



# **Top Ten Pain Points Survey Results Report**

**Prepared by the  
SNIA End User Council**

**May 20, 2004**

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## Acknowledgements

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## **Executive Summary**

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The SNIA End User Council (EUC) Top Ten Pain Points (TTPP) survey was launched at the Fall 2003 Storage Networking World (SNW). For the survey, answered either online or via a paper form, respondents were asked to provide demographic information characterizing their company, and the progress they'd made in adopting storage networking technologies. The second part of the survey asked for their opinions on issues, challenges and desirables in their storage and networking environments. This report summarizes the findings of this first EUC-sponsored survey.

### ***Top Ten Pain Points Ranking***

Analysis of the surveys received by the EUC showed that end-users ranked their pain points in the following order (highest to lowest priority):

1. Cost (price and total cost of ownership (TCO))
2. The challenge of managing growth and meeting capacity needs
3. The inability to manage storage assets and infrastructure
4. The lack of integrated and/or interoperable solutions
5. Increasing complexity of storage infrastructure
6. Poor service, support, and ill-informed or poorly educated marketing channels
7. Lack of desired functions and features
8. Finding the right solutions and justifying expenditures
9. Undelivered promises
10. Lack of robust automation for provisioning

### ***Top Ten Pain Points Summary Analysis***

According to the survey, end-users' most significant pain points still revolve around basic storage management issues. Storage costs too much to purchase, too much to run and is too hard to justify. Storage costs heavily influenced the second major pain point: storage is too hard to grow, particularly at a switched fabric level. Hindered by cost, a number of respondents appear to start small and attempt to grow the SAN with their business. This typically leads to multiple SAN islands, multiple management domains and numerous tool sets. Thus, pain points three, four and five.

If storage technology is to mature and be broadly adopted, the storage management issues identified by the survey must be addressed. The survey findings indicate that the root of many of these pain points is a lack of broad fundamental understanding in the industry of how to architect, provision and scale storage area networking (SAN) technology solutions.

### ***Survey Next Steps***

The End User Council is asking the SNIA to cooperate in joint initiatives to address the findings of the EUC's Top Ten Pain Points Survey. The EUC is suggesting initiatives in two focus areas:

- The first relates to the development of architectural standards and best practices, helping to reduce both complexity and cost of storage networks.
- The second is to accelerate education and certification of storage administrators, while simultaneously accelerating the adoption of standards and best practices.

# SNIA End User Council Background

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The SNIA End User Council provides a means to streamline the process of turning shared storage requirements into solutions, which expands business opportunities for vendors and puts viable products into the customers' hands sooner.

The EUC Mission Statement is:

***The End User Council benefits both end-users and developers of storage networking technology.***

***Storage end-user benefit by having a forum in which to cooperatively communicate to the industry, strategic directions for shared needs.***

- ***The council provides a direct voice into the storage networking industry, to assert their shared storage requirements and goals.***
- ***End-users can also share ideas amongst themselves within this council, and help one another with information and ideas***

***The SNIA industry members benefit from a broader exposure to the customer base and its needs.***

- ***With accurate definition of end-user requirements and priorities, the storage industry can accelerate the development of features and functionality that meet customer needs.***

EUC membership is comprised of individuals whose organizations use storage-related products. Membership is also open to individuals of companies that manufacture or supply storage-related products, but they must work in internal IT departments and cannot be associated with sales, marketing, manufacturing or engineering to be a member. Currently, total EUC membership stands at 94 end-users.

## **Survey Methodology**

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From inception to final report, the TTPP Survey has been an end-user directed initiative. The idea was first discussed during the SNIA Customer Advisory Council meeting at the April 2003 SNW in Phoenix as one means of providing end-user feedback to the SNIA. The survey was first drafted based on input from council members, went through several revisions during weeks of committee review, and was first published at the October 2003 SNW in Orlando. The newly formed SNIA End User Council (formed by the amalgamation of the Customer Advisory Council and the Customer Executive Council) assumed the project.

There were three target audiences in mind for the survey, the EUC, StorageNetworking.org User Groups (SNUGs) and the Storage Network World Conference end-user attendees. While response from End User Council members was extremely good, to date we've only had a few responses from the SNUGs. This was largely due to the fact that, during the survey period, many of these groups were only beginning to form and the EUC had not yet established any significant contact with them.

In order to reach our third target audience (SNW attendees) we enlisted the help of Computerworld, a co-sponsor of SNW, who graciously agreed to post an online version of the survey on the SNW web site. To make the survey more suitable for an online format, and to improve data collection and analysis, Computerworld made some fundamental changes to the original survey. Still, the questions and responses to the questions remained very much the same. Rather than try to combine survey results from the EUC survey and the online Computerworld survey, it was decided to analyze the results of each separately and make comparisons between the two.

### ***Survey Approach***

The End User Council survey and the Computerworld survey each have their merits and strengths. When compared together they complement each other to bring even broader perspective and interpretation to the survey questions. Both surveys begin with a series of demographic questions then move on to the "Pain Point" questions. The original EUC survey posed a question, along with a list of responses and asked the participant to rank order the top three responses to the question. (In a couple of questions they were asked to rank order all that apply, but most respondents still only picked the top three). The Computerworld survey posed essentially the same question and same responses, however asked the respondents to indicate the importance of each response on a scale of 1-5.

### ***Survey Questions Compared***

This section presents the EUC and Computerworld surveys side by side for comparison.

**SNIA End User Council (EUC)  
End-User Survey  
Top Ten Pain Points  
September 2003**

Demographics:

1. Your company's business or industry:
  - Storage Related Products (Hardware or Software)
  - Retail/Wholesale
  - Healthcare
  - Education
  - Government
  - Financial (Banking/Insurance)
  - Manufacturing
  - Other IT services
  - Other \_\_\_\_\_
  
2. Are you a member of any of the following departments:
  - Sales
  - Marketing
  - Manufacturing
  - Engineering
  - Strategic Planning / Administration
  - Executive Staff
  - IT Management
  - IT Staff
  - Other \_\_\_\_\_
  
3. How many people are employed by your company worldwide?
  
4. What is your company's annual gross revenue in US dollars?
  - Under \$1 Million
  - \$1-\$100 Million
  - \$100-\$500 Million
  - \$500 Million - \$1 Billion
  - \$1-\$10 Billion
  - Over \$10 Billion
  
5. How much storage are you responsible for?  
\_\_\_\_\_ TBs.
  - 5 (a). How much is DAS? \_\_\_\_\_ TBs.
  - 5 (b). How much is SAN? \_\_\_\_\_ TBs.
  - 5 (c). How much is NAS? \_\_\_\_\_ TBs.
  - 5 (d). How much is mid-range? \_\_\_\_\_ TBs.
  - 5 (e). How much is high-end? \_\_\_\_\_ TBs.

**Computerworld  
IT User Survey on "Top Ten Pain Points in  
Storage Networking"  
March 2004**

**A. Some Questions About You and Your Company:**

Your company's business or industry:

- Retail, Wholesale
- Healthcare, Medical Services
- Education
- Government, Military
- Financial (Banking/Insurance)
- Manufacturing
- Transportation, Utilities, Energy
- Other, Please specify \_\_\_\_\_

Are you a member of any of the following departments?

- IT Storage Management
- IT Development
- IT Management /Executive Staff
- IT Operations, Datacenter, Sys. Admin, DB Admin.
- IT Planning
- IT Staff
- Other, Please specify \_\_\_\_\_

How many people are employed by your company worldwide?

- Over 10,000
- 5,000 - 9,999
- 1,000 - 4,999
- 500 - 999
- Under 500

What is your company's annual gross revenue in US dollars?

- Over \$10 Billion
- \$1-\$10 Billion
- \$500 Million - \$1 Billion
- \$100-\$500 Million
- \$1-\$100 Million
- Under \$1 Million

What is the capacity of your storage network?

