Fibre Channel:
State of the Art & What is Needed

Dave Anderson
Director, Systems Storage Architecture
Seagate Technology

Fibre Channel: Where we are

High volume now!

Now: > 10% of High End SCSI Business

End of Year: > 20%
(SCSI, not desktop or depop models)

Strategic developments with most major computer manufacturers

Fibre Channel: Where we have to go

Keep FC on top	Must be the unambiguous high end Highest performance Best value for connectivity, reliability
Defend FC turf	SAN's, LAN's fighting it Recognize the competition Give FC the features it needs
Expand the market	Low cost switches

Fibre Channel: How do we Get There?

1. Class 2 Disk and Tape support
2. More Efficient Protocol
3. 200 MB/s
4. Low Latency, High Priority Messages
5. Reliable Multicast Transmission

Fibre Channel: Class 2 Support

Reasons: Common support for Disc and Tape
Quicker error detection, especially across fabrics

Considerations: Avoid extra arbitration for ACK
(Would NACK be desirable??)

Fibre Channel: More Efficient Protocol

Reasons: Lower cost/better performance in switches

Better utilization of physical plant

Considerations: Compatibility with FC-AL

Independent interfaces for higher reliability

We will build only one device!

Fibre Channel: 200 MB/s

Reasons: High data rate applications need it

Keep FC-AL's leadership unambiguous

Considerations: CANNOT BREAK COST MODEL

Cannot break power envelope

Must have backward compatibility

We will build only 1 device

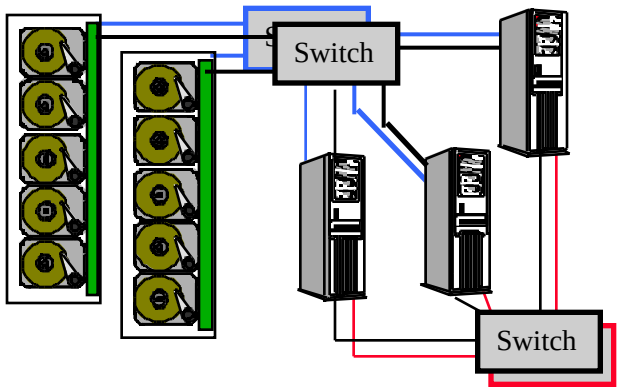
Speed determination for new systems

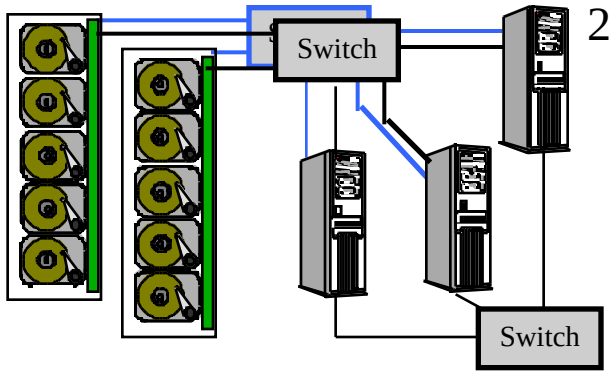
Fibre Channel: Low Latency Messages

Reasons: RAID controller cache coherency
Clustering support - SAN or SAN backup

Considerations: Can it work with SCSI traffic???????
Common hardware essential

4 SAN's





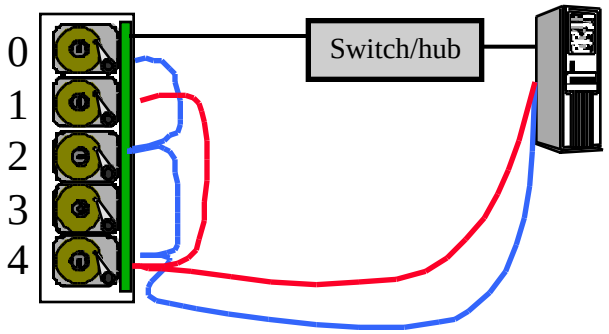
2 or 3 SAN's

Fibre Channel: Reliable Multicast

Reasons: More efficient support for RAID, Mirroring
Disseminate messages to multiple managers

Considerations: Must be reliable - have to know it got there
AARON virtual circuits good proposal
Should work with low latency messages

Red Virtual Circuit: Drives 1,4
Blue Virtual Circuit: Drives 0,2,4



Fibre Channel:
Its Future is What We Make It!