Networking the world's business data™

McDATA zu Gast beim…

DECUS IT-Symposium 2004
20.04.2004, Hotel Maritim, Bonn

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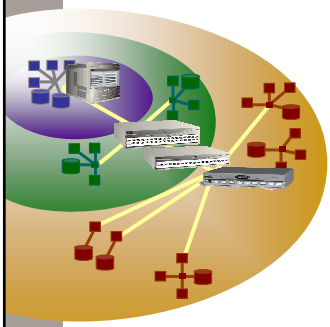
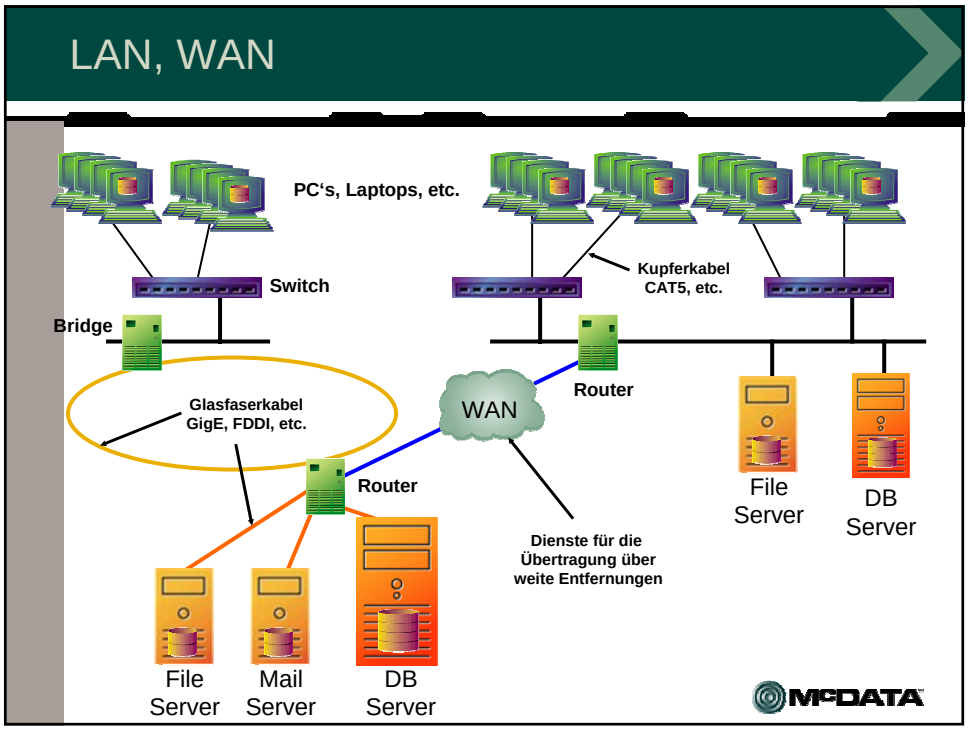
Agenda



- **LAN , WAN, SAN**
- **Everything goes IP ???**
- **SAN Design borders…**
- **Scaling infrastructure…**
- **Wrap up**


