IoT Summer School

Node-RED Workshop
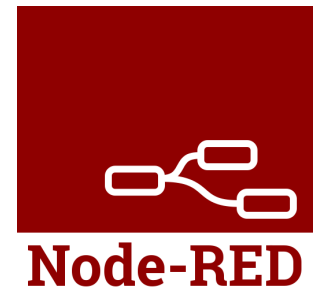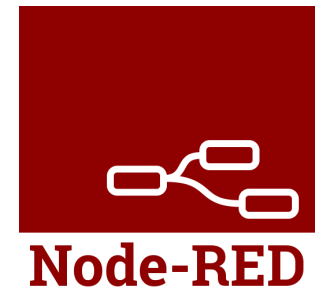
Thomas Flynn

What is Bluemix?

- Bluemix is an **open-standard**, cloud-based **platform** for **building**, **managing**, and **running applications of all types** (web, mobile, big data, new smart devices, and so on).

- The IBM Watson IoT Platform on Bluemix is a fully managed, cloud-hosted service designed to make it simple to derive value from your Internet of Things devices.

- Node-RED is a tool for wiring together the Internet of Things in new and interesting ways, including hardware devices, APIs, and online services.
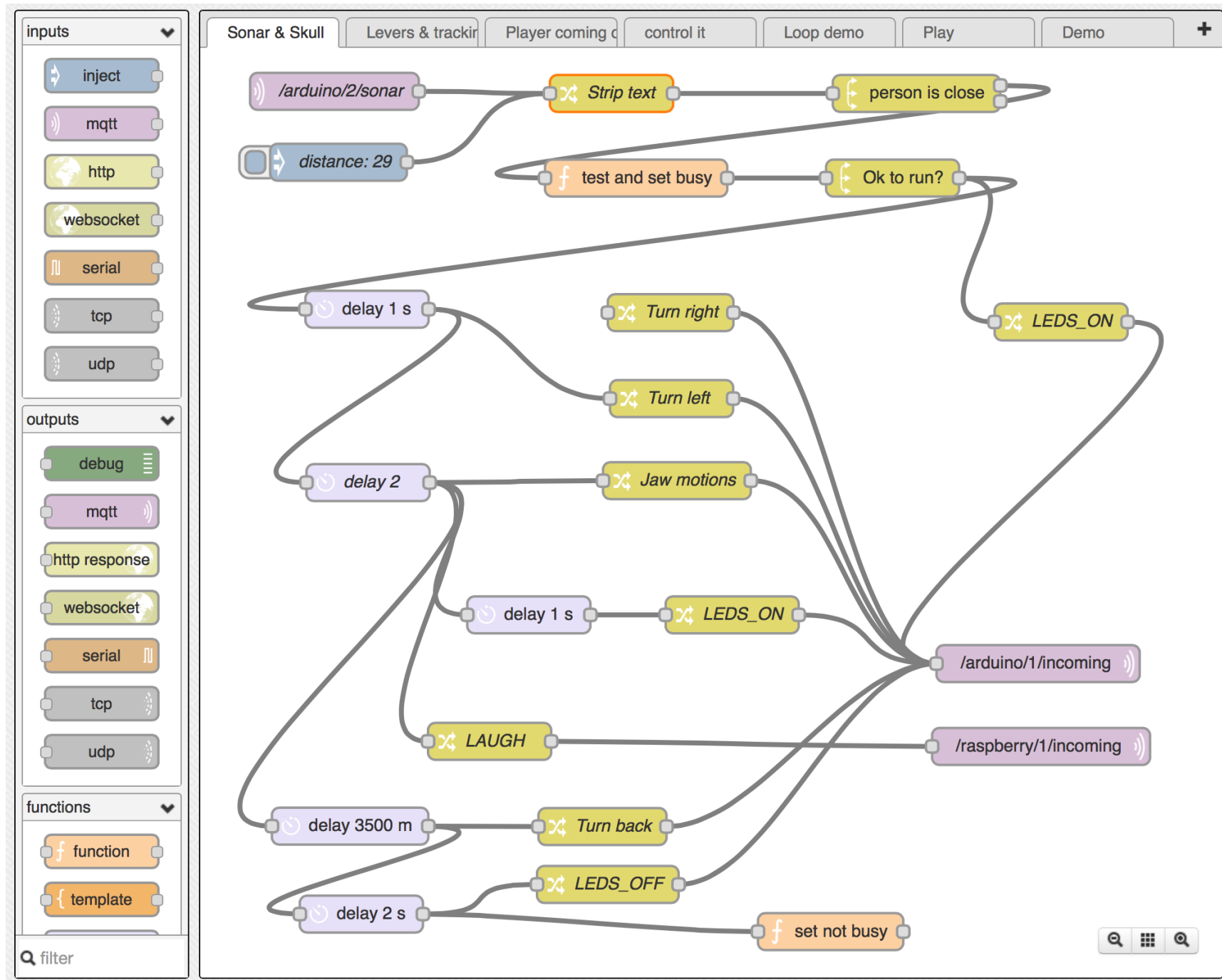
Node-RED

