



ipv6 and LHCb

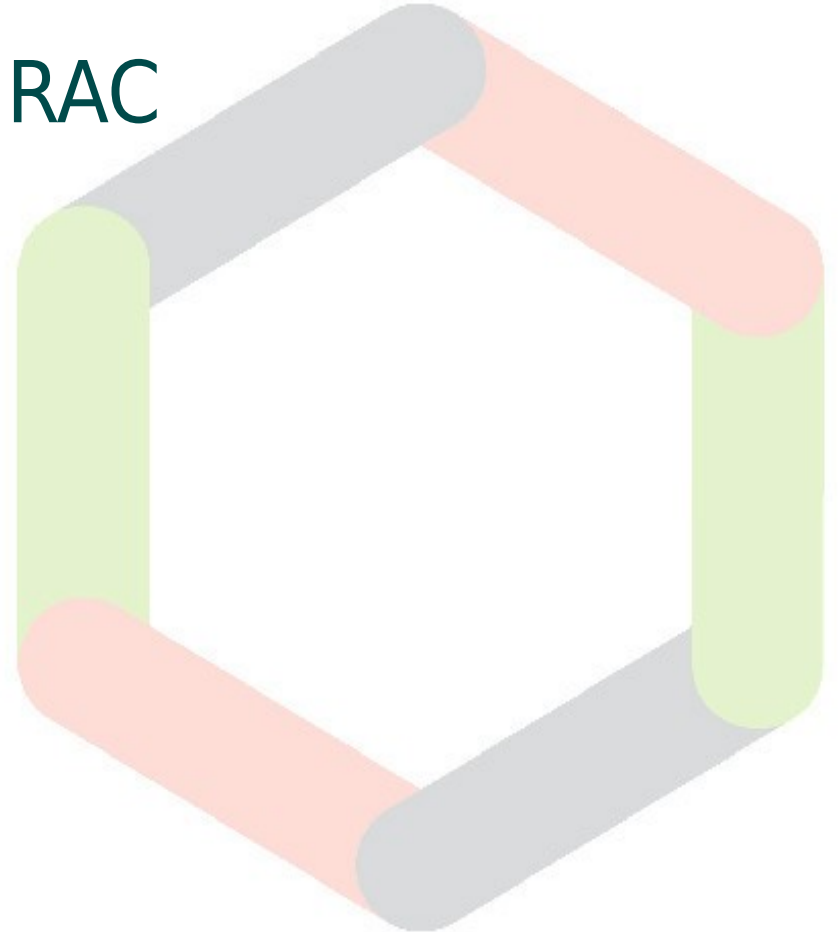
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For LHCb, DIRAC



Contents

- Overview of LHCb and DIRAC
- Current status
- Future plans / thoughts

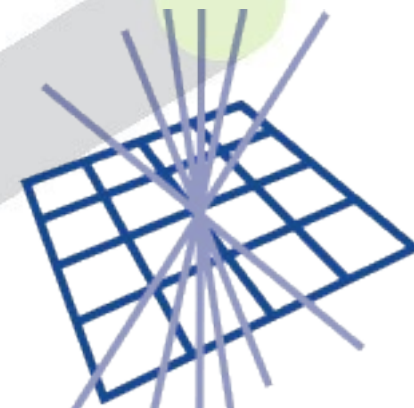
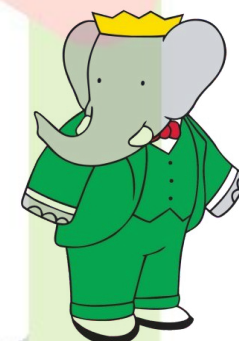




Overview



- LHCb uses grid resources from WLCG
 - Any WLCG site that allows it
- DIRAC is LHCb's grid interface
 - Distributed Infrastructure with Remote Agent Control
 - LHCb is the main customer for DIRAC
 - And also “most” contributions to codebase
 - Ongoing developments according to need
 - Others include ILC, BESIII, GridPP, ...



