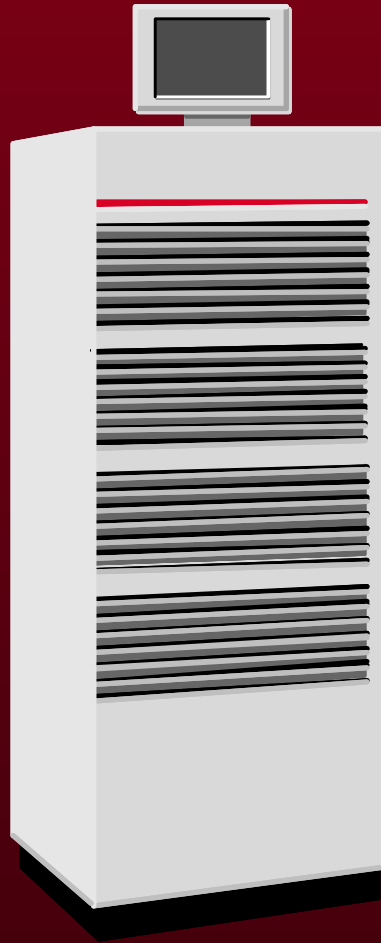


RedWood™



Storage Technology Corporation

StorageTek: A History & Culture of Product Innovation

SSD

Circa 1979



Nearline®

Circa 1988



Iceberg

Circa 1994



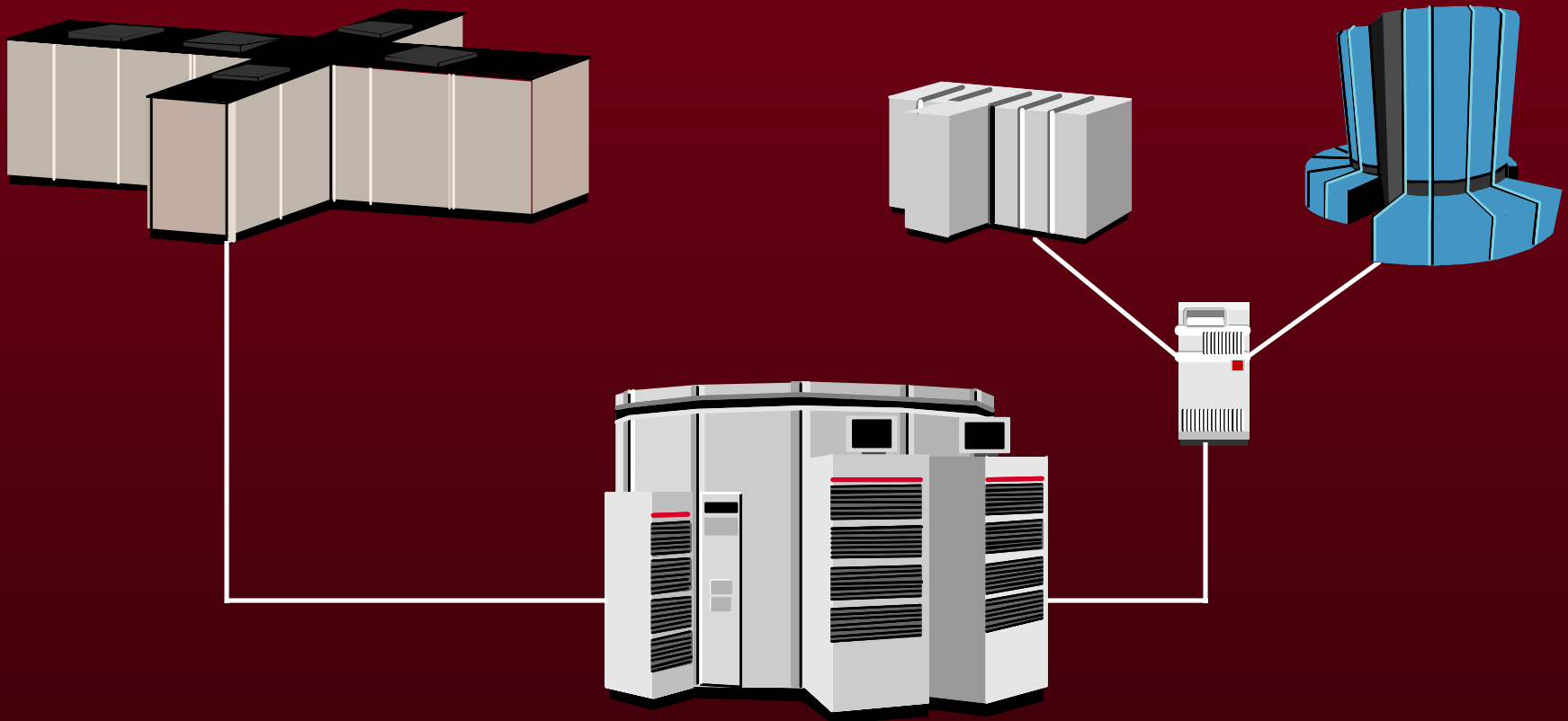
TimberLine

Circa 1994

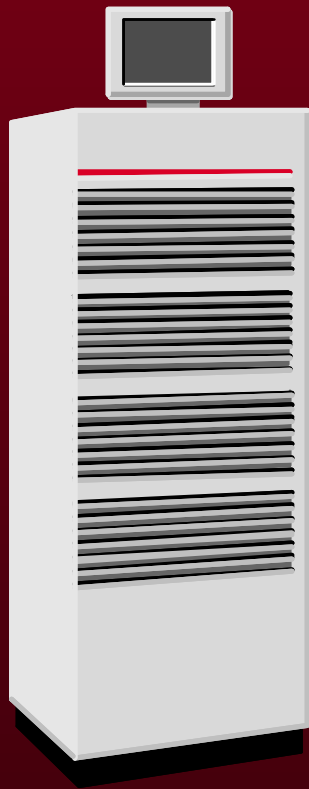