- Node-RED makes it easy to wire together the Internet of Things.

- It provides a browser-based drag-drop UI for creating flows of events and deploying them to the runtime.

- The light-weight runtime, built in node.js, is ideal for edge-of-network environments or running in the cloud.

- It can be easily expanded to take add new nodes to the palette – taking full advantage of the node package manager (npm) ecosystem
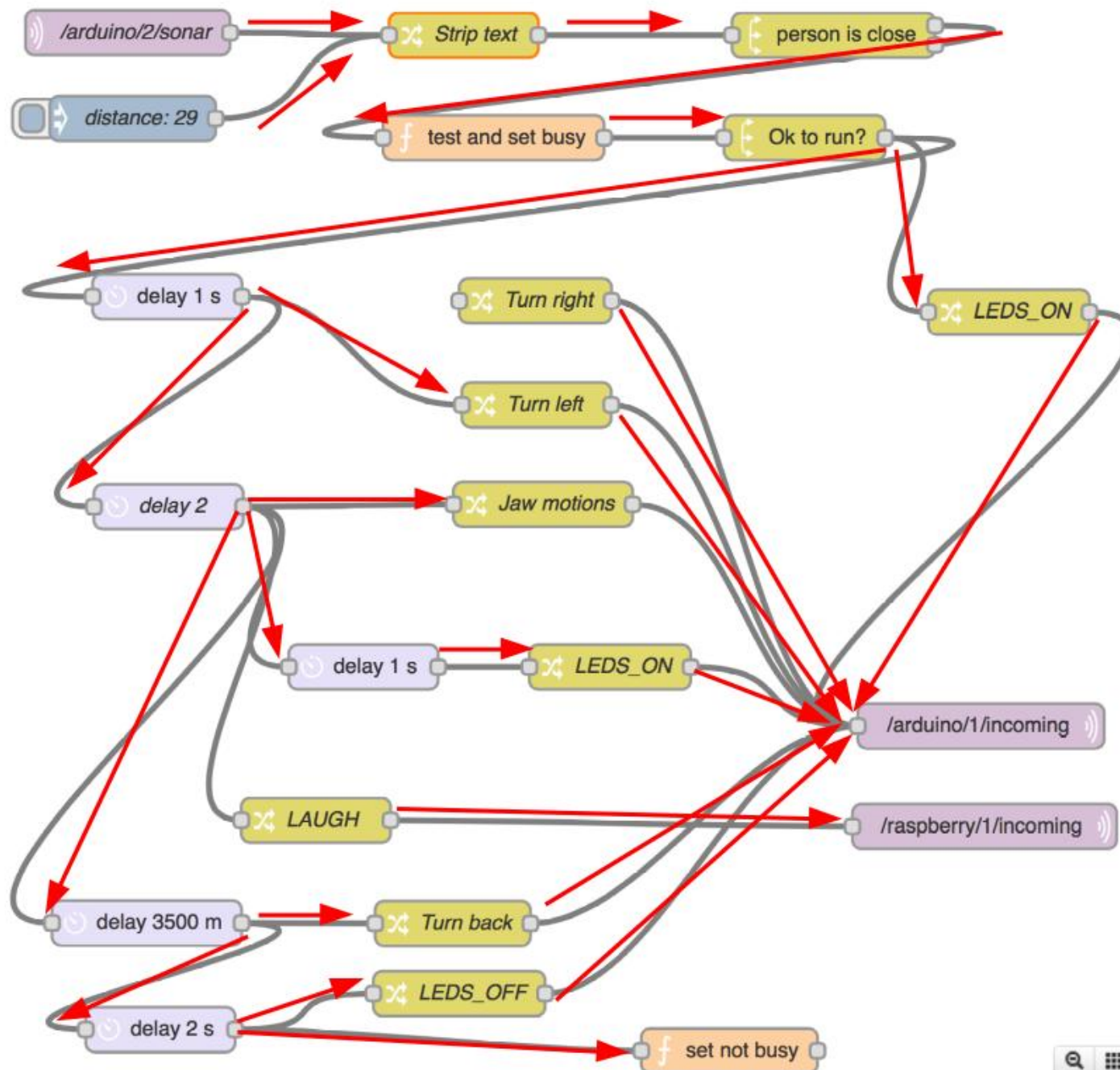
Key Concepts

