



DMF Users Group 2016

Testing GPFS-AFM with DMF

February, 2016

DDN ANZ

GPFS-AFM

- ▶ **GPFS, now renamed IBM Spectrum Scale**
- ▶ **DDN Rebrands GPFS as GRIDScaler**
- ▶ **AFM – Active File Management – remote caching/async replication – whiteboard.....**

Introduction

- ▶ What this isn't:
 - A recommendation
 - A supported solution
 - In anyway complete

- ▶ But, what this is intended to be is:
 - A discussion from early results from a PoC started in Dec '15
 - The start of a journey
 - Hopefully something of interest, to whet the appetite

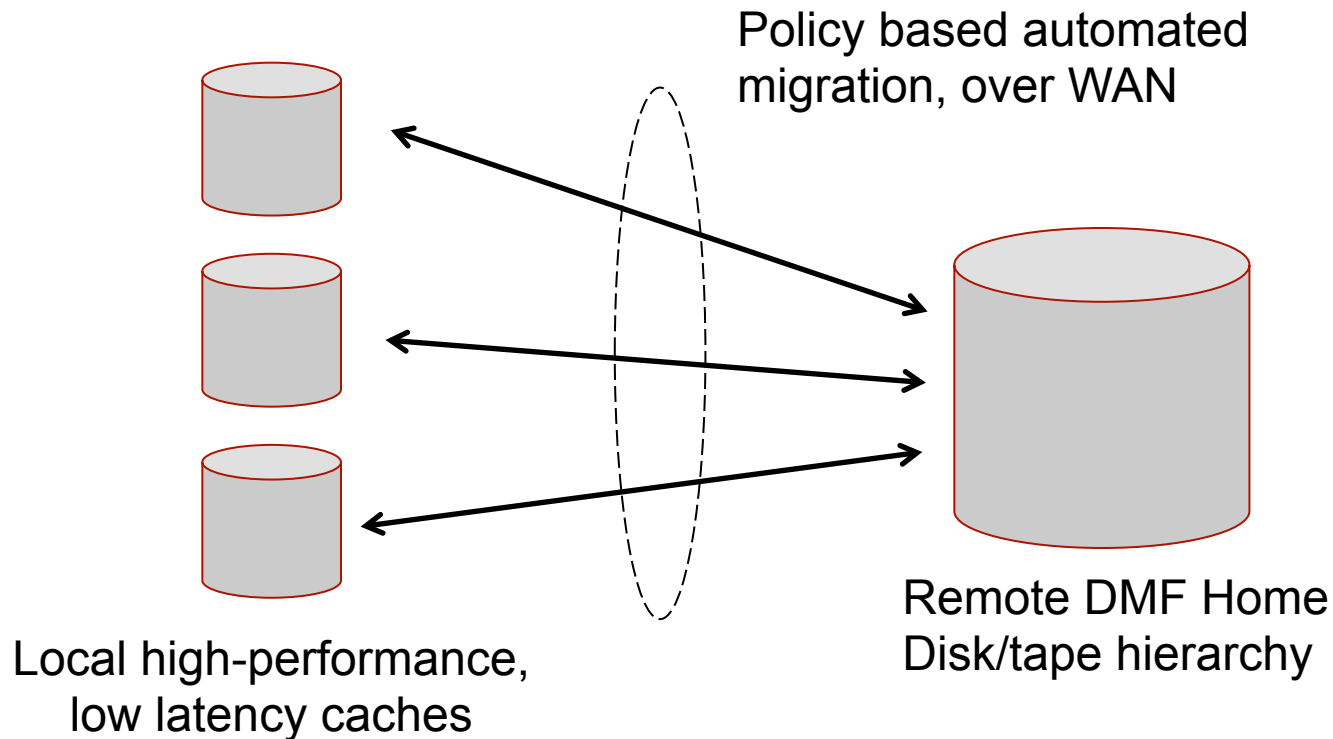
Background

- ▶ **Australian based customer**
- ▶ **Large Investment in DMF**
- ▶ **Some exposure to GPFS**
- ▶ **Investigating site wide 'HSM'**
- ▶ **Interested in testing AFM, but really wanted to leverage their existing DMF**

