

Tier 3 Storage Survey and Status of Tools for Tier 3 access, futures

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Tier 3 Storage Survey questions



1. What is the Name of your Institution?
2. What sort of Storage technology do you use at your Tier 3? (please select all that apply)
3. Would you like to federate your storage with other Tier 1, Tier 2 and Tier 3 sites within the US as part of federated xrootd?
4. Do you have a gridftp server(s) at your Tier 3?
5. Do you have an SRM at your site?
6. If you have a gridftp server(s) or SRM at your site is this registered with OSG ?
7. If you answered yes to the previous question, what is the name of your OSG Resource Group (it should be your site name)? see:
<https://twiki.cern.ch/twiki/bin/view/Atlas/Tier3gOSGregistration>
8. Is your Site in the Tiers of ATLAS?
9. Is there anything that can be done to make storage easier for you? (Please add comments if you wish)



Tier 3 Institutions



co-located at Tier 2 sites

- University of Chicago
- University of Michigan
- UT Arlington
- Indiana University*
(located on local campus)
- University of Oklahoma
- Michigan State U.
- University of Illinois at Urbana-Champaign
- SLAC Tier 3

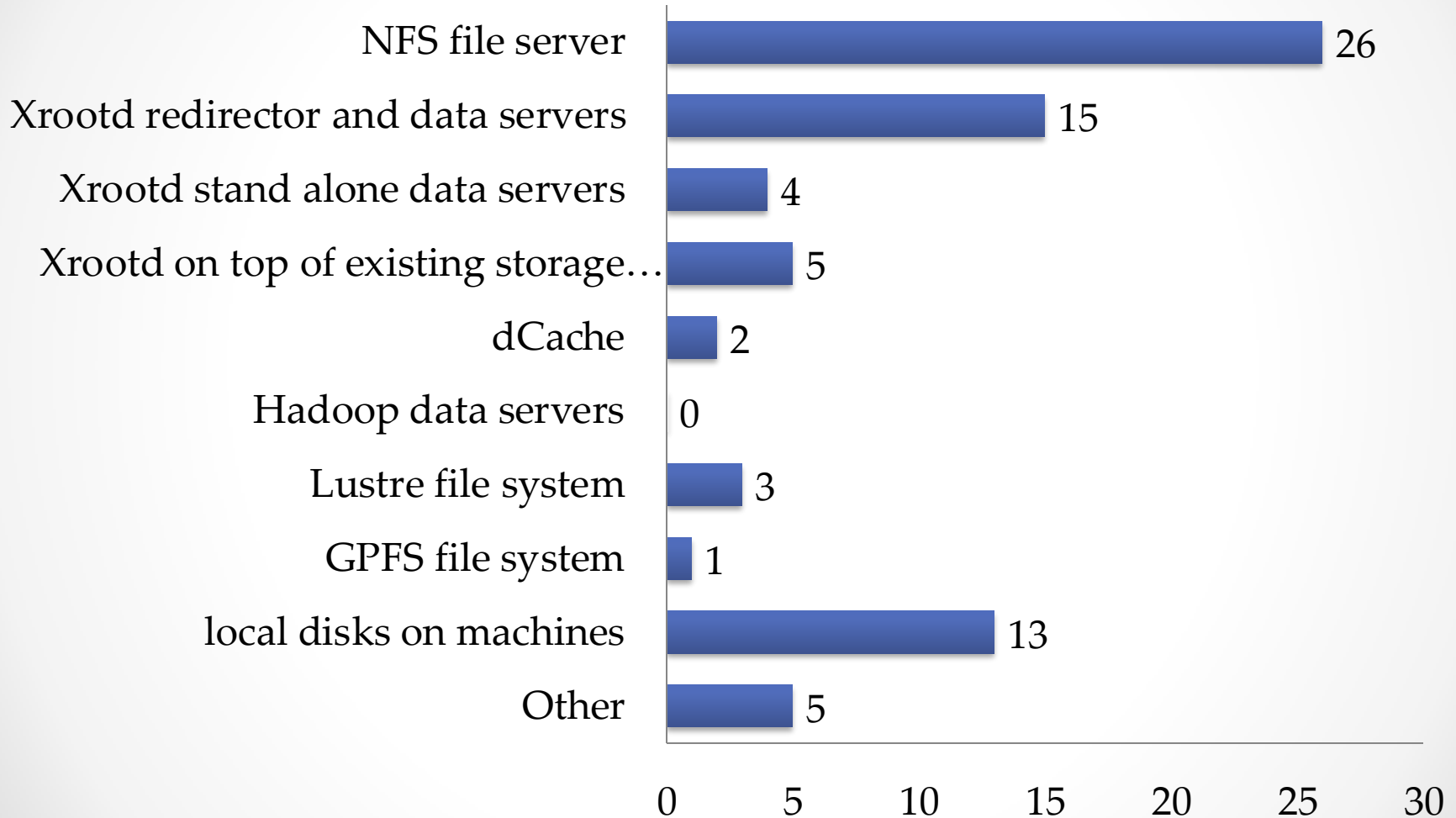
Stand alone Tier 3 sites

- University of Oregon
- Univ of South Carolina
- SUNY Albany
- Hampton University (Grid site)
- Tufts University (Grid site)
- Louisiana Tech University
- Columbia
- New York University
- Wisconsin (Tier 3gs)
- California State University Fresno
- NIU
- Univ. of California, Santa Cruz
- Univ. of Pennsylvania
- Univ. of Massachusetts, Amherst
- SMU (Grid)
- Stony Brook University
- University of Washington
- UT Dallas (Tier 3gs)
- ANL
- Duke University

28 out of ~ 42 sites, 20 Stand alone T3's 8 co-located



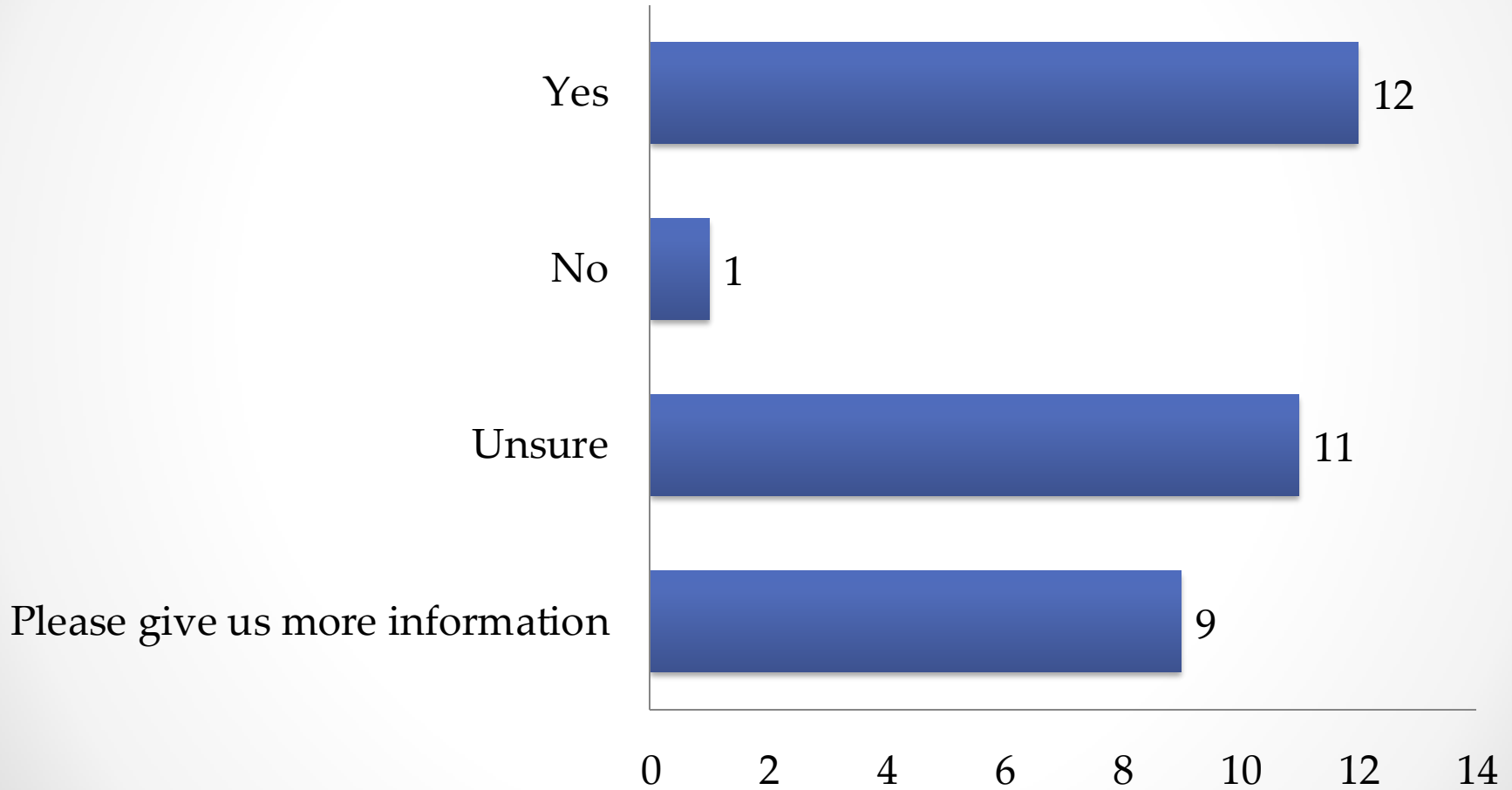
What sort of Storage technology do you use at your Tier 3?



