The WLCG Messaging Service and its Future
Lionel Cons, Massimo Paladin
CERN - European Organization for Nuclear Research, CH-1211 Geneva 23, Switzerland

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)

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

WLCG messaging roadmap: improving security, scalability & reliability

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

Dedicated messaging services made of independent brokers

P1, P2, ..., P: 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 implementation available (simplevisor)
- non intrusive
- handle service evolution

For more information
https://cern.ch/messaging-chep2012