Heterogeneous Shared Access to Tape Libraries

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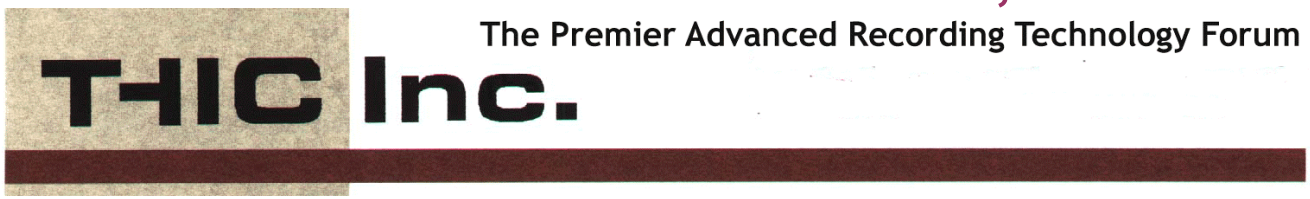
Presented at the THIC Meeting at the Embassy Suites Hotel Denver South

Englewood CO 80112

on June 28, 2000



For Business
Tape Storage Solutions

It's how business backs up.

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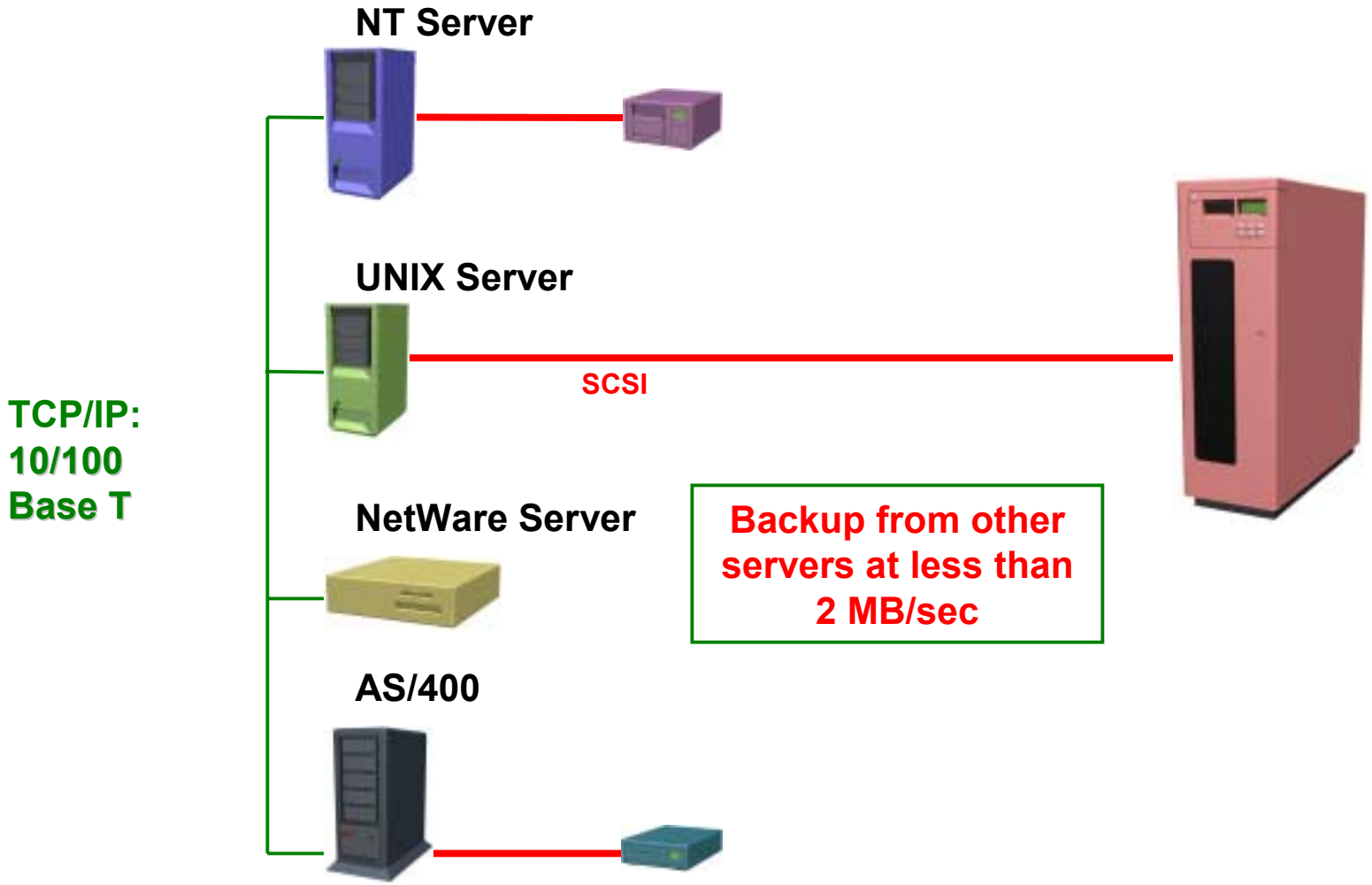
Heterogeneous Servers - Tape Device Sharing Today



