

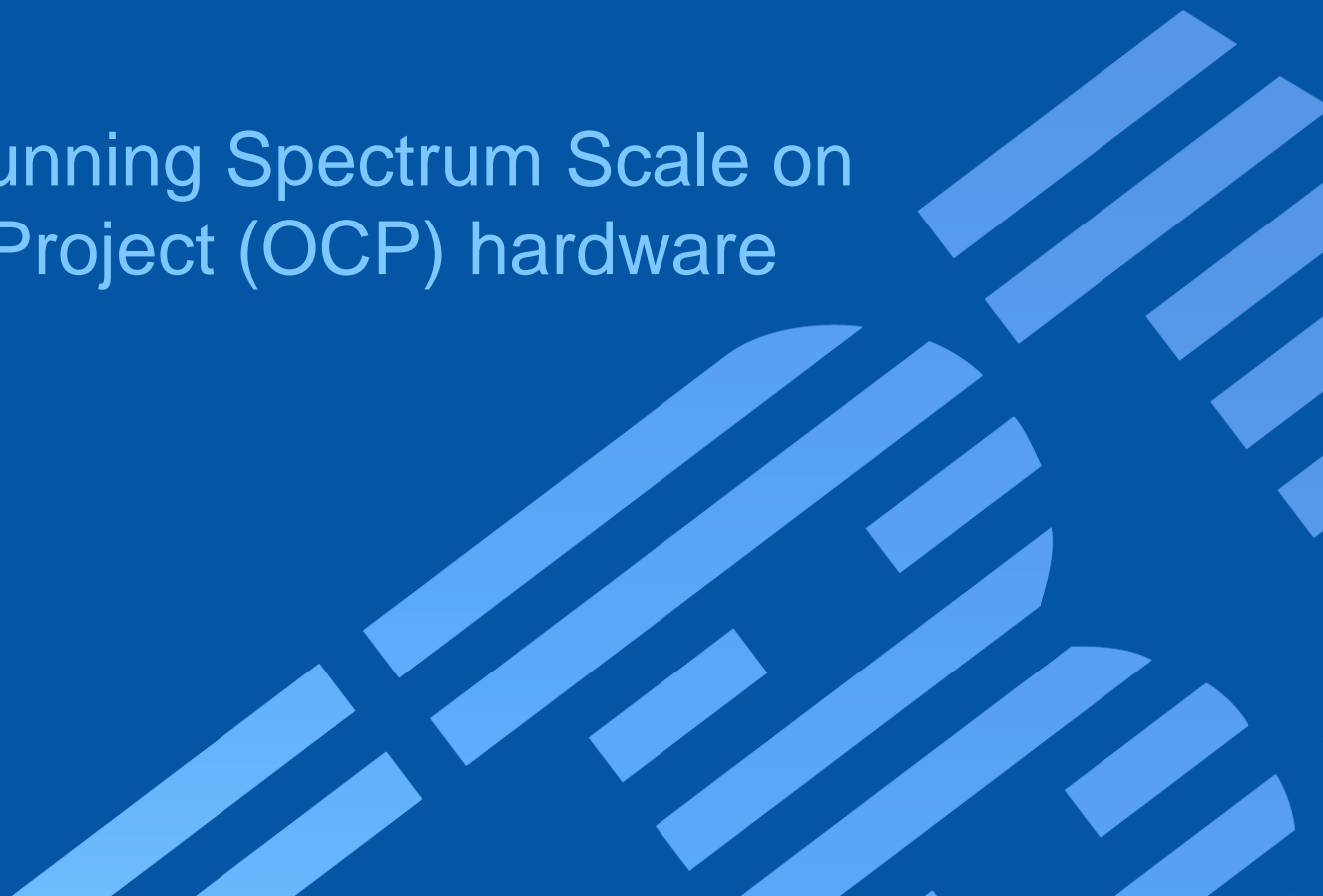
Spectrum Scale Cloud Deployments - Solutions

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Deploying and running Spectrum Scale on Open Compute Project (OCP) hardware





OPEN
Compute Project



OCP U.S. SUMMIT 2017

Santa Clara, CA

Spectrum Scale runs flawlessly on OCP platform

OCP
Server 1

- 4 OCP servers each having:
 - 2 sockets
 - 28 Intel cores
 - 256GB memory
 - 1 SAS raid controller using RAID 6
 - 1 10Gbe
- 2 OCP KNOX storage arrays each having:
 - 20 X 8TB drives

OCP
Server 2

OCP
Server 3

OCP
Server 4

KNOX Storage Array 1

KNOX Storage Array 2



Facebook's Will Martin deploying IBM Spectrum Scale on OCP platform

Spectrum Scale runs flawlessly on Open Power OCP platform!!!

