



Grid Deployment Board
"Service Challenge 3 Status Report"

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Service Challenge 3



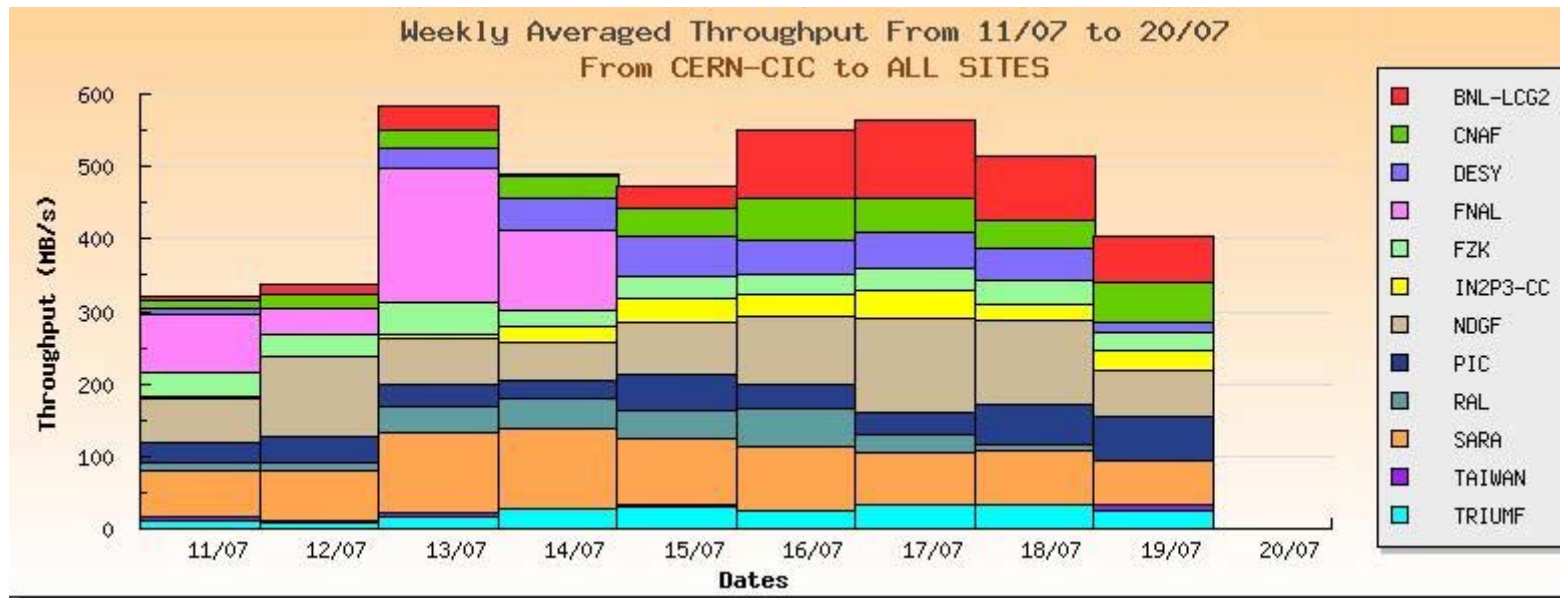
- Service Challenge 3 “setup phase” started 1st July
 - Aim was to show sustained running from 11th to 20th July
 - Secondary goals of tape-to-tape and T2-T1 transfers happen after GDB
- Differences from SC1&2:
 - all Tier-1 sites included
 - SRM used at every site
 - gLite FTS to control transfers
- Target is 1GB/s sustained disk-to-disk with 150MB/s sustained to individual sites
- Will present:
 - Status to date
 - Some open issues



Service Challenge 3



- We haven't met our throughput goals
 - Running at roughly same level as SC2
- We do have all the sites actively involved in transfers





