

# Share Virtual Tape Across the Enterprise

**Arthur Tolsma**  
*CEO*  
Luminex

**Michael O'Rourke**  
*Sr. Director of Data Center Operations*  
Health Management Systems

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

**Roberto Ortiz**  
*Director Comercial*  
Solván



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August 2, 2010 at 4:30 PM  
SHARE Session #7348

# Sharing Virtual Tape Across the Enterprise



- Is a common Virtual Tape infrastructure across the enterprise possible?
- Similarities in tape use and goals
- Differences in Mainframe tape use
- Health Management Systems user experience
- Emblem Health user experience
- BBVA user experience
- Additional Q&A

# Similarities... Need to Improve Backup & DR for Mainframes, Open Systems and Others

## Similar Goals:

- **Reduce/eliminate physical tape use**
  - Eliminate risk of tapes being lost or stolen
  - Improve reliability & gain faster access to tape data
- **Improve Recovery Time and Point Objective (RTO & RPO)**
- **Reduce IT operating expenses (OPEX)**
  - Lower maintenance & media cost for tape systems
  - Reduce/eliminate tape vaulting cost
  - Reduce DR site cost



# Similarities... Need to Improve Backup & DR for Mainframes, Open Systems and Others

## Vendors/Suppliers In Common:

- Iron Mountain for tape vaulting/ transportation
- Sungard or IBM BCRS for 3rd party DR locations
- Internal remote DR locations
- IBM & Oracle/STK are only vendors for mainframe physical tape drives and libraries



# Similarities... Need to Improve Backup & DR for Mainframes, Open Systems and Others

## Facing Similar Challenges...

- Retrieval of physical tape delays recovery
- Not all tape data is available at the DR Site
- Full backups are not done frequently enough
- DR & test can be unpredictable (unreliable etc.)
- Must replace aging tape, virtual tape & libraries
- Enterprise consolidation now widely considered



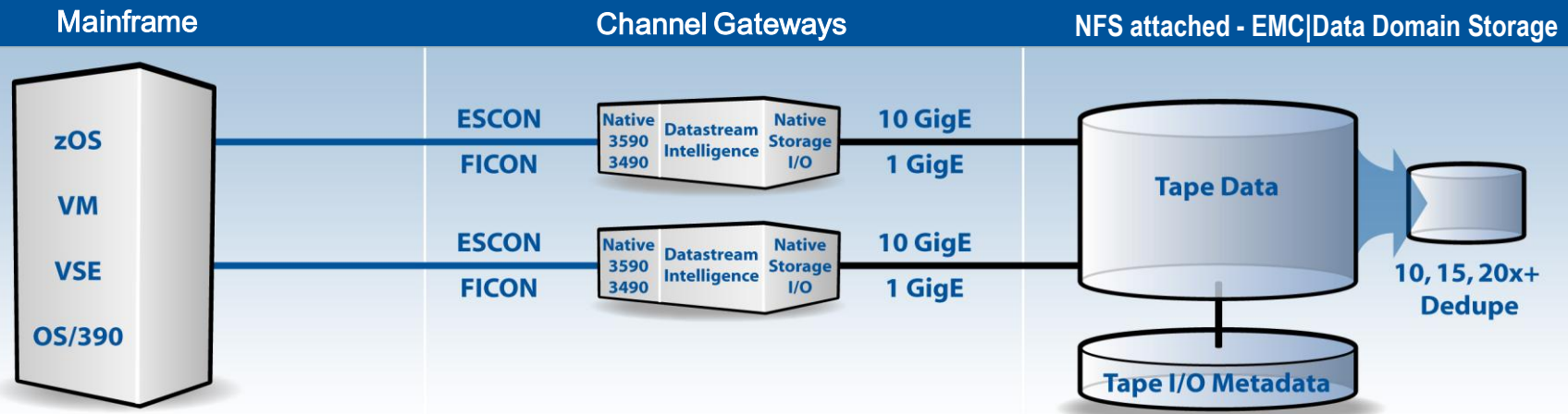
# Differences – In Mainframe Tape Applications & Connectivity