Other: XFS iSCSI, Open-E, We have deprecated our dCache system, AFS, Local disks cataloged by arcond



Would you like to federate your storage with other Tier 1, Tier 2 and Tier 3 sites within the US as part of federated xrootd?

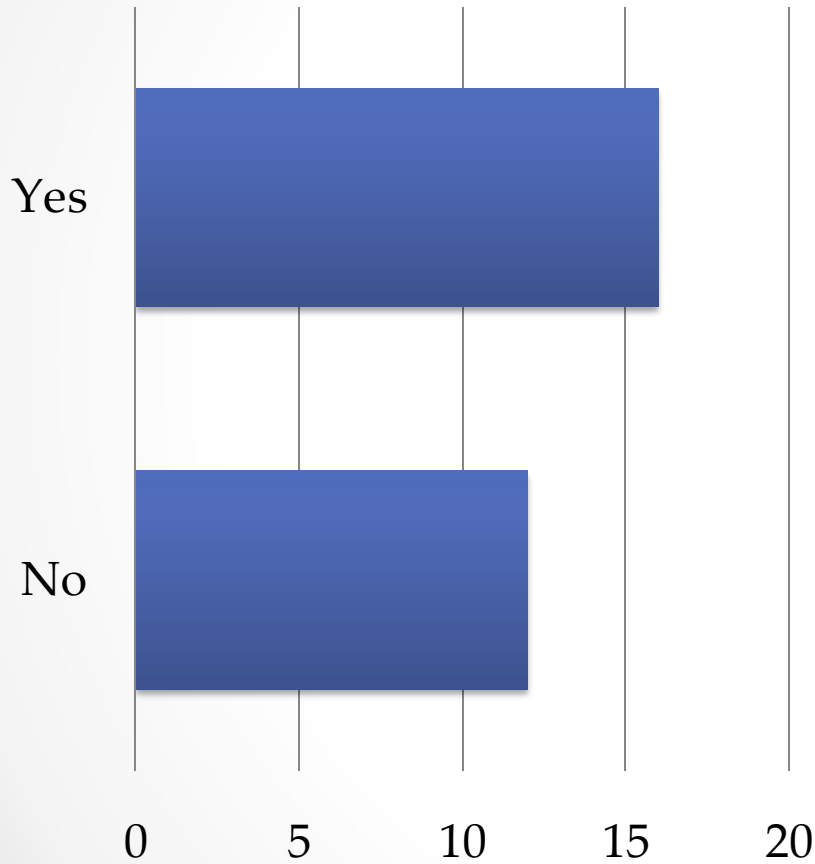




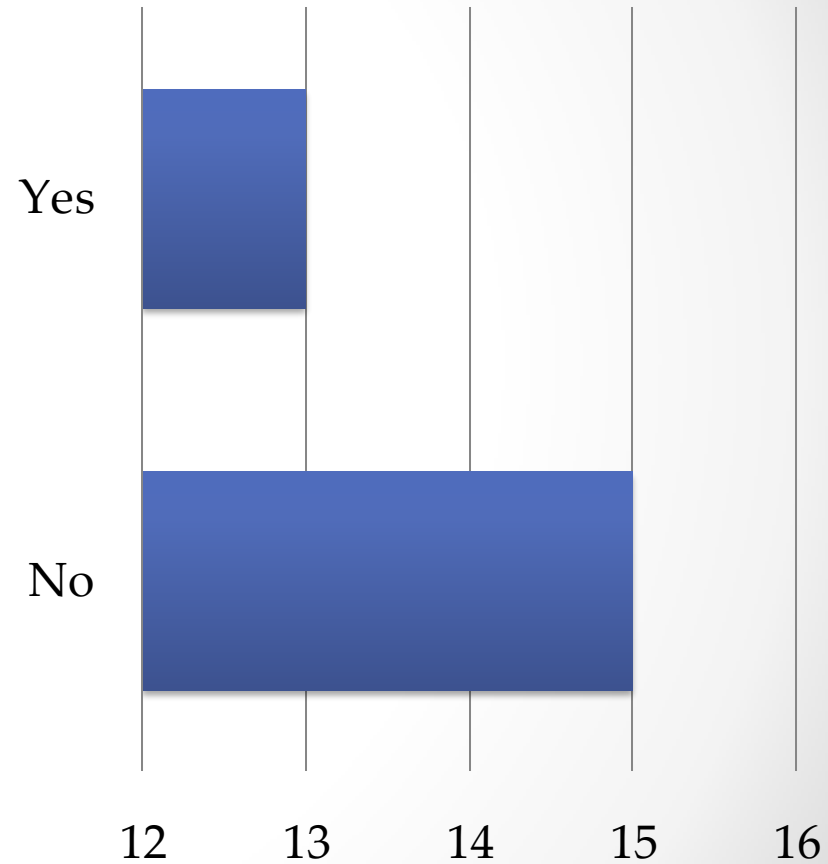
Do you have a gridftp server(s) at your Tier 3?
Do you have an SRM at your site?



