



WAP Proxy-Based Redirect Requirements

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1. Scope (Informative)

The scope of this document includes functional requirements for the operation of WAP Proxy-Based Redirect.

This document contains information applicable to network operators, WAP proxy manufacturers, terminal manufacturers, independent software vendors, and service providers.

2. References

2.1 Normative References

[RFC2119] “Key words for use in RFCs to Indicate Requirement Levels”. S. Bradner. March 1997.
[URL:http://www.ietf.org/rfc/rfc2119.txt](http://www.ietf.org/rfc/rfc2119.txt)

2.2 Informative References

None.

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

Proxy-based redirect WAP proxy direct response to web request redirection by origin servers, on behalf of WAP clients.

3.3 Abbreviations

URL uniform resource locator
WAP Wireless Application Protocol

4. Introduction (Informative)

Proxy-based redirect is defined as WAP proxy direct response to web request redirection by origin servers, on behalf of WAP clients. “WAP clients” in this context refers primarily to mobile device-based web browsers, but can also include any web browser operating in a mobile environment, and supporting the requirements of this specification. Proxy-based redirect avoids the need to transmit redirect replies over the air. When applied where appropriate, proxy-based redirect can both increase quality of service and reduce service costs.

Web-based services often make use of web request redirection, especially when services are deployed across multiple servers and/or data centers. Two key capabilities enabled by web request redirection are:

- Information passing between web servers

When needed, the web servers can exchange information in the process of serving user requests. The information can be passed as URL parameters in redirected web requests.

- Control passing between web servers

When needed, web servers can transfer control of the user session through web request redirection.

Some services can involve several redirects in serving a single user request. In the wired web, the impact of such redirects is only a slight delay in response to the user request. In the wireless web however, over-the-air transmission of redirect replies and subsequent client requests can have significant service effects, for example:

- Redirection can add an average of one kilobyte of over-the-air data usage for each redirection. The cost of this data usage is borne by users with per-kilobyte usage data plans, or by the operator for users with unlimited usage data plans. Operators need to enable redirection as a service design option, while minimizing the effect of redirection upon the cost of service.
- One second of delay may result from each redirection involved in serving a user request. This delay impacts the quality of experience of the user. Service providers need to enable redirection as a design option, while minimizing the effect of redirection upon the user’s quality of experience.
- Some services involve information exchange or control transfer between origin servers utilizing long URLs in the redirection. Interoperability tests have shown that some devices cannot reliably support redirect URLs that are long or contain a large number of URL parameters. Service providers want consistent reliability for all devices, without complicating service design by utilizing different redirect design methods for different devices, or limiting design options to serve the lowest-common-denominator of device capabilities

The objective of this requirement specification is to illustrate the value of proxy-based redirect to WAP deployments and to guide further specification development by identifying key capabilities and operational characteristics necessary for successful proxy-redirect support.

5. Description (Informative)

5.1 Use Cases

5.1.1 Basic Operation of Proxy-Based Redirect

5.1.1.1 Short Description

The basic operation of proxy-based redirect is that when appropriate, a WAP proxy will directly retrieve content at URLs indicated in web redirect responses. In addition, the WAP device must be capable of properly processing the retrieved content, even though it is not directly involved in its retrieval. These capabilities are mandatory if proxy-based redirect is supported.

In order to properly process the received content, the WAP device must be informed of its base URL. This is required so that relative URLs can be used. Links contained in web pages often specify relative URLs as the target of the link. Relative URLs, as contrasted with absolute URLs, must be used in conjunction with a correct URL base in order for the absolute URL to be determined. Base URLs are determined either by the absolute location of the page containing the relative URLs, or by an explicit base identified in the web page itself.

Web redirect may change the base URL. When the browser itself handles a web redirect, it knows the new base URL inherently since it is either the new URL being requested, or contained within the content returned. In the proxy-based redirect case however the browser does not handle the redirect itself, so in cases where the new base URL (if any) is not specified in the content, the browser will not know the new base URL unless specifically informed of it by the WAP proxy.

Thus in order to ensure compatibility of proxy-based redirect with web pages containing relative URLs, the WAP proxy must inform the browser of the base URL of the content retrieved from the redirect URL, and the browser must be able to process this information. These capabilities are mandatory in the device and WAP proxy, if proxy-based redirect is supported.

For privacy or security reasons, users may desire notification that proxy-based redirect has occurred in the process of returning the current web page. WAP devices should support such notifications.

5.1.1.2 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.1.3 Pre-conditions

The user's device and the WAP proxy both support proxy-based redirect.

The web-based service utilizes redirection for the URL in the user device request.

Proxy-based redirect is appropriate for the current user request.

5.1.1.4 Post-conditions

The received content can be properly processed. Any relative links function as intended by the web-based service provider.

5.1.1.5 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a web redirect response.

- 4) The WAP proxy receives the redirect response, and determines that proxy-based redirect can be used for this request. The WAP proxy sends a web request for the content at the URL indicated in the redirect response.
- 5) The origin server replies with the content for the URL.
- 6) The WAP proxy forwards the reply to the user, with an indication of the base URL for the content. If the content contains relative links, the user agent uses the indicated location as the base for any requests to the relative links.

