Storage Management Profile

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Symbios Logic

State of Storage Management

- SCC Developed 1992 - 1996
    - Introduced Many Useful Concepts
        - Flexible RAID Configuration and Status
        - Flexibility => Complexity
    - Not Widely Accepted
- SCC 2 Developed 1996 - 1997
    - Introduced Simpler, Attribute Configuration
- SES Developed 1996
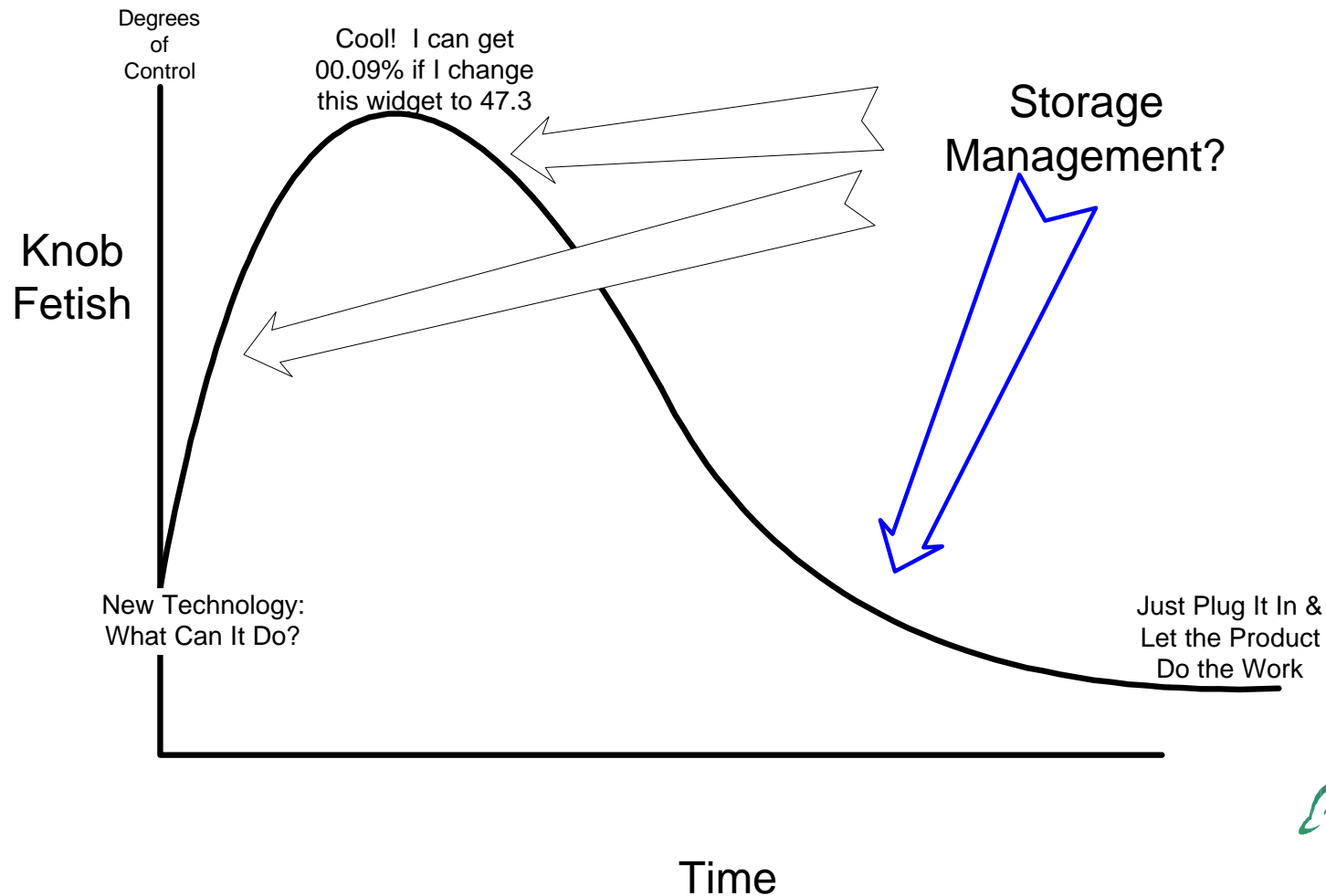   - Introduced Enclosure Services for 1 or More Enclosure Devices

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Goal of Storage Managememt Profile

- Enable Storage Providers and Vendors to Provide Tools that Use a Minimal Set of Commands to Configure, Manage, and Monitor Compliant Storage Management Devices (such as RAID Systems, JBODs)

- Knobs Control of Whiz-Bangs are Left to the Providers of Said Knob

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The Cycle of User Interaction with New Technology

Degrees
of
Control

Cool! I can get
00.09% if I change
this widget to 47.3

Storage
Management?

Knob
Fetish

New Technology:
What Can It Do?

Just Plug It In &
Let the Product
Do the Work

Time

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Storage Management Profile ?Why?

