SHARE - Lunch & Learn
Going Tapeless on Mainframes: A Customer Panel Discussion
Session #13150, February 5th, 2013

Scott James
VP, Global Alliances
Luminex Software, Inc.

Wade Juza
Technical Support Manager – Mainframes
Acuity Insurance

John Fair
Systems Programmer
Hormel Foods

Tom Wiatt
Mainframe Systems Programmer
Northwest Regional Data Center
Discussion Topics

- Tape vs. Tapeless
- Virtual Tape & Options
- Customer Panel Discussion:
  - Hormel
  - Acuity
  - NWRDC
- A TCO/ROI Example
Tape vs. Tapeless

- Tape and tape robotics cause slower tape data retrieval, batch and HSM processing
- Additional cost of media, shipping and off site storage
- Security risk associated with lost tapes
- Physical tape imposes limits on DR planning and execution
- Limits customers to only two primary vendors for physical tape
Luminex mainframe virtual tape solutions offer:

- **Modular Design** - Scales from entry to high-end mainframe environments
- **Highest Performance** & FICON connectivity options available in the industry
- **Investment Protection** - Storage used can also be re-deployed as primary disk storage (Mainframe or open)
- **Hundreds** of referenceable customers worldwide
- **More Options**… a Better Solution
Luminex MVT Environment
How the Solution Works

Mainframe
- Application transparent – non-intrusive
- No MIPS required
- z/OS, MVS, VM, VSE and OS/390 supported
- Works well with all major tape management systems
- SMS via MTL or Esoterics can be used

Luminex Channel Gateways
- Emulates 3490 or 3590 mainframe tape drives
- “Wire Speed” up to 8 Gb FICON
- Hardware Compression Option
- DataStream Intelligence™ optimizes compression
- Active – Active with NSPOF
- Encryption and Key Management Option
- Modular design makes adding throughput and capacity easy and cost effective
- Industry standard server can act as an open systems backup client (CommVault, TSM, etc.)

Storage Systems
- Internal, NFS or Fibre Channel attached
- Mainframe tape volumes stored as standard files
- Replication for backup/DR
- RAID 6 Data Protection
- Enterprise and modular storage systems are supported
# Luminex Virtual Tape & Options

## CGX
- Core product with up to 8Gb FICON, SMEs & hundreds of customers going tapeless

## STORAGE OPTIONS
- **Internal Storage**
- **Enterprise storage options**
- **Modular storage options**
- **Cloud-based tape vaulting solution for mainframes**

## OPTIONAL FEATURES
- **RepMon**
  - Monitors replication at the VOLSER level
- **CGSafe**
  - Encryption and key management
- **LTMON**
  - Integrated, centralized management from the mainframe console
- **DCS**
  - Data Center Swap with reverse replication
- **Compression and/or deduplication**
- **Replication at the control unit or storage level**
- **Single source for Virtual Tape and Tape Migration**
- **Tape Monitoring (Device) and Allocation & Control System**

## RepMon
- Monitors replication at the VOLSER level

## CGSafe
- Encryption and key management

## LTMON
- Integrated, centralized management from the mainframe console

## DCS
- Data Center Swap with reverse replication

## CloudTAPE
- Cloud-based tape vaulting solution for mainframes

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**Notes:**
- CGX
- RepMon
- CGSafe
- LTMON
- DCS
- CloudTAPE

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About Hormel

- Hormel Foods Corporation is based in Austin, MN
- We’re a member of the Standard & Poor's (S&P) 500 Index
- We're a multinational manufacturer and marketer of consumer-branded food and meat products, including SPAM
Goals and Objectives

- Replace aging tape and 3494 tape libraries
- Reduce maintenance costs
- 10+ year old 3590 tape cartridges
- Leverage the new solution to enhance disaster recovery preparedness
- Improve HSM Performance
Hormel’s New Solution & Configuration

**Production Site**
- Production Mainframe IBM z10
- Luminex MVT
  - Channel Gateway X
  - FICON Channels
  - 4:8:1 Compression
  - Raid 6
  - Installed in a standard rack

**Disaster Recovery Site**
- Production Mainframe IBM z9
- Luminex MVT
- 4 Gb FICON Channels

**IP Replication**
- 1 GbE x2 Bonded

**Bunker**
- Future

4 Gb FICON Channels
1 GbE
1 GbE
Benefits/Achievements

- Tape data is retrieved using high speed disk, instead of physical tape & tape robotics
- Data retrieval via HSM is now instantaneous
- It is no longer necessary to write two copies of each tape
- Tape data is replicated between two sites using Luminex Replication
- Replication is monitored at the VOLSER level using Luminex RepMon
- Only 2U of rack space is required for MVT
- Our disaster recovery plan has been dramatically improved
- All tape volumes are immediately available locally & at the remote site for DR
About Acuity

- In business since 1925 and listed in the top 75 largest insurers in the nation, with $2.43 billion in assets
- Writes a broad spectrum of property and casualty coverages for families and businesses in 20 states with 243,000 policies
- $1 billion in annual revenue through over 1,000 independent agencies
- Named a Top 500 Technology Company by InformationWeek for eight straight years
- Employs 850 people
What were our Goals and Objectives?