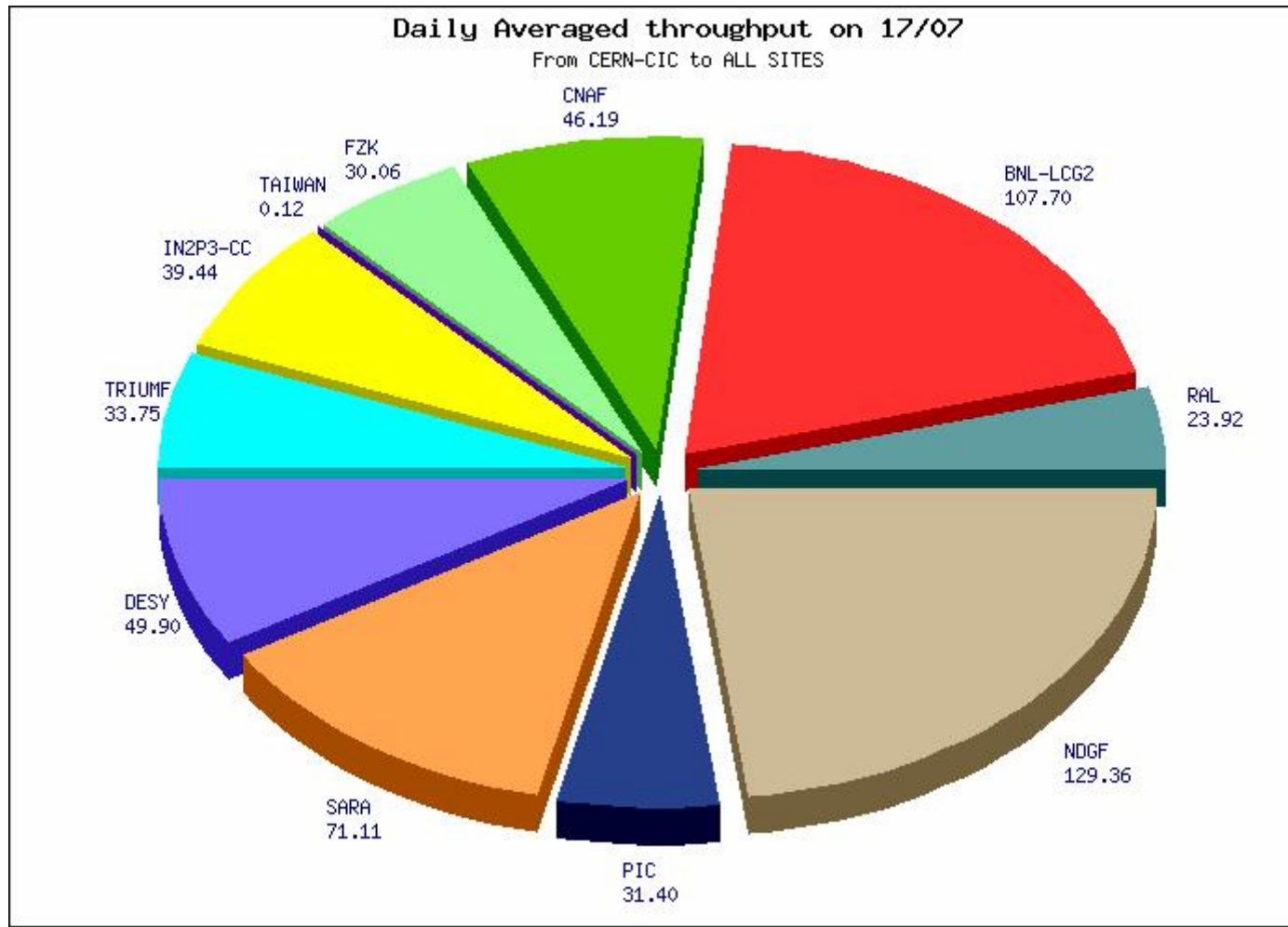
Sites Status – Top daily averages



Site	Daily Average (MB/s)
ASCC	10
BNL	107
FNAL	185
GRIDKA	42
IN2P3	40
INFN	50
NDGF	129
PIC	54
RAL	52
SARA	111
TRIUMF	34



Site Breakdown





Issues - BNL/FNAL/TRIUMF/ASCC



- Performance on transatlantic networks
 - Very slow per-file transfer rate (~1-2MB/s)
 - Even when multi stream (10/20)
 - Solution is to put a lot of files onto the network at once
 - BNL achieved 150MB/s but with 75 concurrent files
 - We see a lot of timeouts happening
 - FTS retries and the transfers have a high success rate but we lose effective bandwidth
 - These sites have a lot of bandwidth that we don't use
 - e.g. ASCC have 2G/s but it's hard to fill even with TCP based iperf
- Q: How do we up the single file transfer rate on transatlantic sites?
 - Do we need to go back to per site network tuning?



Issues – RAL/SARA/IN2P3



- SRM cleanup procedures are not understood
 - Often we see something going wrong on the transfers and we diagnose and solve the problem e.g. all allocated transfers have timed but movers not cleaned up
 - But the effect tends to go on longer
 - We see degraded performance afterwards and often the sites ends up just rebooting everything
- Q: How can we create, document and share standard procedures, so we don't have to reinvent the wheel 11 times?