- **Backup and Recovery:**
  - IBM's DFdss, DDR & IEBGENER, TSM, Innovation FDR Products, BMC for DB2, CA Disk and HSM Backup
  - BIM/EPIC, HiDRO, VM Backup (for VM/VSE)
- **Tape Management Software:**
  - CA1, TLMS, CA-MIM & CA Dynam T, RMM, Control T, Zara
- **HSM & Archiving:**
  - DFhsm, CA Disk, OAM & ASG ViewDirect (Mobius)
- **Database Software – DB2**
- **Batch processing – Custom Applications**
- **Connectivity – FICON or ESCON, instead of Fibre Channel or SCSI**



# Luminex Channel Gateways

## Enable Connectivity Between Mainframes, Open Systems and Others



### Mainframe:

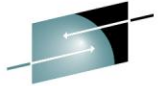
- Application transparent – non-intrusive
- No MIPS required
- zOS, MVS, VM, VSE and OS390 supported
- Works well with all major tape mgnt. systems
- SMS, MTL or Esoterics can also be used.

### LUMINEX Channel Gateways:

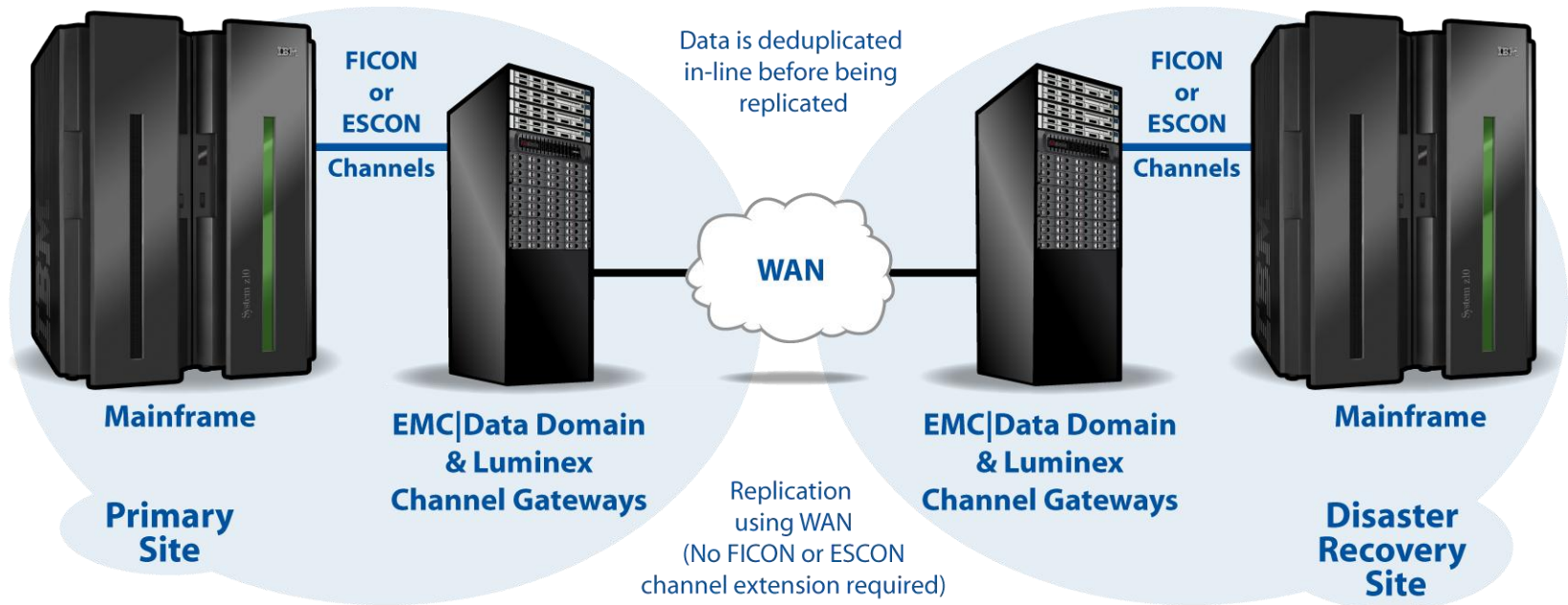
- Emulates 3480, 3490 or 3590 mainframe tape drives
- Datastream Intelligence optimizes deduplication
- Active – Active with NSPOF
- Dual PS, Fans & Mirrored OS
- No tape data on gateways

