

The Benefits of Tapeless Mainframe Virtual Tape – A Customer Panel Discussion

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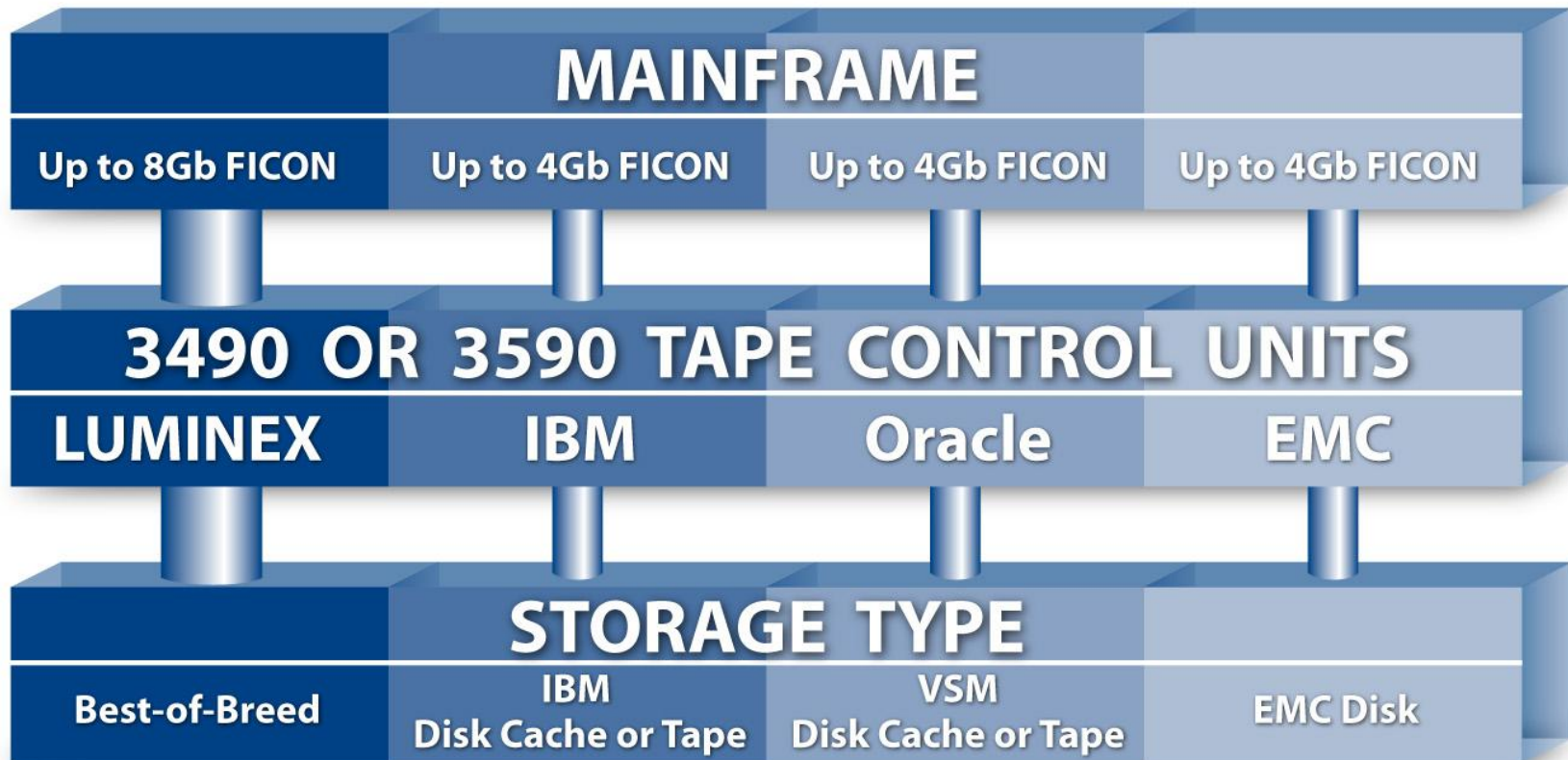
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Discussion Topics

