



# Nagios (Grid) Configuration with Quattor

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9<sup>th</sup> Quattor Working Group Meeting,  
Thessaloniki, 17-19 March 2010

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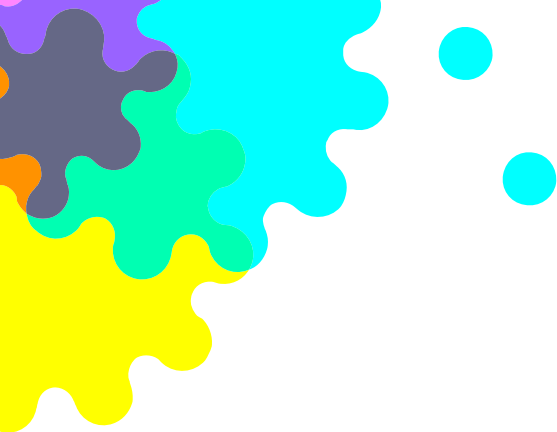
# Outline

- Nagios Monitoring with Quattor
  - Setup
  - Implementation
- Grid Monitoring / NCG Integration
  - Objectives, Requirements, History
  - Implementation
  - Experiences
- Summary



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# Nagios Monitoring with Quattor



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# Nagios Monitoring Overview

- Purpose
  - Detect failures before the users do
    - Helps to improve Availability & Reliability
  - Hardware
    - Host down, defect disks, ...
  - Software
    - Service not responding/running, hitting resource limits, weird/unexpected states
  - Network
- Environment: grid site
  - Grid services, compute and storage, generic services
  - Mix of Quattor-managed and non-Q-managed hosts



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# Quattor Implementation Nagios Monitoring

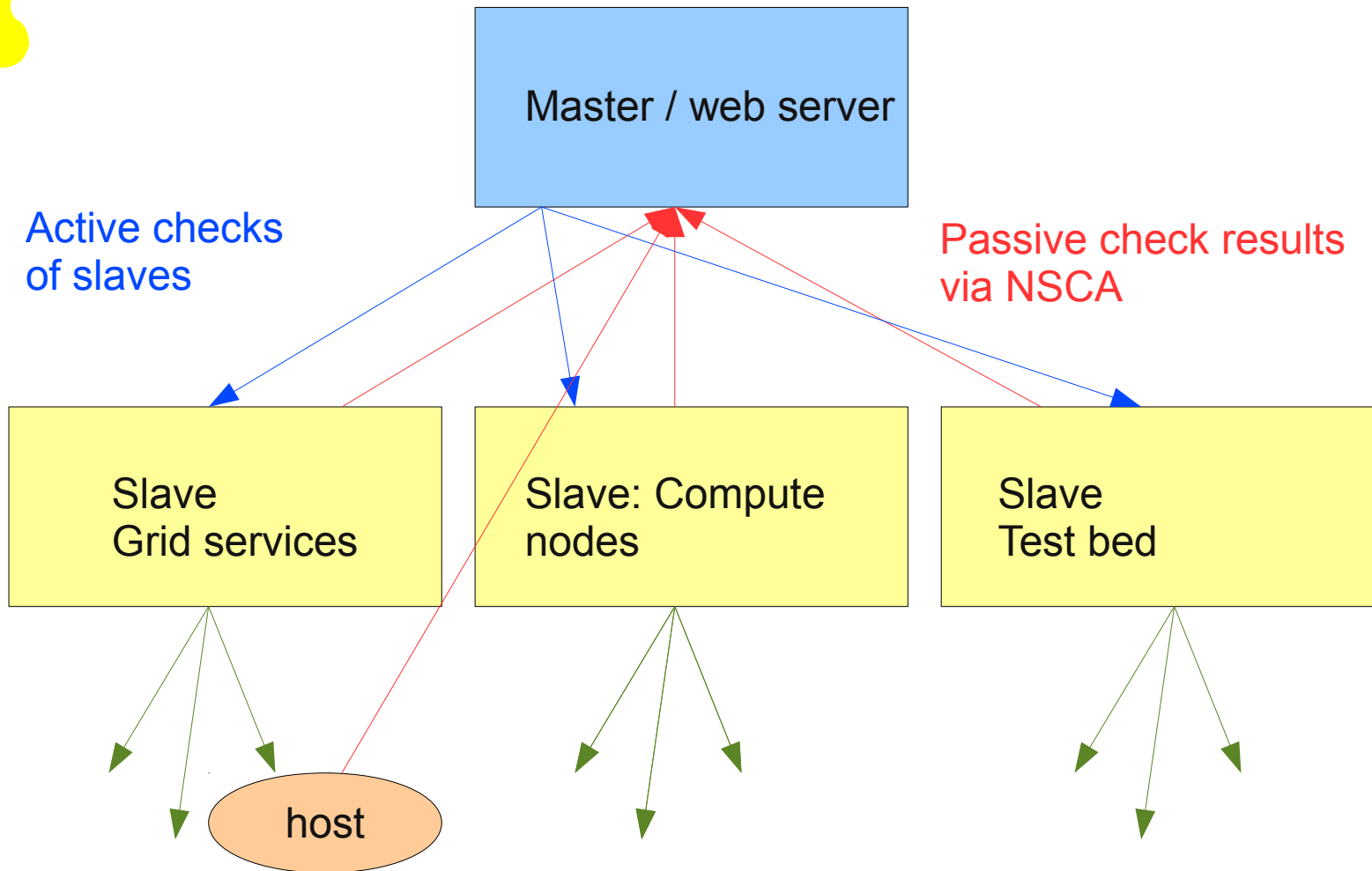
- Based on QWG `standard/monitoring/nagios`
  - A LOT has changed past year
    - In our templates
    - AND in QWG's
    - Challenge to merge!
- Enhancements / Changes
  - Support hierarchy of servers
  - Pnp4nagios: performance graphs based on RRD
  - Service definitions: grid + generic