### EMC|Data Domain:

- NFS attached (Not FC VTL)
- Mainframe Tape Volumes stored as Unix/NFS files (mainframe volser #'s remain unchanged)
- Data Deduplication & Replication for backup/DR
- RAID 6 & Data Invulnerability Architecture
- Works the same as any other Solaris attached DDR



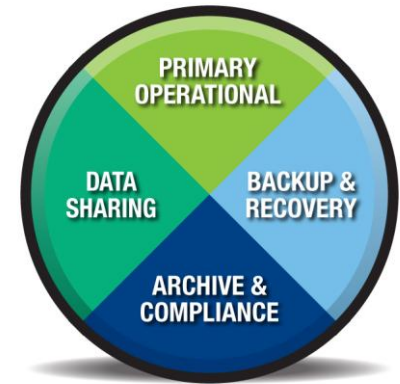
# Typical Customer Configuration





# The Results with Modern Mainframe Virtual Tape & Deduplication

- Improve all categories of mainframe tape use
- RPO & RTO for backup & DR is improved
- Mainframe applications remain unchanged
- No additional MIPS (CPU cycles) are required
- IT OPEX is improved
- Batch processing, HSM and archiving are improved





# Health Management Systems User Experience

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



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## 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

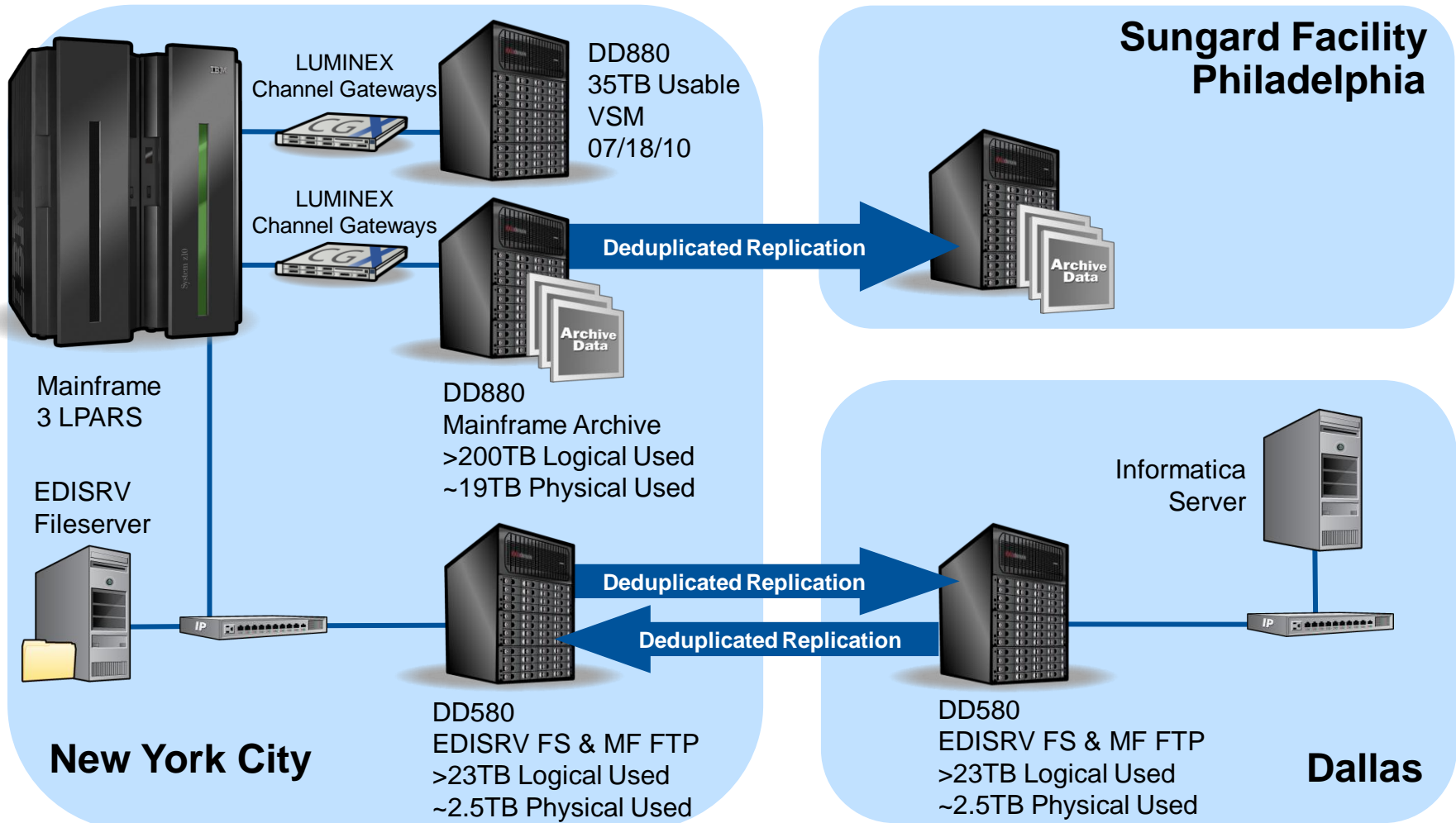
zSeries  
Mainframe



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



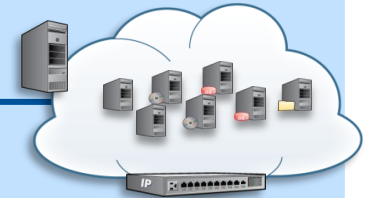
DD880  
VSM, SMF,  
FTP & EDI

## New York City

## DD880



## Watertown Facility



TSM/NBU Backup Environment



IP



IP



Informatica  
Server

NFS/OST  
Up to 5.4TB/hr



IP

CIFS  
Up to 2.5TB/hr



TSM/NBU Backup  
Environment

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

## 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

# Emblem Health User Experience

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



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## 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.