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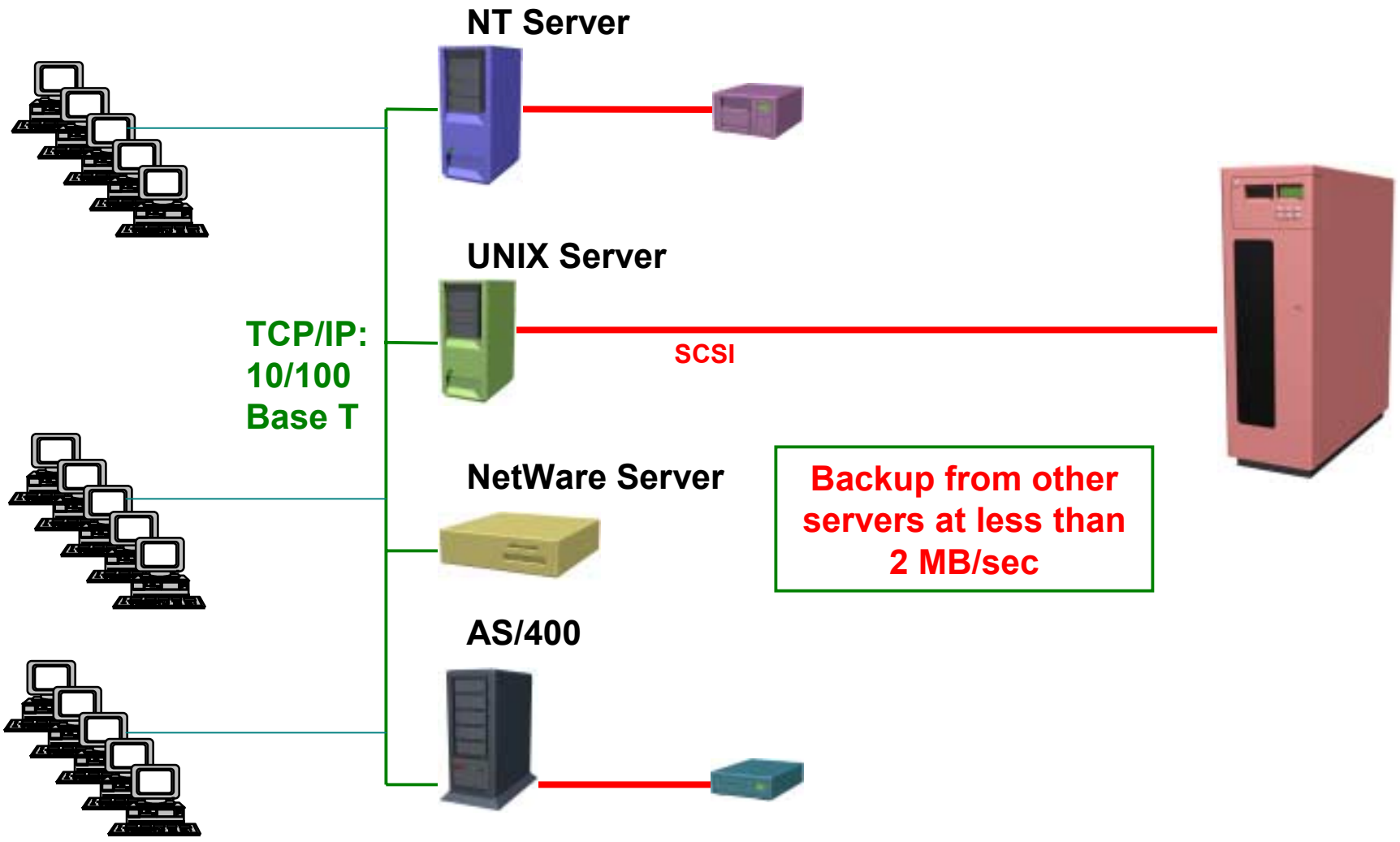

Driving the Current Topology

- Economics
  - Medium- and large-scale libraries are expensive compared to the computers to which they're attached
    - Exacerbated by the installation of huge numbers of inexpensive Windows servers
- Software
  - Readily available and mature (dated?) software to support network backup paradigm

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Network Backup Problems

- Performance
  - Only one server is directly attached to the tape library and its drives
    - Other servers and nodes transmit data over the network
      - 2 Mbytes per second is high-average
  - Heavy impact on other applications
  - Shrinking backup windows create scheduling nightmares

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Network Backup Problems

- Cost
  - Enterprise backup software can equal or exceed the cost of the tape library
    - License fees continue year after year
    - Library management software can double the cost
  - Application downtime is expensive

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Create a Better Way

- Eliminate the network from the equation
- Improve performance by a factor of at least 10:1
- Share all tape drive and library resources
- Incorporate the latest technologies without ignoring legacy devices
- Provide important new features
- Reduce dependence on expensive software
- Centralize management and control

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Create a Better Way

- Design Goals
  - Leverage commodity hardware
    - Intel-based motherboard
    - Leading brand host bus adapters
      - Adaptec
      - QLogic
  - Open source operating system
  - Transparent to ISV products
  - Product updates via internet

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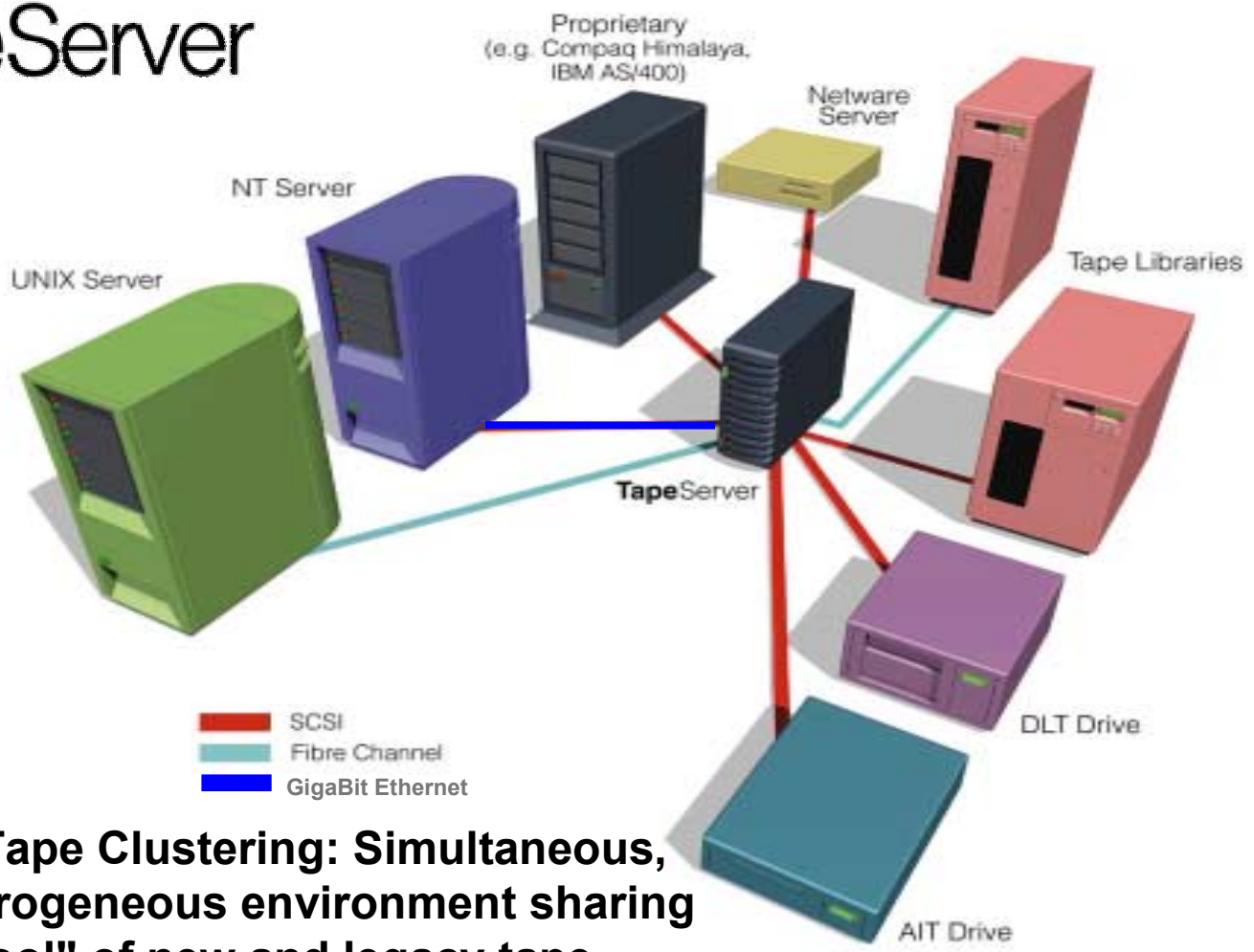
TapeServer



