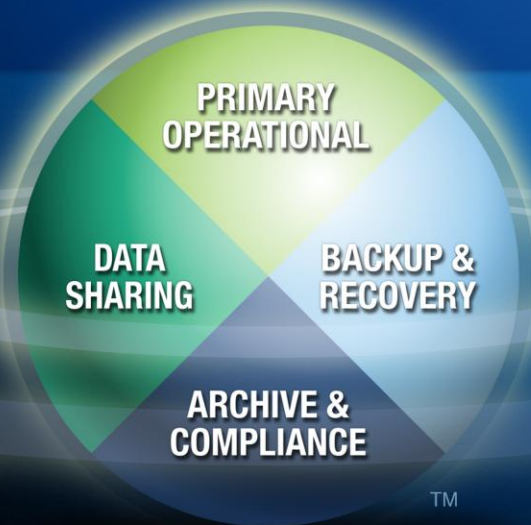
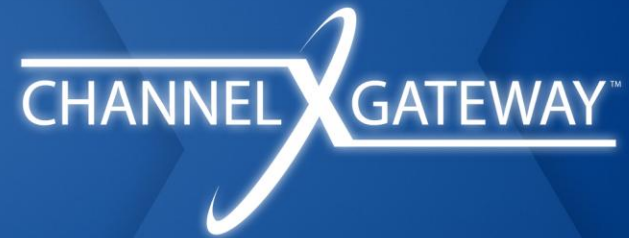


Customer Panel – The Benefits of Tapeless Mainframe Virtual Tape



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, Solvan





- **In mission & business critical environments**
- **Installed in all major industries, including:**
 - Financial, Insurance, Government, Telecom & Retail
 - Distribution, Manufacturing, Education & Healthcare
- **Multi-mainframe/LPAR & Sysplex users**
- **Mainframe data centers with 100's of TB's**
- **Customer installations in 6 continents**

Customer Proven Worldwide

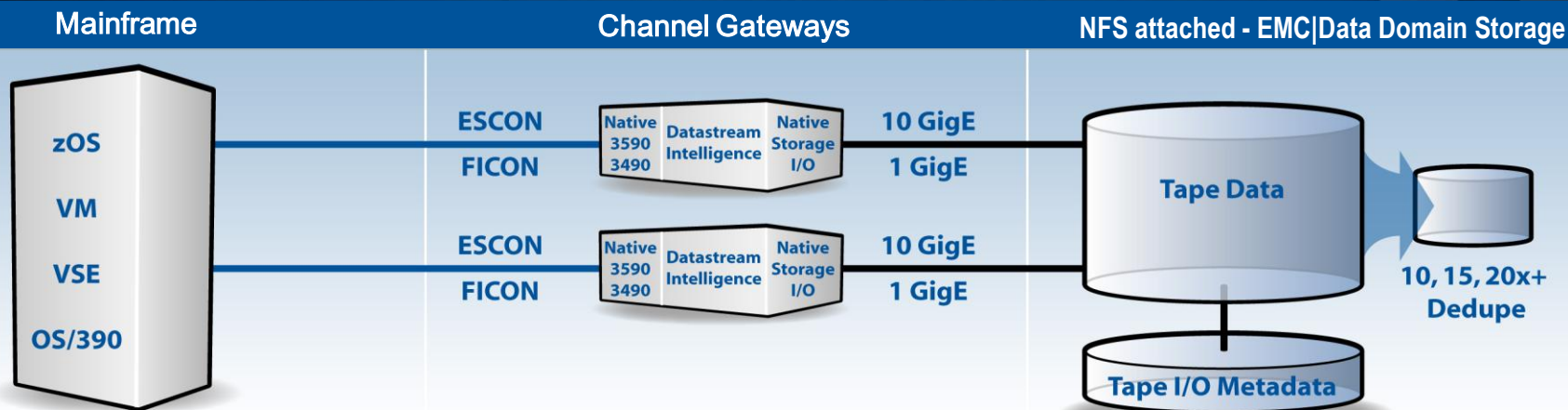
(continued)



- The only proven mainframe VT solution w/ dedupe
- 20+ years – Mainframe virtual tape solutions
- Mainframe VT with Data Domain dedupe since 2006
- Currently used w/these & other applications:
 - DFDSS, SMS, HSM, FDR, TSM, DDR, VSAM & CA Disk
 - CA-1, RMM, CA-MIM, OAM, TLMS, DB2 & Mobius
 - BIM-EPIC, Dynam/T & HiDRO, VM Backup
 - FDR UPSTREAM - Backup open systems to mainframes