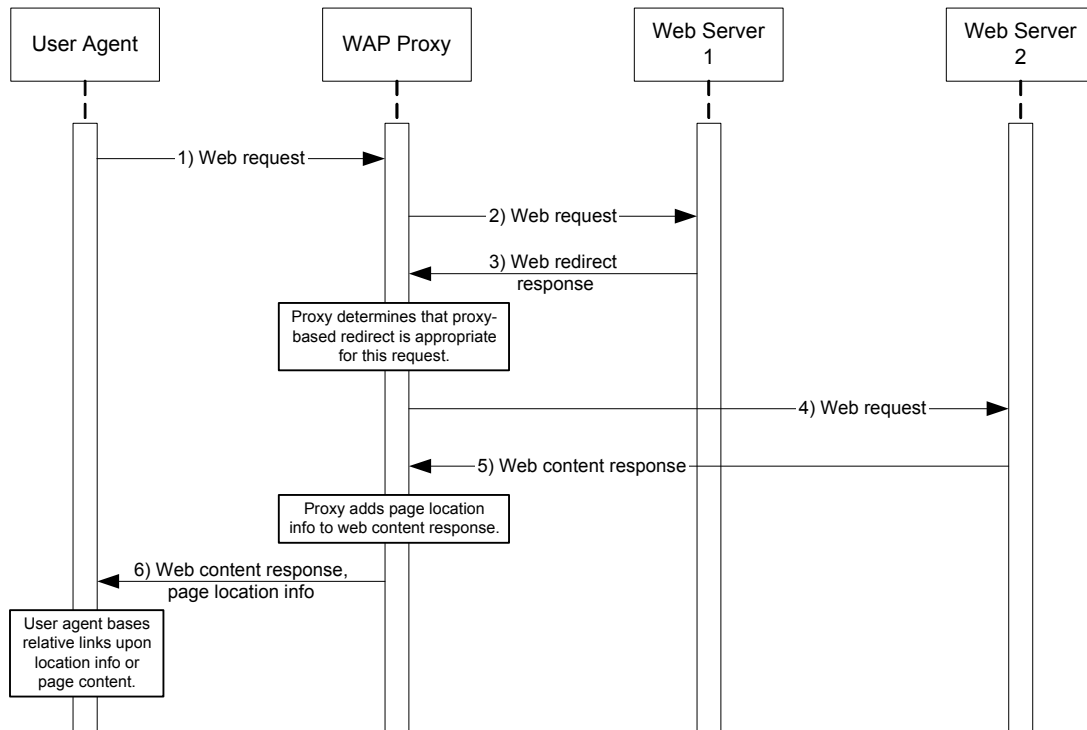


Figure 1 Basic Operation of Proxy-Based Redirect

5.1.1.6 Alternative Flow

None

5.1.1.7 Operational and Quality of Experience Requirements

When utilized, proxy-based redirect must enable achievement of the intended benefits, e.g. reduced delay, reduced service cost, or improved service reliability.

WAP devices that support user notification of proxy-based redirect must utilize unobtrusive notification means, e.g. icons or controllable, timed popup messages.

5.1.2 Detection of Device Compatibility with Proxy-Based Redirect

5.1.2.1 Short Description

Proxy-based redirect will not be compatible with all WAP devices. WAP devices that are compatible with proxy-based redirect should provide an indication of this capability. In addition, WAP proxies may provide a proxy configuration option to specify devices that are compatible with proxy-based redirect. Support for one of these capabilities is mandatory if proxy-based redirect is to be utilized.

If a WAP proxy determines that a device is compatible with proxy-based redirect, proxy-based redirect may be utilized, if appropriate for each request.

5.1.2.2 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.2.3 Pre-conditions

The user's device and the WAP proxy support proxy-based redirect.

The user's device is known to be compatible with proxy-based redirect either through a device indication, or through WAP proxy configuration.

The web-based service utilizes redirection for the URL in the user device request.

5.1.2.4 Post-conditions

Content at redirect URLs is retrieved by the WAP proxy on behalf of the user, if appropriate for the specific request.

5.1.2.5 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a web redirect response.
- 4) The WAP proxy receives the redirect response. The WAP proxy determines that the user's device has indicated compatibility with proxy-based redirect, and that proxy-based redirect is appropriate for the current request. The WAP proxy sends a web request for the content at the URL indicated in the redirect response.
- 5) The origin server replies with the content for the URL.
- 6) The WAP proxy forwards the reply to the user, with an indication of the base URL for the content.

