Firehose: a Unified Message Bus for Infra Services

Matthew Treinish
mtreinish@kortar.org
`mtreinish on Freenode`

Jeremy Stanley
fungi@yuggoth.org
`fungi on Freenode`

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https://github.com/mtreinish/firehose/tree/boston-summit

OpenStack Infrastructure

Imagine a big, complicated diagram here.

Firehose

- An MQTT broker for the OpenStack community infrastructure
- Has anonymous, read-only access via MQTT on 1883/tcp
- SSL/TLS MQTT also available on 8883/tcp
- Websockets supported (but temporarily disabled)

MQTT

- Pub/sub messaging protocol
- Formerly MQ Telemetry Transport
- ISO/IEC PRF 20922
- Protocol dates back to 1999
- Lightweight design, low bandwidth

MQTT Topics

- Topcis are heirarchical
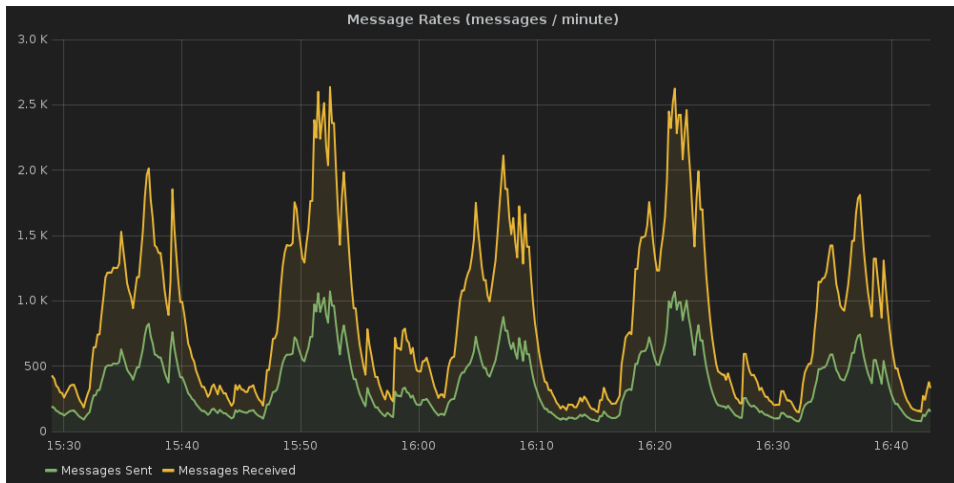- Support wild carding
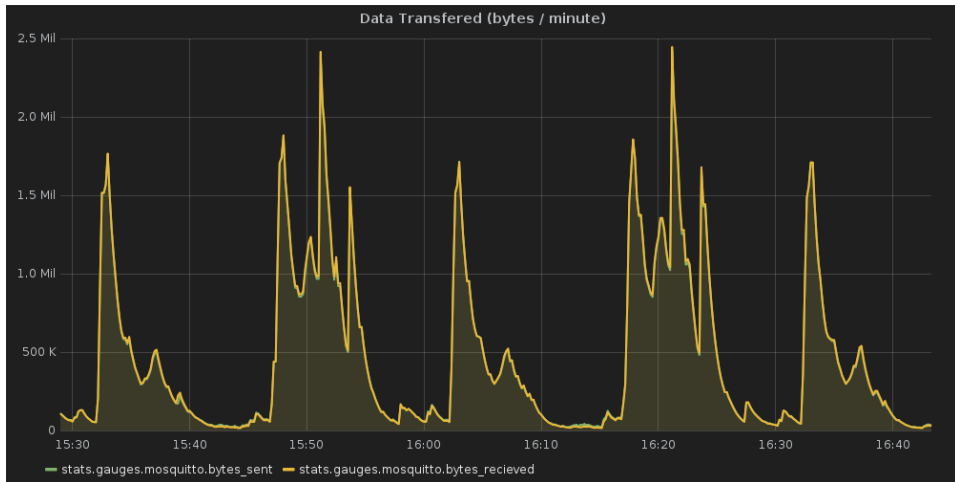
MQTT Brokers

MQTT Clients

The Firehose

Mosquitto

Services Using the Firehose

Service	Base Topic	Source of Messages
Ansible	ansible	Ansible MQTT Callback Plugin
Gerrit	gerrit	germqtt
Launchpad	launchpad	lpmqtt
Subunit Gearman Worker	gearman-subunit	subunit-gearman-worker

Typical Firehose Load

Data Transfered (bytes / minute)

- stats.gauges.mosquitto.bytes_sent — stats.gauges.mosquitto.bytes_recieved

The limits of scaling

Using Firehose

Example mosquitto client subscriber command line (provided in a mosquitto-clients package on many distros):

```
mosquitto_sub -h firehose.openstack.org --topic '#'
```

Potential Applications for Firehose

Future Plans

- Add germqtt subscription support to:
  - Gerritbot (already PoC)
  - Zuul v3+
- Add more publishers:
  - Nodepool daemons
  - Zuul v3+
  - (your favorite service here)

Where to get more information

- openstack-infra ML openstack-infra@lists.openstack.org
- #openstack-infra on Freenode
- http://docs.openstack.org/infra/system-config/firehose.html
- https://docs.openstack.org/infra/system-config/firehose_schema.html
- http://specs.openstack.org/openstack-infra/infra-specs/specs/firehose.html
- http://mqtt.org/
- https://mosquitto.org/