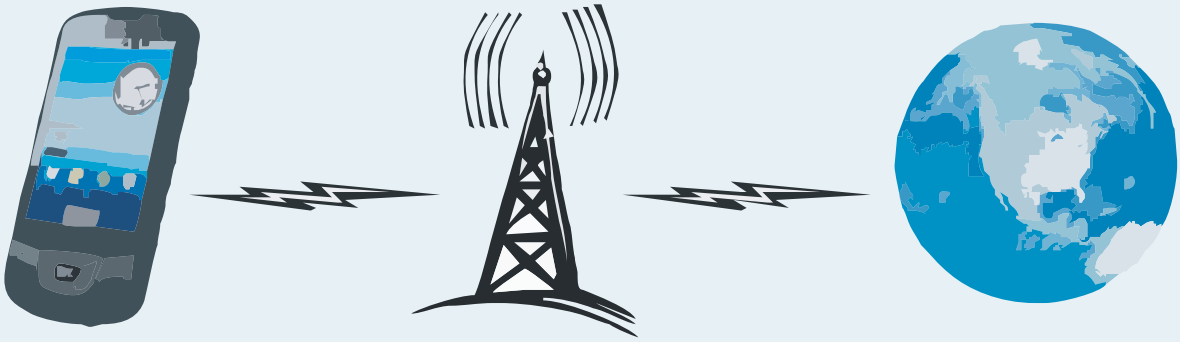
WAP Protocol Stack
MMS Messaing Stack

WAP and MMS Stacks on Android for OEM

- Connect browser using WAP 1.2 or WAP 2.0 protocols to the telecom carrier Gateway to open URL's.
- Download purchased content (Ringtones, Java Apps etc.) using WAP Gateway connection.
- Receive WAP Push (SI or SL) content over SMS or GPRS from WAP Gateway.
- Send and Receive MMS Messages (**WAP 1.2 and WAP 2.0**)



Smartphone

Carrier WAP Proxy or Gateway with billing system.

Content Provider (Carrier/3rd party)

Winwap's WAP and MMS Stacks provide powerful APIs on Android. Integration on Android is easy as the Stack APIs are well documented, come with demonstration source codes, and Winwap developers are available for technical support.