IBM Storage & SDI

OCP Server 1

OCP Server 2

- 2 OCP Barreleye servers each having:
 - 2 Sockets
 - 20 Cores
 - 256 GB memory
 - 1 SAS raid controller using Raid6
 - 1 10Gbe
- 1 OCP KNOX storage array having:
 - 15 X 4TB drives

KNOX Storage Array 1



- Facebook's Will Martin deploying IBM Spectrum Scale on OCP platform

More Pictures!



What we accomplished and where to next?

✓ 30 mins to install

- ✓ Facebook driven
- ✓ SNC cluster type

✓ Chef based Spectrum Scale Installation Toolkit

- ✓ Install GUI and CLI based
 - ✓ Rpm or deb based install still possible

✓ Zero changes to scale running on OCP

- ✓ Software defined solution

✓ Functional and Performance testing on 10 Gb Ethernet

- ✓ Tested I/O bandwidth of 1+ GB/s

✓ Monitoring Framework - Zimon

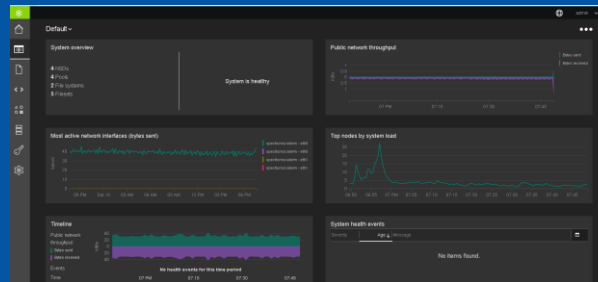
- ✓ Integrates with grafana

□ REST API released and updated

□ More Storage Options and other OCP hardware configurations

□ **Excelero and others – but why?**

✓ Open Power testing with Spectrum Scale



Spectrum Scale and the weather



IBM and the weather

Long, long ago

GPFS 3.5 and AFM

3 site scenario

data source to site A,

push to site B and then push
to site C



Spectrum Scale Deployment

Install toolkit

GUI to monitor failed NSD drives

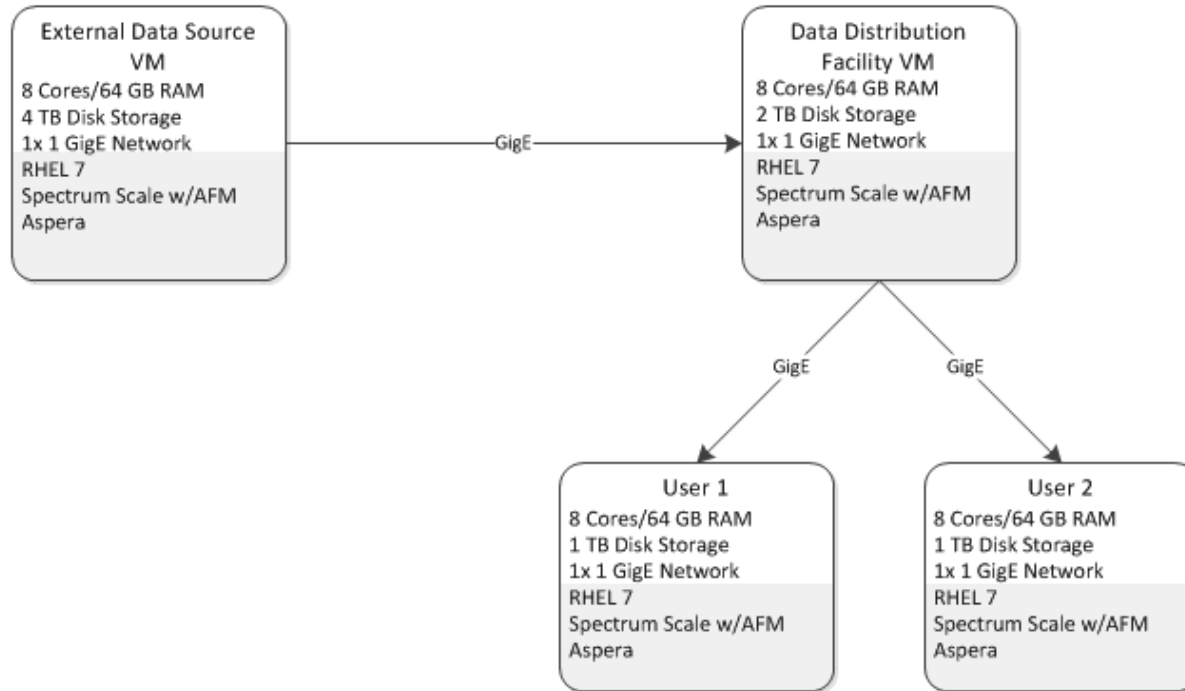
Easier to let new operators experience the install and maintenance of the system

