ETF IPv6

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Experiments Test Framework (ETF)

Measurement middleware

- Actively checks status of services
- Focuses on atomic tests
  - Direct job submissions
  - Worker node testing
  - Core storage operations
- Generic, based on open source
  - OMD, check_mk, nagios, stompclt
- Main source for monthly WLCG A/R reports
- Actively used in WLCG deployment campaigns
  - HTTP, CC7, RFC, HTCONDOR-CEs, etc.

ETF Core Framework

- Involves configuration, scheduling, API, etc.

Plugins

- Wide range of available plugins - covering broad range of services
- Contributed by experiments, PTs, TFs, etc.

Worker Node Framework

- Micro-framework to run tests on the WN

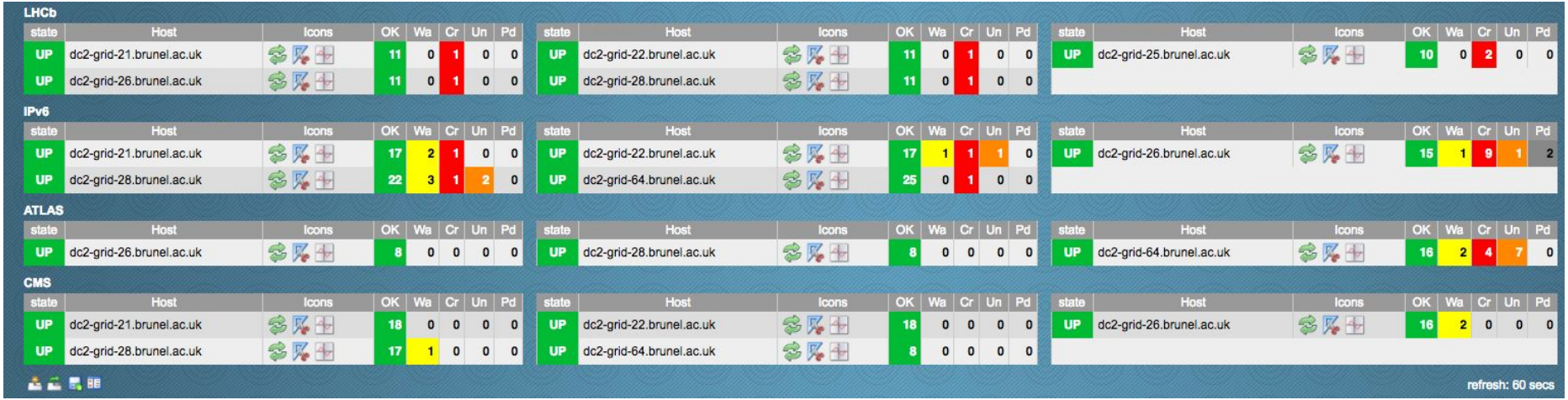
Numbers

- Test frequency ~ 10Hz, 33k tests/hour
- 8 clusters: 4 experiments + central instance, IPv6, T0, CC7, pS (@OSG)

ETF IPv6

- Dual-stack SAM testing support
- QA instance established Dec 2016 to replace the existing dev instance
  - Single instance capable of running testing for all experiments
- Unlike dev instance, QA uses existing production tests and topology
  - Filters services that have IPv6 support
- Groups services to sites (accessible via host groups)
- Custom host groups can be defined, e.g. to check central services
- Sites can re-schedule the tests manually
  - Regular testing frequency is quite low (once in 6 hours - c.f. IPv4 runs tests every 15mins)
- Connected to ETF central (etf.cern.ch)
  - Overview of tested services across all experiments - easy to compare IPv4 vs IPv6

ETF IPv6



LHCb

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-21.brunel.ac.uk		11	0	1	0	0
UP	dc2-grid-26.brunel.ac.uk		11	0	1	0	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-22.brunel.ac.uk		11	0	1	0	0
UP	dc2-grid-28.brunel.ac.uk		11	0	1	0	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-25.brunel.ac.uk		10	0	2	0	0

IPv6

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-21.brunel.ac.uk		17	2	1	0	0
UP	dc2-grid-28.brunel.ac.uk		22	3	1	2	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-22.brunel.ac.uk		17	1	1	1	0
UP	dc2-grid-64.brunel.ac.uk		25	0	1	0	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-26.brunel.ac.uk		15	1	9	1	2

ATLAS

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-26.brunel.ac.uk		8	0	0	0	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-28.brunel.ac.uk		8	0	0	0	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-64.brunel.ac.uk		16	2	4	7	0