Channel Gateways Enable Connectivity Between Mainframes, Open Systems & 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:

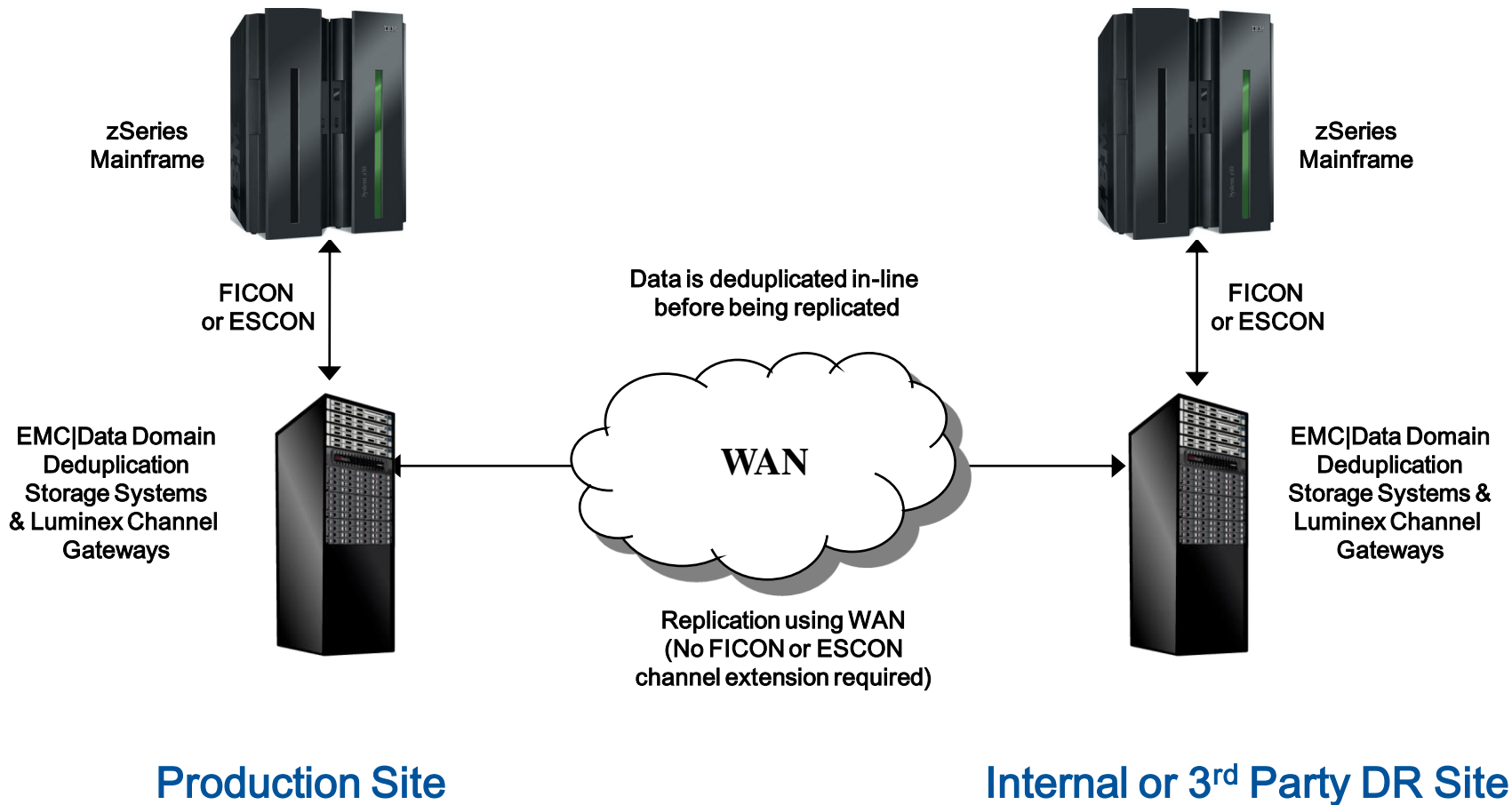
- Emulates 3480, 3490 or 3590 mainframe tape drives
- Datastream Intelligence optimizes deduplication
- Active – Active with NSPOF
- Dual PS, Fans & Mirrored OS
- No tape data on gateways

EMC|Data Domain:

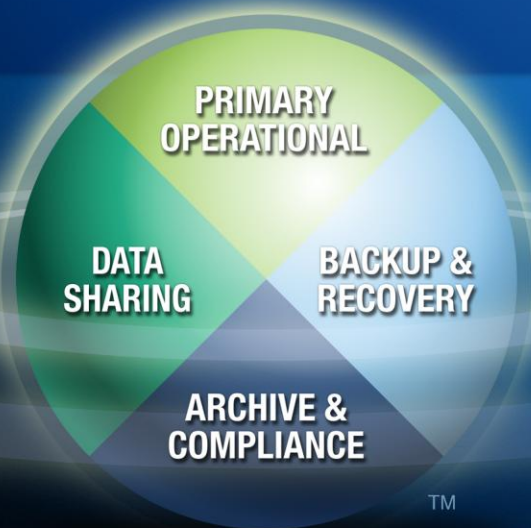
- NFS attached (Not FC VTL)
- Mainframe Tape Volumes stored as Unix/NFS files (mainframe volser #'s remain unchanged)
- Data Deduplication & Replication for backup/DR
- RAID 6 & Data Invulnerability Architecture
- Works the same as any other Solaris attached DDR



Deduplication Makes Remote Replication Practical & Affordable



Health Management Systems



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



- **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

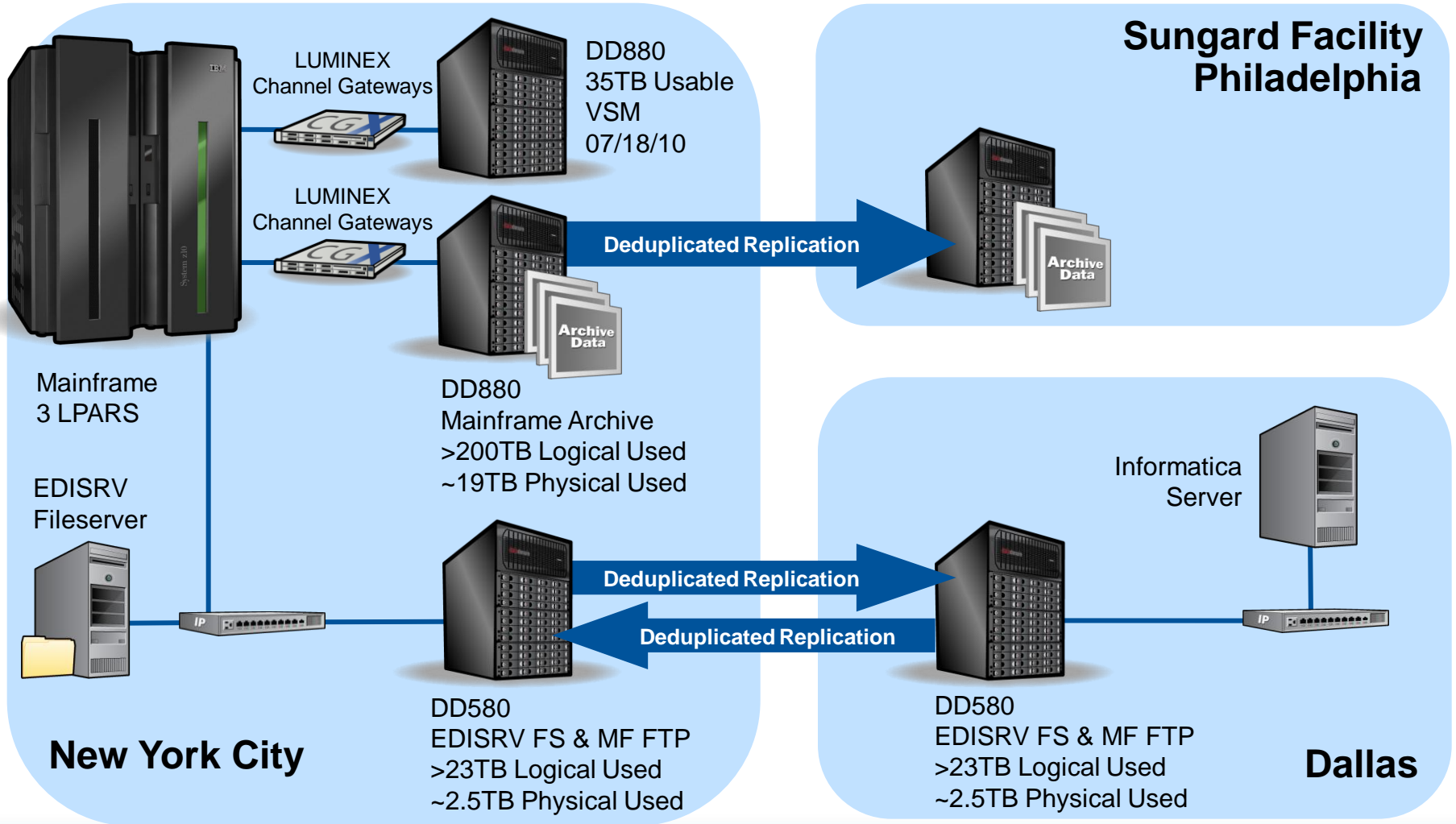
**zSeries
Mainframe**



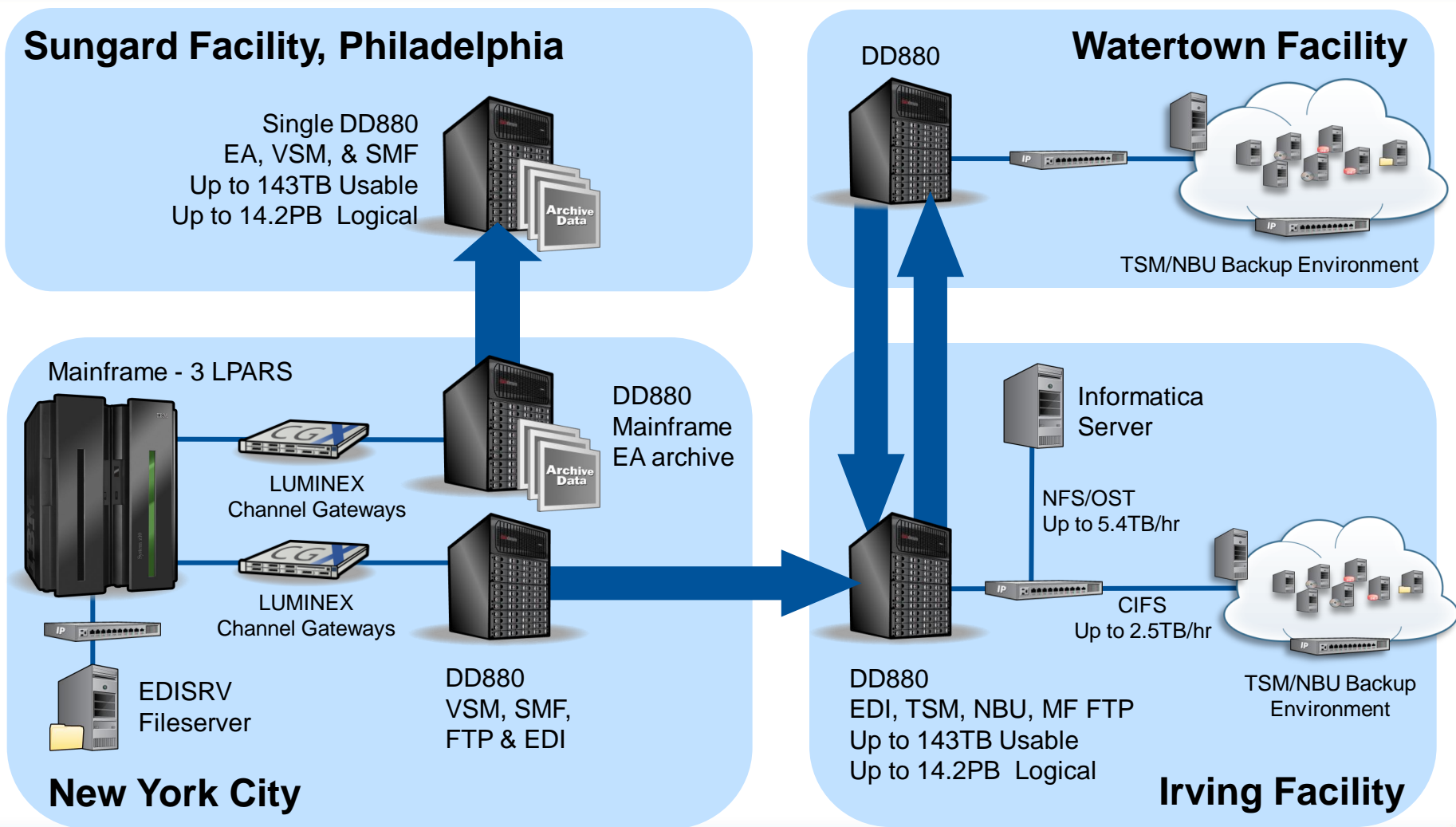
**Content Addressed Storage
For Archiving**



Luminex - EMC|Data Domain Environment



Luminex - EMC|Data Domain Environment



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:

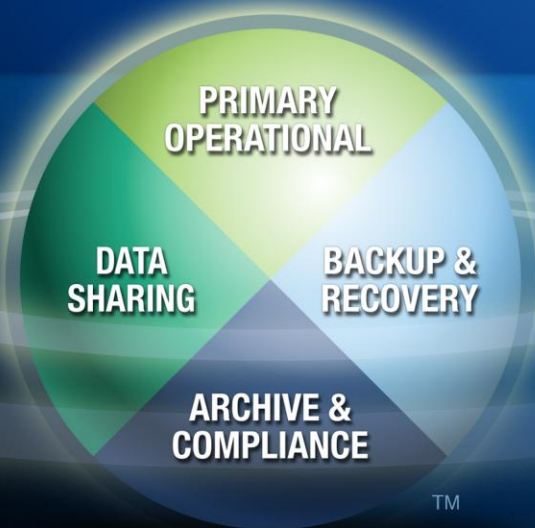
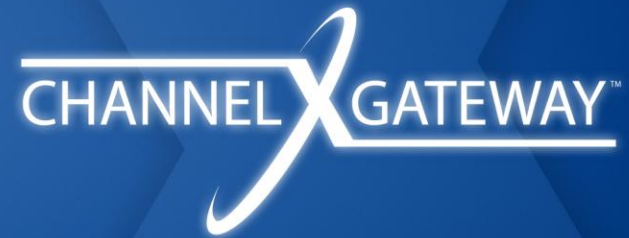
• Pre: 145 Post: 7 Rate: 20.7x

How Did We Do?

