Mainframe Tape Without Tapes – Users Share Their Perspectives

Art Tolsma
CEO
Luminex Software, Inc.

Benjamin Fernback
Systems Programmer
Health Management Systems

Linda Fisher
Systems Programmer
Trustmark Corporation

Oscar Rodriguez
Vice President
Barclays Capital

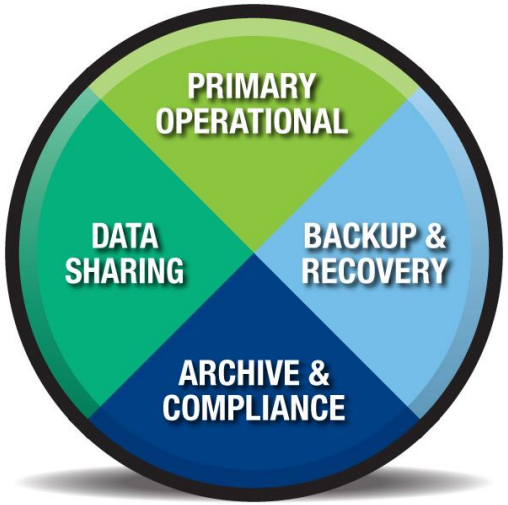
Agenda

- What is Mainframe Tape?
- Why Physical Tape?
- Panel Discussion
- Additional Q&A

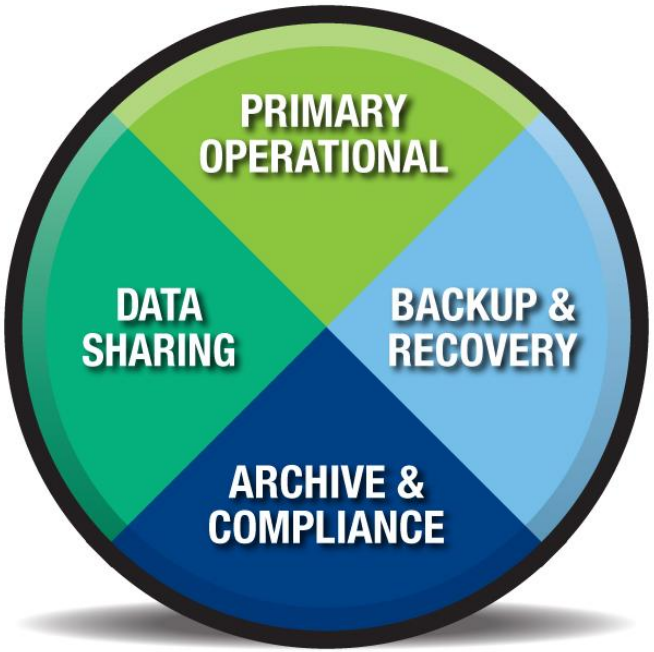
What is Mainframe Tape?

- 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



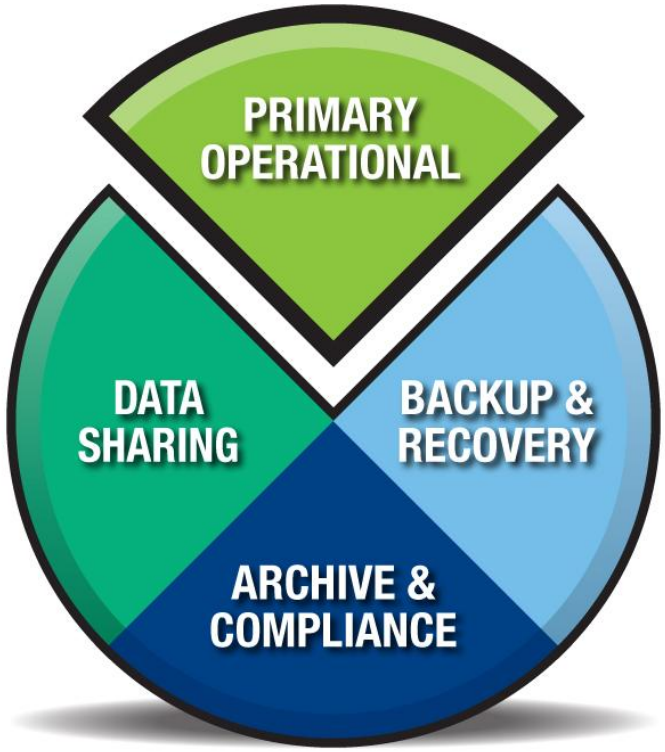
What is Mainframe Tape?



The Mainframe Storage World

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

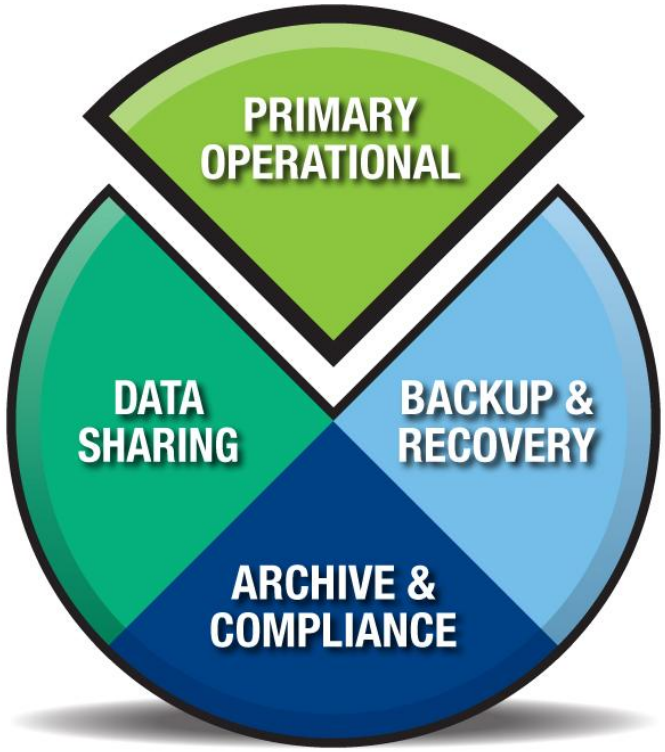
Why physical tape?