- Overview of Tapeless Virtual Tape Control Units
- Common Customer Challenges & Goals for Tape
- Introduction of the Customer Panel
- Frequently Asked Questions
 - Additional questions from the audience
- Other features and options

Mainframe Virtual Tape Control Units

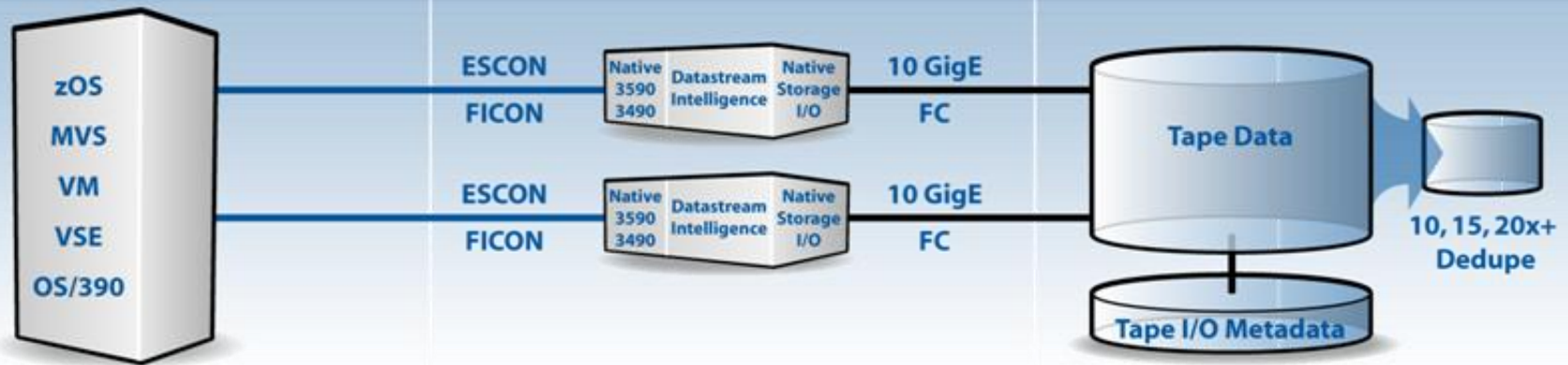


Luminex Channel Gateways (*Virtual Tape Solutions*)

- Application Transparent
- Up to 8Gb FICON support at wire speed
- Tape Migration Tools & Services to ensure a smooth transition
- Scalable in throughput & capacity
- Backed by the industry's Subject Matter Experts in disk-based virtual tape



How Luminex Tapeless Virtual Tape solutions work...



Mainframe

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

Luminex Channel Gateways

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

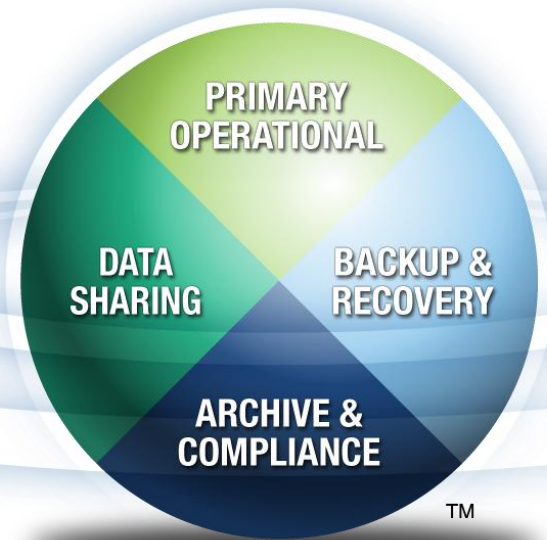
Any Enterprise Storage System

- NFS or FC attached
- Mainframe Tape Volumes stored as standard files
- Data Deduplication optimized
- Replication for backup and Disaster Recovery

