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Fabric Attached Storage
The Convergence of NAS & SAN

COMNET Washington DC
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Agenda

- NAS vs. SAN… Does it matter?
- Review of SAN and NAS Architectures
- Unification Methodologies
  - The “NAS Gateway” approach
- Unification Methodoligies
  - Fabric Attached Storage
- The Fabric Attached Storage Appliance
- Questions and Answers

NAS vs. SAN???

Network Attached Storage

Gigabit Ethernet

ATM

TCP/IP

NFS

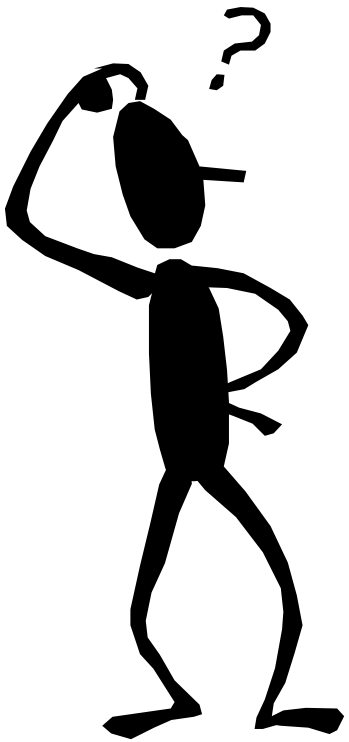
CIFS

HTTP

InfiniBand

iSCSI

DAFS



Storage Area Network

Fibre Channel

FCP

FCIP

Zoning

SCSI

Volumes

File Systems

Virtualization

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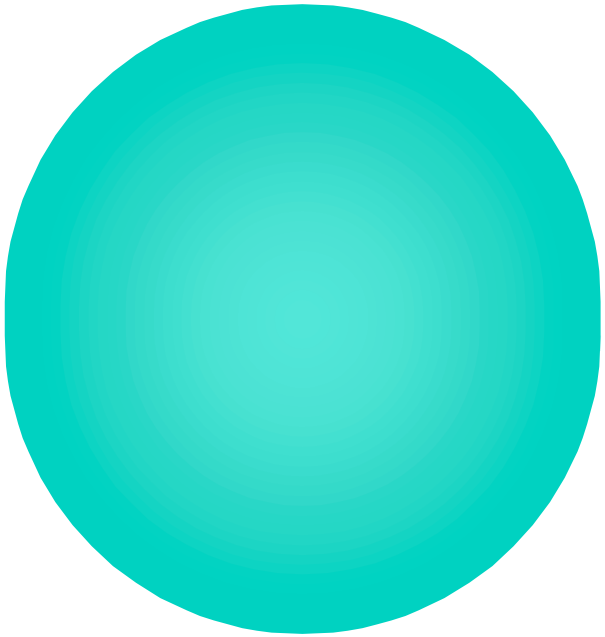
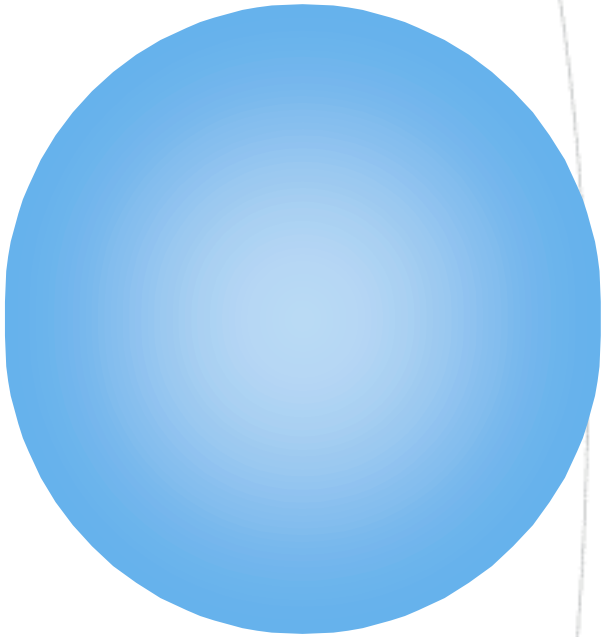
SAN Data *versus* NAS data?



