Information & Monitoring Services

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WP3

Introduction

- WP3 Overview
  - Dependencies
  - Boundaries
  - Redundancy/Duplication
  - Holes
  - Planning
- R-GMA
- GRM/PROVE

Dependencies

- dependencies on external software & components provided by other WPs

jdk
Xerces-J
Xerces-C
JavaCC
w3c-libwww
junit
log4cpp
MySQL

~~Tomcat~~
~~Ant~~
$\Rightarrow$ JWSDP

alien
doxygen
transfig
graphviz
} used for documentation

Spitfire security

Boundaries

- vagueness of boundaries or responsibilities between WPs
  - MySQL – WP1 WP2 WP3
  - Tomcat (server.xml) – WP2 WP3

Redundancy/Duplication

- redundancy or duplication that may exist between components and or WPs
  - Logging and bookkeeping
    - use of R-GMA achiever

Holes

- perceived "holes" or gaps in provided functionality that seem to fall outside the responsibility of any component or WP

  none

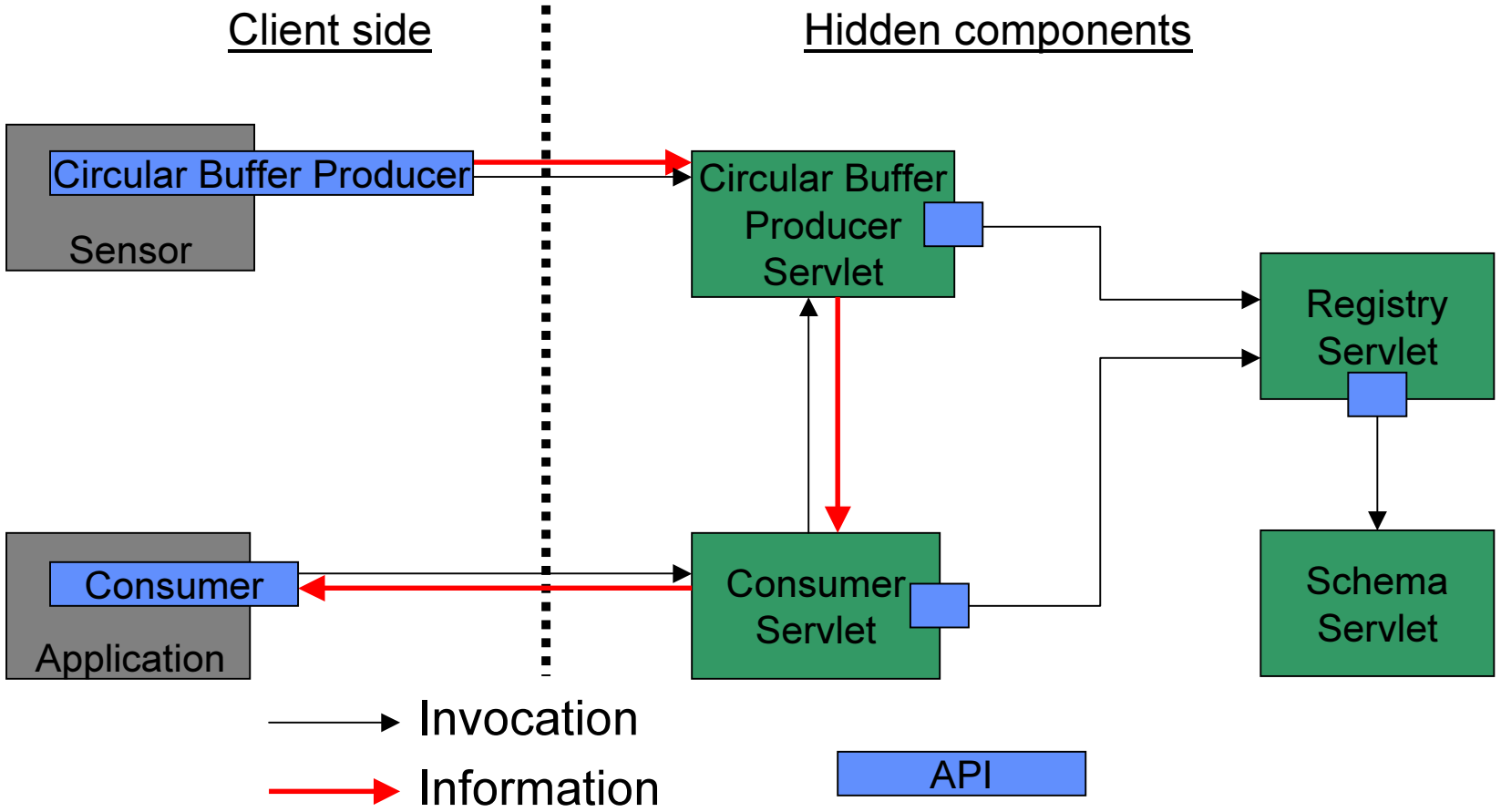
Planning

- look forward at what is needed for the EDG testbed 2 in Autumn 2002
  - R-GMA web service compliant by release 2
    - changes in API naming conventions
- take into account developments in Globus (OGSA) and the US related Grid activities
  - Still a moving target
    - internal changes
  - Future of LDAP within Globus is uncertain

R-GMA

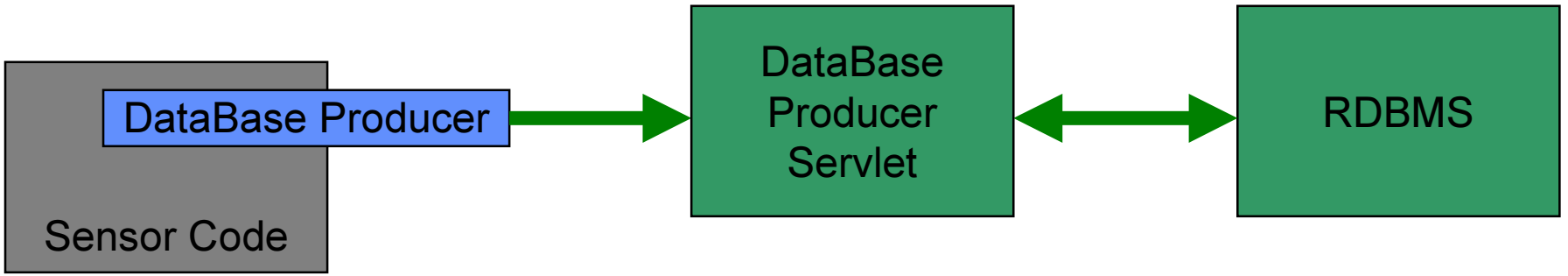
- Relational Grid Monitoring Architecture
  - A relational implementation of the GGF's GMA
  - Based upon Java servlets
  - Consists of Consumers, Producers and a discovery service