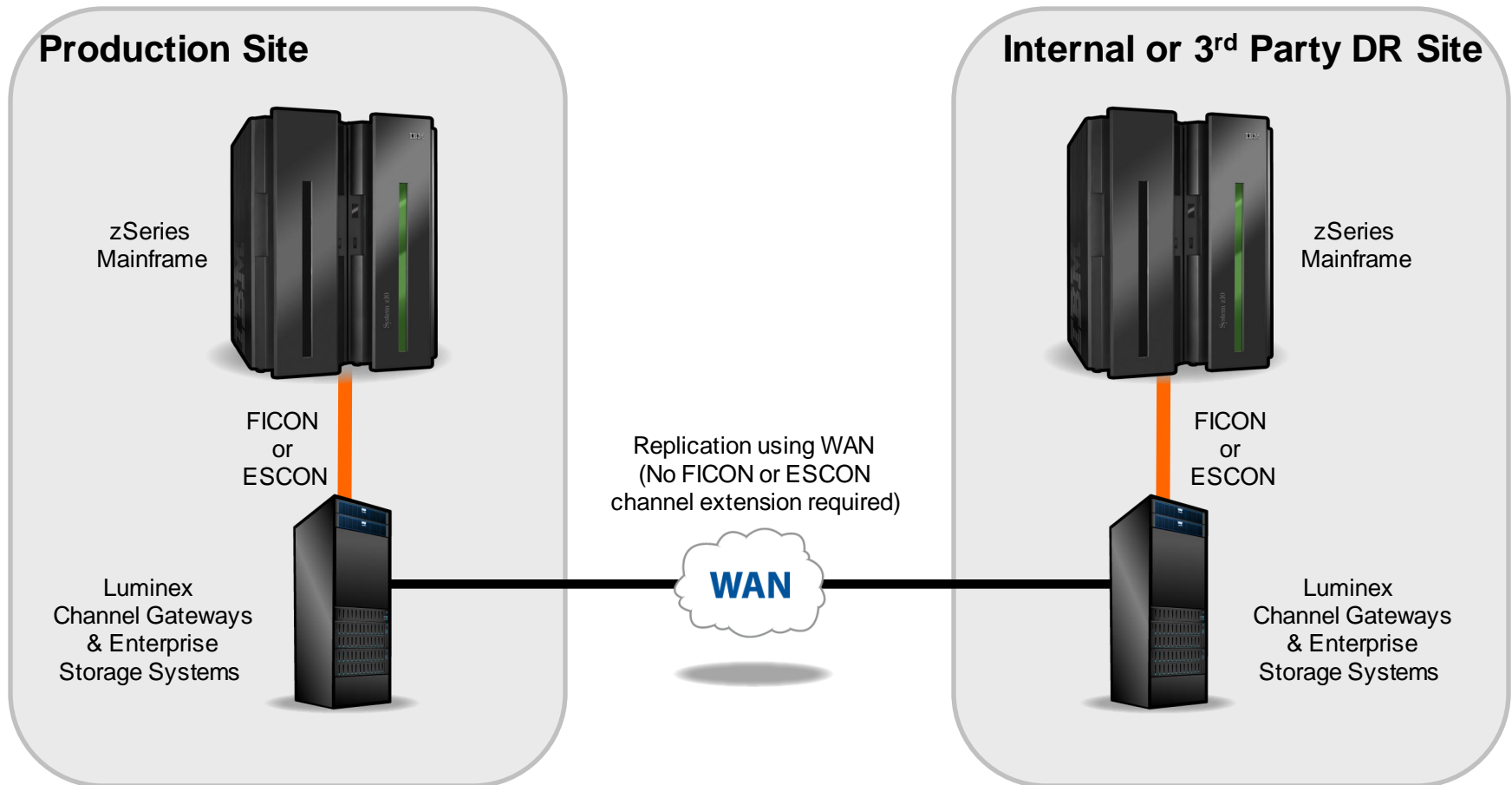
Solutions For All Mainframe Tape Use

Mainframe Storage World:

- ✓ Primary copies of data on tape
 - ✓ Including batch processing
- ✓ Backup and Disaster Recovery
- ✓ Archiving and Compliance
 - ✓ Including HSM/ML2
- ✓ Sharing data internally & externally



Typical Production & DR Configuration



In Case You Missed SHARE Anaheim – Most Mainframes Data Centers Have Similar Challenges and Goals...