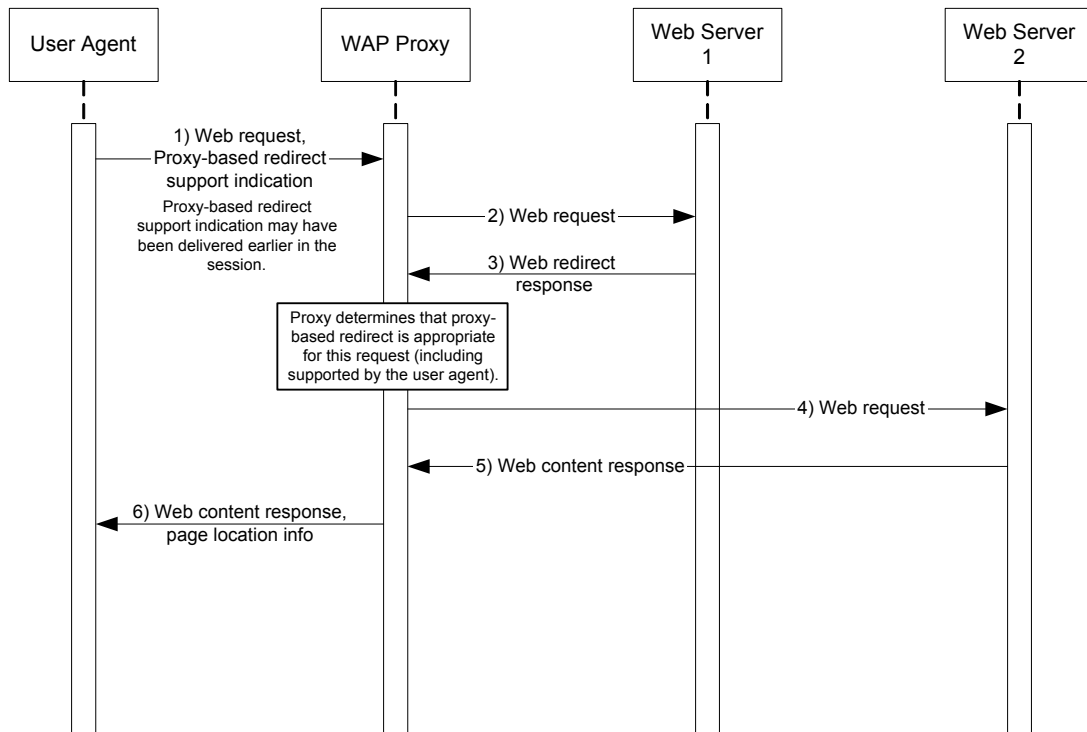


Figure 2 Device Indicates Compatibility with Proxy-Based Redirect

5.1.2.6 Alternative Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a web redirect response.
- 4) The WAP proxy receives the redirect response. The WAP proxy determines that the user's device is compatible with proxy-based redirect through WAP proxy configuration, and that proxy-based redirect is appropriate for the current request. The WAP proxy sends a web request for the content at the URL indicated in the redirect response.
- 5) The origin server replies with the content for the URL.
- 6) The WAP proxy forwards the reply to the user, with an indication of the base URL for the content.

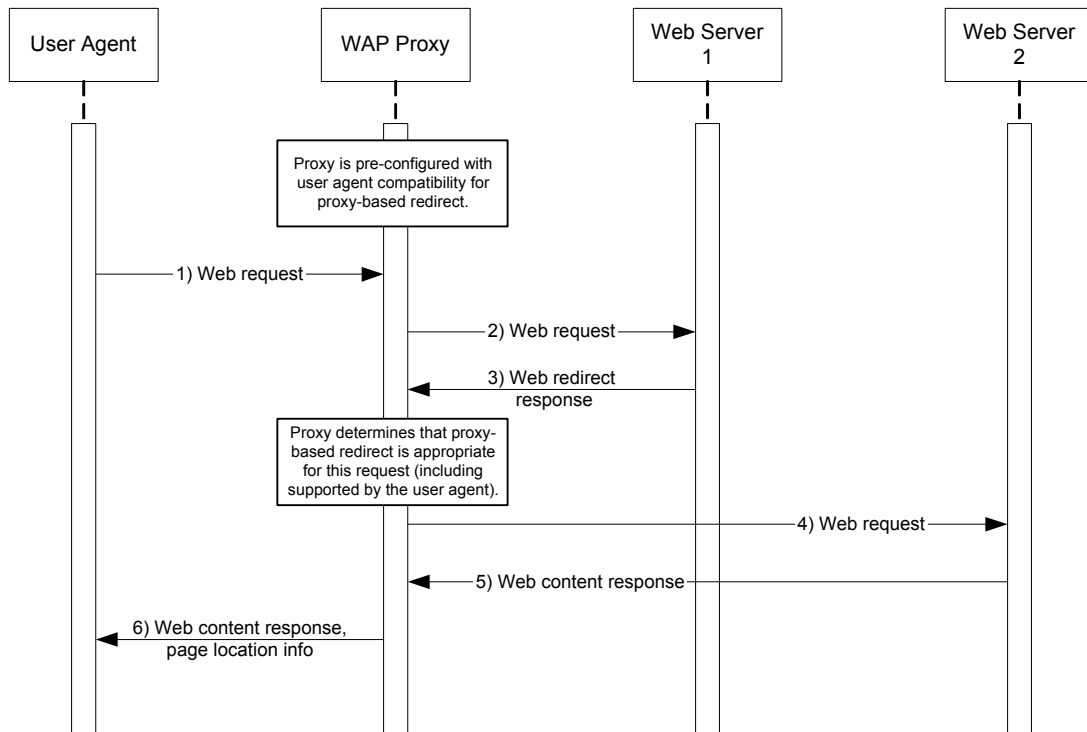


Figure 3 WAP Proxy Configuration Indicates Device Compatibility with Proxy-Based Redirect

5.1.2.7 Operational and Quality of Experience Requirements

None.