StorageTek: A History & Culture of Architecture Innovation

- **Nearline Open Systems - Circa 1989**



The Next StorageTek Innovation



- ***RedWood (SD-3)
Tape Cartridge Subsystem***

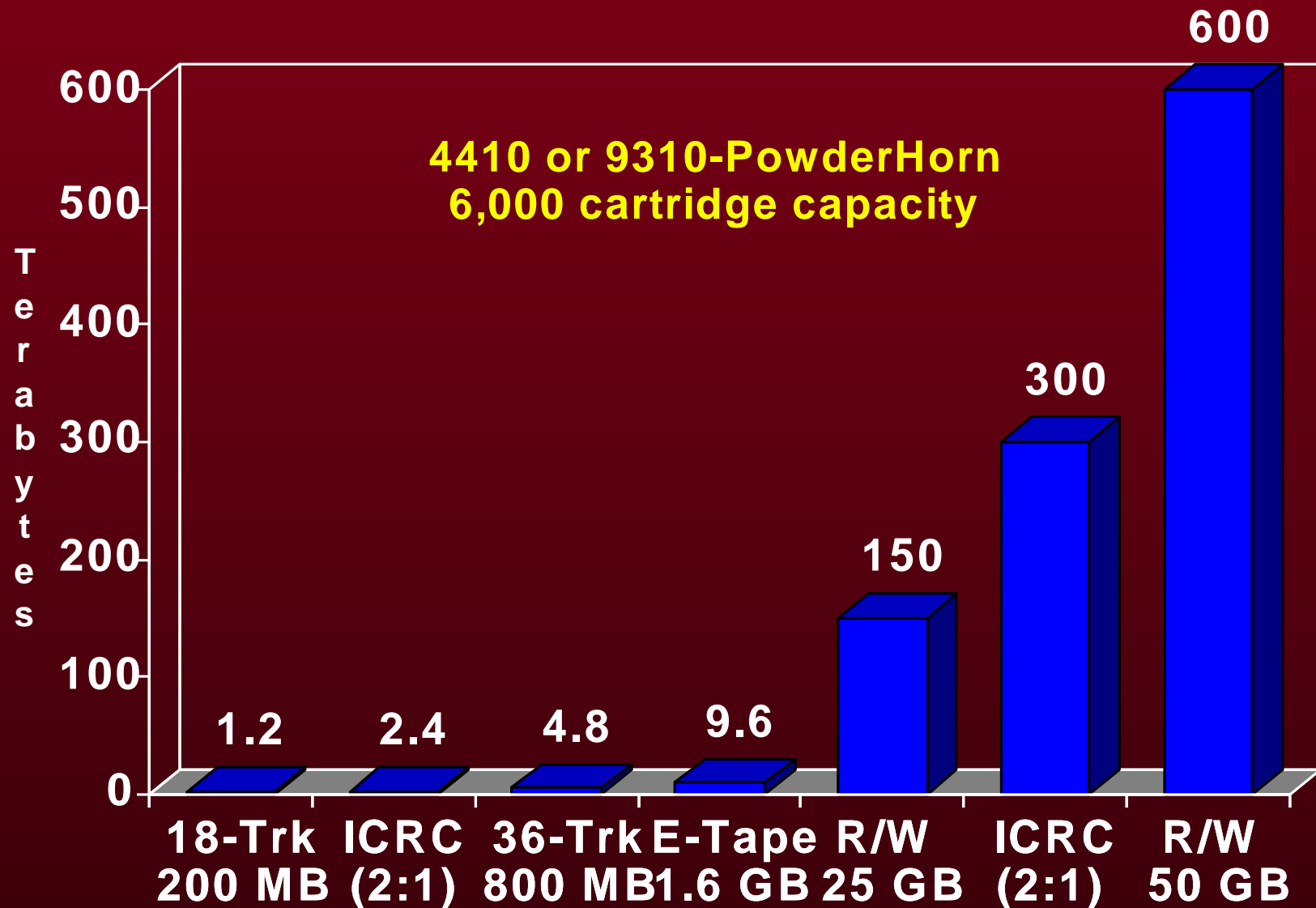
- High Capacity
- High Performance
- High Reliability