- 100 TB+
- 50-99 TB
- 25-49 TB
- 5-24 TB
- Less than 5 TB

### End User Council Survey (Cont.)

6. What percentage of your company's overall storage are you responsible for?
7. Out of the storage you control, what percentage annual capacity growth do you anticipate per year?
8. If you are using Fibre Channel SAN technology, what percent are you using of each type of FC?
  - 1Gb
  - 2Gb
  - 4Gb
  - 10Gb
- 8 (a) What percent of each FC type do you expect to be using in 2 years?
  - 1Gb
  - 2Gb
  - 4Gb
  - 10Gb
9. How many staff members are presently assigned to storage management?
- 9(a) How many staff members assigned to storage management do you anticipate you will need in 2 years?
10. How many storage-related IT personnel does your company employ at what level?
  - Executive (Exec. Director or above)
  - Director/Manager
  - IT Staff
11. What are your company's top three most critical applications?

### Computerworld Survey (Cont.)

What percentage of your company's overall IT budget is dedicated to storage?

- 50% +
- 40-50%
- 25-39%
- 10-24%
- < 10%

## End User Council Survey (Cont)

For the following questions 12 -15 please rank your top three answers in order of importance 1 being the most important.

12. What is the biggest storage-related challenge your company faces? (Rank order top three)
- Managing growth and meeting capacity needs
  - Integration and consolidation of assets
  - Managing storage assets
  - Choosing the right products / justifying expenditures
  - Reliability / availability
  - Security
13. What is the most important issue for you to address in support of your company? (Rank order top three)
- Cost containment
  - Security
  - Compliance with regulatory data life-cycle issues
  - Business continuity issues. (Regulatory or other)
  - Application performance
  - Reliability and availability
  - Speed of new application delivery
14. Rank the top three desirables in terms of importance.
- Simpler and more effective SAN management.
  - Better inter-vendor interoperability Matrix.
  - Better fabric problem determination tools.
  - Better SAN fabric security.
  - Better non-disruptive operational characteristics
  - Better interoperability characteristics
  - Better path Management options
  - Better automation for provisioning, migration, and archival.
  - Better distance connection options for specific elements
  - Better pricing on high quality Fibre Channel
  - SAN hardware components and software packages.
  - More reliable proof points
  - More tools to tie storage network products to business results

## Computerworld Survey (Cont)

### B. Some Questions About Your "Top Pain Points in Storage Networking":

On scale of 1-5 (with 1 being not very challenging and 5 being very challenging), please rate how challenging the following issues are in relation to storage at your organization:

Managing growth and meeting capacity needs  
Integration and consolidation of assets  
Managing storage assets  
Choosing the right products  
Perceived productivity enablers - justifying expenditures  
Reliability / availability  
Security

On scale of 1-5 (with 1 being not very important and 5 being very important), please rate how important the following issues are in relation to how you approach IT at your organization:

Cost containment  
Security  
Compliance with government regulatory issues (SOX, HIPAA etc.)  
Data recovery  
Application performance  
Reliability  
Speed of new application delivery

On scale of 1-5 (with 1 being not very critical and 5 being very critical), please rate how critical it would be for your organization to achieve the following goals:

Simpler SAN management.  
Better inter-vendor interoperability.  
Better fabric problem determination tools.  
Better automation for provisioning, migration, and archival.  
Better pricing on Fibre Channel SAN hardware components and software packages.  
More tools to tie storage network products to business results

## End User Council Survey (Cont)

15. Please choose top three reasons you have implemented or are considering a storage network.
- Improve backup and recovery
  - Manage growth
  - Improve storage management capability
  - Consolidate existing capacity
  - Improve disaster recovery and business continuance
  - Investigate, prove or prototype storage networking technology
  - Virtualization
  - More efficient provisioning
  - Data sharing
16. What are your biggest storage management challenges? (Please rank order only those that apply)
- Manageable and reliable backup and recovery solutions
  - Managing the complexity of the storage infrastructure
  - Centralizing management of the storage infrastructure
  - Lack of robust SRM or SAN management tools
  - Interoperability
  - Improving resource utilization
  - Storage infrastructure reliability and or performance
  - Recruiting, training and retaining knowledgeable staff.
  - IT budget constraints
  - IT management places low priority on storage infrastructure improvement
  - Lack of internal standards or adoption of best practices and policies.

## Computerworld Survey (Cont.)

On scale of 1-5 (with 1 being not very important and 5 being very important), please rate the importance of the following reasons for implementing a storage network:

Improve backup and recovery  
Improve storage management capability  
Consolidate existing capacity  
Improve disaster recovery and business continuance  
Virtualization  
More efficient provisioning  
Data sharing  
Perceived productivity enabler - clear justified expenditure

On scale of 1-5 (with 1 being not very challenging and 5 being very challenging), please rate how challenging the following issues are in relation to storage management at your organization:

Reliable backup and recovery solutions  
Managing the complexity of the storage infrastructure  
Lack of management tools  
Interoperability  
Improving resource utilization  
Storage infrastructure reliability and or performance  
IT Budget constraints  
IT management places low priority on storage infrastructure improvement  
Lack of internal standards or adoption of best practices and policies.

## End User Council Survey (Cont)

17. What are your biggest disappointments as customer of the storage networking and storage management industries? (Please rank order only those that apply)

- Benefits of storage solutions over-hyped.
- Solutions do not deliver all the promised benefits
- Manufacturers and ISV's do not understand how to best deploy their own technology
- Lack of documented best practices.
- Promised solutions not delivered on time.
- Products brought to market before they are ready. (Buggy software, unreliable hardware)
- Poor interoperability
- Unmanageable solutions
- No disappointments

18. How often do you delay or avoid storage network purchases due to any of the following reasons? (Use 1 for very often, 2 for sometimes, 3 for never)

- High price
- Poor service / support / sales from vendors
- Lack of function desired
- Poor interoperability
- Poor performance
- Poor reliability
- Poor security
- Have never delayed or avoided storage network purchases

## Computerworld Survey (Cont.)

On scale of 1-5 (with 1 being not very disappointing and 5 being very disappointing), please rate how disappointing the following issues have been for you as a customer of storage and storage management

Manufacturers and ISV's do not understand how to best deploy their own technology  
Lack of documented best practices.  
Promised solutions not delivered on time.  
Products brought to market before they are ready (Buggy software, unreliable hardware)  
Poor interoperability

Which of the following issues have caused you to avoid or delay storage network purchases? (Accept Multiple)

Unreliable  
Poor service / support / sales from vendors  
Lack of function desired  
Poor interoperability  
Poor performance  
Poor reliability  
Poor security  
Lack of management tools

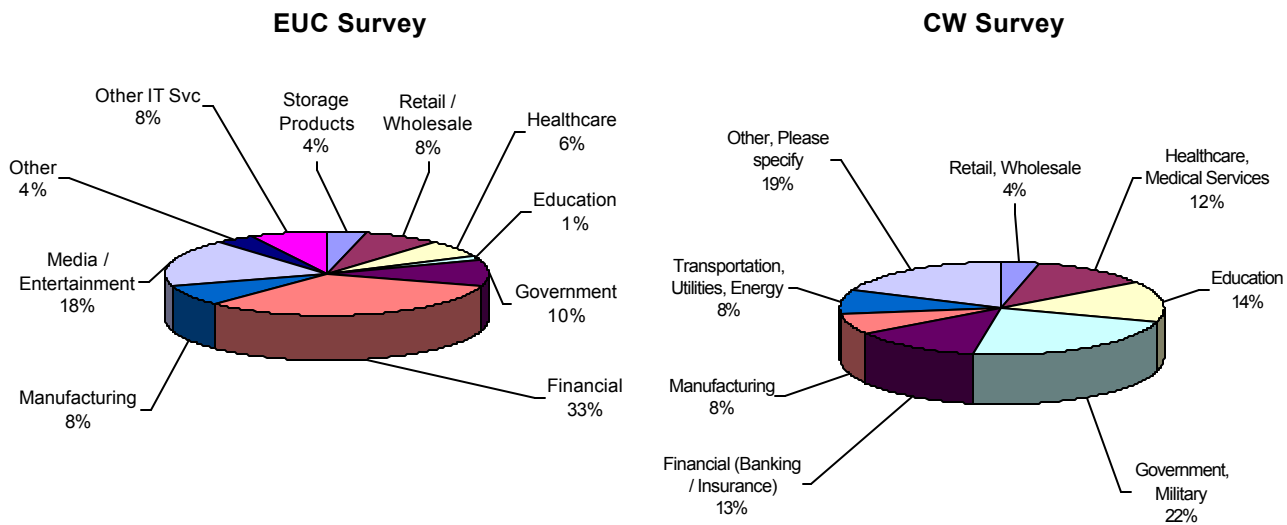
# Survey Results

In this section, the results of both the SNIA End User Council Survey (EUC Survey) and the Computerworld Survey (CW Survey) are first grouped by the demographics of the respective respondents, and then presented by the actual responses pertaining to their pain points they feel.

