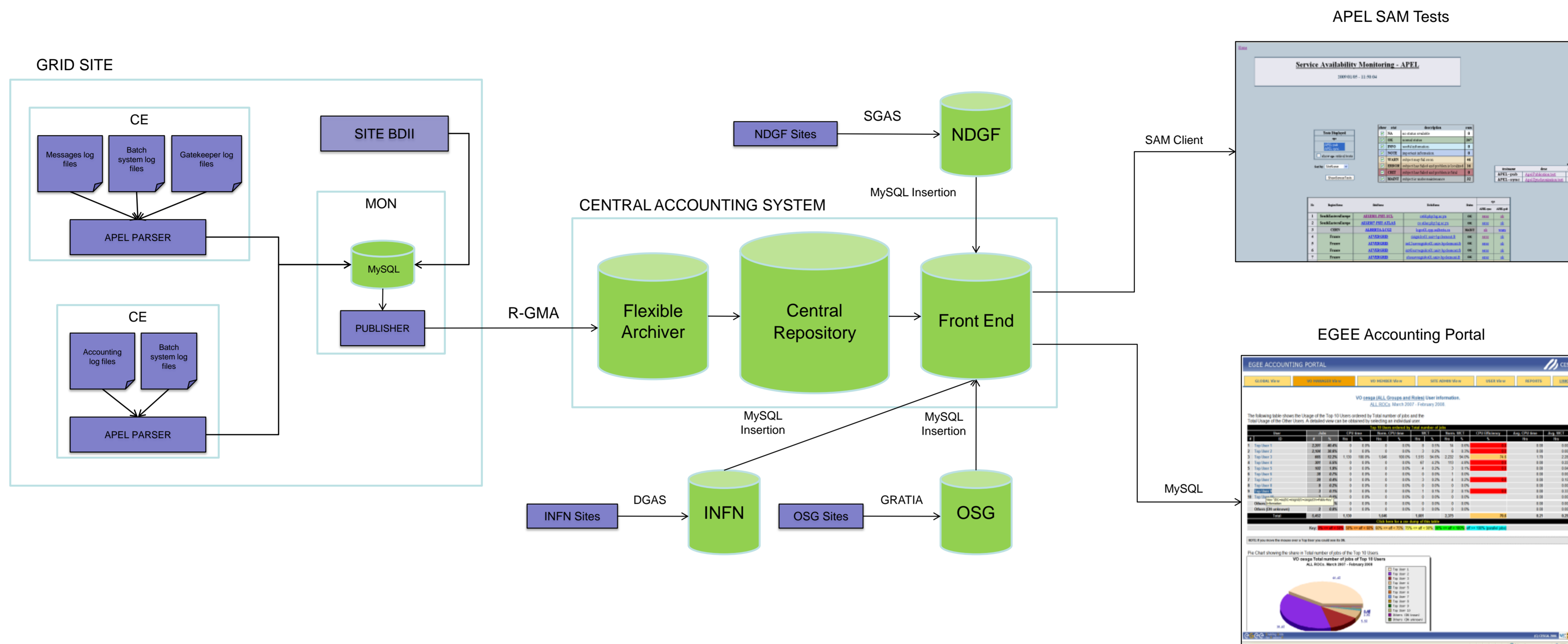# A Distributed CPU Usage Accounting Infrastructure Based on ActiveMQ Messaging System

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The Centralised EGEE CPU Accounting System

The EGEE CPU accounting system in production is a large centralised database that collects, aggregates and stores CPU usage information. It contains around 400 million records of individual jobs and site summaries for more than 350 sites across EGEE, OSG and NDGF Grids since 2003. The accounting system supports access to accounting information from the EGEE Accounting Portal.