Key Attribute: High Capacity

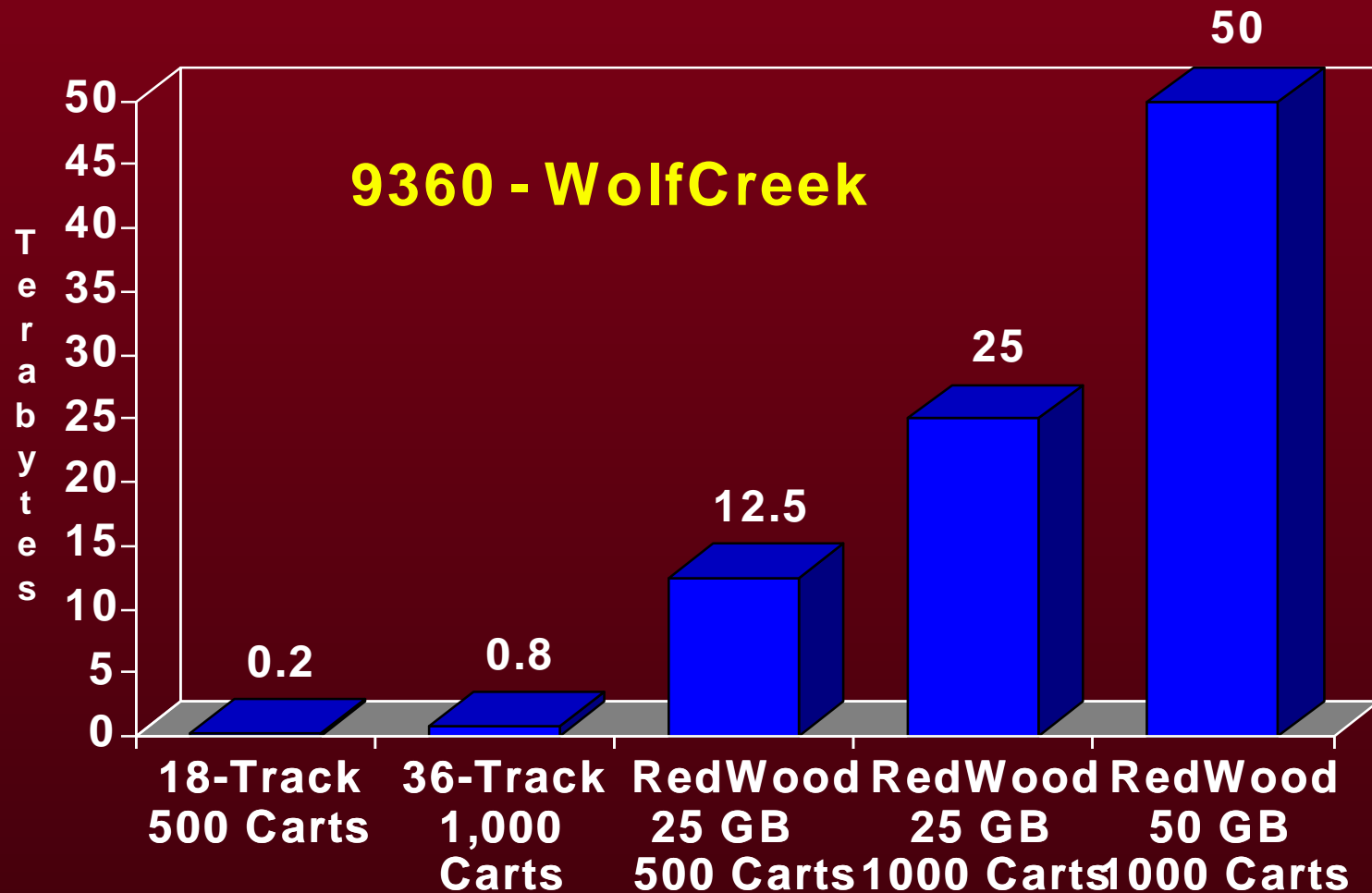
- 10, 25 or 50 GB per Cartridge (uncompressed)
- Modified 1/2" Cartridge
- Recording Standards
 - ANSI
 - ECMA
 - ISO