## Respondent Demographics

In this section, the demographics of the respondents are shown.

### Respondents' Business or Industry

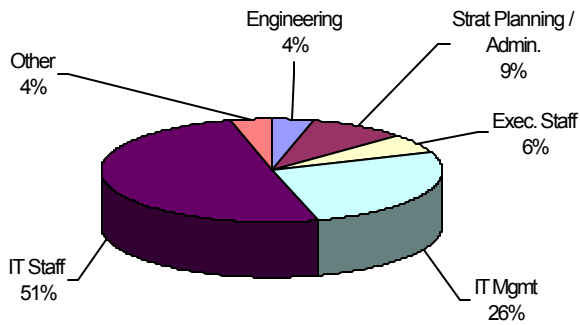


	<i><b>EUC Survey</b></i>		<i><b>CW Survey</b></i>	
	<b>Number</b>	<b>Percentage</b>	<b>Number</b>	<b>Percentage</b>
Storage Products *	3	4%		
Retail / Wholesale	6	8%	18	4%
Healthcare	5	6%	58	12%
Education	1	1%	67	14%
Government	8	10%	111	23%
Financial	25	32%	63	13%
Manufacturing	6	8%	37	8%
Media / Entertainment	14	18%		
Transportation/Utilities/Energy			38	8%
Other	3	4%		
Other IT Svc	6	8%	90	19%
<b>Totals</b>	<b>77</b>	<b>100%</b>	<b>482</b>	<b>100%</b>

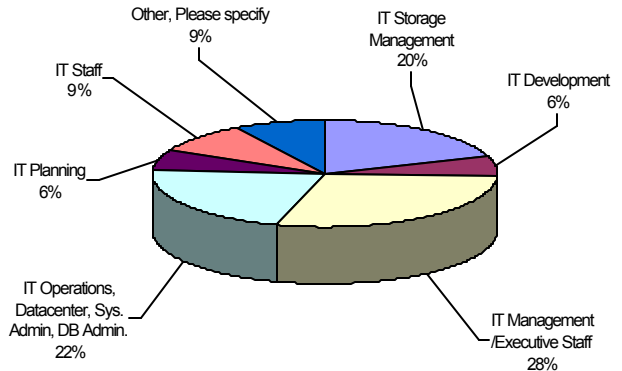
\* Respondents from Storage Networking manufacturers and ISVs were only included if they worked in their company's internal IT Departments.

**Occupation**

**EUC Survey**



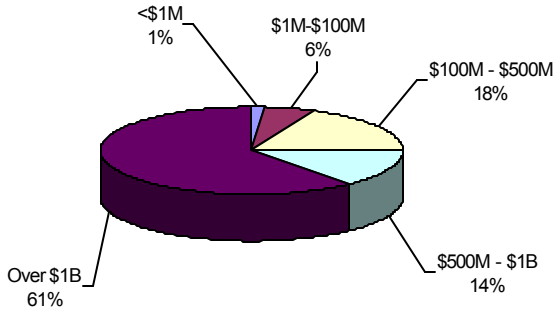
**CW Survey**



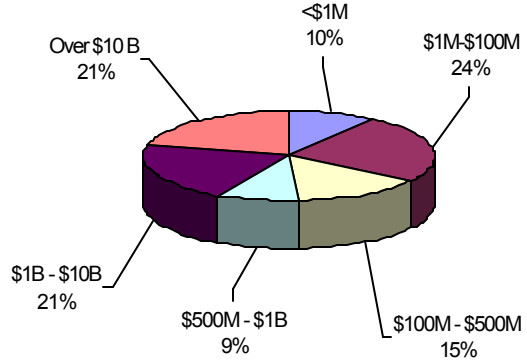
	<i><b>EUC Survey</b></i>		<i><b>CW Survey</b></i>	
	<b>Number</b>	<b>Percentage</b>	<b>Number</b>	<b>Percentage</b>
Engineering	3	4%		
IT Storage Management			95	20%
Strategic Planning / Admin.	7	9%		
IT Development			30	6%
Exec. Staff	5	6%		
IT Management /Executive Staff			137	28%
IT Mgmt	20	26%		
IT Operations, Datacenter, Sys. Admin, DB Admin			105	22%
IT Staff	39	51%	45	9%
IT Planning			29	6%
Other	3	4%	41	9%
<b>Totals</b>	<b>77</b>	<b>100%</b>	<b>482</b>	<b>100%</b>

**Annual Gross Revenue**

**EUC Survey**



**CW Survey**



	<i><b>EUC Survey</b></i>		<i><b>CW Survey</b></i>	
	<b>Number</b>	<b>Percentage</b>	<b>Number</b>	<b>Percentage</b>
<\$1M	1	1%	46	10%
\$1M-\$100M	4	6%	115	24%
\$100M - \$500M	13	18%	70	15%
\$500M - \$1B	10	14%	44	9%
Over \$1B	44	61%		
\$1B - \$10B			99	21%
Over \$10 B			99	21%
<b>Totals</b>	<b>72</b>	<b>100%</b>	<b>473</b>	<b>100%</b>
No Answer	5		10	

## Survey Responses

### Biggest Storage Related Challenge

In this area, the EUC Survey and Computerworld Survey presented different questions, with nearly the same possible responses.

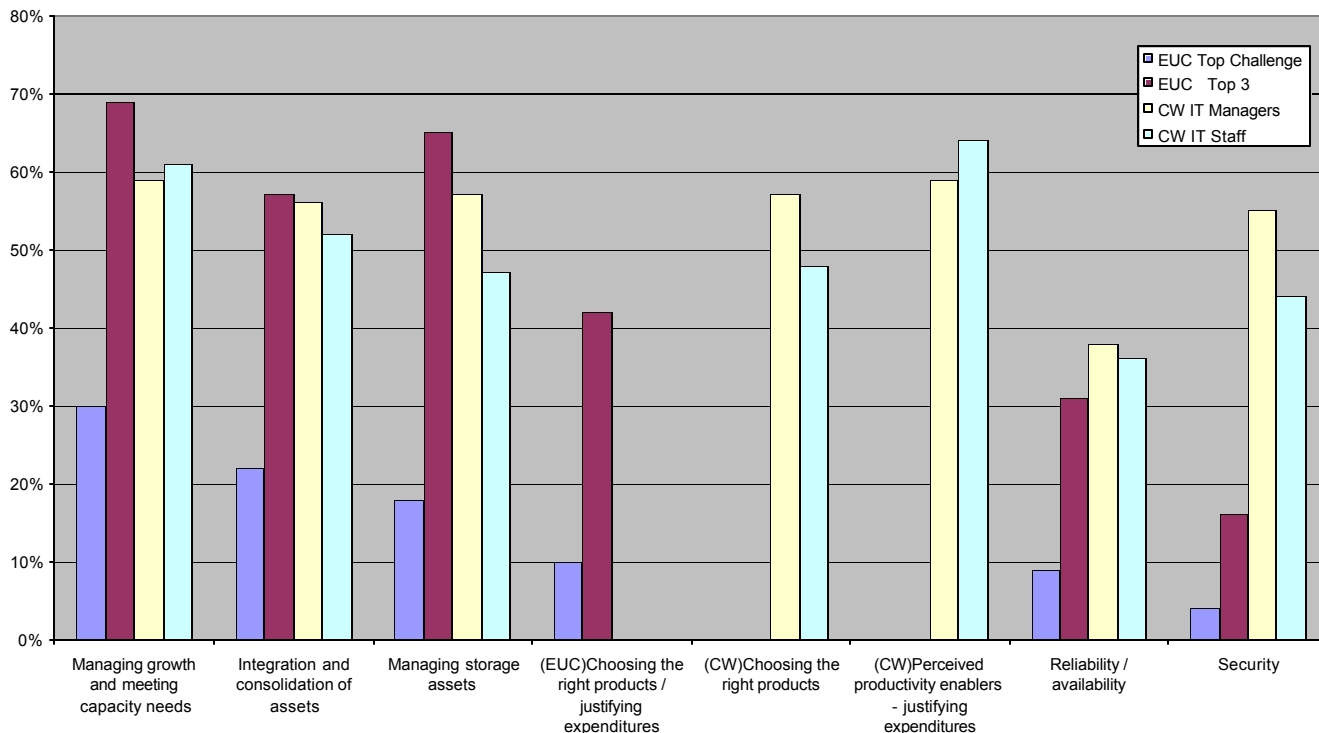
Question presented in the EUC Survey:

- What is the biggest storage-related challenge your company faces?

