

Chapter 7a: Application Layer Protocols for Cloud Connectivity

Objective (7A & 7B)

We are going to show you more than just how to hook up to the cloud via WICED

- 7A is about giving you the experience of the whole product of a cloud vendor
- 7B is an overview of Amazon Web Services (AWS)
- 7C – 7F each cover one protocol – we will only cover one in detail.

The “Cloud”

Probably a bad idea to make your own Cloud... 99% uptime is 88 hours/year downtime... you need to have 99.99% uptime (0.88 hours/year) and that takes tons of people and money. There is a reason why Amazon makes more profit from Cloud services then they do by selling things.

Example: 0.88 hours = 3168 seconds
 Amazon record is 306 items per second -> 969,408 in 0.88 hours
 So, even at 99.99% uptime, Amazon potentially loses sale of almost 1 M items

iTunes runs on AWS – even Apple doesn’t want to be in the cloud business

5 guys to do 1 job that is 24x7 ... takes 6-7-8-9 jobs to run a cloud...

There are a bunch of Cloud Providers:

- Amazon
- IBM
- Microsoft
- HP
- Ali (Alibaba)
- Samsung

Unfortunately, the world didn’t pick a single application protocol.

Application Layer Protocols

All these protocols run on top of TCP and TLS

HTTP

- Most prominent because of all the existing infrastructure
- Simple text based:
 - Open a socket
 - Send a text based header + some bytes
 - A text based header + some bytes will come back
 - Most commonly JSON (not HTML)

- Review the HTTP GET example from example.com

MQTT (Amazon AWS and IBM Bluemix)

- An old protocol
- Explain the fundamental concepts
 - Message broker
 - Messages, Topics
 - Subscribe
 - Publish
 - QOS – at most once, at least once, exactly once

AMQP (Microsoft Windows Azure, VMWare, Redhat) – not much else to say.

COAP (Samsung ARTIK)– not much else to say.