# 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.