Must be SAN



Must be NAS

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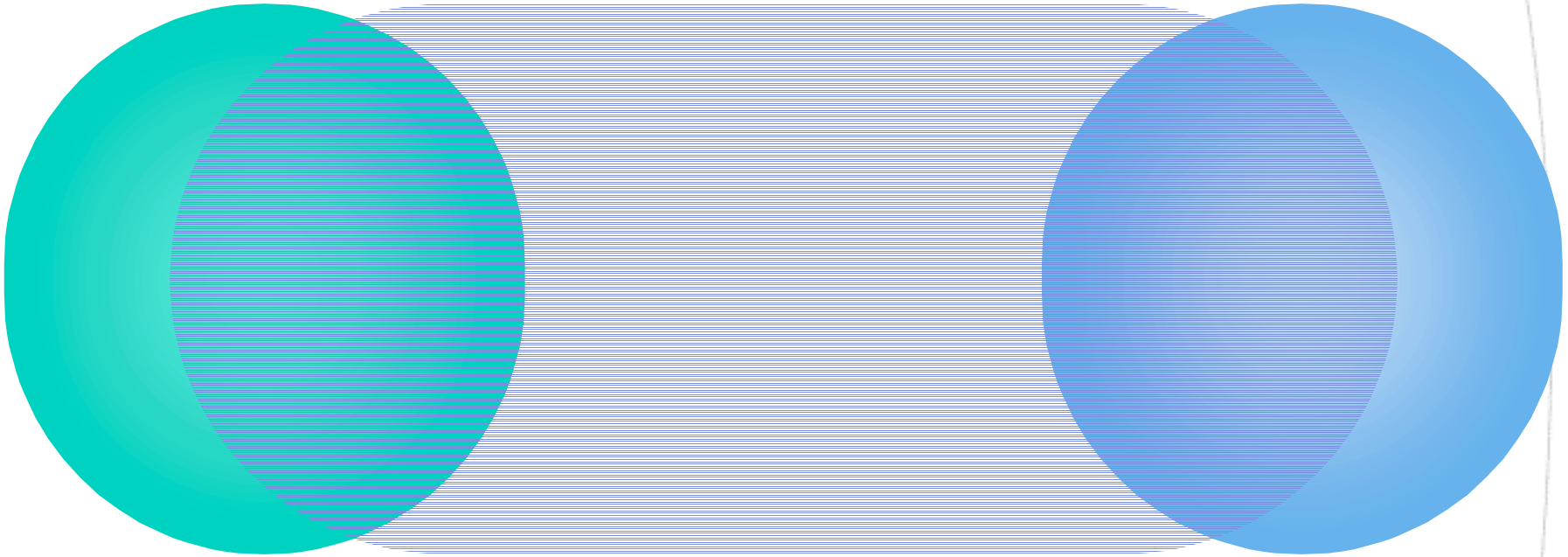
Fabric Attached Storage: SAN plus NAS



Must be SAN

Either SAN or NAS

Must be NAS

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The important criteria...

- Low Cost of Ownership
- Reliability
- Manageability
- Flexibility
- Scalability
- Performance
- Functionality