R-GMA - The Producer Consumer Model

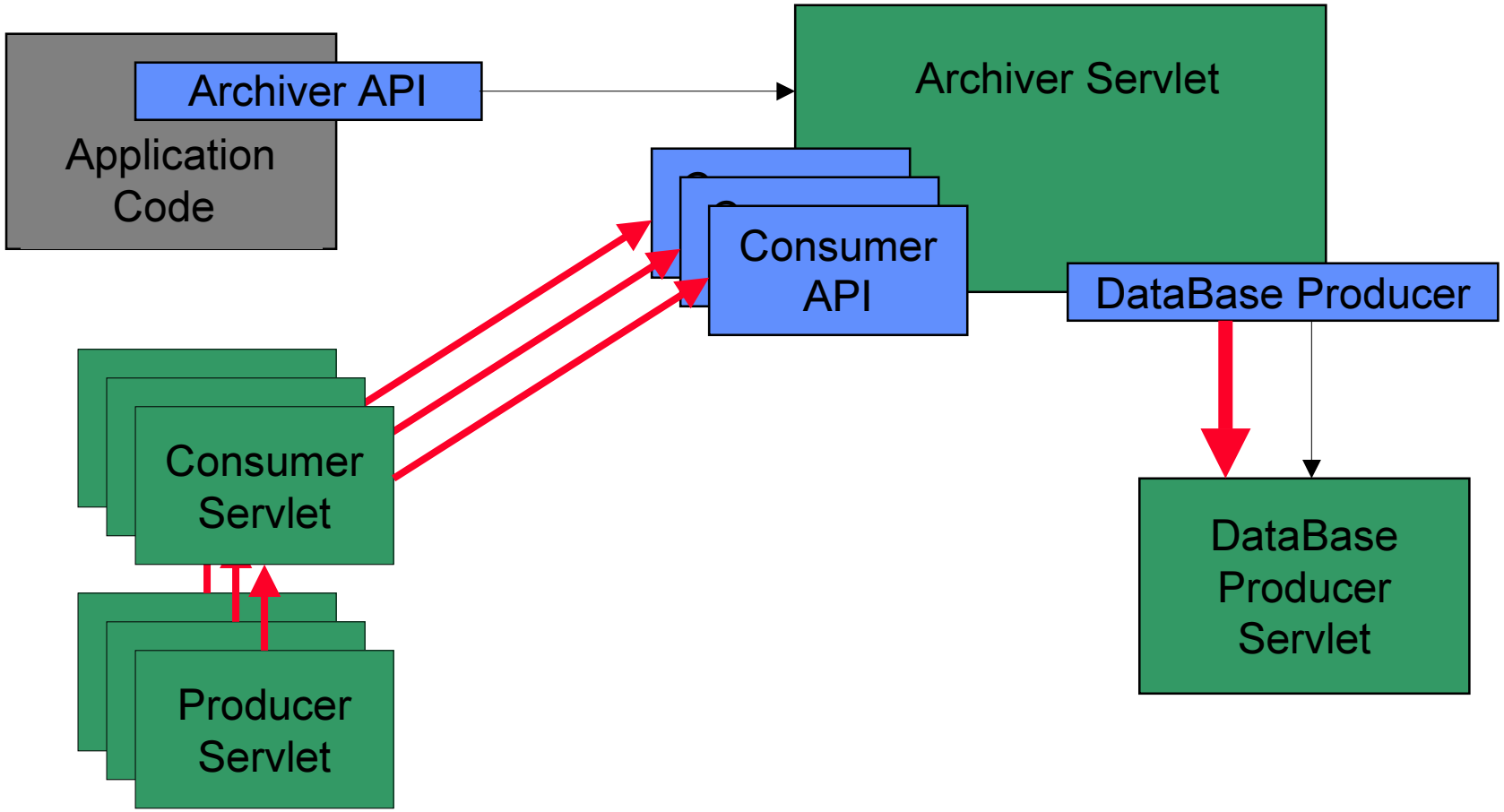


R-GMA DataBase Producer

- Uses a RDBMS to avoid data loss
- Consumer cannot tell the difference
- Data inserted like a Circular Buffer Producer
- Can produce more than one table



R-GMA Archiver: Producer/Consumer Utility



R-GMA Use Case

- at RAL a producer would publish a table of RTT measurements

SiteA	SiteB	Tool	Measurement
RAL	Lyon	Pinger	1500
RAL	CERN	Pinger	800
RAL	…	…	…

- CERN and Lyon would contribute further views where site A was Lyon or CERN
- conceptually all of this information is held in a single table

R-GMA Use Case

- StorageElement

SEId	Site	Diskfree
RAL_S1	RAL	100
Lyon_S1	Lyon	200
CERN_S1	…	…

- ComputingElement

CEId	Site	LRMS
RAL_Q1	RAL	PBS
CERN_Q1	CERN	LSF
Lyon_Q1	…	…

R-GMA Use Case

- `SELECT C.CEId, S.SEId, R.Measurement FROM ComputingElement C, StorageElement S, RTTMeasurement R WHERE C.Site=R.SiteA AND S.Site=R.SiteB AND R.Measurement < 1000`

