Push operation

A push operation in WAP is done by a push initiator (Pl), which transmits push content and delivery instructions to a Push Proxy Gateway (PPG). The Pl is an application that runs on an ordinary Web server. It communicates with the PPG using the **push access protocol (PAP)**.

Push Proxy Gateway (PPG) which then delivers the push content to the WAP client according to the delivery instructions. The PPG uses the push over-the-air (OTA) protocol to deliver the push content to the client.

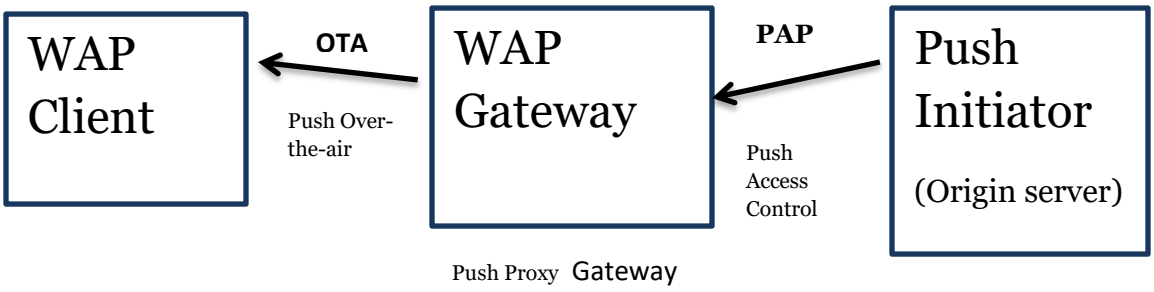

Figure: Push Architecture

Push message types: Two push message content types are available. These are as follows:

a. Service indication: The service indication (SI) content type allows sending notifications to end users in an asynchronous manner. These may be about new e-mails, changes in stock price, news headlines, advertising, reminders, low prepaid balance, etc. This is shown in Figure 9.8.

b. Service loading: The service loading (SL) content type causes a user agent on a mobile client to load and execute a service that can be in the form of a WML deck. The SL contains a URI indicating the service to be loaded by the user agent without user intervention.

Basic steps involved in push operation:

- The P1 (Web server or e-mail provider) instructs the WAP (push proxy) gateway to push an Sl to the mobile client using the PAP. The PI sends the SI message with an appropriate header and an URI to the e-mail service.
- The push proxy/gateway sends the SI to the mobile client using the push OTA protocol.
- The mobile client receives the push containing the SI, and the message is presented to the end user.

HTTP transport: To send push request to WAP gateway: HTTP POST request method is used to transport the push request using PAP. The HTTP response always contains result code 202 (accepted for processing) when the HTTP transaction succeeds, although the response PAP document may contain a PAP error.

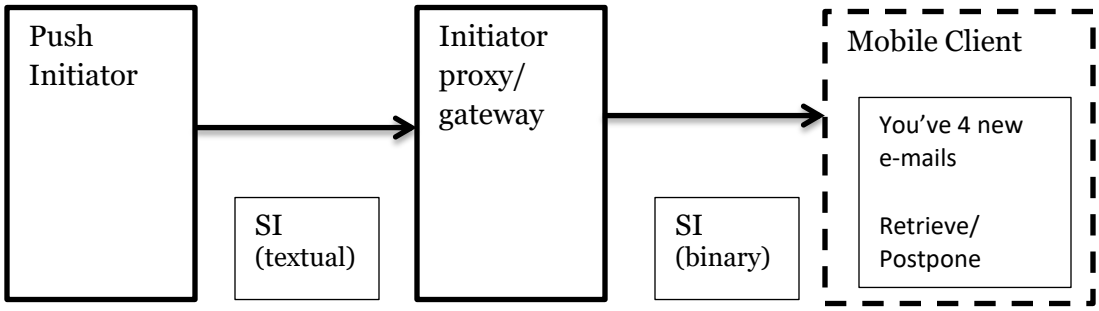

Figure: SI Message Overview

- **Push message format (using PAP)**

The push message contains three entities that are bundled together in a message sent from the Pl to the PPG. These are as follows:

1. A control entity: This is an XML document that contains delivery instructions for the PPG. It must be the first entity in the multipurpose internet mail extensions (MIME) multipart/related message.

2. A content entity: This is a MIME body part containing the content to be sent to the wireless device. It is included only in the push submission and not in any other operation request or response. It must be the second entity in the MIME multipart/related message.

3. An optional capability entity.

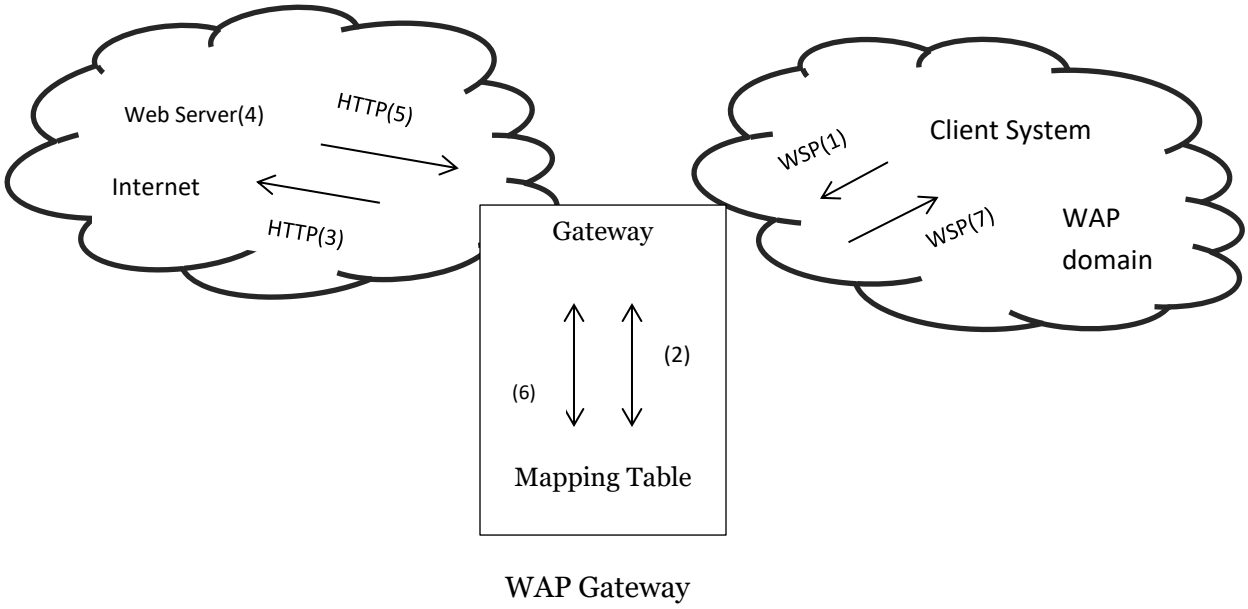

Figure: Pull Operation Architecture

Pull operation

The steps involved in pull operation are given below:

1. The user agent (mobile) sends a URL request to a WAP gateway using the WSP protocol.

2. The WAP gateway decodes the request message and translates the request line and request header (in binary format) to HTTP format by a mapping table.

3. The WAP gateway creates a connection to the Web server and sends an HTTP request to it.

4. The HTTP request is processed by the Web server.

5. The Web server returns an HTTP reply message, which contains data.

6. The WAP gateway encodes the reply and translates the HTTP formatted reply line and reply header into WSP binary format using the mapping table.

7. The WAP gateway creates a WSP response containing WML and returns it to the client system.