Cloud File Services: SMB/CIFS and NFS…in the Cloud

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SNIA™
Ethernet Storage Forum

Webcast Presenters

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Food for thought…

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- What if you could have all of your data in the cloud?
  - With the same experience
  - With the same control
  - With the same data management
  - Without changes to existing applications

What do you think Cloud File Services is?

a) Just another new term with “Cloud” in it
b) A new SNIA category
c) SMB and NFS in the Cloud
d) Home directories on-demand

QUESTION

Agenda

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- File Services overview
- Existing environment on-premises
- Split administration of on- and off-premises solutions
- Cloud File Services definition
- Moving to the cloud
- Accommodating existing workloads
- Paths to Cloud File Services

File Services - Defined

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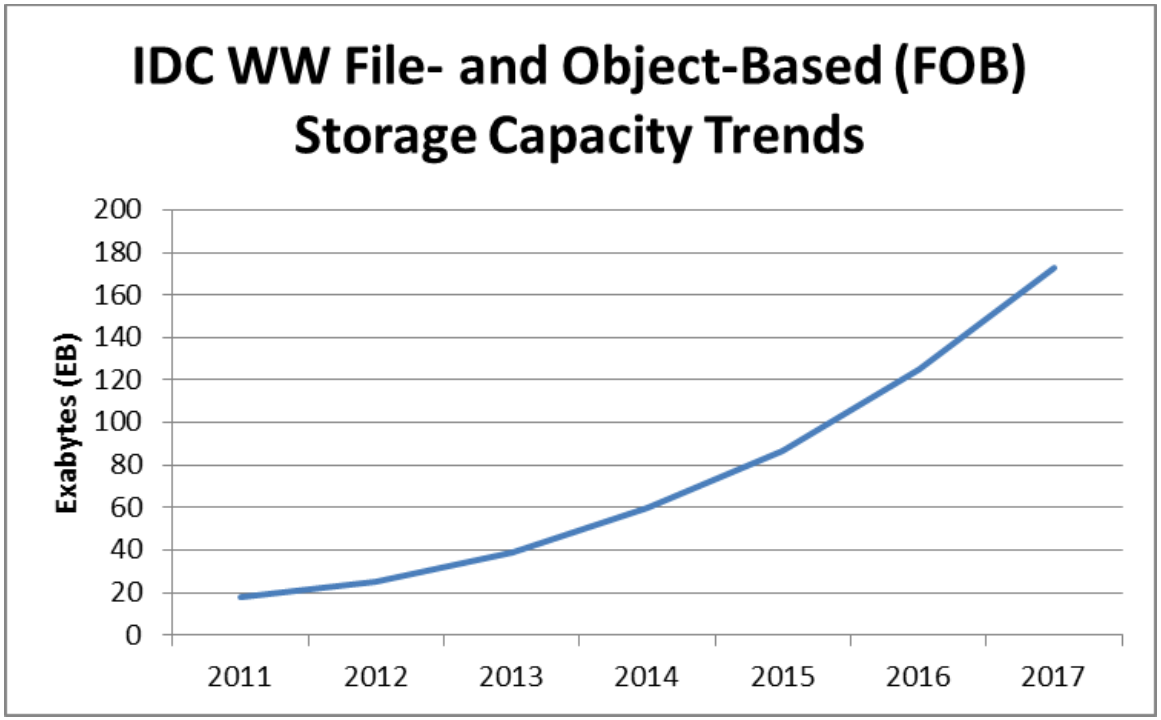
- "Client" File Services
  - Home Directories
  - Project Shares
  - User generated data
- "Server" File Services
  - Custom/Technical Applications
  - Hypervisors with Guest OS's
  - Databases
  - OS images for VDI
  - Machine generated data

Market Trends



Source: IDC WW File- and Object-Based Storage 2013-2017 Forecast Doc# 242287, July 2013

- 2017: 3X data growth, 173 Exabytes, 47.2% CAGR
- File- and Object-based storage (FOB) is outpacing overall storage growth

Key Drivers for File Storage

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- Continued growth in traditional file sharing
- Traditional block-based apps moving to file
  - Hypervisors, VDI, Databases, Custom apps
- Hybrid application architecture - structured apps managing unstructured data
  - MS SharePoint
- Cloud and new apps
  - Archiving, Tiering, Mobile

Why Files?

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- Data Mobility & Granular Management
  - Easily copy, delete and move data around
  - Ability to restore single VMs, databases, or groups of VMs and databases
- Operational
  - Very little technical knowledge required - everyone knows how to manage shares and mountpoints
  - Less complex infrastructure

What percentage of your File Services data is operating out of the cloud (Hyperscalar, Service Provider)?

a) Less than 5%
b) Less than 10%
c) Less than 30%
d) More than 30%

QUESTION

Definition: Hyperscalars are extremely large-scale public clouds, e.g. AWS, Azure

File Services - Workloads

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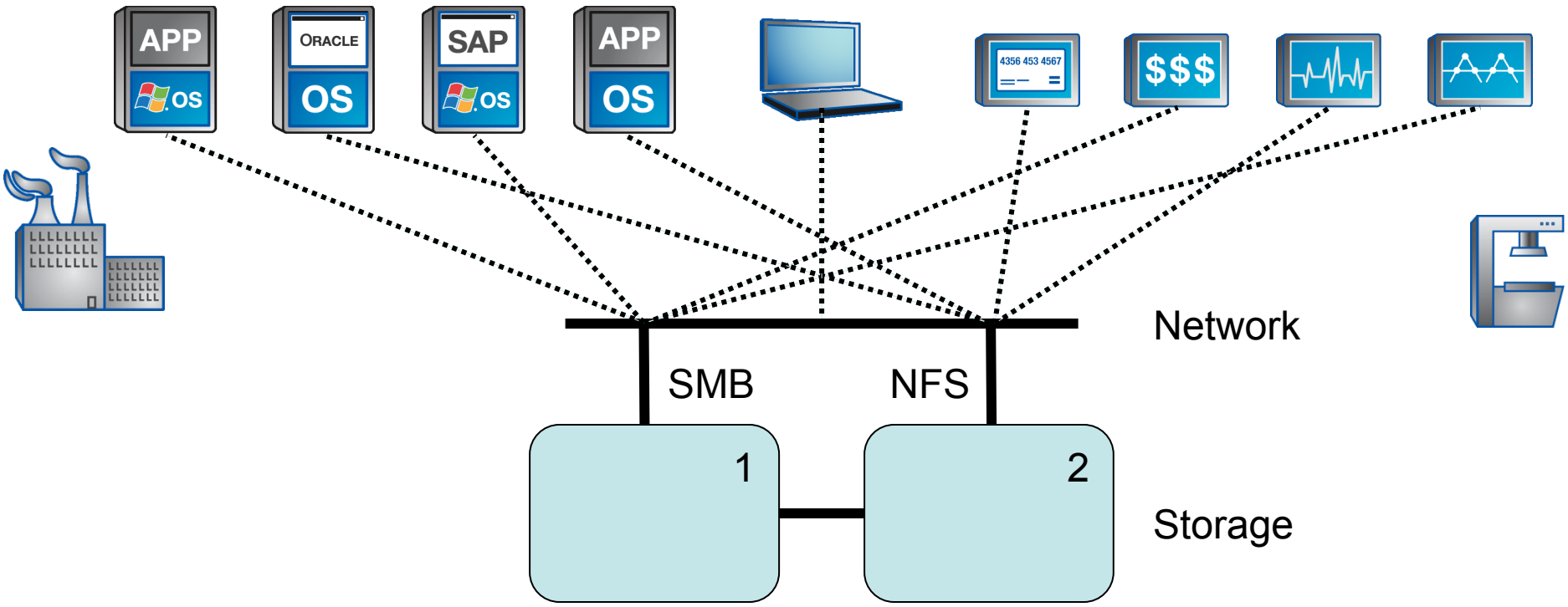
- Then
  - Home Directories, Project Shares
  - Slower, chattier
- Now
  - Hypervisors (Hyper-V, ESX, Xen, etc.)
  - Databases (Oracle, SQL)
  - Custom Apps, Energy, Finance, Healthcare, Legal, Media
- Future
  - Full non-disruptiveness
  - To the cloud!

