


Service and Site status through SSB Aggregation

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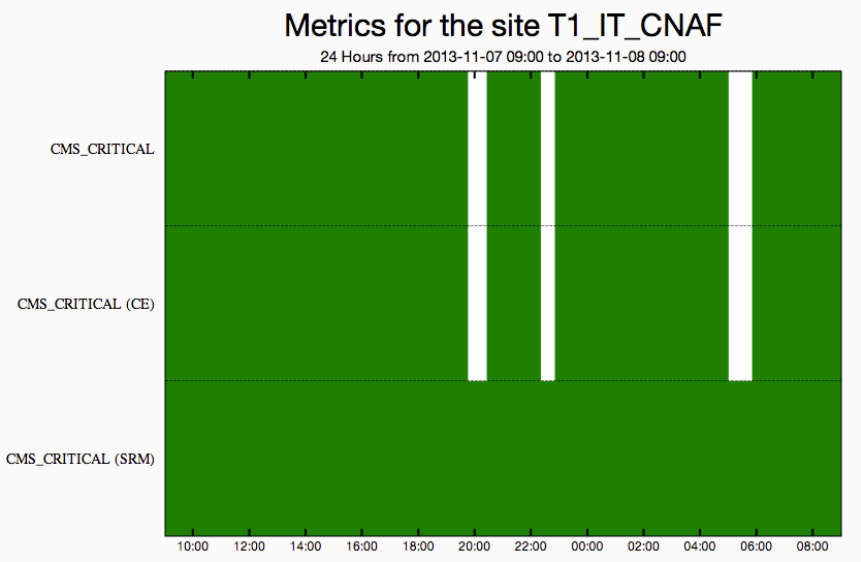
motivation

- simplify service monitoring
  - reduced SAM scope
  - reduced effort
- reuse as much as possible
  - aggregation maps nicely to SSB virtual metrics

motivation

use SSB virtual metrics to compute service/site status from any metric, including Nagios probes

Site Name	cms topology (site)	CMS Hide the details	CMS (ARC-CE) Hide the details	CMS (service ARC-CE) Hide the details	CMS (CE) Hide the details	CMS (service CE) Hide the details
T1_IT_CNAF		OK	OK		OK	
CREAM-CE ce04-lcg.cr.cnaf.infn.it	T1_IT_CNAF			OK		OK
CREAM-CE ce01-lcg.cr.cnaf.infn.it	T1_IT_CNAF			OK		OK



strategy

- generic aggregation system
  - using SSB metrics
  - data agnostic
- POEM–like profile definition
  - metrics and FQANs
  - algorithm

profile definition

```
{
    "name": "CMS_CRITICAL”,
    "algorithm": "CE * SRM",
    "metric_instances": [
        {
            "atp_service_type_flavour": "CE",
            "fqan": "/cms/Role_production",
            "metric": "org.sam.CREAMCE-JobSubmit"
        },
        {
            "atp_service_type_flavour": "CE",
            "fqan": "/cms/Role_lcgadmin",
            "metric": "org.sam.CREAMCE-JobSubmit"
        },…,
        {
            "atp_service_type_flavour": "SRM",
            "fqan": "/cms/Role_production",
            "metric": "org.cms.SRM-GetPFNFromTFC"
        },
        {
            "atp_service_type_flavour": "SRM",
            "fqan": "/cms/Role_production",
            "metric": "org.cms.SRM-VOGet"
        },…,
    ],
    "service_site_metric": "cms topology (site)"
}
```

Translates to 5 aggregation metrics:

CMS_CRITICAL (service CE)
aggregates CE metrics per service

CMS_CRITICAL (service SRM)
aggregates SRM metrics per service

CMS_CRITICAL (CE)
aggregates CE services per site

CMS_CRITICAL (SRM)
aggregates SRM services per site

CMS_CRITICAL
combines CE and SRM site results

simplified algorithms

- when different flavours have the same metrics, they can be simplified
- flavour names are arbitrary
  - just a way to group metrics!
- makes aggregation faster
  - but eliminates *flavour status*

```
(ARC-CE + OSG-CE + CE + CREAM-CE) + (SRMv2 + OSG-SRMv2)
                        vs.
                   CE + SRM
```