Specific Challenges and/or Goals :	WellsFargo DS	Kawasaki	Ingram	Govplace
Must replace aging mainframe tape products or products facing End of Support	✓		✓	✓
Improve tape reliability			✓	✓
Reduce tape maintenance, media, shipping & storage cost	✓	✓	✓	✓
Reduce or eliminate physical tape	✓	✓	✓	✓
Upgrade tape data protection and security	✓	✓	✓	✓
Improve & simplify all tape operations (Batch, HSM/ML2, Archiving, Backup & Rec.)	✓	✓	✓	✓
Physical tape limited the ability to improve the disaster recovery plan RPO & RTO	✓	✓	✓	✓
Improve remote disaster recovery plan (RPO & RTO)	✓	✓	✓	✓
Reduce network bandwidth requirements to replicate virtual tape data to the DR site	✓		✓	
Prefer a common virtual tape storage solution for mainframe & open systems DR	✓	✓	✓	✓

Q&A Topics

PHYSICAL TAPE

**MAINFRAME
APPLICATIONS**

**DATA
DEDUPLICATION**

**REMOTE
REPLICATION**

**REMOTE DISASTER
RECOVERY**

Q&A: Physical Tape

- Which tape drives, library or virtual tape products did you replace and why?
- Have you reduced or eliminated physical tapes (If so, please quantify the reduction in tape use)?
- How do you share tape cartridges between partners, vendors and internal remote sites?
- How do you meet security requirements for tape?
- How did you migrate the old physical tapes to the new solution? ...

Q&A: Mainframe Applications

- Which tape backup applications and tape management systems are you using?
- Did you have to make any changes to your tape applications?
- How does the solution integrate or sync up with your tape management system for scratch management?
- Which of the following is the solution used for:
 - Production tape and batch processing
 - HSM/ML2/Archiving
 - Backup & Disaster Recovery ...

Q&A: Data Deduplication

- Are you using data deduplication for all tape data, (Including batch, HSM/ML2, archiving, backup & recovery?)
- What deduplication rates are you experiencing?
- How do you measure & monitor your deduplication rates?
- ...

Q&A: Remote Replication

- What type of WAN connection are you using to replicate your tape data to the DR site?
- Do you replicate all of your mainframe tape data, including development, HSM/ML2, batch & backups?
- How long does it take to complete the replication to DR?...

Q&A: Remote Disaster Recovery

- Do you use an internal DR site, Sungard, IBM BCRS or other provider for DR?
- Do you own the solution at the DR site or does the third party provider own/provide it?
- Please describe your DR process or DR test process? ...