LAN, WAN
PC's, Laptops, etc.
Switch
Kupferkabel
CAT5, etc.
Bridge
Router
Glasfaserkabel
GigE, FDDI, etc.
WAN
Router
File
Server
DB
Server
Dienste für die
Übertragung über
weite Entfernungen
File
Server
Mail
Server
DB
Server
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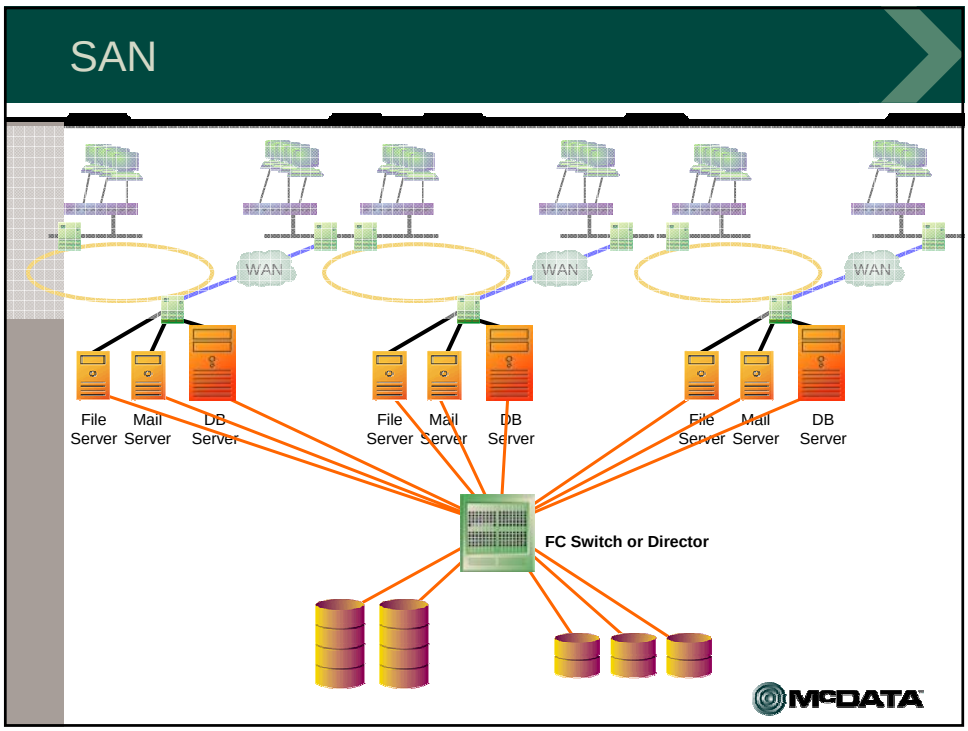
SAN
WAN
WAN
WAN
File
Server
Mail
Server
DB
Server
File
Server
Mail
Server
DB
Server
File
Server
Mail
Server
DB
Server
FC Switch or Director
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LAN / SAN Unterschiede

LAN (Ethernet / IP)	SAN (Fibre Channel)
standardisiertes Protokoll	standardisiertes Protokoll
Kupfer oder Glasfaser	Glasfaser (selten Kupfer)
10Mb/s bis 1Gb/s	1Gb/s bis 2Gb/s
Punkt-zu-Multi-Punkt	Punkt-zu-Punkt
sehr weit verbreitet	nur für Speichernetzwerke
Prozessor – Intensiv	Einfache Umsetzung SCSI / Fibre Channel
unbegrenzte Reichweite	Begrenzte Kabellängen
Know-how überall verfügbar	Spezialistenwissen

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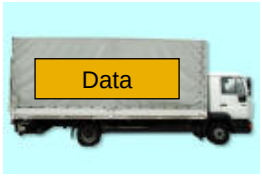
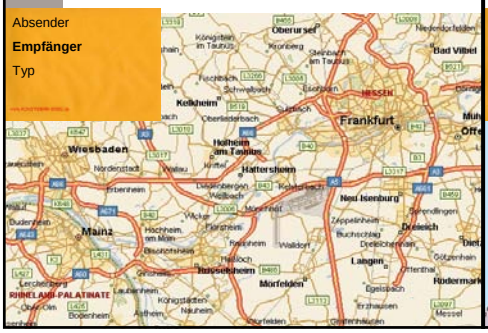
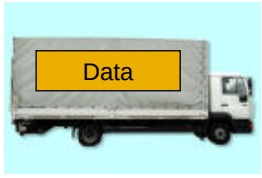
Fibre Channel vs. IP

