



**SDC** 

STORAGE DEVELOPER CONFERENCE

SNIA  SANTA CLARA, 2017

# Universal Hybrid Cloud Connector

**Pankaj Mansukhani**

**Nalini Kumari Nallamalli**

**Meghraj Bendre**

**Veritas Technologies LLC**

# Agenda

- ❑ Hybrid Cloud
- ❑ Multi Volume File system
- ❑ SmartTier
- ❑ Architecture of Cloud Connector
- ❑ Demo
- ❑ Use-cases



# What is Hybrid cloud?

Hybrid cloud is a cloud computing environment which uses a mix of on-premises, private cloud and third-party, public cloud services with orchestration between the two platforms.

“Reference:

<http://searchcloudcomputing.techtarget.com/definition/hybrid-cloud>”

Gartner predicts that by 2020 around 90% of organizations will adopt hybrid infrastructure

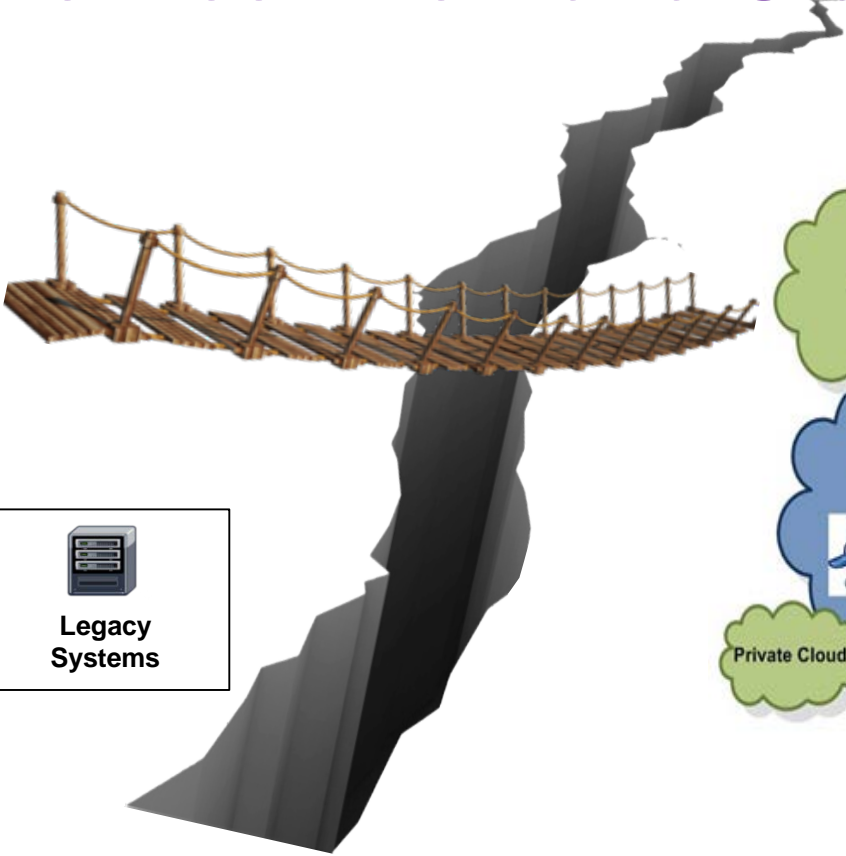
“Gartner Says a Massive Shift to Hybrid Infrastructure Services Is Underway” April 2017

Hybrid cloud adoption grew 3X last year from 19% to 57% of organizations surveyed

“Forbes 2017 State Of Cloud Adoption And Security” – April 2017

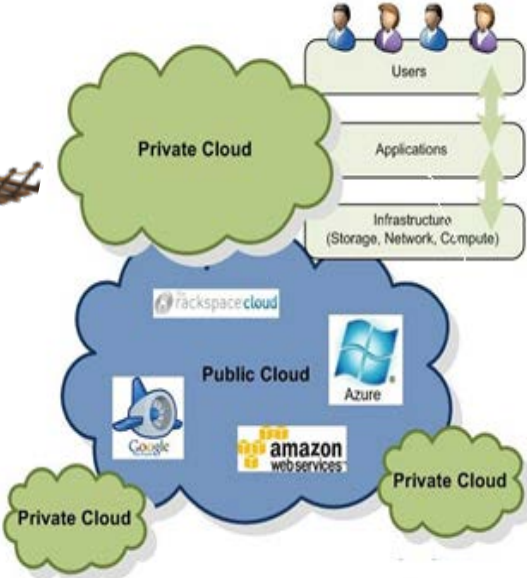


# Bridge GAP Between New and Old



**Traditional Enterprise**

 <b>Databases, Warehouses</b>	 <b>Enterprise Applications</b>	 <b>Legacy Systems</b>
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# Benefits of Hybrid cloud

