



Education

## **Help! My User Base Eats Storage for Lunch!**

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## ➤ Help! My User Base Eats Storage for Lunch!

In today's data center storage is the fastest growing component, this as storage managers are faced with the daunting task of reducing cost while keeping up with service levels. The DBA's insist their applications need to have the high end storage devices because their application is the most important to the success of the business. While the accountant down the hall has saved no less than 10 copies of last month's ledgers because she wants to make sure they don't lose it. How does a storage manager manage his user base? By making the financial costs of storage transparent to the user population. This presentation is designed to help you get started on creating TCO for your storage systems as well as tips on how to communicate the storage costs to your user base.

***Unit Costs =***

**Total Costs**

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**Total Usage**

# 3 Definitions

1. Define your tiers of storage
2. Define your costs
3. Define your usage



# Define Your Tiers of Storage

- How many tiers of storage do you have?
- Know your audience
  - ◆ Business Users
  - ◆ IT Users
- You need to make it:
  - ◆ Understandable
  - ◆ Reasonable
- Tips:
  - ◆ New “things” and old “things” go together
  - ◆ Limit the number of tiers 3-5
  - ◆ Remember you are expecting someone to make a business decision based off of this information

# Define your costs (the Numerator)



**Worry about Consistency and  
Fairness  
Don't get confused with accuracy**

# Define Your Cost Hardware and Software

- Questions you need to find out first:
  - ◆ What is the depreciation schedule on hardware and software?
  - ◆ What is the maintenance on hardware and software?
- What are the hardware components included in each tier of storage?
  - ◆ Switch
  - ◆ Storage arrays
  - ◆ HBA/NIC?
- Tips:
  - ◆ Don't be afraid to allocate shared resources
  - ◆ Allocate backup cost with each tier

# Pop Quiz #1

## Define Your Costs

# Define Your Cost

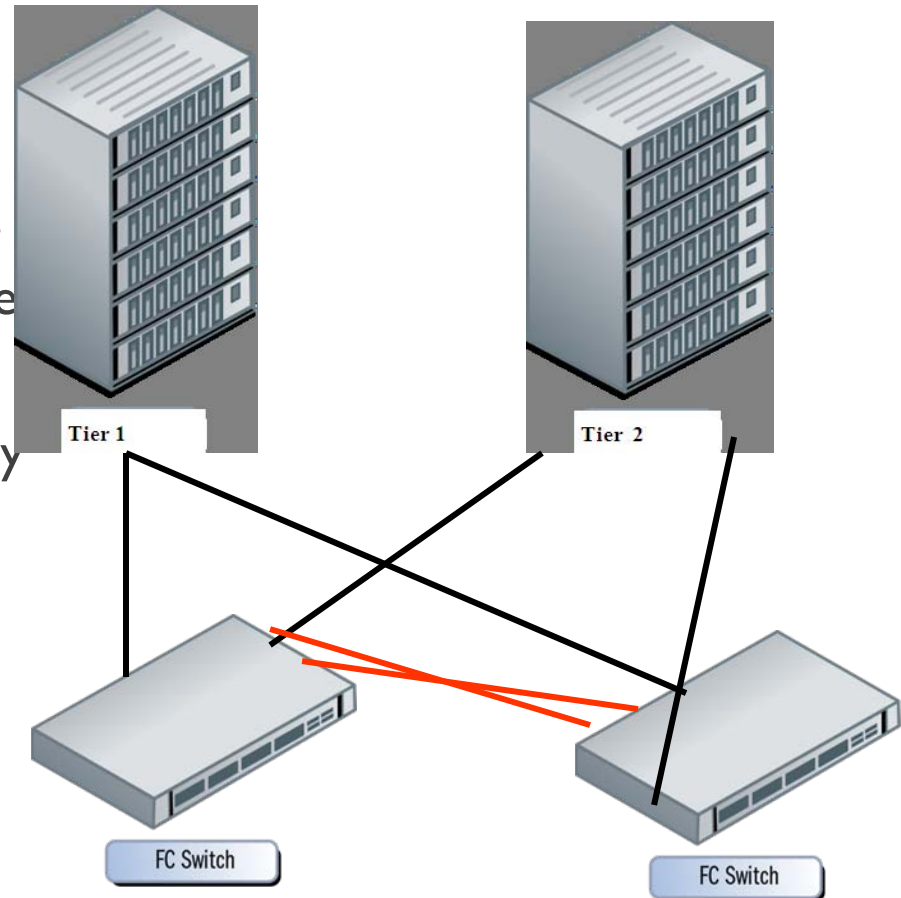
## Example – Switch Ports

### ➤ Requirements

- ◆ 2 Tiers of Storage
- ◆ 4 Year depreciation schedule
- ◆ 4 Years Pre-Paid Maintenance