Repeatable ... regardless of version

4.2.1 to 4.2.2.3

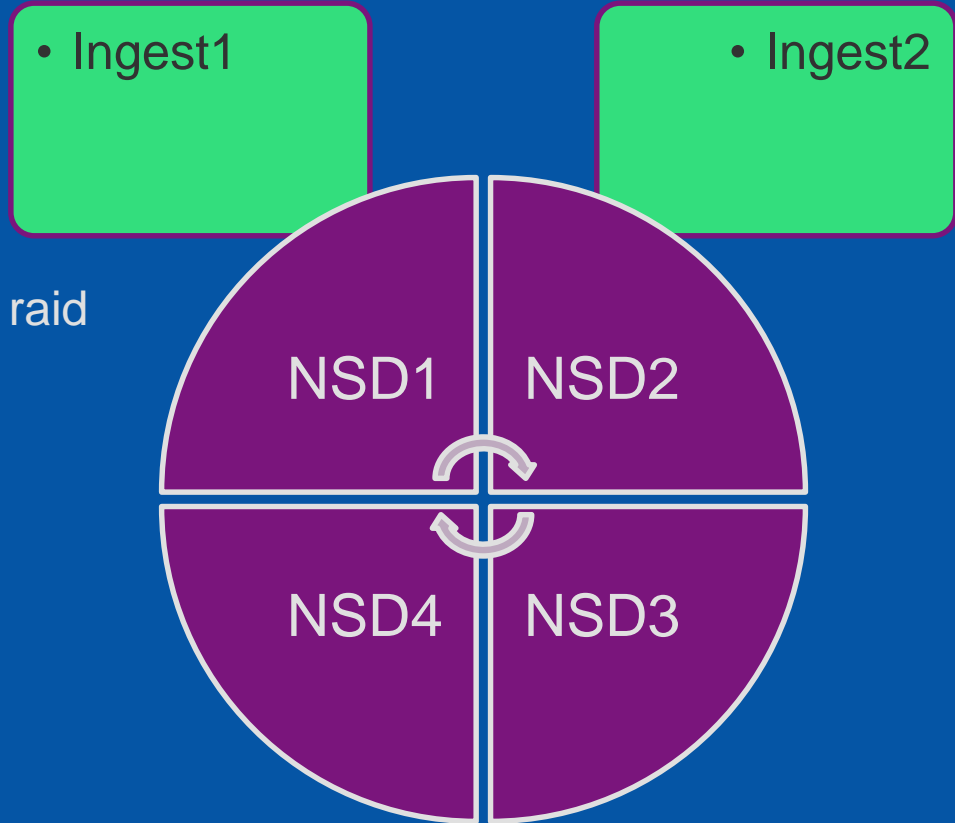
Initial Bluemix (Softlayer) Architecture

SoftLayer



Bluemix on bare metal testing

2 ingest servers talking Aspera
4 NSD nodes with 24 drives
use replication instead of hardware raid
controller – **but why?**
10 Gige, can fill the pipe



Bluemix current prototype

- 2 ingest servers talking Aspera
- 2 NSD nodes with 12 drives each
 - use replication instead of raid controller
 - 10 Gige, can fill the pipe
- 2 Clusters, 2 sites
 - Initially write to both sites at once
 - Let Scale do AFM transfers within Bluemix
 - No cost to move data in Bluemix