- ❑ Flexibility
- ❑ Security
- ❑ Stability
- ❑ Cost effectiveness

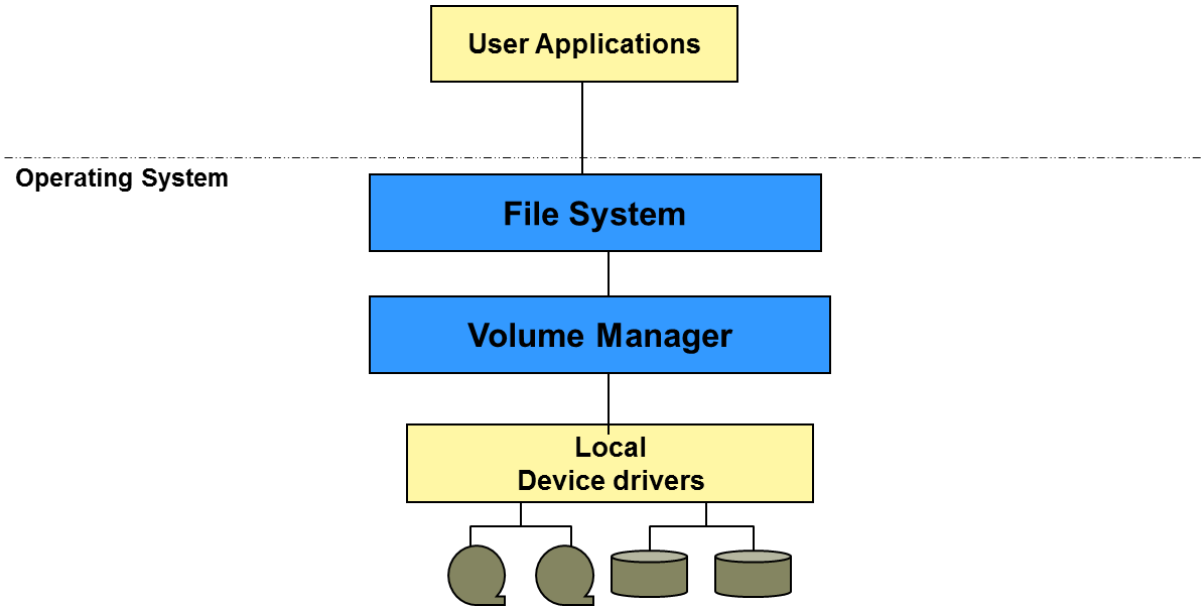


# Challenges in Migration

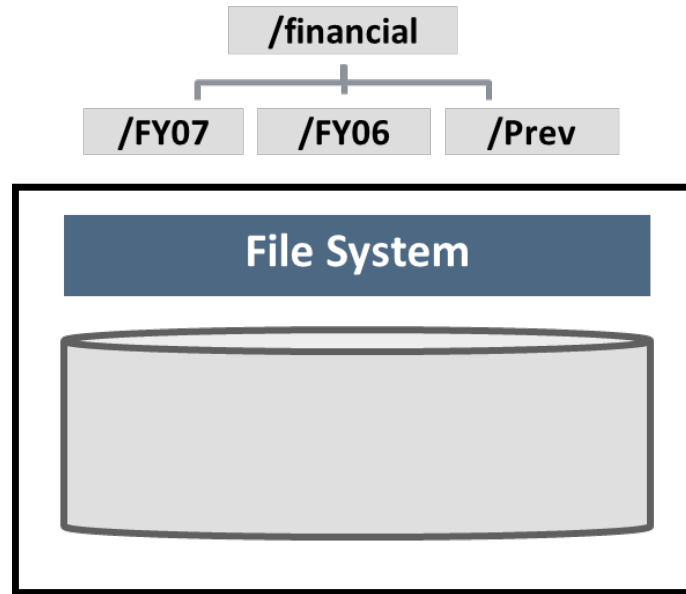
- ❑ Downtime
- ❑ Integration complexity
- ❑ Security Risks
- ❑ Change and Scale complications



