HEWLETT® PACKARD

HP NetServer WAP Server Solution

solutions brief

Wireless Application Protocol (WAP)

Connecting Mobile Devices to the Internet

The mobile e-services strategy is an extension of Hewlett-Packard's e-services vision. A critical component is the concept that users can be mobile and still execute complex transactions, complete secure data and financial exchanges and take advantage of powerful e-services no matter where they are.

Hewlett-Packard is the first to offer a WAP-enabled PC server solution.

WHAT IS WAP?

The Wireless Application Protocol (WAP) is the interface technology that allows users with mobile phones or other wireless devices to connect to, and interact with, Internet- and Intranet-based services and information.

WAP-enabled devices bring mainstream, business-oriented Internet services within easy reach of mobile corporate users, offering an incredible range and flexibility of services. Users on-the-move can also access their corporate Intranet from their WAP-enabled device.

NOKIA

WHO CAN BENEFIT FROM WAP?

Anyone that uses a mobile device.

WAP makes possible a wide range of wireless services which are independent of the underlying digital wireless network technology. The WAP based services are global, easy to use and offer improved security. And because WAP and Web tools are similar, it is relatively straightforward to adapt existing applications and IT systems to the mobile environment.

The Corporate mobile workforce, consumers, application developers, service providers are just some of the people who will benefit from the freedom and flexibility provided WAP-based services. Mobile Web business offers so many opportunities for anyone on the move:

e-mail,

news,

airline schedules,

local weather reports,

hotel reservations,

stock market information,

banking services,

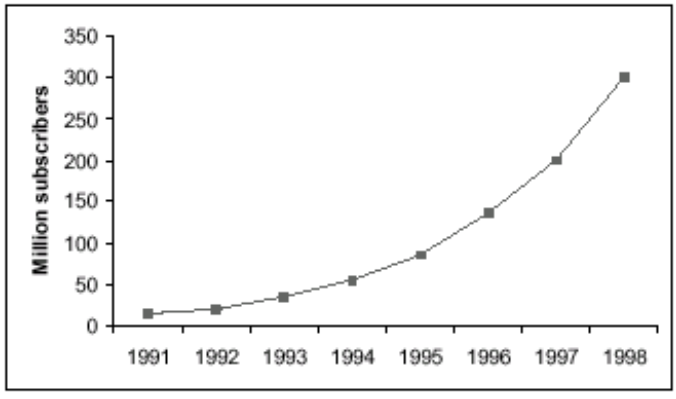
exchange rates,

train and bus timetables

.....to name but a few.

THE FUTURE

The mobile phone is a practical device. It is always to hand, ready to use without time-consuming boot sequences, and easily connected – no hassles with modem configurations and messy wires! Its usability is clearly illustrated by its rapid popularity across mobile all age, social and professional segments. It is estimated that in 2005 there will be about 1 billion mobile phone subscribers.



Mobile phones are expected to be the leading application for mobile users, overtaking laptops and other devices. By 2003, there are expected to be more WAP-enabled phones in use than PCs.

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HEWLETT-PACKARD'S OBJECTIVE

Hewlett-Packard aims to provide enterprise customers with a comprehensive e-service solution of which the Nokia WAP Server 1.0 software is an integral part.

AN EXAMPLE OF USING WAP TECHNOLOGY

You arrive in a city for a meeting with an important customer. You have an hour *before your meeting* and decide to have a coffee and catch up on the latest industry news. Using a WAP-enabled handheld device, you can easily access the latest news reports.

