AMQ Messaging-as-a-Service Workshop

Building an IoT solution

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Who are we?

- Principal Software Engineer @ Red Hat
  - Messaging & IoT team
- Working on enmasse.io
- Enjoys creating bugs that I can fix later
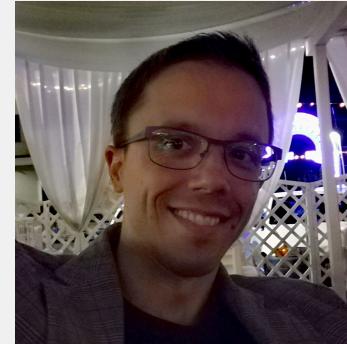
- Principal Software Engineer @ Red Hat
  - Messaging & IoT team
- Lead/Committer @ Eclipse Foundation
  - Hono, Paho and Vert.x projects
- Microsoft MVP Azure/IoT
- Enjoys finding bugs that Ulf can fix later

Outline

What we will do today

- Introduce AMQ Online
- Workshop - IoT

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Messaging in the cloud
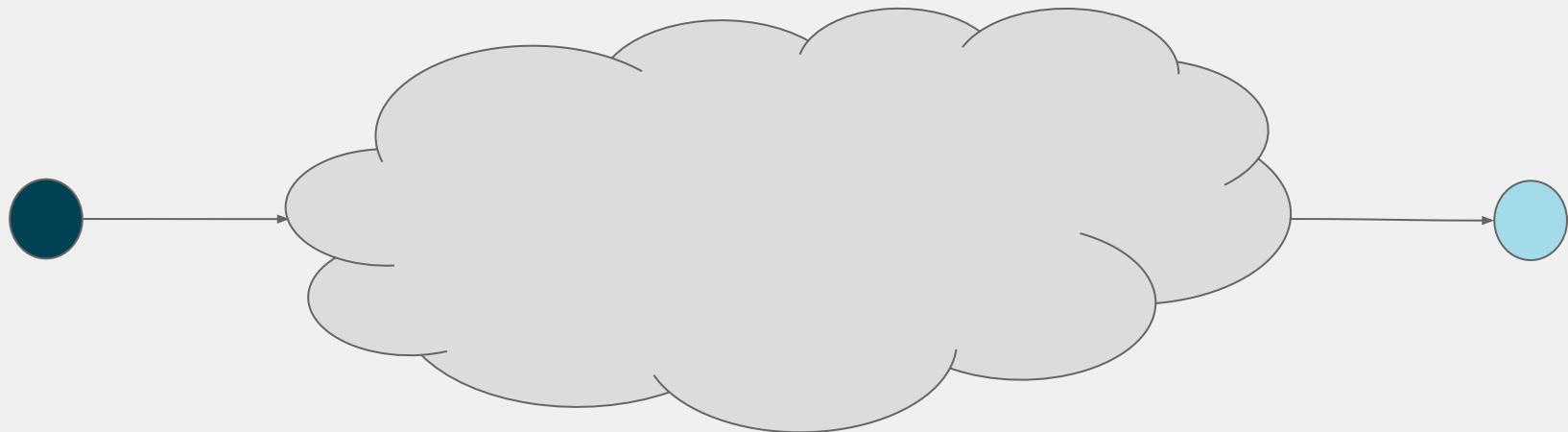
Cloud provider limitations

- Freedom of choice
    - On-premise or in the cloud
    - Ability to choose which cloud
    - Open Standards protocols allows users to choose client freely
- Migrating from one to the other can be complex

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AMQ Online

Cloud-agnostic messaging at scale

- Open source cloud messaging running on Kubernetes and OpenShift
- Based on enmasse.io project
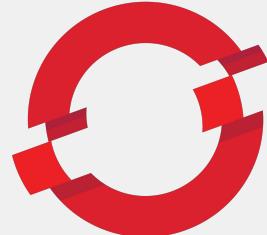
Protocol support

- AMQP 1.0
- MQTT
- OpenWire and CORE*
- More to come/on demand

* using the 'brokered' address space type

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Security

- Mutual TLS between all components
- External TLS for clients
- Pluggable authentication and authorization backend