Most mainframe virtual tape products address this usage environment

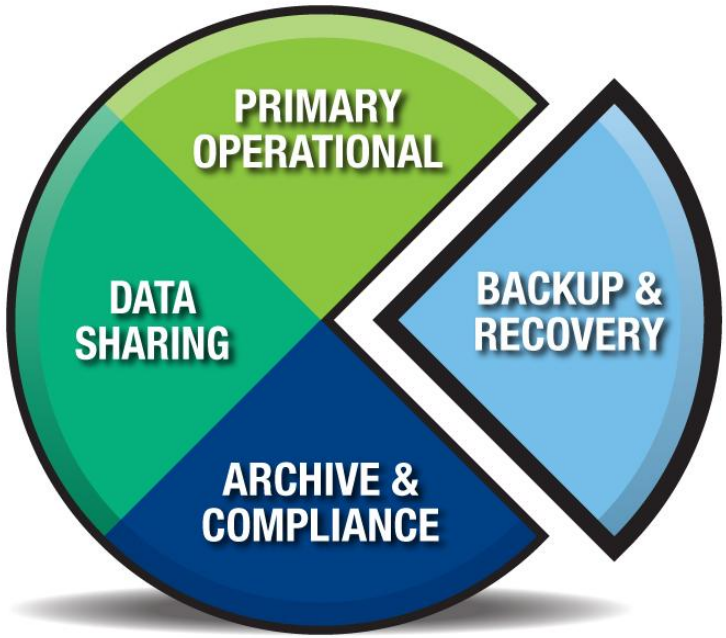
- Applications want disk-based response and performance with host tape management
- Tape drives designed and used like disk drives – 100% duty cycles with fast seek
- Virtual tape products eliminate media capacity waste

Why physical tape?



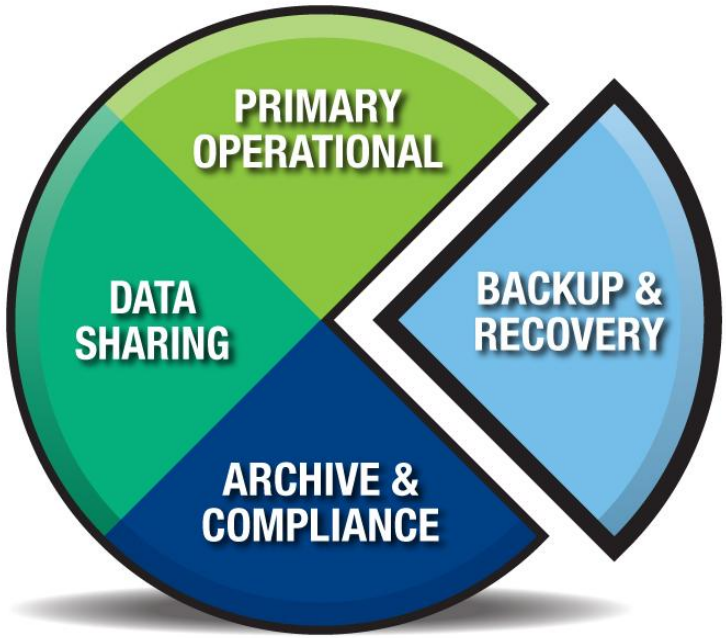
- For active data disk storage media is the naturally better fit than physical tape media
- What is the driving factor for physical tape media usage?
  - Portability?
  - Cost?
  - Power?
  - Performance?
  - Simplicity?
- For active data each goal can be served better without requiring physical tape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

Why physical tape?



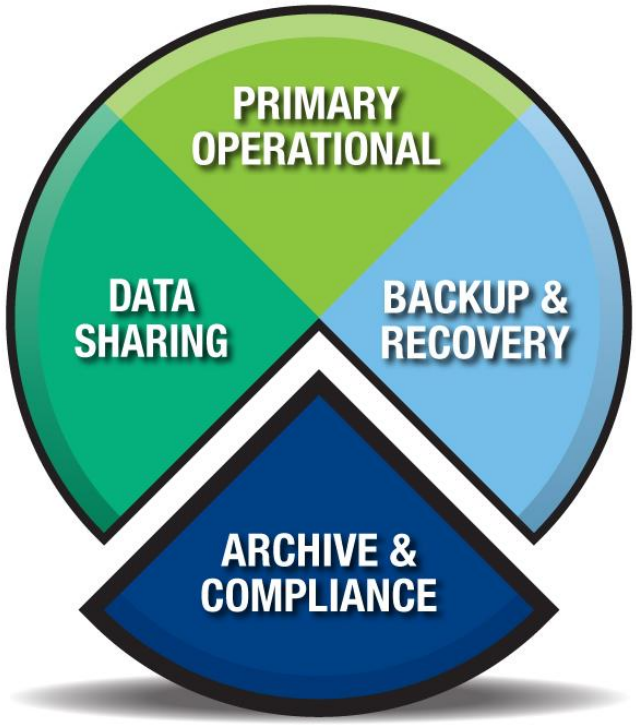
- Stand-alone and direct-attach library-based tape drives are commonly used
- Host-based backup software is able to fill physical media and stream large volumes quickly.
  - Large volume support not typical with traditional tape-dependent virtual tape systems
- Portability is a primary value with native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

Why physical tape?



