TS7720 Implementation in a 4-way Grid

Rick Adams

Fidelity Investments

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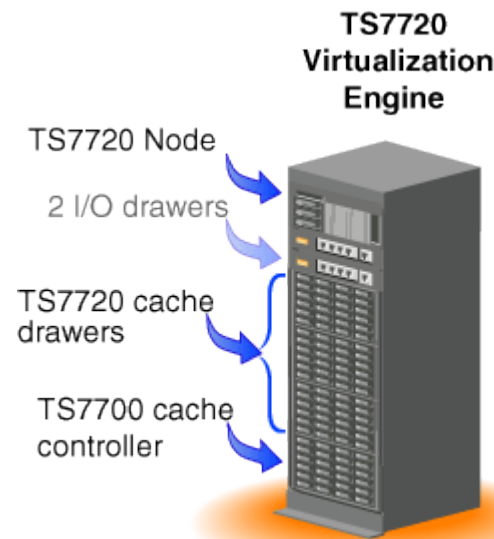
Session Number 11492

Agenda

- Introduction
- TS7720 Components
- How a Grid works
- Planning Considerations
- TS7720 Setup
- SMS Setup
- Reporting
- Statistics

Introduction

- Implemented in October 2011

- 2-way grid in test environment
  - HSM ML2 workload
  - Both local
  - Sync replication mode
  - 6GB virtual volume size

- 4-way grid in production
  - Infopac WORM workload
  - 2 local and 2 remote (1200 miles)
  - Deferred replication mode
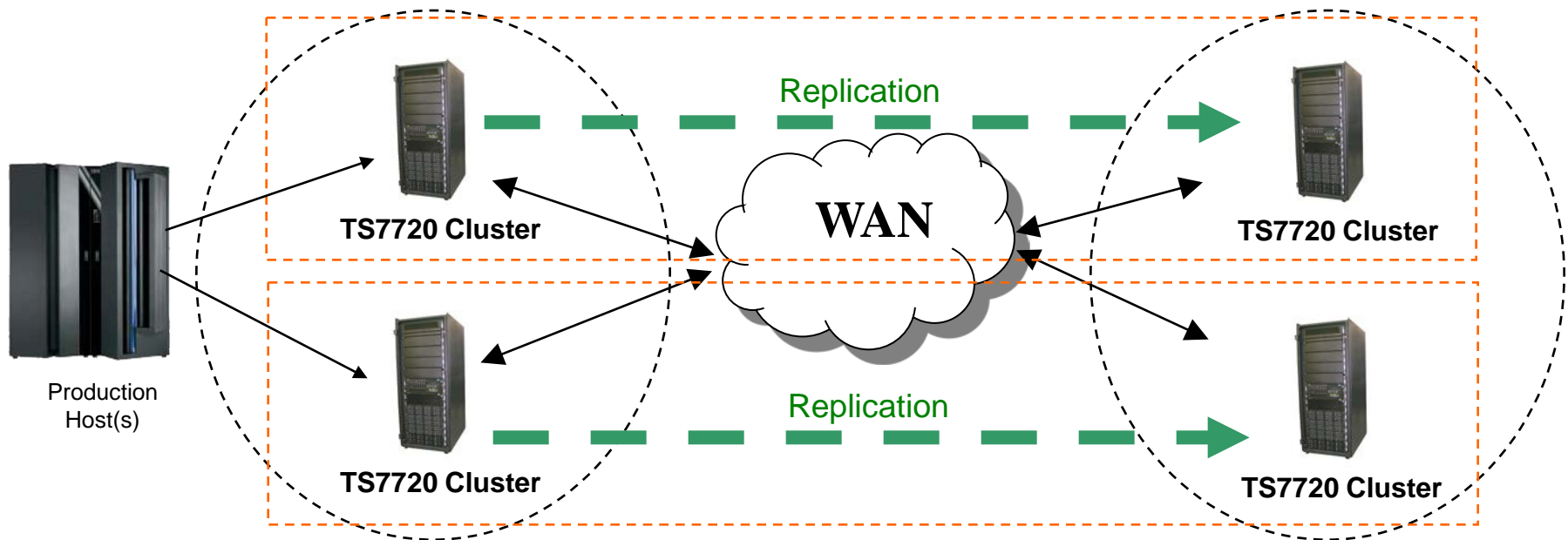 - 25GB virtual volume size

