



**TUESDAY -
WEDNESDAY
JULY 13-14**

ORGANISERS



**• virtual
event •**

RabbitMQ Team Update

July 2021

Introductions



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Product Lead



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RabbitMQ Offerings

Containerized
environments

VMware Tanzu
RabbitMQ for
Kubernetes

VMware Tanzu
RabbitMQ (container
image)

VMware Tanzu
RabbitMQ for VMs

Cloud Foundry

RabbitMQ

 Open source

 Commercial

RabbitMQ 3.9 RC is out now



Industry Themes

- Scalability
- Observability
- Stability and Resiliency
- Ease of use

RABBITMQ CORE UPDATES

SCALABILITY

- [Streams](#) (append-only logs)
 - Non-destructive consumer semantics
 - Enables message replay and massive fan-out
 - Much higher throughput with a new protocol but also compatible with AMQP 0.9.1
 - **Dedicated session at 12:50PM PST / 21:50 CEST today**
- Erlang 24 with JIT (25-50% performance improvement)
 - RabbitMQ 3.8.16+ required

STREAMS - UPCOMING

- Competing consumers
- More client libraries (eg. Go)
- Partitioned Streams - a way to scale Streams further by partitioning a single “virtual” Stream into multiple actual Streams

CLASSIC QUEUES

- WORK IN PROGRESS

- [New classic queue index and message store](#)
 - Memory usage reduced by 50%
 - Latency reduced by 50%
 - Double the throughput for classic queues
 - Predictable memory usage
 - Paves the way for simplified internal classic queue implementation

QUORUM QUEUES - WORK IN PROGRESS

- Per-message TTL
- Safe dead-letter exchange
- Lower memory usage

OBSERVABILITY

- [Seshat Counters Library](#)
 - Low overhead, high performance counters (increased on every message)
 - Addresses correctness of Prometheus metrics
 - Per-protocol and per-queue type metrics
- Logging (Lager -> Logger)
 - Structured logging with JSON

RESILIENCY

- Cluster formation no longer relies on random startup delays
 - Clusters should always be formed correctly (no more solo nodes)
 - Parallel node startup is safe (default in the Kubernetes Operator)
- Quorum Queues can now be federated
- Maintenance mode (more graceful shutdown)

RESILIENCY - WORK IN PROGRESS

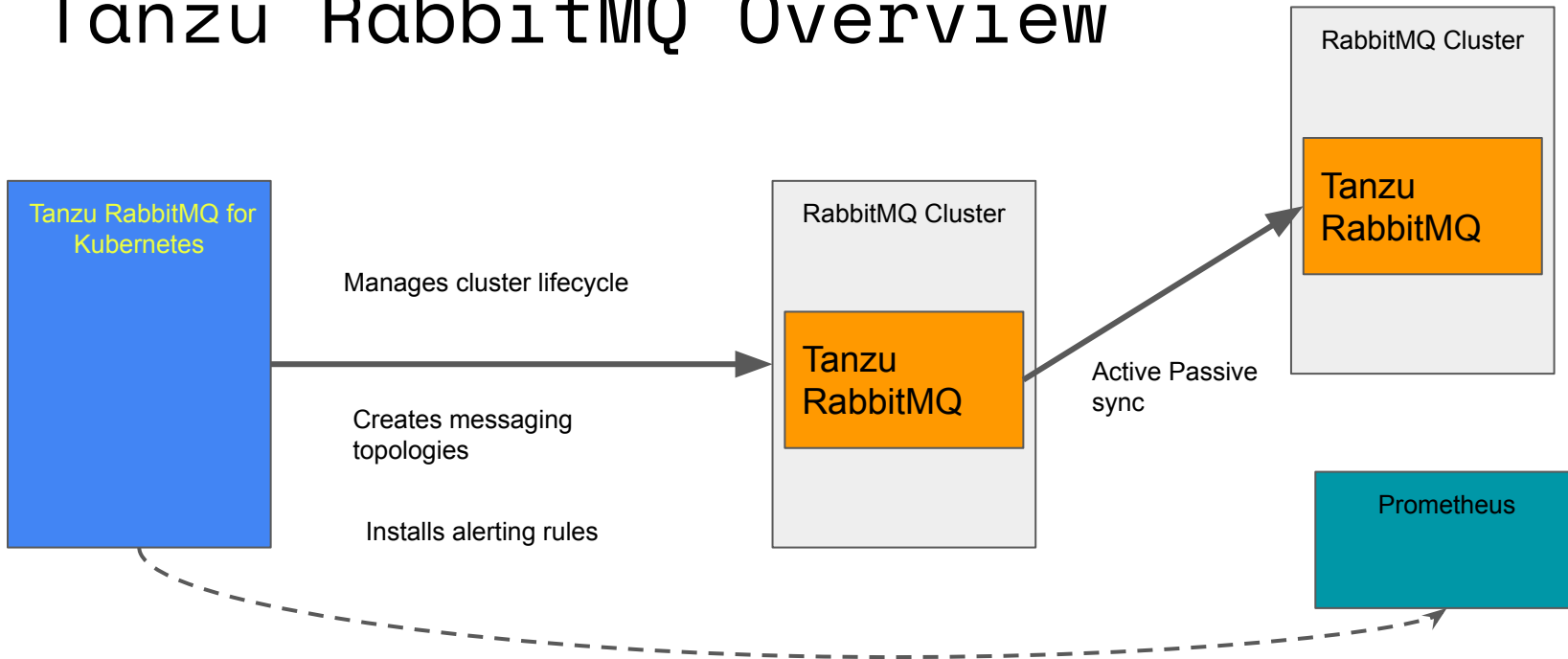
- [Khepri](#) - RAFT-based metadata store to replace Mnesia
 - More resilient to network partitions
 - No more pause-minority/autoheal/ignore decisions
 - **Dedicated session at 12:10PM PST / 21:10 CEST tomorrow**