Benefit: Capacity Growth in a Silo



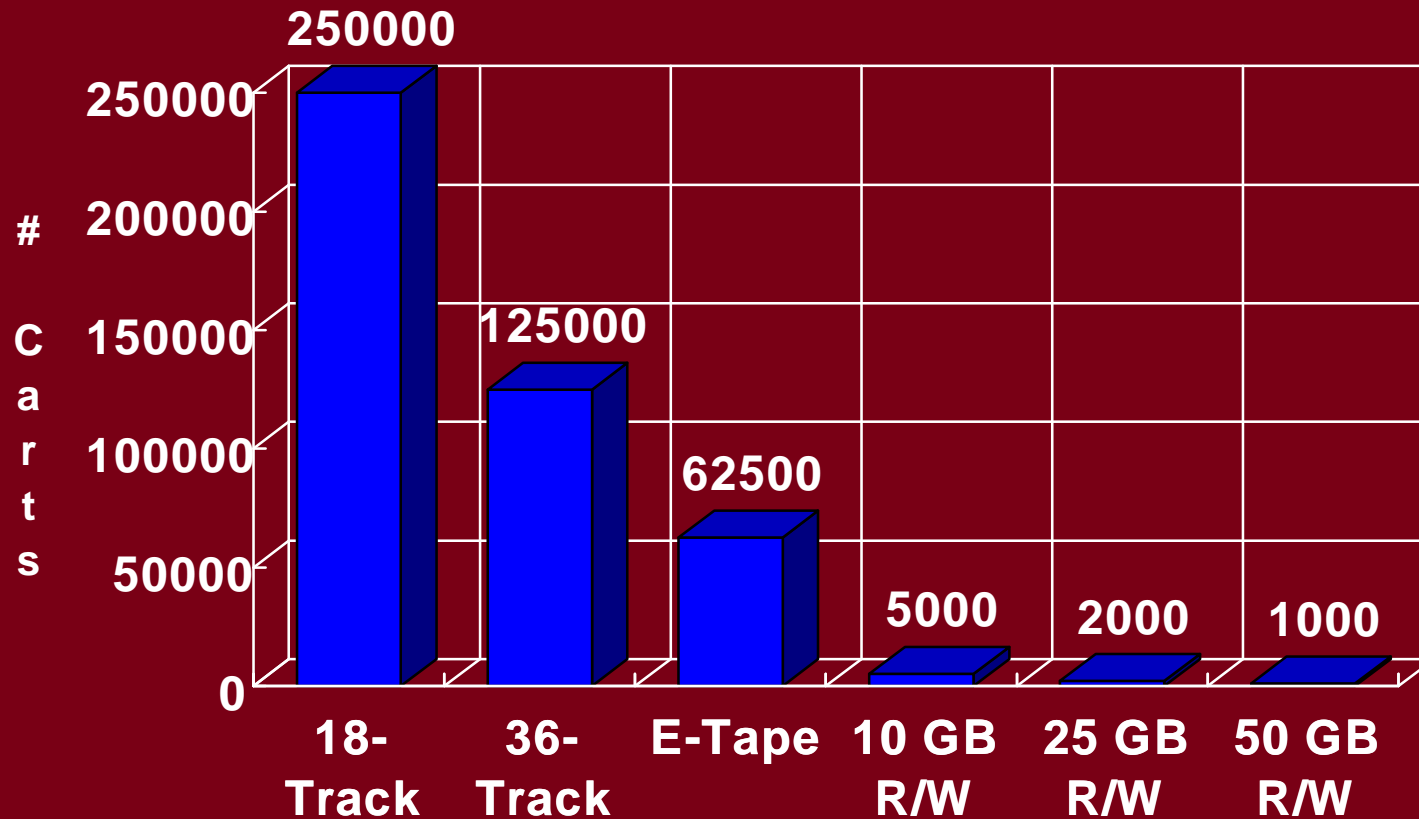
Benefit: Subsystem Granularity



* All capacities exclude compression/compaction
36-Trk. includes E-Tape

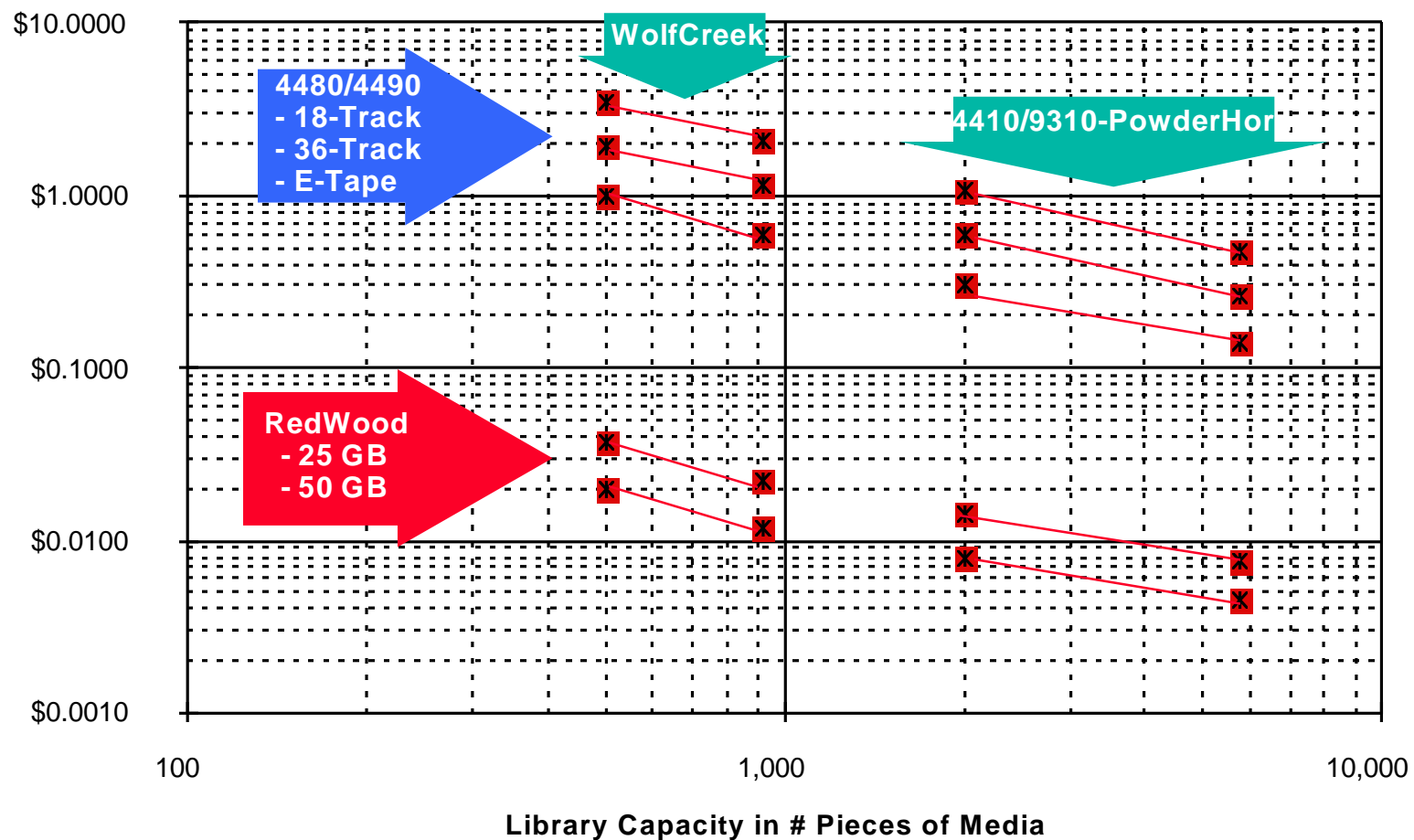
Benefit: Space Efficiency

Cartridges for a 50 TB Subsystem



* Assumes: 100% cartridge utilization; no compression