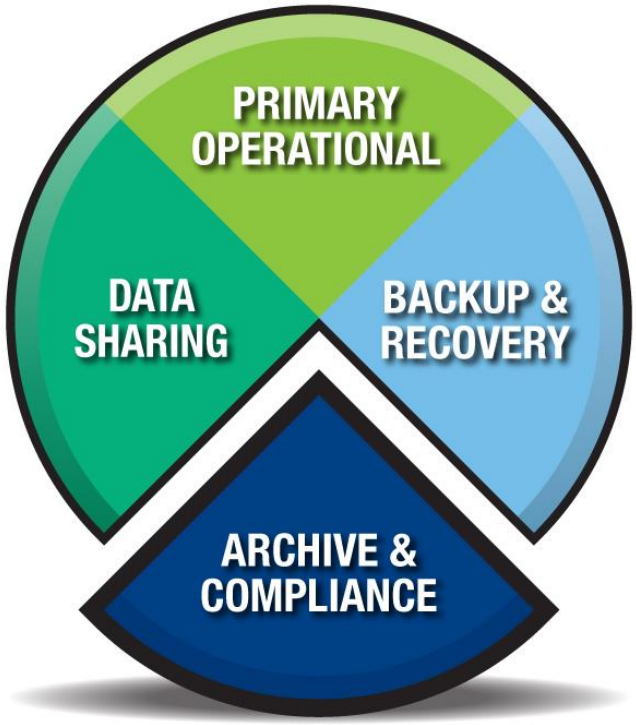
- Shipping unencrypted tapes has become a liability
- Open-systems infrastructure has demonstrated the viability of replicating backup data to remote recovery sites – especially with data deduplication
- Sharing network infrastructure with open-systems is viable (no channel extension) and simplifies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

Why physical tape?



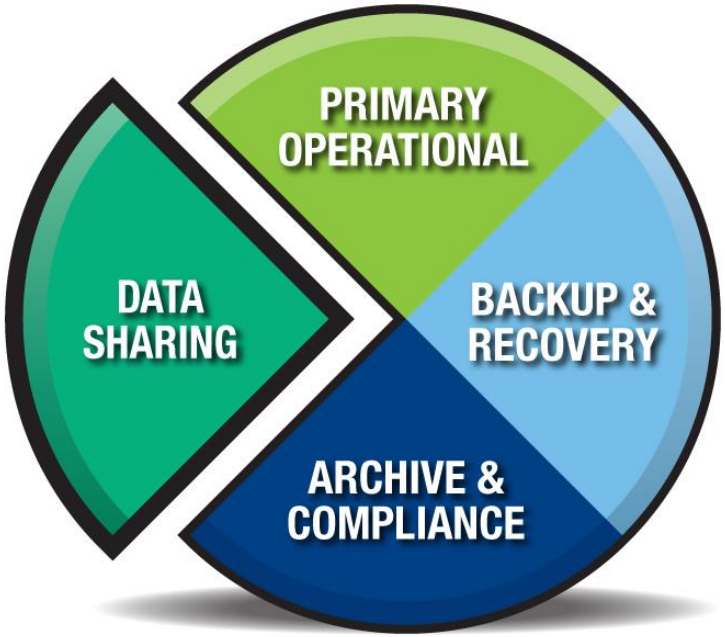
- Host archiving applications like HSM and OAM typically use direct-attached library based tape drives
  - Applications are intelligently designed to fill large physical tape media
- Shelf-based tape media is also common and viable

Why physical tape?



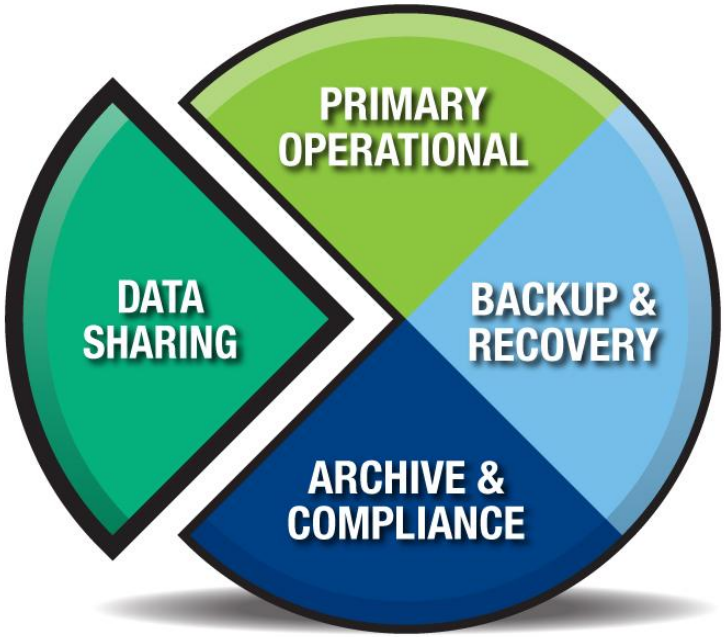
- The business need to access archive data quickly (internet response times) is growing
- Compliance requirements have generated an industry of capable disk-based archiving products
- A primary concern is long-term recoverability, which make industry standards more valuable than proprietary media solutions
- 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

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?