- <u>Flows</u> are a collection of nodes wired together to exchange messages.

- <u>Messages</u> passed between nodes in Node-RED are, by convention, JavaScript Objects called <u>msg</u>

- <u>Nodes</u> are the primary building block of Node-RED

- When messages are generated, they are consumed and processed by <u>nodes</u>

- <u>Wires</u> define the connections between node input and output endpoints in a flow.

Can you visualize this flow?
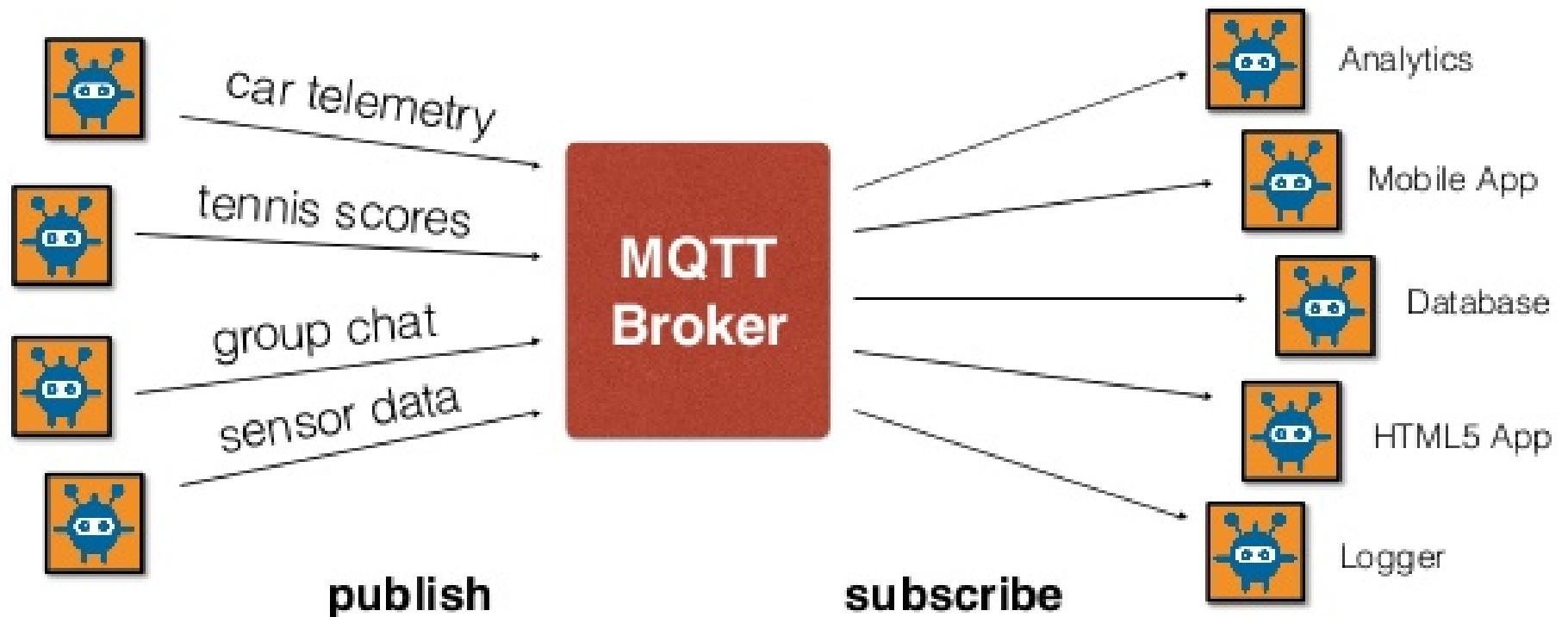
Can you visualize this flow?