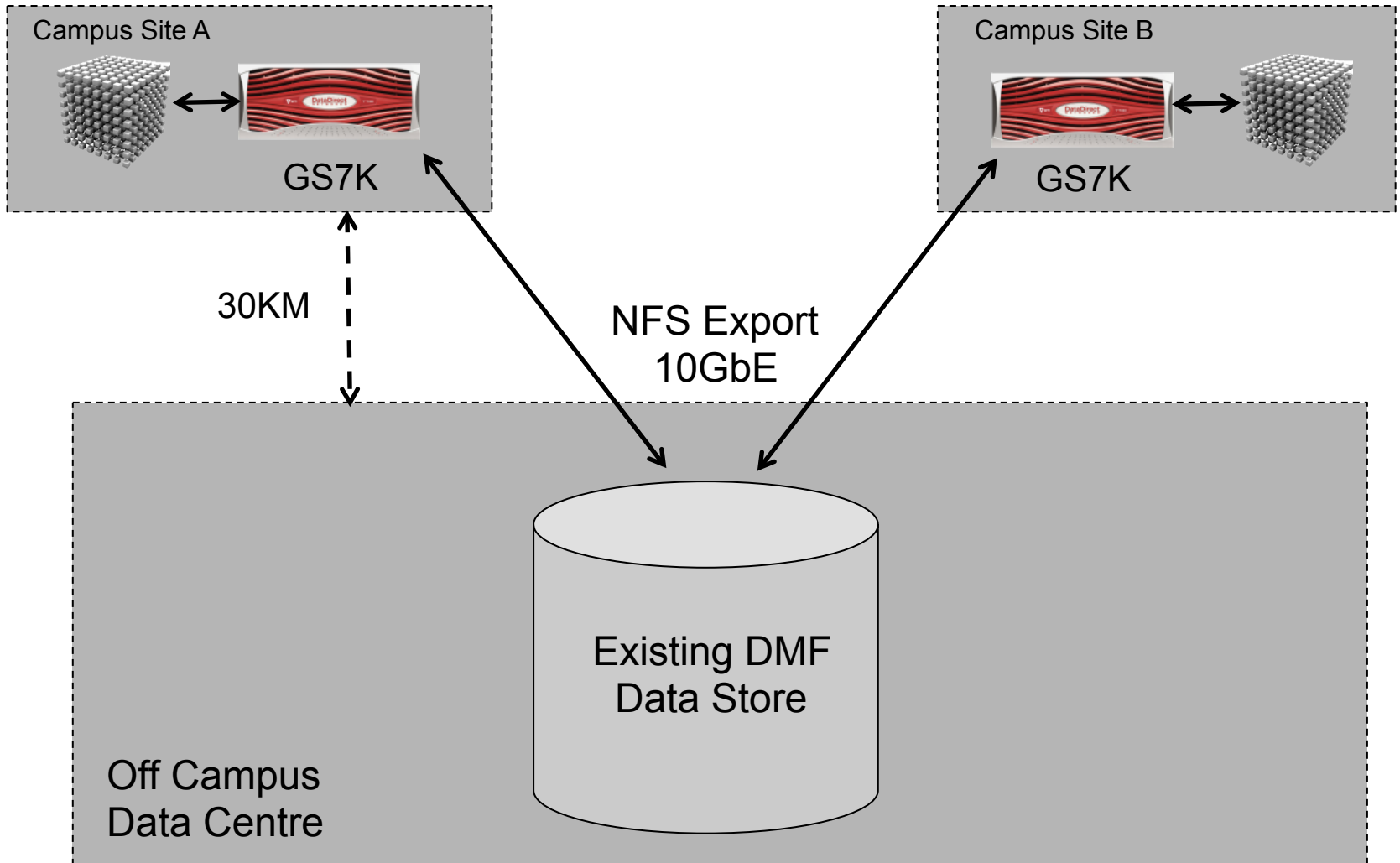
PoC Objective

Campus wide “HSM”