Trustmark

Banking and Financial Solutions

End User Experience

Linda Fisher
Systems Programmer
Trustmark Corporation

The Company

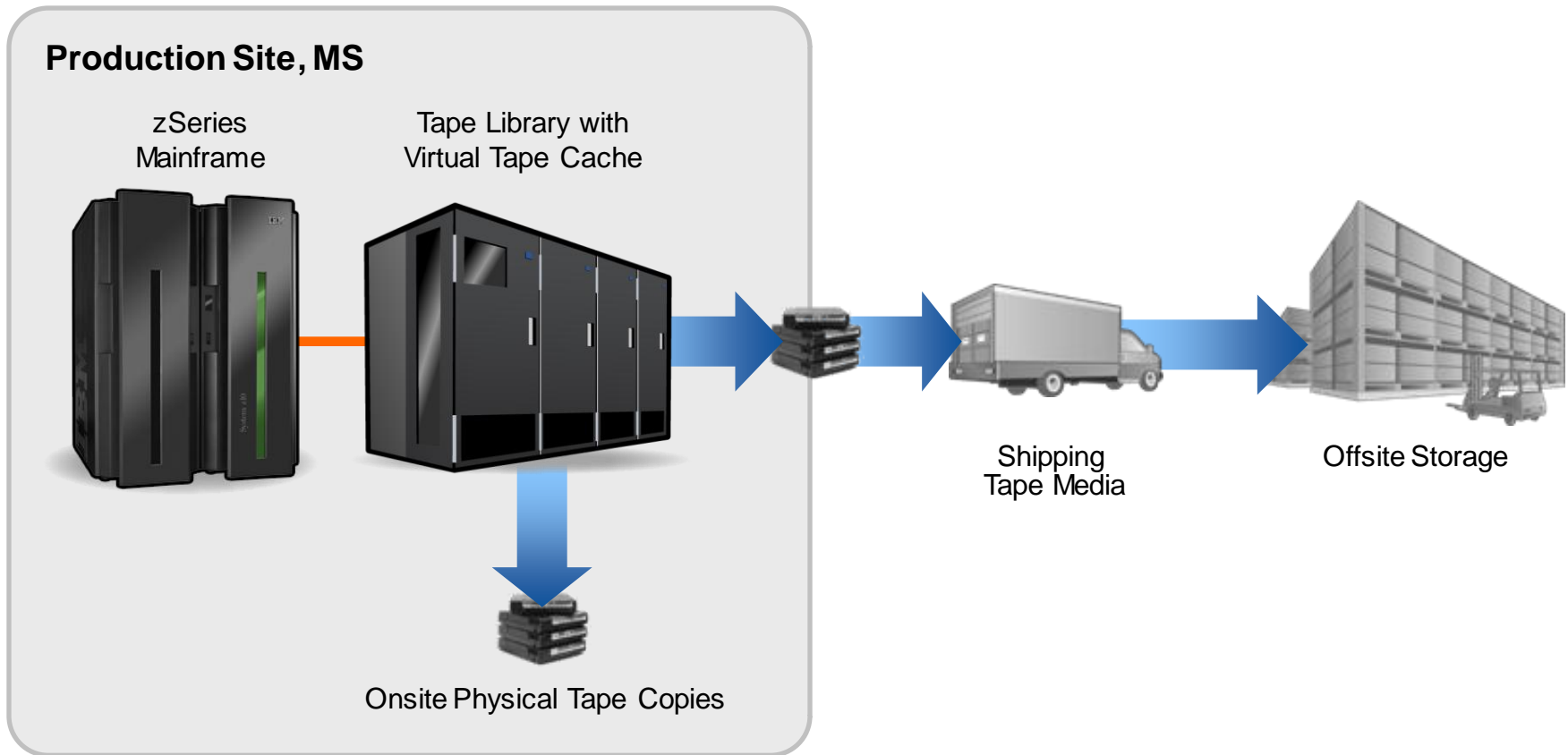
- Established in 1889
- Diversified financial services company providing banking, wealth management and insurance solutions
- \$9.8 billion in assets
- Over 2,600 employees
- Locations in Florida, Mississippi, Tennessee and Texas
- Subsidiaries include Trustmark National Bank, TRMK Risk Management, Inc., Trustmark Investment Advisors, Inc., The Bottrell Insurance Agency, Inc. and Fisher-Brown, Inc.

What were our Goals and Objectives?