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Banking and Financial Solutions

End User Experience

Linda Fisher
Systems Programmer
Trustmark Corporation

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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.

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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

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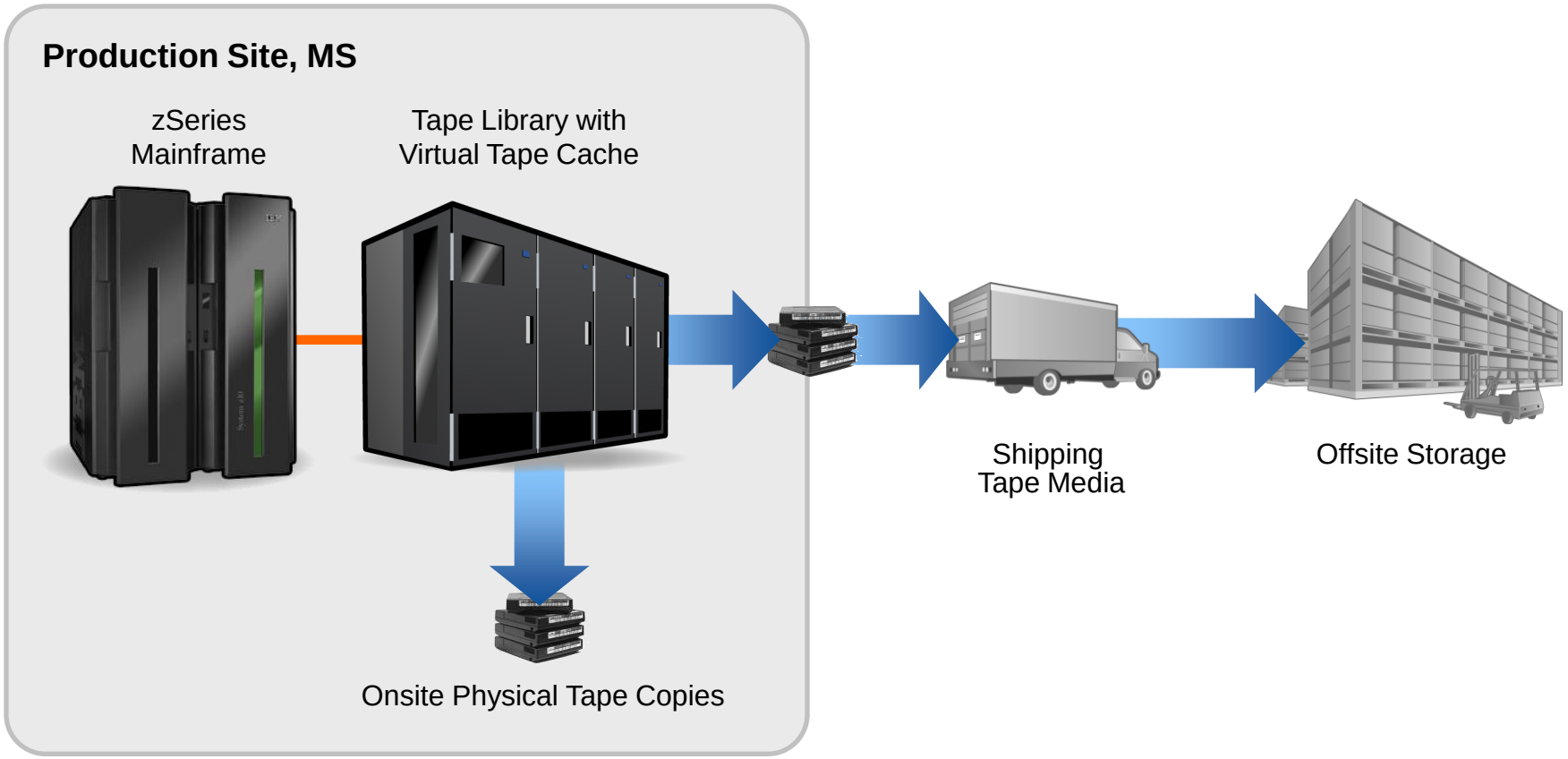
Previous Tape Environment