- Basic Configuration & Monitoring of Storage Systems in Open Systems Environments is Being Demanded by the User Community

- Desire to Increase the Markets Readily Available to Storage Vendor Suppliers and Third Party Storage Management Vendors

- Enable Rapid Technology Evolution Acceptance In the Market Place by Defining Attribute Oriented Storage Management/Monitoring

- Provide a Standard Set of Configuration/Monitoring Attributes that may be Used in DMI (and other similar interface) Definitions

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Profile Topics?

- Device Discovery Requirements
    - WWN Usage Specification
    - Mandate of Commands (i.e. REPORT LUNs, etc.)
    - Storage System Configuration Entry Point Specification
        - LUN 0?
        - Other Compatible Scheme?

- RAID Configuration/Monitoring Requirements
    - Simplified SCC-2 Configuration + Monitoring
    - Redundant Controller Management?

- Enclosure Management/Monitoring
    - SES Usage, Sub-Enclosure

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Consistent Use of Globally Unique World Wide Name

1 Volume (Logical Unit)

Original Controller
WWN =
5A CD E4 8B 17 34 F6 2D

Configuration after controller replacement and

WWN =
6A CD E4 8B 17 34 F6 2D
12 34 56 78 9A BC DE 31

WWN =
5A CD E4 8B 17 34 F6 95

WWN =
6A CD E4 8B 17 34 F6 2D
12 34 56 78 9A BC DE 31

2nd Volume (Logical Unit)
Created by Replacement

WWN =
6A CD E4 8B 17 34 F6 95
12 34 56 78 9A BC DE 98

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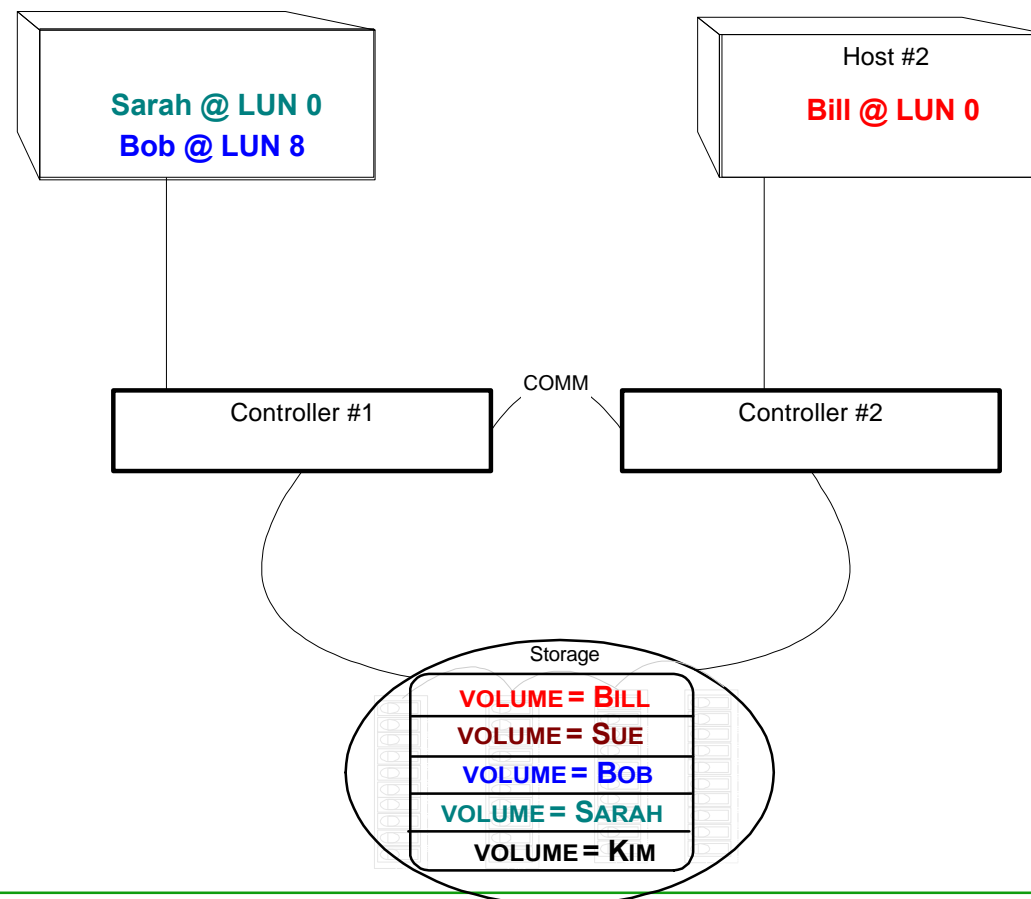L O G I C

Entry Point for Configuration/Monitoring

- ## SCC Defines LUN 0 as Config/Monitoring LUN

  - Clean Definition - Always Available

  - Requires Significant Changes in Existing Drivers

- ## Alternate Proposals?

