The CONVERGENCE Communication Bus

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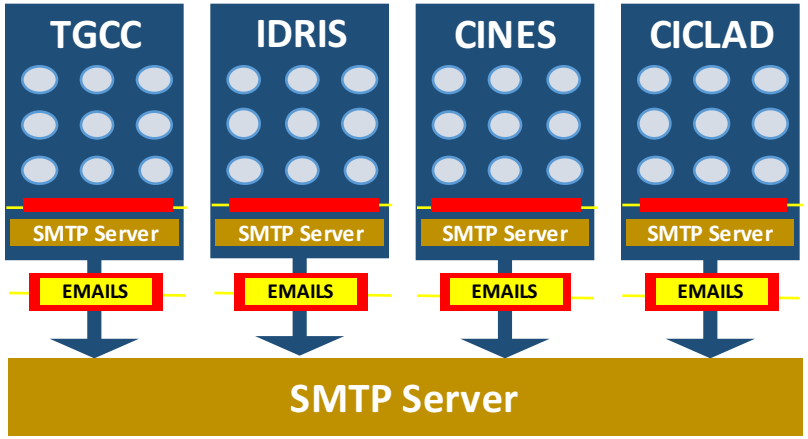
The IPSL runs highly complex climate simulations upon a heterogeneous set of HPC environments. A distributed messaging platform has enhanced the power of the IPSL's simulation runtime library. A growing & diverse set of applications are benefitting from the platform's ability to centrally aggregate indicators & metrics in near real-time. Now that processes requiring fall-back procedures can be detected, the next step is to agree with the super-computing centres how to execute such fall-back procedures remotely.