Question presented in the CW Survey:

- Please rate how challenging the following issues are in relation to storage at your organization.  
% of respondents that answered 4 or 5 (Most Challenging)

	<i>EUC Survey</i>		<i>CW Survey</i>	
	Top Challenge	Top 3	IT Managers	IT Staff
Managing growth and meeting capacity needs	30%	69%	59%	61%
Integration and consolidation of assets	22%	57%	56%	52%
Managing storage assets	18%	65%	57%	47%
Choosing the right products/justifying expenditures (EUC)	10%	42%		
Choosing the right products (CW)			57%	48%
Perceived productivity enablers justifying expenditures (CW)			59%	64%
Reliability/availability	9%	31%	38%	36%
Security	4%	16%	55%	44%
Other	3%	6%		
No Answer	4%			



## Most Important Issue

In this area, the EUC Survey and Computerworld Survey used different questions but elicited feedback using the same responses.

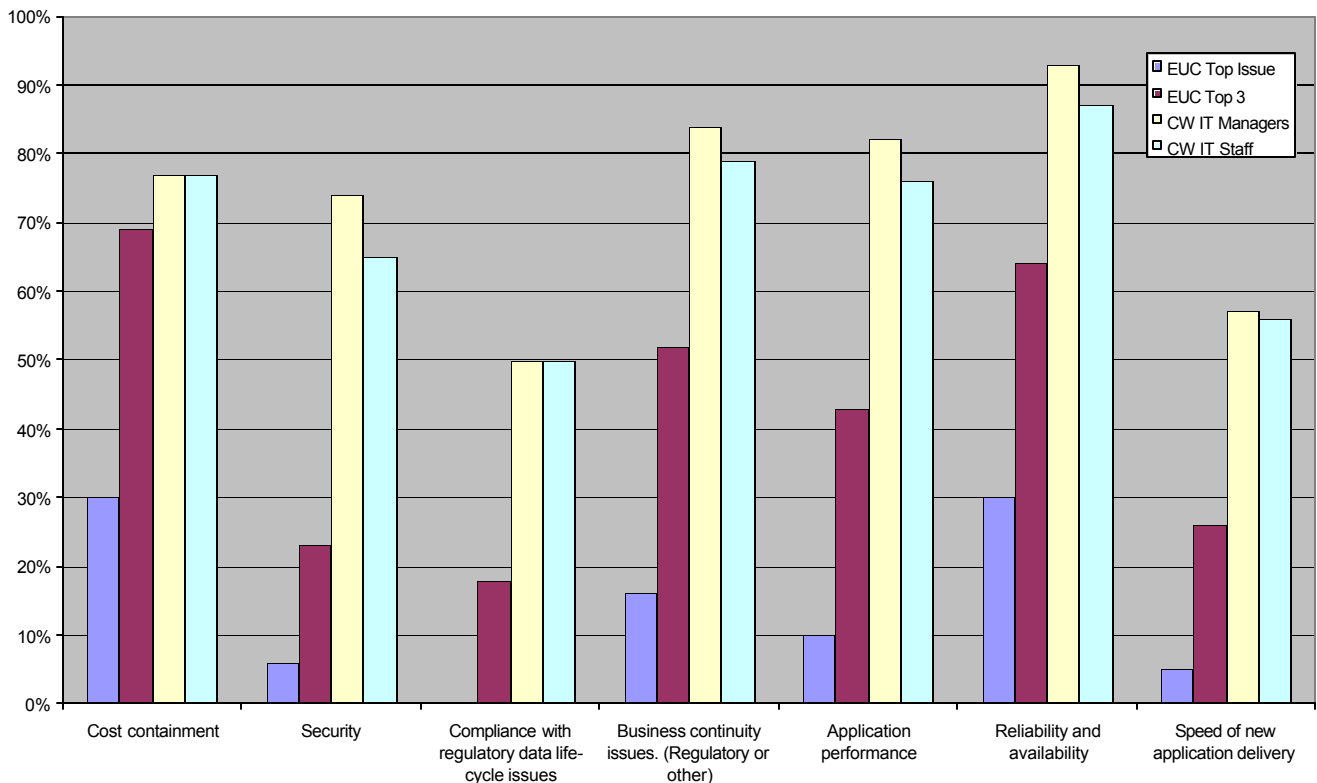
Question presented in the EUC Survey:

- What is the most important issue for you to address in support of your company?

Question presented in the CW survey:

- Please rate how important the following issues are in relation to how you approach IT at your organization. % of respondents that answered 4 or 5 (Most Important)

	<i>EUC Survey</i>		<i>CW Survey</i>	
	Top Issue	Top 3	IT Managers	IT Staff
Cost containment	30%	69%	77%	77%
Security	6%	23%	74%	65%
Compliance with regulatory data life-cycle issues	0%	18%	50%	50%
Business continuity issues. (regulatory or other)	16%	52%	84%	79%
Application performance	10%	43%	82%	76%
Reliability and availability	30%	64%	93%	87%
Speed of new application delivery	5%	26%	57%	56%
No answer	3%			



## Top Desirables

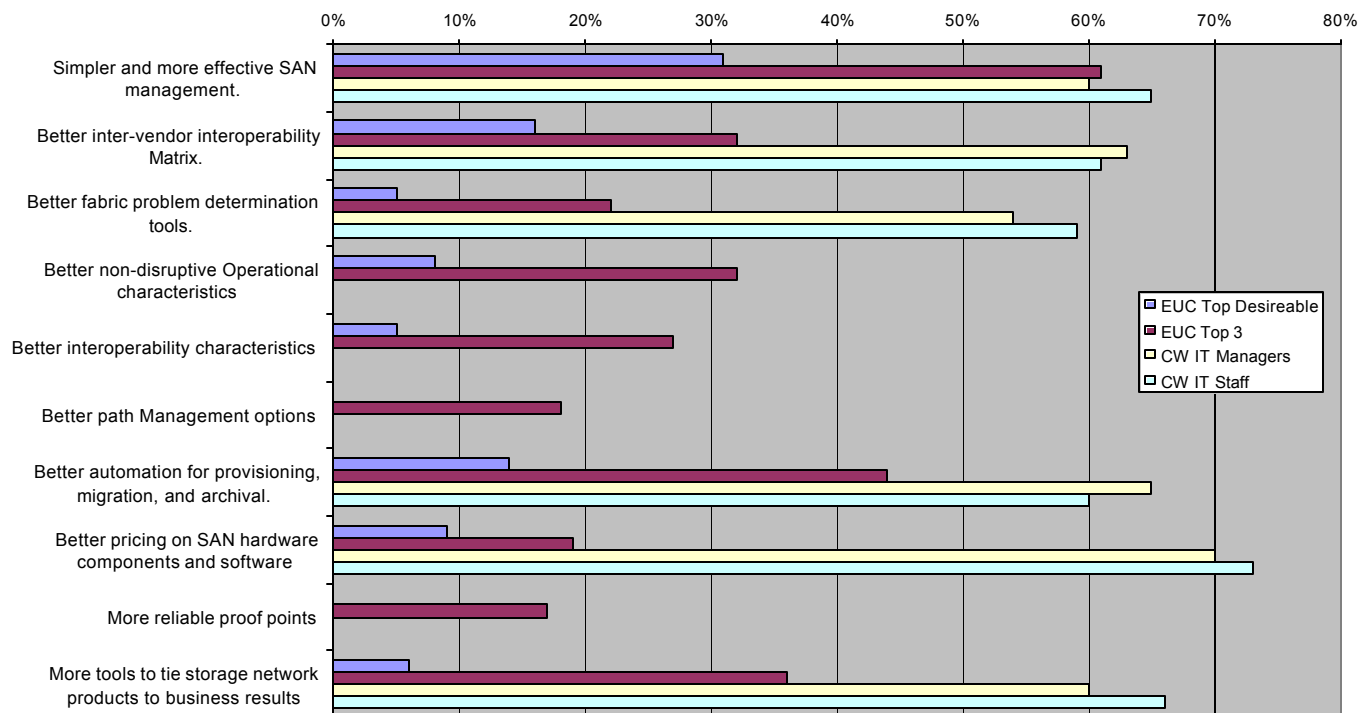
Question presented in the EUC Survey:

- Rank the top three desirables in terms of importance.