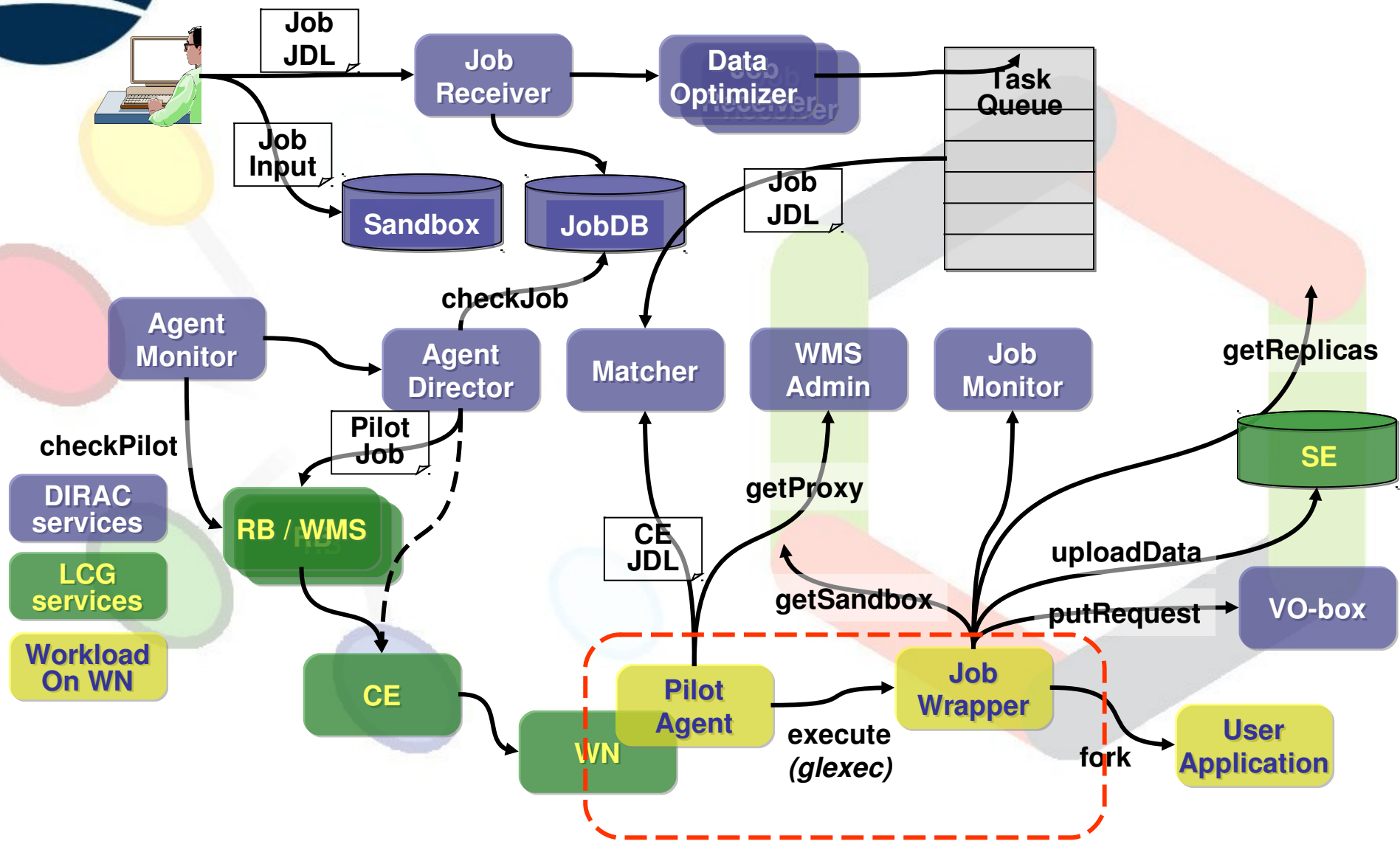


DIRAC

- Submits pilots to the grid
 - Mostly through direct submission to the CEs
 - WMS-es are now deprecated
 - Pilots run one or more “workflows” (i.e. our jobs)
 - Each workflow downloads and later uploads information back
 - Heartbeats, proxies, data, log files, ...
- Communication using custom-built “dips” protocol
 - Dirac Information Protocol (secure)
 - Wrapper around OpenSSL



DIRAC components





Job interactions

→ Pilot to download DIRAC software

- Currently from LHCb webserver at CERN.
 - Soon from CVMFS
- All LHCb software accessed from CVMFS only

→ dips protocol

- Authenticated communication to DIRAC services
 - Including job download among others

→ Access to job input data

- Xrootd (LHCb), ..., lcg-cp

→ Output data and log file upload

- To SEs and LHCbDirac servers

Not addressed
in these tests



Current status - 1

- Many thanks to Ewan MacMahon and Oxford team
 - Access to dual-stack and pure ipv6 UIs for testing
- CVMFS access seamless
 - Both on dual-stack and pure ipv6
 - LHCb applications run fine on both machines
 - Did not (yet) test access data outside the machines
- LHCb software webserver at CERN “issue”
 - Does not have an ipv6 address
- Test assumes : Only WNs will be pure ipv6



Current status - 2

- Testing dips protocol ...
 - Run service on dual-stack machine, test from everywhere
- DIRAC services bind by default only to ipv4 addresses
 - Current versions in production
- Easy enough to update the code to get DIRAC services to bind to ipv6 addresses also
 - Successful ipv6 tests by “hot fixing” code
 - Patch requests submitted
 - Needs more testing to make sure things don't break for ipv4
- Tested so far : Configuration & SystemAdmin services



Future plans

- Have got the main developer also involved now
- Getting patched version of DIRAC to play with
- Once confident, test more complicated services
 - Job agent, job manager, ...
 - Services which a job on a WN will need to contact
- And then ask for dual-stack machines in certification
- In parallel, look at SE uploads
- Issue : Getting dual stack machines at CERN is not yet “easy” / “transparent”



Summary

- LHCb software environment setup looks fine
 - CVMFS works out of the box
- DIRAC on ipv6 is promising
 - “Seems easy” to make it work on dual-stack machines
 - Crossing fingers, no major code rewrite is needed
- No timescale yet
 - Not thought about it