- **HA Tape Clustering: Simultaneous, heterogeneous environment sharing a "pool" of new and legacy tape resources via SCSI and Fibre Channel and Gigabit Ethernet**

100 - 200 megabytes per second throughput

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Applied Technologies

- Target Mode SCSI Device Drivers
  - Adaptec Ultra2 / Ultra160 SCSI
  - QLogic Fibre Channel
    - allows standard PCI host adapters to appear as a target devices instead of acting as an initiator
- Emulation Layer for Targets
  - Heuristic Device Definition
    - allows hosts to support any connected device
    - database approach performs “on-the-fly” emulation driver creation

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Applied Technologies

- TapePath™ Switching
  - Uniquely efficient methodology
    - any to any
    - any to many
    - no measurable performance overhead
- Command Caching and Queuing
  - Enables Unlimited Virtual Libraries
    - remains 100% compatible with industry-leading software

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Applied Technologies

- Host and Software Independence
  - Multiple heterogeneous hosting including Windows (NT and 2000), Unix (all flavors), Linux, Netware, and Proprietary (Tandem, AS/400, etc.)
    - Veritas, Legato, CA-Arcserve, et al may all operate simultaneously without conflict
- Multiple Input Sourcing
  - SCSI
  - Fibre Channel
  - Gigabit Ethernet
  - Peripheral to Peripheral

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Windows 2000

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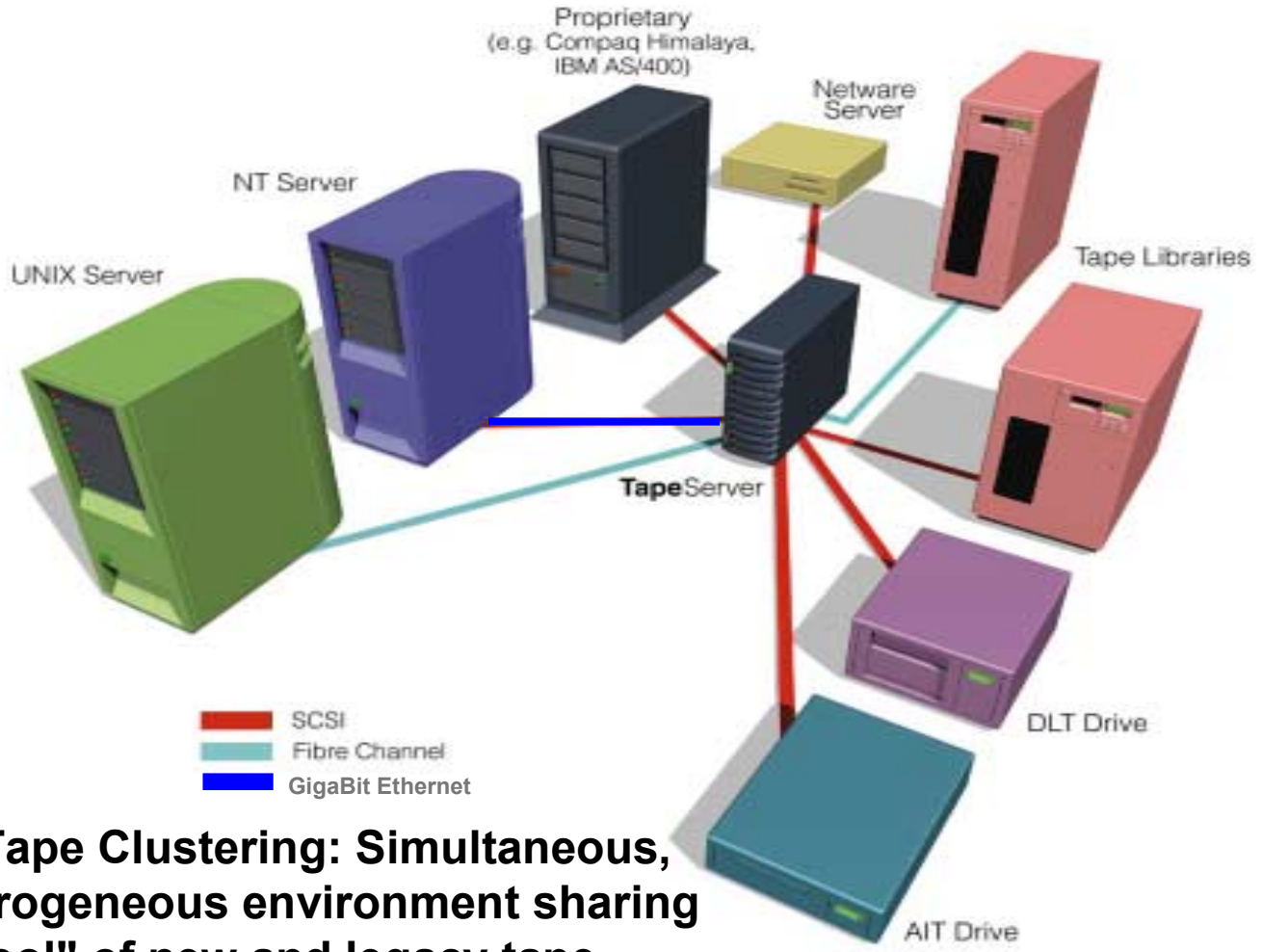

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TapeServer - Typical Applications

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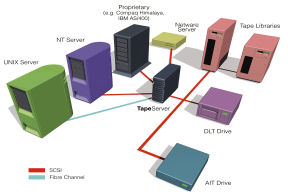