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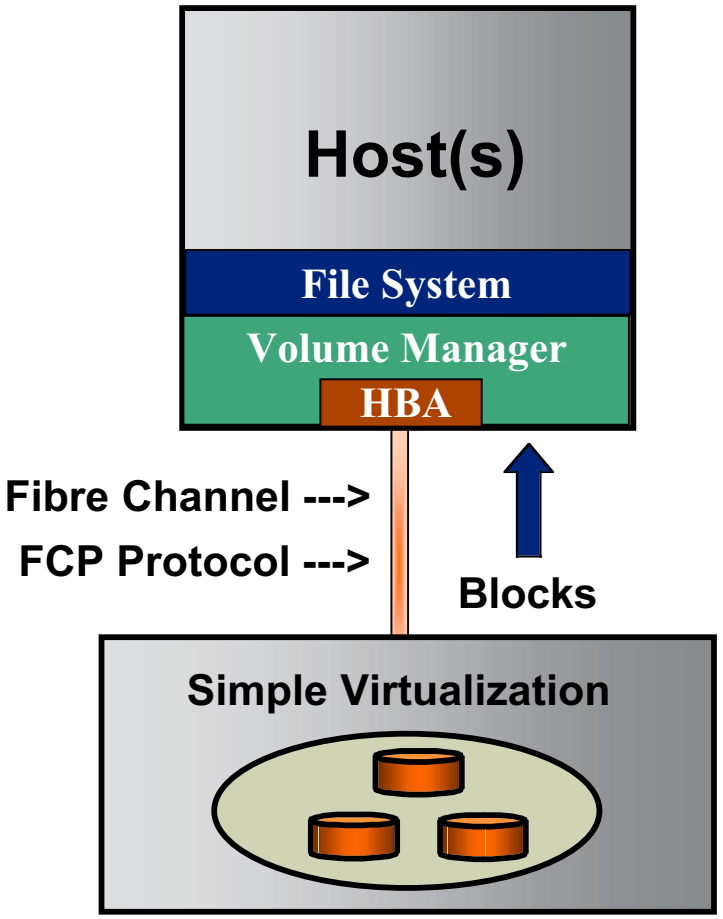
- Fast…
- Simple…
- Reliable…
- Multiprotocol…

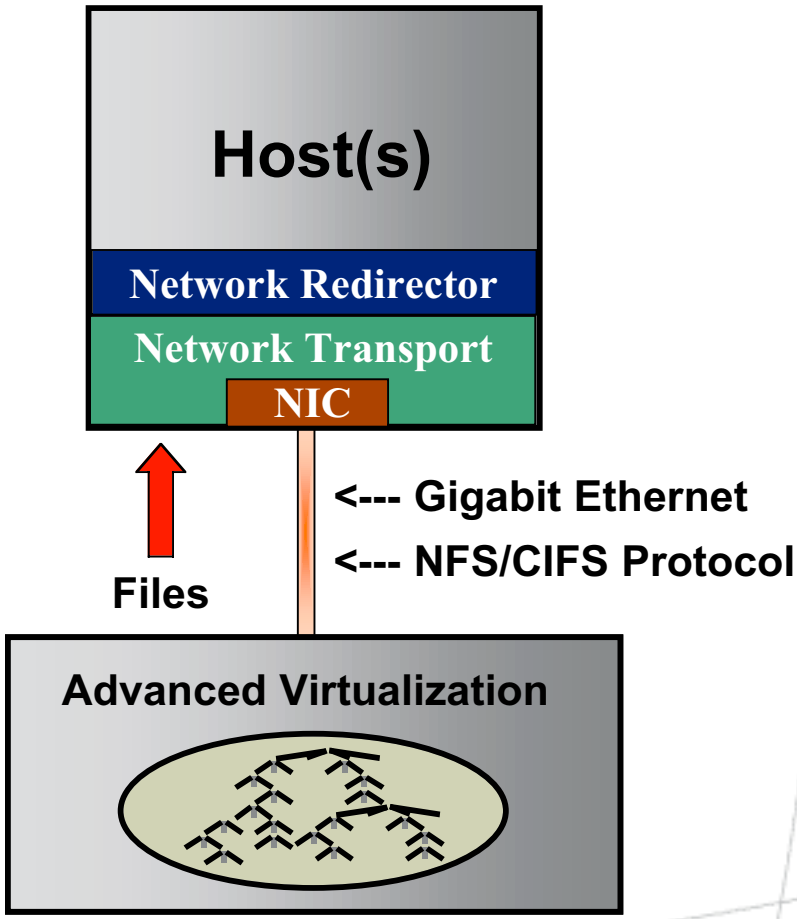
SAN & NAS Architectures

SAN Architecture



SAN Storage Product (Array)