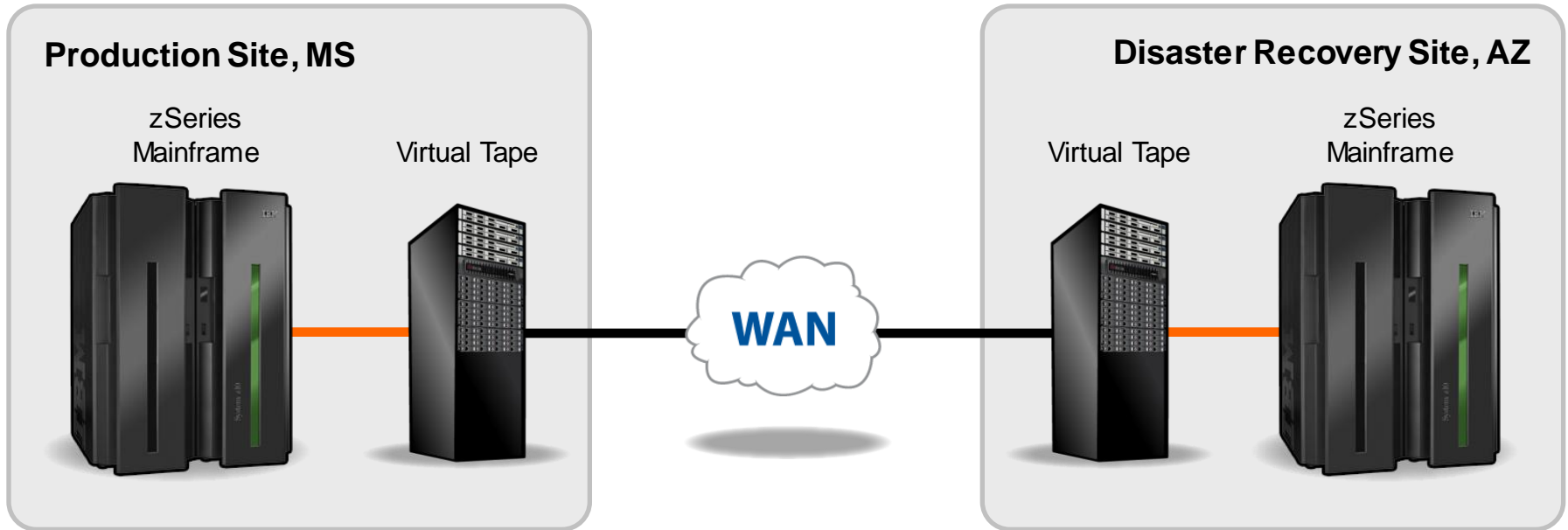
Challenges/Goals:

- New OCC laws required a new disaster recovery plan
- Faster, more reliable disaster recovery
- Remote replication
- Reduce or eliminate mislabeled/missing tapes
- Improve DB2 operations and backup

Previous Tape Environment



New Tape Environment



How Did We Do?

We Achieved Our Goals:

- ☑ New multi-site DR plan has been implemented using remote replication for DASD and tape data
- ☑ 3 successful DR tests: 2 full, 1 limited – all painless and fast
- ☑ No physical tape is required for DR
- ☑ Recovery time improved – ***from 13+ hours to about an hour!***
- ☑ Reduced cost for tape transportation, media and vaulting
- ☑ Nightly processing time reduced by 2-3 hours
- ☑ The solution performs better for all applications, including DB2
- ☑ 99% Tapeless, physical tapes only used for input and sharing