Integration

- Red Hat SSO (Keycloak) for authentication and authorization
- Prometheus endpoints available for monitoring and alerting
- Native support for OpenShift resources
  - Via OpenShift Aggregated API Server *
- Ansible for installing and upgrading
- Open protocols makes integration easy
 - Apache Spark
  - Eclipse Hono (IoT)

* not yet released

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Workshop - IoT

# What makes an IoT platform?

Business Services

| Monitoring | Real time streaming | Machine Learning | ... |

IoT Core Services

| Authentication & Authorization | Device Registration | Device Provisioning |

Messaging infrastructure

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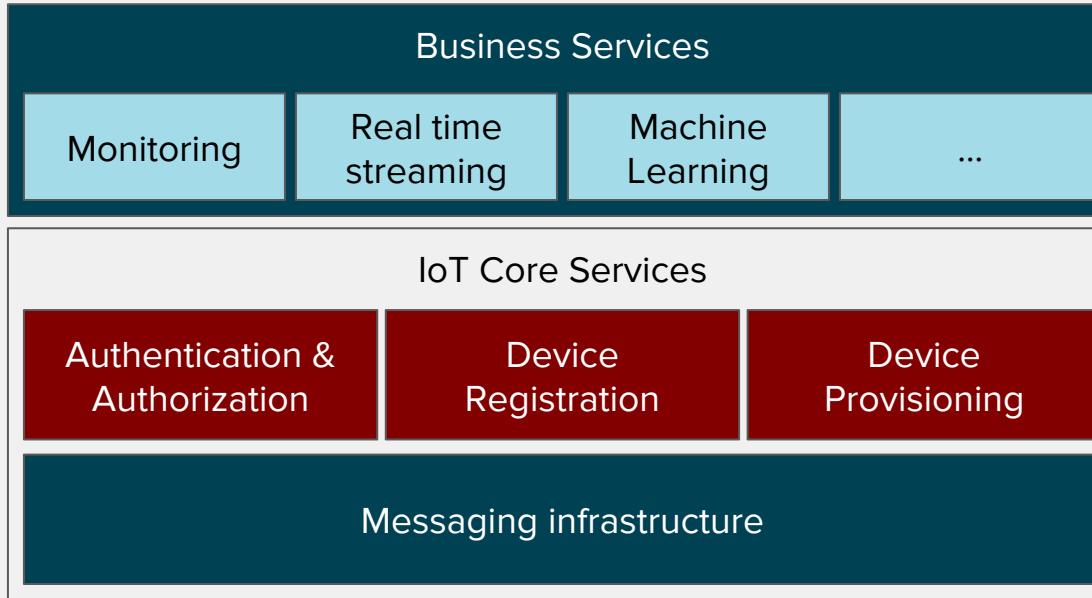
IoT Communication Patterns

