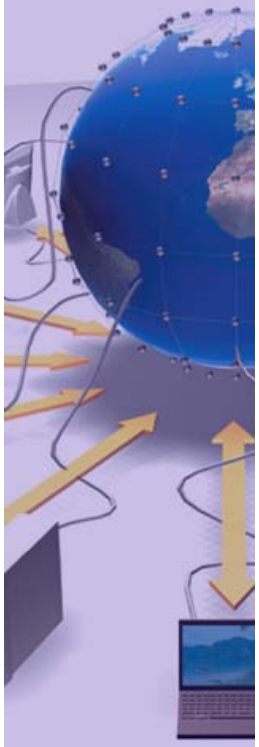

A Strategy for WLCG Monitoring

GDB

CERN, 4th March 2008

James Casey

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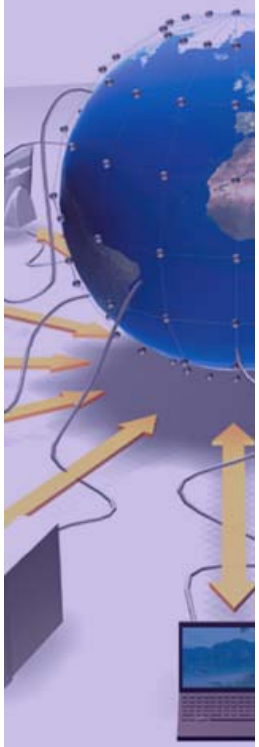
The WLCG Monitoring Vision



Show stakeholders the state of the global WLCG infrastructure, and its historical evolution, in order to improve the availability and reliability of this infrastructure

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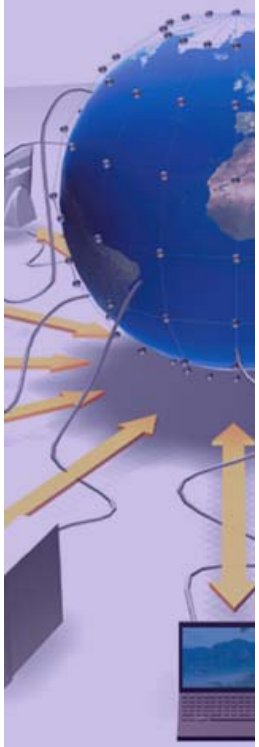
Strategy in one line

Combine information from the many existing monitoring, accounting and reporting systems in a coherent way and pass it to all interested parties



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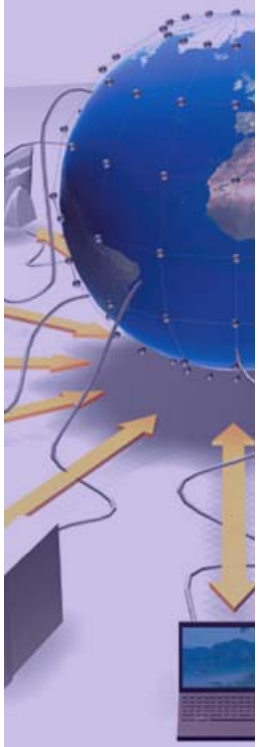
Strategy in four lines



- Converge to standards, but without a big bang
- Leverage the underlying infrastructures rather than layer lots of systems on top
- Modular and loosely coupled to adapt to changes in infrastructure and funding models
- Reduce maintenance/development costs by using commodity components where possible

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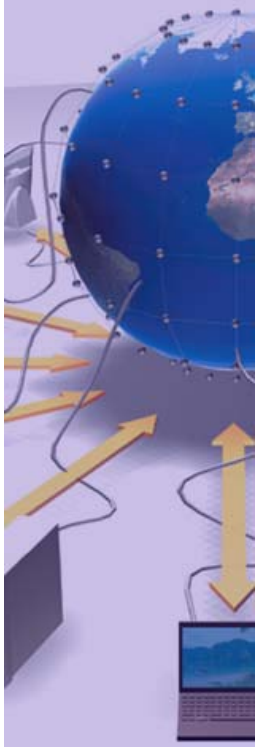
Converge to standards, but without a big bang



- The starting point is what we have now:
  - Availability testing framework – SAM/RSV
  - Job and Data reliability monitoring – Gridview
  - Grid topology – GOCDB/Registration DB
  - Dynamic view of the grid – BDII/CeMon
  - Accounting – APEL/Gratia
  - Experiment views – Dashboards
  - Fabric monitoring – Nagios, LEMON, …
  - Grid operations tools – CIC Portal
- They work together right now
  - To a certain extent !

