

# SuperBelle Data Handling with AMGA

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SuperBelle Computing Meeting, 2009.04.17

## Overview

- 1 Current status in Belle
- 2 What is AMGA?
- 3 Examples of AMGA Application Fields
- 4 Benefit using AMGA in SuperBelle
- 5 Resources of KISTI for Data Handling system
- 6 Summary and next plan

- There is the Data Handling system based on PHP, HTTP and postgresSQL in Belle

- To find the data, the Belle users use the Belle File Searching Engine.
- check\_process\_url is used for analysis based on HTTP.
- The skim tool is in basf.
- There has been already a Data Handling system in Belle.

- However, there is some problems.

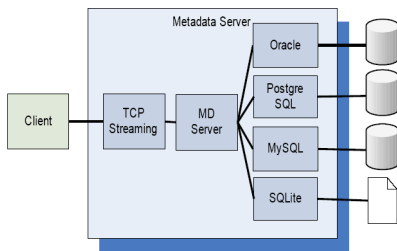
- Sometimes, the postgresSQL had been dropped.
- The drop is due to overload. → We will get more massive overload for SuperBelle.
- We consider that system should be adapted to GRID.
- KISTI proposes the way to solve the problems with AMGA.

- Belle File Searching Engine Ver 3.20

The screenshot displays the Belle File Searching Engine Ver 3.20 interface. It includes a search bar with fields for 'Exp. No.', 'Run Range', 'Data Type', and 'Data Type'. Below the search fields, there is a section for 'Recent updates to the database' listing various Belle data releases and their availability status. A 'Recommended dataset for analysis' section is also visible, listing specific Belle data releases. The interface is presented in a web browser window.

## What is AMGA?: (Reference:www.eu-egee.org)

- AMGA is the Meta-data catalog of EGEE's gLite 3.1 Middle-ware.
  - Meta-data is relationally structured data for Grid jobs stored in databases.
- The AMGA service provides access to relational Data bases on the Grid, taking into account:
- The AMGA features:

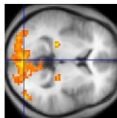


- Authentication(Grid-Proxy certificates, VOMS)
- Logging, tracing
- DB connection pooling
- Replication of Data
- Use of hierarchical table structure
- ..the Grid idea.

# Examples of AMGA Application Fields.

- 1 Medical Data Management(Spain)
  - 2 Climate Research(Germany)
  - 3 High Energy Physics(LHCb)
  - 4 Digital Library(Italy)
- AMGA is used in many fields with the stability.
  - AMGA Application Fields:

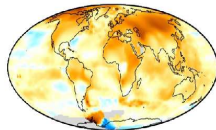
Medical Data Management



High Energy Physics



Climate Research

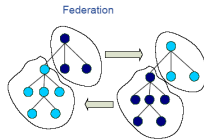
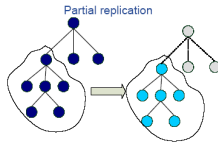
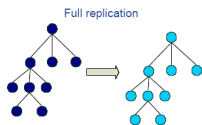


Digital Library



# Benefit from using the AMGA in SuperBelle.

- 1 AMGA can improve the Data Handling system for the overload.
  - AMGA integrates replication of meta-data.
    - Asynchronous replication
    - DBs are consistent(transactions supported)
    - However, Not all DBs necessarily in same state.
  - Replication makes use of hierarchical table structure.
  - Good Performance and Scalability.
- 2 SuperBelle will support the Grid → the AMGA is included in [grid middle-ware,gLite 3.1.](#)
- 3 We can make the new Data Handling system of SuperBelle in Grid.
  - AMGA replication makes use of hierarchical concept:



- 1 There are plenty of man-power in KISTI.
  - High Energy Physics Team: Physics
    - Design, Plan, Federation of AMGA in SuperBelle framework
    - Kihyeon Cho, JungHyun Kim
  - e-Science Grid technology Development Team:
    - AMGA software development
    - Technical Support
    - Tutorial
    - Soonwook Hwang, sun-Il Ahn, Namkyu Kim and 4 more people
  - National Scientific Data Center Team:
    - Development/Operation of Belle farm and SuperBelle farm, etc.
    - Haeng Jin Jang , BeobKyun Kim and 5 more people
- 2 Computing Resources
  - Belle farm:100 CPU
  - FKPPPL farm:5000 CPU
  - UI-machines, 15TB(to be prepared)
- 3 Network[KISTI-HongKong-KEK]
  - Stable
  - Latency(100ms) → We have a routing problem between HongKong-KEK.

### Summary

- 1 Carefully, we propose to make a Data Handling system with AMGA.
- 2 AMGA have a good stability, performance and scalability.
- 3 We have a lot of resources and man-power at KISTI.
- 4 We hope to have a chance of making the prototype at KISTI.

### Next step

- 1 We will develop the prototype using Belle Lib(by June)
- 2 Upon SuperBelle platform, We will develop the prototype of SuperBelle data handling.

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AMGA on Belle Lib	< - - - - - >		
AMGA on SuperBelle		< - - - - - >	