City of Hope –

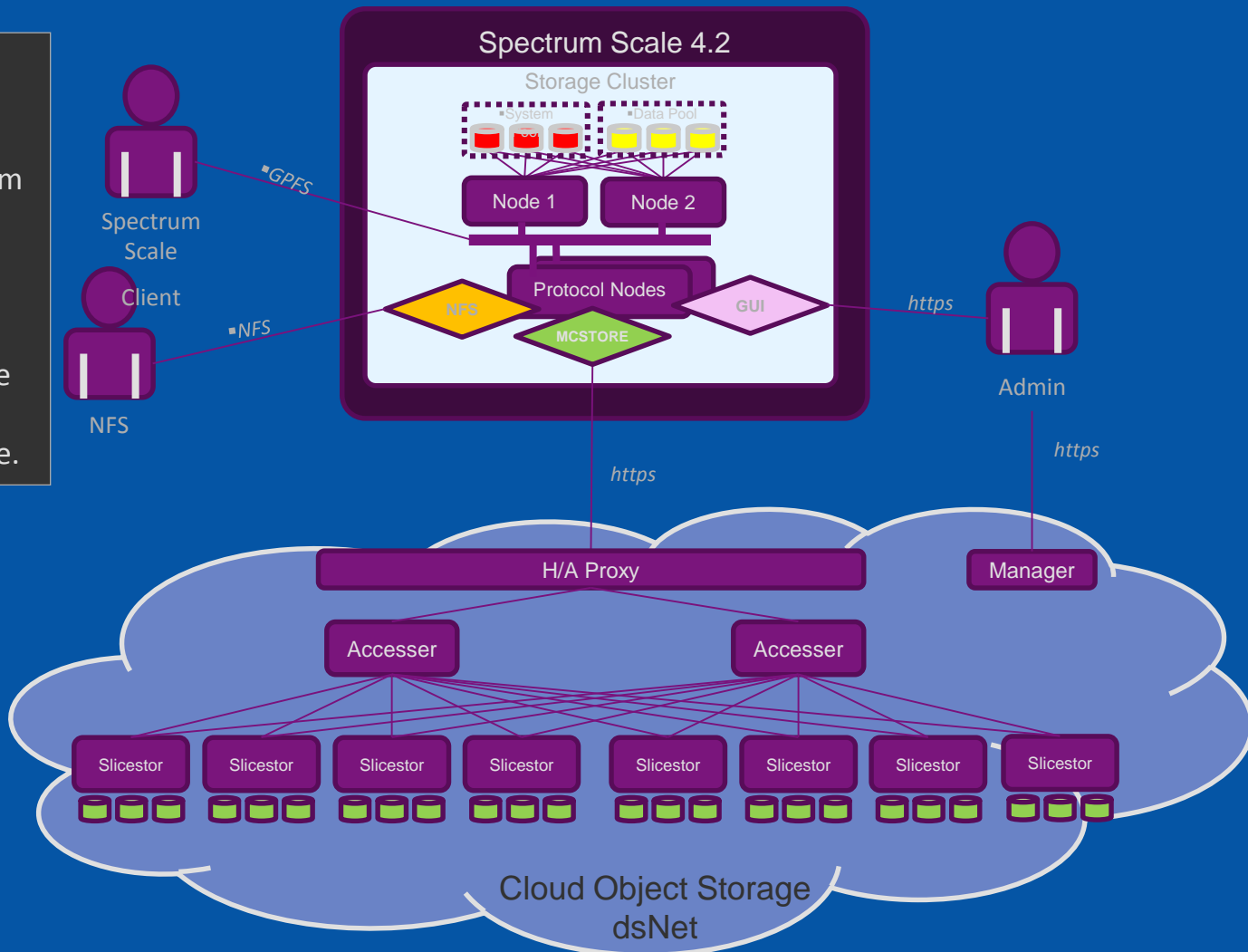
Spectrum Scale Cloud Gateway v1.0



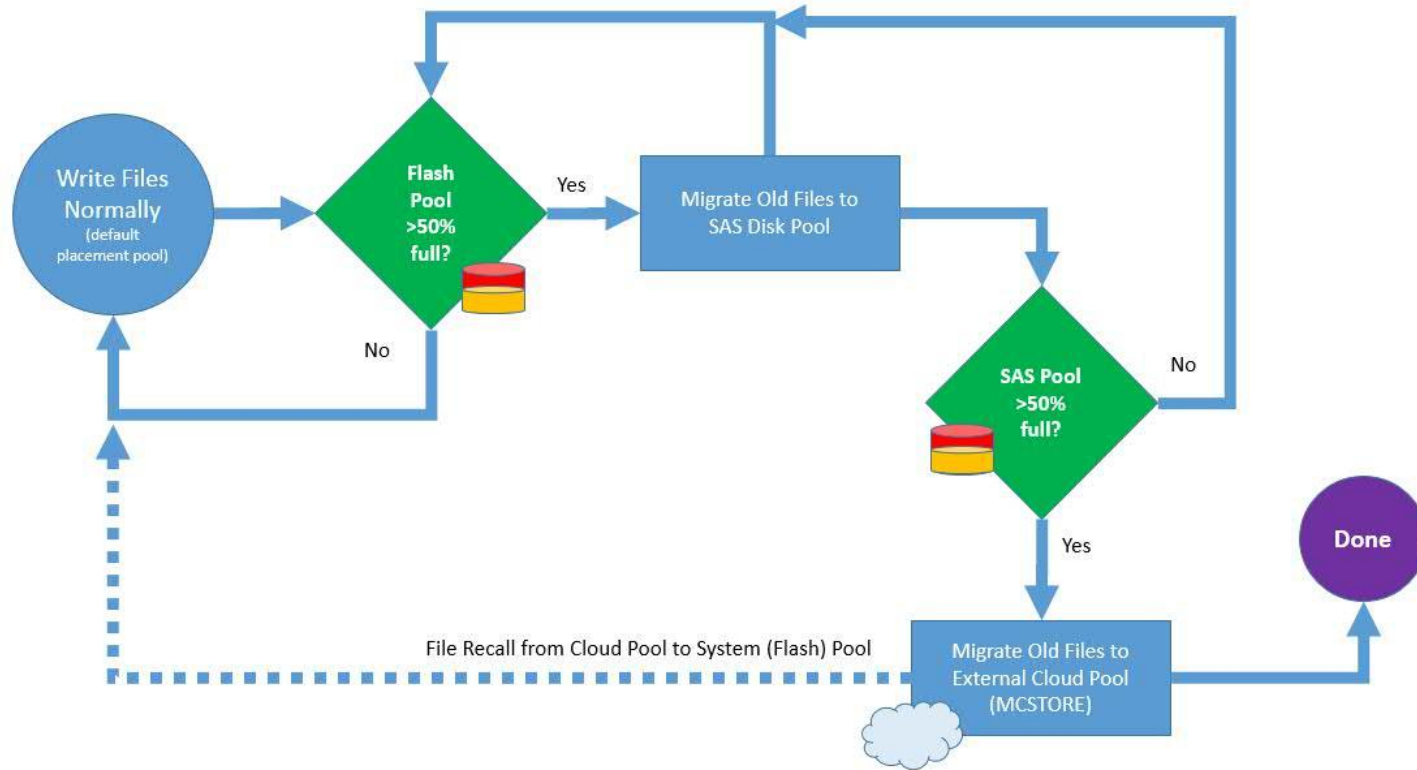
Functional POC

Using Development Lab System in Tuscon

