



Where Experience Meets Innovation

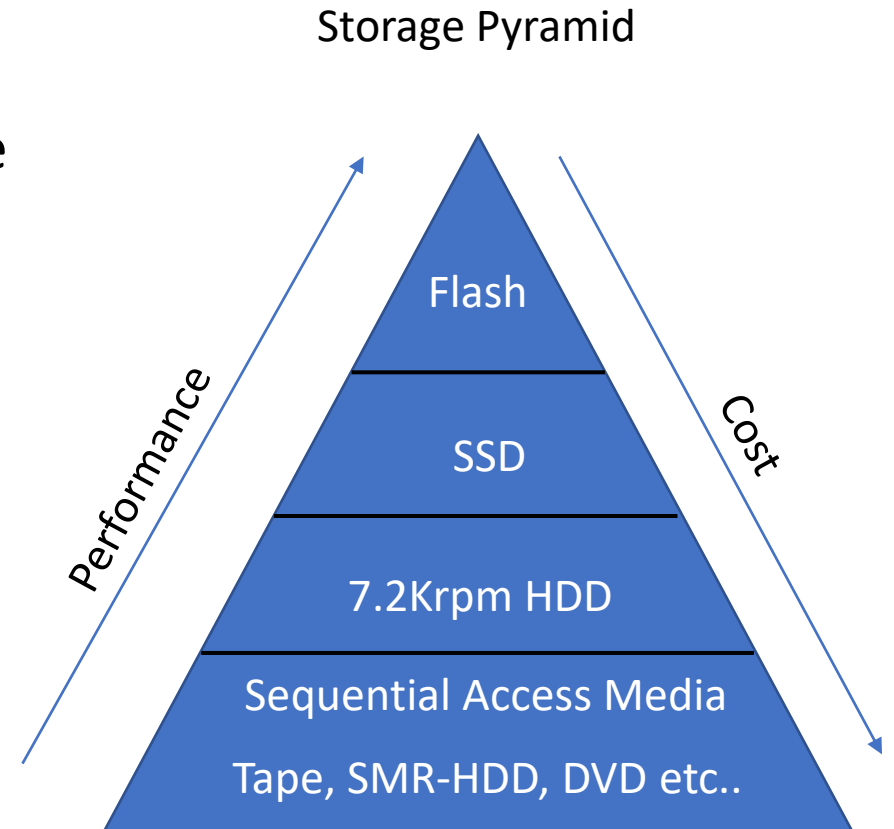


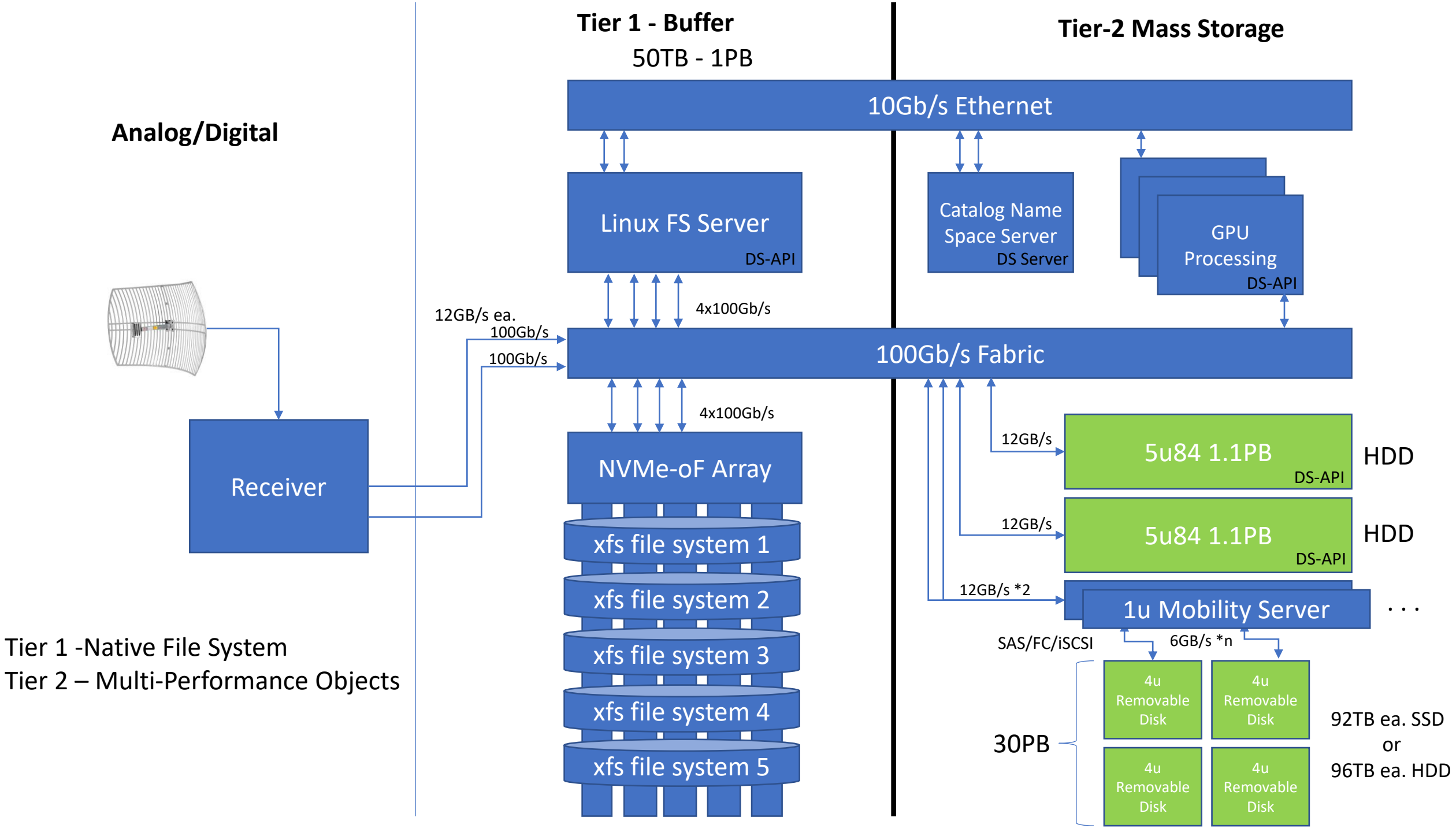
# Use-Case Study

**Customer needed high-performance data ingest, has a limited budget.**

- Design Requirements
  - 1PB of new data per day
  - 30 days of continuous capture before restart
  - No dropped bits
  - Same software stack across different usage scenarios
    - Edge, Data Center, Mobile
- Design Constraints
  - Limited rack space and power
  - Limited budget
  - No or limited network at the edge or mobile

- Need a way to move data from one tier to the other to keep media costs down
- First byte has to go to flash
  - Decouple near-real-time data stream from capture system
  - Data is committed and cached before tiering
- Are there open-source options?
  - Avoid proprietary and expensive software
  - Leverage community-based solutions