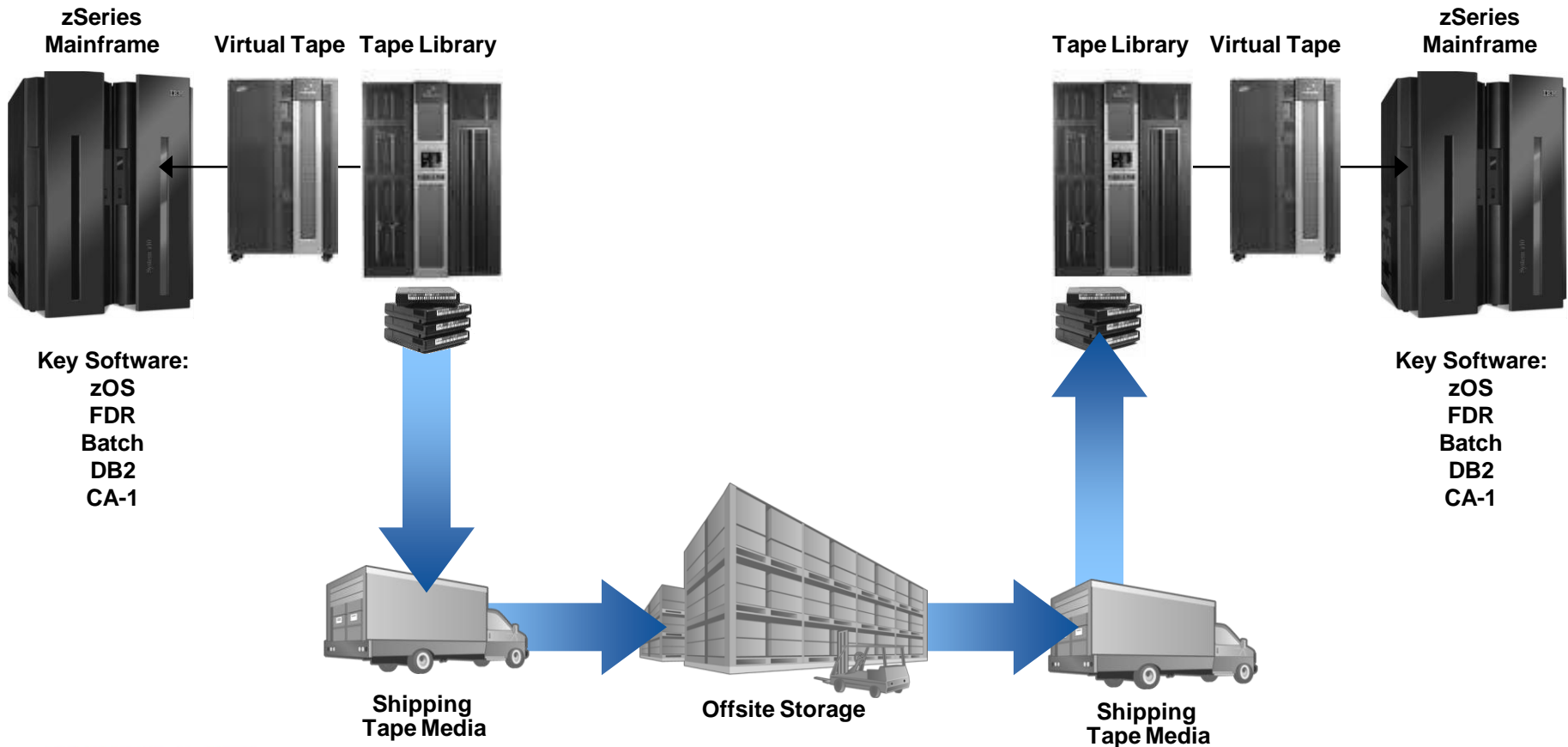
## Challenges/Goals:

- 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

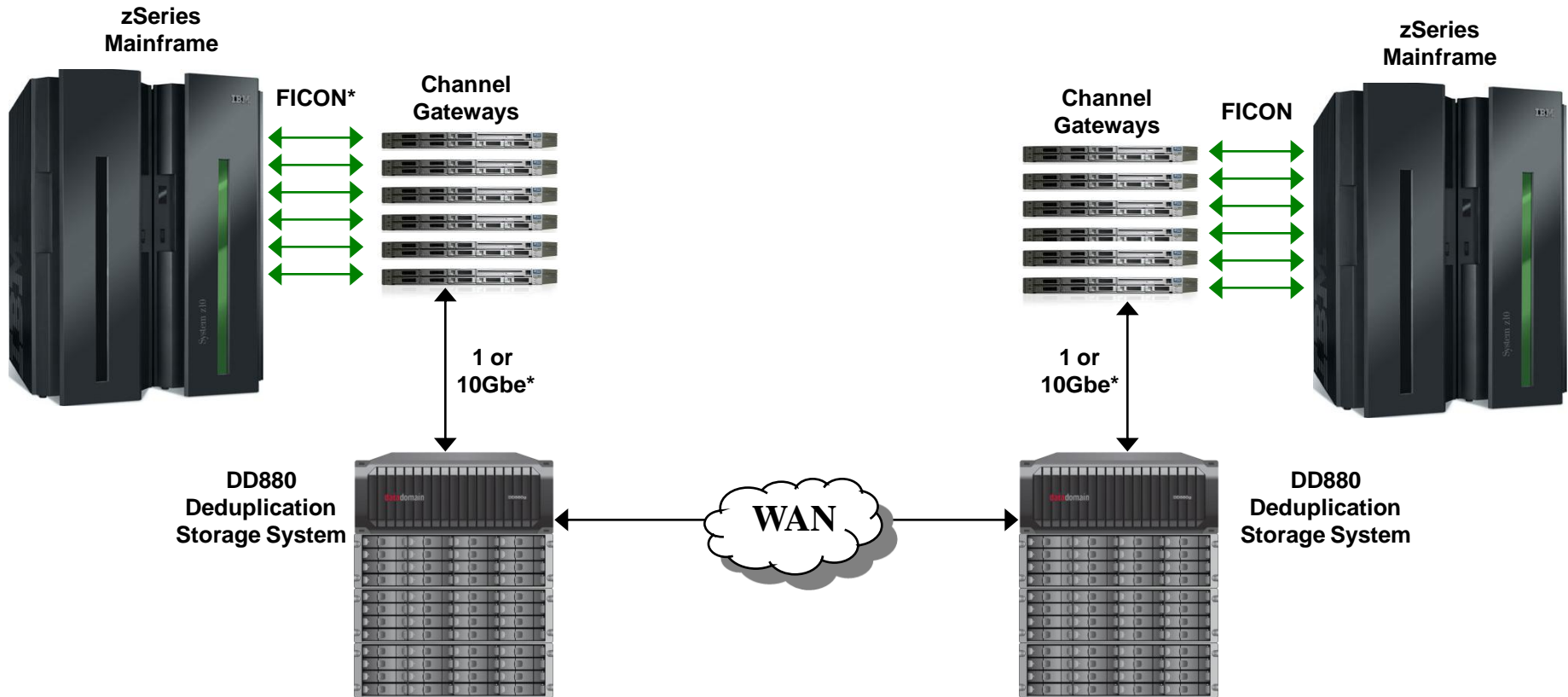
## DR Site – Sungard, NJ



# New Virtual Tape Solution (single rack)

Production Site - NY

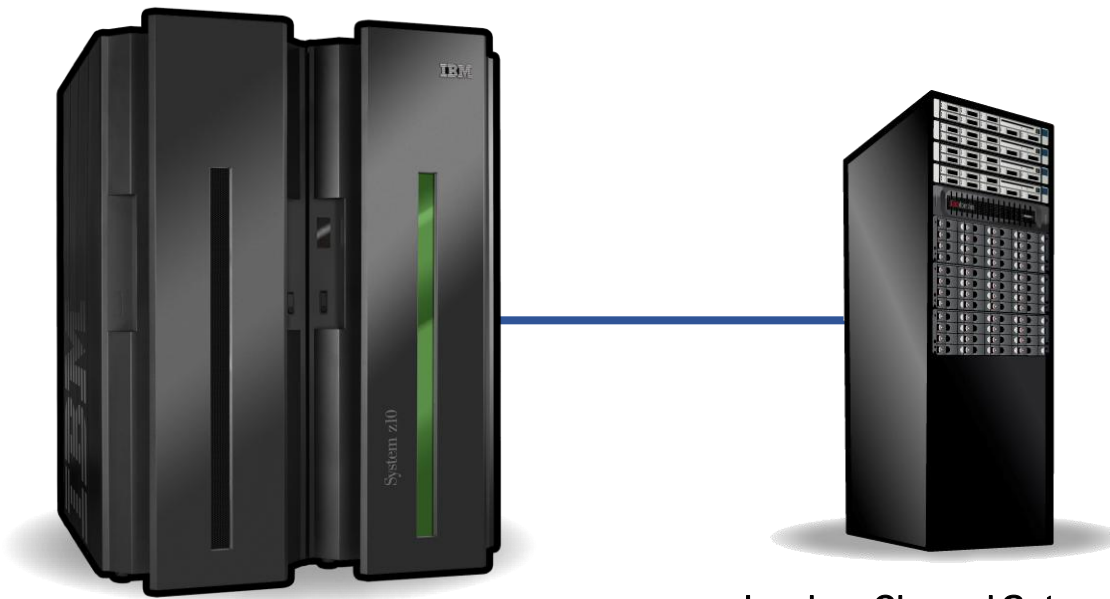
DR Site – Sungard, NJ



\* 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