NAS Architecture



NAS Storage Product

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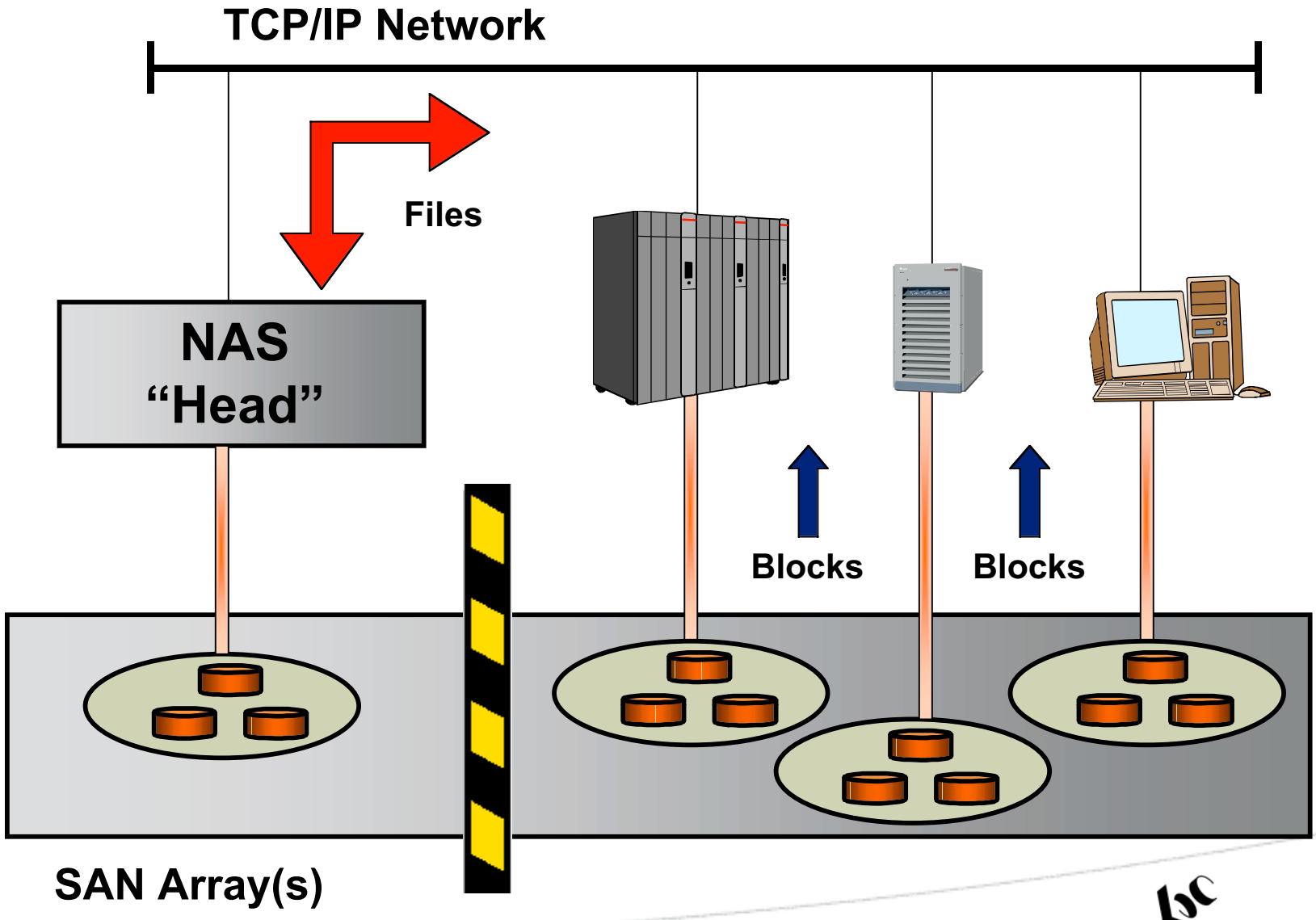
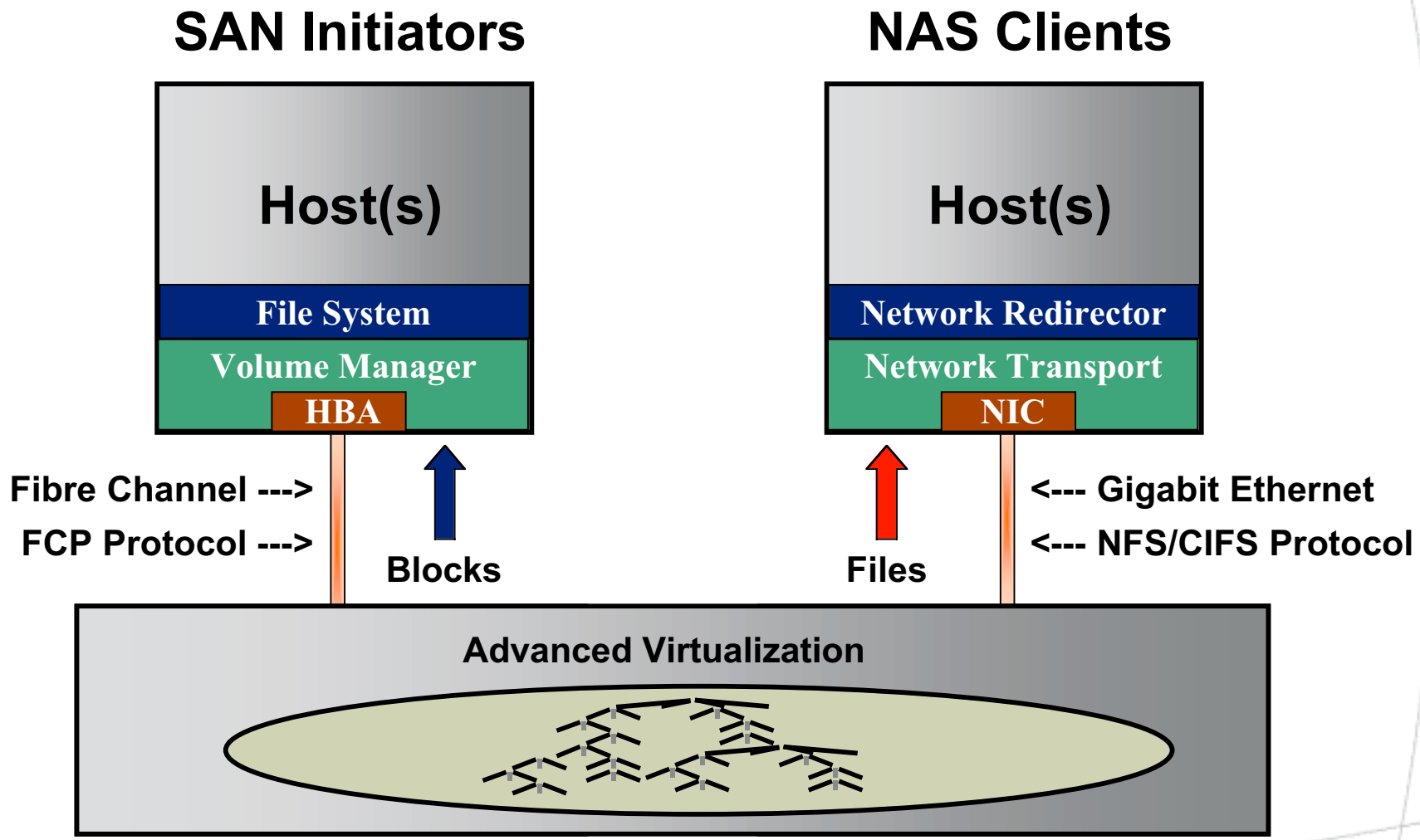
NAS/SAN Unification – The "NAS Gateway"…