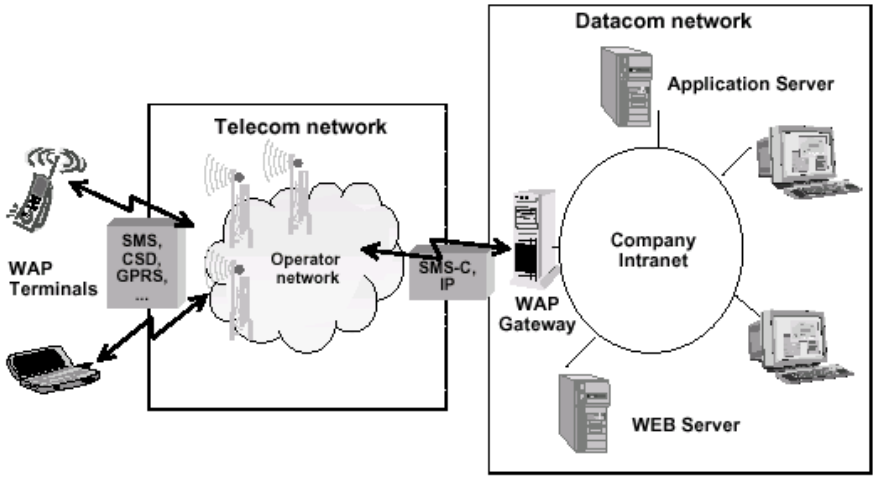
In the meeting, your customer would like to know the status of his current order. With your WAP-enabled device, you can access your supply chain database to give your customer the very latest information on the status of his order.

Your meeting finished earlier than expected so you decide to catch an earlier train. *In the taxi* on the way to the station, you can use your WAP-enabled device to check the train timetables and book your ticket.

A last minute meeting requires Parker Hansen to arrange for airplane, car and hotel reservations. Other services that are immediately accessible and automatic include translation services, banking, catering, restaurant reservations, billing/expense tracking, frequent flyer miles, etc.

WAP ARCHITECTURE

The Wireless Application Protocol (WAP) standard uses two essential elements of wireless communication: an end-to-end application protocol and an application environment based on a browser.

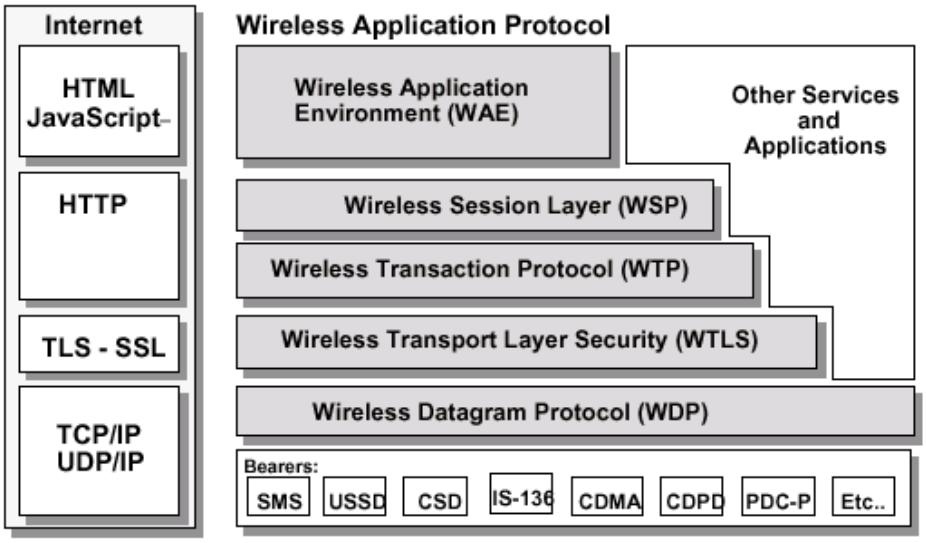


The application environment consists of two elements:

a mark-up language, WML, that allows programmers to define the application's user interface in a device-independent way,

a programming language, WMLScript, that allows programmers to embed executable logic in their applications.

The application protocol is a layered communication stack that consists of a session protocol, a transaction protocol, a security protocol, and a datagram protocol.