- Virtual Libraries (Partitioning)

- Library Mirroring

- Background Media Conversion

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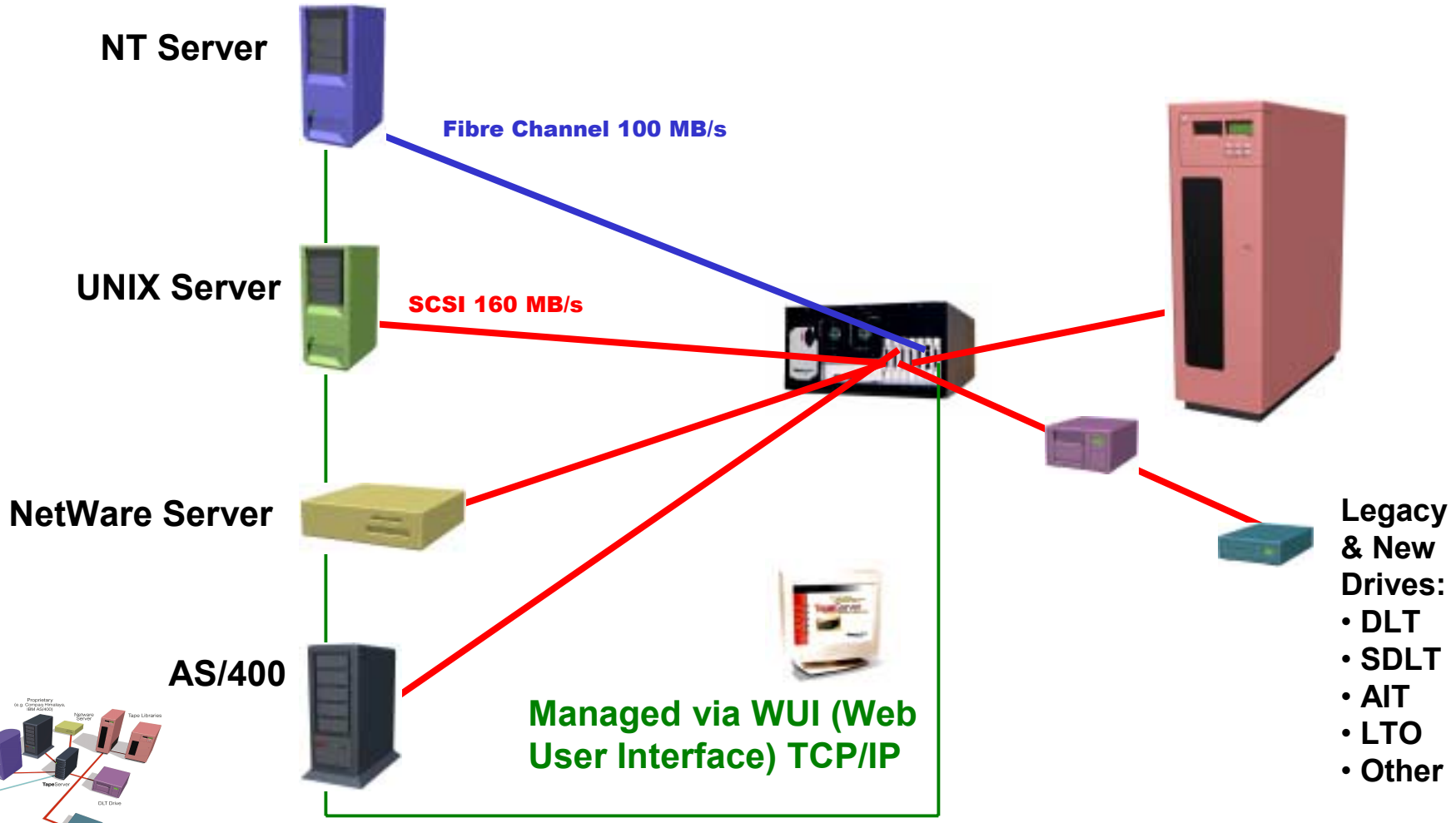
TapeServer Device Sharing: Accessing Library and Drives at High Speed via SCSI & Fibre Channel