Question presented in the CW Survey:

- Please rate how critical it would be for your organization to achieve the following goals.  
% of respondents that answered 4 or 5 (Most Critical)

	<i>EUC Survey</i>		<i>CW Survey</i>	
	Top Desirable	Top 3	IT Managers	IT Staff
Simpler and more effective SAN management.	31%	61%	60%	65%
Better inter-vendor interoperability matrix.	16%	32%	63%	61%
Better fabric problem determination tools.	5%	22%	54%	59%
Better SAN fabric security.	1%	6%		
Better non-disruptive operational characteristics	8%	32%		
Better interoperability characteristics	5%	27%		
Better path management options	0%	18%		
Better automation for provisioning, migration, and archival.	14%	44%	65%	60%
Better distance connection options for specific elements	1%	6%		
Better pricing on SAN hardware components and software	9%	19%	70%	73%
More reliable proof points	0%	17%		
More tools to tie storage network products to business results	6%	36%	60%	66%
No answer	3%			



## Reasons for Implementing Storage Networks

In this area, the EUC Survey and Computerworld Survey presented different questions, with nearly the same possible responses.

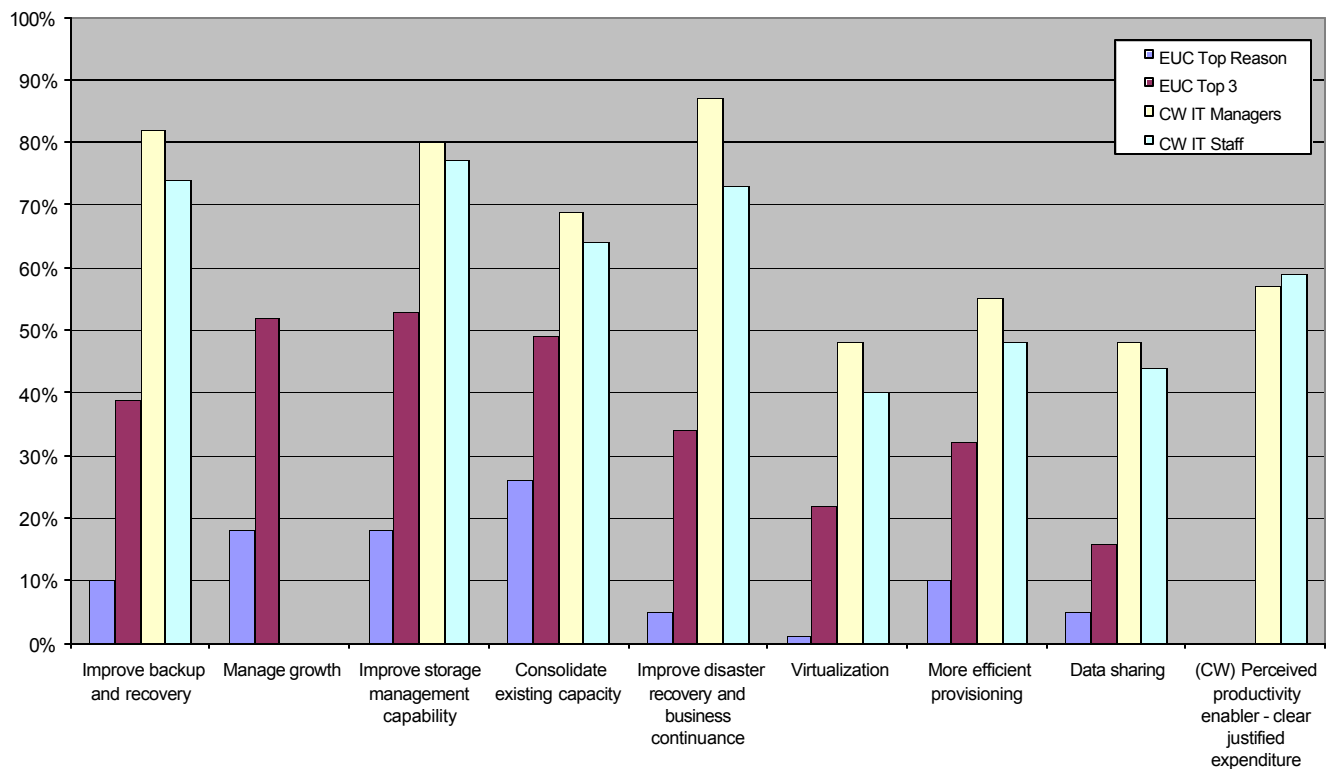
Question presented in the EUC Survey:

- Please choose top three reasons you have implemented or are considering a storage network.

Question presented in the CW Survey:

- Please the importance of the following reasons for implementing a storage network.  
% of respondents that answered 4 or 5 (Most Important)

	<i>EUC Survey</i>		<i>CW Survey</i>	
	Top Reason	Top 3	IT Managers	IT Staff
Improve backup and recovery	10%	39%	82%	74%
Manage growth	18%	52%		
Improve storage management capability	18%	53%	80%	77%
Consolidate existing capacity	26%	49%	69%	64%
Improve disaster recovery and business continuance	5%	34%	87%	73%
Investigate, prove or prototype storage networking technology	0%	3%		
Virtualization	1%	22%	48%	40%
More efficient provisioning	10%	32%	55%	48%
Data sharing	5%	16%	48%	44%
Perceived productivity enabler - clear justified expenditure (CW)			57%	59%
Other:	1%	5%		
No answer	4%			



## Biggest Storage Management Challenges

In polling the respondents on this subject, similar questions and responses were presented.

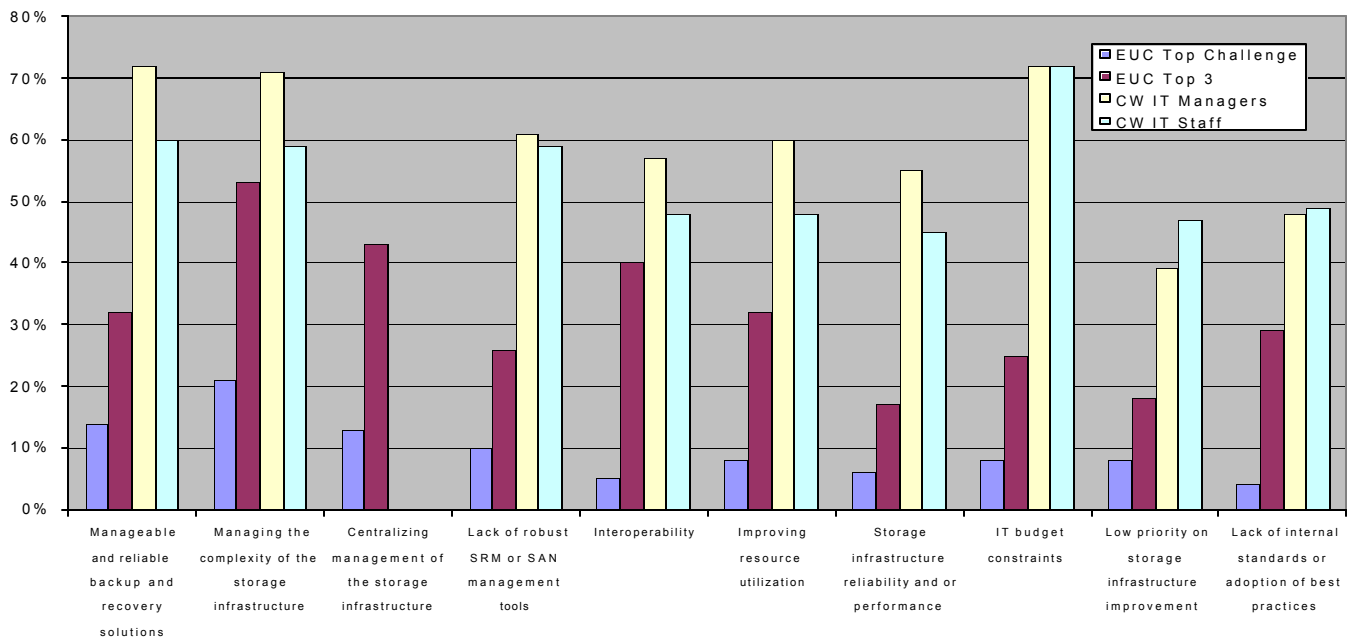
Question presented in the EUC Survey:

- What are your biggest storage management challenges?