- Lower operating and maintenance costs
- Shorten batch and backup windows
- Improve, simplify the Disaster Recovery process
Previous Tape Environment

Production Site

- Production Mainframe
- IBM zSeries
- ESCON
- IBM Tape Library
  3494 with VTS B10

DR Site

- Production Mainframe
- IBM zSeries
- ESCON
- IBM Tape Library
  3494

Offsite Storage

Shipping Tape Media
New Tape Environment

Production Site
- Production Mainframe IBM zSeries
- Luminex MVT Channel Gateway
- Mainframe Virtual Tape Control Units with Deduplication Storage
- 8 Gb/s FICON
- Existing Rack

DR Site
- DR Mainframe IBM zSeries
- Luminex MVT Channel Gateway
- Mainframe Virtual Tape Control Units with Deduplication Storage
- 8 Gb/s FICON
- Existing Rack
Floor Space Savings

BEFORE

AFTER

No new floor space required…
Installed in an existing rack
How Did We Do?

Benefits/Achievements

- We’re completely tapeless!
- Going tapeless cost significantly less than continuing with physical tape
- Reduced MSUs by 30% during batch processing by shifting encryption from the host to the virtual tape storage system
- Significantly reduced floor space – installed into existing rack
- Shortened batch windows by 2.5 hours
- Backups are at the DR site within minutes
- Reduced DR testing time from 8 hours down to 3 hours
- Took full advantage of our upgrade to 8 Gb/s FICON
Northwest Regional Data Center (NWRDC)

- NWRDC's primary data center is based in Tallahassee, FL
- Our disaster recovery hardware is based in Atlanta, GA
- We're a leading provider of computing, support and application hosting
- The center primarily serves the governmental and educational community
- We also provide center-based disaster recovery services including hot, warm or cold sites
Goals and Objectives

- Storage Consolidation
- Implement Higher Capacity Remote Replication for Virtual Tape
- Plan ahead for replacement of aging tape libraries
NWRDC's New Solution & Configuration

Production Site
Tallahassee, FL

Mainframe
IBM z10

Open Systems

Luminex CGX

Fibre Channel Switch

Fibre Channel

HDS VSP with Virtualized AMS

VSP
Mainframe Primary Disk and Open Systems

AMS
Mainframe Virtual Tape

HUR Replication

DR Site
Atlanta, GA

HDS VSP
How Did We Do?

Benefits/Achievements

☑ Virtual tape is continuously replicated to Atlanta using Hitachi Universal Replicator (HUR)
☑ Tape backup times have been reduced by 80%
☑ Replication for DR has been simplified (using HUR for DASD and virtual tape)
☑ The aging tape libraries are being phased out
☑ Storage Consolidation helps to simplify and provide predictable customer pricing via Capacity-On-Demand
Q&A – Panelists

- **John Fair**
  *Hormel Foods*

- **Wade Juza**
  *Acuity Insurance*

- **Tom Wiatt**
  *Northwest Regional Data Center*

- **Scott James**
  *Luminex Software, Inc.*
ROI and TCO Report Example

Executive Summary
Luminex has reviewed the existing mainframe tape environment for Regional Utility, assessed the requirements for growth over the next 5 years, and configured an MVT solution that will improve tape operations while providing significant cost savings.

Analysis highlights:
- **Anticipated 5 Year Savings**: $116,230
- **Estimated Cost of a 3 Month Delay** : $5,811
- **Break Even Period**: 33 months

The following sections detail estimated cost comparisons on a yearly and cumulative basis, and list intangible costs, benefits and savings to consider when selecting your mainframe tape solution.

### Estimated Costs

<table>
<thead>
<tr>
<th></th>
<th>Status Quo</th>
<th>Luminex Solution</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition Cost</td>
<td>$160,000</td>
<td>$138,029</td>
<td></td>
</tr>
<tr>
<td>Monthly Hardware Maintenance</td>
<td>$4,750</td>
<td>$4,333</td>
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</tr>
<tr>
<td>Monthly Software Maintenance</td>
<td>$60</td>
<td>$50</td>
<td></td>
</tr>
<tr>
<td>Monthly Power Space Costing</td>
<td>$504</td>
<td>$319</td>
<td></td>
</tr>
<tr>
<td>Monthly Physical Tape/Shipping</td>
<td>$5,030</td>
<td>$50</td>
<td></td>
</tr>
<tr>
<td>Monthly Staff</td>
<td>$363</td>
<td>$19</td>
<td></td>
</tr>
</tbody>
</table>