Unifying Storage Architectures



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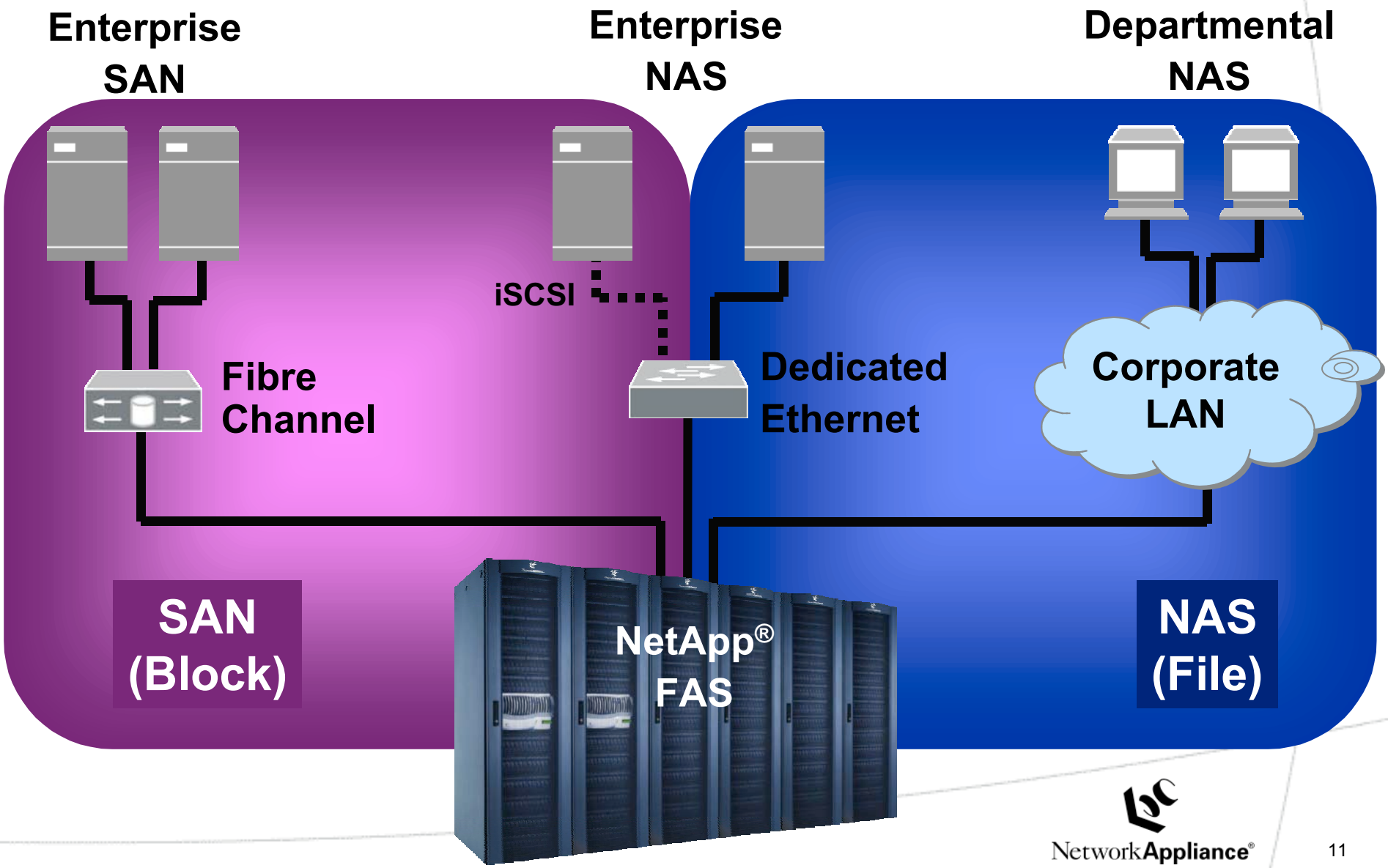
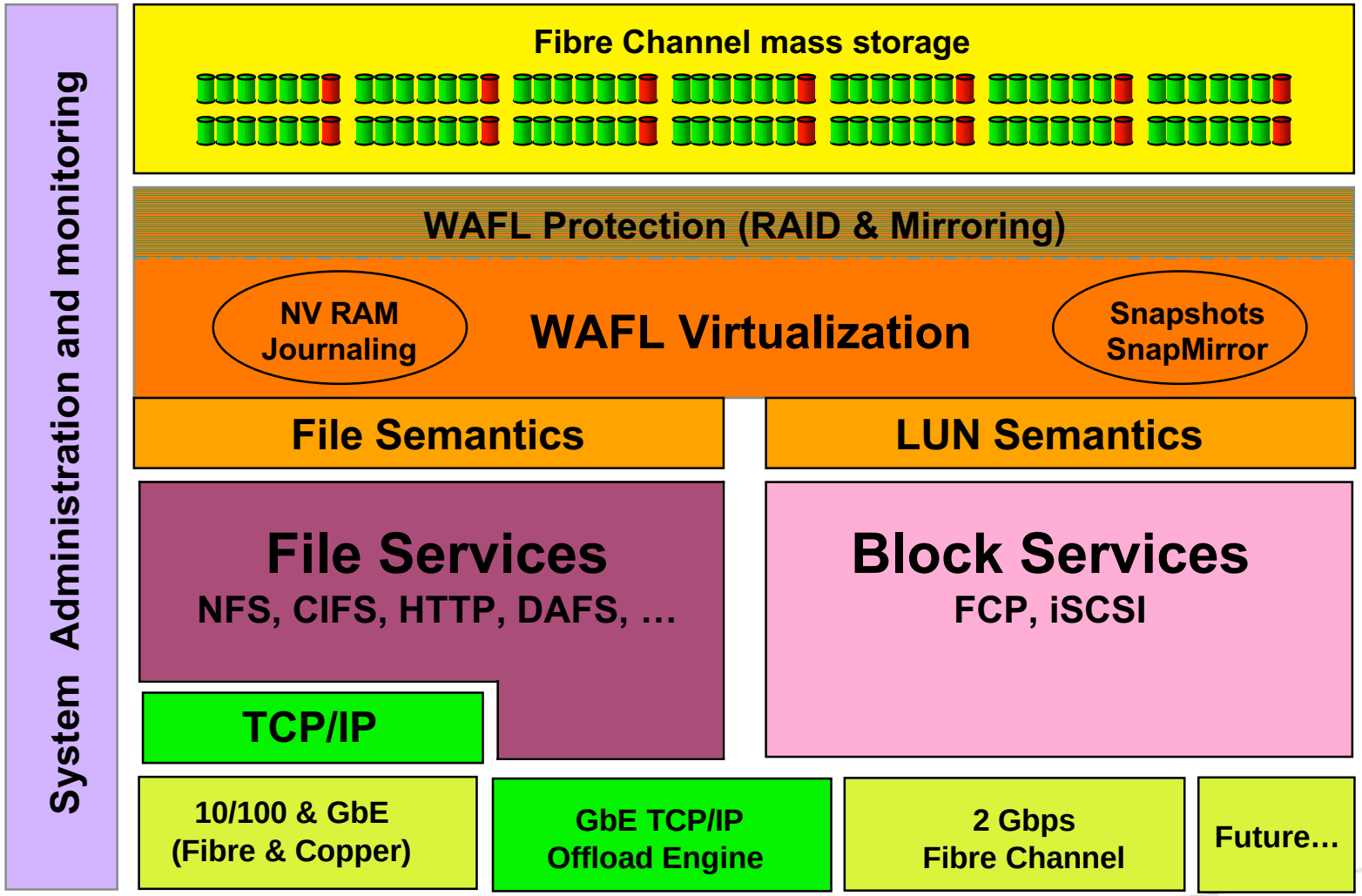
Fabric Attached Storage Topology