DEVELOPMENT EXPERIENCE

- RabbitMQ mono-repo (github.com/rabbitmq/rabbitmq-server)
- Bazel for faster test feedback
- Now is great time to start contributing!
- In particular - Stream clients in additional languages

TANZU RABBITMQ UPDATES

Tanzu RabbitMQ Overview



Tanzu RabbitMQ Resiliency - Upcoming

- Offsite Replication (aka OSR & Active / Passive)
 - New commercial plugin to be released in Aug
 - Replicates Quorum Queues & Streams based on OSR policies
 - Very efficient throughput with low CPU and RAM overhead
 - Syncs both data and metadata
 - Orchestrated using Tanzu RabbitMQ for Kubernetes
 - Minimizes data loss (RPO) & shortens recovery time (RTO)

Tanzu RabbitMQ Ease of Use

- RabbitMQ Cluster Operator automates day 1 & day 2 operations
 - Provisioning of any cluster size and configuration
 - Zero downtime configuration changes and upgrades
- Messaging Topology Operator makes it possible to define RabbitMQ resources as Kubernetes objects
 - Supports virtual hosts, users, permissions, queues, exchanges, policies, shovel & federation
 - **See upcoming session [How to RabbitMQ on kubernetes](#) (10:50 AM - 11:30 AM PDT) for a demo**
- Prometheus Alerts - a set of PromQL alerts definitions helps users to detect RabbitMQ and Kubernetes problems
 - **See upcoming session [RabbitMQ has a problem. Let us tell you about it](#) (10:50 AM - 11:30 AM PDT) for a demo**

Tanzu RabbitMQ Scalability - Coming Up


- Cross site stream replication for multiple active sites
- Support for very large number of MQTT connections

Tanzu RabbitMQ for VMs (for TAS)

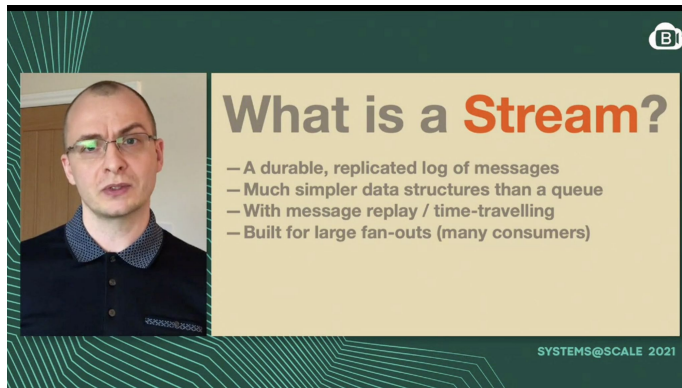
- Version 2.0 released in May (Long Term Support version)
- Supports TLS 1.2 & 1.3
- Moved metrics to prometheus plugin
- Opened the config of RabbitMQ (similar to the operator)
- mTLS between nodes to be released soon with 2.0.4

TEAM UPDATE

Team Updates

-  Boomeranged back to VMware!
- Leavers - Jack Vanlightly, Jerry Kuch, Luke Bakken
- Joiners - Phil Kuryloski, Gabriele Santomaggio, Yaron Parasol, Loïc Huguin, Alexey Lebedeff, Iliia Khaprov

In the media



What is a Stream?

- A durable, replicated log of messages
- Much simpler data structures than a queue
- With message replay / time-travelling
- Built for large fan-outs (many consumers)

SYSTEMS@SCALE 2021



Q&A RabbitMQ Streaming in Kubernetes

Ciulla Tosato
Presentatrice

Gabriele Santomaggio
Senior Developer - VMWARE

codeemotion | 23-24-25 marzo, 2021
Online Tech Conference
— 100% online —
La conferenza tecnica multitrack
fatta da sviluppatori per sviluppatori

#CODECONF21ITA {codeemotion}

 RabbitMQ



Q&A

Thank you!

blog.rabbitmq.com

rabbitmq.com/tanzu

[rabbitmq.com/kubernetes/operator/
operator-overview.html](https://rabbitmq.com/kubernetes/operator/operator-overview.html)