TS7720 Components

- ## Node
  - Performs the virtual device and media emulation and handles the replication function

- ## Cache Drawers
  - Virtual volume storage
  - Up to 7 drawers per cluster including the cache controller

- ## Cache Controller
  - RAID 6

TS7720
Virtualization
Engine

TS7720 Node

2 I/O drawers

TS7720 cache
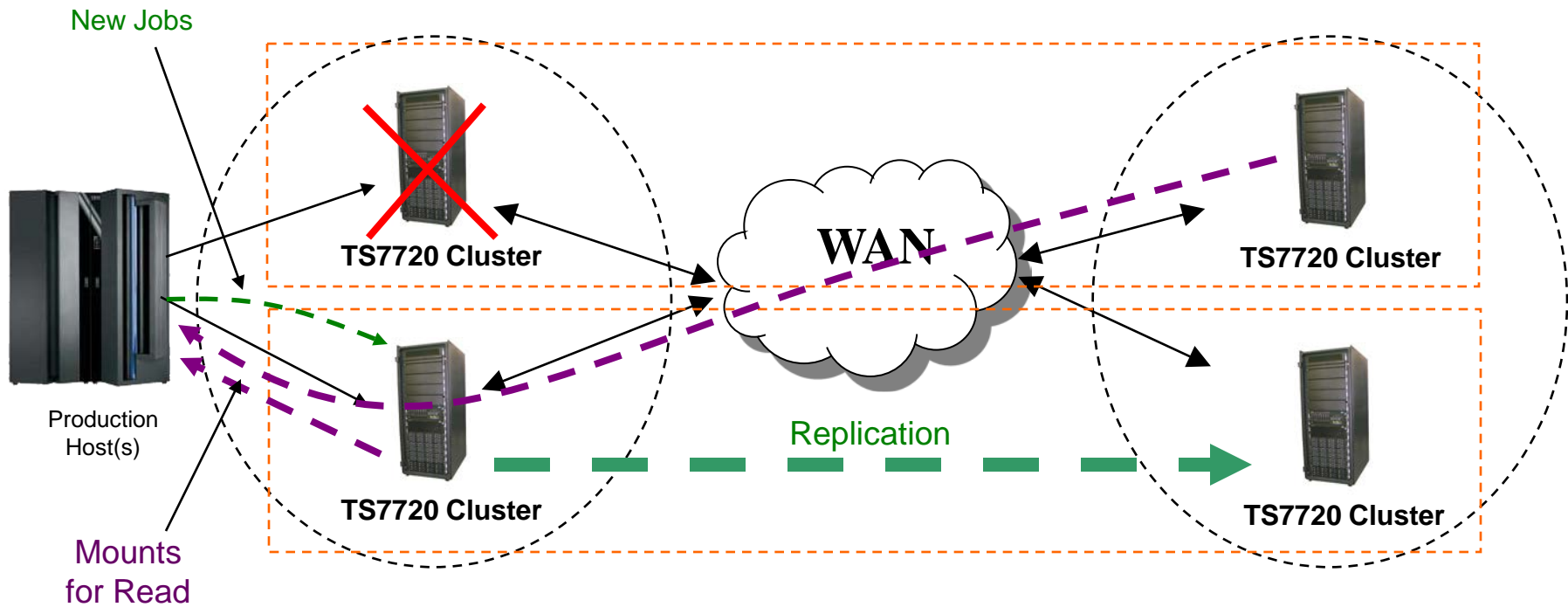drawers

TS7700 cache
controller

4

TS7720 Grid

- A grid is basically two or more clusters connected to one another via a TCP/IP network
  - Current limitation is 6 clusters in a grid
  - Can be geographically dispersed – but not required
  - Can use channel extenders to connect to drives
  - Multiple options for connections
    - FICON to host
    - 1GB and 10GB Ethernet or fibre to other clusters in the grid
  - Can be setup for high availability and/or DR
  - All virtual volumes can be accessed from any cluster in the grid
  - Virtual volumes can be defined as logical WORM if needed.