Winwap Technologies

www.winwap.com

WAP Push on Android

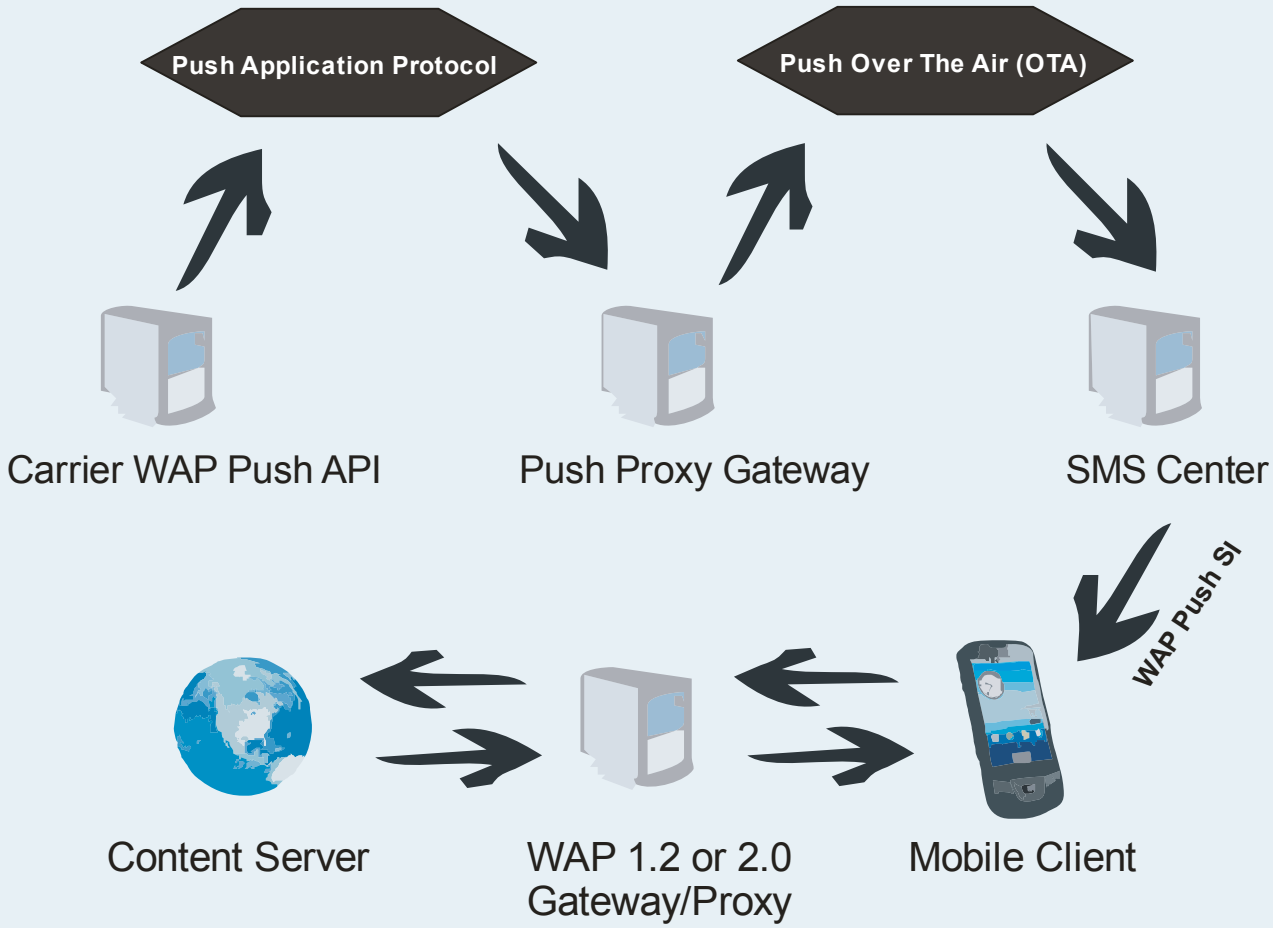
The **WAP Push protocol** allows you to send messages and alerts that may include a URL link that the device user can accept to initiate a browser session directly. WAP Push messages can deliver rich content such as images and audio. WAP Push programming can open the device browser automatically, giving the user a richer experience. From the user's point of view, WAP Push is simply a Mobile Internet page (WAP page) delivered directly to the user's device without requiring user initiation. From the carriers point of view, WAP Push is a way to charge users for content delivery and to share revenue with content providers.

WAP Push messages are initiated by sending a specially formatted Push Application Protocol (PAP) XML document to the Push Proxy Gateway (PPG), which, in turn, forwards the content to the device over SMS (WAP Push). Mobile Originated WAP Push messaging is not supported by all carriers.

WAP Push messages may include any form of content, because the message is actually a URL link that should be opened over a WAP connection. User acceptance initiates the browser, and WAP content appears. **Winwap's WAP Protocol Stack provides the WAP 1.2 and WAP 2.0** Gateway/Proxy connection needed to open the URL Link over the WAP connection.

Full product available in Q1 of 2011!

Contact Winwap sales and ask for pre-order benefits!



WAP Protocol Stack
MMS Messaing Stack

WAP PUSH

A WAP Push is a specially encoded message that includes a link to a WAP address. WAP Push can be delivered over any WDP-supported bearer, such as GPRS or SMS.

The WAP Push message directs the end user to a WAP address where particular content may be stored ready for viewing or downloading to the handset. The address could be a simple page or multimedia content (e.g. polyphonic ring tone) or a Java application.

Carriers can track if the content has been viewed or downloaded when the WAP address is opened using a WAP Gateway/Proxy (WAP 1.2 or WAP 2.0) connection.