  - Allow Direct Access Device Access to SCC Command Set per SES precedent

  - Others?

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Simplified SCC-2 Configuration

- Simplified SCC Attributes
    - Capacity of Volume
    - Redundancy Group Method
    - Rebuild/Reconstruct Priority
    - Bus Protection Requirement
    - Performance Hints
        - Normal Data Transfer Rate
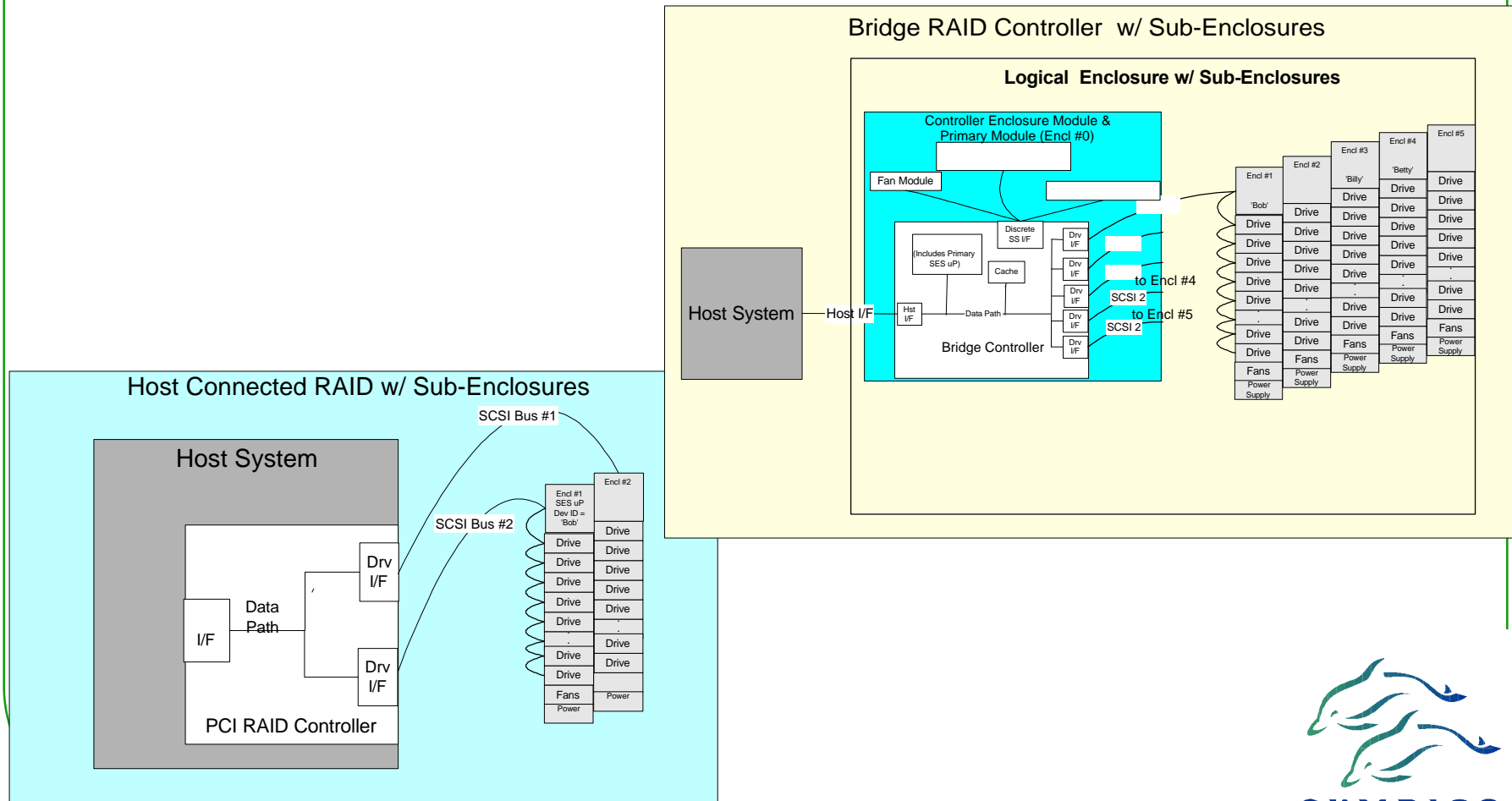   - % Sequential READs, % Sequential WRITEs

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Redundant Controller Volume Mapping

- Assign/Deassign Volume
- Report Volumes/Report Deassigned Volumes

Sarah @ LUN 0
Bob @ LUN 8

Host #2

Bill @ LUN 0

COMM

Controller #1

Controller #2

Storage

VOLUME = BILL
VOLUME = SUE
VOLUME = BOB
VOLUME = SARAH
VOLUME = KIM

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Enclosure Management

- SES Provides Needed Mechanisms
  - Sub-Enclosure Model Required

Where to Go From Here?

- Proposed Profile Outlining Agreed Upon Parameters?

- Meet as Part of T10 Week?

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