FQAN support

- each metric + FQAN is independent
- FQANs may be grouped in flavours

Metric results with different FQANs grouped (introduces additional aggregations):

(CE_prod + CE_lcgadmin) * (SRM_prod + SRM_lcgadmin)


```
{
    "atp_service_type_flavour": "CE_prod",
    "fqan": "/cms/Role_production",
    "metric": "org.sam.CREAMCE-JobSubmit"
},
{
    "atp_service_type_flavour": "CE_lcgadmin",
    "fqan": "/cms/Role_lcgadmin",
    "metric": "org.sam.CREAMCE-JobSubmit"
},
```


Metric results with different FQANs mixed:

CE * SRM


```
{
    "atp_service_type_flavour": "CE",
    "fqan": "/cms/Role_production",
    "metric": "org.sam.CREAMCE-JobSubmit"
},
{
    "atp_service_type_flavour": "CE",
    "fqan": "/cms/Role_lcgadmin",
    "metric": "org.sam.CREAMCE-JobSubmit"
},
```

topology

- VO feed as only source
  - not limited to services in GOCDB
  - stored as regular metrics in SSB

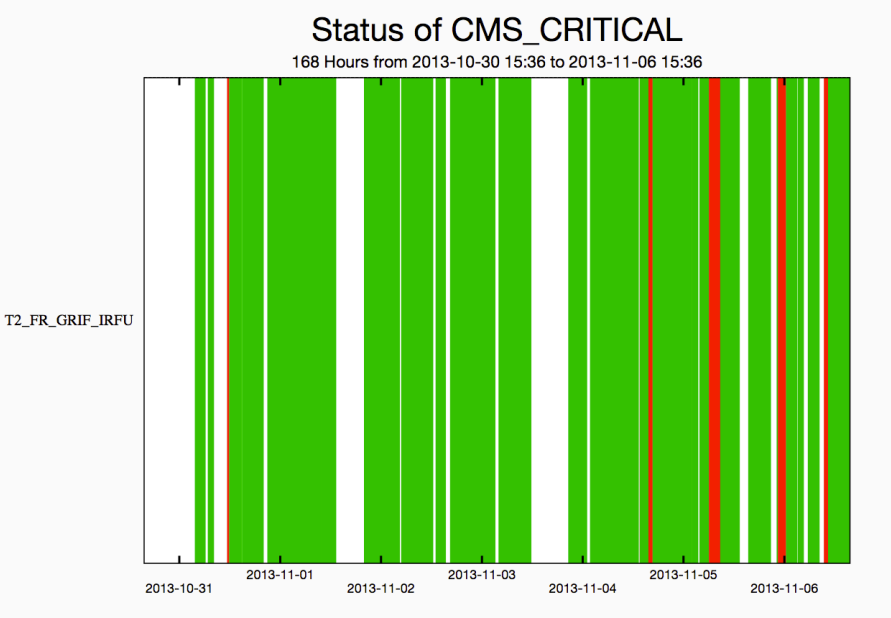
- metric results are not filtered
  - every tested endpoint in the topology will be aggregated

current limitations

- no downtime support
  - will be implemented using service/site downtime metrics
- mixed service flavour instances
  - CREAM–CE aggregation considers ARC–CE services when same metrics are used
  - a topology filter will be implemented

metric validity

- SAM metrics have 24h validity
  - shorter validity means closer to real–time
  - but metric results are not always regular!



upcoming challenges

- filters
  - selective aggregation of services
  - profiles for arbitrary topology subsets
- availability and reliability
  - applicable to any SSB metric
  - downtimes needed
- validation
  - both local and with MRS/ACE

summary of key changes

- flexible topology
  - everything in the VO feed
- data agnostic
  - flavours are arbitrary
  - source metrics can be anything in SSB
- independent FQANs
  - but they can still be aggregated
- profile and algorithm definitions
  - POEM integration to be discussed

demo

http://wlcg-mon.cern.ch