- ResultSet

CEId	SEId	Measurement
RAL_Q1	CERN_S1	800

GRM/PROVE

- developed by SZTAKI

  originally for monitoring parallel programs in a cluster environment
- GRM/PROVE similar to Netlogger
- GRM

  provides C API for application monitoring
- PROVE

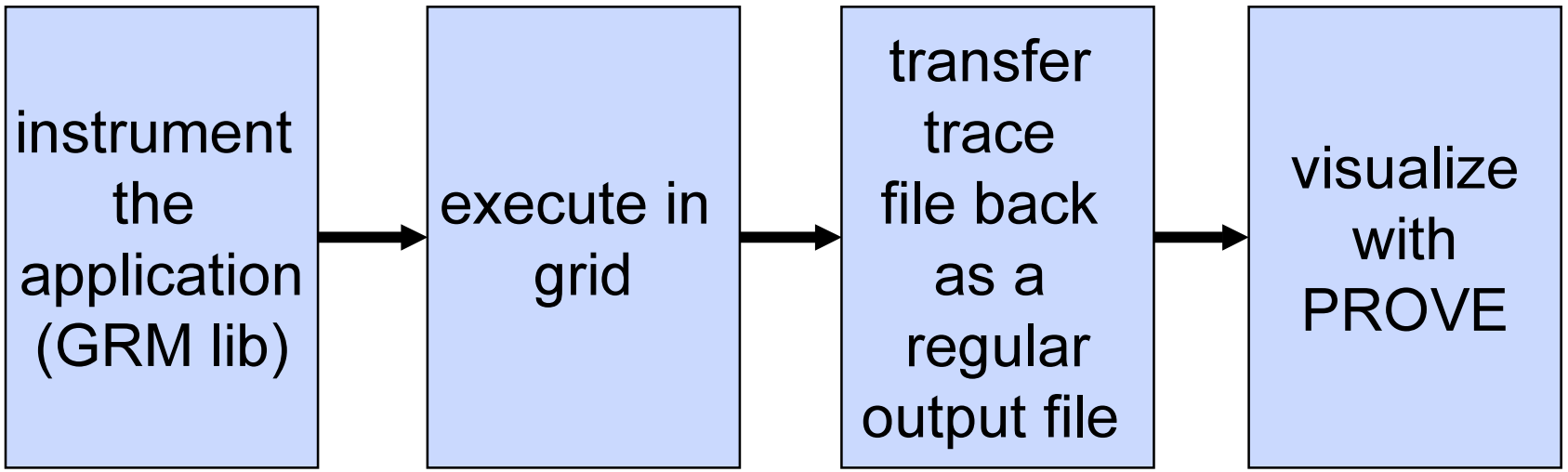
  visualisation tool

GRM

- produces statistics about different processes and blocks of code which are written to a trace file
- at present the trace file is passed back for interpretation at the end of the job
- the incorporation of R-GMA will allow semi online visualization