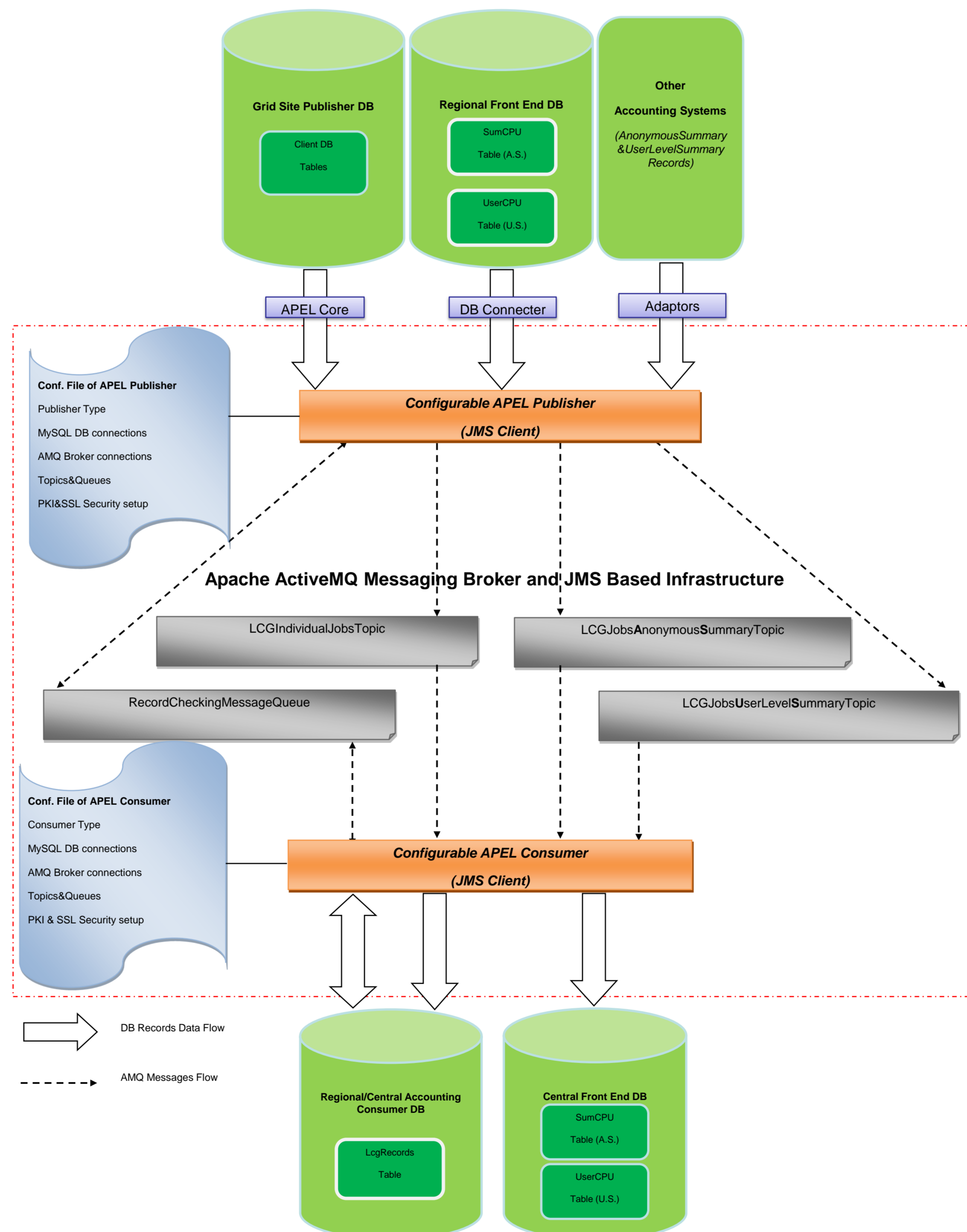## A New Distributed Accounting Infrastructure

A distributed accounting infrastructure is being designed and implemented based on modifications and extensions to the records transport mechanism of APEL (Accounting Processor for Event Logs) tool to support a robust accounting capability at a NGI level and flexible across VOs accounting records queries.

Messaging Model and Apache Message Broker Based Design and Implementation

- General topic publication and subscription messaging model
- Distributed components to publish and subscribe messages to/from a well defined topic (virtual destination and source of messages)
- Utilises the Apache ActiveMQ message broker with security setup(PKI+SSL A&A)

Impact of the New Infrastructure

- Multiple levels of publication is supported (country -> region -> central)
- Different regions use a unified publication interface
- No significant operational changes on client side publication
- A region optionally sets up its local Accounting Server or uses the Central Accounting Cache
- Potential interoperability and integration with other ActiveMQ based middleware

A Central Accounting Cache

- Accounting Consumer: Message Broker, Record Message Consumer and MySQL database containing recently published records (~3 days)
- Central Repository: MySQL database containing all individual records and processing scripts
- Front End: APEL Publisher, MySQL database containing aggregated accounting summary records, and processing scripts

Accounting Use Cases

Region A: APEL sensor - non regionalised
Region B: APEL sensor – regionalised
Region C: Other sensor - own accounting system