### Simple Cash Flows (Yearly)

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>$265,000</td>
<td>$261,039</td>
<td>$260,000</td>
<td>$260,000</td>
<td>$260,000</td>
<td>$1,320,000</td>
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<tr>
<td>Luminex Solution</td>
<td>$233,469</td>
<td>$231,027</td>
<td>$231,027</td>
<td>$231,027</td>
<td>$231,027</td>
<td>$1,155,000</td>
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<tr>
<td>Savings, Undiscounted</td>
<td>$31,531</td>
<td>$30,012</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$150,000</td>
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<tr>
<td>Savings, Discounted</td>
<td>$31,531</td>
<td>$30,012</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$150,000</td>
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<thead>
<tr>
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<th>Year 1</th>
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<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Break Even Period</td>
<td>33 mo.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33 mo.</td>
</tr>
<tr>
<td>ROI over 3 years</td>
<td>23%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23%</td>
</tr>
<tr>
<td>Cost of 3 Month Delay</td>
<td>$5,811</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$5,811</td>
</tr>
</tbody>
</table>

### Simple Break Even (Cumulative Numbers)

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>$1,806,909</td>
<td>$2,052,104</td>
<td>$2,450,027</td>
<td>$2,450,027</td>
<td>$2,450,027</td>
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<tr>
<td>Luminex Solution</td>
<td>$1,806,909</td>
<td>$2,052,104</td>
<td>$2,450,027</td>
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CONFIDENTIAL to Luminex Software, Inc. and Regional Utility
Executive Summary

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Analysis highlights:

Anticipated 5 Year Savings .................. $116,230
Estimated Cost of a 3 Month Delay .......... $5,811
Break Even Period .......................... 33 mo.

The following sections detail estimated cost comparisons on a yearly and cumulative basis, and list intangible costs, benefits and savings to consider when selecting your mainframe tape solution.
## Estimated Costs

<table>
<thead>
<tr>
<th></th>
<th>Solution</th>
<th>Luminex 120 TB MVT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting Date</td>
<td>1/1/2012</td>
<td></td>
</tr>
<tr>
<td>Cost of Capital</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Lifespan of Solution</td>
<td>5 years</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Status Quo</th>
<th>Luminex Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition Costs</td>
<td>$0</td>
<td>$260,000</td>
</tr>
<tr>
<td>Monthly Hardware Maintenance</td>
<td>$4,750</td>
<td>$4,333</td>
</tr>
<tr>
<td>Monthly Software Maintenance</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Monthly Power Space Cooling</td>
<td>$506</td>
<td>$219</td>
</tr>
<tr>
<td>Monthly Physical Tape/Shipping</td>
<td>$5,030</td>
<td>$0</td>
</tr>
<tr>
<td>Monthly Staff</td>
<td>$625</td>
<td>$70</td>
</tr>
</tbody>
</table>

Notes: Luminex acquisition cost includes monthly Hardware Maintenance for the first year. Luminex Software Maintenance costs are included in Hardware Maintenance. Costs include Production and DR facilities.

## Simple Cash Flows (Yearly)

<table>
<thead>
<tr>
<th></th>
<th>Investment</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>$260,000</td>
<td>$127,461</td>
<td>$75,461</td>
<td>$75,461</td>
<td>$75,461</td>
<td>$75,461</td>
<td>$485,343</td>
</tr>
<tr>
<td>Luminex Solution</td>
<td>$260,000</td>
<td>$130,929</td>
<td>$130,929</td>
<td>$130,929</td>
<td>$130,929</td>
<td>$130,929</td>
<td>$654,647</td>
</tr>
<tr>
<td>Savings, Undiscounted</td>
<td>($260,000)</td>
<td>$127,461</td>
<td>$75,461</td>
<td>$75,461</td>
<td>$75,461</td>
<td>$75,461</td>
<td>$169,304</td>
</tr>
<tr>
<td>Savings, Discounted</td>
<td>($260,000)</td>
<td>$121,391</td>
<td>$68,445</td>
<td>$65,186</td>
<td>$62,082</td>
<td>$59,126</td>
<td>$116,230</td>
</tr>
</tbody>
</table>

|                        |            |         |         |         |         |         |           |
| Break Even Period      | 33 mo.     |         |         |         |         |         |           |
| ROI over 5 years       | 35%        |         |         |         |         |         |           |
| Cost of 3 Month Delay  | $5,811     |         |         |         |         |         |           |

Calculated using undiscounted savings above
Simple Break Even (Cumulative Numbers)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>$130,929</td>
<td>$261,859</td>
<td>$392,788</td>
<td>$523,717</td>
<td>$654,647</td>
</tr>
<tr>
<td>Luminex Solution</td>
<td>$263,469</td>
<td>$318,937</td>
<td>$374,406</td>
<td>$429,874</td>
<td>$485,343</td>
</tr>
</tbody>
</table>
Reduced cost by:

- Eliminate software support cost for unused tape software (STK HSC, CA Encryption, etc.)
- Less space required at 3rd Party DR sites (Less space = lower cost)
- Fewer resources and less time required for DR testing (Conduct remote DR test)
- Reduce MSU's by shifting encryption from host, to virtual tape
- Use fewer FICON channels
Thank you for your time and consideration.