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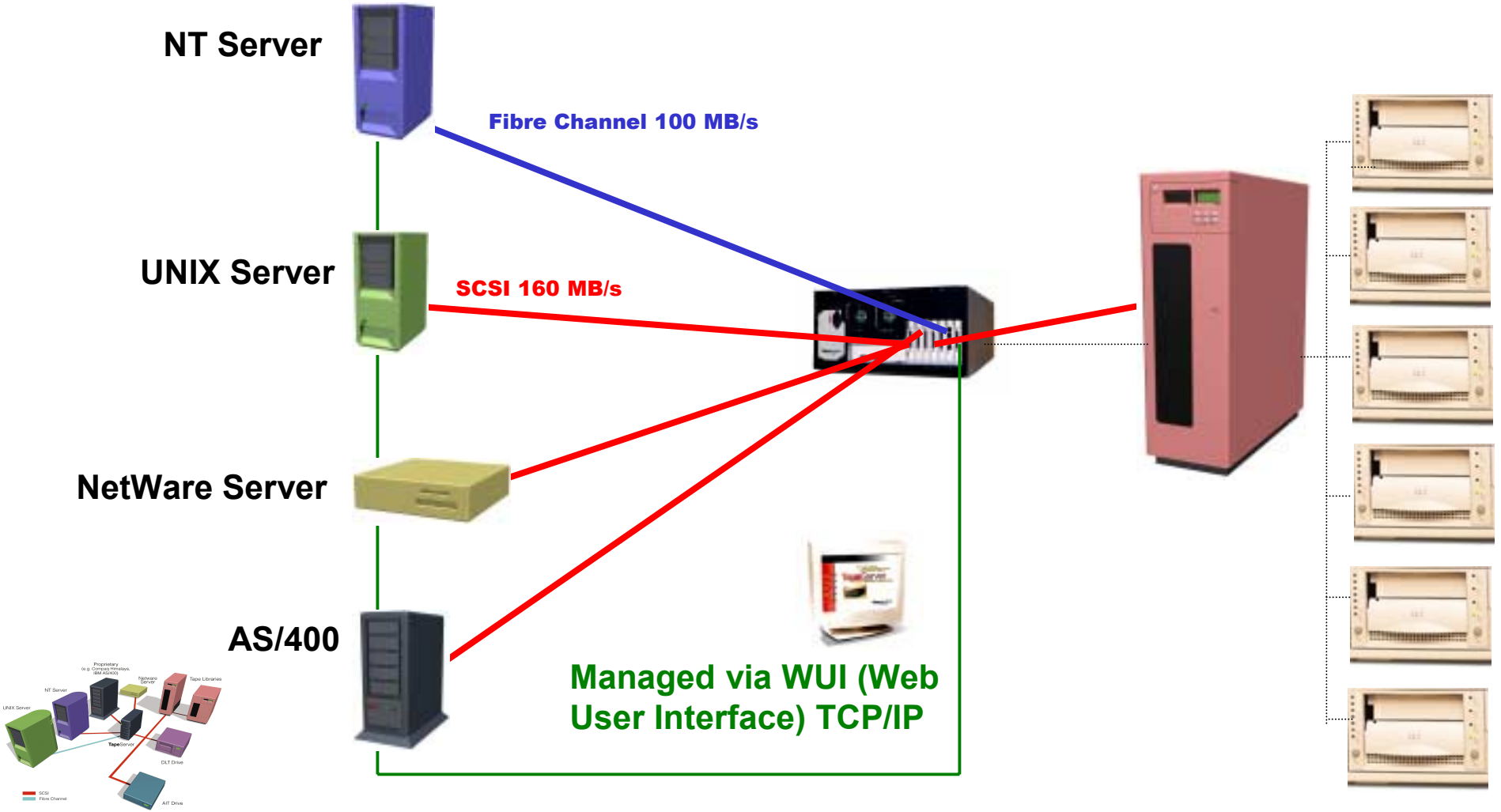
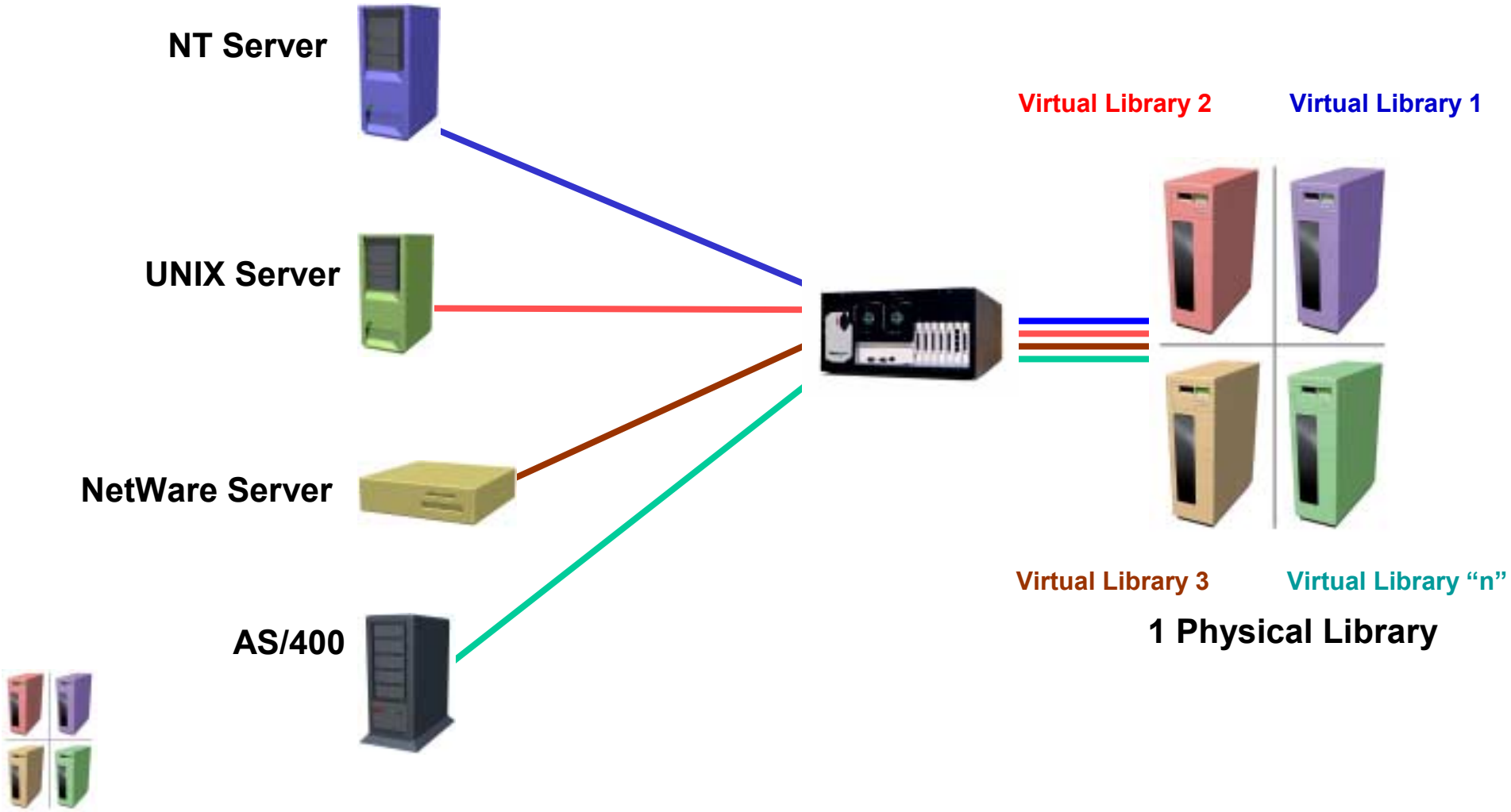
TapeServer Device Sharing: High Availability-- because any device may be dynamically assigned to any host



Library Appears as Multiple "Virtual" Libraries (Partitioning)