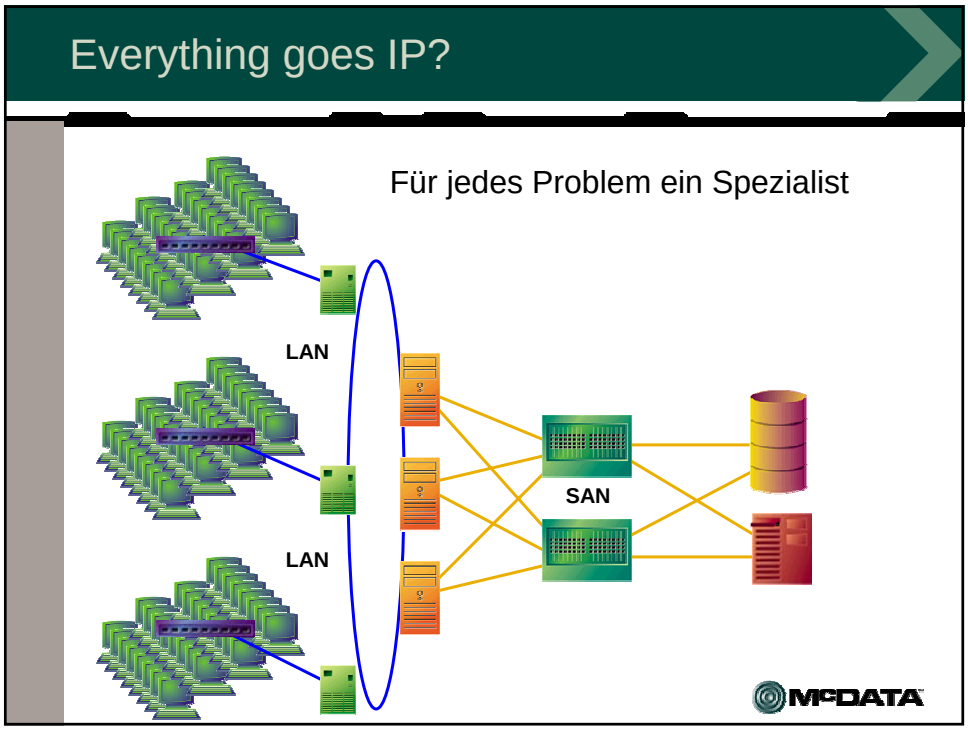
Fibre Channel





IP




Everything goes IP?
Für jedes Problem ein Spezialist
LAN
LAN
SAN
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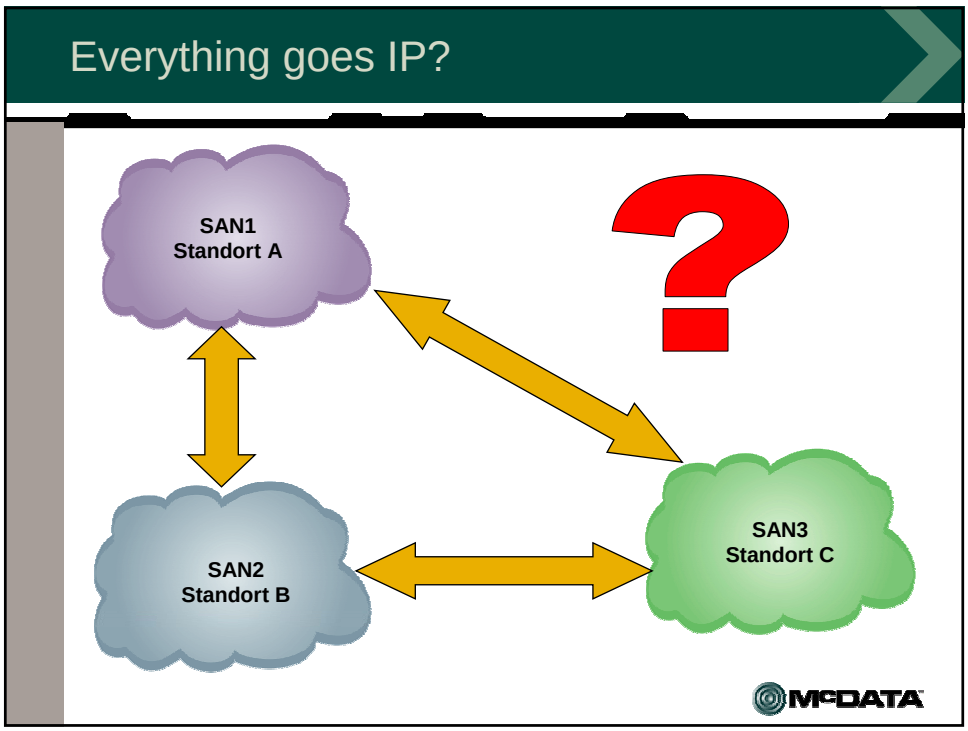
Everything goes IP?
SAN1
Standort A
SAN2
Standort B
SAN3
Standort C
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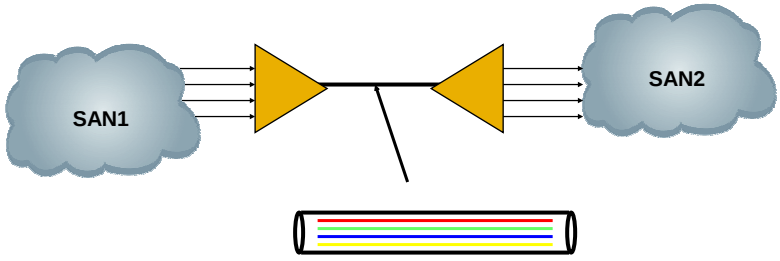
Everything goes IP?