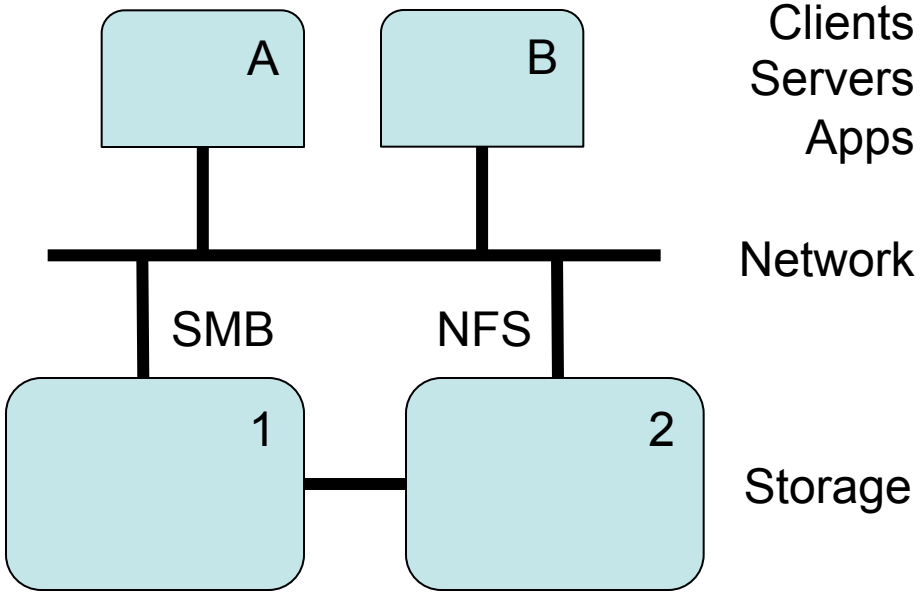
Applications over File Services



- Protocols such as SMB 3 and NFS 3/4.1 make it easy for applications to store data
  - High performing
  - Designed for applications

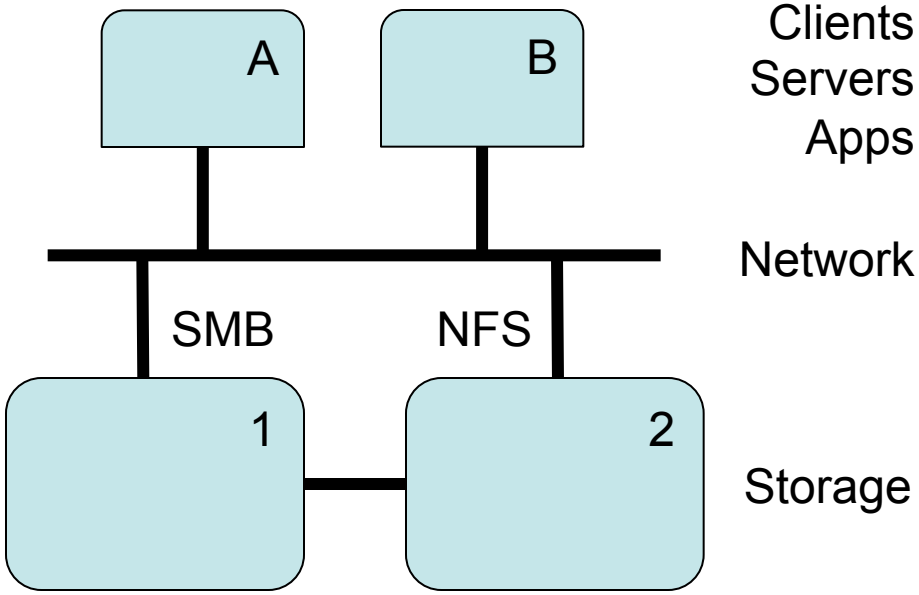
Current Environment

- Separation of compute & storage
- NFS and SMB



Current Environment

- Separation of compute & storage
- NFS and SMB
- User/Application mobility?



“Sync & Share”

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- Pros
  - Multiple devices
  - Location agnostic
  - User friendly
  - Lower cost for end user

“Sync & Share”

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- Pros
  - Multiple devices
  - Location agnostic
  - User friendly
  - Lower cost for end user
- Cons
  - Can only sync one root folder
  - Doesn’t work with applications
  - Sync latency
  - Size limitations
  - Security of sensitive data

Does your organization subscribe to Sync & Share services?

a) Yes, for the whole organization
b) Yes, for part of the organization
c) We're testing it out now or plan to test soon
d) No, and no plans to support

QUESTION

“Sync & Share”

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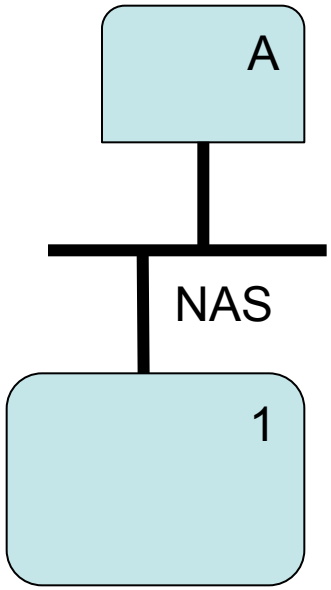