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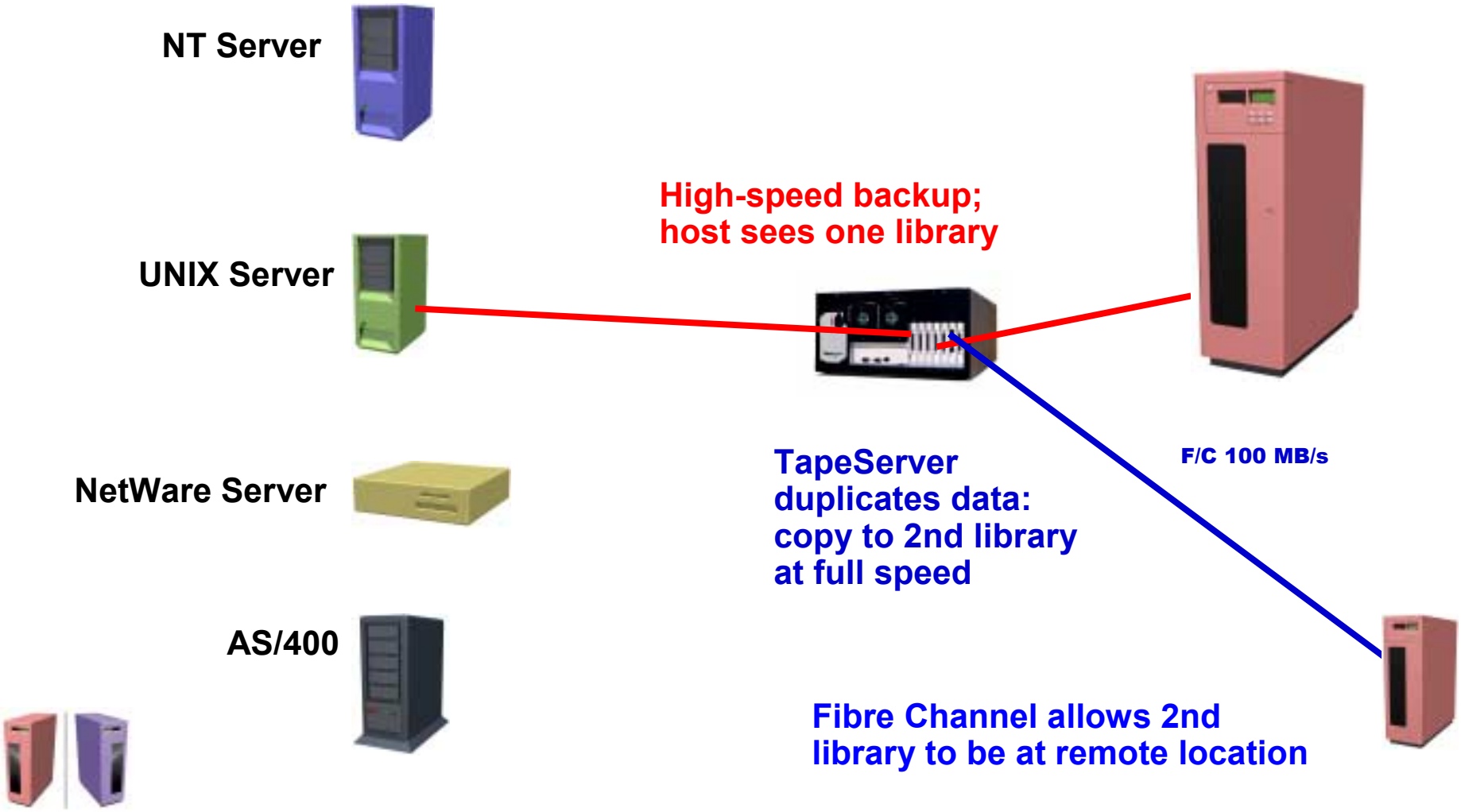
TapeServer Library Mirroring



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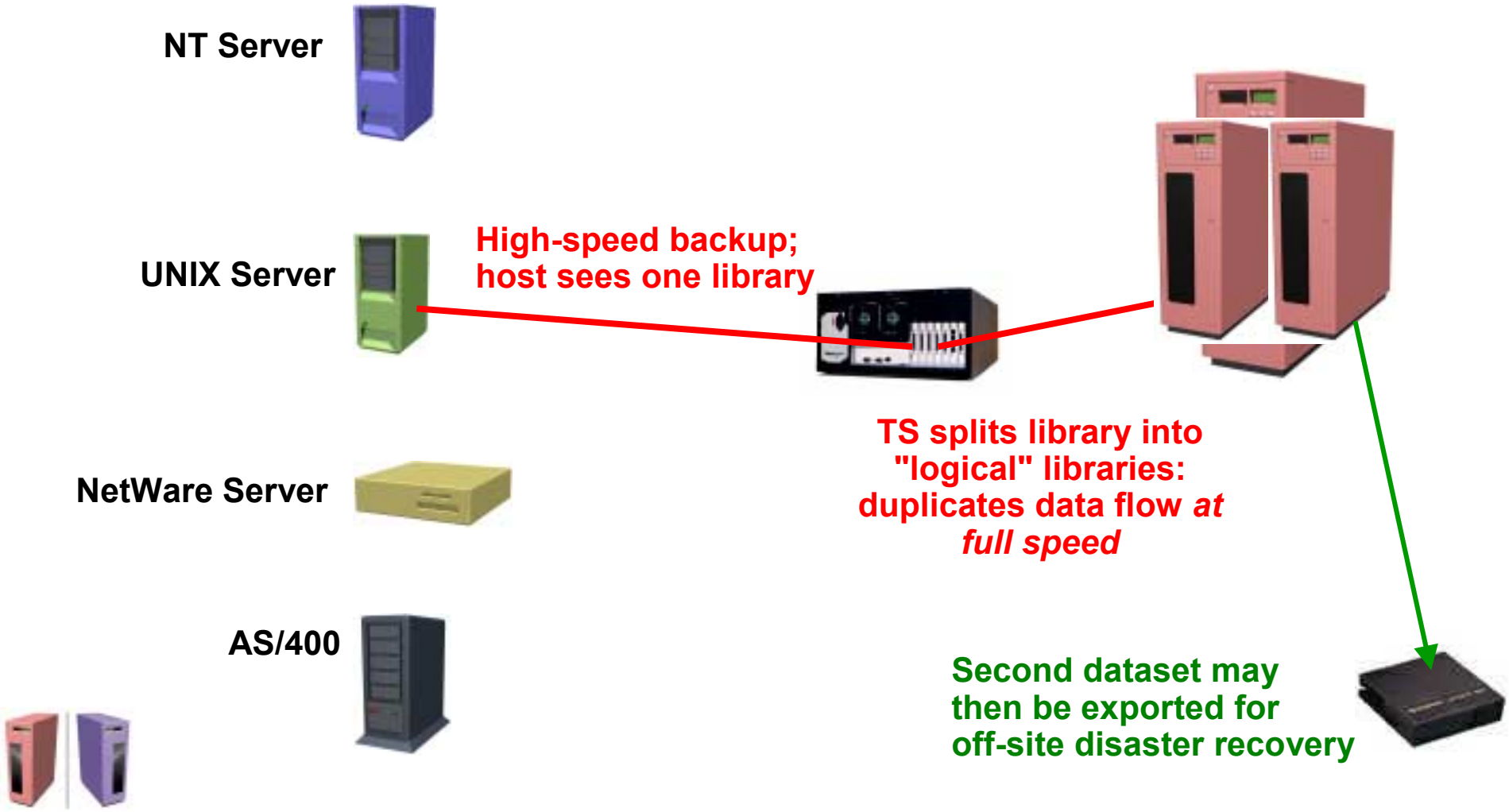
TapeServer Library Mirroring – 1 Library