Question presented in the CW Survey:

- Please rate how challenging the following issues are in relation to storage management at your organization.  
% of respondents that answered 4 or 5 (Most Challenging)

	<i><b>EUC Survey</b></i>		<i><b>CW Survey</b></i>	
	<b>Top Challenge</b>	<b>Top 3</b>	<b>IT Managers</b>	<b>IT Staff</b>
Manageable and reliable backup and recovery solutions	14%	32%	72%	60%
Managing the complexity of the storage infrastructure	21%	53%	71%	59%
Centralizing management of the storage infrastructure	13%	43%		
Lack of robust SRM or SAN management tools	10%	26%	61%	59%
Interoperability	5%	40%	57%	48%
Improving resource utilization	8%	32%	60%	48%
Storage infrastructure reliability and or performance	6%	17%	55%	45%
Recruiting, training and retaining knowledgeable staff.	0%	5%		
IT budget constraints	8%	25%	72%	72%
IT management places low priority on storage infrastructure improvement	8%	18%	39%	47%
Lack of internal standards or adoption of best practices and policies.	4%	29%	48%	49%
Other	3%	5%		



## Biggest Disappointments

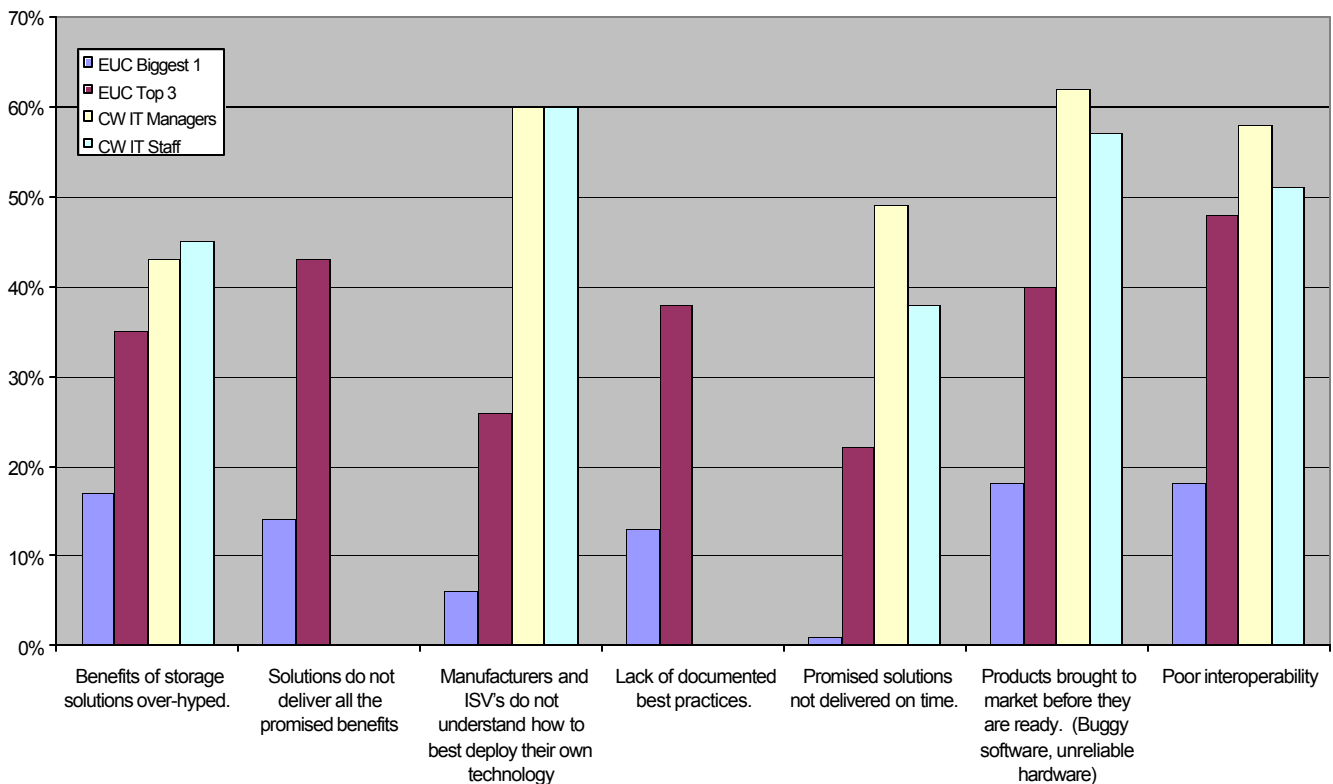
Question presented in the EUC Survey:

- What are your biggest disappointments as customer of the storage networking and storage management industries?

Question presented in the CW Survey:

- Please rate how disappointing the following issues have been for you as a customer of storage and storage management.  
% of respondents that answered 4 or 5 (Most Disappointing)

	<i>EUC Survey</i>		<i>CW Survey</i>	
	Biggest 1	Top 3	IT Managers	IT Staff
Benefits of storage solutions over-hyped.	17%	35%	43%	45%
Solutions do not deliver all the promised benefits	14%	43%		
Manufacturers and ISV's do not understand how to best deploy their own technology	6%	26%	60%	60%
Lack of documented best practices.	13%	38%		
Promised solutions not delivered on time.	1%	22%	49%	38%
Products brought to market before they are ready. (Buggy software, unreliable hardware)	18%	40%	62%	57%
Poor interoperability	18%	48%	58%	51%
Unmanageable solutions	4%	12%		
Other	4%	9%		
No answer	4%			