“Sync & Share”

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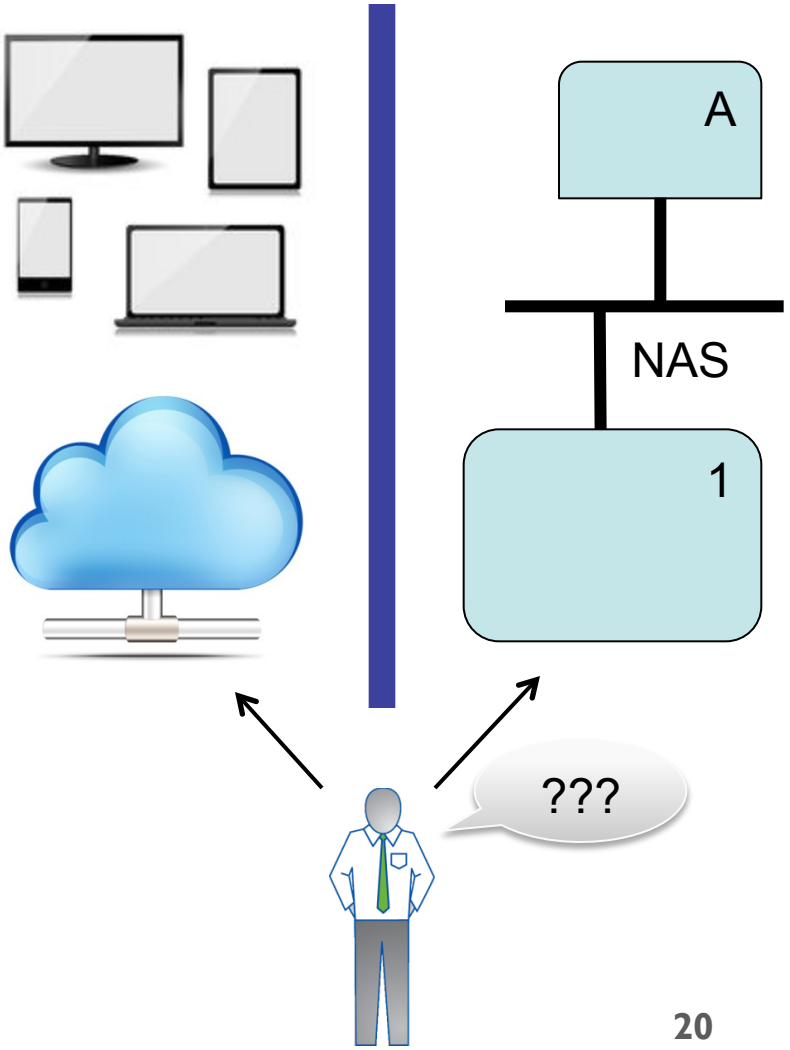
  - **Split Administration**



How do you solve these problems?

How do you solve these problems?

CLOUD FILE SERVICES

Cloud File Services - Defined

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- Cloud File Services is a common File Services platform across all of your environments
  - On-premises (corporate datacenters)
  - Service Providers
  - Hyperscalars
- Storage admins have the same experience across all of their locations, geos, and deployment models

Example: Cloud File Services in a Hyperscalar

Moving to the cloud

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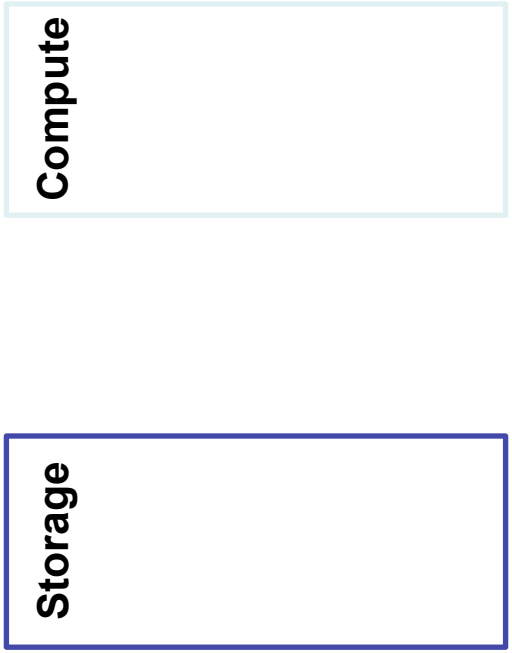
- Cloud offerings mimic on-premises infrastructure



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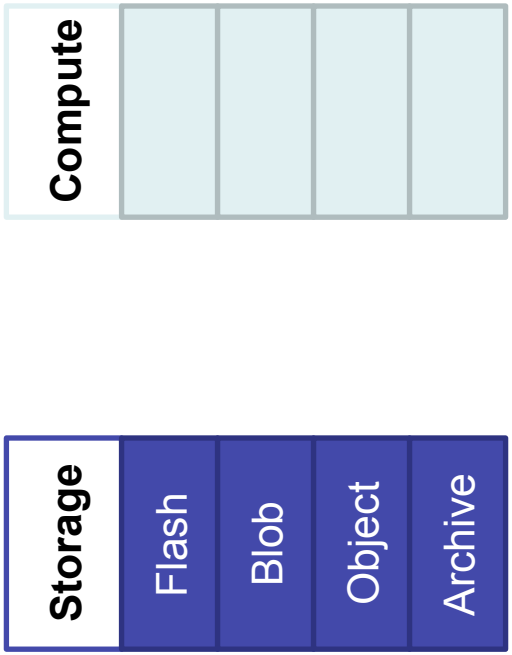

Moving to the cloud

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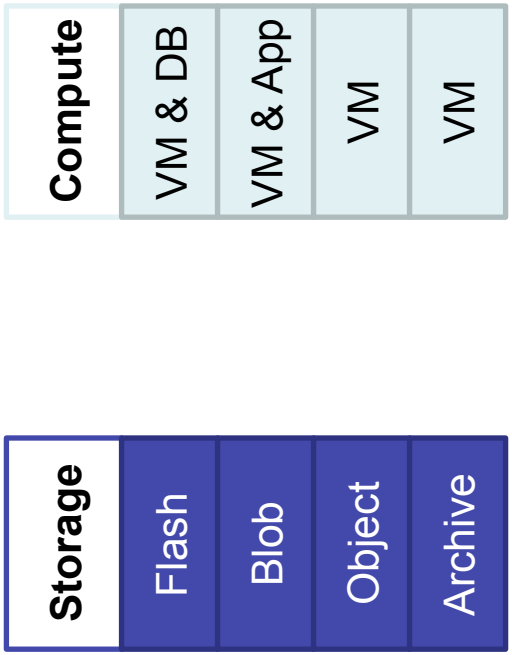