Direkte Fibre Channel Verbindungen
Multiplexer (xWDM Systeme)



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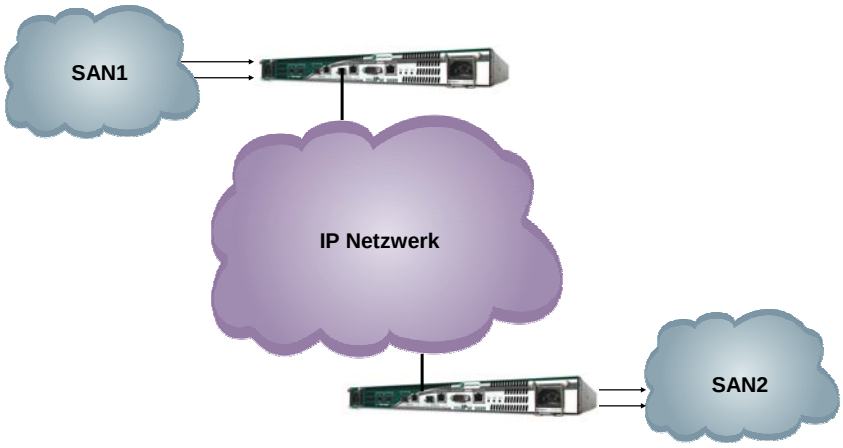
Everything goes IP?