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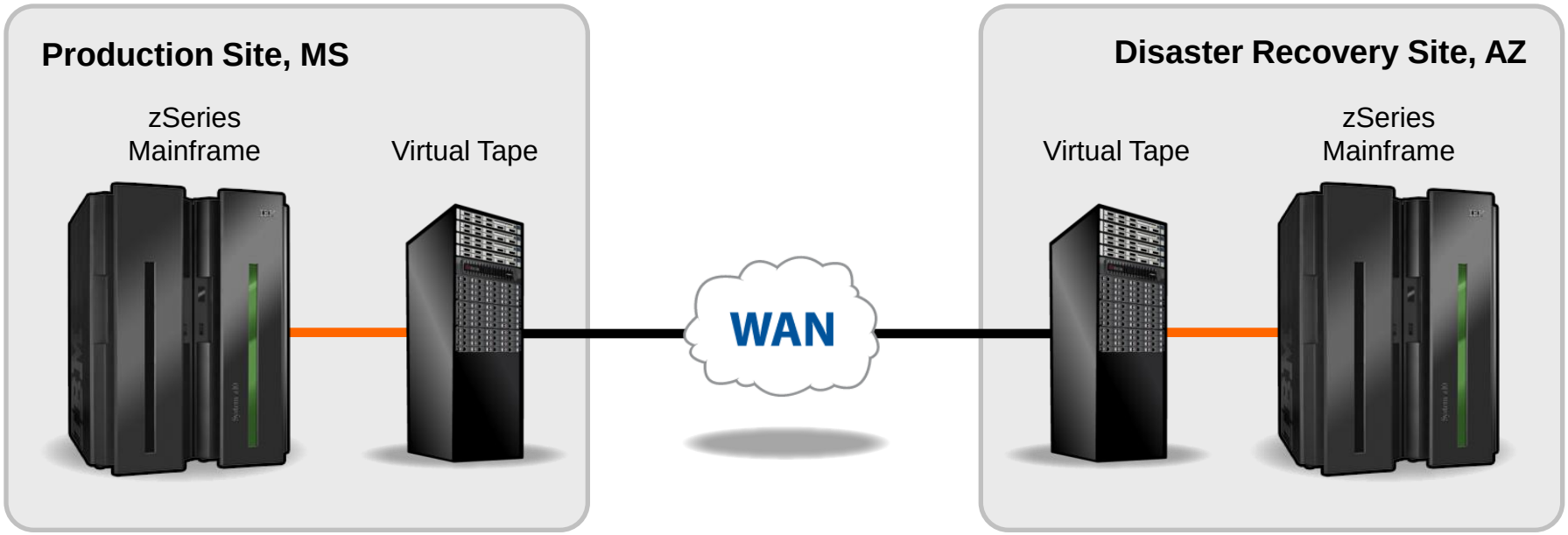
New Tape Environment



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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:

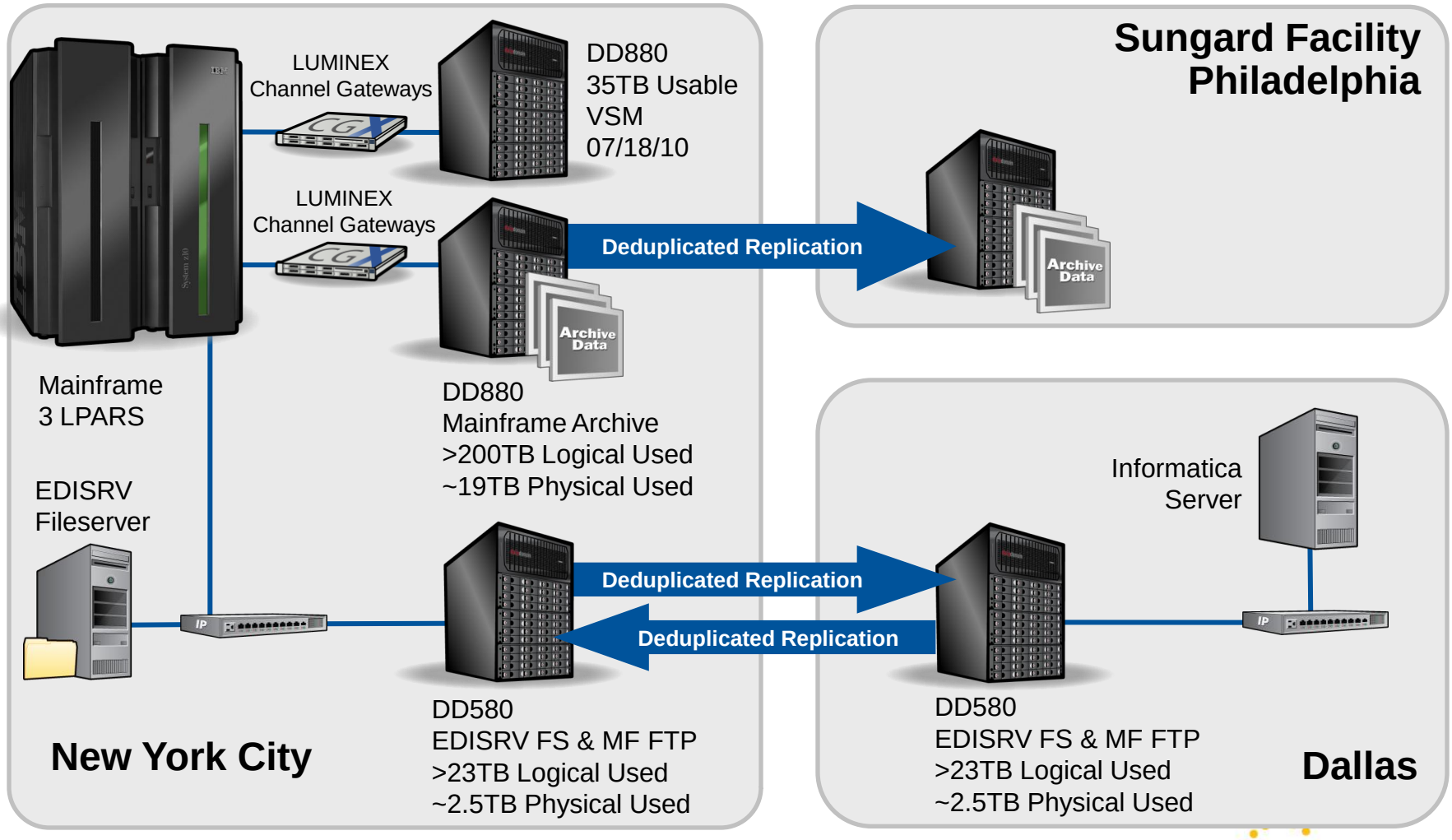
- Resolve performance limitations related to archiving with content addressed storage
- Implement a better disaster recovery plan
- Replace aging tape or virtual tape products