Moving to the cloud

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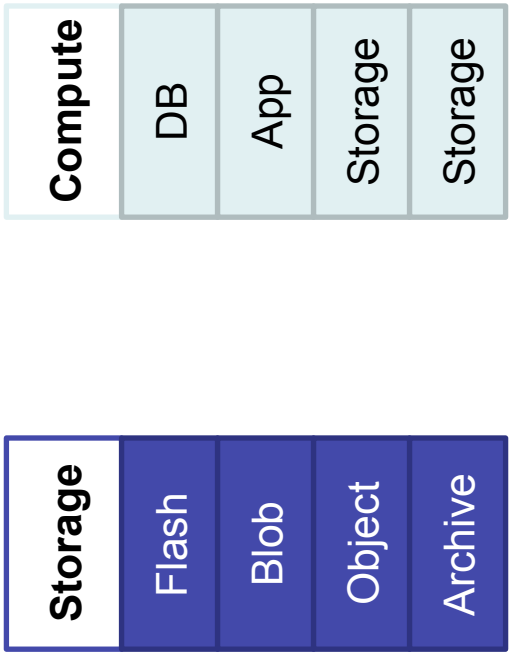
- Your storage OS in a Hyperscalar (or Service Provider)



Moving to the cloud

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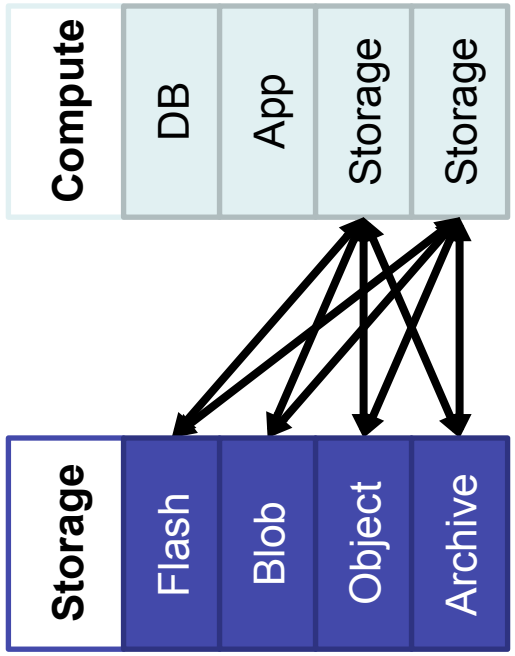
- Storage OS can leverage different tiers of storage on the backend



Why would we want to do that?

Moving to the cloud

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- Applications are either:
  - Born on-premises
  - Born in the cloud

Moving to the cloud

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- Applications are either:
  - Born on-premises
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- What happens when you want to move your on-premises applications to the cloud?

Moving to the cloud

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- Applications are either:
  - Born on-premises
  - Born in the cloud
- What happens when you want to move your on-premises applications to the cloud?
  - You need File Services…*Cloud* File Services!

Moving to the cloud

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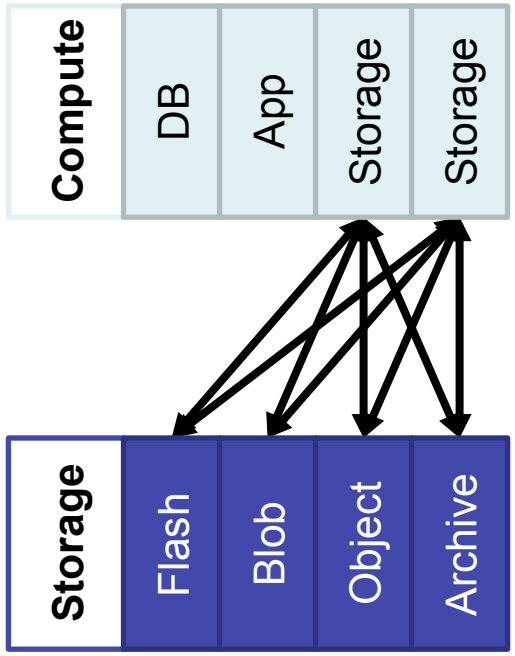
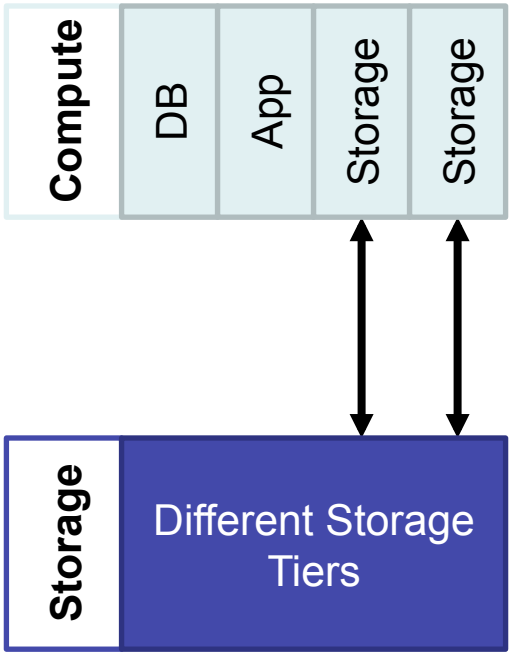
- Let's clean things up a bit…



