

Chapter 7C: Amazon Web Services (AWS)

Objective

This chapter goes into detail of the Amazon Web Services – AWS – cloud and MQTT

AWS supports both MQTT and HTTP so it is a good example cloud provider for this class

The T in IoT stands for “Thing” – awkward word so we used italics

Amazon Web Services (AWS)

Most important point is that it is more than just a message broker ... it does database, messages, user authentication, queries, ... etc.

This is not just your Raspberry Pi running Linux and Rabbit MQ.

AWS IoT Introduction

Explain the AWS architecture

- Show what parts we are going to touch.
- Things on left is the WICED kit
- Line to Message Broker is the WiFi
- Everything else is the Amazon Cloud

AWS IoT Resources

Thing – the “T” in IoT – typically this is your WICED device

Certificate

- Used for two sided TLS connection
- The “public key” they give you is actually a certificate signed by AWS IOT

Policy is an enterprise user management concept – allow or restrict access

AWS IoT Console

Creating an Account

Need credit card for your own account but we have a class server for you to use

Once on the site you can:

- Find your endpoints
- Create/manage things, certificates, and policies
- Test things with the MQTT test client
- Look at Thing shadows

Thing Shadow

Thing Shadow is just a cache for an ephemeral thing in JSON format

Can use the shadow to update/get a thing's state even if it isn't currently connected

Shadow is a JSON document

Topics

\$aws/... is reserved. Just about any other topic is allowed

Shadow Topics:

\$aws/things/<thingName>/shadow/...

Explain /update, /update/documents, /get, and /get/accepted

These will be needed for the Project...

Demonstrate and discuss the console

Show:

- Endpoints
- Things, certificates, policies, and interconnections
- Shadows
- Test server

Using MQTT with AWS in WICED

WICED contains library of MQTT functions.

Need to add protocols/MQTT in make file and add include in C source to access

WICED has several demo apps which you will use in the exercises

You will use the certificates/keys that you downloaded from AWS. These go in resources/apps/aws_iot

Exercise(s)

Time: 2 hours

Going to explore the AWS console and create a thing/certificates that you can use in later labs.

Try out the test server to publish and subscribe to topics.

Really understanding the example is critical – answer questions.

Advanced exercise has a WiFi introducer using a web page served by the WICED device.