TIERED STORAGE FUTURES

Jonathan Otis
VP Technology and Alliances
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Tiered Storage System usage is growing

- – Tiered storage no longer about archive
- – Size of datasets still growing exponentially
  - ▪ Content generation still on the rise
- – Access demands increasing
  - ▪ Workplace is going where the people are
  - ▪ Smartphone/tablet globalization
  - ▪ Turning old archives into new commerce
- – Technology changes are synergistic to growth
- – Only way to manage effectively and efficiently

In the Enterprise

- Huge conflict between scale and cost
  - Cost per managed TB not falling fast enough
  - Cost of separate systems for each copy too high
- Combine primary, nearline and archive
- Geographic file sharing*
- Object Storage systems and Cloud options
  - Gaining traction, adoption escalating

Cloud having a huge impact

- Systems will have to support cloud tiers
  - Amazon, Google, MSFT, Rackspace ….
- Exciting because:
  - Outsourcing opportunity
  - Unlimited resources
  - Pay as you grow
  - Potential for lower costs
- https/REST is the new SCSI
- Cloud economics still not right

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Global/Geographic

- Huge changes will occur around geographic aspects of tiered storage
  - Durability
  - Access
  - Cost containment
- Implementations
  - Federation
  - File system virtualization
  - Appliance layer
  - Cloud
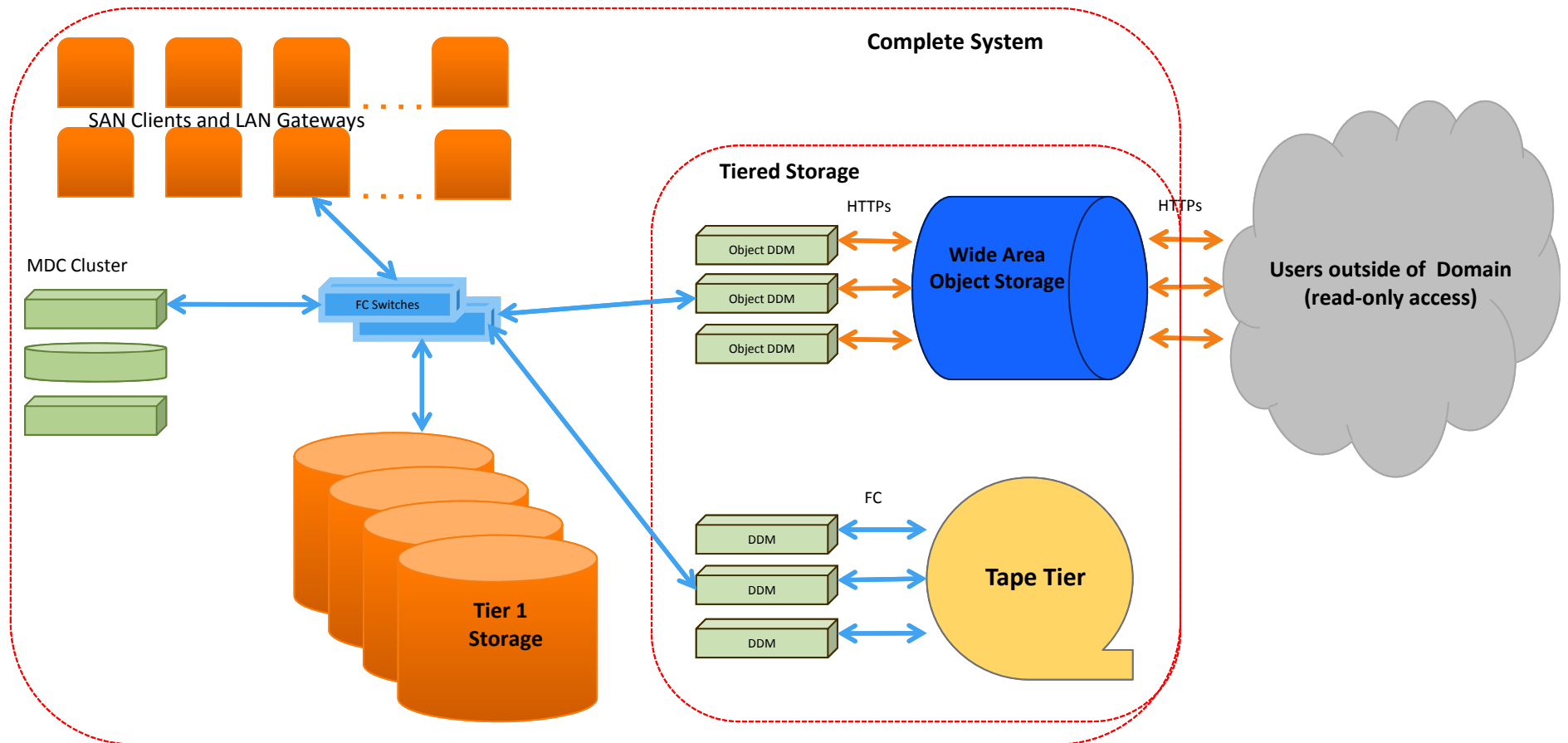- Performance is at risk

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Tape Is Not Dead

– Tape is still the lowest cost storage tier

  ▪ At 4th copy, even with object storage

– LTO standard strong

  ▪ next two generations locked

  ▪ BaFe media finally coming

  ▪ LTFS working group moved to SNIA

– Open formats will be adopted

– New data formats will be shared across tiers

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Other changes

- Self-managing storage tiers
    - Monitor data integrity
        - Automated tape replacement
        - Erasure coding for disk system durability
- Hadoop Map/Reduce and other analytics
- Flash
    - Increases server performance
    - Lowers network latency
- Virtualization
    - Flexibility and failover
- Simpler and easier systems management

Ubiquitous Access to data

Complete System

SAN Clients and LAN Gateways

MDC Cluster

FC Switches

Tier 1 Storage

Tiered Storage

Object DDM

Object DDM

Object DDM

HTTPs

Wide Area Object Storage

HTTPs

Users outside of Domain (read-only access)

DDM

DDM

DDM

FC

Tape Tier

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Thank You