# BBVA User Experience

Roberto Ortiz  
*Director Comercial*  
Solvan



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 **Bancomer**

- 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

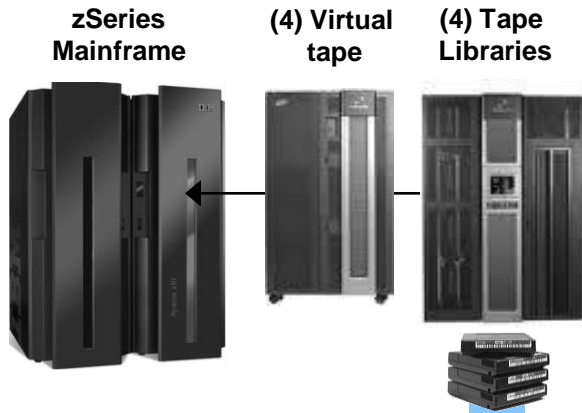
# What were our Goals and Objectives?

## Challenges/Goals:

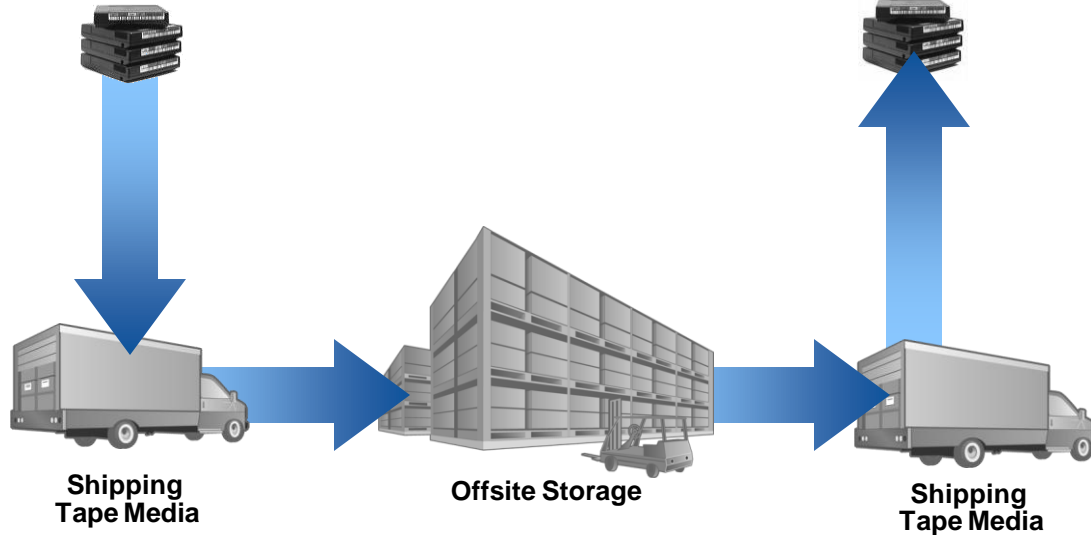
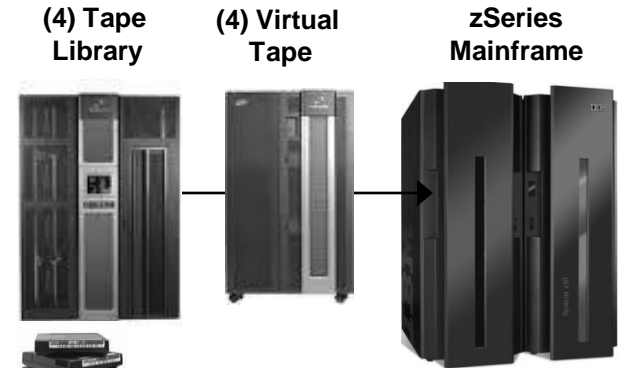
- Implement a better remote disaster recovery plan
- Implement virtual tape (w/o physical tape) for batch processing, HSM and archiving
- Reduce the huge volume of physical tape required for archiving