5.1.3 Detection of Device Incompatibility with Proxy-Based Redirect

5.1.3.1 Short Description

Proxy-based redirect will not be compatible with all WAP devices. WAP devices that are compatible with proxy-based redirect should provide an indication of this capability. In addition, WAP proxies may provide a proxy configuration option to specify devices that are compatible with proxy-based redirect. Support for one of these capabilities is mandatory if proxy-based redirect is to be utilized.

To ensure that proxy-based redirect is used only for compatible devices, the WAP proxy must assume that unless informed otherwise through a device indication or proxy configuration, devices are not compatible with proxy-based redirect. This capability is mandatory if proxy-based redirect is supported.

5.1.3.2 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.3.3 Pre-conditions

The WAP proxy supports proxy-based redirect.

The user's browser does not support proxy-based redirect.

The user's device is known to be incompatible with proxy-based redirect either through absence of a device compatibility indication, or WAP proxy configuration.

The web-based service utilizes redirection for the URL in the user device request.

5.1.3.4 Post-conditions

Web redirect responses are forwarded to the user.

5.1.3.5 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server. The WAP proxy forwards the request to the origin server.
- 2) The origin server replies with a web redirect response.
- 3) The WAP proxy receives the redirect response. The WAP proxy determines that the user's device is incompatible with proxy-based redirect, because compatibility has not been indicated by the device or through WAP proxy configuration. The WAP proxy forwards the redirect response to the user.
- 4) The user's device sends a web request to the origin server at the redirect location.
- 5) The WAP proxy forwards the request to the origin server.
- 6) The origin server replies with the content for the URL.
- 7) The WAP proxy forwards the reply to the user.

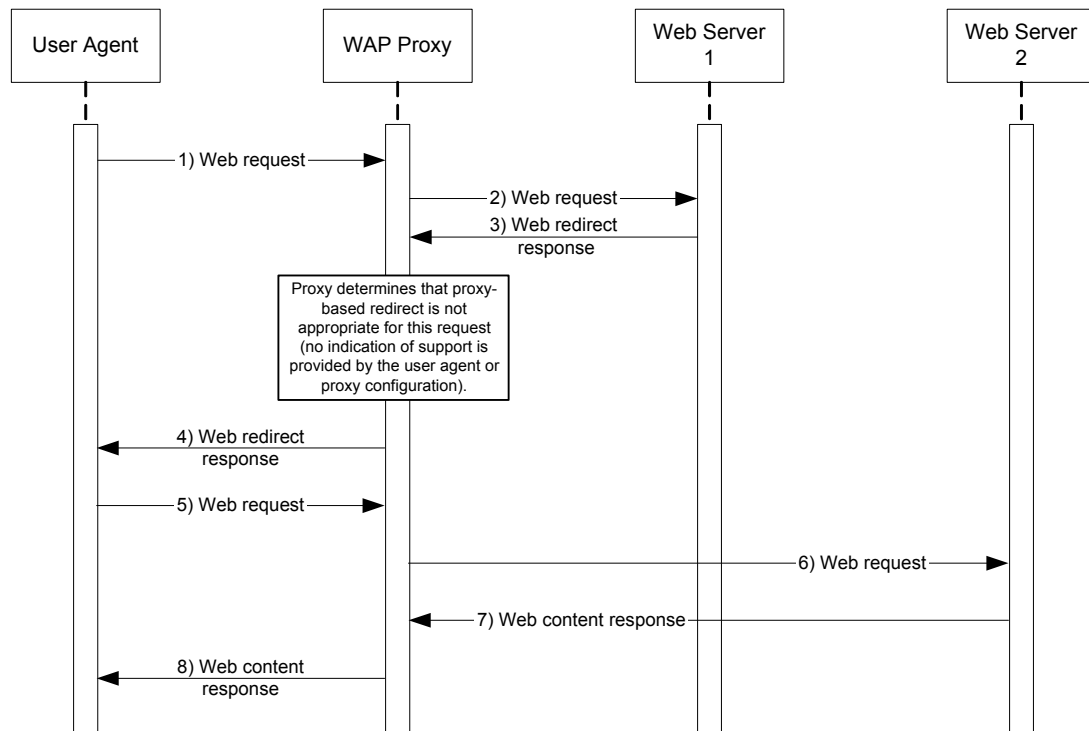


Figure 4 Detection of Device Incompatibility with Proxy-Based Redirect

5.1.3.6 Alternative Flow

None.

5.1.3.7 Operational and Quality of Experience Requirements

Proxy-based redirect support in a WAP proxy must not impact the service provided to users of WAP devices that do not support it.

5.1.4 User Prefers to Enable Proxy-Based Redirect

5.1.4.1 Short Description

Proxy-based redirect may not be considered desirable by all users or for all requests, for example due to concerns over privacy or security. Proxy-based redirect may also be incompatible with certain WAP device features, e.g. domain-based proxy selection. To address these concerns, WAP devices may control the use of proxy-based redirect by announcing a preference to enable or disable proxy-based redirect for the current WAP session, or for the current request. In addition, WAP proxies may provide users with a similar proxy-based preference applicable to all requests (e.g. as a user profile attribute). Support for device-based control is mandatory. Support for a proxy-based preference is optional. The WAP proxy may assume a default value for proxy-based user preferences.