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# Nagios Monitoring Hierarchy





# Hierarchy of Servers

- Slaves execute check, push result (NSCA)
  - ncm-nsca: master server + slave server
- Master+slave: same host/service definitions
  - slightly different parameters
    - active/passive check, obsessing, notifications, performance data
- Definitions at master superset slave definitions
- No problem at all for Quattor!
  - Templates grouping hosts, services
- Master runs Apache
  - Ncm-filecopy - tried ncm-httpd but gave up :-(
    - Slaves use same config, but service httpd disabled

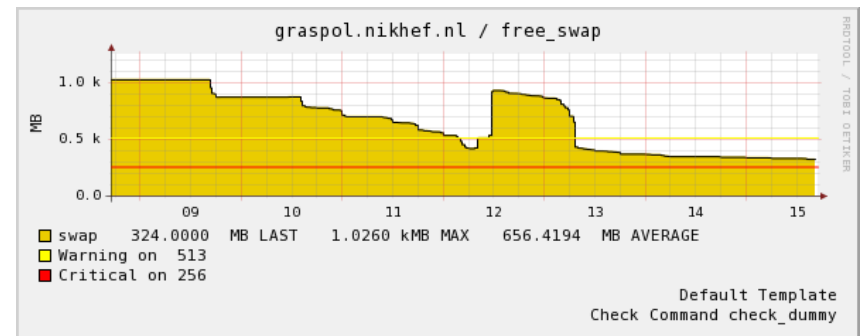


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# pnp4nagios

- RRD-based graphs
  - Like Ganglia, but integrated with Nagios
- Installation
  - 1 rpm
- Configuration
  - Performance data
  - Start npcd service
  - Services: action\_url
    - String vs URI