MQTT

- A lightweight protocol for IoT messaging
- Supports assured delivery and fire-and-forget transfers
- Supports TCP/IP which provides basic connectivity
- Client:

    - can publish (send)

    - can subscribe (receive)

- Broker:

    - Responsible for receiving all messages and then sending the message to all subscribed clients
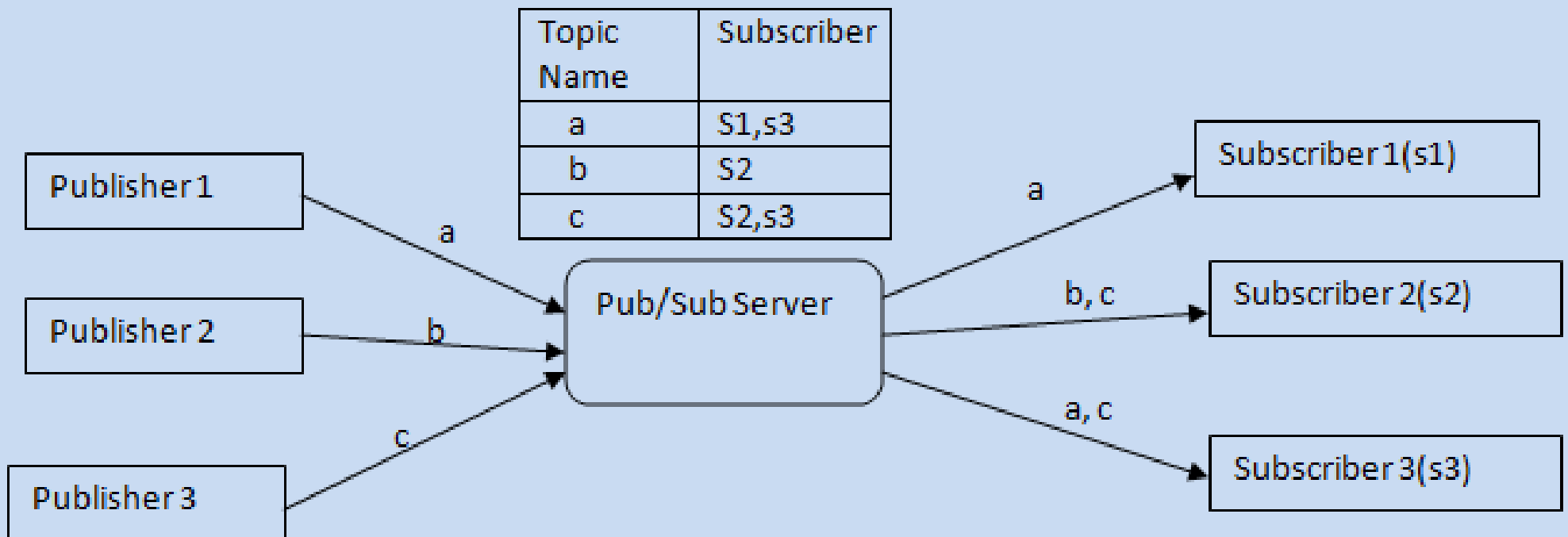
MQTT Broker

MQTT topics

- When does Subscriber1 get a message?
- When does Subscriber2 get a message?
- When does Subscriber3 get a message?

Workshop objectives

- Part 1:

    - Sign up to Bluemix

    - Create Node-RED cloud foundry app

- Part 2:

    - Publish message to your group topic

    - Subscribe to your group topic

- Part 3:

    - Use Watson translate node

    - Use Cloudant node