Moving to the cloud



Moving to the cloud

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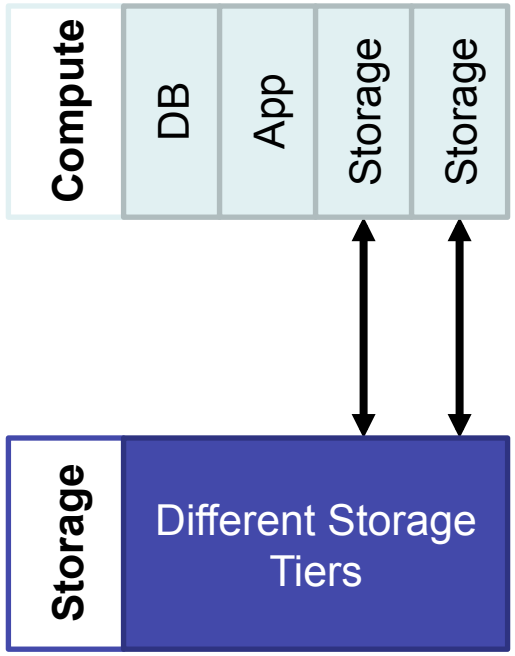
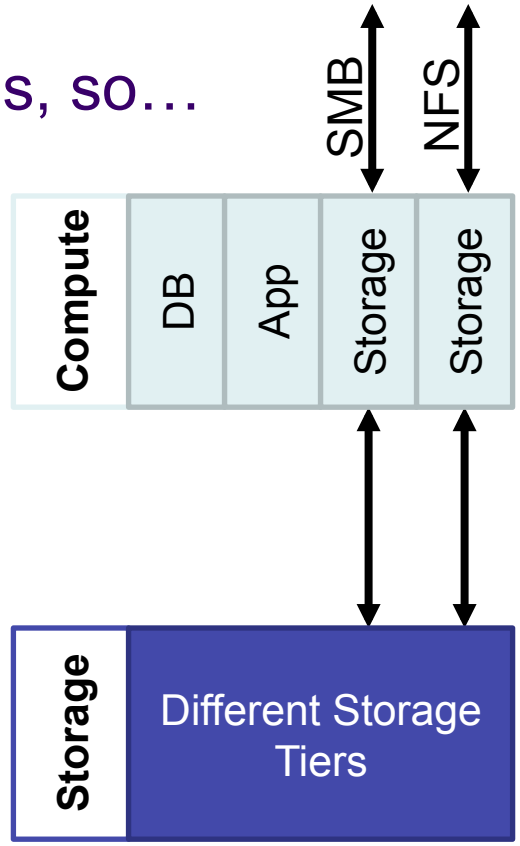
- What about existing or legacy applications?



Moving to the cloud

- Same file protocols, so…



Moving to the cloud

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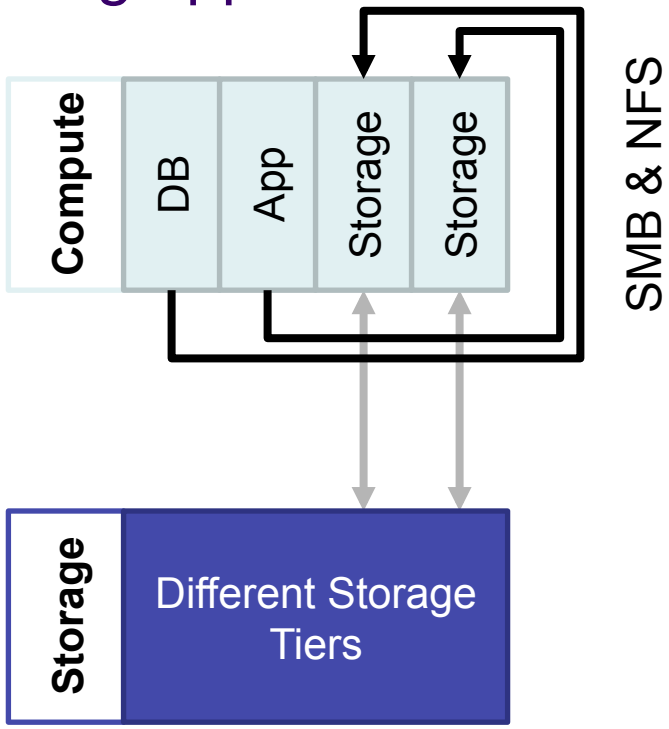
- No changes to existing applications!



Moving to the cloud

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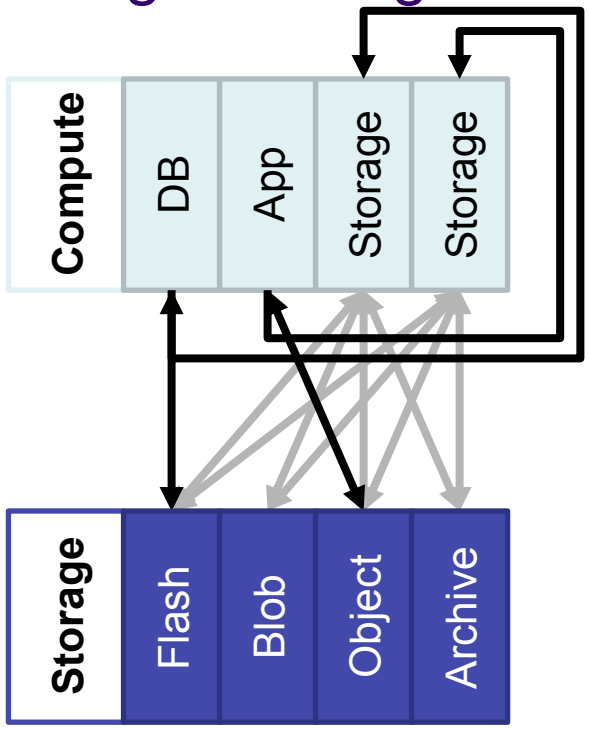
- Choose between storage offerings and tiers!



Moving to Cloud File Services

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- How do I actually get my data into my new Cloud File Services platform?

Moving to Cloud File Services

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- How do I actually get my data into my new Cloud File Services platform?
  - Storage mirroring/vaulting/migration

Moving to Cloud File Services

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- How do I actually get my data into my new Cloud File Services platform?
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  - File/VM-level copy or movement

Moving to Cloud File Services

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- How do I actually get my data into my new Cloud File Services platform?
  - Storage mirroring/vaulting/migration
  - File/VM-level copy or movement
- The same operations and processes currently used between two storage arrays over the WAN

How do you currently move data between your primary and secondary locations?

a) Storage replication
b) Brute force or NDMP copy
c) FTP
d) I don't have a secondary location