Popular TS7720 4-way Grid Configuration

Production Host(s)

TS7720 Cluster

TS7720 Cluster

Replication

WAN

TS7720 Cluster

TS7720 Cluster

Replication

Cluster Outage

New Jobs

TS7720 Cluster

TS7720 Cluster

WAN

TS7720 Cluster

TS7720 Cluster

Production
Host(s)

Replication

Mounts
for Read

Planning Considerations

- Each shop is different and will require site specific planning
  - Throughput
  - Drive concurrency
  - Cartridge capacity/utilization
  - Network capacity
  - Tape catalog
    - Ensure volser ranges are available
  - Download the Tape tools
  - Review the IBM Virtualization Engine TS7700 Redbook
- IBM can help with a lot of this information by running a tape study on your environment

TS7720 R2.1 – Sync Copy

- True Sync Mode Copy
  - Up to two sites will be kept consistent after each implicit or explicit tape SYNC operation
  - Provides applications, such as DFSMShsm, dataset level replication (Zero RPO!)
  - Additional Deferred and/or Immediate copies can occur once RUN is received
  - Eliminates the need to run host duplexing for equivalent RPO

SHARE in Anaheim
2012

TS7720 Setup

- The initial setup of the TS7720 is fairly easy. IBM support will work with you on this process. Here are some of the highlights to watch out for.
    - Define your SMS classes to each cluster in the GRID and ensure that the replication settings are correct for each cluster.
    - If using SYNC mode be sure to check the RETAIN COPY MODE – especially for tapes that can be appended to (HSM etc)
    - Separate MGMTCLAS constructs need to be set up for each cluster to accommodate the BVIR (Bulk Volume Information Report) data gathering jobs.
    - You need to define the MIH setting for the virtual drives
        - Minimum 20 minutes
        - 45 minutes if replicating long distances
    - Review the IBM Techdocs. Lots of good information!
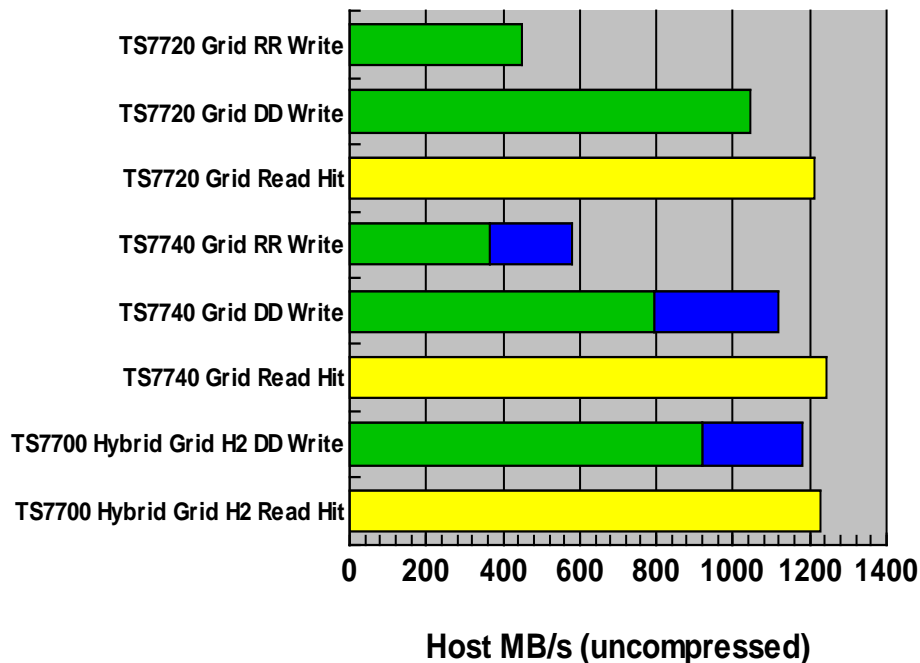   - www.ibm.com/support/techdocs/ - search for TS7720