WAP device controls of proxy-based redirect may be invoked as a related function of more general user preferences, e.g. as optimization, privacy, or security related controls. If so, the use of proxy-based redirect must be consistent with the current setting for the related controls.

If a user expresses a preference to enable proxy-based redirect, the WAP proxy may utilize proxy-based redirect for requests from the user, if appropriate for each request.

5.1.4.2 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.4.3 Pre-conditions

The user's device and the WAP proxy both support proxy-based redirect.

A user preference to enable proxy-based redirect is expressed either through configuration of the device or WAP proxy, or assumed by default.

The web-based service utilizes redirection for the URL in the user device request.

5.1.4.4 Post-conditions

Content at redirect URLs is retrieved by the WAP proxy on behalf of the user, if appropriate for the specific request.

5.1.4.5 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response. The WAP proxy determines that the device has indicated a user preference to enable proxy-based redirect, and that proxy-based redirect is appropriate for the current request. The WAP proxy sends a web request for the content at the URL indicated in the redirect response.
- 5) The origin server replies with the content for the URL.
- 6) The WAP proxy forwards the reply to the user, with an indication of the base URL for the content.

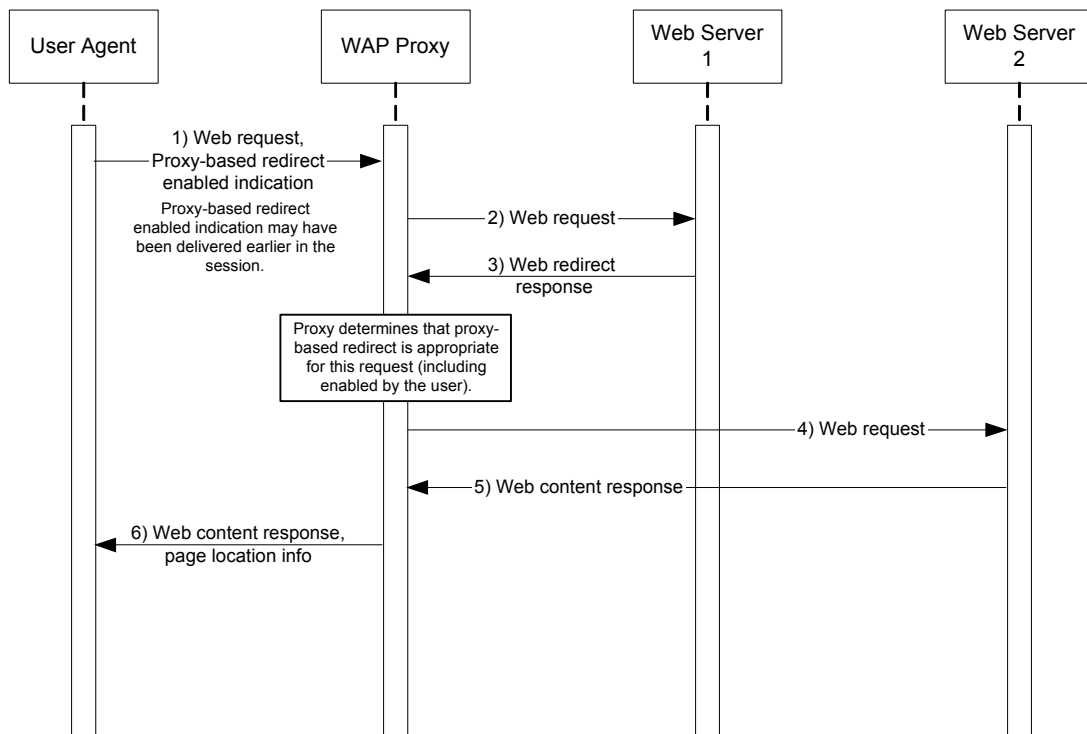


Figure 5 Device Indicates User Preference to Enable Proxy-Based Redirect

5.1.4.6 Alternative Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response. WAP proxy configuration indicates that proxy-based redirect is enabled for the user. The WAP proxy determines that proxy-based redirect is appropriate for the current request. The WAP proxy sends a web request for the content at the URL indicated in the redirect response.
- 5) The origin server replies with the content for the URL.
- 6) The WAP proxy forwards the reply to the user, with an indication of the base URL for the content.

