**Tracing RabbitMQ Performance & Health Indicators**

Key Health Indicators (KHI) and Performance Indicators (KPI) for RabbitMQ:

1. **Message Rate**: this indicator will tell number of messages that has been published, delivered, acknowledged and delivered without acknowledgement per second for any given time frame.

(Reference: <http://newrelic.com/plugins/vmware-29/95>)

1. **Queued Messages**: this indicator will tell the number of messages present in the ready queue and how many messages are unacknowledged for any given time frame.

1. **Number of Connections**: this will give a list of all the open connections to the server. It gives the real count of TCP connections to the message broker. Although, there is no upper bound on number of connections, but if the socket descriptors exceed the limit, the server will stop accepting connections.

(Reference: <http://stackoverflow.com/questions/18418936/rabbitmq-and-relationship-between-channel-and-connection>)

1. **Number of Channels**: it determines the number of channels present in the connection. Although, only one channel is enough to carry out the basic tasks in any connection but if there are many threads, more channels are needed.

(Reference: <http://stackoverflow.com/questions/18418936/rabbitmq-and-relationship-between-channel-and-connection>)

1. **Number of Exchanges**: this will specify the number of entities where the messages are being sent. Types:

* Direct: delivers message based on routing key.
* Fanout: delivers message by ignoring the routing key.
* Topic: delivers message based on routing key and the pattern used to bind to exchange.
* Headers: delivers message using message headers.

(Reference: <https://www.rabbitmq.com/tutorials/amqp-concepts.html>)

1. **Number of Queues**: this will tell the number of message queues available in the server. The upper limit is specified by the Erlang processes. Each queue will also tell its status, number of messages and message rate both incoming and delivering.
2. **Number of Consumers**: this will tell the number of applications that are consuming the messages stored in the queues. So, this parameter keeps track of messages delivered and messages fetched.

(Reference: <https://www.rabbitmq.com/tutorials/amqp-concepts.html>)

1. **Socket Descriptors:** it keeps track of the network socket count and if the limit exceeds, it will stop accepting further connections to the server.

(Reference: <http://newrelic.com/plugins/vmware-29/95>)

Upper Limit: 7280

1. **Erlang Processes:** these processes help in maintaining the disk space and flooding of queues with messages which can lead to back off.

(Reference: <http://videlalvaro.github.io/2013/09/rabbitmq-internals-credit-flow-for-erlang-processes.html>)

Upper Limit: 1048576

1. **Memory and Disk Space:**

Memory High Watermark (Upper Limit): 3.2 GB

Disk Space Low Watermark (lower Limit): 48 MB

1. **Mnesia Transactions:** keeps track of the atomic operations or transactions happening in the Mnesia Database used by RabbitMQ per second both on RAM and Disk.
2. **Persistence Operations:** it keeps track of the number of messages that are being written to the disk as soon as they arrive in the queue per second.
3. **I/O Statistics:** Number of I/O operations performed per second, I/O data rates in Bytes per second and I/O average time per operation in milliseconds is recorded by the tool.