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#### Customer Challenges

- Continued explosion of managed capacity
- Reduction or lack of growth in IT resources
- Direct attached storage is difficult and expensive to manage
- Need to fully utilize existing storage infrastructures
- Difficult to monitor and configure multi-technology networked infrastructures
- Difficult to assess the utilization of resources
- Difficult/impossible to do capacity planning
- Too many tools from too many vendors
- No standards

Defining Storage Management:

The tools and technology that enable, enhance, and simplify the monitoring, configuration, and planning of increasingly complex storage infrastructures.

- Elements of Storage Management
  - Monitoring
    - Ability to determine health of the environment
    - Ability to set thresholds for alerting
    - Proactive error determination
    - Ties to network frameworks
  - Configuration
    - Storage elements (RAID, Tape Libraries, etc.)
    - Storage plumbing (switches, routers)
    - Hosts (HBA configuration, OS tuning)
    - Virtualization

- Elements of Storage Management (cont.)
  - Planning
    - Just in time storage acquisition
    - Capacity planning
    - Manager allocation and accounting

- Current Storage Management Tool Vendors
  - Veritas
  - Legato
  - Data Core
  - StorageApps
  - Tivoli
  - BMC
  - EMC
  - Hitachi
  - Brocade
  - McData
  - ... AND many others including the system manufacturers

#### Emerging Technologies

- Centralized administration tools
  - Single point of control frameworks
  - Advanced storage network monitoring capabilities
- Virtualization
  - What is virtualization
  - Why do customers want it
  - Different approaches
  - Timeframe for implementation
- Server-free Backup
  - What is server-free backup
  - Timeframe for implementation

### Storage Management Strategies

- Centralization and Virtualization enabled by storage networks are becoming keys to storage management
- Keep it as simple as possible don't try to integrate too many point products
- Watch and stick to standards when possible e.g. SNIA activities around the Common Information Model (CIM)