Chapter 6A: Establishing Communication using TCP/IP Sockets

Objective

You need to know:

- What a socket is
- How to make, read and write sockets in WICED
- Security (will be covered in 6B):
    - Symmetric and asymmetric keys
    - X509 certificate
    - TLS (transport layer security)

Sockets – Fundamentals of TCP Communication

Almost everything on the internet runs using TCP sockets

Think of it as a hose where you put stuff in and it comes out on the other side in order

Identified with two pairs of ip/port numbers

IANA – Internet Assigned Name Authority… www.iana.org … all the numbers are here

You already know some standard ports (80,25,53 etc)

Often people just do text based protocols (in fact HTTP is just plain text)

Tell them that they are going to make a TCP client which is going to attach to a TCP server.

They are going to open the socket

Then send text strings through socket

The server is going to respond with text

Explain WWEP using bullet list and examples

WICED-SDK TCP Server & Client using Sockets

Go through the setup flow … follow the diagram #s/letters

Transmitting and Receiving Data using Streams

Streams are functions in WICED that allow you to read/write arbitrary amounts of data without worrying about packets

(Remember- packets are the data unit between the network layer and transport layer)

Explain the stream and the firmware flow:

Stream Write:	Init -> Write -> Flush -> Deinit (explain the flush)
Steram Read:	Init -> Read -> Deinit
Full Stream Write:	Create Socket Bind Socket Connect Socket Init Stream Write Stream Flush Stream Deinit Stream Delete Socket

Explain it is common to create/delete socket to server for each “message” to the server so that the server keeps minimal sockets open

WICED Socket Documentation

Quick mention of where the documentation is: show the TCP Sockets, Streams and TLS

Exercise(s)

60 minutes