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Indexed Media Conversion

Stacking-Indexing Function with high speed locate

3480/3490

DDS 1/2/3
8mm

1 DLT or AIT tape holds:
- **70-80 3490 tapes**
- **390 6250 BPI reels**
- **35 DDS tapes**

- **DLT**
- **AIT**
- **LTO**
- **Other**

Library

Web User Interface

- 30-minute initial config of all hosts, devices
- Configs are changeable in real-time
- IP addressable from anywhere in the world
- Multiple levels of access are password protected
- Performance and status display

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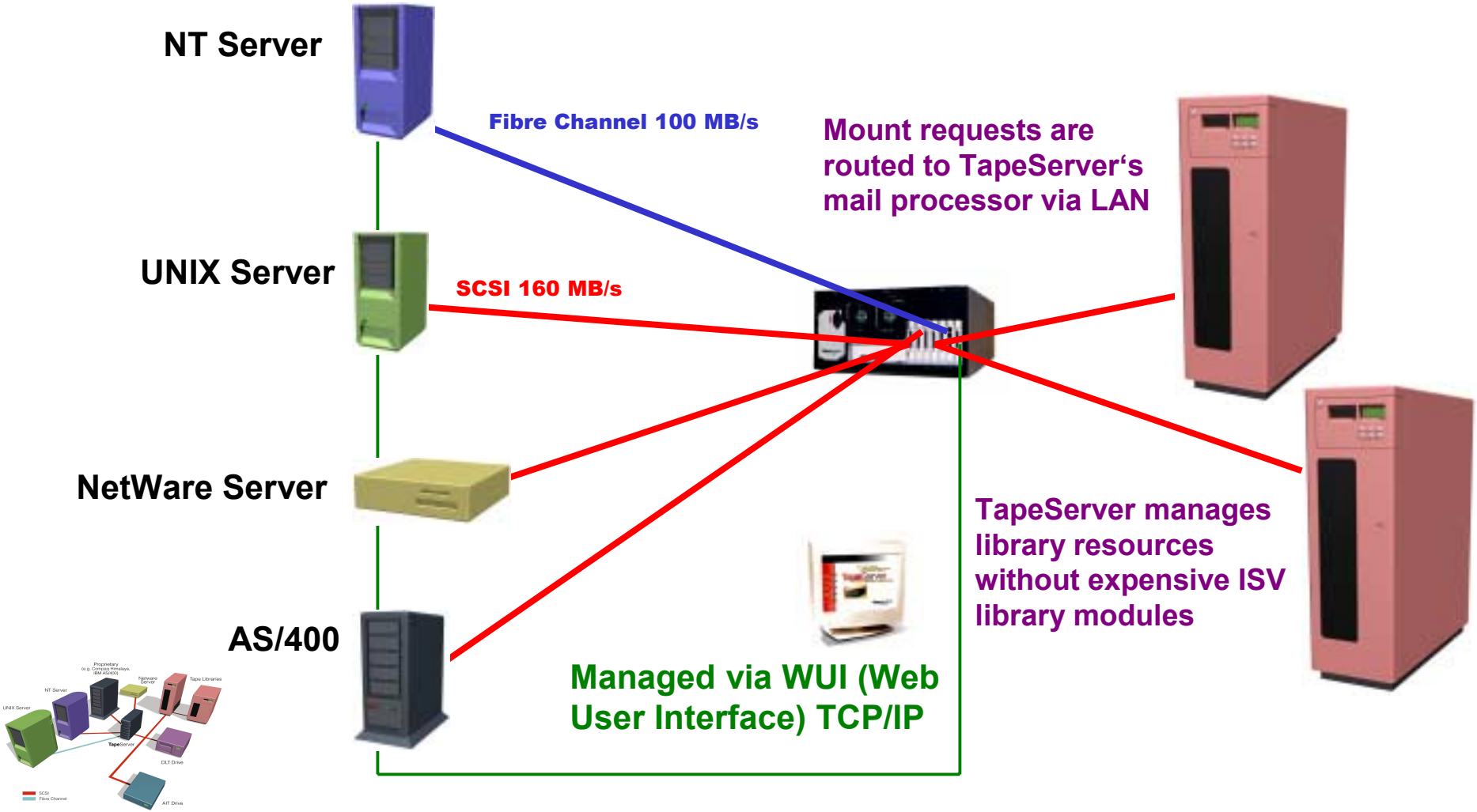
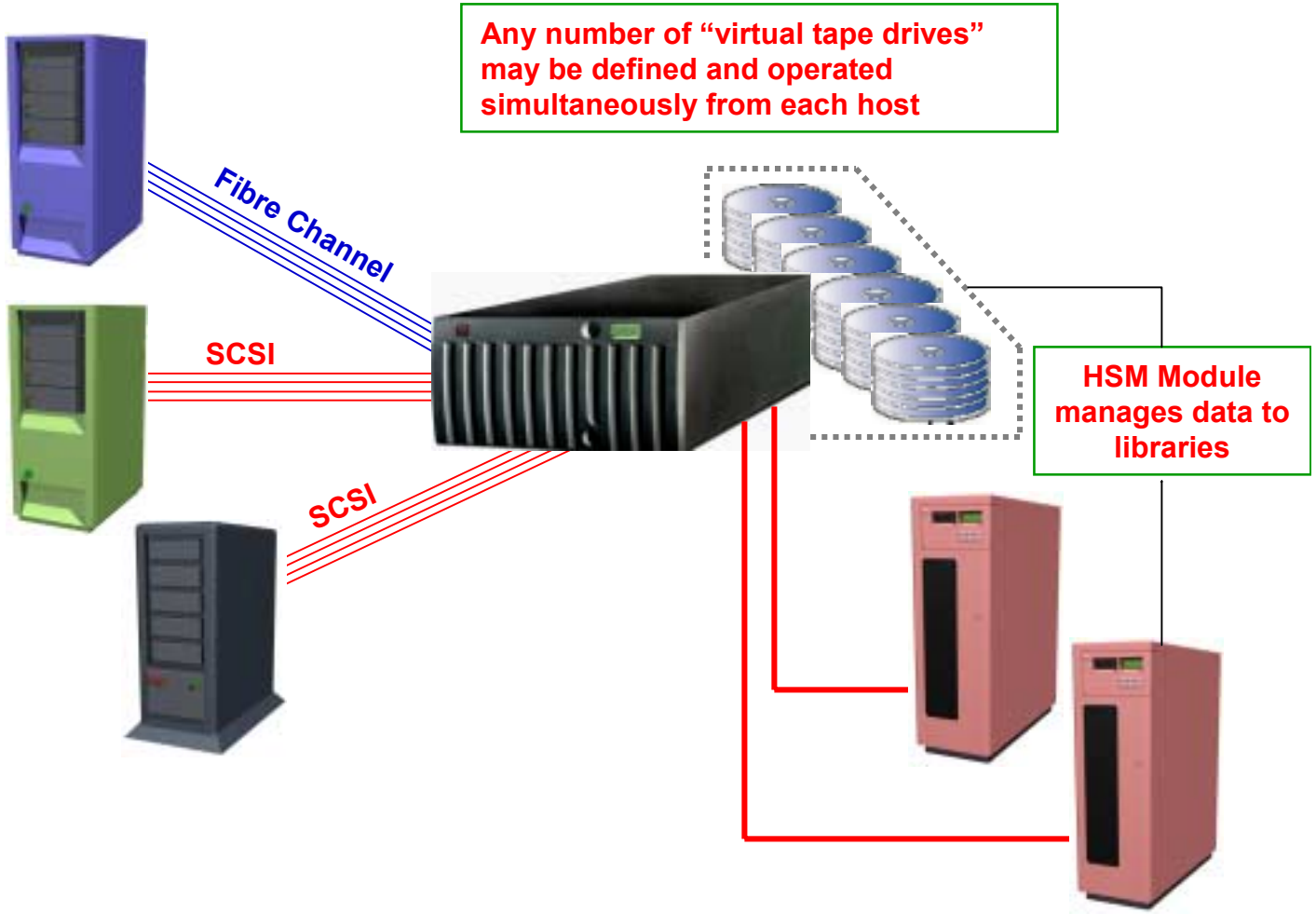
Truly Virtual Library Sharing