CLRC

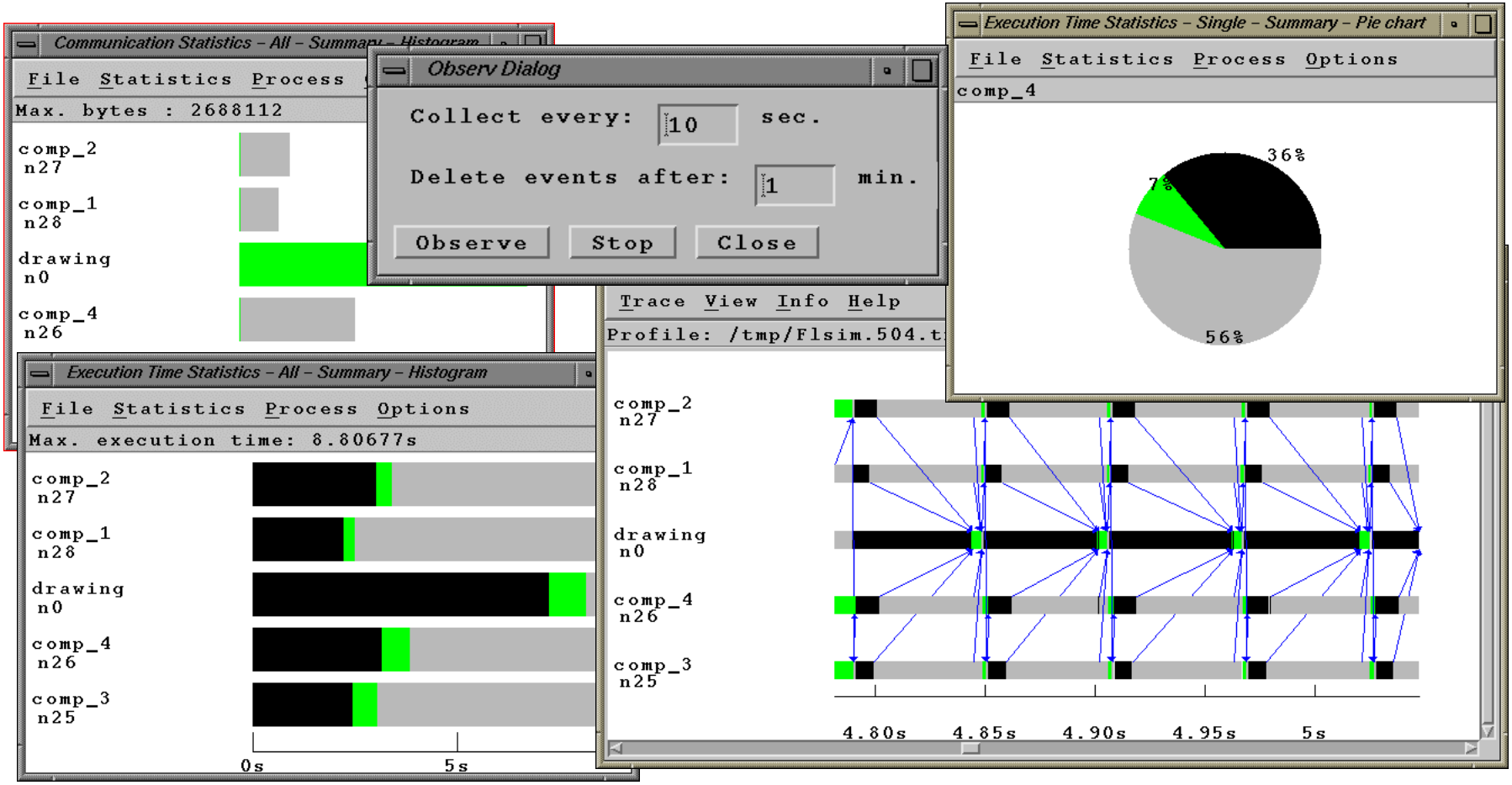
GRM/PROVE


instrument the application (GRM lib)
execute in grid
transfer trace file back as a regular output file
visualize with PROVE

PROVE

- Statistics some of which are not meaningful for one process applications
  - execution time for all processes
  - execution time for individual processes
  - execution time for a single process
  - amount of communications for all processes

PROVE


Communication Statistics – All – Summary – Histogram
File Statistics Process
Max. bytes : 2688112
comp_2 n27
comp_1 n28
drawing n0
comp_4 n26
Observ Dialog
Collect every: 10 sec.
Delete events after: 1 min.
Observe Stop Close
Execution Time Statistics – Single – Summary – Pie chart
File Statistics Process Options
comp_4
36%
7%
56%
Execution Time Statistics – All – Summary – Histogram
File Statistics Process Options
Max. execution time: 8.80677s
comp_2 n27
comp_1 n28
drawing n0
comp_4 n26
comp_3 n25
0s
5s
Trace View Info Help
Profile: /tmp/Flsim.504.t
comp_2 n27
comp_1 n28
drawing n0
comp_4 n26
comp_3 n25
4.80s
4.85s
4.90s
4.95s
5s

Further Information

http://hepunx.rl.ac.uk/edg/wp3/documentation/index.html