QUESTION

Cloud File Services

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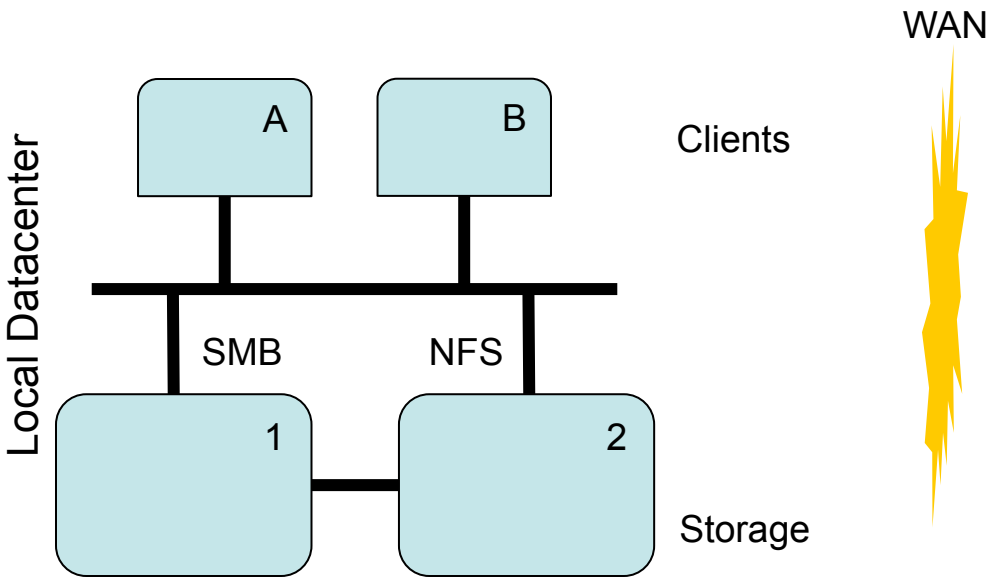
- Data management consistency



Cloud File Services

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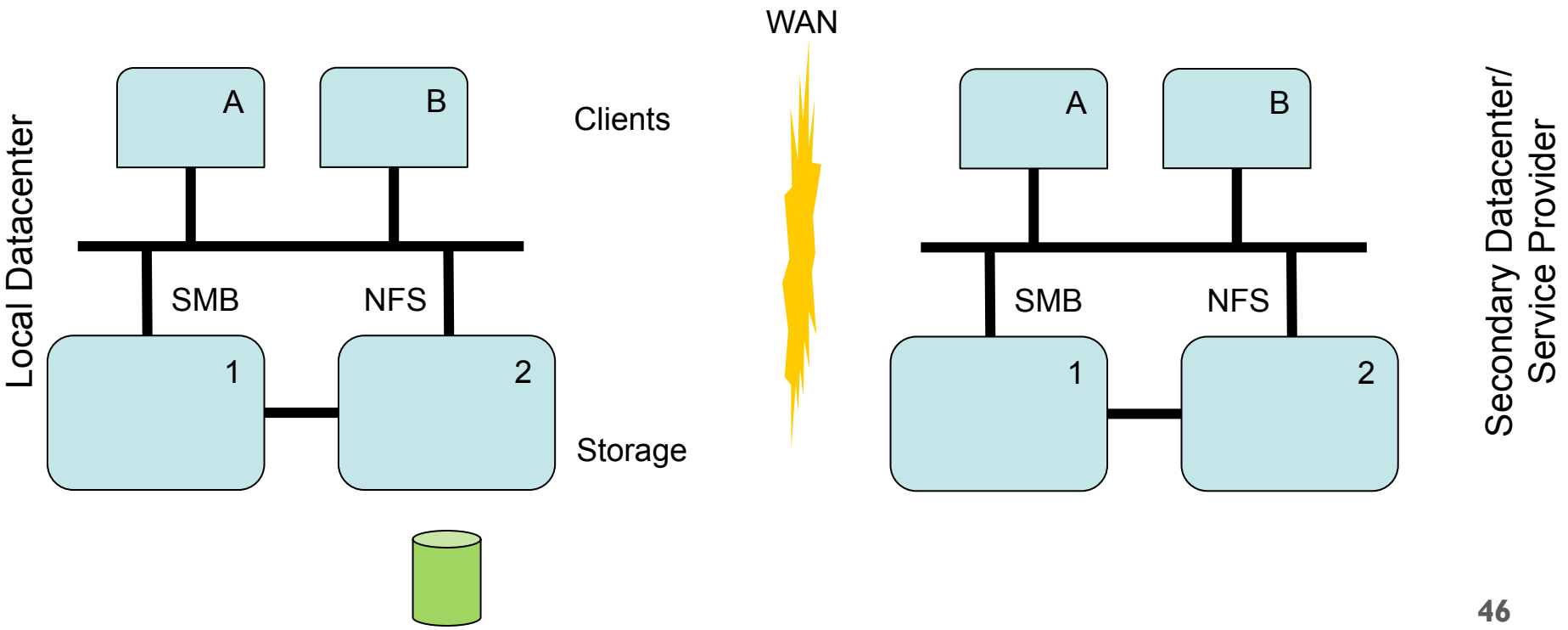

Cloud File Services

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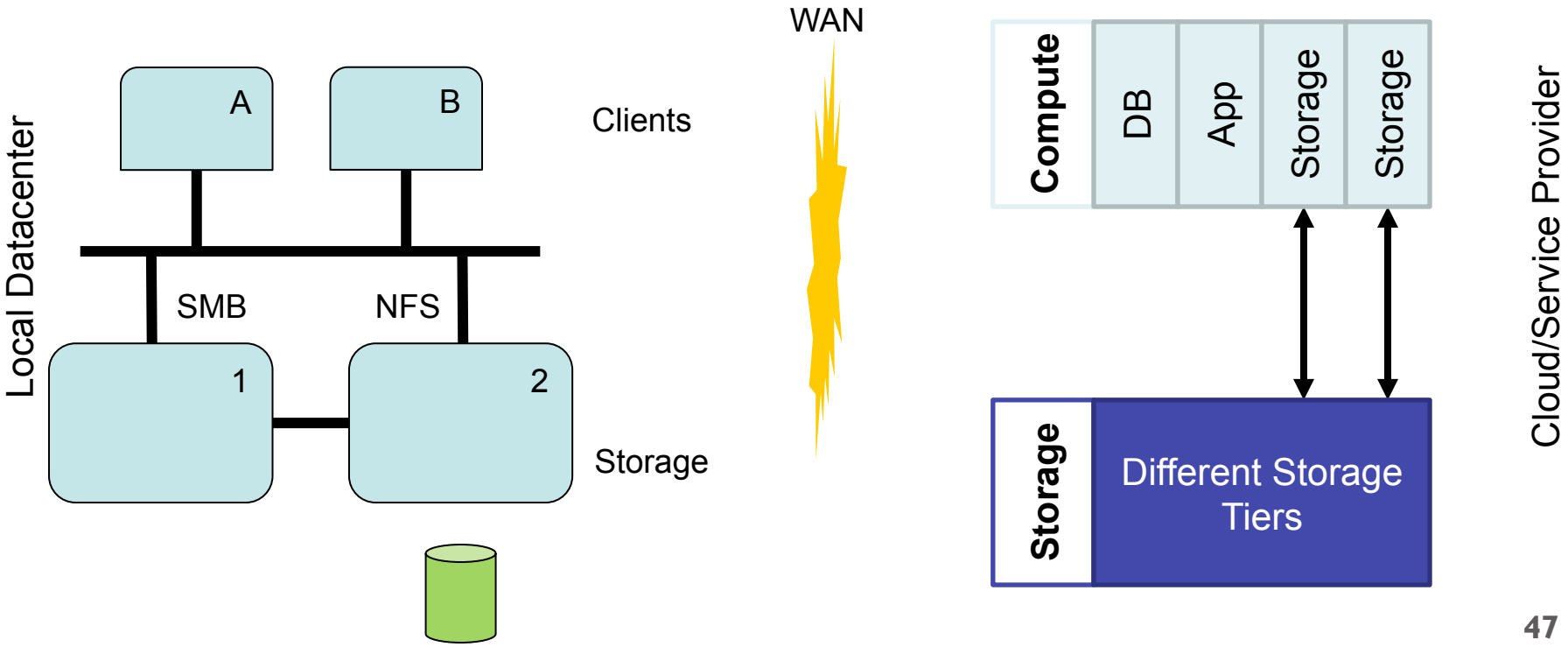

