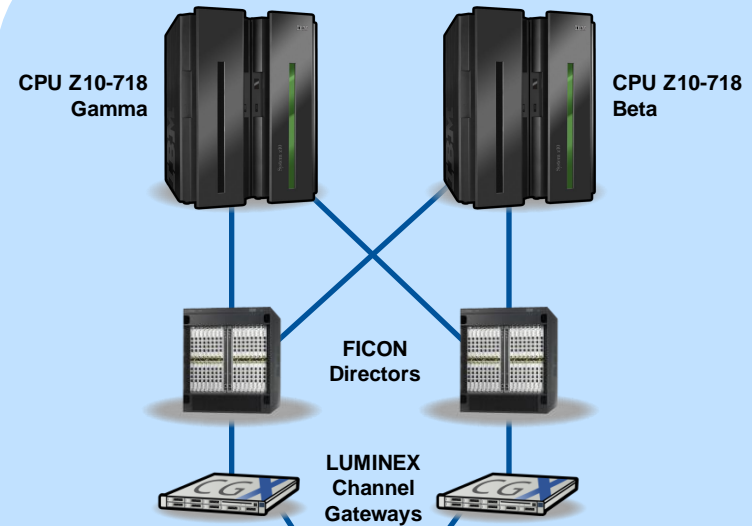
Monterrey Data Center



- 3 DD690s for Replication
- 10 FICON channels



México Data Center



- 4 DD690s for Replication
- 10 FICON channels



How Did We Do?

We Achieved Our Goals:

- ☒ Luminex-EMC solution has been implemented for all tape use (Batch processing, HSM & archiving)
- ☒ Mexico City and Monterrey production sites:
 - ☒ Replicate to each other for improved disaster recovery
 - ☒ Improved their overall disaster recovery capability
- ☒ No physical tape is required for DR
- ☒ Reduced requirements for physical tape archiving

Q&A

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Thank You

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