Benefit: Extremely Low Cost of Storage

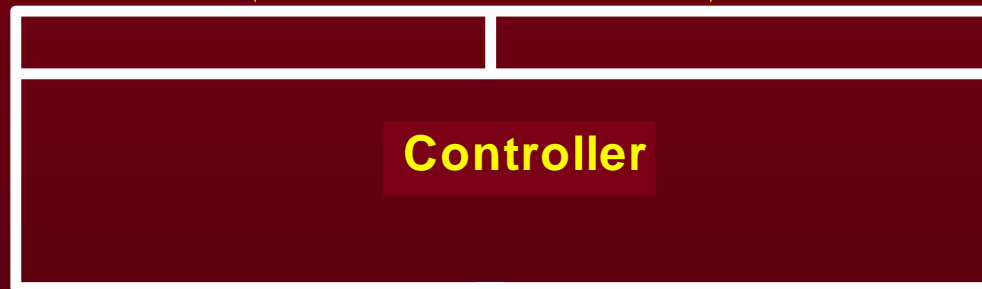


Key Attribute: High Performance

	<u>4480/4490</u>	<u>TimberLine</u>	<u>RedWood</u>
• Data Rate	3 MB/sec.	6 MB/sec.	11+ MB/sec.
• Enhanced parallel controller architecture			
- SCSI-2			20 MB/sec.
- ESCON			17 MB/sec.