SMS Setup

- The SMS setup is fairly standard if you have any experience with IBM libraries. The TS7720 uses the class definitions influence how the data is managed within the grid.
  - The DATACLAS's decide the logical volume size and if you want logical WORM
  - The STORCLAS is used to influence how data is handled in the TVC. Pinned, Prefer Keep, Prefer Remove, Minimum Retention Time.
  - The MGMTCLAS is used to define the replication parameters
  - The STORGRP is used to point to the composite library
- The library definitions include:
  - One distributed library definition for each cluster
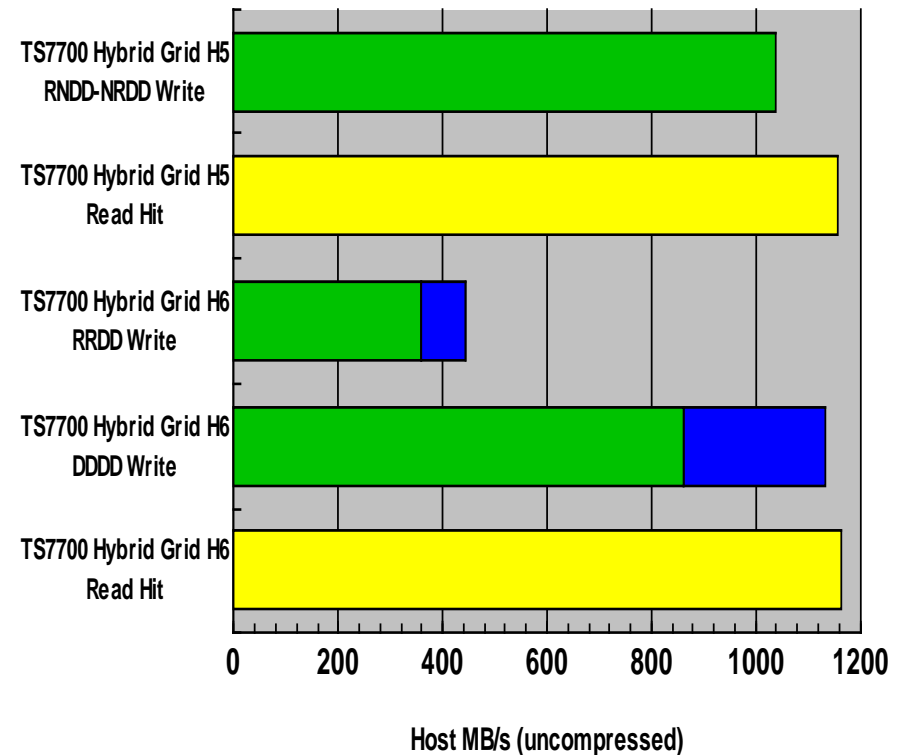 - One composite library definition for the grid

Performance Capabilities

(IBM Provided)

Two-way TS7700 Grid with Dual Active Clusters

Four-way TS7700 Grid with Dual Active Clusters

Host MB/s (uncompressed)

■ Sustained Write ■ Peak Write □ Read Hit

Technical Documents and Resources

- There are lots of documents to help with the setup of the TS7720.

  - www.redbooks.ibm.com
    - Search for TS7700
    - Probably the biggest Redbook I have ever used!
  - www.ibm.com/support/techdocs/
    - Search for TS7720

  - Feel free to contact me with any questions – I will help where I can!
    - Rick.adams@fmr.com
    - 972-584-5218