Issues – INFN/FZK/PIC



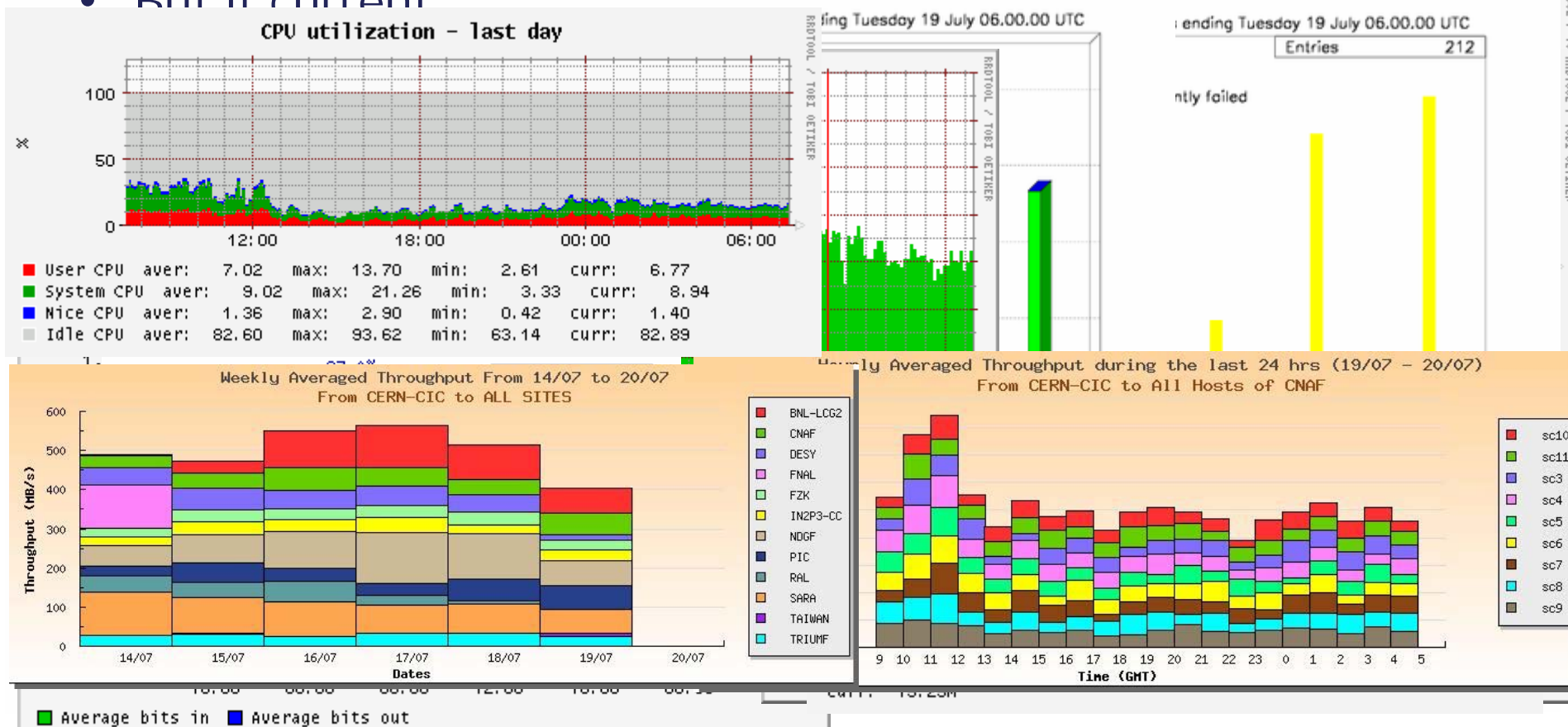
- During SC2, we tended to run with few transfers and a single stream per transfer
 - INFN – 10 single stream file transfers 100MB/s
 - FZK – 3 single stream file transfers – 150MB/s
- Now we don't see this
 - INFN has good file transfer rates (~10-15MB/s) but we only get 60% utilization of the network
 - FZK sees very low file transfer rate (~1-2MB/s) for many file transfers (but some seem to run much faster)
 - PIC (& IN2P3/SARA) work best when doing 10 concurrent streams
- Q: How can we reduce number of streams and get individual file rate higher (and more stable) ?



Issues - ALL



- In SC3, we gather and store much more monitoring data
 - Both as graphs, and the raw data is archived in databases
- But it current





Conclusions



- We haven't yet achieved the desired throughput
 - But we have transfers from all sites
- Reliability and stability are issues
 - We have problems having all sites active for longer periods of time
 - We should be able to deal with 1 or 2 sites missing, but 4 or 5 makes it hard to keep up the transfer rate.
- We need to address these open issues to get us running at 1GB/s sustained in the next 5 weeks