

**CPET 565/CPET 499**  
**Mobile Computing Systems**

Lecture 10

**Mobile Device Web Connectivity**  
**Protocols**

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A Specialty Course for

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**Mobile Device Web Connectivity**  
**Protocols**

- Wireless Protocols and Current Status
  - Mobile Internet Protocols
  - WAP (Wireless Application Protocol)
  - WML (Wireless Markup Language)
  - Bluetooth
  - OBEX (Object Exchange)
  - WBXML

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## Mobile Device Web Connectivity Protocols

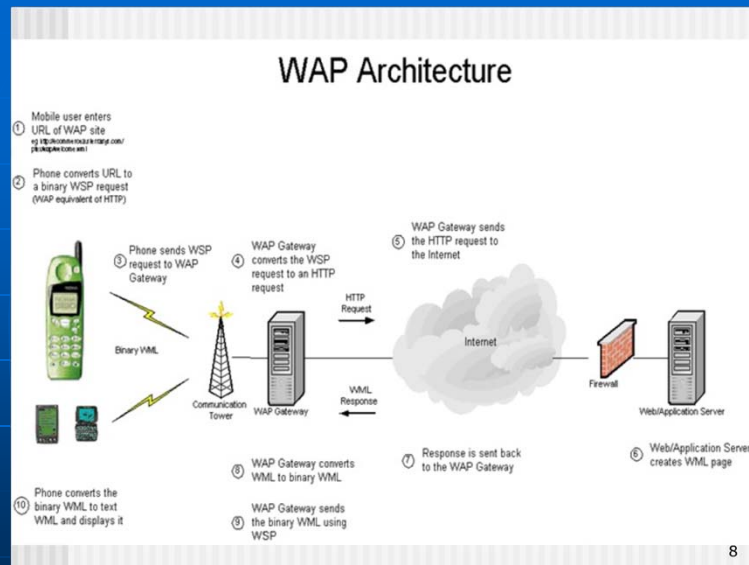
- Limitations of Internet for wireless applications:
  - Low bandwidth
  - High latency
  - Limited connection stability
  - Small display size
  - Limited input facility
  - Limited memory
  - Limited processing power

## Mobile Device Web Connectivity Protocols

- Mobile software development considerations
  - Size of display limited
  - Input device may be harder to manipulate
  - Sound may be limited
  - Storage/processing ability could be slower

## Mobile Device Web Connectivity Protocols

- WAP (Wireless Application Protocol)
  - HTTP/HTML ->WAP/WML
  - Allows accessing the web from a mobile phone
  - WAP Forum, <http://www.wapforum.org/>
  - WAP 2.0, <http://www.openmobilealliance.org/tech/affiliates/wap/wapindex.html>
  - Integrates telephony services with browser technology, interactive Internet access for mobile handsets
  - Typical WAP applications
    - Over-the-air e-commerce transactions, online banking, information provisioning, and messaging
  - WAP 2.0 Technical White paper, [www.wapforum.org/what/WAPWhite\\_Paper1.pdf](http://www.wapforum.org/what/WAPWhite_Paper1.pdf)



<http://www.wiziq.com/tutorial/11611-wireless-markup-lang-WAP-WML>

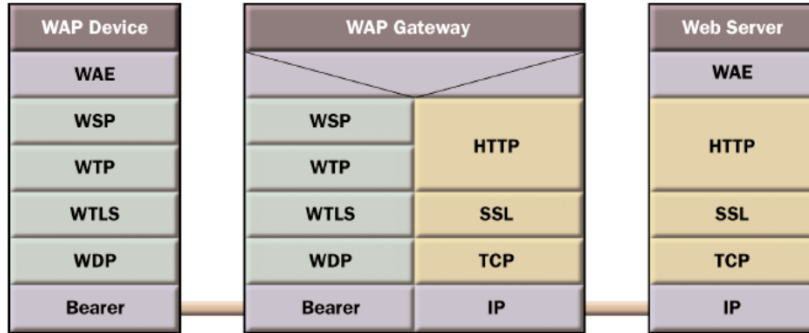


Figure 3: Example WAP 1 Gateway

Source: WAP 2.0 Technical White Paper,  
[http://www.wapforum.org/what/WAPWhite\\_Paper1.pdf](http://www.wapforum.org/what/WAPWhite_Paper1.pdf)