Cloud File Services

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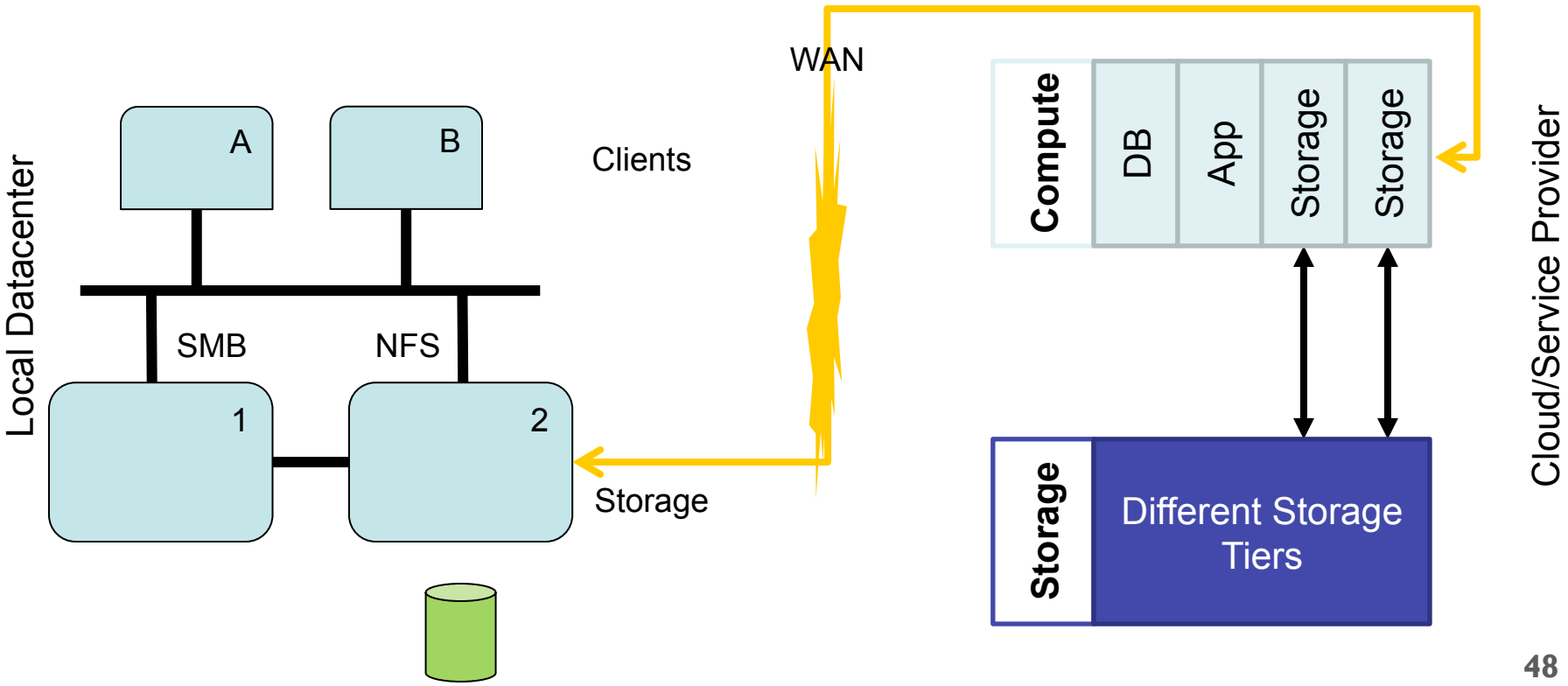
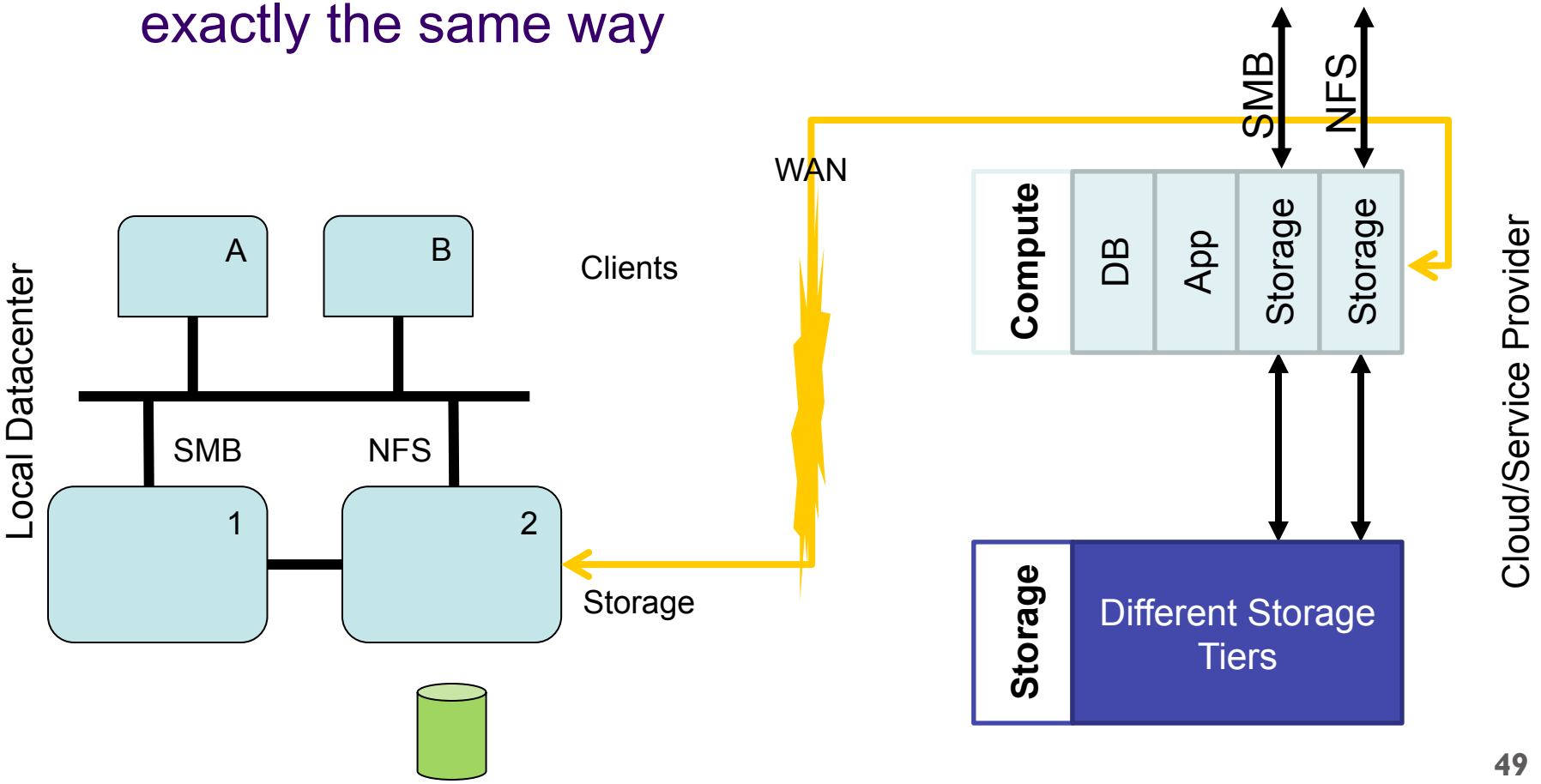