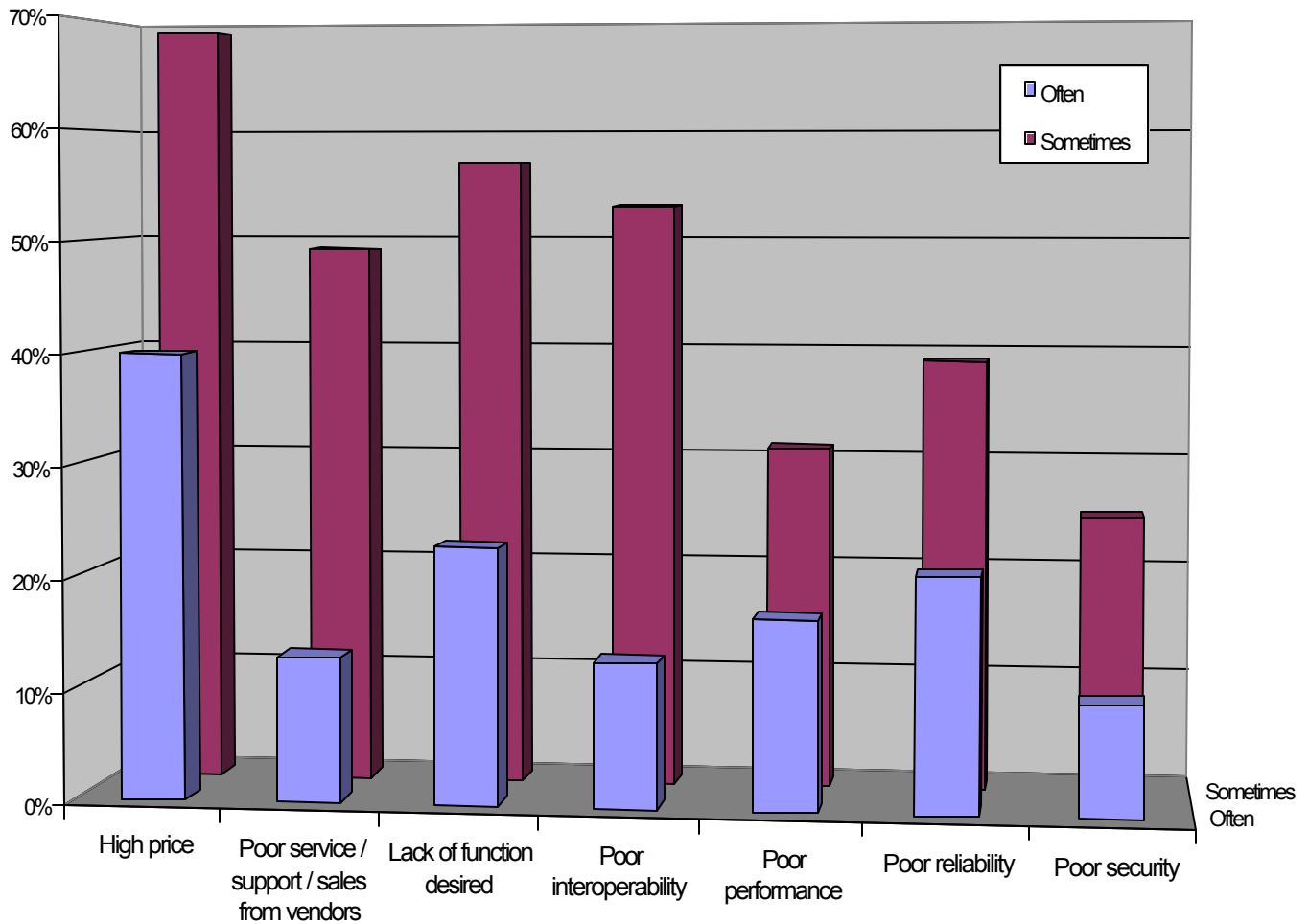
## Delay Purchases

Question presented in the EUC Survey:

- How often do you delay or avoid storage network purchases due to any of the following reasons?

*Note that insignificant responses were grouped under 'Other' below even though no such response was available in either survey.*

	<i>Both Surveys</i>	
	Often	Sometimes
High price (EUC)	40%	69%
Poor service / support / sales from vendors	13%	49%
Lack of function desired	23%	57%
Poor interoperability	13%	53%
Poor performance	17%	31%
Poor reliability	21%	39%
Poor security	10%	25%
Other	1%	3%
Have never delayed or avoided storage network purchases	8%	8%



# Findings

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## ***Top Ten Pain Points – Why?***

At its inception, the “Top Ten Pain Points” seemed a catchy title for a survey. It was something the EUC could both market and have some fun with. However, when it came time to sum up the EUC survey results, for a brief moment the title posed a bit of a problem. How do we take sixty possible responses to seven survey questions and compile a Top Ten anything? How do we support it with the results of a modified online survey?

The task was essentially accomplished by examining which questions and answers elicited the strongest responses. The EUC and CW surveys took a distinctly different approach to having the respondents answer essentially the same questions. However, in the end, the two surveys each have distinct qualities that complement each other very well, and therefore combined offer a broader interpretation of the results.

<b><i>CW Survey</i></b>	<b><i>EUC Survey</i></b>
<ul style="list-style-type: none"><li>• Larger reach – more data points and larger representation</li></ul>	<ul style="list-style-type: none"><li>• Smaller sample</li></ul>
<ul style="list-style-type: none"><li>• More anonymous than the EUC Survey</li></ul>	<ul style="list-style-type: none"><li>• Respondents very well known, well-qualified “storage experts”</li></ul>
<ul style="list-style-type: none"><li>• Largest market segments represented – Government, Military, Education</li></ul>	<ul style="list-style-type: none"><li>• Largest market segments represented – Financial Services, Manufacturing, Media</li></ul>
<ul style="list-style-type: none"><li>• Asked how important all responses were to a given issue</li></ul>	<ul style="list-style-type: none"><li>• Asked respondents to rank order the top three responses to a given question or issues</li></ul>

The End User Council survey creates a stronger separation between the most popular answers and responses and the lesser ones, which more easily unveiled the biggest pain points. The Computerworld survey in comparison shows us how important relevant issues are, so in some cases validates the End User Council survey, and in other cases unveils a significant issue, purely because of its relative importance. For example, there were no relatively strong indicators in the EUC survey that reliable backup and recovery was a particular pain point. However, when we considered even moderate pain indicators compared to very strong importance indicators in the Computerworld survey, it became apparent that it was a notable issue.

The rest of this section of the report lists the survey findings the EUC feel support the Top Ten Pain Points list.

## **The Top Ten Pain Points**

### **1 - Cost**

#### **Supporting Data**

**Question: How often do you delay or avoid storage network purchases due to any of the following reasons?**

**Answer: (Highest Response to all questions in EUC Survey)**

- **69%** of respondents said they have delayed storage network purchases because of **“Cost”**.
- **40%** of respondents said they have **often** delayed storage network purchases because of **“Cost”**.

**Question: What is the most important issue for you to address in support of your company?**

**Answer: (Tied for second highest response to all questions in EUC Survey)**

- **30%** of respondents said **“Cost Containment”** was their number one most important issue.
- **69%** said it was one of their top three issues.
- **77%** of respondents in the Computerworld survey rated **“Cost Containment”** as a 4 or 5 (“most important”)

### **2 - The challenge of managing growth and meeting capacity needs**

#### **Supporting Data**

**Question: What is the biggest storage-related challenge your company faces?**

**Answer: (Tied for second highest response to all questions in EUC Survey)**

- **30%** of respondents said **“Managing growth and meeting capacity needs”** was their number one answer
- **69%** said it was one of their top three challenges.

**Question: Please choose the top three reasons you have implemented or are considering a storage network.**

**Answer: (#2 and #3 answers for this question)**

- **18%** of respondents said **“Manage Growth”** was their number one answer.
- **52%** said **“Manage Growth”** was one of their top three reasons.
- **26%** of respondents said **“Consolidate existing capacity”** was their number one answer
- **49%** said **“Consolidate existing capacity”** was one of their top three reasons.

### 3 - The inability to manage storage assets and infrastructure

#### Supporting Data

**Question: What is the biggest storage-related challenge your company faces?**

**Answer:**

- 18% of respondents said **“Manage Storage Assets”** was their number one answer.
- 65% said **“Manage Storage Assets”** was one of their top three challenges.

**Question: Rank the top three desirables in terms of importance?**

**Answer:**

- 31% of respondents said **“Simpler and more effective SAN management”** was their number one answer.
- 61% said **“Simpler and more effective SAN management”** was one of their top three answers.

**Question: Please choose top three reasons you have implemented or are considering a storage network.**

**Answer:**

- 18% of respondents said **“Improve storage management capability”** was their number one answer.
- 53% said **“Improve storage management capability”** was one of their top three answers.

**Question: What is the most important issue for you to address in support of your company?**

**Answer:**

- 30% said **“Reliability and Availability”** was their number one answer.
- 64% said **“Reliability and Availability”** was one of their top three issues.
- 43% of respondents said **“Application Performance”** was one of their top three issues.
- 52% of respondents said **“Business continuity issues. (Regulatory or other)”** was one of their top three issues.

### 4 - The lack of integrated and /or interoperable solutions

#### Supporting Data

**Question: What is the biggest storage-related challenge your company faces?**

**Answer:**

- 22% of respondents said **“Integration and consolidation of assets”** was their number one answer.
- 57% said **“Integration and consolidation of assets”** was one of their top three challenges.

**Question: How often do you delay or avoid storage network purchases due to any of the following reasons.**

**Answer:**

- 49% of respondents said they have delayed storage network purchases because of **“Poor interoperability”**.
- 13% of respondents said they have **often** delayed storage network purchases because of **“Poor interoperability”**.

**Question: What are your biggest storage management challenges?**

**Answer:**

- 40% of respondents said **“Interoperability”** was one of their top three challenges.