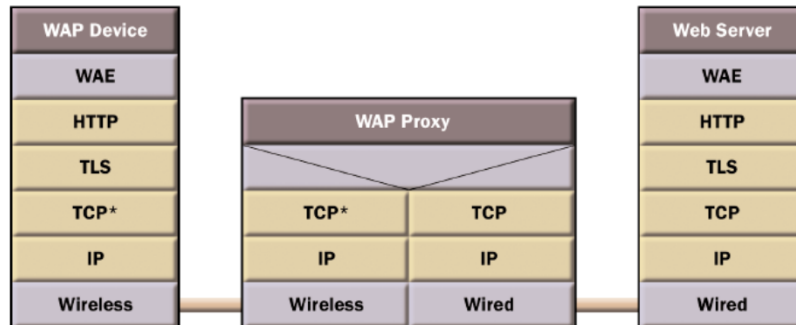


Figure 4: Example WAP HTTP Proxy with Profiled TCP and HTTP

Source: WAP 2.0 Technical White Paper,  
[http://www.wapforum.org/what/WAPWhite\\_Paper1.pdf](http://www.wapforum.org/what/WAPWhite_Paper1.pdf)

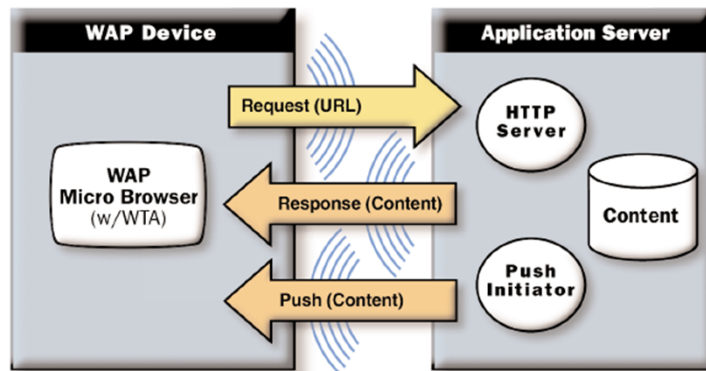


Figure 1: The WAP Programming Model

Source: WAP 2.0 Technical White Paper,  
[http://www.wapforum.org/what/WAPWhite\\_Paper1.pdf](http://www.wapforum.org/what/WAPWhite_Paper1.pdf)

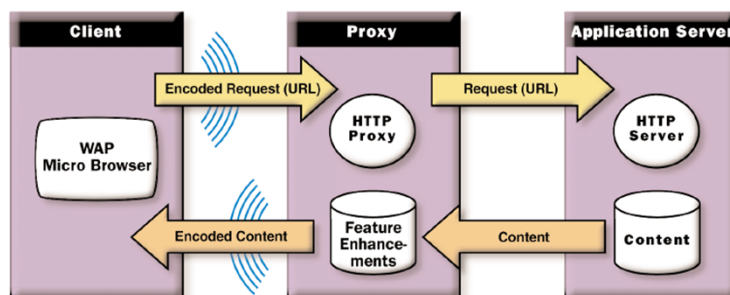


Figure 2: WAP's Optional Proxy Model Supports Network-Based Optimizations

Source: WAP 2.0 Technical White Paper,  
[http://www.wapforum.org/what/WAPWhite\\_Paper1.pdf](http://www.wapforum.org/what/WAPWhite_Paper1.pdf)

Proxy can optimize the communication and may offer mobile service enhancements,

- such as location, privacy, and presence based services.
- It is necessary to offer Push functionality.

## Mobile Web Connectivity Protocols Status

- [WAP 2.0 Technical White Paper, 2002](#) by Wireless Application Protocol Forum Ltd
- [WAP Forum Releases](#), Open Mobile Alliance
- [Wireless Application Protocol \(WAP\) 2.0 Overview](#), by Nik A. Salleh and Xiong Guangyu
- Current Status of WAP discussed in [Wireless Application Protocol](#), from Wikipedia
- [A Technical Background of on Mobile Web Protocols, 2010](#), by Gary Cottam
- [HTML5 in Mobile Devices](#), from Wikipedia
- [Mobile Web Application Best Practice](#), W3C Recommendation
- [Web Accessibility Initiative](#), W3C

## Mobile Connectivity Protocols Status

- [Standards for Web Applications on Mobile: Current State and Roadmap, August 2012](#), W3C
- [Near Field Communications \(NFC\)](#), W3C
- [HTML5 for iOS and Android, 2011](#), by Robin Nixon, published by McGrawHill