Previous Mainframe Archiving Environment

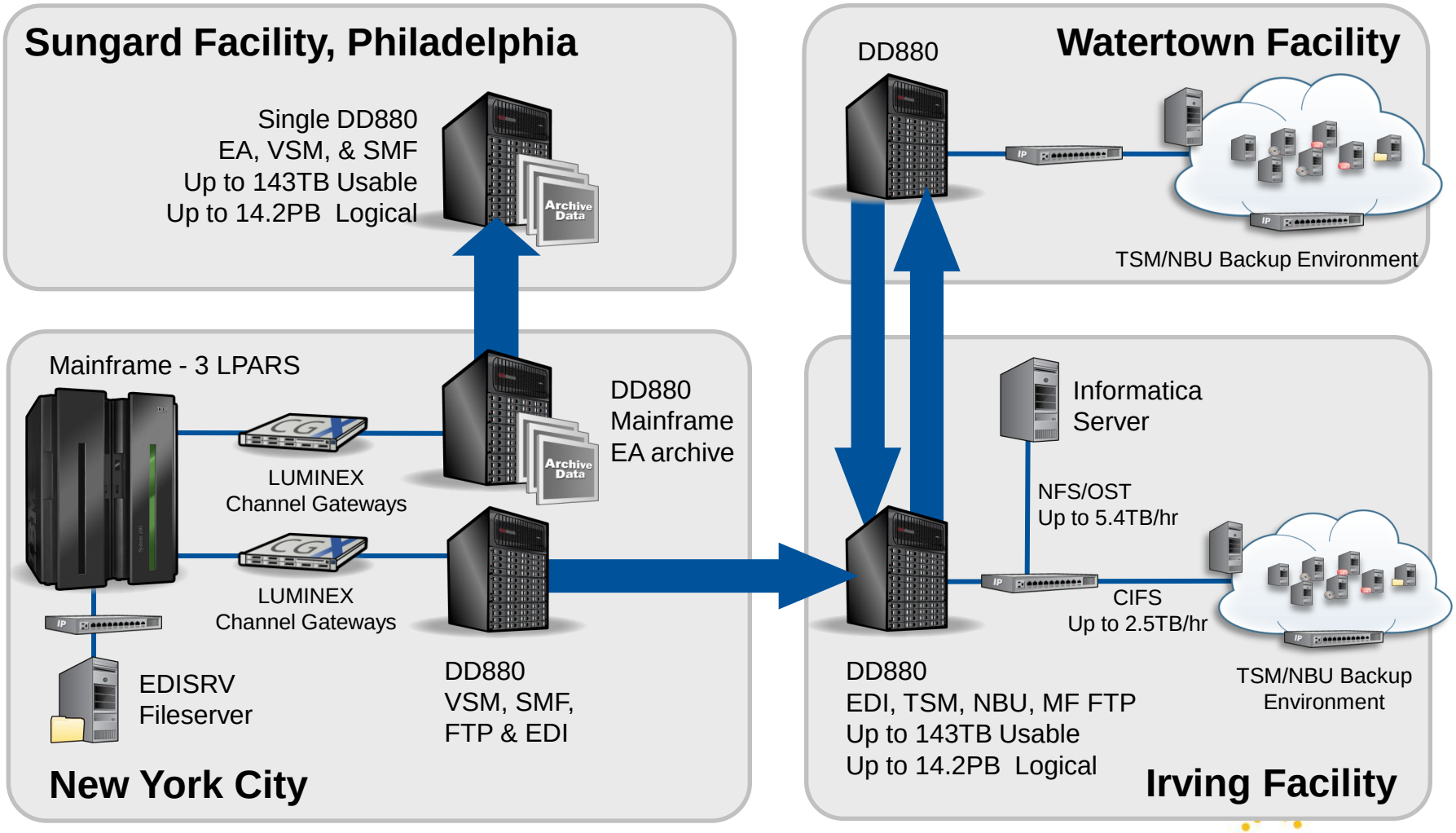
zSeries
Mainframe

Content Addressed Storage
For Archiving

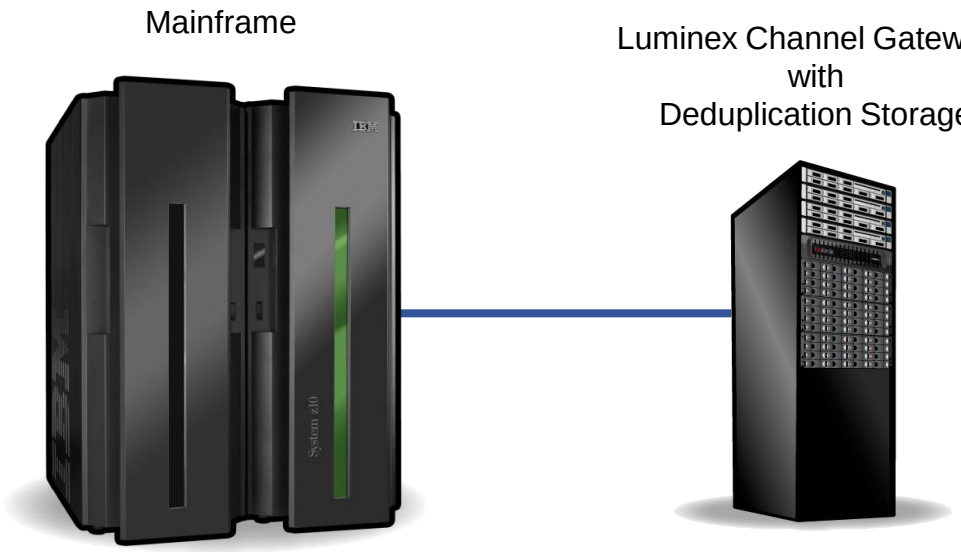
New Environment



Luminex – EMC Data Domain Environment



Data Deduplication Rates



			DEDUPLICATION RATE	STORAGE REDUCTION
Currently Used (GB):	Pre	234,608.4	12.2x	91.8%
	Post	19,266.5		
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		