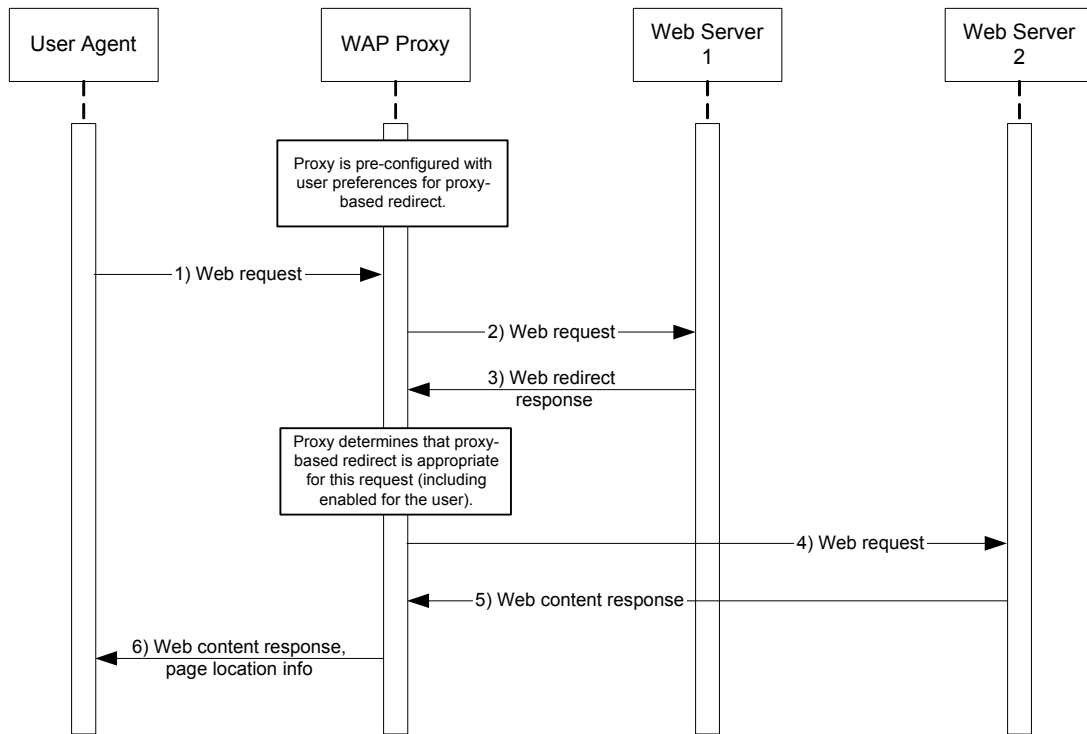


Figure 6 WAP Proxy Configuration Indicates User Preference to Enable Proxy-Based Redirect

5.1.4.7 Operational and Quality of Experience Requirements

WAP proxies that provide a user preference for proxy-based redirect should support user control of the preference.

Device controls for proxy-based redirect should not impact the usability of WAP devices.

5.1.5 User Prefers to Disable Proxy-Based Redirect

5.1.5.1 Short Description

Proxy-based redirect may not be considered desirable by all users or for all requests, for example due to concerns over privacy or security. Proxy-based redirect may also be incompatible with certain WAP device features, e.g. domain-based proxy selection. To address these concerns, WAP devices may control the use of proxy-based redirect by announcing a preference to enable or disable proxy-based redirect for the current WAP session, or for the current request. In addition, WAP proxies may provide users with a similar proxy-based preference applicable to all requests (e.g. as a user profile attribute). Support for device-based control is mandatory. Support for a proxy-based preference is optional. The WAP proxy may assume a default value for proxy-based user preferences.

WAP device controls of proxy-based redirect may be invoked as a related function of more general user preferences, e.g. as optimization, privacy, or security related controls. If so, the use of proxy-based redirect must be consistent with the current setting for the related controls.

If a user expresses a preference to disable proxy-based redirect, the WAP proxy must not utilize proxy-based redirect for requests from the user in the current WAP session or the current request, as applicable.

5.1.5.2 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.5.3 Pre-conditions

The user's device and the WAP proxy both support proxy-based redirect.

A user preference to disable proxy-based redirect is expressed either through configuration of the device or WAP proxy, or assumed by default.

The web-based service utilizes redirection for the URL in the user device request.

5.1.5.4 Post-conditions

The current web redirect response is forwarded to the user.

5.1.5.5 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response. The WAP proxy determines that the device has indicated a user preference to disable proxy-based redirect. The WAP proxy forwards the redirect response to the user.
- 5) The user's device sends a web request to the origin server at the redirect location.
- 6) The WAP proxy forwards the request to the origin server.
- 7) The origin server replies with the content for the URL.
- 8) The WAP proxy forwards the reply to the user.