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





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

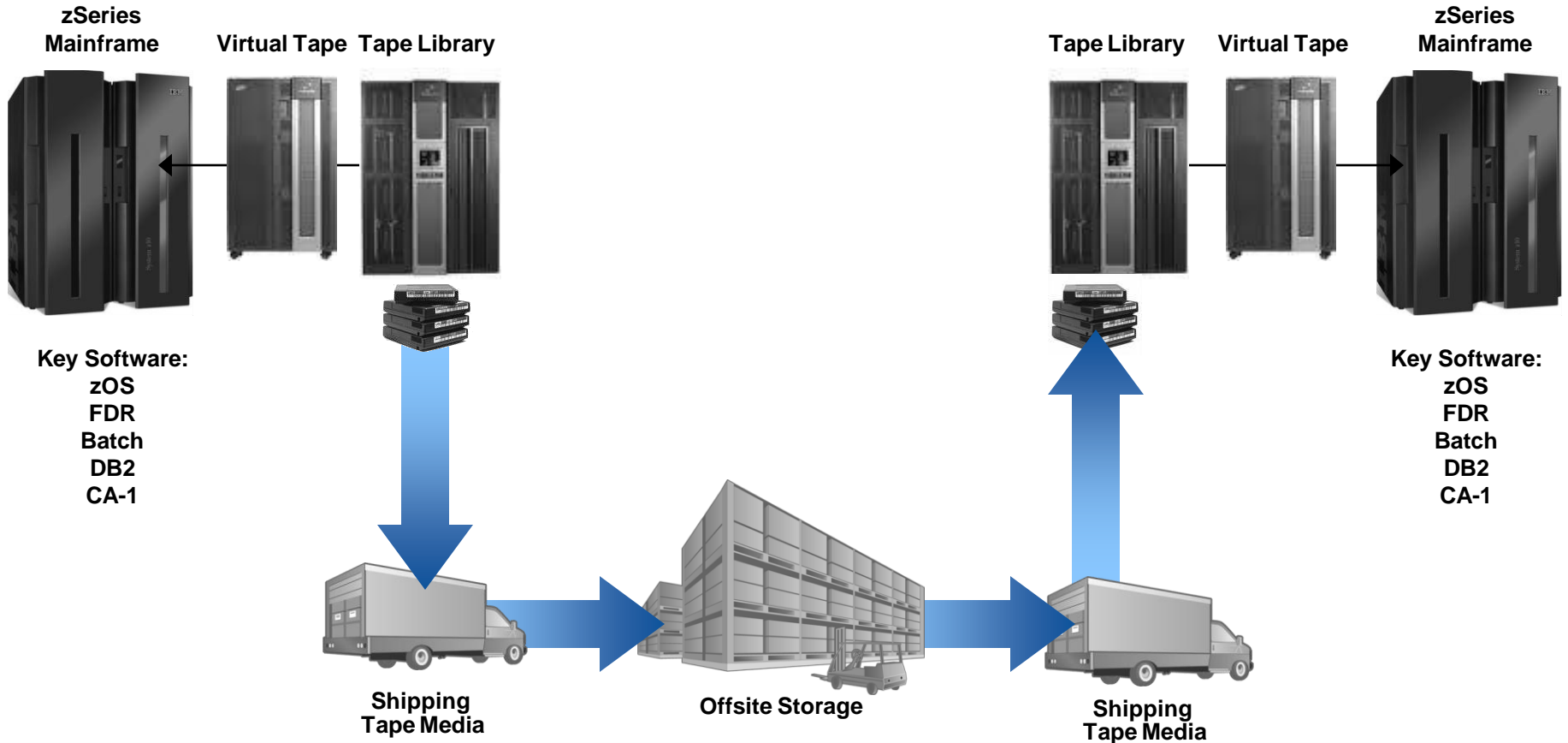


EmblemHealth – Previous Tape Environment



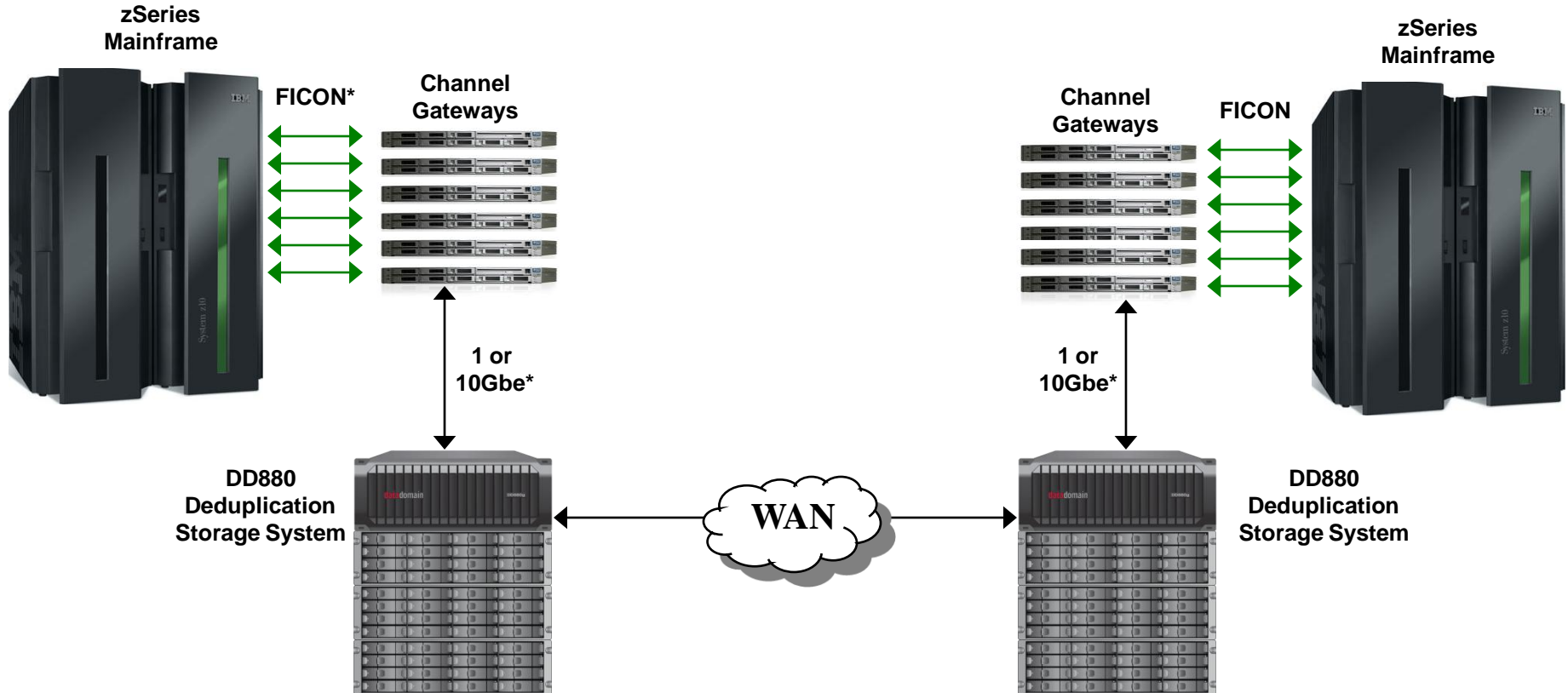
Production Site - NY

DR Site – Sungard, NJ



Production Site - NY

DR Site – Sungard, NJ