End User Experience

Benjamin Fernbach
Systems Programmer
Health Management Systems



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

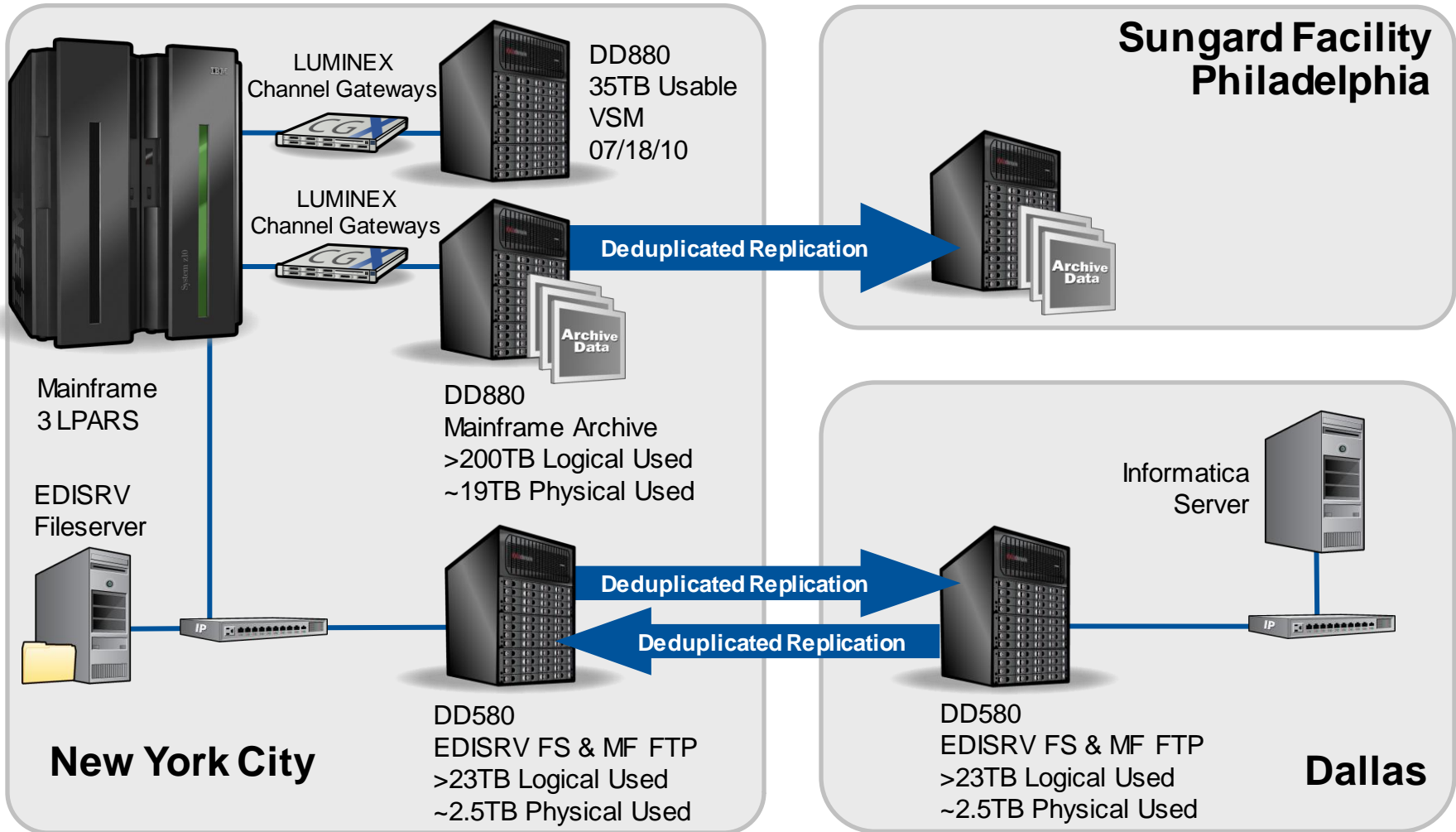
zSeries
Mainframe



Content Addressed Storage
For Archiving



New 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



DD880
Mainframe
EA archive



DD880
VSM, SMF,
FTP & EDI

EDISRV
Fileserver

New York City

DD880



Watertown Facility



TSM/NBU Backup Environment

Informatica
Server

NFS/OST
Up to 5.4TB/hr

CIFS
Up to 2.5TB/hr



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



TSM/NBU Backup
Environment

Irving Facility

Data Deduplication Rates

Mainframe



Luminex Channel Gateways
with
Deduplication Storage

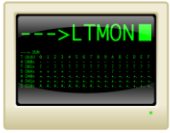


	Pre	234,608.4	DEDUPLICATION RATE	STORAGE REDUCTION
Currently Used (GB):	Post	19,266.5	12.2x	91.8%
Last 7 Days:	Pre	879.8	14.5x	93.1%
	Post	60.7		
Last 24 Hours:	Pre	145.5	20.8x	95.2%
	Post	7.0		

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 used for archiving
- ✓ Reduced storage requirements via 12x+ deduplication
- ✓ The solution performs better and does not need DB2 for archiving applications

Customer-Driven Product Enhancements



LTMON™

- **Luminex Tape Monitoring:** Brings **mainframe console integration** to Channel Gateway virtual tape solutions



RepMon™

- **Replication Monitoring:** Provides **real-time monitoring** of virtual tape data writes and replication to a remote disaster recovery site



SyncCopy™

- **Synchronous Replication:** Enforces **tape data consistency** across replicated storage systems with remote status monitoring of tape availability and integrity