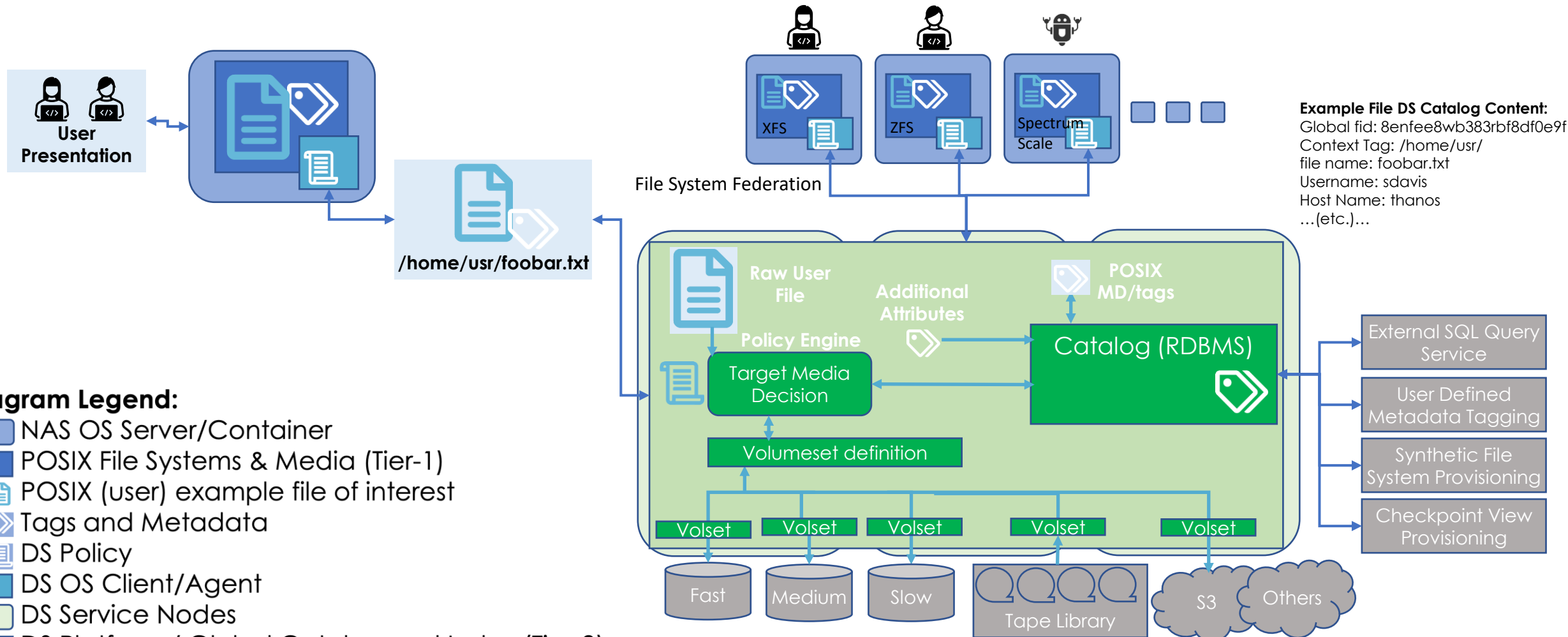
# Software Selection

DeepSpace Storage ([www.deepspacestorage.com](http://www.deepspacestorage.com))

- Provides Native FS gateway to all storage object tiers
  - Heterogenous FS client support, roadmap
- Transparent policy-based media tiering
  - Supports all block-based storage media and streaming media formats
  - Supports third-party object systems
  - Has a native low-latency high performance object system
- Robust data protection
  - Erasure coding, replication, versioning
- Data and Media Orchestration
- Data Catalog and Index Engine
- Open Source w/support options
- Multiple ISV / integrator options for turnkey deployments



# DeepSpace System Architecture
























**Example File DS Catalog Content:**  
 Global fid: 8enfee8wb383rbf8df0e9f  
 Context Tag: /home/usr/  
 file name: foobar.txt  
 Username: sdavis  
 Host Name: thanos  
 ... (etc.) ...

## Multi-Tier Object Store:

- Native DS blockOS:** Full drive bandwidth, can use zpool based block services, power addressable, any block media type, no constant churn and burn.
- Ceph:** libRADOS layer, faster performance than S3 gateway.
- S3:** For cataloging requires streaming capability, for replication any S3
- Tape:** Any tape technology or ATL technology that uses MTX or ACSLS



# DeepSpace Object System

AFA Gateways	Platform	Capacity			
<div>Native FS</div> <div></div> <div>NAS Head</div> <div></div> <div>S3</div> <div></div>	<div>DeepSpace Control</div> <div></div>	<div>blockOS™</div> <div>High Performance Object</div> <div><div>Exos AP 2U12</div><div></div><div>216TB</div></div> <div><div>Exos AP 2U24</div><div></div><div>432TB</div></div> <div><div>Exos AP 5U84</div><div></div><div>1,512TB</div></div> <div><div>Exos CORVAULT</div><div></div><div>2,120TB</div></div> <div><div>Lyve Mobile Array</div><div></div><div>92/96TB per shuttle</div></div>	<div>3<sup>rd</sup> Party Object</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div>tape</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	



# Summary

- Each generation of fast media sits on top of the pyramid until the next best new thing comes to market
- Media tiering helps ease adoption with manageable media economics
- Open Source options for media tiering is crucial for building solutions that are reachable for mortal customers with real budgets
  - The days of \$1M per PB of tiered data storage are gone.