# Volume Manager

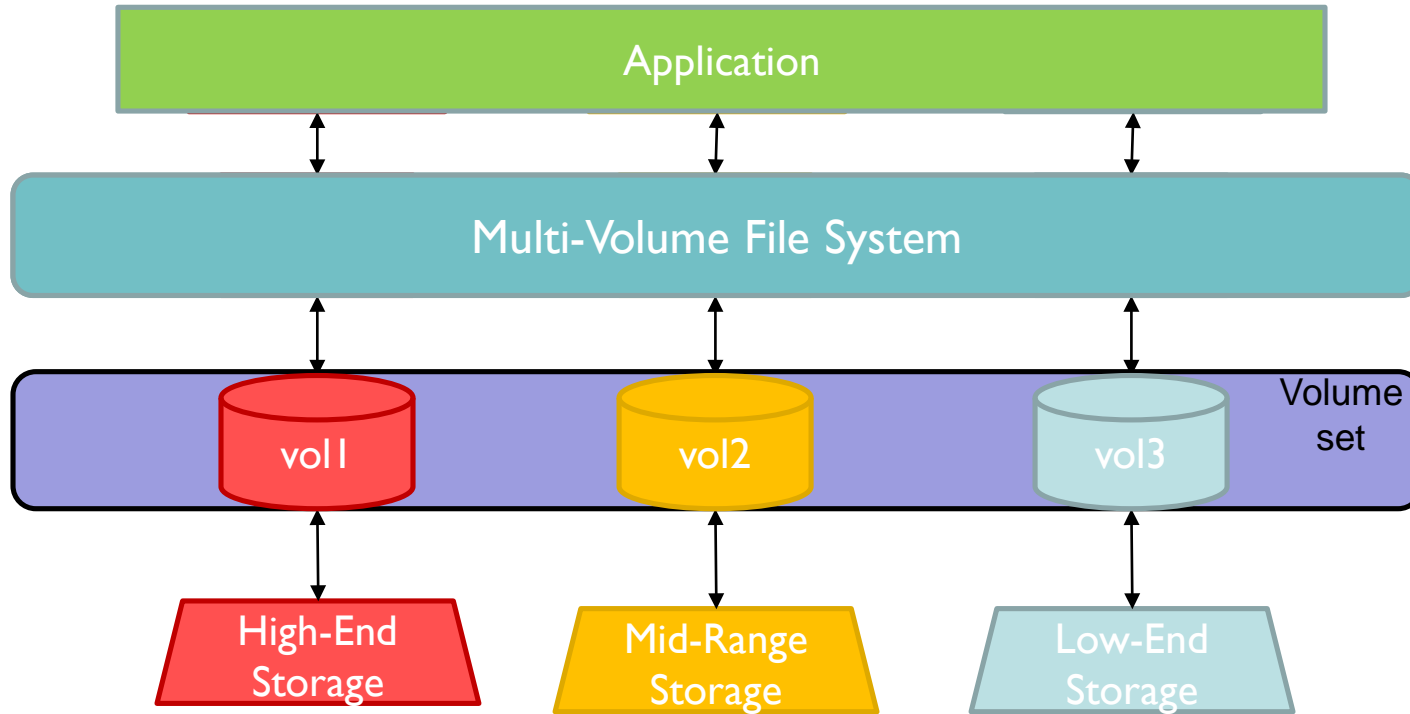


# VxFS



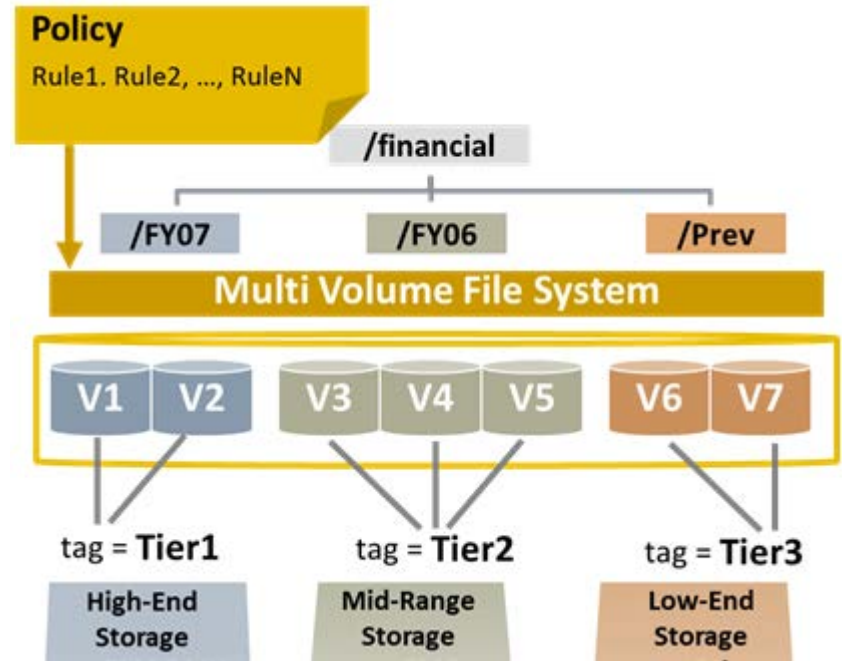


# Multi-Volume File System










# SmartTier

- ❑ AKA Dynamic Storage Tiering
- ❑ Creates file storage space from multiple tiers
- ❑ Transparent relocation of files
- ❑ Tiers and Policies: Rich framework to define where to create files; when, why, & where to relocate files