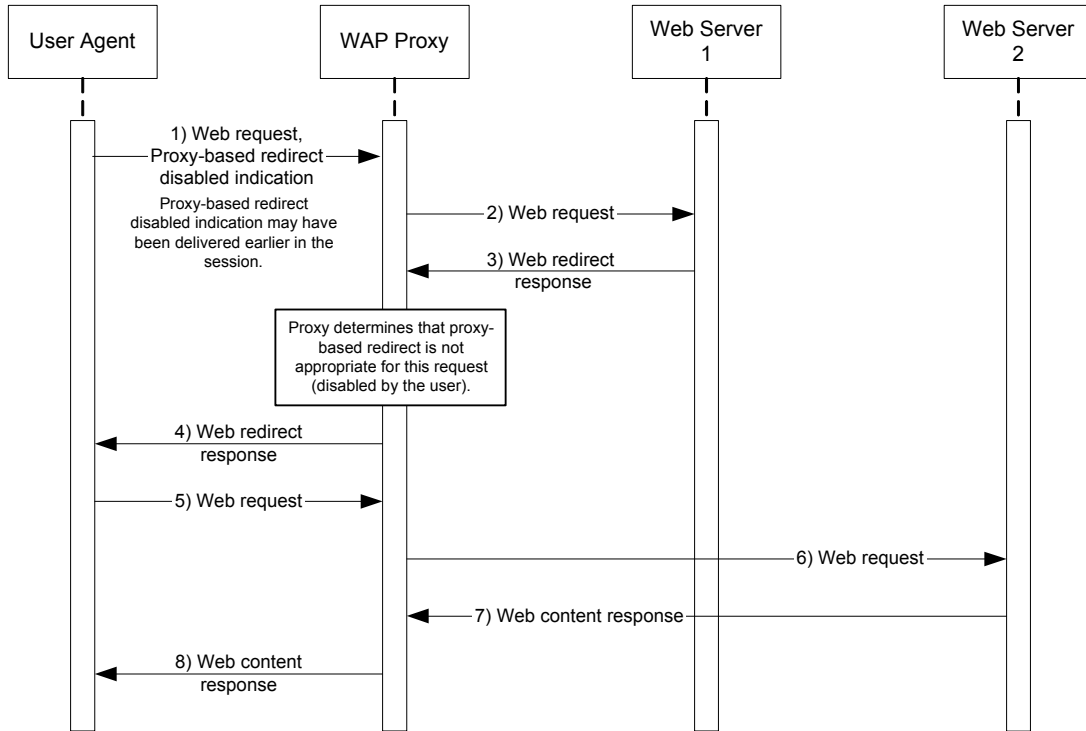


Figure 7 Device Indicates User Preference to Disable Proxy-Based Redirect

5.1.5.6 Alternative Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response. WAP proxy configuration indicates that proxy-based redirect is disabled for the user. The WAP proxy forwards the redirect response to the user.
- 5) The user's device sends a web request to the origin server at the redirect location.
- 6) The WAP proxy forwards the request to the origin server.
- 7) The origin server replies with the content for the URL.
- 8) The WAP proxy forwards the reply to the user.

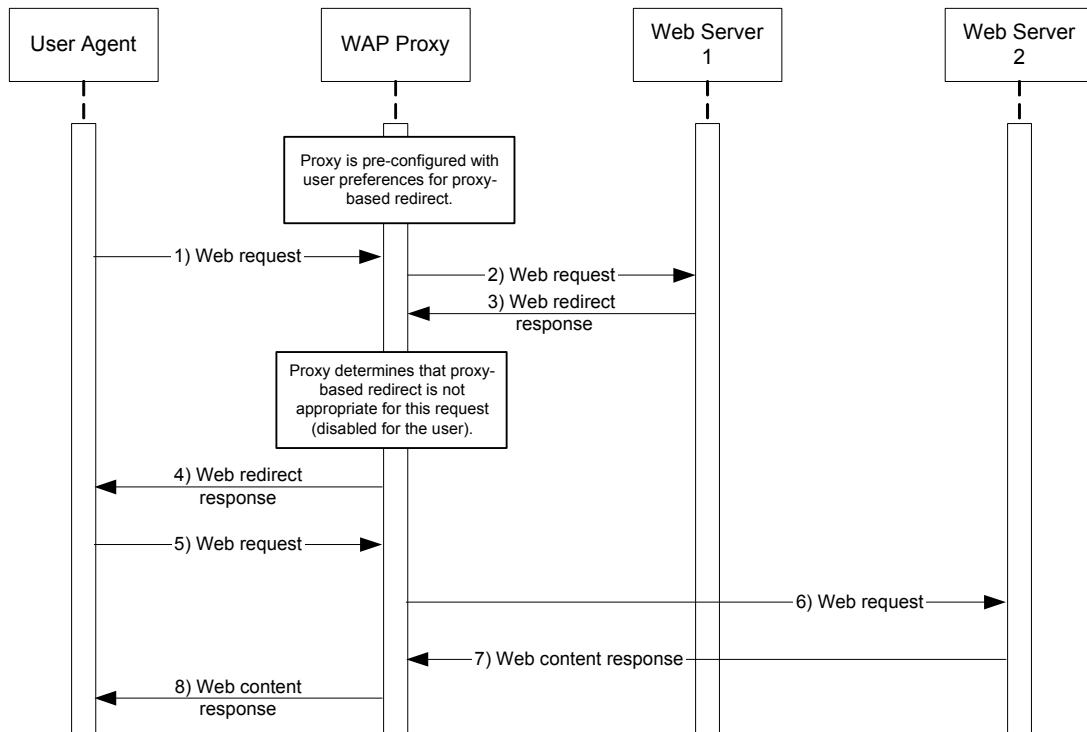


Figure 8 WAP Proxy Configuration Indicates User Preference to Disable Proxy-Based Redirect

5.1.5.7 Operational and Quality of Experience Requirements

WAP proxies that provide a user preference for proxy-based redirect should support user control of the preference.

Device controls for proxy-based redirect should not impact the usability of WAP devices.