# Previous Tape Environment

## Mexico City, Mexico

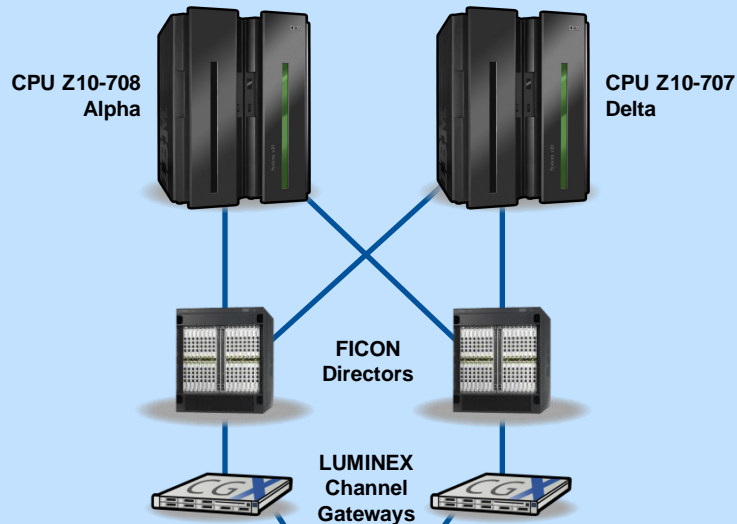


## Monterrey, Mexico

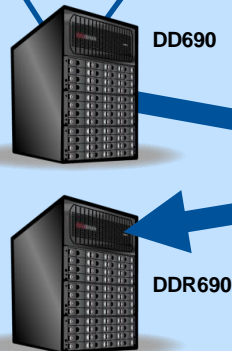


# México City – Monterrey Disaster Recovery Configuration

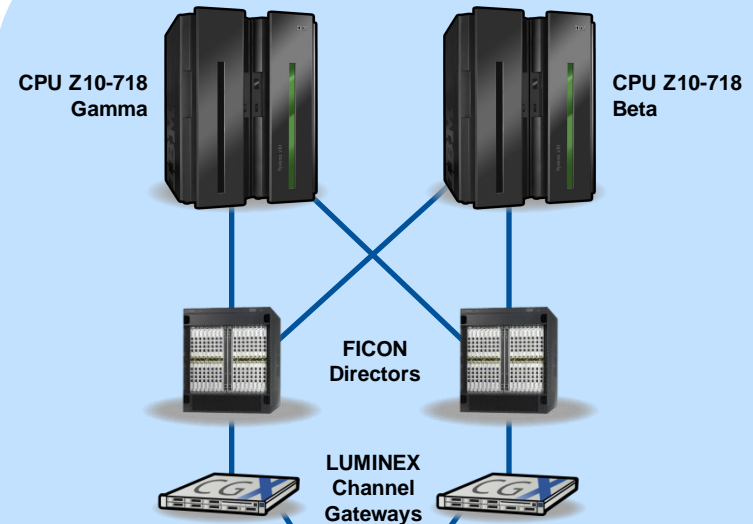
## Monterrey Data Center



- 3 DD690s for Replication
- 10 FICON channels



## México Data Center



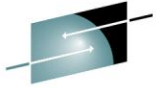
- 4 DD690s for Replication
- 10 FICON channels



# 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



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Technology • Connections • Results

# Additional Q&A



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# Thank You

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