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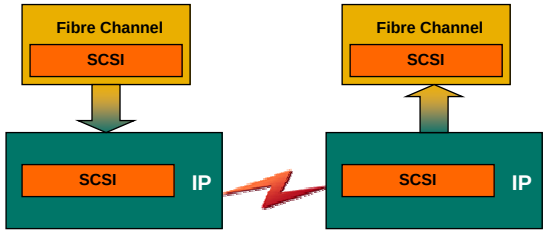
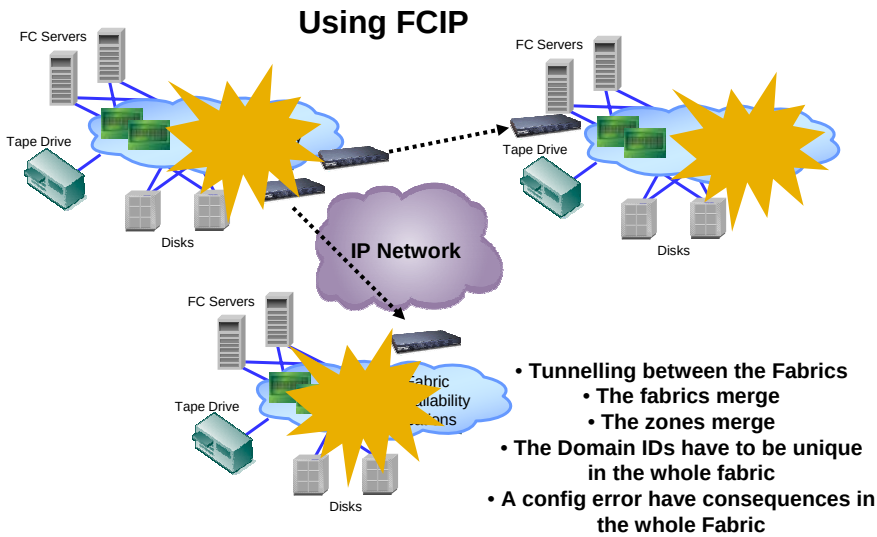
Fibre Channel over IP