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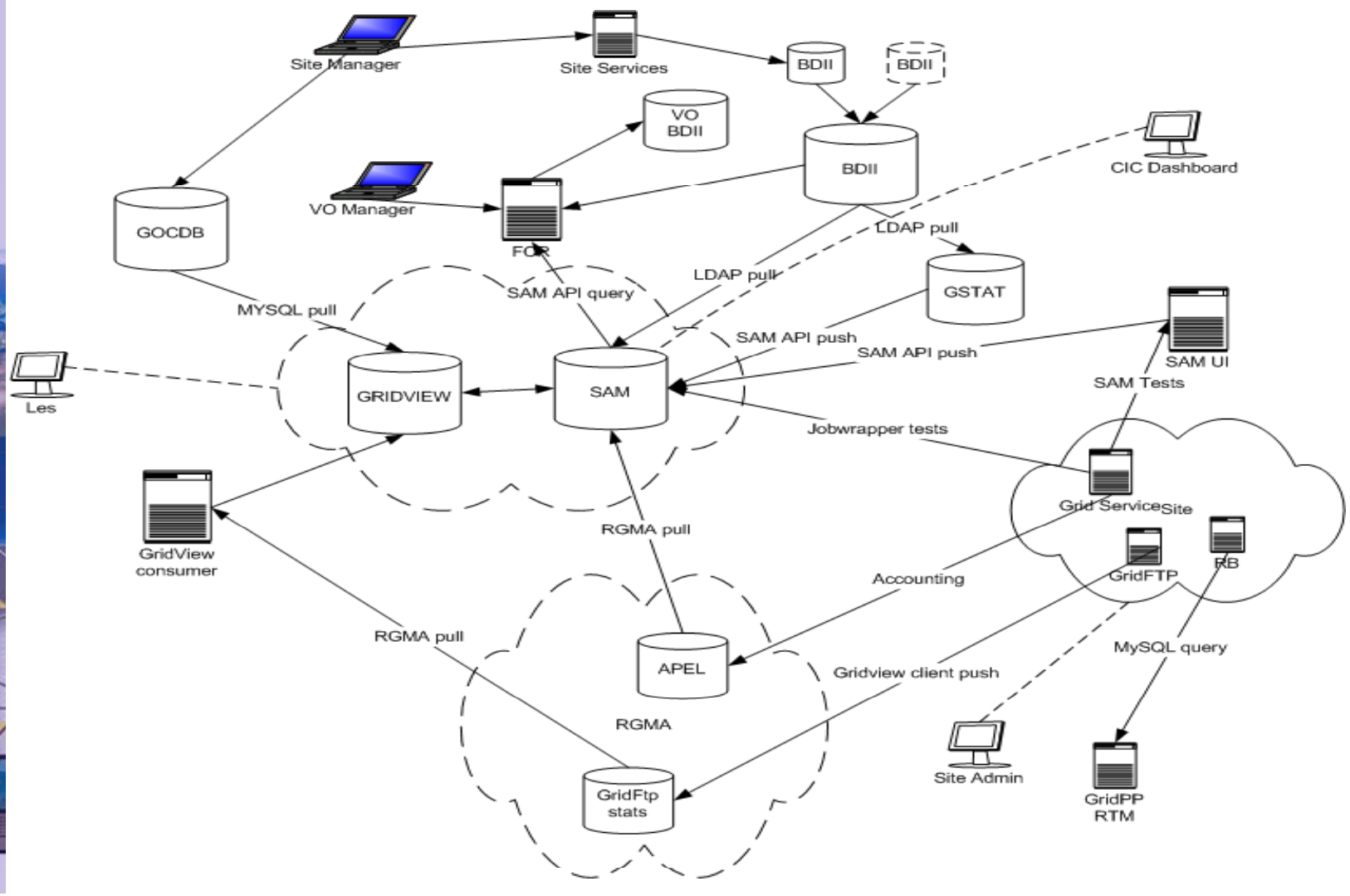
We've got an integration problem !



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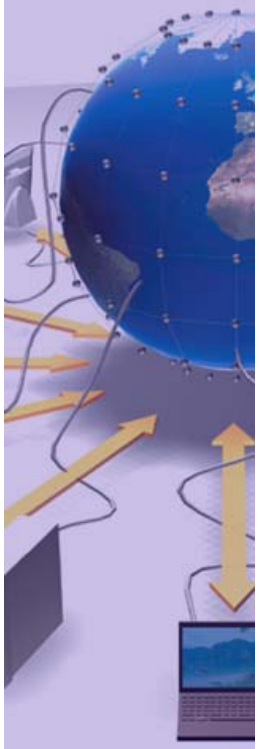
MoM has the answer…