Virtual Tape Facility



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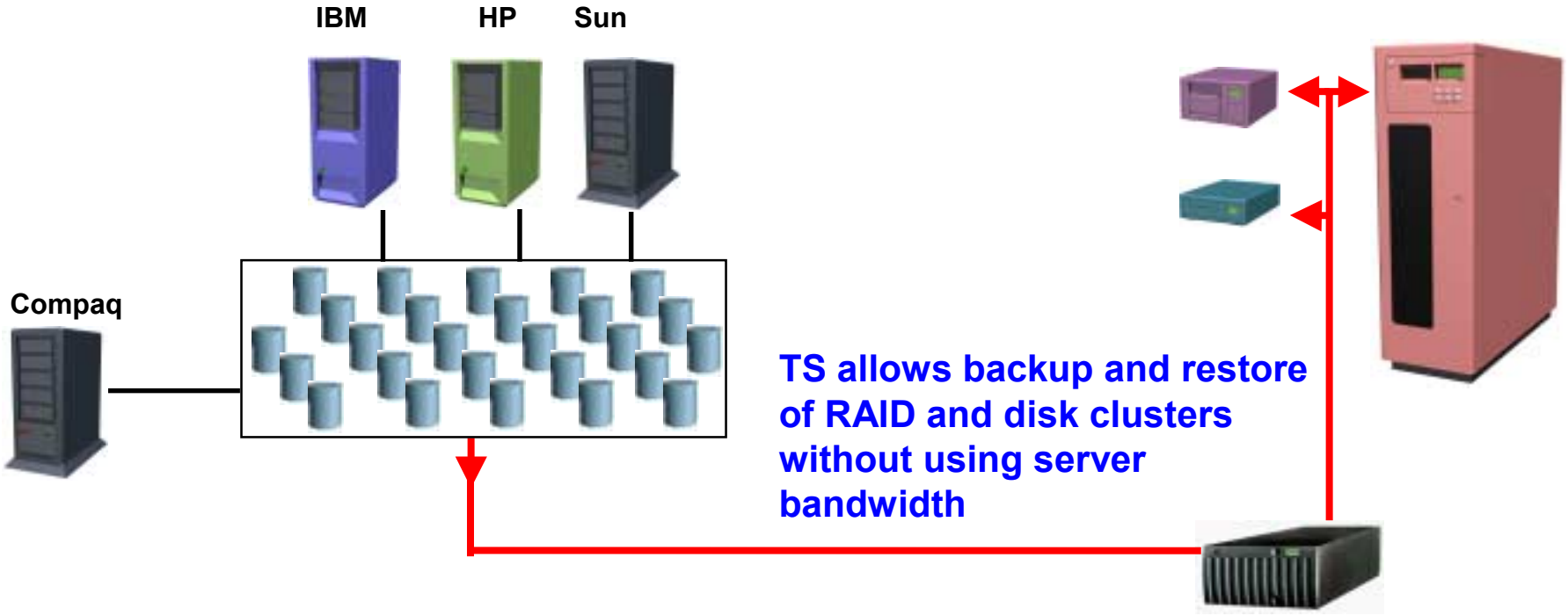
Serverless Backup – ISV protocols



TapeServer is ready for protocols such as NDMP, Celestra, or SCSI-3 Copy command

TapeServer – What The Analysts Say

“Many enterprises have been seeking a way to create a SAN to link heterogeneous hosts to multiple tape libraries and drives… Tape Laboratories offers an answer to this problem in TapeServer. TapeServer…enabl(es) enterprises to implement a tape-oriented SAN without having to make a switch to Fibre Channel until the enterprise is ready....”

David Hill, Aberdeen Group

"Centralizing backup is the number-one SAN application. IT customers desperately need to centralize and share their backup resources to solve their huge and significant backup problems. TapeServer represents a breakthrough approach consistent with the best practices and principals of IT operations. Check it out!"

Michael Peterson, Strategic Research Corporation

"Tape Laboratories' new TapeServer is a winning solution to today's storage issues. Enabling companies to enhance and expand, but not necessarily replace the storage equipment they have, is in perfect line with how companies want to manage their systems and resources. The use of TapeServer provides protection and maximizing of their initial investment."

Bob Larrivee, Kinetic Information

For Business
Tape Storage Solutions

It's how business backs up.

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