



Enabling Grids for E-science

Evolution of SAM in an enhanced model for monitoring the EGEE grid

Emir Imamagic /SRCE

John Shade /CERN

EGEE User Forum, Catania, Italy

www.eu-egee.org



- **Why a new architecture?**
- **What do we have today?**
- **What are the limitations & possible solutions?**
- **What have we implemented already?**
- **What lies ahead?**
- **Conclusion**
- **Links**

Why a new architecture?

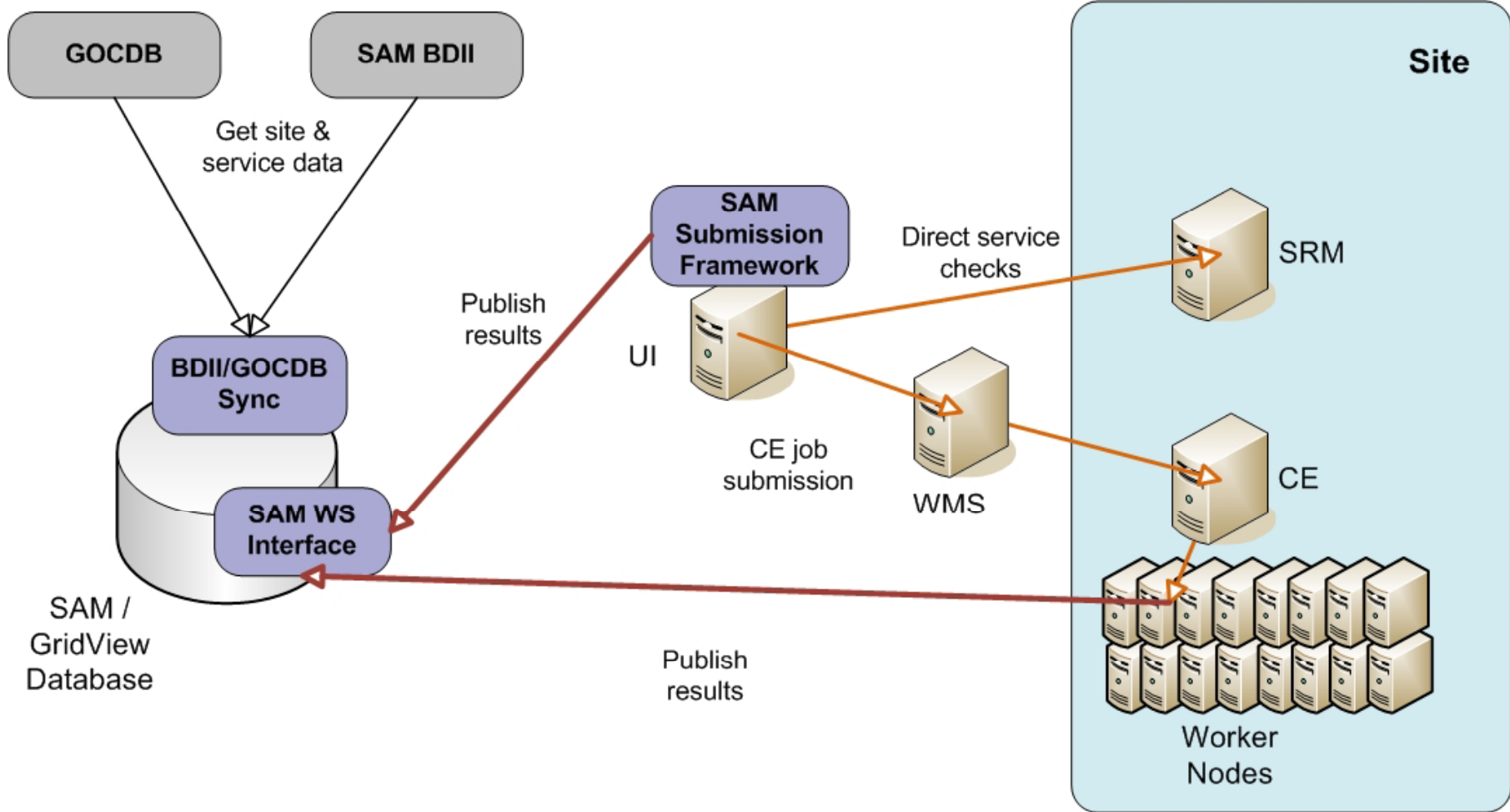
- **Improve the reliability of the grid by giving site administrators better tools**
- **Infrastructure will be managed by NGIs, not a central entity**
- **Question mark over the amount of manpower available centrally**
- **Use best of breed Open Source tools rather than home-grown tools**

- **Aligned with the Operations Automation Team strategy**

What do we have today?

- **A central SAM infrastructure that tests all grid services once an hour**
- **Consistent set of tests under central control**
- **One algorithm for calculating availability**
- **Ops and VO-specific tests**