NetApp Storage Microkernel



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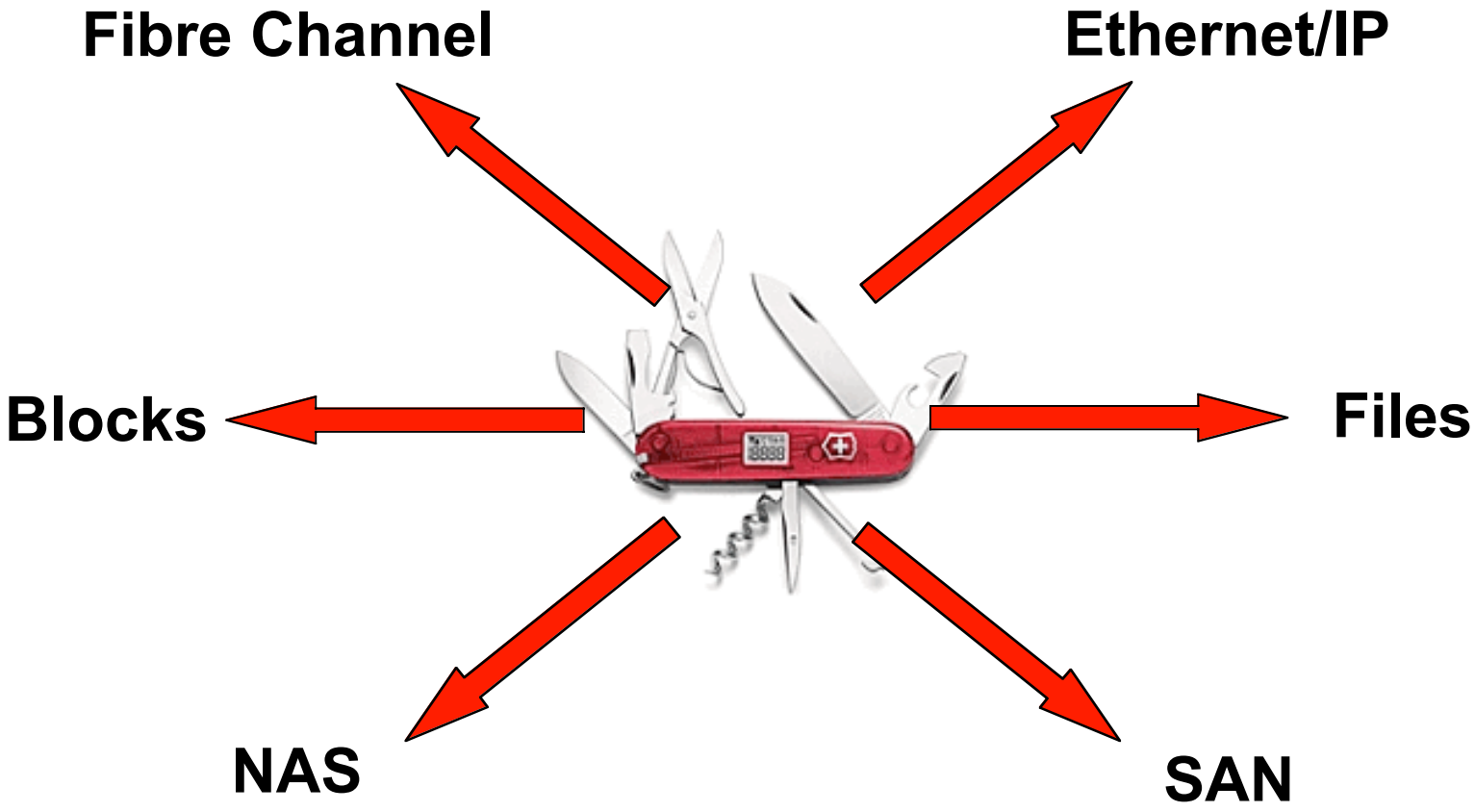
Unified Network Storage



- The Swiss Army Knife of Storage!

FAS Advantages...

- Common architecture for supporting NAS & SAN
  - Common management
  - Common functionality
  - Common provisioning
- Lower Cost of Ownership
- Increased flexibility
- Better capacity utilization
  - No more storage “islands”
- Improved Scalability

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