


Storage Decisions


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Dealing with end-user storage:

What to do about Windows?
How do you pick a strategic solution?

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Objectives:

- A process to evaluate your current environment and future needs.
- Factors to consider in developing a storage strategy.
- Factors to consider in selecting a storage solution.


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Audience Response

What are your goals for this session?

- A. Learn more about NAS implementations.
- B. Preparing to purchase a NAS solution.
- C. Implementing, wondering if it is right.
- D. Completed, looking to commiserate.

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Who is Meijer?



- **Family-owned chain of "supercenter" stores**
 - Headquartered in Grand Rapids, MI
 - ~3500 campus users
 - 158 stores in 5 states: MI, OH, IN, IL, KY
 - Open 7x24, ~200 employees per store.
- **Invented the supercenter format in 1962**
 - Grocery & General Merchandise under one roof

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The Problem:

- **Prior to 2000, all storage was direct-attached (mainframe, Netware, AIX, NT)**
- **Costs going up**
- **Unused storage on distributed systems**

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Meijer's IT Strategy Process

- **Define a desired end state.**
 - Gather industry perspectives
 - Storage Decisions
 - Analysts reviews
 - Looking for trends, standards and acceptance
 - Conduct technology scans with vendors

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Meijer's IT Strategy Process

- **Conduct a gap analysis**
 - Sell the desired end state to technology teams.
 - Define the current state.
 - Identify internal trends and influences.
 - Know the "sacred cows".
 - What direction have technical teams been going in? What is driving the direction?
 - "If all you have is a hammer, everything looks like a nail."

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Meijer's IT Strategy Process

- **Implement**
 - Initiate projects to address the gaps.
 - Assign technology owners.
 - You get what you inspect, not what you expect.
 - Conduct training with technical & development teams.

"Strategies can be roughly right, but execution must be perfect."
 – Anne Mulcahy, President & CEO, Xerox

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Storage Strategy

- **Begun early part of 2000**
- **All storage was DASD to mainframe and distributed systems (Netware, AIX, NT).**
- **12 Goals identified**
 - **#1 – Create a formal Storage Management Team**

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Storage Strategy

- **Other high-priority goals:**
 - Remote management is a requirement
 - 7 x 24 x 365 availability is needed for storage solutions
 - Storage management tools are needed for:
 - Performance Monitoring
 - Capacity Management
 - Administration
- **Details: Ask-the-Expert booth, 4-5 PM in the Exhibit Hall**

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File Services Replacement Strategy

- **Late 2002**
- **Drivers**
 - Reduce file storage costs
 - No well-defined SLAs or policies for file services in terms of placement, use and standards
 - Lack standards for storage usage
 - Microsoft Migration being considered
 - "Appliance computing"


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File Services Replacement Strategy

- **General findings (in 2002)**
 - Lack of API standards
 - Vendor initiatives vs. standards
 - Minimal application awareness (SLA-based configs)
 - Virtualization not there yet
 - Vendors locking in customers through software
 - We should be doing SRM now


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File Services Replacement Strategy


- **Conclusions**
 - It is not cost effective for shared files to be stored on the SAN. We need clear standards to help guide where specific types of data should be stored.
 - In general, shared files should be stored in a NAS, while database data should be stored on the SAN.
 - While proprietary NAS options have their advantages, there are some significant limitations that make the Windows-based NAS devices more attractive.

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Data Type	Direct Attached Storage	Network Attached Storage	Storage Area Network
Mission-Critical Corp. Data: - High - Performance, High Availability - High Cost - Block level locking	DB2 Teradata		X UDB, Oracle, Sybase
Mission-Critical 3rd Party Data: - High - Performance, High Availability - Moderate to High Cost - Block level locking		X	X
Corp. Collaboration Data (E-Mail): - High Performance, Moderate to high-availability - Moderate to high-cost - Block level locking		X	X GroupWise (future Exchange)
Dept. Data: - Moderate Performance, Moderate Availability - Moderate Cost - Block level locking		X	
Web Content: - Moderate Performance, Moderate Availability - Moderate Cost - File level locking		X	
Shared System Files: - Low Performance, Moderate to High Availability - Low to Moderate Cost - File level locking		X	
Shared document and applications: - Low Performance, Moderate Availability - Low to moderate cost - File level locking		X	


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Dept. Data: - Moderate Performance, Moderate Availability - Moderate Cost - Block level locking		X	
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<h2>File Services Replacement Strategy</h2> <ul style="list-style-type: none"> ● Desired end state <ul style="list-style-type: none"> • Appliance-based device <ul style="list-style-type: none"> ▪ Flexibility ▪ Licensing • Protocol support <ul style="list-style-type: none"> ▪ CIFS and NFS primary, NCP secondary ▪ TCP/IP required • Integrate with our desired move to Microsoft-based infrastructure (i.e., Active Directory)

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File Services Replacement Strategy

- **Desired end state (continued)**
 - Must support security and management features
 - Manage centrally from an integrated console/web
 - Provide extensive storage management tools
 - Must use industry-standard monitoring protocols (i.e., SNMP, OpenView, etc.)
 - Must provide lower acquisition and management costs relative to our current SAN environment

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File Services Replacement Strategy

- **Gap analysis of file storage**
 - 30 Netware file servers
 - 800 GB on internal disk
 - 1.2 TB on external arrays
 - 1 TB on proprietary SAN
 - 2 Windows file servers
 - 192 GB on disk arrays
 - 2 AIX file servers
 - 7 GB on internal disk


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File Services Replacement Strategy

- **Internal trends and influences**
 - Technology teams in islands, no cooperation
 - Netware team bought their own SAN.
 - Microsoft migration created mistrust.
 - Storage team was mainframe-oriented.
 - SAN vendor provided little support for distributed systems.
 - No hardware/OS experience on storage team.


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Audience Response

Are we alone?

- A. We have no technology bigotry.
- B. I feel your pain.
- C. If everyone were on the mainframe you wouldn't have this problem!

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File Services Replacement Strategy

- **Implement (CSFs)**
 - Implement the shared file data placement model, and use it when determining where to place data.
 - Evaluate, select and deploy a Windows-based Network Attached Storage (NAS) solution.
 - Move as much of our traditional shared file and application data to the NAS solution over the next 12 to 18 months as we deploy Windows XP and ActiveDirectory.


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File Services Replacement Strategy

- **Implement (CSFs) (continued)**
 - Evaluate our existing SRM in light of our NAS solution to determine whether a new Storage Resource Management (SRM) tool is needed.
 - Institutionalize and communicate the strategy.
 - Assign ownership for architecture and support.
 - Storage Team
 - Novell/Windows Team
 - AIX Team


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Wrap-up

- **A process to evaluate your current environment and future needs**
- **Factors to consider in developing a storage strategy**
- **Factors to consider in selecting a storage solution**


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Audience Response

How did this go?

- A. I learned more about how to choose a NAS.
- B. Reinforced my decision.
- C. Wish I had known this earlier.
- D. I had a good nap!

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Thank you.

Wrap-up

- **Questions?**
 - Available after this session outside the room
 - Tonight in Ask-the-Expert booth, 4-5 PM
- **E-mail Contact:**
 - Rob.Gallini@meijer.com