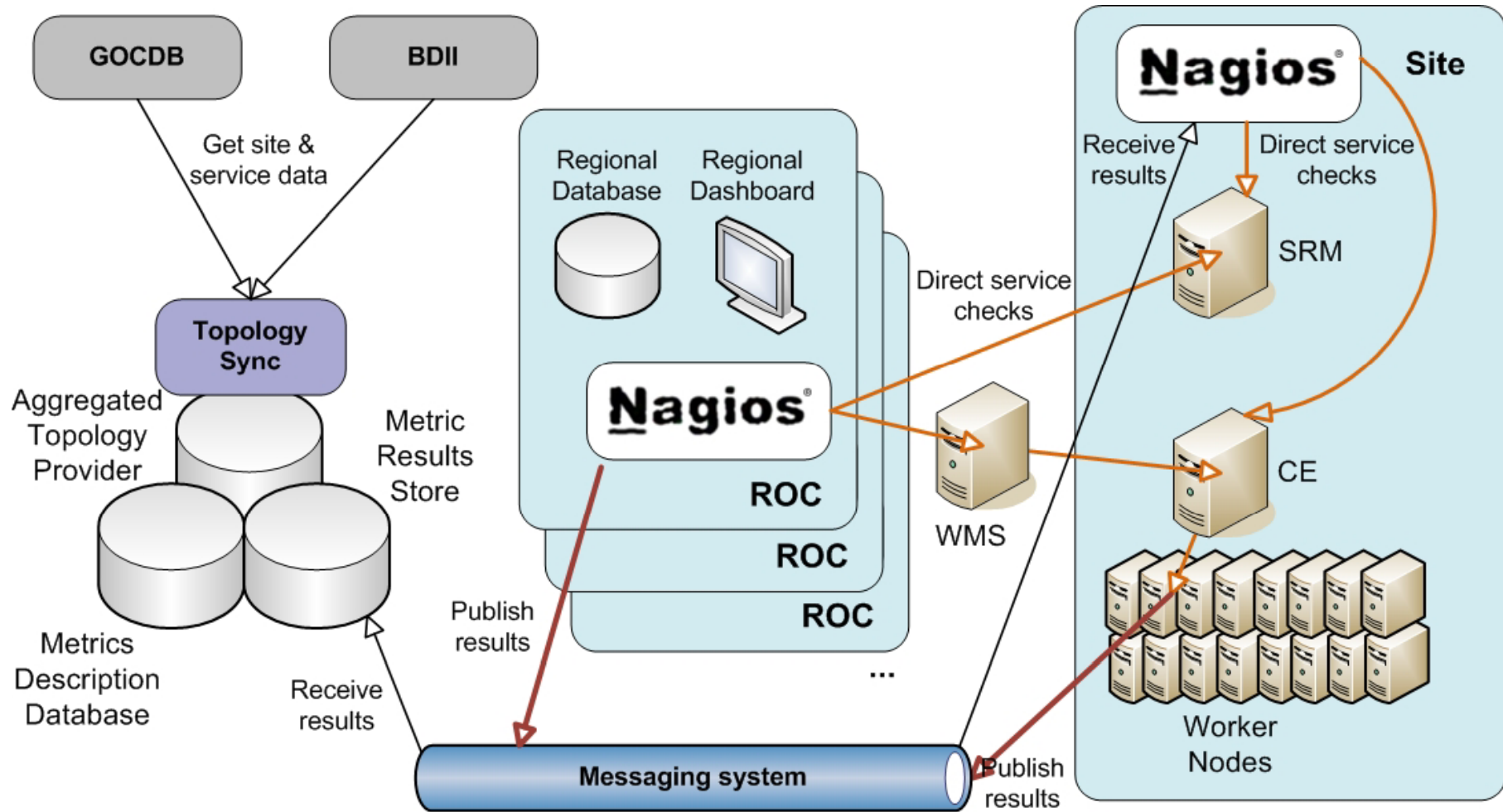
What do we have today?



- **Long time before site admins are alerted to problems**
 - Run tests locally, with local alarms
- **Sites are blind if central monitoring fails**
 - Provide sites with local monitoring tools
- **Possible scaling issues if number of services increases significantly**
 - Introduce regional monitoring instances

- **During SAM outages, test results are lost**
 - Use ActiveMQ messaging technology
- **No history of grid topology**
 - Develop Aggregated Topology Provider (ATP)
- **Non-flexible availability calculations**
 - Develop Metrics Description Database

What are the limitations & possible solutions?



- **We've adopted Nagios for site monitoring**
 - YAIM-installable Site Nagios package already used at 30 sites
 - Autoconfigures (NCG)
 - Standard set of probes provided
 - SAM tests fed into site Nagios (passive checks)
 - Subset of SAM sensors already converted to Nagios probes
- **Regional Nagios package also developed**
 - Pnp4nagios and NDOUtils added to standard package
- **Test-bed of 11 Regional Nagios servers at CERN**
 - Feeding a new instance of current SAM DB (already there)

- **We're using Active-MQ messaging technology**
 - Consume2oracle developed
 - Regional Nagios re-publishes test results on Message Bus
 - Stay tuned for James's talk
- **GridView/SAM topology objects separated**
- **SAM Database exposed to Nagios for use by NCG (VO mappings, BDII and GOCDB)**
- **Downtimes & user roles from GOCDB fed to Nagios instances**

- **ROC-level Nagios based monitoring available**
 - Configured from Metric Description Database and ATP
 - ‘SAM Portal’ level of visualization complete
 - April 2009

- **ROC level Nagios based monitoring available**
 - Feeding a new central metric store
 - Submission framework fully uses ATP
 - Central metric store result visualization (SAM Portal/gridview)
 - July 2009

- **By using commodity software and interfaces we provide more robust solutions**
- **Original architecture realigned to encompass organizational changes**
- **We provide the means for sites and ROCs to better monitor their grid services**
- **We provide a solution that scales from the site-level upwards**

- **OAT web page**
https://twiki.cern.ch/twiki/bin/view/EGEE/OAT_EGEE_III
- **OAT Multi-level monitoring architecture**
<https://twiki.cern.ch/twiki/bin/view/EGEE/MultiLevelMonitoringOverview>
- **OAT Milestones**
<https://twiki.cern.ch/twiki/bin/view/EGEE/MultiLevelMonitoringMilestones>
- **Operations Automation Strategy**
<https://edms.cern.ch/document/927171>

Thank You!

Questions?