# SmartTier (Policy Framework)

- ❑ Create various placement policies
  - ❑  Directory (Logical location)
  - ❑  Filename (Name)
  - ❑  User or group (Owner)
  - ❑  mtime or atime (Aging)
  - ❑  I/O or Access Temperature (Activity)
  - ❑  Space allocated to the file (Size)
  - ❑  Current Tier (Physical location)

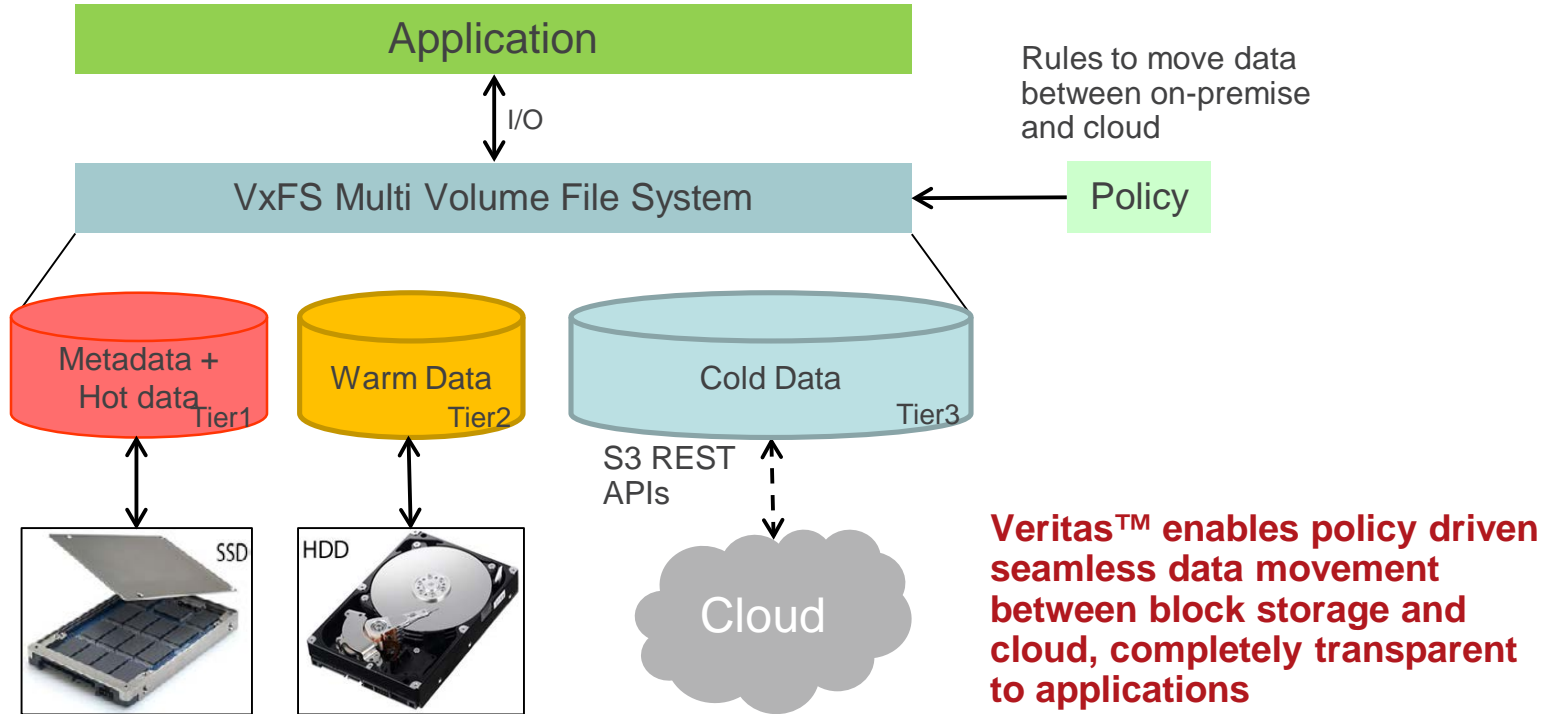


# Benefits of SmartTier/MVFS

- ❑ Control over data
- ❑ Improve I/O performance
- ❑ Reduced storage costs



# Hybrid cloud connector



# Cloud Object Storage

- ❑ Objects are fundamental entities
- ❑ Eventual consistent
- ❑ No Partial Object update



