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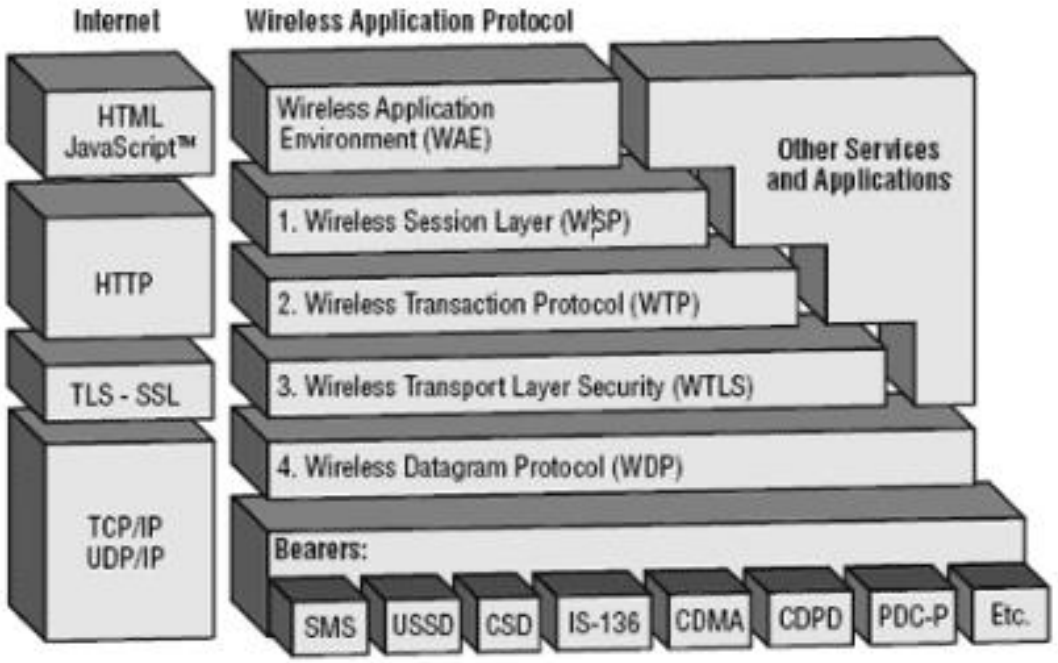
Topics Covered

The WAP Protocol Stack

The WAP Protocol Stack

WAP protocol stack is shown in the following figure −



Application Layer

The application layer provides an application environment intended for the development and execution of portable application and services WAE consists of two different user agents located on client side.
The WAE user agent consists of browser and the text message editor along with the WTA user agent.

Session Layer

The session layer supplies methods for the organized exchange of content between Client/Service applications.
WAP contains the following components −
Connection Oriented Session Services − These operate over WTP.
Connectionless Session Services − These operate directly over WDP.
Session services − These functionalities help to set up a connection between a client and server using primitive messages.

Primitives messages are defined as messages that client sends to the server to request a service facility. The client sends request primitives and receive confirm primitive and the server can send response primitives and receive indication primitives. The connectionless session service provides only non-confirmed service. To start session, the client invokes a WSP primitives that provide some parameters, such as the server address, client address and client headers. In some respects, WSP is basically a binary form of HTTP.

Transaction Layer and Security Layer

Provides different methods for performing transaction to varying degree of reliability.

Security Layer
Optional layer that provides, when authentication, privacy and secure connection is present, between applications. It is based on **SSL (Secure Socket Layer)**. It provides services that ensure privacy, server authentication, client authentication and data integrity.
A Standard SSL session is opened between the web server and the WAP gateway, and WTLS session is initialized between the **gateway** and the **mobile device**. The encrypted content is send through this connection from the server to the gateway, which translates it and sends it to mobile phone. The transaction between **SSL** and **WTLS** takes place in the memory of the WAP gateway.

Transport Layer

This is the bottom layer, connected with the bearer service offered by the operator. Bearer services are the communication between the mobile phone and the base stations. They include **SMS, CSD, USSD, GSM, GPRS, DECT, CDMA, FDMA,** and **TDMA**.

The physical layer prepares the data to be sent from the mobile device over the air services and sends the data using bearer service implemented in the network that the device is operating in. **WDP** has an interface with various bearer networks, so it must have a bearer specific implementation.

WDP is the only layer that must be rewritten to support different bearer networks. The WTP layer implements a simple **request-response transaction** oriented protocol instead of the three-way-handshake connection mechanism.