IoT Platform

Telemetry

Notifications

Inquiries

Commands

Publish/Subscribe

Request/Reply
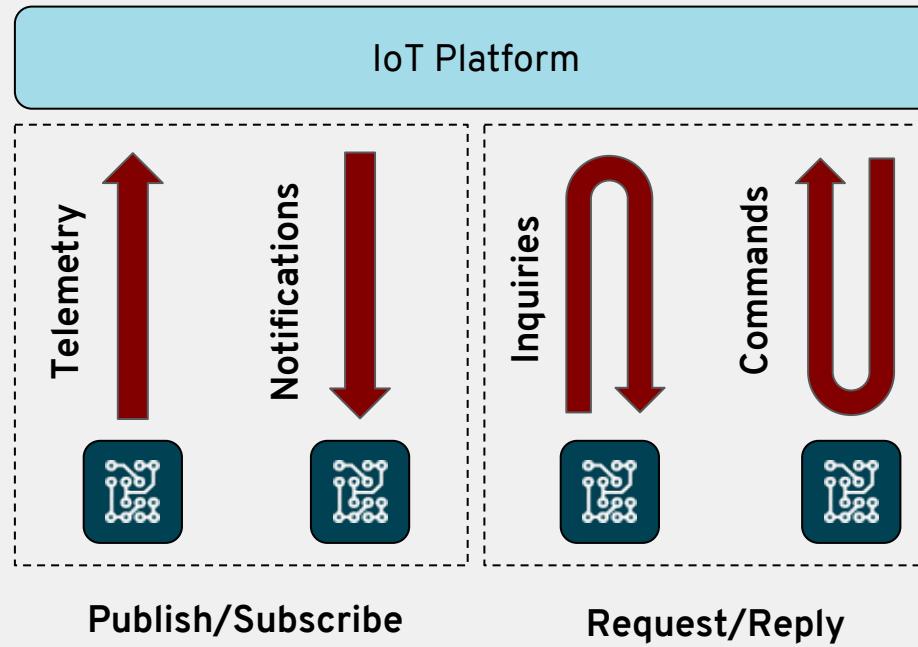
IoT in the Cloud

- Microsoft Azure
  - IoT Hub
- Amazon Web Services
  - AWS IoT
- Google
  - IoT Core
- IBM
  - Watson IoT

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Workshop IoT application
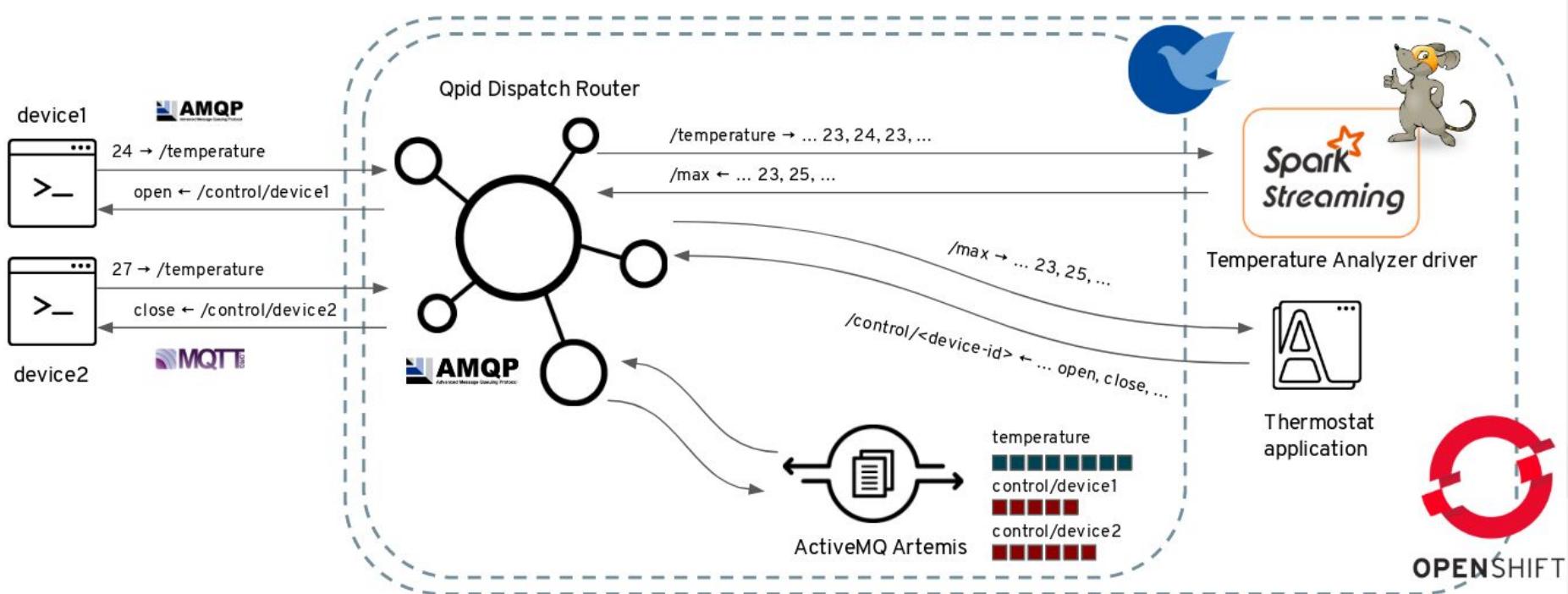
Workshop steps