RedWood 1x1 Architecture

**One or Two
ESCON Channel Adapters**



**11+ MB/Sec. Head to Tape
Transfer Rate (Uncompressed)**

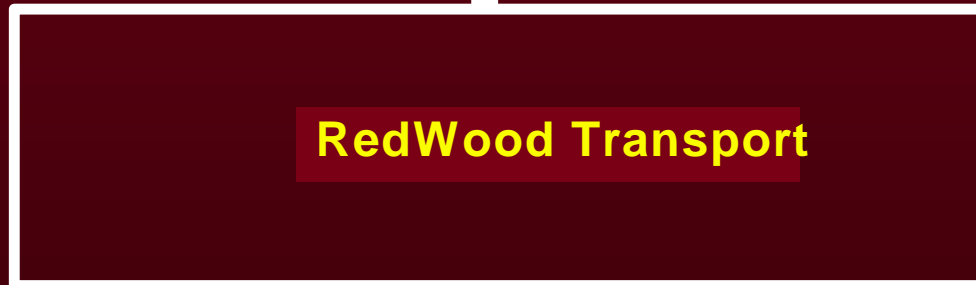


RedWood 1x1 Architecture

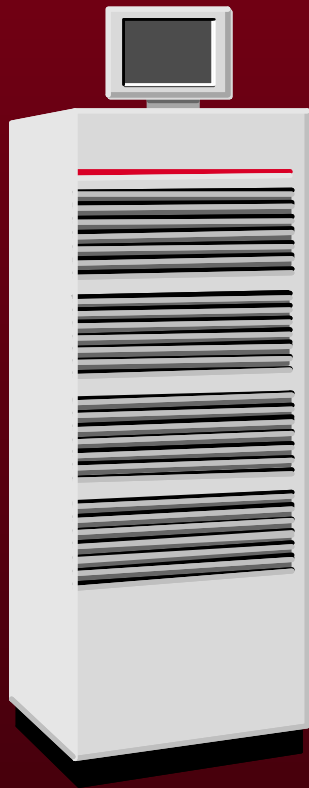
SCSI-2 Channel Interface



11+ MB/Sec. Head to Tape
Transfer Rate (Uncompressed)



RedWood Architecture Advantages

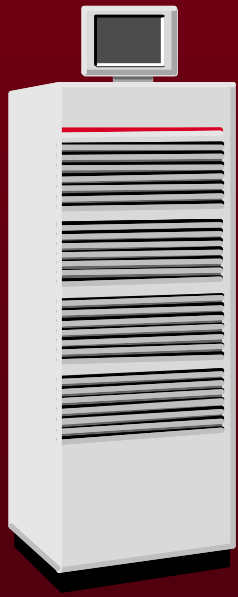


- **Greater Performance**
 - **Concurrent I/O**
 - **No Controller Bottlenecks**
- **Greater Availability**
 - **Control Unit Failures Impact Only One Transport**
 - **Fully Independent Power Supplies**

RedWood Performance Benefits

- ***Reduced number of mounts***
- **Reduced I/O time**
- **Reduced batch processing time**
- **Reduced recall time**
- **Improved processor utilization**
- **Improved end-user productivity**

