Web Server Design

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**Abstract**

Network connectivity is one of the principal components in the making of complex, useful, mobile apps. Whether it serves to provide information, such as up-to-date weather for a weather app, or to connect people such as a messaging app, network connectivity is the key to solving many of the problems that mobile apps proport to solve. In order to provide online services for apps, the developer needs to make a web server that services the users. In this paper, we examine the basic structure of a web server, the challenges posed by this task, and important principles to follow in web design.

**Introduction**

Outline:

1. Abstract – web design necessary for good mobile apps
2. Web Design Introduction
   1. How a web server works
   2. Protocol request – response
   3. HTTP – GET, POST
   4. REST API – HTTP, JSON
3. Web Design Challenges
   1. Scalability
   2. Streaming content
   3. Protocols – UDP, TCP
   4. Efficient memory access
4. Analysis of Design Challenges
   1. Scalability requires parallelism because adding servers, parsimony
   2. Streaming content requires concurrency and asynchrony
   3. Protocols – UDP match streaming, TCP otherwise
   4. Efficient memory access – requires encapsulation and asynchrony
5. Web Design Principles
   1. Divide and conquer
   2. Asynchrony
   3. Encapsulation
   4. Concurrency
   5. Parsimony
6. Conclusions
7. Bibliography