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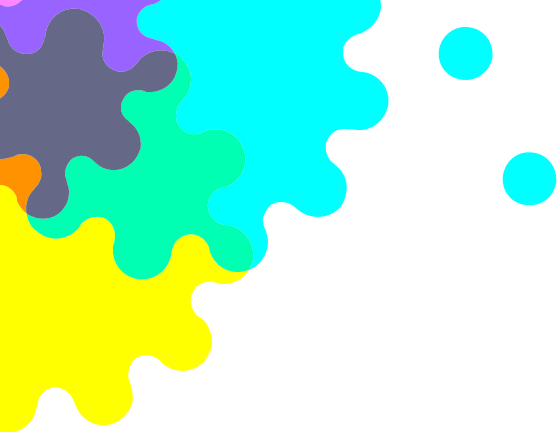






# Service Checks

- Happily added service definitions
- Generic checks
  - Ldap, mounts, load/core, memory usage, Xen, ...
  - All Quattor-managed hosts get basic monitoring
- Grid
  - DPM, WMS, Torque, Maui, ...
- Direct checks, NRPE checks, NSCA checks
  - NRPE and NSCA require configuration at nodes
    - Nodes typically in different clusters
    - Sometimes needs sudo setup
    - Enable checks executed by server (NRPE)
    - Trigger execution of check via cron (NSCA)



# Grid Monitoring / NCG Integration



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# Grid Monitoring Objectives

- Enable NCG-based grid monitoring solution for site
- Areas of interest:
  - SAM test results (others' view on our site)
  - Local grid checks (simulating user actions)
- Ideal: entirely Quattor-managed, but certain tension
  - NCG: dynamic detection (SAM) tests
  - Quattor: describe tests in configuration, more static



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# Grid Monitoring Requirements and History

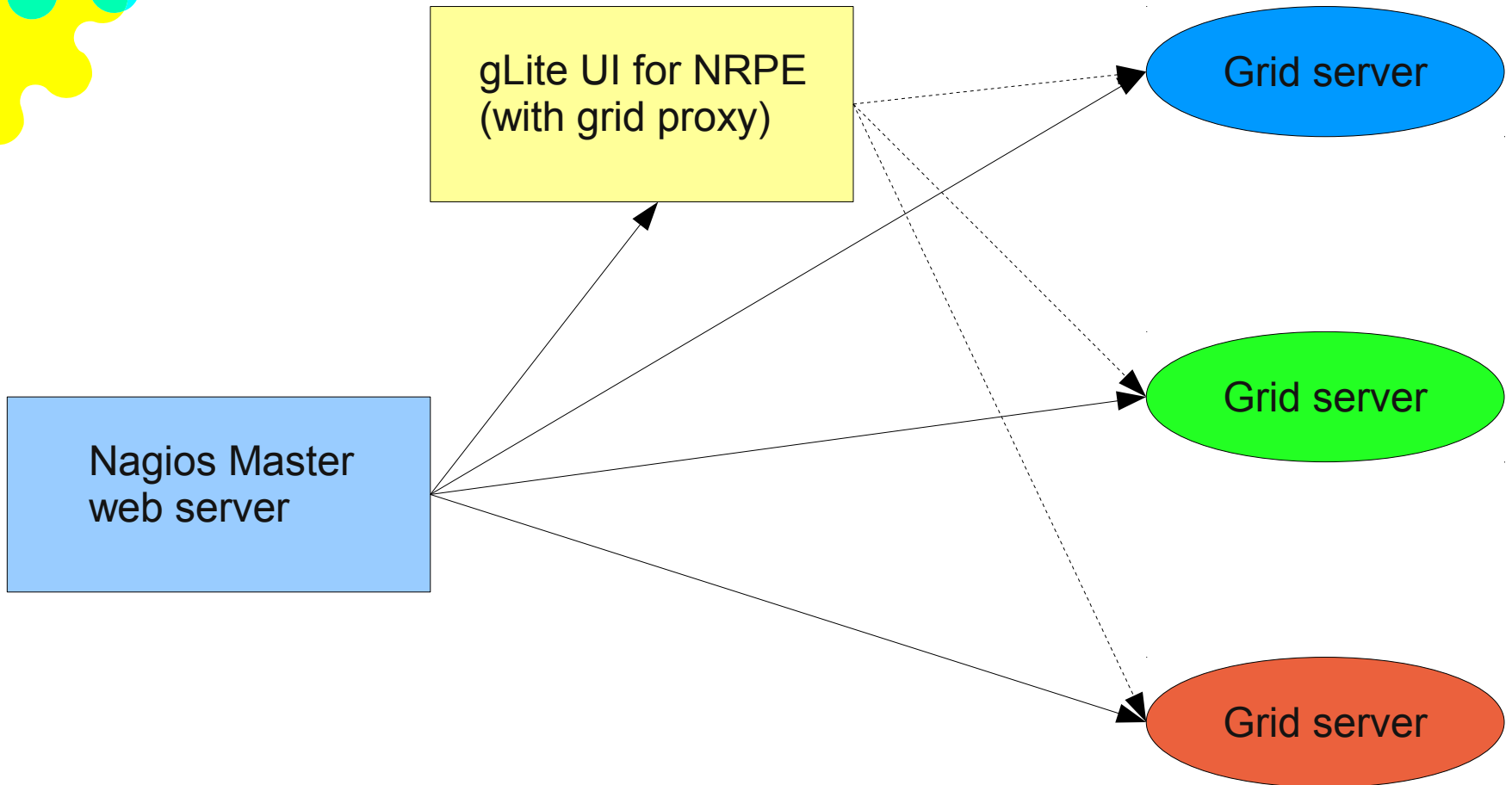
- Requirements
  - Coexist with existing Quattor+Nagios setup
    - Incompatibilities → feedback to NCG developers
  - No gLite on Nagios server
    - Monitor results of gLite updates, not suffer from it!
- History
  - Started with pre-OAT releases in 2007
    - Early adopter
    - Required many manual steps
  - Recently upgraded to “Jan 2010” version
    - Almost fully automated configuration
    - Many, many changes since 2007