NOKIA WAP SERVER SECURITY

Authentication & access control

The Nokia WAP Server 1.0 provides several means for authenticating users of the services and for managing access to services. User authentication can be based on username/password pair or mobile device identity. The WAP Server provides two additional possibilities for authentication:

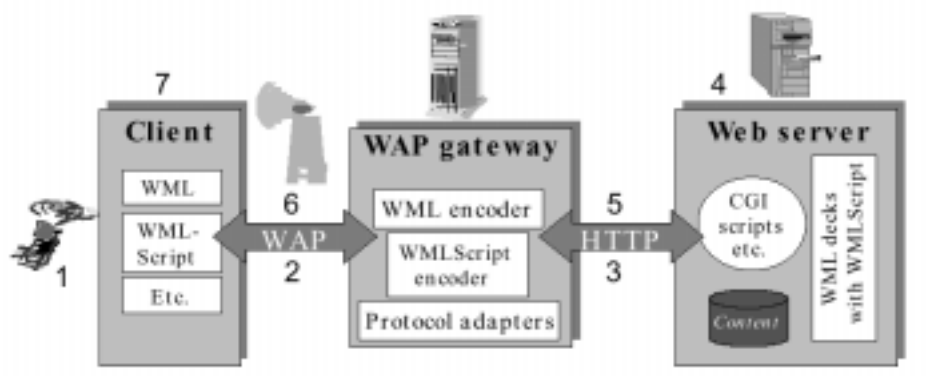
HTTP basic authentication for application level authentication

HTTP Proxy authentication for server level authentication

Security features

The Nokia WAP Server 1.0 supports WTLS (Wireless Transport Layer Security) Class 2 level of security (encryption of transmitted data and server authentication based on server certificates).

The WAP model is similar to a Web model and it is therefore relatively straightforward to adapt existing applications and IT systems to the mobile environment.



HOW DOES IT WORK?

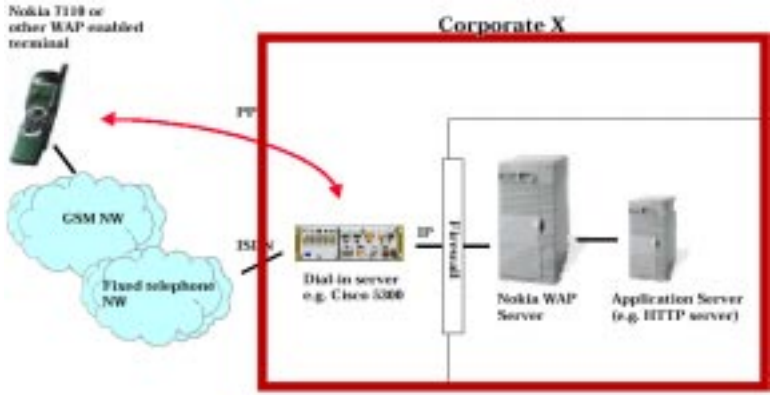
1. The user presses a phone key that has an URL request assigned to it.
2. The user agent sends an URL request to the WAP gateway by using the WAP protocol.
3. The WAP gateway generates a conventional HTTP request for the specified URL and sends it to the web server.
4. The web server parses the HTTP request and determines what to retrieve. If the URL specifies a static file, the web server retrieves the file and adds an HTTP header to it. If the URL specifies a CGI or other script application, the web server launches the application.
5. The web server returns the WML deck with the added HTTP header or the WML output from the CGI or other script application.
6. The WAP gateway verifies the HTTP header and the WML content and encodes them to binary form. The gateway then creates a WAP response containing the WML and sends it to the user agent.
7. The user agent receives the WAP response. It parses the WML response and displays the first card of the WML deck to the user.

DEPLOYMENT OF THE WAP SERVER WITH CSD BEARER

As the Circuit Switched Data (CSD) is one of the most likely bearers for many corporate WAP services, it is important to note that there are various possibilities to set up the CSD connection to the Nokia WAP Server. Usually access to service is possible:

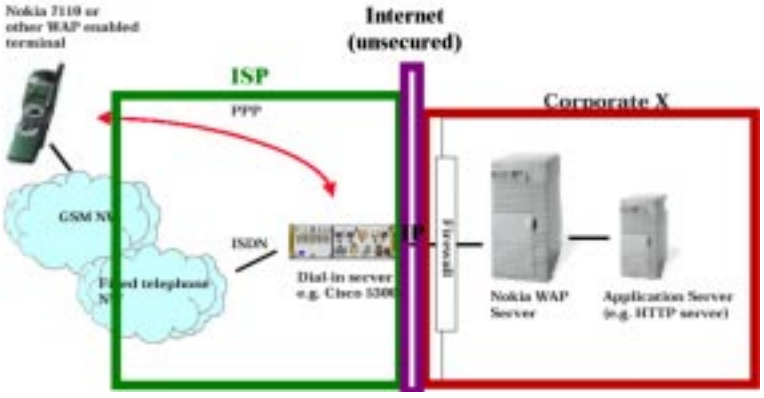
1. From corporate-own Remote Access Server

If companies are providing Intranet services to their employees, they will already have something similar. Companies have independence from ISPs and network operators by administrating their own modem pools or ISDN routers. In this model, the company is responsible for maintenance of the total platform.



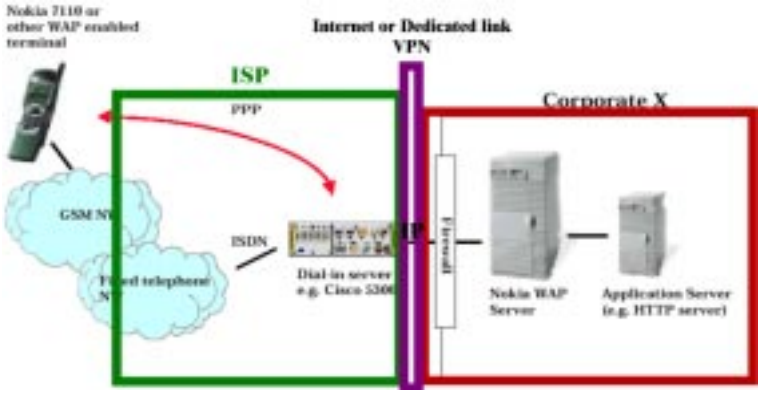
2. Via the Internet

Users make agreements with an Internet Service Provider (ISP). Remote Access Servers terminating the datacall are located in ISP premises. Users access the WAP Server in the company over the Internet.



3. With secured channel through ISP Remote Access Server

If there is a need to control requests coming from Internet, the corporate network, secured channel can be used between the Remote Access Server and WAP Server. The connection from ISP Remote Access Server to the corporate network can be Virtual Private Network or even leased line depending on corporate requirements.



QUESTIONS AND ANSWERS

Q: Is it possible to know who is connected to the WAP Server?

A: When a WAP terminal connects to a dial-in server, it gets an IP address, which is most of time delivered by a DHCP server. In such cases, the WAP Server sees only the terminal's IP address and cannot determine who is connected.

Q: What are the components of HP's mobile e-services offerings?

A: HP offers Windows NT- and UNIX-based WAP servers that allow service providers and enterprises to access data and e-services from the Internet in order to create and deploy their own mobile e-service solutions. The platform is a hardware, software and services bundle that combines WAP servers with HP technologies such as e-speak and products supplied by partners.

Q: Will HP provide hardware, software and/or services for this programme?

A: HP's intention is to concentrate on the strengths of its e-services program as a solutions business capable of combining different partners around its core expertise to answer evolving market needs. As such, HP will provide hardware, software and services -- it will not provide the infrastructure behind mobile e-services, but it will provide components for that infrastructure.

USEFUL ADDRESSES

Hewlett Packard information:

Web sites:

http://www.hp.com/go/netserver

Nokia general web sites:

http://www.nokia.com/wap/

http://www.forum.nokia.com/

Further information on the Nokia 7110 is available at:

http://www.nokia.com/phones/7110/index.html

Information on the Nokia WAP Server is available at:

http://www.nokia.com/corporate/wap/index.html

Nokia WAP developer info is available at:

http://www.forum.nokia.com/developers/wap/wap.html

Wap Forum:

www.wapforum.org

WAP Forum Specifications for WAP and WML

http://www.wapforum.org/what/technical.htm

STAY IN TOUCH

www.hp.com/go/netserver

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