### ➤ Costs

- ◆ 2 – 32 port FC Switches, Fully Utilized, \$32,000
- ◆ 2 – Ports used for ISL's
- ◆ Tier 1 = 25%
- ◆ Tier 2 = 75%



**How much of the switch cost should be allocated per year to each tier of storage?**

# Answer

- Step 1: Take the total cost of both switches
  - ◆  $\$32,000 \times 2 = \$64,000$
- Step 2: Divide by the depreciation period (4 years)
  - ◆  $\$64,000/4 = \$16,000$  per year
- Step 3: Allocate by Tiers
  - ◆ Tier 1:  $\$16,000 \times 25\% = \$4,000$  per year
  - ◆ Tier 2:  $\$16,000 \times 75\% = \$12,000$  per year

**Include the 2 switch ports for interconnection in the overall cost of maintaining the storage!**

# Define Your Cost -- People Cost

## ➤ Questions you need to find out first:

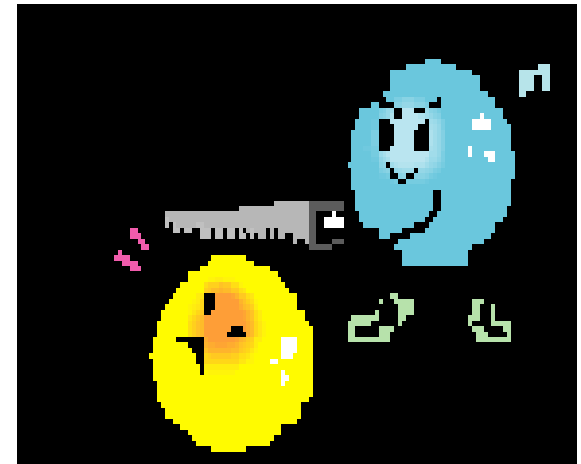
- ◆ Do you want to include any overhead? (example: employee benefits etc.)
- ◆ What labor is it? Just the storage administrators?

## ➤ Include/Exclude

- ◆ Storage Administrators
- ◆ Server Teams
- ◆ Operations

## ➤ Tips

- ◆ Don't be afraid to use fractional people
- ◆ Don't over analyze or let others make you!!!





**Ask SME's this question:**

**What is the best and most accurate  
answer you can give me in 30 seconds or  
less?**

**Tick-Tock!!**

# Define Your Usage (the Denominator)

- Really Hard Part!!!!
- You need to define your usage only by what you can measure, not by what is actually used.
  - ◆ Example:
    - › Databases have workspace.
    - › If 4 applications are running on a server using the same workspace, the workspace is not actually allocated to an application.
- Know your audience
  - ◆ What level of detail does your audience need to make business decisions
  - ◆ How are you are you allocating now?

# Define Your Usage Tips

- Don't worry about being 100% correct
  - ◆ Remember: Consistency and fairness
  - ◆ Don't get bogged down by accuracy
- Show the importance of your initiative to other teams
  - ◆ Solicit input
  - ◆ See if they can be a source of data

# Pop Quiz #2

## Define Your Usage

# Define Your Usage Example

## ➤ Question 1

- ◆ 100 TB array
- ◆ 4 databases
  - > DB1 = 25TB allocated
  - > DB2 = 15TB allocated
  - > DB3 = 20TB allocated
  - > DB4 = 10TB allocated

## ➤ Question 2

- ◆ 100 TB array
- ◆ 4 File systems
  - > FS1 = 30TB allocated
  - > FS2 = 20TB allocated
  - > FS3 = 25TB allocated
  - > FS4 = 15TB allocated



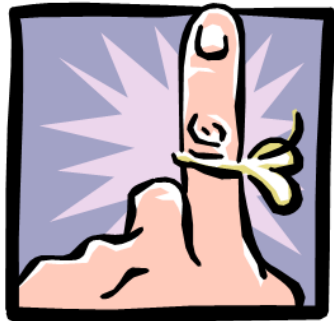
**How much storage is  
actually used in each array?**

## ➤ Question 1:

- ◆ Add all databases:  $25\text{TB} + 15\text{TB} + 20\text{TB} + 10\text{TB} = 70\text{TB}$
- ◆ What do you do with the other 30TB?

## ➤ Question 2:

- ◆ Add all file systems:  $30\text{TB} + 20\text{TB} + 25\text{TB} + 15\text{TB} = 90\text{TB}$
- ◆ What do you do with the other 10TB?



**Remember your goal:**

**You want to give the business  
information they need to make business  
decisions.**

# Refer to Other Tutorials



**Check out SNIA Tutorial:  
SRM: Can You Get What You  
Want?**

- Please send any questions or comments on this presentation to SNIA: [trackstoragemgmt@snia.org](mailto:trackstoragemgmt@snia.org)

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