Winwap's Android WAP Protocol Stack uses Winwap's mature Linux WAP Stack. The Android version of WAP Protocol Stack will include additional code that will make these tasks easy:

- Recognize when WAP Push Service Indicator (SI) or Service Loader (SL) is received
- Process the SI/SL and figure out what to do with the Push
- Open wireless connection using specific APN for WAP
- Use WAP 1.2 or WAP 2.0 to access the WAP Address
- Process the content at the WAP Address in different ways depending on what type of content is received:

    1. *Save ringtone, java application or picture to storage memory*
    2. *Open xHTML page in Android Browser*
    3. *OEM can configure this further to their liking*

The typical types of applications that need WAP Protocol Stack functionality today include Receiving payable content and MMS messaging. Below the basic reasons are explained.

RECEIVING PAYABLE CONTENT

The Android WEB Browser uses the HTTP protocol to connect directly to webservers to retrieve content. This is the default transport used by the Android browser. Using this protocol will not allow the download of payable content pushed to a device using WAP Push.

Acting as a WAP Browser when required: The Android device can act as a WAP Browser for content download when using Winwap's WAP 1.2 or WAP 2.0 stack to connect to a WAP Gateway/Proxy. As the request passes the WAP Gateway/Proxy the carrier can track it and make sure customers have received their billable content (different carriers may use different methods). If the content is a web/wap page, the WAP Stack can forward it to the Android browser for displaying.

MULTIMEDIA MESSAGING

Multimedia Messaging (MMS) uses WAP Protocol Stack (WAP 1.2 or WAP 2.0) for message delivery. **Winwap provides** separately from the WAP Stack SDK, **a full MMS SDK with powerful API (both on NDK and JNI) for MMS functionality.**

When a MMS Message is sent to a GSM/CDMA recipient, the GSM/CDMA device actually receives a SMS message in WAP Push format. This WAP Push message includes a Notification that a new MMS message exists. Then, the device must open a data connection using a specific APN and use the WAP 1.2 or WAP 2.0 protocol to download the actual MMS Message from the MMSC (MMS Center). When sending MMS messages the the GSM/CDMA device also uses WAP 1.2 or WAP 2.0 and WAP Gateway/Proxy to deliver the message to the carriers MMSC.

SUMMARY

The WAP Protocol Stack is an important part of all modern handsets. Delivery of paid content uses WAP connections as this way the carriers can charge for the content on the consumers monthly invoice (or subtract from pre-paid accounts). Without WAP, the carrier can not control the delivery and billing for payable content, and credit cards or other means must be use for billing purposes in conjuction with OMA Download protocols (also available from Winwap Technologies). If users buy a ringtone, java application or similar by sending a sms to some content provider, their GSM/CDMA device typically receives a WAP Push (SI) message in return, that contains a link for downloading the content. This link should on most carrier networks be opened using a specific APN and WAP Gateway/Proxy so the carrier can control the delivery and billing and generate additional revenue on the transaction.

Winwap Technologies

Mobile Internet Browsing and Multimedia Messaging

Winwap Technologies provides software technologies and applications for networked mobile devices. The product portfolio includes a powerful Internet Browser, Multimedia Messaging (MMS, SMS), Email client-side software, USB Host and Client Stacks, UPnP solution for A/V, Android Apps, and toolkits based on these technologies that allow others to integrate the functionality into their own products.

Winwap is a privately owned company that was founded by the current CEO, Mikael Krogius, in 1995. Winwap has always worked with telecommunications software, and entered the mobile Internet market in 1999 with the WinWAP browser. Today the core business is to provide customized software with integration support and maintenance services for companies involved in the different manufacturing steps of networked mobile devices.

At Winwap Technologies we constantly strive to make our software better and to keep our customers satisfied with our products and support while remaining innovative when creating new technologies for mobile devices.

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The products can be tailored and built for specific platforms, including desktop computers, notebooks, kiosks, handheld devices and smart phones.