CMS

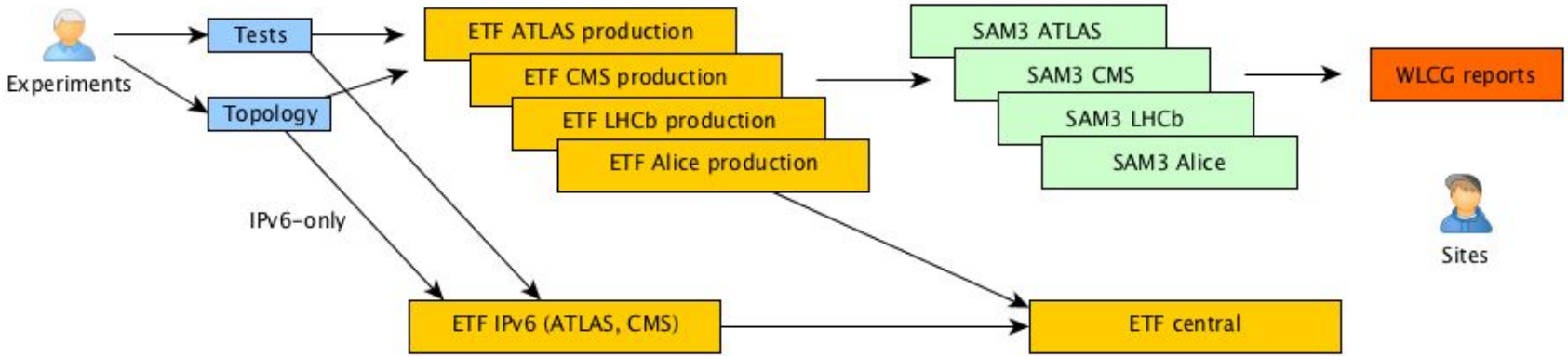
state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-21.brunel.ac.uk		18	0	0	0	0
UP	dc2-grid-28.brunel.ac.uk		17	1	0	0	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-22.brunel.ac.uk		18	0	0	0	0
UP	dc2-grid-64.brunel.ac.uk		8	0	0	0	0

state	Host	Icons	OK	Wa	Cr	Un	Pd
UP	dc2-grid-26.brunel.ac.uk		16	2	0	0	0

refresh: 60 secs

ETF IPv6


Experiments
Tests
Topology
IPv6-only
ETF ATLAS production
ETF CMS production
ETF LHCb production
ETF Alice production
SAM3 ATLAS
SAM3 CMS
SAM3 LHCb
SAM3 Alice
WLCG reports
Sites
ETF IPv6 (ATLAS, CMS)
ETF central

Challenges

- Topology feeds from experiments do not contain all information needed to test
  - Good progress on getting queues/batch systems in the feeds - removing deps. on BDII
    - All experiments agreed to add this - CMS already in production, ATLAS in QA
  - Storage testing more complex - need PFNs - right now no commitment to use topology feeds
    - Relying on experiment services (PhEDEX, AGIS, DIRAC)
- SAM3 integration is needed to get all the way to WLCG reports
  - SAM3 re-implementation is planned for this year - becomes part of UMA (unified monitoring architecture)
  - Unclear how IPv6 resources should be accounted
    - IPv6-only report vs IPv4/IPv6 report

Challenges

- ETF supports testing both production and non-production services
  - SAM3 has mechanism to filter out non-production (used by ATLAS and CMS)
  - But certain level of integration in the experiment systems is needed
    - IPv6-only services sometimes don’t appear there - tests will fail
- Alice, LHCb have their own testing frameworks
  - Alice is not testing storage with ETF; LHCb is not testing VAC/VCycle with ETF
- ETF IPv6-only - this option not yet supported at CERN
- Central services - not included in the topology feeds

Road to production

- Broadcast IPv6 capability in ETF central
  - Support channel needed to handle feedback (GGUS/mailing list ?)
- Add LHCb/Alice testing
  - Do we need WEBDAV tests ? ATLAS and LHCb have them (as non-critical)
  - Understand Alice/LHCb plans in running IPv6-only SAM tests within their frameworks
- Integrate IPv6 information in SAM3
  - Start providing IPv6-only monthly reports to WLCG ?
- Migrate existing production ETF instances to dual-stack
  - Dual-stack services would start getting IPv6-only A/R results
  - IPv6-only services would appear

ETF Architecture

Types of tests supported by ETF:

- Remote API – simple storage tests (get/put/del), job submissions to multiple backends (ARC, HT-Condor-CE, CREAM, etc.)
- Agent-based testing (local testing on the worker nodes, remote hosts)

Results published via message bus to SAM3 Dashboards, ElasticSearch/Kibana, etc.