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

End User Experience

Oscar Rodriguez
Vice President
Barclays

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The Company

Background

- Over 300 years of history and expertise in banking
- A major global financial services provider engaged in retail banking, credit cards, corporate and investment banking and wealth management
- Operates in over 50 countries
- Serves over 48 million customers worldwide
- Employs 147,500 people

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What were our Goals and Objectives?

Challenges/Goals:

- Consolidate mainframe operations
- Shipping tape library deemed too risky
- Maintain remote access to archives from UK to US without expensive channel extenders
- Mainframe lease term expiring, need to migrate 380,000 VOLSERs in 48 days (or faster)

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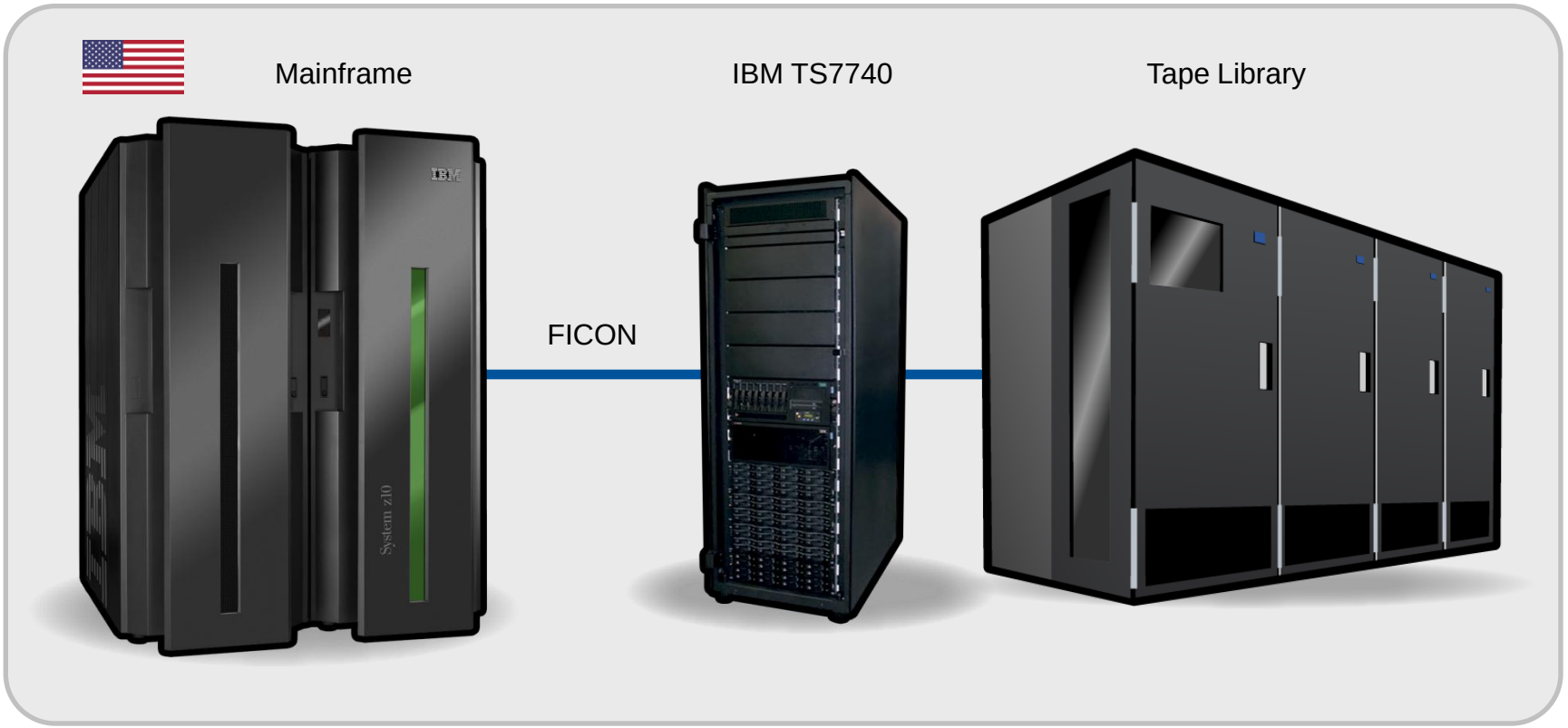
Previous Mainframe Environment