using iFCP

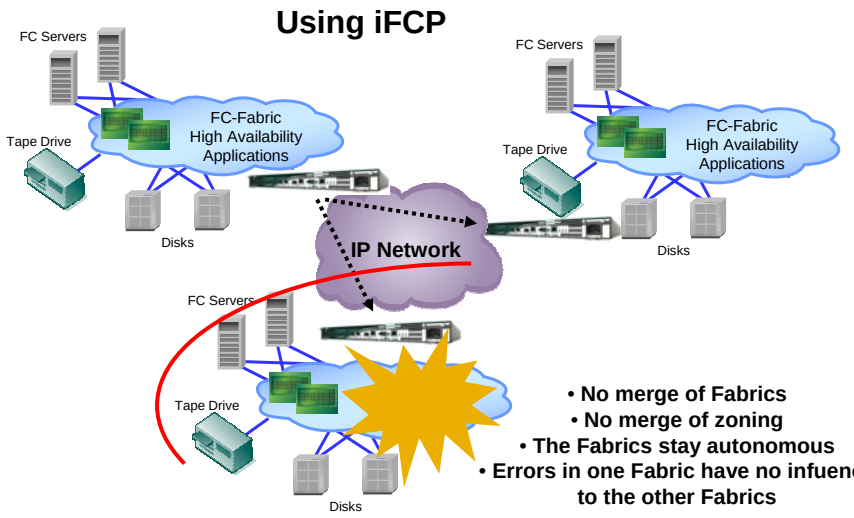


Fibre Channel over IP

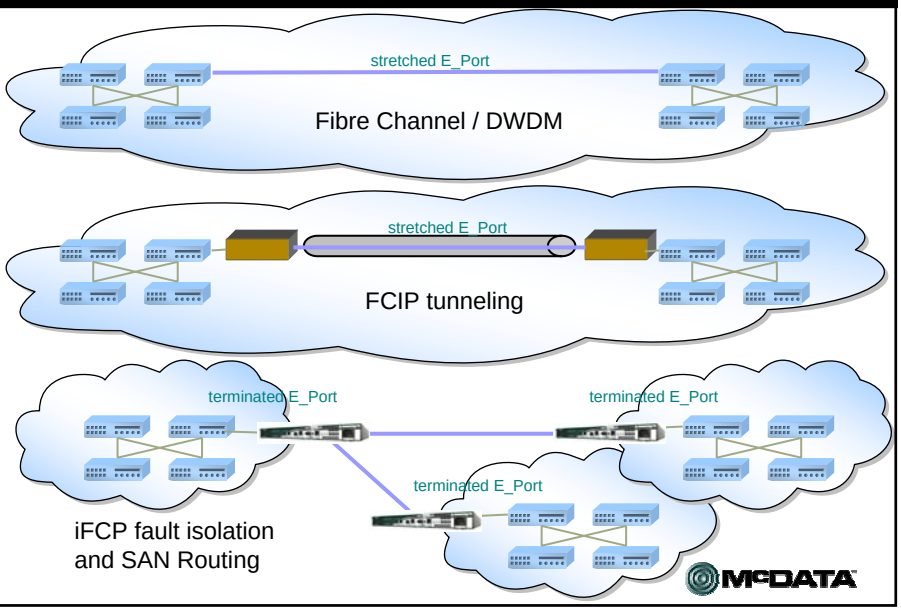


- Tunnelling between the Fabrics
- The fabrics merge
- The zones merge
- The Domain IDs have to be unique in the whole fabric
- A config error have consequences in the whole Fabric

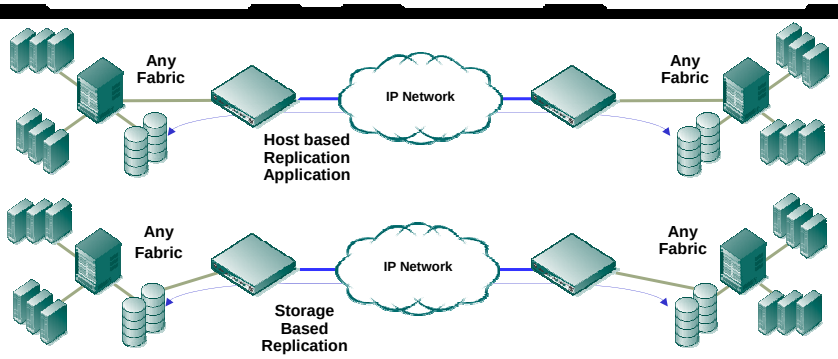
Fibre Channel over IP



SAN routing over IP



Data replication



- **Business Continuance**
  - **Cost effective solution for regional offices, remote sites**
  - **Solution qualified with major replication applications (SRDF, SAN Copy, MirrorView, TrueCopy, DRM, REDI-SANlinks, RVM)**
- **Reliability: fault isolation across IP Network**
- **Higher throughput and lower telecom costs: compression, Fast Write**

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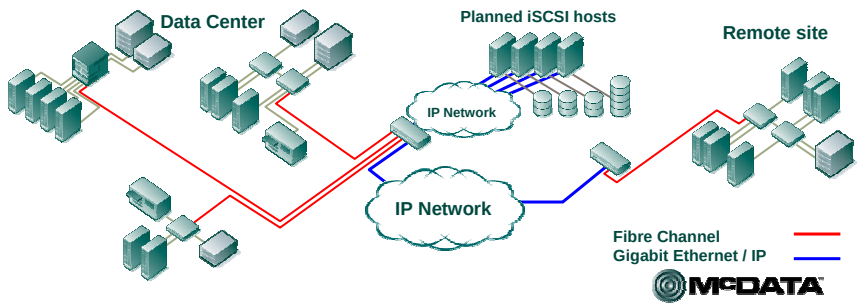
Fibre Channel over IP Summary

SAN Routing
- Interconnects multi-vendor SAN islands
- Fault isolation, security & management of independent islands

iSCSI Integration
- Cost effective SAN connectivity for low-end servers
- Leverage IP network for connectivity outside data center

Distance Solutions
- Cost effective DR/BC solution for regional offices, remote sites
- Branch site consolidation: centralized backup and management
- Reliability: fault isolation across IP Network