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# Grid Monitoring Layout



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# NCG - Implementation

- Two hosts
  - Nagios (master) server
  - Dedicated gLite User Interface
- Installation: many perl-\* dependencies
  - Checkdeps!
- Configuration: Quattor + Yaim
  - Only enabled NCG configuration
  - Disabled Nagios server, Apache, CGI, sudo
    - Quattor already takes care of that
  - Ncm-yaim executes NCG



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# Quattor + NCG

- NCG generates Nagios configuration for grid services
  - Add generated files to generic server config (cfg\_file directives via ncm-nagios)
  - May cause conflicts
    - E.g. duplicate host definitions
    - Conflict → Nagios refuses to (re)load
- NRPE checks generated @ server, fetched by UI
  - Executed as check



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# Quattor + NCG: Experience

- Once configured, it works well
- Setup is not straightforward:
  - Potential conflicts existing Quattor config ↔ NCG generated config
  - NCG is still work in progress
    - Bugs quickly resolved (thanks to Emir!)
  - Need Quattor-Yaim support (ncm-yaim)
- Current situation: not completely happy
  - NCG-magic at Nagios server ↔ fabric management
  - Describe all service checks in Quattor?
    - Static wrt updates (new SAM checks)
    - Demands much effort





# Summary

- Generic Nagios monitoring with Quattor
  - QWG + NDPF solutions diverged, but can be merged
    - Enabling hierarchy is main effort
- Grid Monitoring with Quattor+NCG
  - Principle works, but not in-line with “philosophy”
  - Best approach to service checks?
    - Generation of Quattor templates?
    - Manual description of service checks?
    - Dynamic generation of Nagios config?
  - Did not bother about message queues etc
    - Can probably be handled by dedicated components
- Much work to be done. Joint effort?!



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