Ser423/Cse494/Ser598 Mobile Systems

Questions for Networking with iOS

1. On an iPhone, such as iPhone 6, what communications radios (receivers/transceivers) are available to the app developer and what kinds of services do they provide? Name and describe 4.

2. In class, we discussed multiple forms of data communications available through the Apple API's, including TCP/IP (connection-based sockets and socket streams), HTTP Requests, and connectionless (UDP). Describe what each of these three may be used for by an iOS app.

3. What is Bonjour? Describe its functionality and why its useful for iOS apps that are mobile – that is, expected to communicate with other devices and services even though the devices (and services) may be connected to the internet at different locations over time.

4. In the context of Bonjour, explain the difference between service advertising and service discovery.

5. What is multi-peer connectivity? Describe it by contrasting it with client-server connectivity. Give an example application where multi-peer communications are important? What framework does iOS provide to support multi-peer communications?

6. Explain the difference between synchronous calls to networking services (such as reading or writing to a stream that connected to another device) and asynchronous. Which usually defines a call-back or delegate? Which typically requires execution in the background or on a thread that is off the main (UI) thread?

7. Explain and differentiate the terms thread, process, and task. Does Java or Swift define specific language features that allow applications to define each of these? Which are supported, and which are not? When you create and use an iOS dispatch queue or an Android AsyncTask, which of the three (thread, process, or task) are used to do the background work?

8. When its necessary to perform an “off-UI” task, does Apple recommend that the developer use a dispatch queue or define a new thread object (NSThread) to accomplish an application task?