WLCG Resource Reporting
The DPM Perspective

Oliver Keeble for the DPM team

WLCG Resource Reporting

- WLCG is preparing recommendations on storage resource reporting
  - For use in accounting and experiment operations
- pre-GDB Accounting Review in April
  - Included discussion of storage accounting
  - https://indico.cern.ch/event/394828/
- This was discussed in the GDB the next day
  - Decision was taken to capture reporting requirements on storage systems for
    - WLCG accounting
    - Experiments for operations and capacity management.

Resource reporting proposal

- The WLCG Accounting Task Force kicked off in June
  - https://indico.cern.ch/event/539179/
  - “Storage Space accounting should be also addressed, in particular understanding the requirements of the experiments and sites”
- At the WLCG Accounting Task Force Meeting in August a draft proposal was presented
  - https://indico.cern.ch/event/561433/
- This was considerably amended, circulated to the experiments, further modified
- The result was the subject of a dedicated pre-GDB slot
  - http://indico.cern.ch/event/394833/

Proposal summary

- Get used/free space, in the absence of SRM …
  - For what?
    - “space quotas” (aka space tokens)
    - Optionally
      - Areas with restrictive quotas
      - Full namespace
  - How?
    - Via existing protocols
      - E.g. DAV RFC 4331, xrootd, gsiftp
    - A summary file, accessible in the namespace
- Get a full storage dump
  - How often?
    - “Should be on demand”
    - CMS relies heavily on this

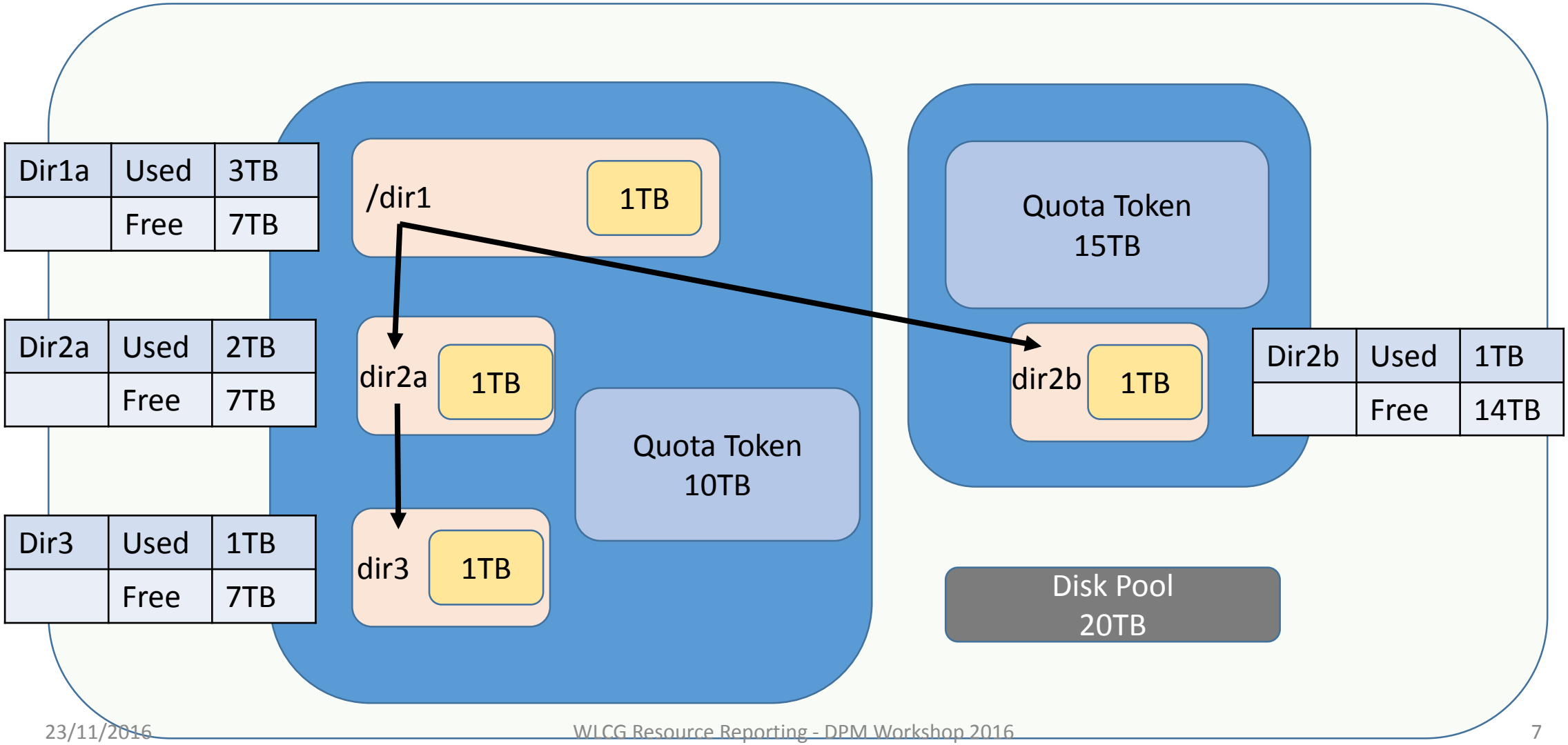
My take

- Lowest common denominator is
  - Used/free available through at least one existing protocol at the granularity of “space quotas”
    - Storage systems can (or will) do this
  - Storage dumps possible and triggered as rarely as possible
    - Storage systems can do this
- Going further (agreement still needed)
  - Summary file has some advantages
    - Generation would need to be owned by the storage providers
  - Full namespace, restrictive quotas …
  - Handling tape
- How can we make progress?
  - WLCG data steering group

DPM Implementation

- DPM will give you used and free space anywhere in the namespace
- You need DPM 1.9 “Dome flavour” for this to work
  - You also have to associate any existing quota tokens with namespace directories
- A write to a space token via SRM is equivalent to an upload, via a different protocol, to the directory associated with that space/quota token
  - i.e. it should “just work”
  - Similarly for deletes
- If you choose to uninstall SRM, this all still works

Resources reported



Used/free space: WebDAV

```
$ davix-http -P grid -X PROPFIND --header 'Depth: 0' --header 'Content-Type: text/xml; charset=UTF-8' "https://domehead-trunk.cern.ch/dpm/cern.ch/home/dteam" --data '<?xml version="1.0" ?><D:propfind xmlns:D="DAV:"><D:prop><D:quota-used-bytes/><D:quota-available-bytes/></D:prop></D:propfind>'
```

```
<?xml version="1.0" encoding="utf-8"?>
<D:multistatus xmlns:D="DAV:" xmlns:ns0="DAV:">
<D:response xmlns:lp1="DAV:" xmlns:lp2="http://apache.org/dav/props/" xmlns:lp3="LCGDM:">
<D:href>/dpm/cern.ch/home/dteam/</D:href>
<D:propstat>
<D:prop>
<lp1:quota-used-bytes>24677181319</lp1:quota-used-bytes>
<lp1:quota-available-bytes>75322818681</lp1:quota-available-bytes>
</D:prop>
<D:status>HTTP/1.1 200 OK</D:status>
</D:propstat>
</D:response>
</D:multistatus>
```