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



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**

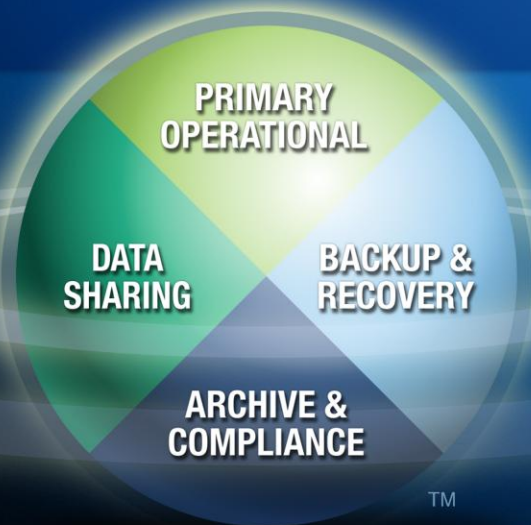
Luminex Channel Gateways
with EMC|Data Domain Storage



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



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?

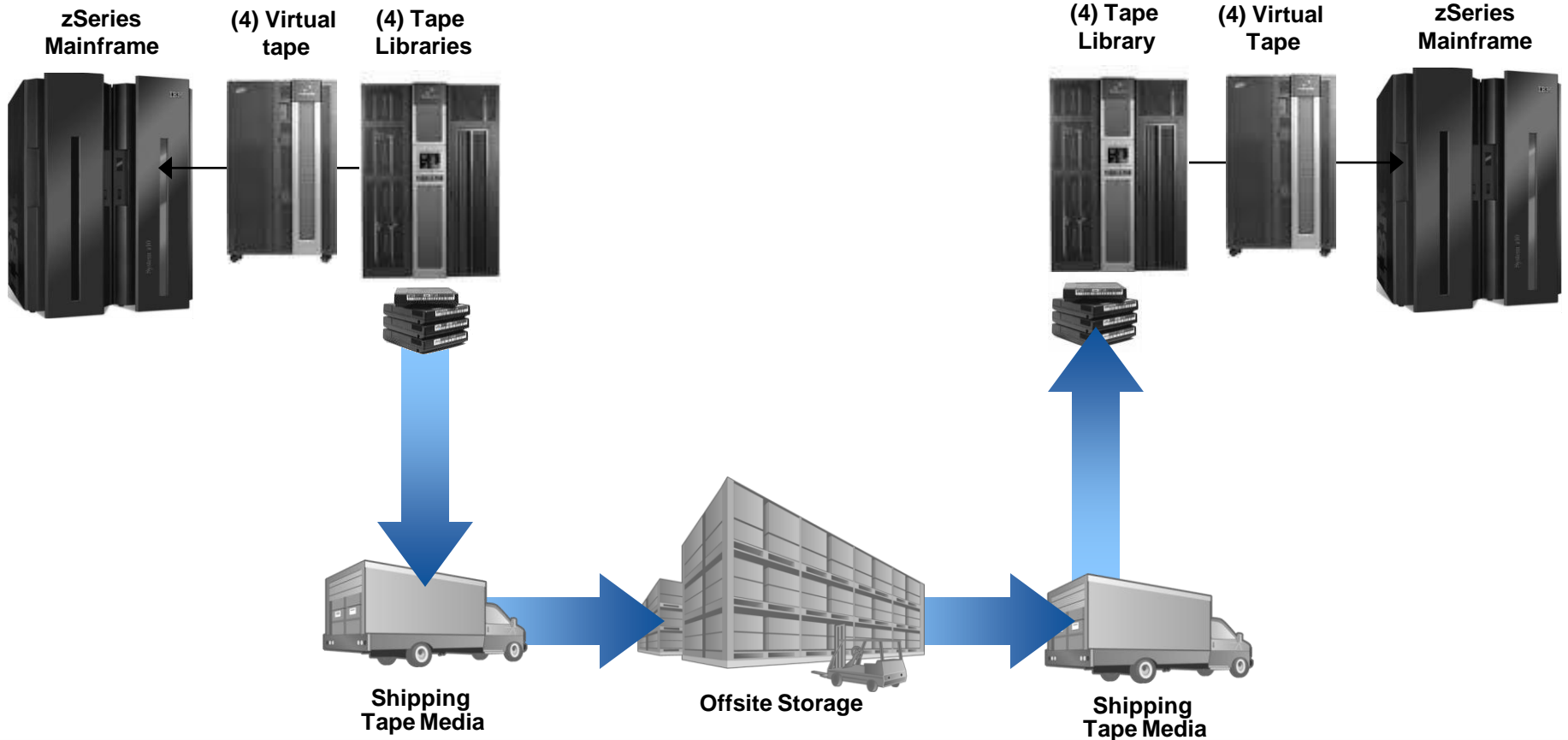
Challenges/Goals:

- 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

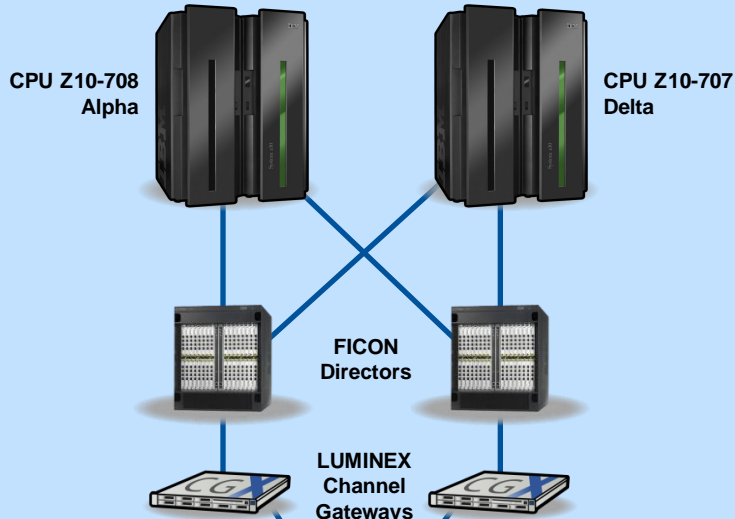
Monterrey, Mexico



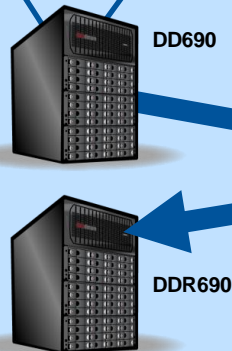
México City – Monterrey Disaster Recovery Configuration



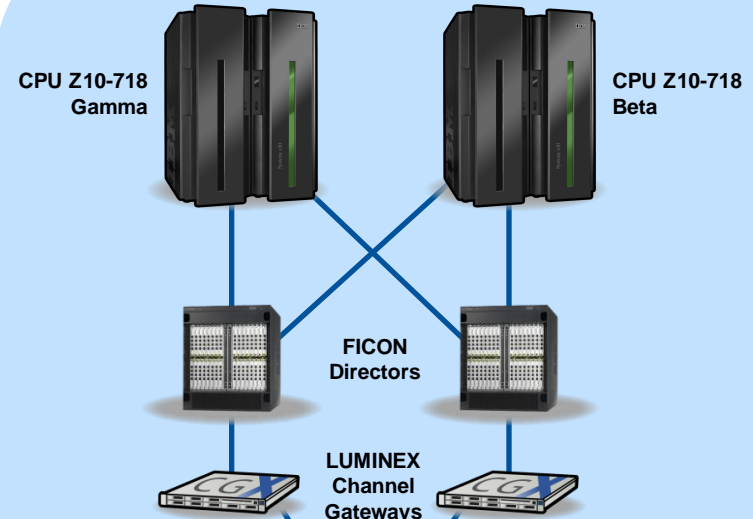
Monterrey Data Center



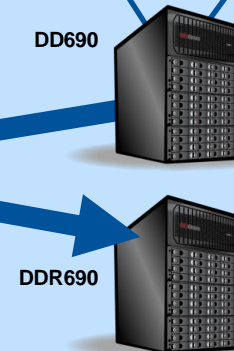
- 3 DD690s for Replication
- 10 FICON channels



México Data Center



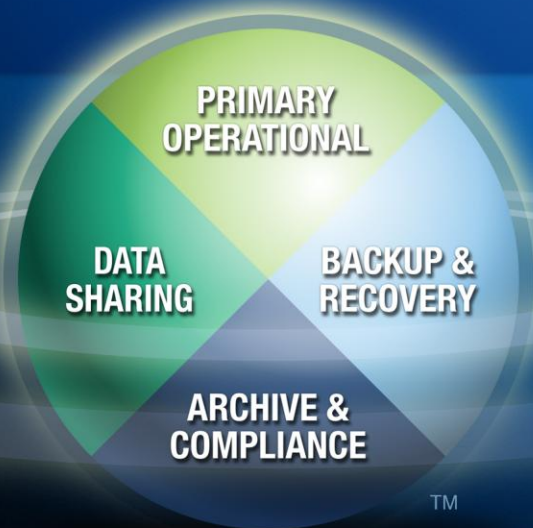
- 4 DD690s for Replication
- 10 FICON channels



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

Panel Discussion



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, Solvan



Thank You