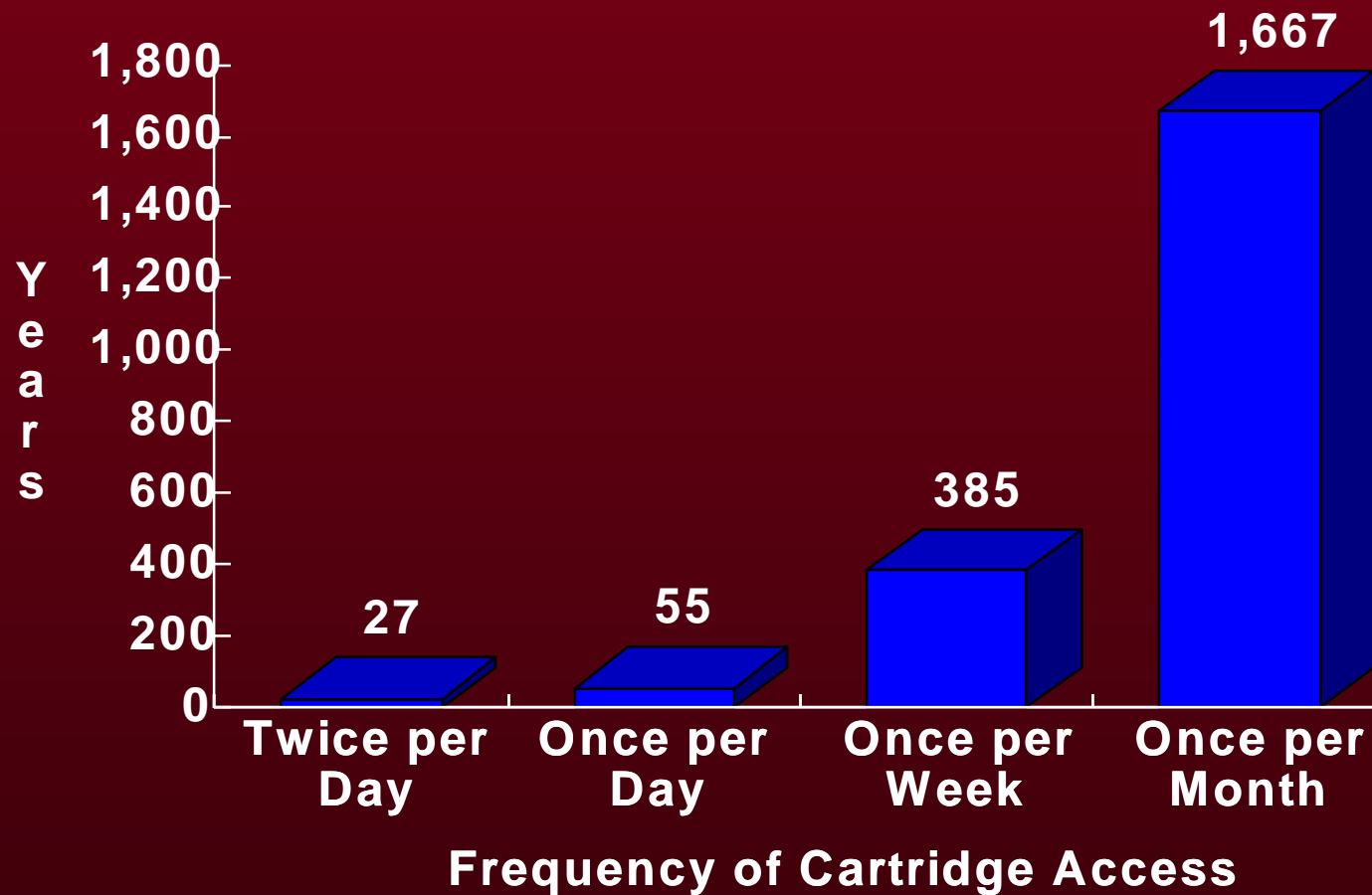
Key Attribute: High Reliability



- **Read/Write passes** **20,000**
- **Corrected BER** **10^{-15}**
- **Archive life** **15 years**
- **Tape motion hours** **3,000**