- We need:
  - Loose coupling of systems
  - Distributed components
  - Reliable delivery of messages
  - Standard methods of communication
  - Flexibility to add new producers and consumers of the information without having to reconfigure everything
- Message Oriented Middleware provides this
  - And is widely used in similar scenarios

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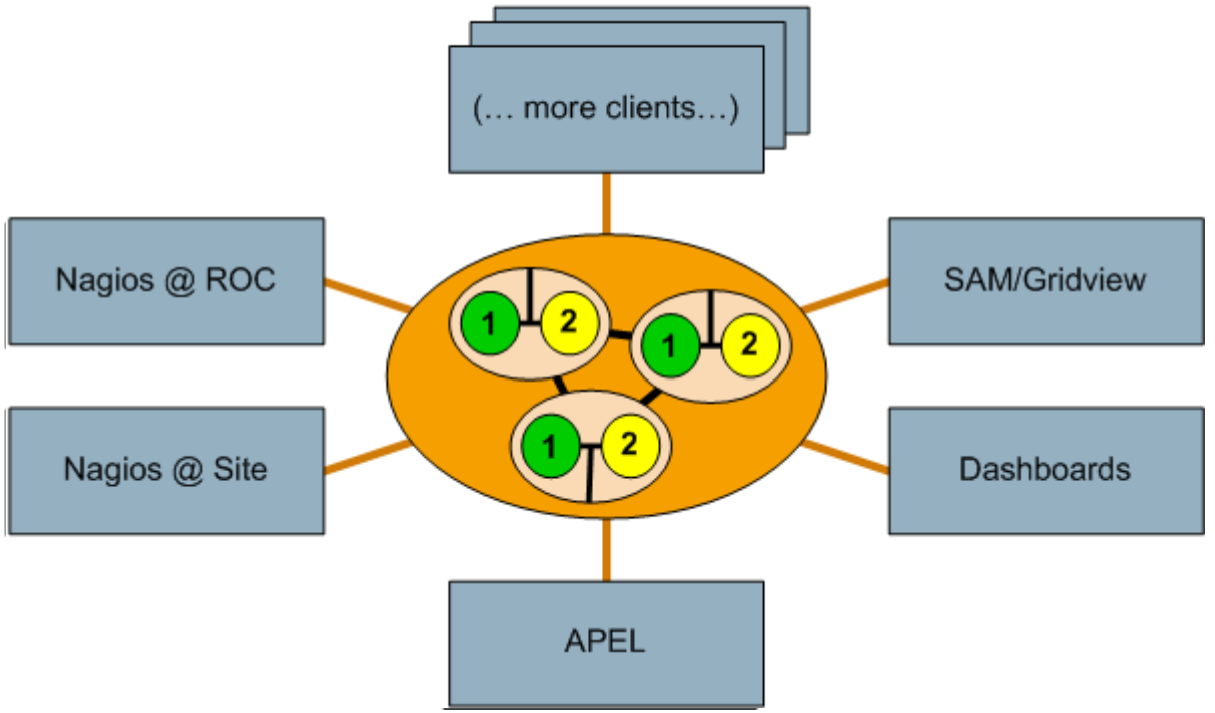
Broker at the centre ..



Reliablity and persistence of messaging built into the broker **network**

Mitigates the single point of failures we've had with previous solutions

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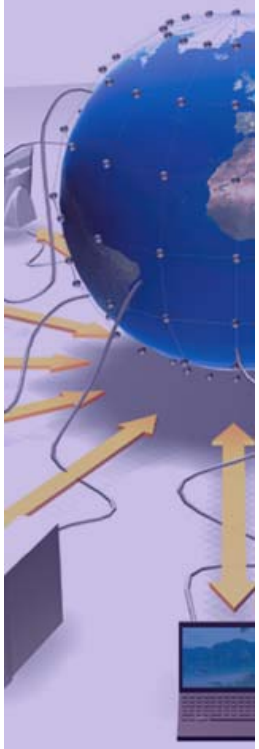
… or some of them…



- Not a silver bullet
  - Still can end up with spaghetti
- Tight specification of interaction of components
  - Message format specifications
  - Standard metadata schema
  - Message Queue naming schemas
  - Protocols
- Some worked examples in the next talk …

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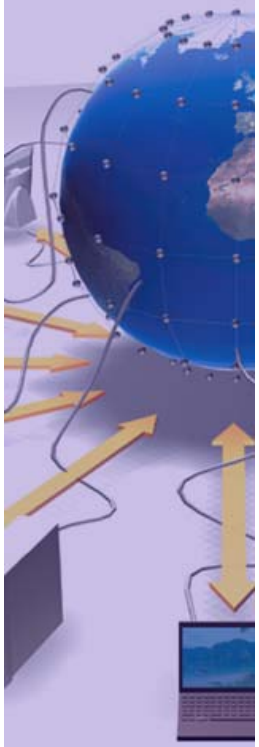
Leverage the underlying infrastructures