Gridftp

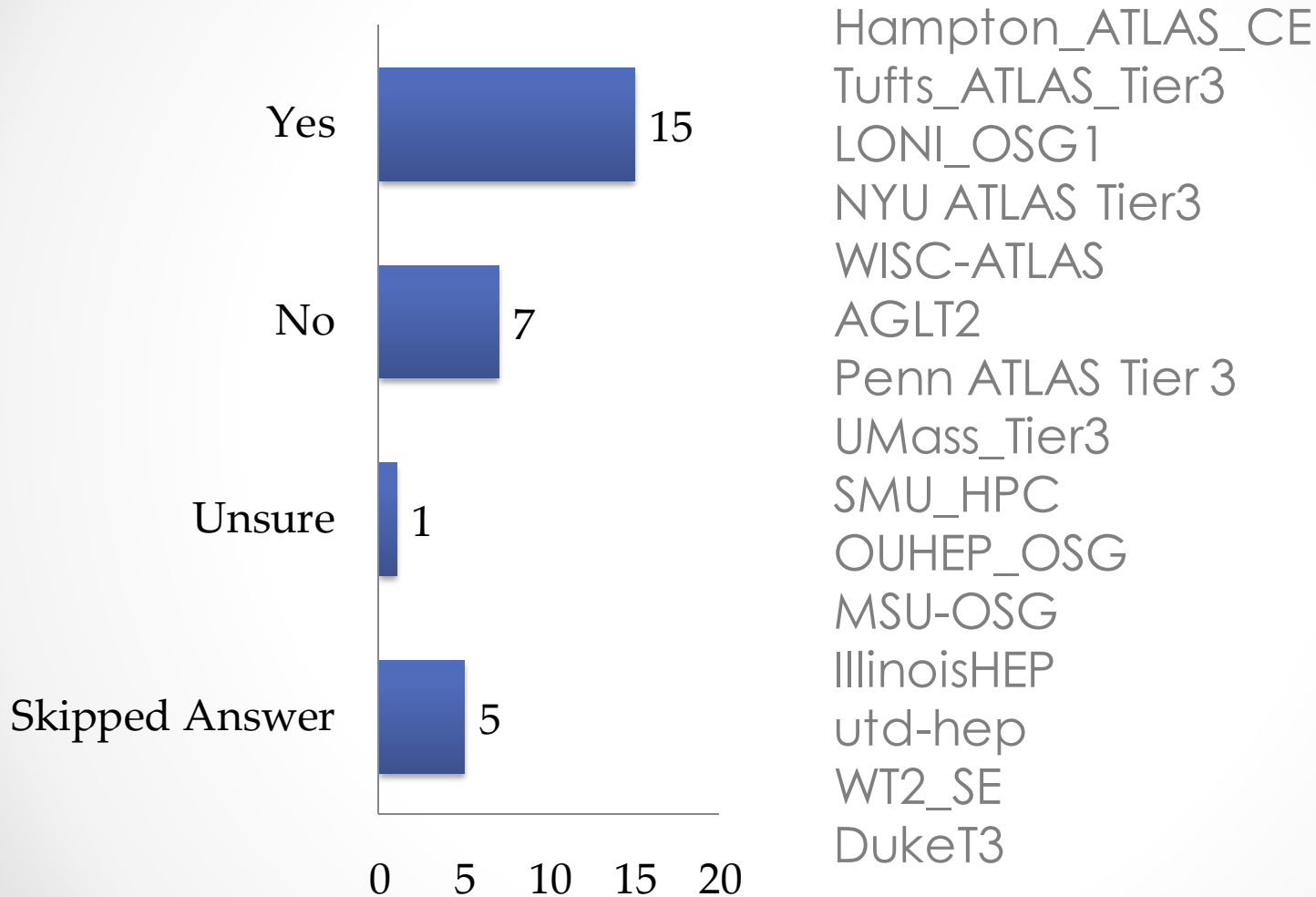


SRM



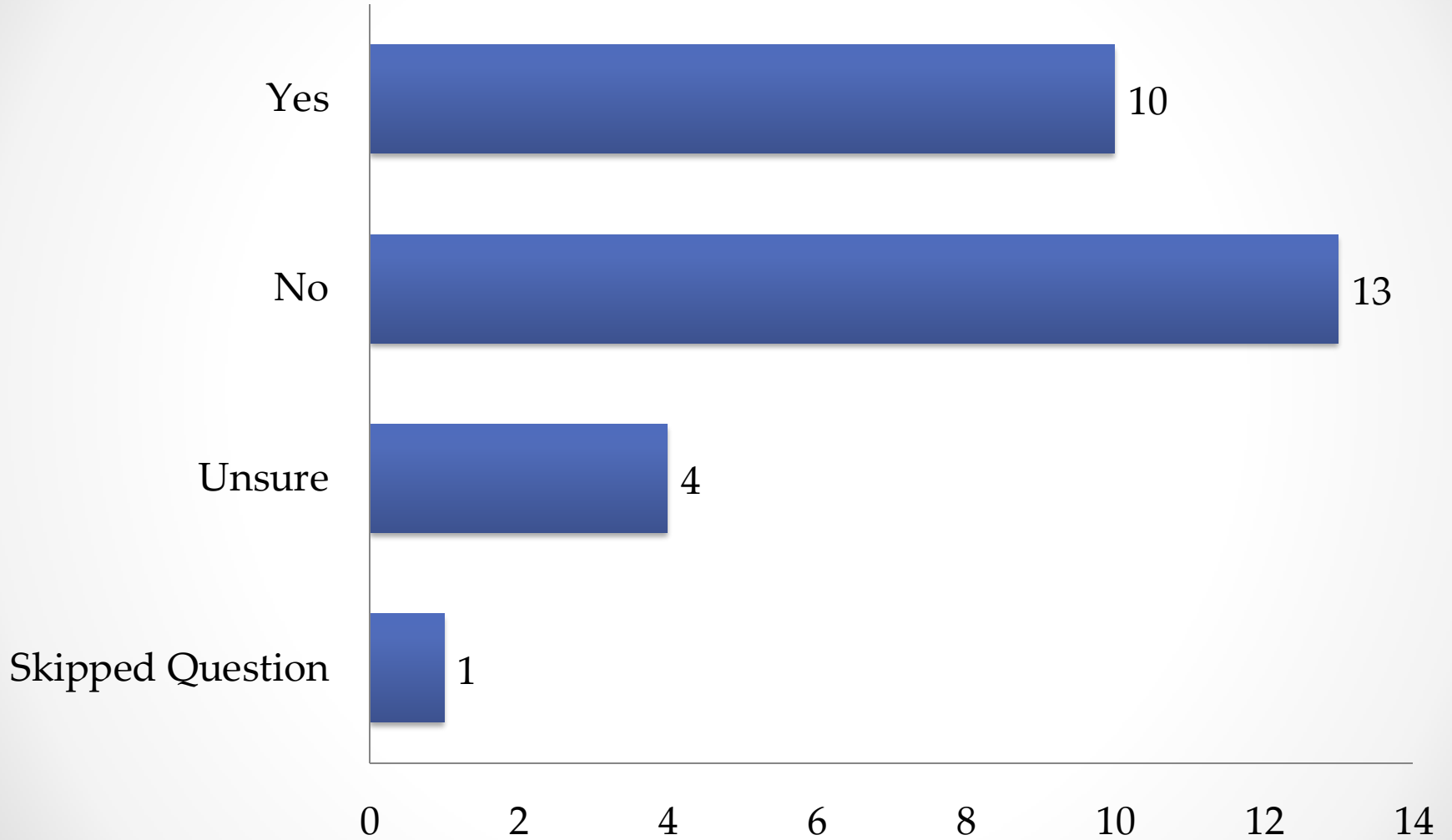


If you have a gridftp server(s) or SRM at your site is this registered with OSG ?





Is your Site in the Tiers of ATLAS?





Is there anything that can be done to make storage easier for you?



- Make sure the xrootd installation docs are all up to date. Also, I know there was some effort the tier3 group was making to get puppet installs running. That'd be hugely helpful (though I perhaps xrootd couldn't be configured using that anyway).
- Any suggestions about performance monitoring tools/suites?
- We will likely be installing a gridftp server in front of the xroot system.
- At the moment we are reasonably happy with our storage.
- We are using CVMFS for both Tier-2 and Tier-3. Having users get the needed tools/environment via CVMFS would be nice, especially if the 'Federated Xrootd' software/config were in place to allow "transparent" access to data for Tier-3 users.
- More tutorials on xrootd



Is there anything that can be done to make storage easier for you?



- 1) improve the choice of where to get (via dq2-get) the data, given my location. At least choose US vs overseas sites, but better yet learn (or let me choose a default set of preferences). 