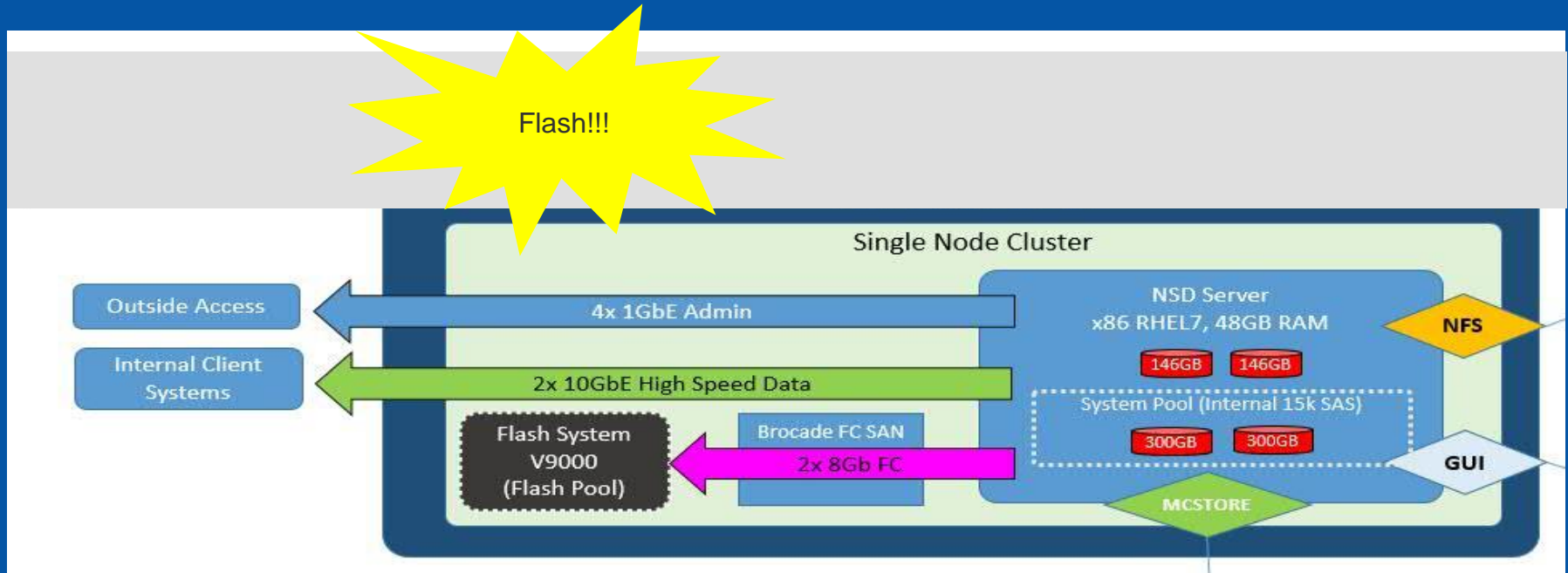
Note: All systems are virtualized (VMs) and share a single, large disk system. This is for functionality, not performance.