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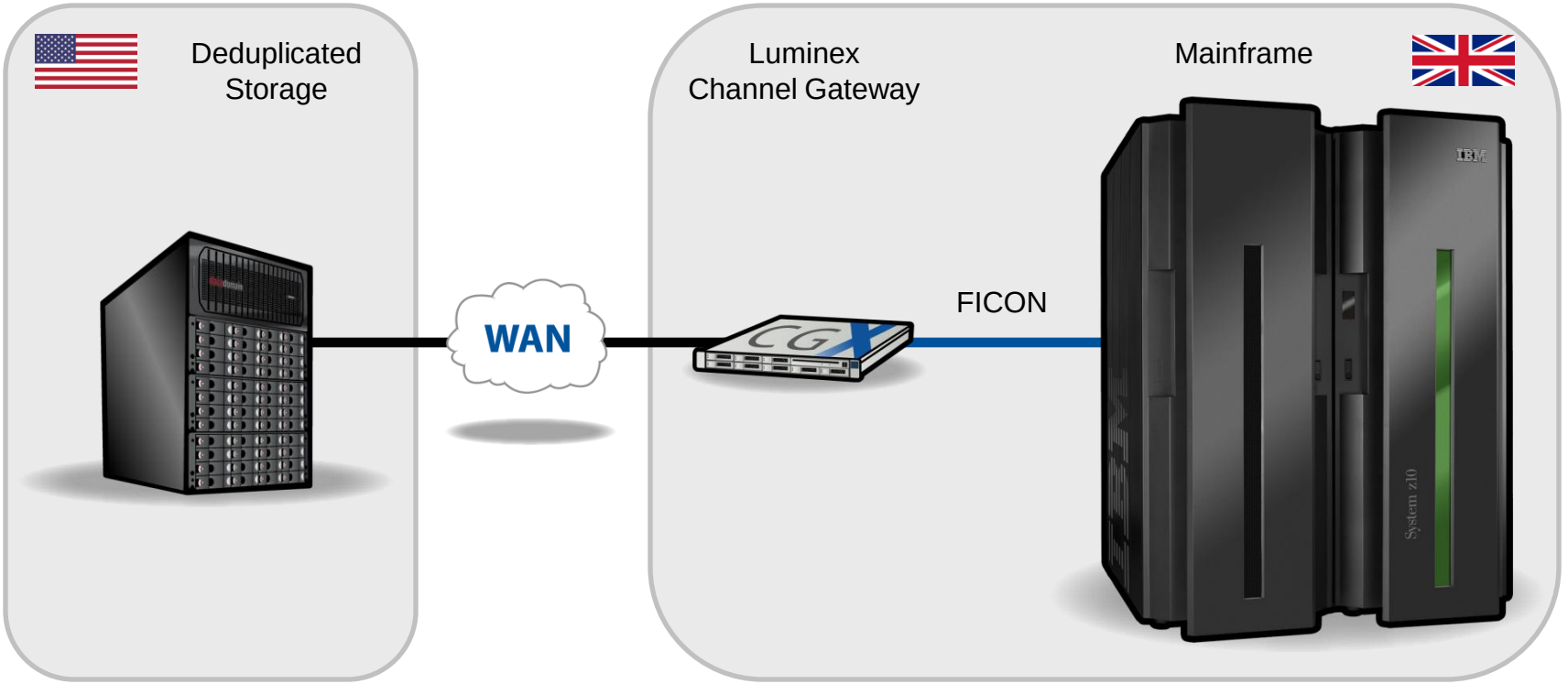
New Environment



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How Did We Do?

We Achieved Our Goals:

- ☑ Tape migration completed within 60 days
- ☑ Eliminated cost of channel extenders with deduplication and low cost WAN
- ☑ Eliminated risk of physically moving the tape library
- ☑ Eliminated expense of keeping multiple frames vs. a single rack solution:
  - ☑ Power
  - ☑ Cooling
  - ☑ Physical floor space

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End User Experience

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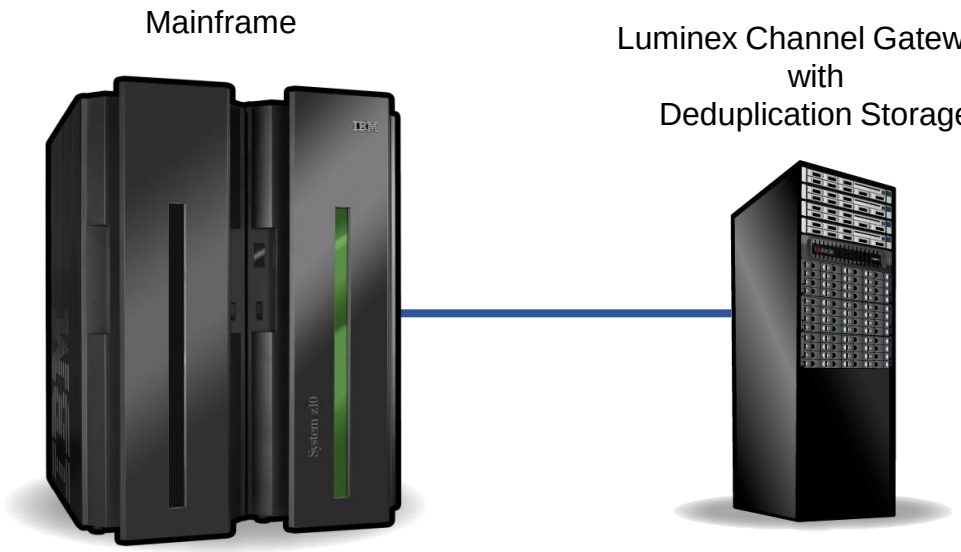
Data Deduplication Rates



			DEDUPLICATION RATE	STORAGE REDUCTION
Currently Used (GB):	Pre	233,911.8	10.6x	90.6%
	Post	21,998.2		
Last 7 Days:	Pre	62,509.9	13.0x	92.3%
	Post	4,804.3		
Last 24 Hours:	Pre	7,985.6	13.8x	92.7%
	Post	579.0		

Q&A

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Thank You

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