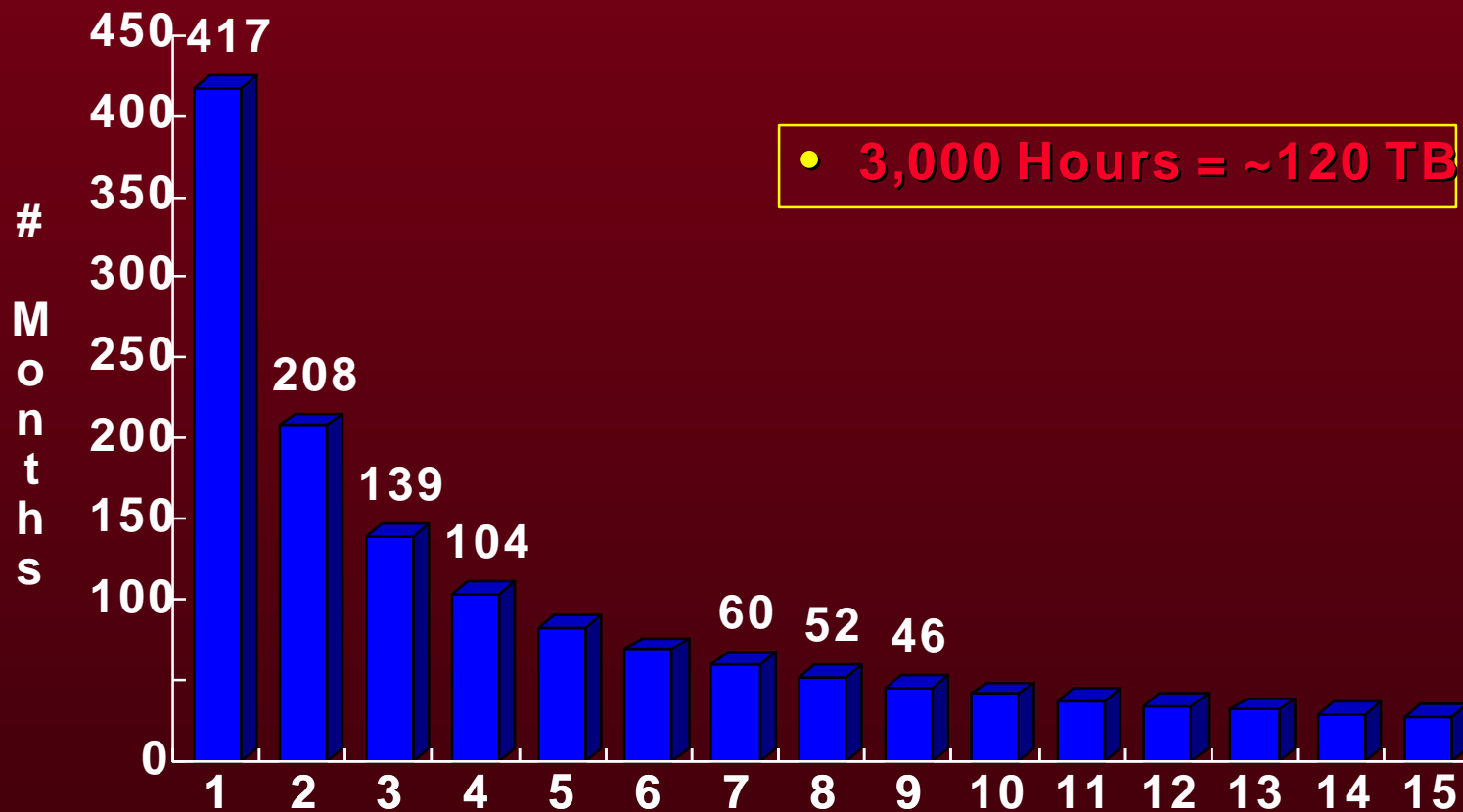


Read/Write Passes (20,000)



Tape Motion Hours (3,000)

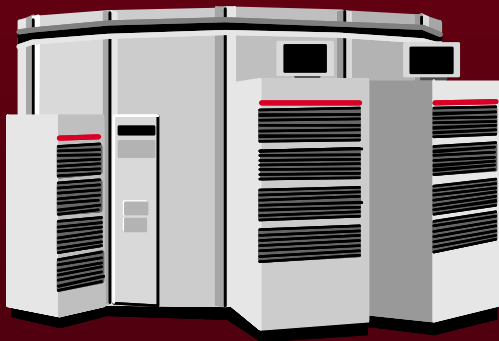
Number of Months to Head Replacement



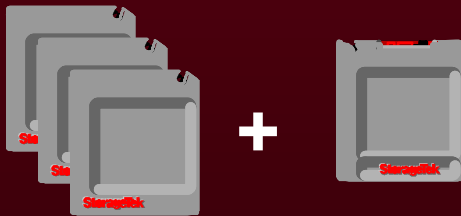
Investment Protection



- **Manual Drive**
 - with or without a Cartridge Stacker Loader

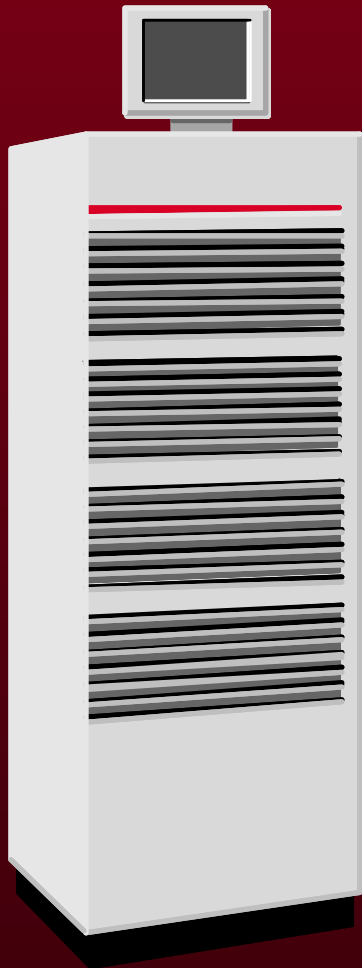


- **Nearline® library attached**



- **Mixed Media Support**
 - 18-Track, 36-Track, E-Tape
 - Data D-3

RedWood™ Summary



- **High Capacity**
- **High Performance**
- **High Reliability**
- **Investment Protection**
- **Configuration Flexibility**
- **Enterprise wide storage from Networks to Mainframes to Supercomputers**