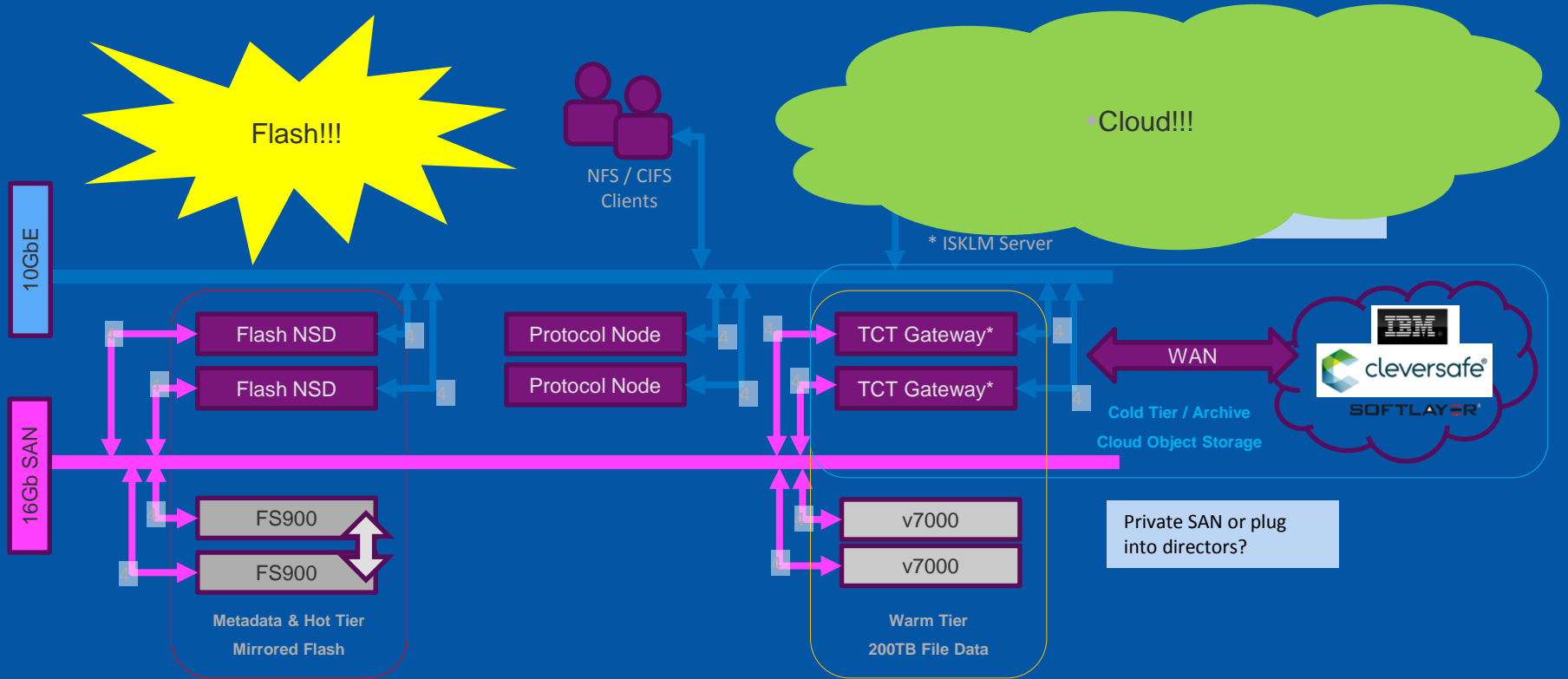
Demo Workflow – Migrate Files based on Threshold and Age



Proof of Concept onsite



Production Environment – FLOUD!



Note: Each Flash NSD will have 2x 16Gb SAN Connections to each FS900 (criss-cross). The same goes for TCT Gateways and v7000 Controllers

Feedback - Spectrum Scale Cloud Gateway

Ashutosh Mate

Christopher D. Maestas

Objective

Create a Spectrum Scale Cloud Gateway (SSCG) as an on-prem appliance offering to move data into IBM Cloud Object Storage (ICOS) on IBM Cloud:

- ✓ Use Spectrum Scale with NFS, SMB, Swift, S3, AFM & TCT along with the single name space
- ✓ Could bundle the SSCG on a standard hardware config
- ✓ GUI for quick configuration & management
- ✓ It's on the truck!