## 5 - Increasing complexity of storage infrastructure

### Supporting Data

**Question: Rank the top three desirables in terms of importance.**

**Answer:**

- 31% of respondents said **“Simpler and more effective SAN management”** was their number one answer.
- 61% said **“Simpler and more effective SAN management”** was one of their top three answers

**Question: What are your biggest storage management challenges?**

**Answer:**

- 21% of respondents said **“Managing the complexity of the storage infrastructure”** was their number one answer.
- 53% said **“Managing the complexity of the storage infrastructure”** was one of their top three challenges

**Question: What are your biggest disappointments as customer of the storage networking and storage management industries?**

**Answer:**

- 18% of respondents said **“Poor interoperability”** was their number one answer.
- 48% said **“Poor interoperability”** was one of their top three disappointments

**Question: What are your biggest storage management challenges?**

**Answer:**

- 43% of respondents said **“Centralizing management of the storage infrastructure”** was one of their top three challenges

## 6 - Poor service, support, and ill informed or poorly educated marketing channels

### Supporting Data

**Question: How often do you delay or avoid storage network purchases due to any of the following reasons?**

**Answer:**

- 49% of respondents said they have delayed storage network purchases because of **“Poor service / support / sales from vendors”**.
- 13% of respondents said they have often delayed storage network purchases because of **“Poor service / support / sales from vendors”**.

**Question: What are your biggest disappointments as customer of the storage networking and storage management industries?**

**Answer:**

- 35% of respondents said **“Benefits of storage solutions over-hyped”** was one of their top three disappointments.
- 26% of respondents said one of their top three disappointments was that **“Manufacturers and ISV’s do not understand how to best deploy their own technology”** .
- 60% of respondents from the Computerworld survey rated this same answer a 4 or 5 (most disappointing).

## 7 - Lack of desired functions and features

### Supporting Data

**Question: How often do you delay or avoid storage network purchases due to any of the following reasons?**

Answer: (The second highest response for this question)

- **57%** of respondents said they have delayed storage network purchases because of **“Lack of function desired”**.
- **23%** of respondents said they have **often** delayed storage network purchases because of **“Lack of function desired”**.

## 8 - Finding the right solutions and justifying expenditures

**Question: What is the biggest storage-related challenge your company faces?**

Answer:

**42%** of respondents said **“Choosing the right products / justifying expenditures”** was one of their top three challenges

**57%** of IT Managers responding to the Computerworld Survey indicated that **“Choosing the right products”** was a 4 or 5 (Biggest Challenge).

**64%** of IT Staff responding to the Computerworld Survey indicated that **“Justifying expenditures”** was a 4 or 5 (Biggest Challenge)

**“Choosing the right products”** and **“Justifying expenditures”** were the top two responses to this question from the Computerworld Survey.

## 9 - Undelivered promises

**Question: What are your biggest disappointments as customer of the storage networking and storage management industries?**

Answer:

Respondents indicated the following responses were among their top three disappointments.

- **48%** Poor interoperability
- **43%** Solutions do not deliver all the promised benefits
- **40%** Products brought to market before they are ready.
- **38%** Lack of documented best practices.
- **35%** Benefits of storage solutions over-hyped
- **26%** Manufacturers and ISV's do not understand how to best deploy their own technology.
- **22%** Promised solutions not delivered on time.

Computerworld Survey respondents indicated the following % of responses were a 4 or 5 (most disappointing)

- **62%** Products brought to market before they are ready
- **60%** Manufacturers and ISV's do not understand how to best deploy their own technology
- **58%** Poor interoperability
- **49%** Promised solutions not delivered on time.
- **43%** Benefits of storage solutions over-hyped

## 10 - Lack of robust automation for provisioning

**Question: Rank the top three desirables in terms of importance.**

**Answer: (Top third response for this question)**

- 44% of respondents said “Better automation for provisioning, migration, and archival.” was one of their top three answers
- 65% of IT Managers and 60% of IT Staff responding to the Computerworld Survey indicated “Better automation for provisioning, migration, and archival” was a 4 or 5 (Most Desired)

### ***Other Survey Findings***

Information Life Cycle Management and compliance with data lifecycle regulatory issues rated low in both surveys. (See Most Important Issues section).

Although the survey findings do not indicate that SAN reliability and performance score high as a pain point, given their relative importance to IT organizations, even moderate pain indicators are noteworthy. Reliability issues as they regard available backup and recovery solutions appear to be a significant concern. (See Most Important Issues section, Reasons for Implementing SAN section, and Biggest Storage Management Challenges section for more details)

# Proposals for New Initiatives

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## **Next Steps**

With advice and cooperation from the SNIA, the End User Council proposes the following initiatives to address the findings of the EUC Top Ten Pain Points Survey.

### **Architectural Standards**

Simplify the technology with architectural standards, helping to reduce both the complexity and the cost thereby addressing several common negative perceptions regarding SANs and networked storage.

### **Ideas for Discussion**

- Publish a set of proven metrics, and best practices for using those metrics, that can assist a general System Administrator in provisioning storage networking technology for three common application environments (electronic messaging, database/OLTP systems, and data warehousing).
- Using the same metrics, provide templates for simplified and right-sized solutions with end-to-end (application to disk) scalability.
- Brainstorm ways to demonstrate these templates and their effectiveness. One suggestion would be to have end-users build an application environment (including a SAN) as part of the program at the Fall 2004 SNW in Orlando.

### **Work in Progress**

End User Council members have held discussions with SNIA members and SNIA staff involved in the SNW Interoperability and Solutions Demonstration Lab regarding end-user involvement.

### **Education**

Accelerate education and certification of storage administrators, while simultaneously accelerating the adoption of standards and best practices.

### **Ideas for Discussion**

- Create more educational offerings and publications in multiple regions throughout the world.
- Engage our affiliate, StorageNetworking.org, to assist in the role of stewardship and leadership in the areas of education and certification.
- Sponsor a presentation, educational session or other communication by the SNIA Education Committee on plans and progress in these critical areas as part of the program at the Fall 2004 SNW in Orlando.

### **Work in Progress**

This kind of initiative was demonstrated with an EUC-sponsored panel discussion on ROI and TCO models during the Spring 2004 SNW. More of these types of initiatives have been discussed, including presentations on Network Storage Maturity models. The EUC has also developed an education-based CD with distribution beginning at SNW Spring 2004.

On May 19, 2004, End User Council participated in a conference call with the SNIA Education Committee to brainstorm ideas and discuss their feasibility. A standing committee was proposed, to be made up of Education Committee members, End User Council Members and SNIA marketing to further develop plans and implement new programs.

## Summary and Conclusions

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The TTPP survey clearly indicates that end-users are struggling to meet their companies' cost containment objectives and to justify expenditures to improve their storage infrastructures. As a commodity, disk storage has become less expensive, driving demand for increased data storage. The supporting infrastructure and management tools are still expensive. The infrastructure is complex and interoperability and compatibility issues make storage networks difficult to scale to meet the demand. Cost issues are compounded by the need for more highly skilled storage professionals. The storage solutions that are designed and implemented vary from customer to customer and supplier to supplier. Many are well designed and supported solutions. Some are clearly over-provisioned, driving up costs; while others under-provisioned, making them inefficient and difficult to scale thereby driving up costs. There is a perception regarding Fibre Channel infrastructure that the technology is scaling faster than the demand driving it.

Management challenges center on storage resource management (SRM) and storage area network (SAN) management tools that are expensive, difficult to justify, complex and incomplete. This is another component where interoperability and compatibility issues are limiting effectiveness. End-users are left using multiple tools that don't interoperate to support silos of their storage infrastructure. Automated provisioning solutions are still considered slideware or vaporware. Without these tools and solutions, SAN performance and reliability issues are difficult to avoid, detect, diagnose and resolve. Tape backup and restore reliability is also a growing cause for concern.

Many customers have expressed dissatisfaction with the quality of support, both pre- and post-sale. Complaints range from a lack of product knowledge and technical "gotchas" to technology over-hype. Some customers are employing their own engineers or contract consultants to verify technical solutions. This is work for which they used to depend on pre-sales engineers.

The end-users' most significant pain points still revolve around basic storage management issues: cost containment, provisioning for increasing capacity, reliability and performance and managing complexity.

If storage technology is to mature and be broadly adopted, these basic issues must be addressed. The survey findings indicate the root of many of these pain points is a lack of broad fundamental understanding in the industry of how to architect, provision, scale and support SAN technology solutions. Common best practices that can be broadly applied to multiple business applications need to be identified and promoted.

The survey also indicates the overriding need for a management approach for Storage Networking that is simpler, smarter, more scalable and less expensive than what the market has provided heretofore. This could be seen as validation for the efforts of the SNIA's SMI initiative, poised as it is to deliver products of value in the near future.

The SNIA End User Council will continue to collaborate with their partners the SNIA and StorageNetworking.org, to discover and promote architectural standards and best practices that will simplify the management of networked storage solutions.