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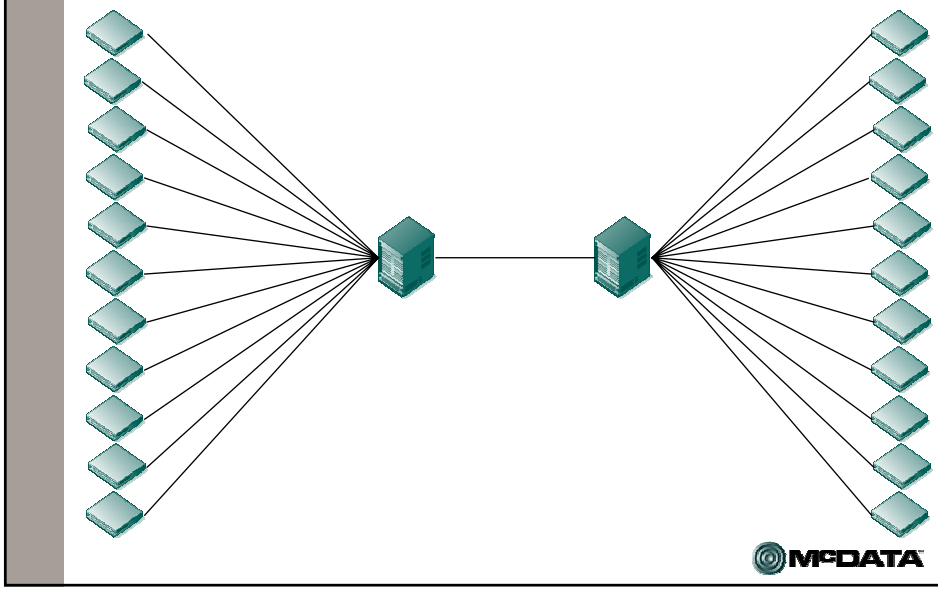
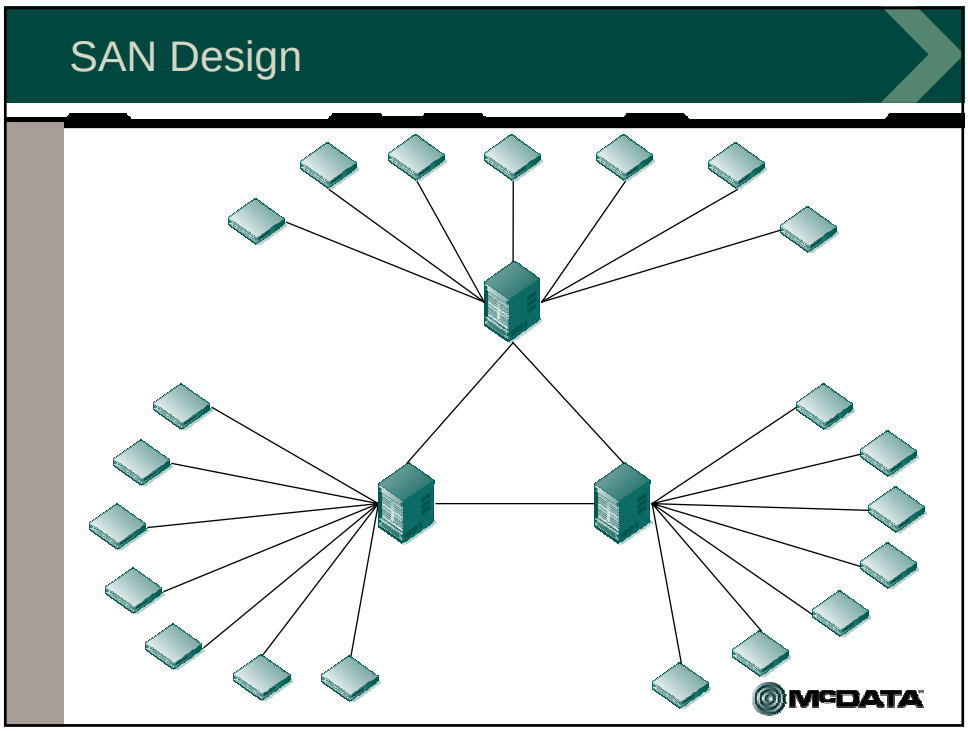
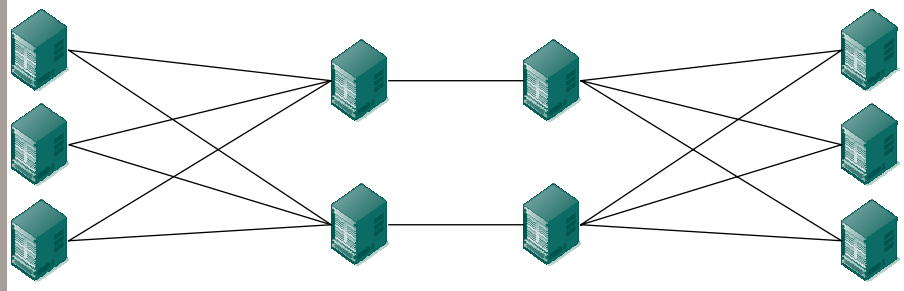
SAN Design