Cloud File Services

- Use storage-level features to move data, and serve it exactly the same way



Cloud File Services

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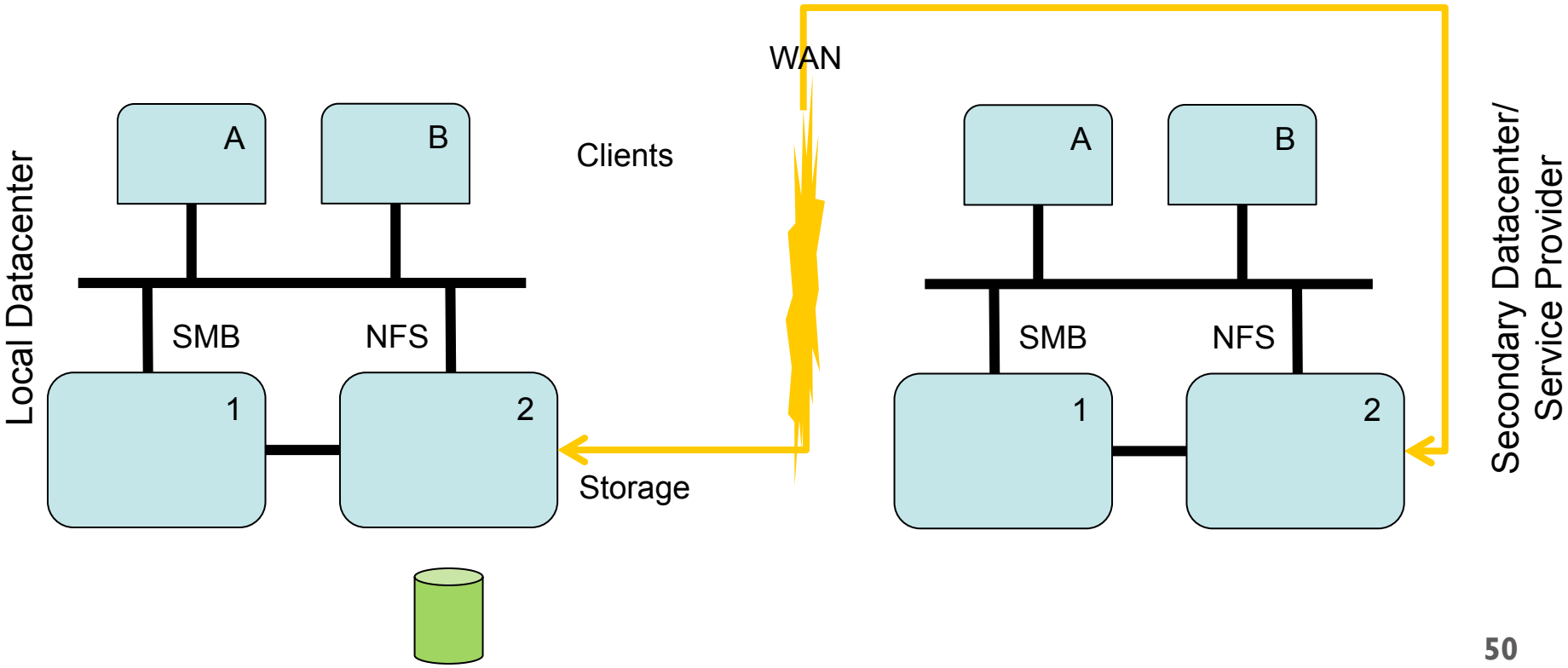

Cloud File Services

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- Regardless of which architecture you have, use, or plan to implement…
  - Same data platform
  - Same services
  - Same experience

Paths to Cloud File Services

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- Commercial Storage OS
  - Same OS across all of your environments

Paths to Cloud File Services

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- Commercial Storage OS
  - Same OS across all of your environments
- Open Source
  - OpenStack Manila

Paths to Cloud File Services

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- Commercial Storage OS
  - Same OS across all of your environments
- Open Source
  - OpenStack Manila
    - Ability to expose Storage OS with common APIs
      - Commercial Storage OS backend
      - Generic Manila
    - What about heterogeneous environments?
    - How to leverage storage efficiency over WAN?

Summary

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- Cloud File Services allows you to have your data anywhere you choose
  - With the same experience
  - With the same control
  - With the same data management
  - **Without changes to existing applications**

After This Webcast

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- This webcast will be posted to the SNIA Ethernet Storage Forum (ESF) website and available on-demand
  - http://www.snia.org/forums/esf/knowledge/webcasts
- A full Q&A from this webcast, including answers to questions we couldn't get to today, will be posted to the SNIA-ESF blog
  - http://sniaesfblog.org/
- Follow and contribute to the SNIA-ESF blog thread on many storage-over-Ethernet topics, both hardware and protocols
  - http://sniaesfblog.org/

Conclusion

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QUESTIONS?