- The WLCG WG uses the effort from OSG and EGEE to improve monitoring for all
  - Nagios from EGEE CEE
  - SAM from EGEE CERN
  - RSV/Gratia from OSG
- The “added value” is from the interoperation and exchange of components between the systems
  - E.g. interchangable probes
- Our MoUs should be defined related to the SLA/MoU of the infrastructures

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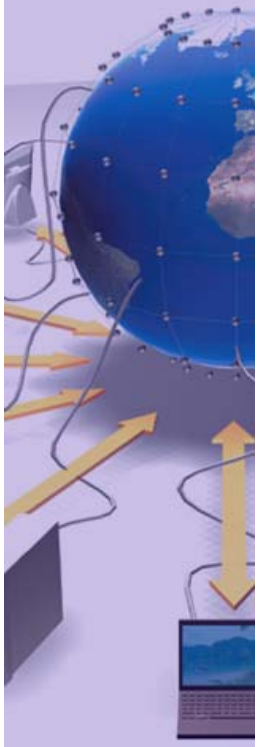
Adapt to changes in infrastructure funding models

- European model is moving towards regional management
  - Even before EGI, EGEE COD and ROCs moving to a model with ROCs doing more regional monitoring
- OSG is already a “NGI”
  - Good early use-case for WLCG monitoring work of separate infrastructure doing their own monitoring but working within the WLCG framework



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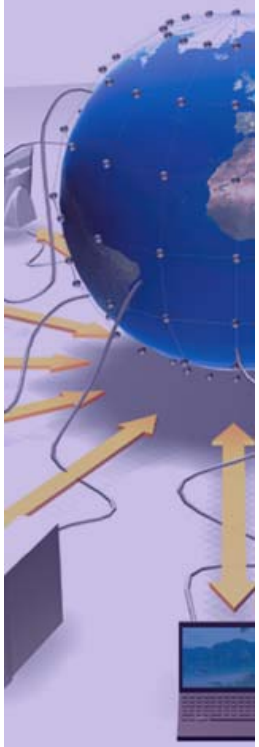
=> Distribute where possible



- Strategy is:
  - Distribute responsibility to regional level and below where possible
    - Closer to the source of the problem to reduce response time
  - Provide a toolset for the regional teams
    - But allow for regional flexibility via protocols and standards
    - E.g. OSG can use a different monitoring software stack, but still interoperate for WLCG reporting

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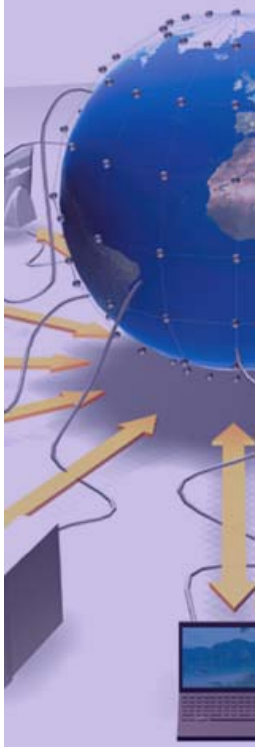
Leverage commodity components where possible



- Many custom systems
  - Often for very special use-cases
  - Or the “special” environment we have
- If we (perhaps) sacrifice some specific functionality can commodity software solutions work for our environment ?
- Examples are
  - Nagios as an general execution environment
  - Messaging systems (ActiveMQ) as general transport bus
  - Business Intelligence systems (JasperReports) for reporting

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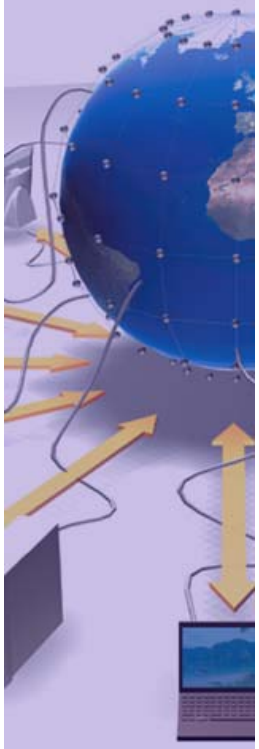
Summary



- This gives a very high level overview of
  - where we're going
  - how we might get there
- Result of experiences gained during the running of the WLCG Monitoring WG
- Based on the 'Architectural Principles' previously presented
- Next is how this strategy impacts the actual systems
  - And what work there is to do…

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