SAN Design



SAN Design

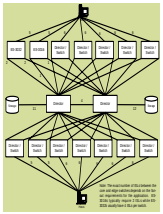


•10 x 140 = 1400
•ISL ports = 288
1112

SAN Konsolidierung

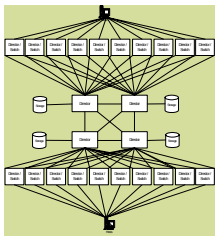
Individual Fabrics

1024 ports



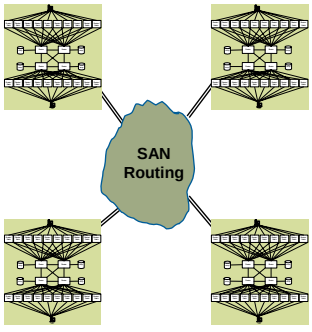
Larger Individual Fabrics

2048 ports



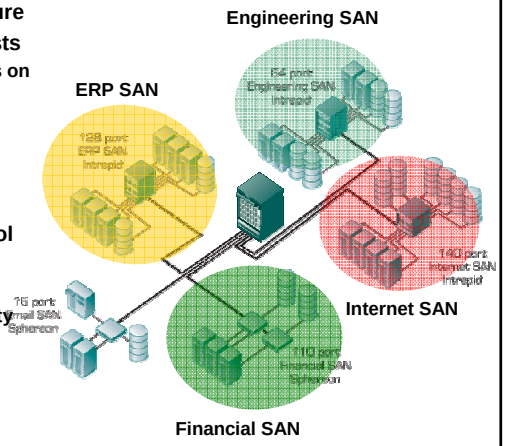
Multiple Independent Fabrics

x 1,000's ports



SAN Konsolidierung mit intelligenten Komponenten

- Reliable Scaling of the Infrastructure
- Reduces SAN Complexity and Costs
  - Securely Consolidates SAN Islands on the Same Platform
- Benefits of Network Consolidation
  - Simple design and management
  - Datacenter reliability
  - Non-disruptive scalability
- Advantages of Small Fabric Control
  - Protection from user error
  - Firewalled application security
  - Independent software upgradeability



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Wrap up

Fibre Channel ist die richtige Technik um Speichernetzwerke aufzubauen.

iSCSI dient zur Anbindung von einfachen Servern an bestehende Fibre Channel Speicher. Es wird Fibre Channel nicht ablösen, es wird Fibre Channel ergänzen.

iFCP ist die bessere Technik zum Verbinden von Speichernetzen und bietet viele Vorteile gegenüber herkömmlichen Verfahren.

FCIP ist weit verbreitet, hat aber Nachteile, weil das FC Protokoll nur „gebridged“ wird. Das FC Paket bleibt erhalten.

Mit iFCP ist es möglich Speichernetze verschiedener Hersteller miteinander zu verbinden ohne das die verschiedenen SANs miteinander „verschmelzen“.

Die Nutzung von bestehenden IP Verbindungen für Speichernetzwerke ist möglich, es gilt aber Rücksicht zu nehmen auf beschränkte Bandbreiten im IP Netzwerk.

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