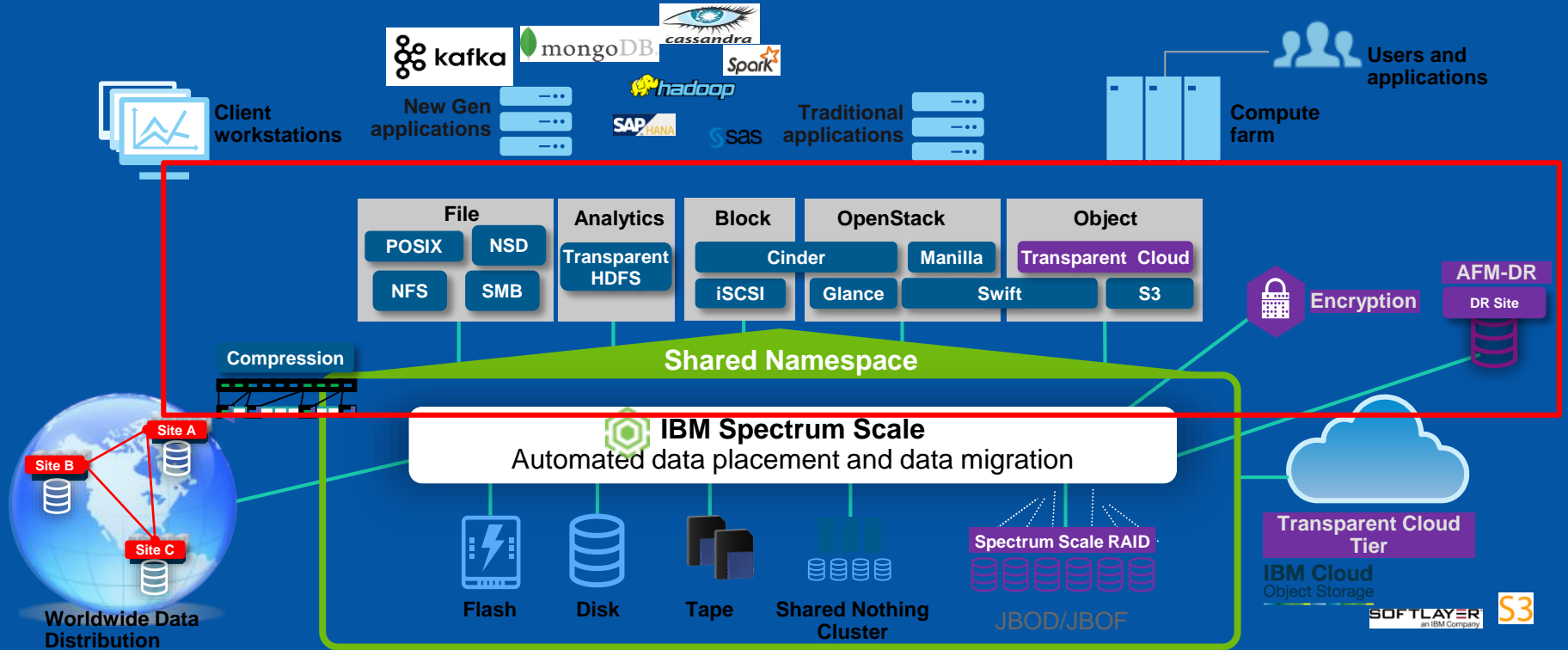
Use Cases

- ✓ Use case is to discover old data & pull it into the SSCG via AFM & migrate it to ICOS
- ✓ Another use case is to allow data from USB / Flash drives to be copied into the SSCG to be uploaded to ICOS
- ✓ Could also be used to pull data from other public clouds
- ✓ SSCG would have fixed SSD storage for initial staging – FLOUD (Flash + Cloud) appliance
- ✓ Configurable ILM policy will automatically move cold data to ICOS through TCT Cloud Services

Imperatives

- ✓ Easier to deploy, configure & manage than ESS / Versastack
- ✓ Comparable price-point to Panzura / Ctera / Nasuni gateways
- ✓ Hardened software quality & high performance data movement (Optional: Aspera FASP)
- ✓ Scheduled Data Migration & Continuous Throttled Migration
 - ✓ QOS integration
- ✓ Transparent Cloud Tiering & Cloud Data Sharing support
- ✓ Data availability during migration

Spectrum Scale: Unleash new storage economics on a global scale

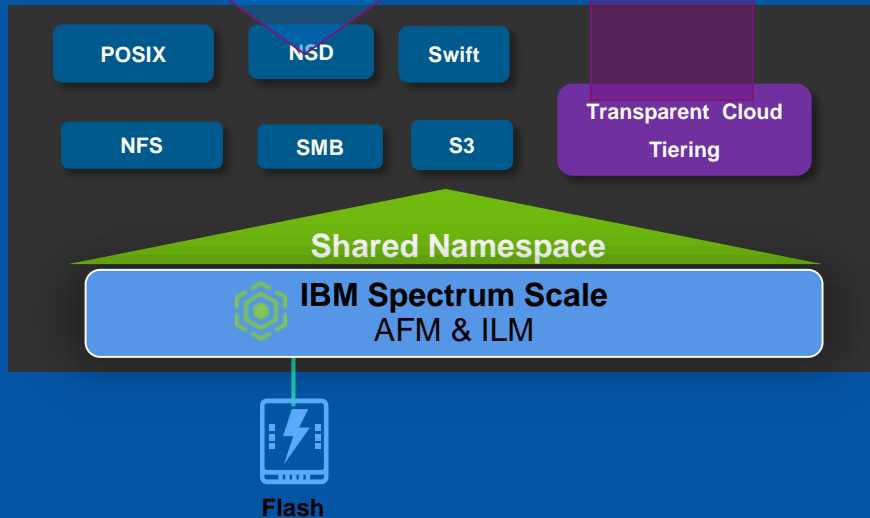


Consolidate all your unstructured data storage on spectrum scale with unlimited and painless scaling of capacity and performance