1. Provision messaging
2. Create addresses
3. Deploy spark & bind to messaging
4. Deploy thermostat & bind to messaging
5. Run simulated IoT devices
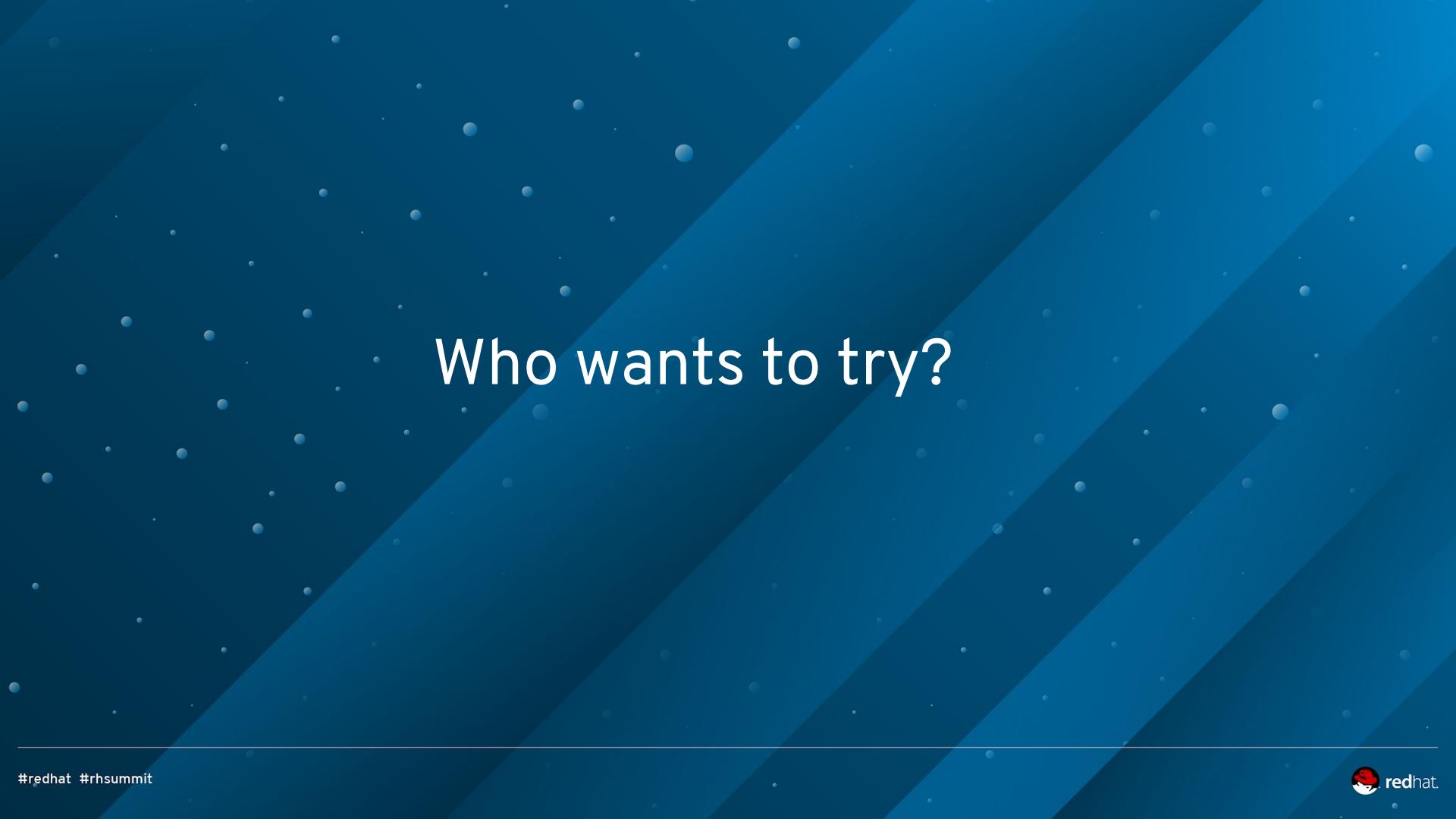
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Who wants to try?

Workshop info

- OpenShift cluster: https://openshift.amqonlineworkshop.com:8443
- Workshop: https://github.com/rh-messaging/amqonline-workshop/tree/rhsummit18

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