The WLCG Messaging Service and its Future

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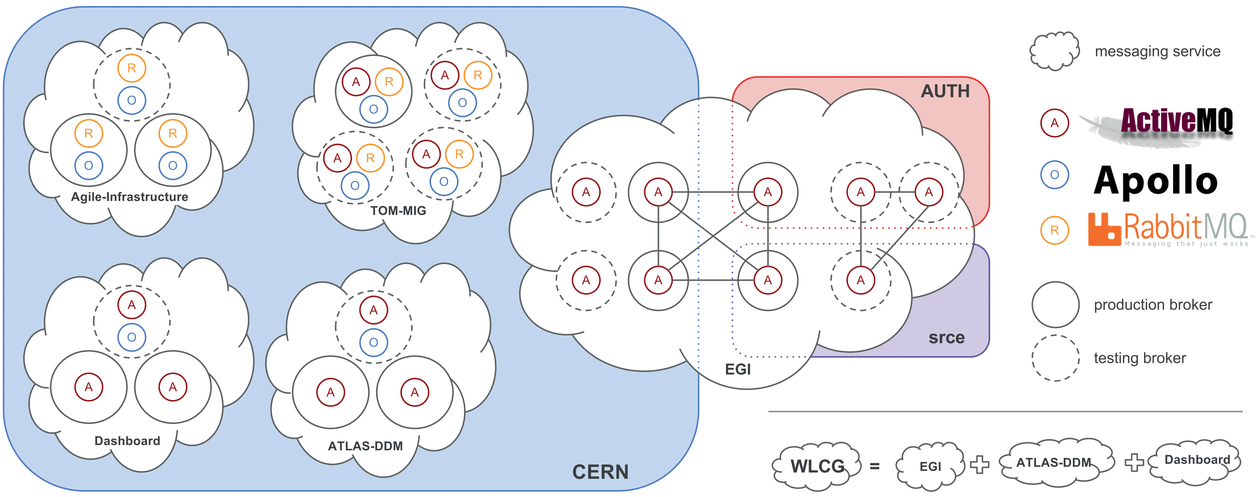
Messaging services

Used in all WLCG sites, ~50k messaging clients from all over the world, can sustain 100k msg/s (or more, depending on the use case)



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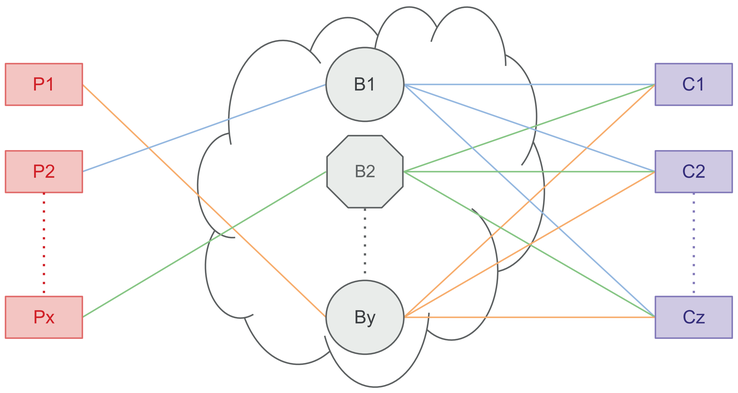
WLCG messaging roadmap: improving security, scalability & reliability

- authenticate all messaging clients
- authorize only what is required (deny all by default)
- audit the broker activity
- use application level security

- use dedicated messaging services
- scale each service according to its requirements
- loosely connect the services that need to exchange messages

- use standalone brokers instead of tightly coupled ones
- get rid of single point of failures
- build more reliable messaging clients

Dedicated messaging services made of independent brokers

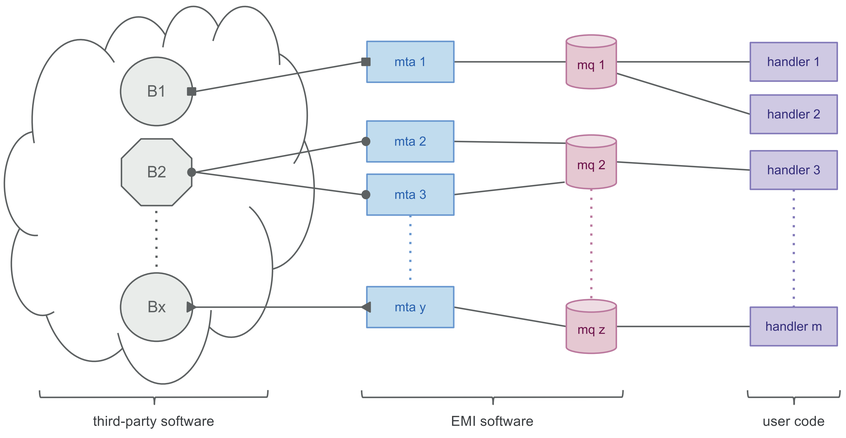


P1, P2, ... Px:
any number of producers, connecting to ***any*** broker, for instance using round-robin

B1, B2, ... By:
any number of brokers, potentially of different technologies

C1, C2, ... Cz:
any number of consumers, each connecting to ***all*** brokers

Reliable and scalable messaging applications using reusable blocks

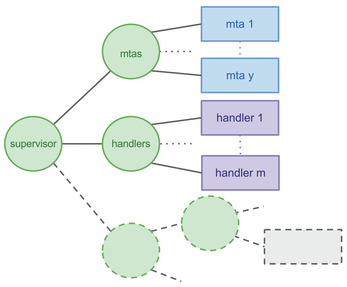


mta 1, mta 2, ..., mta y:
any number of Messaging Transfer Agents, potentially using different messaging protocols (STOMP, AMQP...)

mq 1, mq 2, ..., mq z:
any number of Message Queues, potentially on different file-systems for better performance

handler 1, handler 2, ..., handler m:
any number of application specific handlers, interacting with the messaging service solely using the MQ's API (simple and robust)

Reliable services through supervised components



proven concept (Erlang/OTP)
- workers do the actual work
- supervisors monitor the workers
- all are defined in a supervision tree

flexible implemenation available (simplevisor)
- non intrusive
- handle service evolution

For more information

https://cern.ch/messaging-chep2012

EMI is partially funded by the European Commission under Grant Agreement RI-261611.