2) improve the error recovery in dq2-get for sites that claim to have complete datasets, but consistently or occasionally fail to get one or more files. At least make a "summary file" which is empty if nothing failed, and lists exactly which files had errors. But better yet, try another site.
- Documentation and tutorial. A lot of terms and the general lexicon of Tier3 became more like Tier2's and to understand even this questionnaire requires a great deal of IT knowledge, well beyond the average capabilities of physicists (especially students or posdocs) who can spend a small fraction of their time on Tier3 while doing physics. I do not remember this was intended in the original Tier3 report from 2008 where there was several classifications of Tier3. I would really like to see more choices, especially if someone to choose to simplify Tier3 to barebone Linux environment with the standard built-in Linux tools (if possible), without going into the business of gridFTP/SRM/xrootd it - not every Tier3 can crack all such Tier2-like services!



How do users get data to their Tier 3?



- Client tools – dq2-get - Last summer , Eric Lançon showed it is very popular – plan to repeat measurement.
- Dataset subscription through Tier of Atlas site
 - 7 sites – ANL (test site for now), Duke, NERSC, Penn, NERSC, SMU, UTD, Wisc
 - Users still use dq2-get at some of these sites
 - Requires SRM and gridftp servers and LFC
- Users have requested to still get subscribed data with much less overhead
 - Besides Hiro doesn't want us to muck up the Tier 3 LFC too much



Upcoming changes to ATLAS DDM based on Tier 3 feedback



- Last software week, we held a well attend ad-hoc meeting in Rest. 1 to discuss the local analysis Tier 3 DDM needs
- Angelos Molfetas provided a summary of T3 data management issues: [Link to Angelos' talk](#)
- Site services changes :
 - Use FTS with gridFTP
 - SRM not required, no LFC registration
 - Can be throttled
 - gridFTP-Is vs LFC look-up during transfer
 - Replica removed from DDM catalog once transfer is complete



Current Status



- DDM team has developed the code changes for SRM less and “registration less” site services requiring only a gridftp server
- Initial testing has begin
- Expect to continue to test a sites within the US this Fall
- Should we expect most US Tier 3 sites to setup gridftp servers?



Conclusions



- 2/3 of all possible Tier 3 sites responded
- NFS used at almost all sites
- XRootD used at > 70% responding sites
- XRootD federation needs better advertising
- Users want easy/efficient mechanisms to get their data
- Analysis only Tier 3 sites, wanted different Site Services and DDM listened and new changes are coming
- Are we ready for all of these new DDM sites?
 - What is the US ATLAS policy?