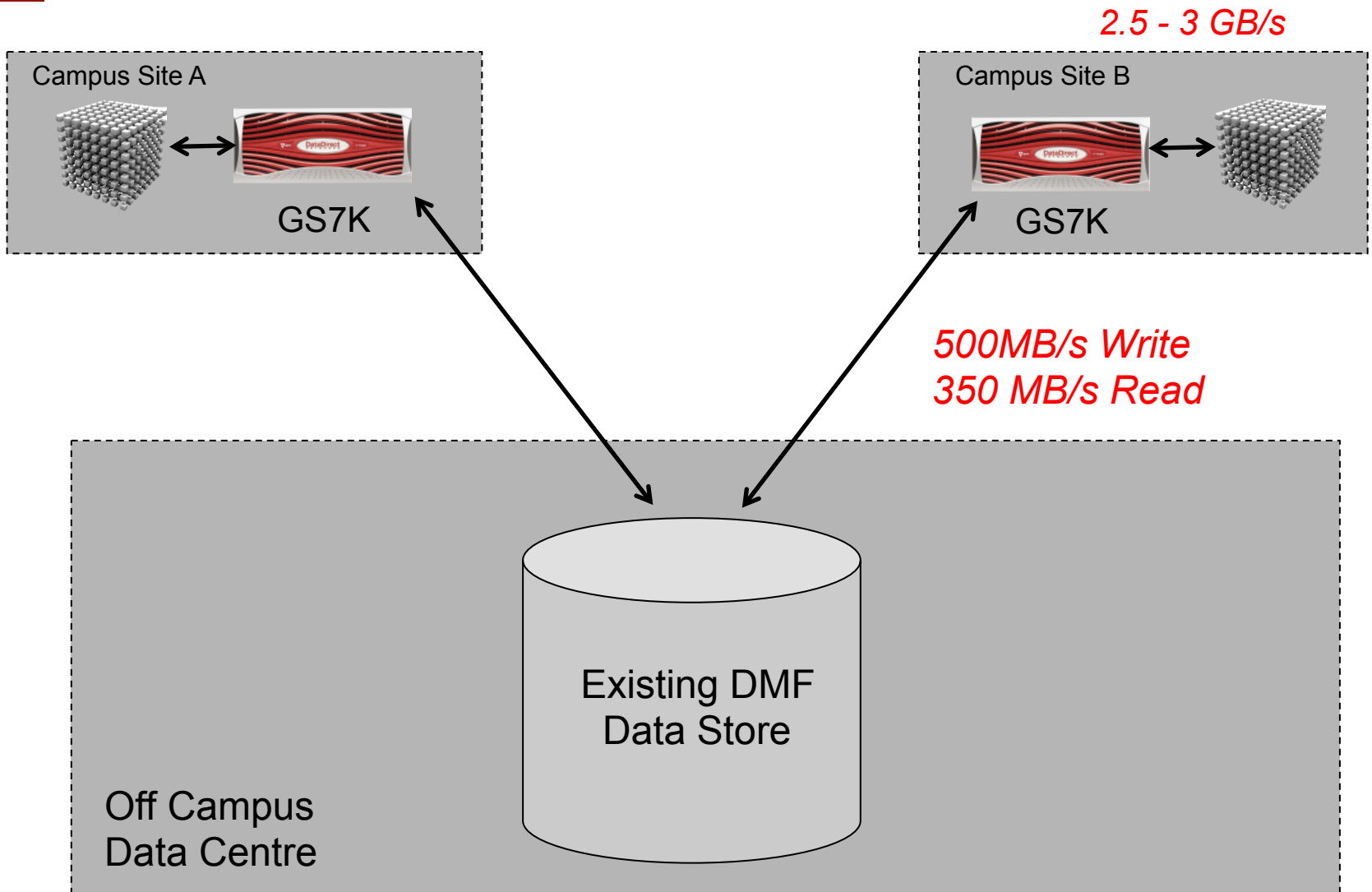
- To test tiered architecture over Campus:



PoC Setup



PoC Results



Functionally

“Using this method of communication, thus far we’ve been able to successfully prove a full tape migration and DMF life cycle can co-exist back to Spectrum Scale cache, seamlessly, as follows:”

Functionally

1. We created a large file on the local (GPFS) cache:

```
-rw-r--r--. 1 root  root  7.1G Apr  1 10:26 CentOS-7-x86_64 Everything-1503-01.iso
```

2. What does this look like in DMF:

```
[root@afm-node0 dmf_home]# dmls -al CentOS-7-x86_64-Everything-1503-01.iso
```

```
-rw-r--r-- 1 root  root  7591690240 2015-04-01 10:26 (DUL) CentOS-7-x86_64-  
Everything-1503-01.iso
```

“DUL” in DMF speak means it is in two media states

Functionally

3. Remove it from disk

0 CentOS-7-x86_64-Everything-1503-01.iso

```
[root@afm-node0 dmf_home]# dmput -r CentOS-7-x86_64-Everything-1503-01.iso
```

```
[root@afm-node0 dmf_home]# dmls -al CentOS-7-x86_64-Everything-1503-01.iso
```

```
-rw-r--r-- 1 root  root  7591690240 2015-04-01 10:26 (OFL) CentOS-7-x86_64-  
Everything-1503-01.iso
```

File is now offline, on tape.

Functionally

4. Access the file from the GPFS cache, and time it:

```
root@afm-node0 cache__IW_DMF]# time md5sum CentOS-7-x86_64-  
Everything-1503-01.iso
```

5. Checking status in DMF:

```
-rw-r--r-- 1 root root 7591690240 2015-04-01 10:26 (UNM) CentOS-7-x86_64-  
Everything-1503-01.iso
```

File is unmigrating from tape, waiting.....

5. And....

```
[root@afm-node0 cache__IW_DMF]# time md5sum CentOS-7-x86_64-  
Everything-1503-01.iso  
a23ee2e0a06e7073af73fcdd4d4de5a1 CentOS-7-x86_64-Everything-1503-01.iso
```

```
real 5m14.307s  
user 0m31.344s  
sys 0m6.579s
```

6. DMF Status:

```
[root@afm-node0 dmf_home]# dmls -al CentOS-7-x86_64-Everything-1503-01.iso  
-rw-r--r-- 1 root root 7591690240 2015-04-01 10:26 (DUL) CentOS-7-x86_64-  
Everything-1503-01.iso
```

Issues

- ▶ **UID mapping**
- ▶ **File locking**
- ▶ **ACL's**

Migration does not pull file system–specific parameters such as quotas, snapshots, file system–level tuning parameters, policies, fileset definitions, encryption keys, and dmapi parameters. On a GPFS data source, AFM moves all user extended attributes and ACLs, and file sparseness is maintained.

On a non-GPFS data source POSIX permissions or ACLs are migrated, but not the NFS V4/CIFS ACLs, non-posix file system attributes.

Fini