* This conversion is very compound workload, the WAP gateway needs to be a powerful compound workload, the WAP gateway needs to be a powerful compound workload, the WAP gateway needs to be a powerful compound workload, the WAP gateway needs to be a powerful compound workload, the WAP gateway needs to be a powerful compound workload, the WAP gateway needs to be a powerful compound workload, the WAP gateway needs to be a powerful compound workload, the WAP gateway needs to be a powerful compound workload.

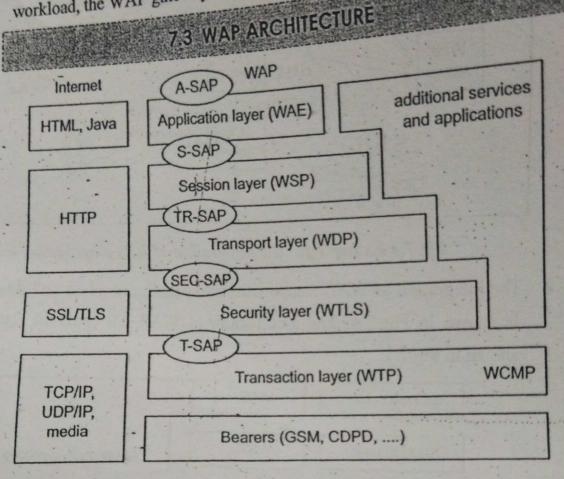


Fig 7.3 WAP architecture

An overview of WAP architecture is given in Fig 7.3, its protocols and components, and compares this architecture with the typical internet architecture when using the world wide web.

(1) Bearer Services:

The basis for transmission of data is formed by different bearer services. WAP doesn't specify the bearer services, but uses existing data services and will integrate further services.

Examples are,

(i) Message services: SMS of GSM;

- (ii) Circuit Switched Data: High speed circuit switched data in GSM,
- (iii) Packet switched data: General Packet Radio Service (GPRS) in GSM.
- (iv) Many other bearers are supported, such as CDPD, IS-136, PHS.
- No special interface has been specified between the bearer service and the next higher layer.

(2) Transport Layer:

- This layer has its Wireless Datagram Protocol (WDP) and the additional Wireless Control Message Protocol (WCMP) because the adaptations of these protocols are bearer specific.
- o The transport layer offers a bearer independent, consistent datagram- oriented service to the higher layers of the WAP architecture.
- Communication is done transparently over one of the available bearer services.
 T-SAP (Transport Layer Service Access Point) is the common interface to be used by higher layers which is independent of the underlying network.

(3) Security Layer:

- o It is the next higher layer with its Wireless Transport Layer Security protocol (WTLS) offers its service at the security SAP (SEC-SAP).
- WTLS is based on the transport layer security and it can offer data integrity,
 privacy, authentication, and Denial-of-Service protection.

(4) Transaction Layer:

- O It is the higher layer next to security layer with its Wireless Transaction Protocol (WTP) offers a lightweight transaction service at the Transaction SAP (TR-SAP).
- o This service efficiently provides reliable or unreliable requests and asynchronous transactions.

(5) Session Layer:

- The next higher layer, the session layer with its Wireless Session Protocol (WSP) currently offers two services at the Session-SAP (S-SAP), one connection oriented and one connectionless if used directly on top of WDP.
- o It provides a special service for browsing the web (WSP/B).

(6) Application Layer:

- o It is an uppermost layer with the Wireless Application Environment (WAE) offers a framework for the integration of different www and mobile telephony applications.
- o It offers many protocols and service with special service access points and its interface is A-SAP (Application Service Access Point).
- The main issues here are scripting languages, special markup languages, interfaces to telephony applications, and many contents formats adapted to the special requirements of small, handheld, wireless devices.