Spectrum Scale Cloud Gateway

From NAS via AFM/NFS/SMB
From Mobile devices via Swift / S3
From other Public Clouds via S3

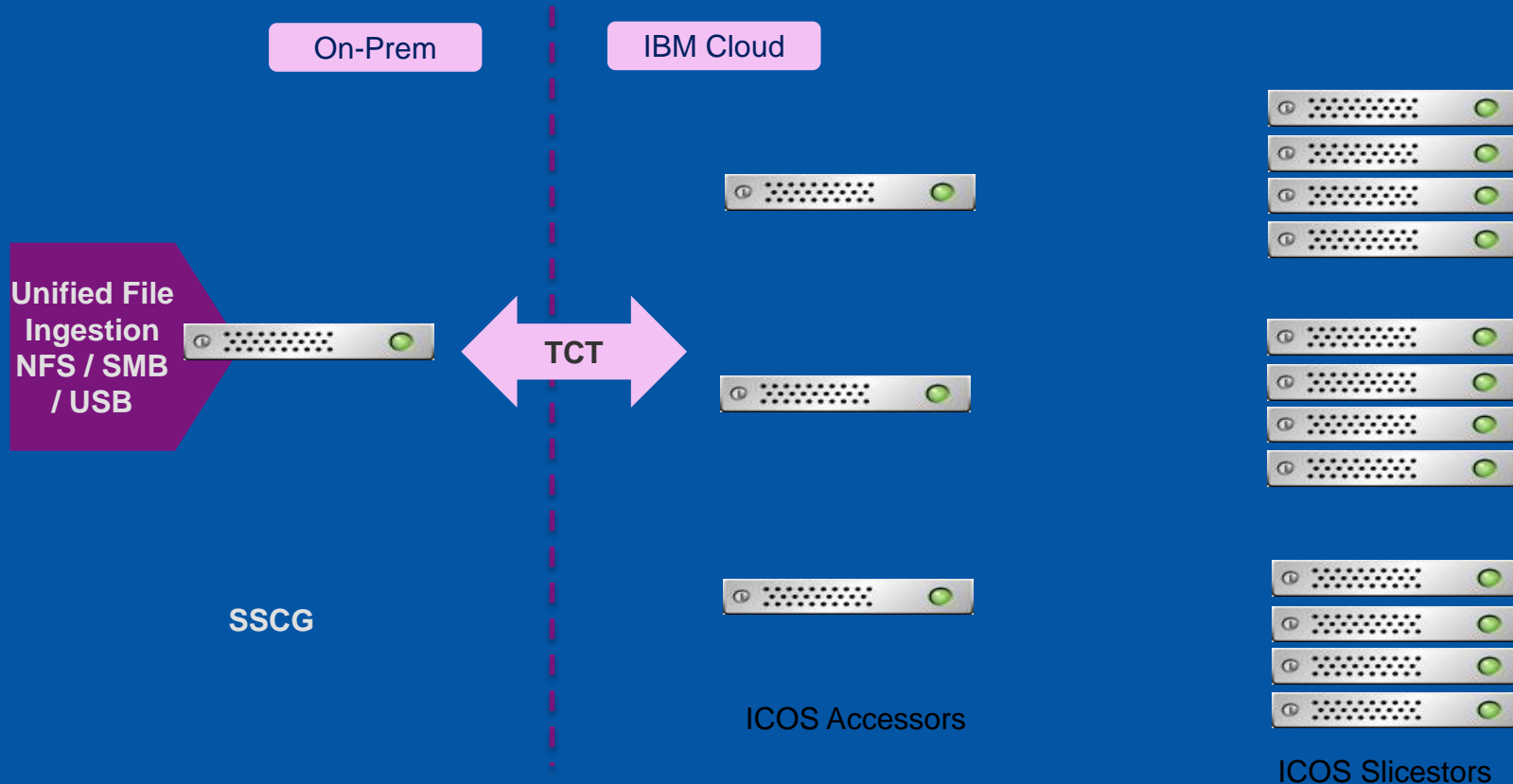
To & From Private or Public ICOS via TCT
To Public ICOS via TCT Export



IBM Cloud
Object Storage



SSCG Deployment



Does this make sense?

... and Spectrum Scale is faster

Thank You.
IBM Storage & SDI



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