Integration with monitoring systems

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The idea

- Given that Quattor “knows” the whole infrastructure, we could have:
  - the monitoring system rely on it
  - dynamic configuration based on each change
- we are not the first who thought this...

So what's the difference?

- Till now all proposals had the Nagios configuration created BY Quattor
  - this requires that every single probe is "documented" in Quattor templates
- EGEE (and OAT in specific) had done a great tool for dynamic Nagios configuration
  - Can we use it?

The Nagios Configuration Generator

- NCG is a modular tool that gets information regarding:
  - Node information and topology
  - Probe definitions
  - Attributes per configured probe
- Creates the whole Nagios configuration on configuration folders
  - Easy integration with pre-configured installations

NCG internals...

- NCG uses the following “basic modules” to create the Nagios configuration:
  - NCG::SiteSet:
    - Defines a list of sites which we want to monitor. Nothing more than a list to loop for the next module
    - Usually used with GOCDB or BDII as input
    - Should be extended in order to include our “sites”
  - NCG::SiteInfo:
    - Defines the list of nodes that exist in the site. This also includes the Node type of each node as well as possible metadata per node
    - Should be extended to get information from Quattor

NCG internals...

- NCG::LocalMetricSets
  - Defines which probe groups should be configured for each node-type
  - Extension for Quattor node-types
- NCG::LocalMetricsAttrs
  - Defines probe attributes per node
  - This should be extended to receive our configuration
- NCG::LocalMetrics
  - Contains the definition of metrics and the MetricSet they belong
  - If we want to monitor additional services we need to extend this as well

The first attempt

- Given that NCG modules are written in perl we used many perl XML parsing libraries
  - parsing many (in our case ~150) XMLs takes too long
  - each NCG run requires a many XML parsing passes (one for each module and one for each defined site)
- For our installation this took about 15-20 minutes to do the configuration

Redesigning it

- The only solution was to feed the NCG with preprocessed data
- We also needed to process Quattor data for our other development project (QAD)
- Why not combining them?

Why processing in QAD and not NCG?

- In QAD we designed everything from scratch so we could avoid useless loops
- QAD also needs a back-end DB so we can store (cache) the topology there
- Effort was put on QAD in order to provide the required info.

Current status

- Configure a host-alive test for all nodes
  - DONE
- Configure some services for every node
  - DONE
- Configure specific per node attributes
  - DONE (Needed the /monitor structure)
- Create the Nagios host relations
  - DONE (Needed the structure_switch)

Integration with other OAT modules

- Another ability of NCG is that it uses all the defined modules for every site/node/probe it finds
  - i.e. if the Quattor module define a node as “CE”
  - The OAT’s MDDB (if included) module will configure all CE probes for it

Can i download/install it?

- Unfortunately this tool
  - heavily depends on QAD and NCG
    - QAD is still under development (not that active)
    - NCG is also under development
  - was designed only as a proof of concept
    - QUEST would probably put effort on exploiting this or something similar

Proof of concept

- Demo

Last minute update from TCD

- How we can install a Nagios server that is using NCG
  - Totally complementary to what is already presented
    - Proof of Concept of that we can have a Nagios server Managed by Quattor and monitoring Quattor Managed nodes :)
- Upgraded to Nagios 3
  - Changes in the “structure_nagios_nagios_cfg”
  - Changes in the “structure_nagios_service”

Last minute update from TCD

- Modified “monitoring/nagios/config”
  - include {'rpms/nagios/server'};
    - Updated rpms for Nagios 3
  - variable NAGIOS_EXTERNAL_FILES ?= null
    - Could not make this work as defined
- Significantly modified “monitoring/nagios/ncg_services”
  - Define sites and supported VOs

```
variable NCG_SITES = nlist("csTCDie", nlist("CE", list("gridgate.cs.tcd.ie"),
                                            "SE", list("gridstore.cs.tcd.ie"),
                                            "VOs", list("OPS","Atlas","LHCb")),
```

Last minute update from TCD

- Define SAM_ROOT_URL and SAM_RESULTS_URL per vo

```
variable NCG_VOS =nlist(

  "OPS", nlist("SAM_ROOT_URL", "http://...", "SAM_RESULTS_URL", "http://..."),

  "Atlas", nlist("SAM_ROOT_URL", "http://...", "SAM_RESULTS_URL", "http://...",
"CE_SERVICES", list("CE-sft-vo-swdir", "CE-ATLAS-sft-lcg-tag".....
```

  - Allows us to have results gathered from multiple SAM servers
  - Allows us to define services for each VO if different from default set, as for Atlas.

- Does anyone else use this template?
  - Can check in changes if useful

Thank you

Questions?