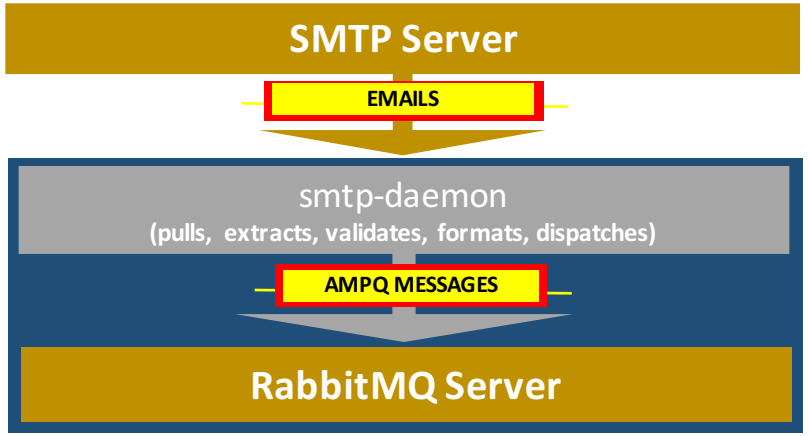
1. Message dispatch from HPC's

Simulations emits messages that are emailed in batches



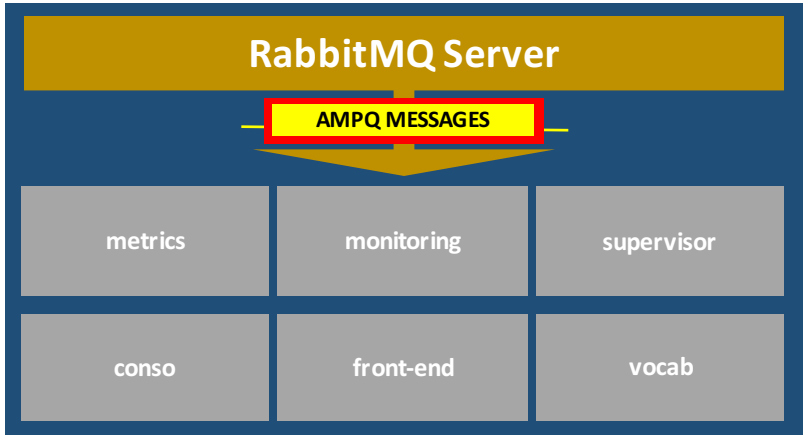
2. Message enqueuing at IPSL

Messages batches are extracted from emails & enqueued



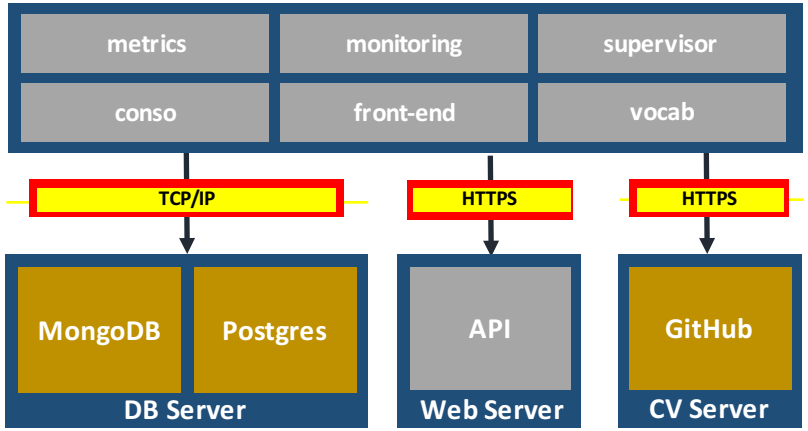
3. Message dequeuing at IPSL

Application specific daemons dequeue messages



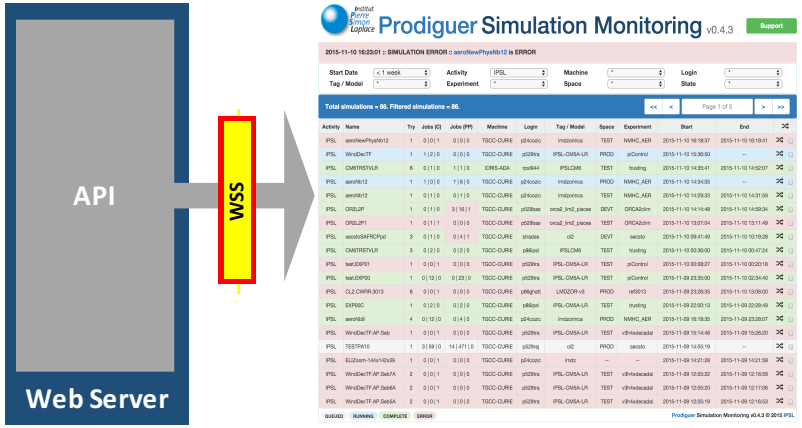
4. Message processing at IPSL

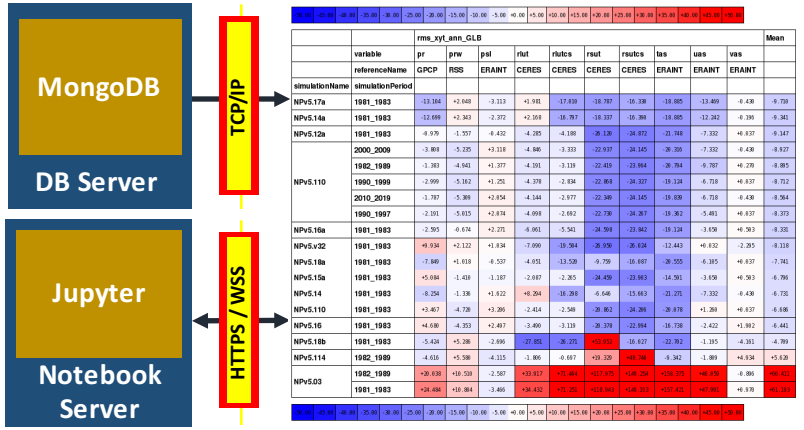
Messages processing is diverse & takes several forms



5. Applications are notified in real-time

Push notifications are sent over secure web-sockets



6. Jupyter notebooks complete the picture

Notebooks leveraging Prodiguer resources empower users