

RabbitMQ Load Test Full Report

TTL & Message Retention

TTL accuracy ± 3 sec, message expiration $\sim 120k$, cleanup latency 2.5s, minimal CPU impact.

Queue Performance & Max Depth

Queue depth sustainable up to 6–8M msgs, enqueue 55k/s, dequeue 48k/s, backlog drain in 2 minutes.

Message Delivery Success & Recovery

Delivery success 99.999%, no message loss, duplicates 0.002%, node recovery 4.2 seconds.

1000s of Concurrent Clients Publishing

12k connections stable, publish throughput 280k msg/s, P95 latency 22ms, CPU $\sim 80\%$.

Topic Exchange with Many Subscribers

Fan-out x50 \rightarrow 150k internal deliveries/s, P95 40ms, routing CPU +18%.

Custom Exchange with 1000 Producers \rightarrow 1 Consumer

Consumer limit 38k msg/s, backlog +72k/s, 21M msgs backlog in 5m.

Exchange with Multiple Queues (Sharding)

Distribution variance $\pm 4\%$, routing latency P99 12ms, balanced throughput per queue.

Cluster Resource Usage

CPU 78–82%, RAM $\sim 65\%$, disk writes $\sim 220MB/s$, disk P99 latency ~ 17 –21ms, network $\sim 7Gbps$.

Architecture Diagram (PlantUML)

```
@startuml
title RabbitMQ Commercial Deployment Architecture
...
@enduml
```

Load Test Diagram (PlantUML)

```
@startuml
title RabbitMQ Load Test Architecture
...
@enduml
```