# Design cloud Connector

- ❑ Volume to object mapping
- ❑ Flexible object size
- ❑ Read/Write maps to GET/PUT
- ❑ Reclaim maps to DELETE
- ❑ Read-Modify-Write



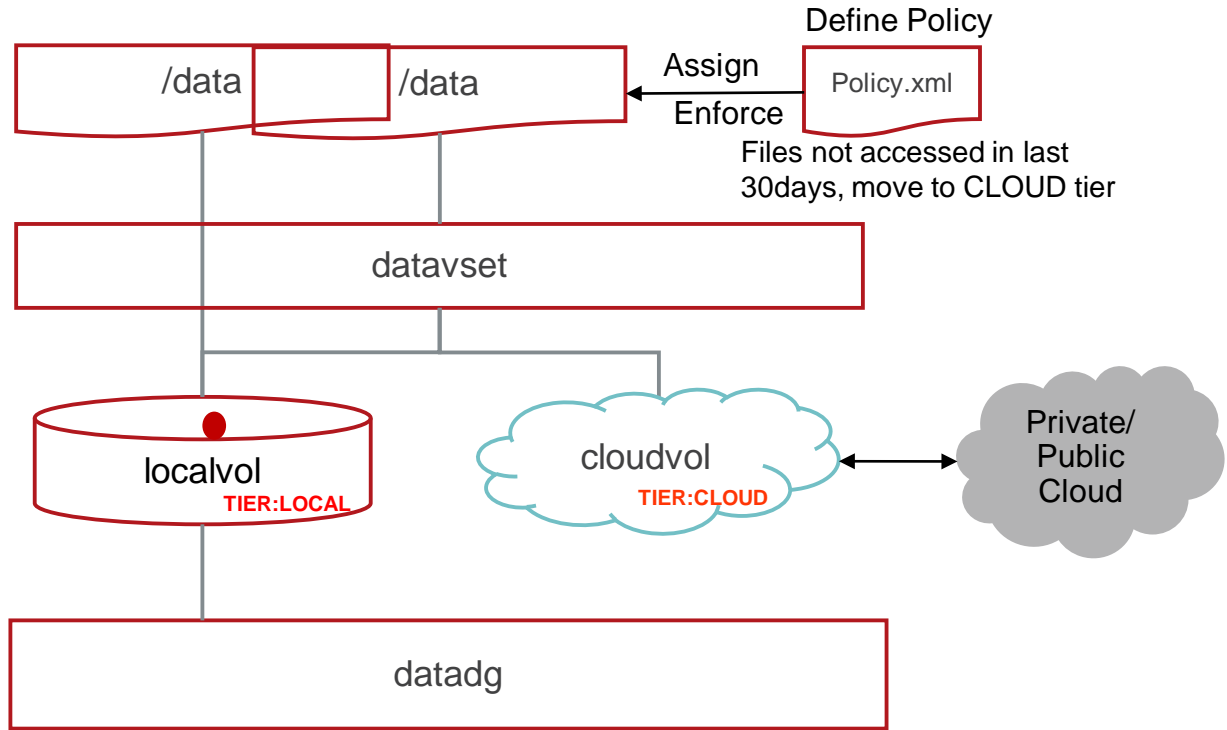
# Challenges

- ❑ Locking at object level
- ❑ Cluster Volume manager
- ❑ Eventual Consistency





# Migration to Hybrid Cloud





# Use Cases

- ❑ Migration of complete data to cloud
  - ❑ Primary copy
  - ❑ Mirror
  - ❑ Snapshot
- ❑ Policy based migration of data to cloud
  - ❑ Tiering solution



# Comparison

- ❑ Array Solutions

- ❑ Costly

- ❑ Array Specific

- ❑ Added management complexity

- ❑ Cloud Solutions

- ❑ Cloud Specific (Ex: AWS Storage Gateway)



# Benefits of our solution

- ❑ Hybrid Connector
  - ❑ Software based
  - ❑ Generic
    - ❑ Works with any cloud
    - ❑ Works with any array
  - ❑ No Management complexity



# Summary

- ❑ Hybrid cloud seems to be the future in storage world
- ❑ Veritas InfoScale provides solution to adopt hybrid cloud seamlessly
- ❑ The solution is based on MVFS/SmartTier
- ❑ Implemented using cloud as an tier
- ❑ Platform and Cloud service provider agnostic Solution





# Q & A



**THANK YOU**