5.1.6 Web-based Service Provider Prefers to Enable Proxy-Based Redirect

Proxy-based redirect may not be considered desirable by all web-based service providers or for all requests, for example due to concerns over privacy or security. To address these concerns, origin servers may announce a preference to enable or disable proxy-based redirect for the current response. In addition, WAP proxies may provide web-based service providers with a similar proxy-based preference applicable to all responses (e.g. as a service profile attribute). Support for either an origin server-based or proxy-based preference is optional. The WAP proxy may assume a default value for proxy-based service provider preferences. The WAP proxy may assume a default value for the origin server preference to enable or disable proxy-based redirect for the current response.

If an origin server expresses a preference to enable proxy-based redirect for the current response, the WAP proxy may utilize proxy-based redirect for the current response. If a web-based service provider expresses a preference to enable proxy-based redirect for all responses, the WAP proxy may utilize proxy-based redirect for responses from the service provider, if appropriate for each response.

If an origin server expresses a preference to disable proxy-based redirect for the current response, the WAP proxy must not utilize proxy-based redirect for the current response. If a web-based service provider expresses a preference to disable proxy-based redirect for all responses, the WAP proxy must not utilize proxy-based redirect for responses from the service provider.

5.1.6.1 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.6.2 Pre-conditions

The user's browser and the WAP proxy both support proxy-based redirect.

A web-based service provider preference to enable proxy-based redirect is expressed either through configuration of the origin server or WAP proxy, or assumed by default.

The web-based service utilizes redirection for the URL in the user device request.

5.1.6.3 Post-conditions

Content at redirect URLs is retrieved by the WAP proxy on behalf of the user, if appropriate for the specific request.

5.1.6.4 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response, which includes an indication that proxy-based redirect is enabled for this response. The WAP proxy determines that proxy-based redirect is appropriate for the current request. The WAP proxy sends a web request for the content at the URL indicated in the redirect response.
- 5) The origin server replies with the content for the URL.
- 6) The WAP proxy forwards the reply to the user, with an indication of the base URL for the content.

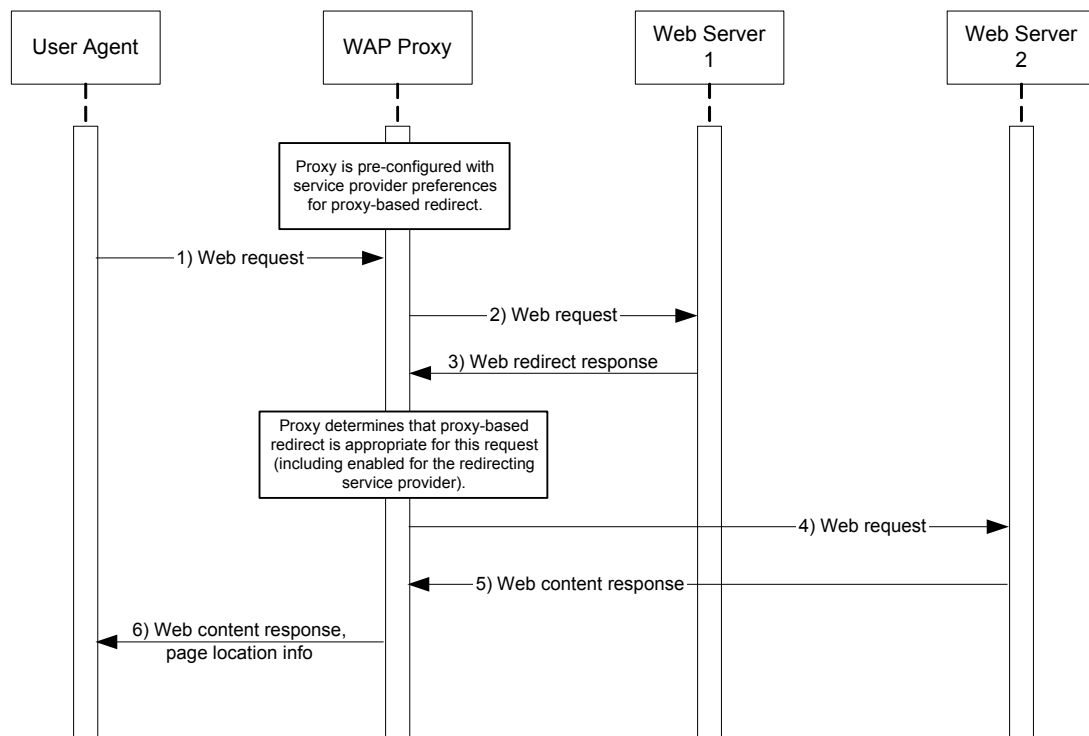


Figure 9 Web-Based Service Provider Indicates Preference to Enable Proxy-Based Redirect

5.1.6.5 Alternative Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response. WAP proxy configuration indicates that proxy-based redirect is enabled for the web-based service provider. The WAP proxy determines that proxy-based redirect is appropriate for the current request. The WAP proxy sends a web request for the content at the URL indicated in the redirect response.
- 5) The origin server replies with the content for the URL.
- 6) The WAP proxy forwards the reply to the user, with an indication of the base URL for the content.

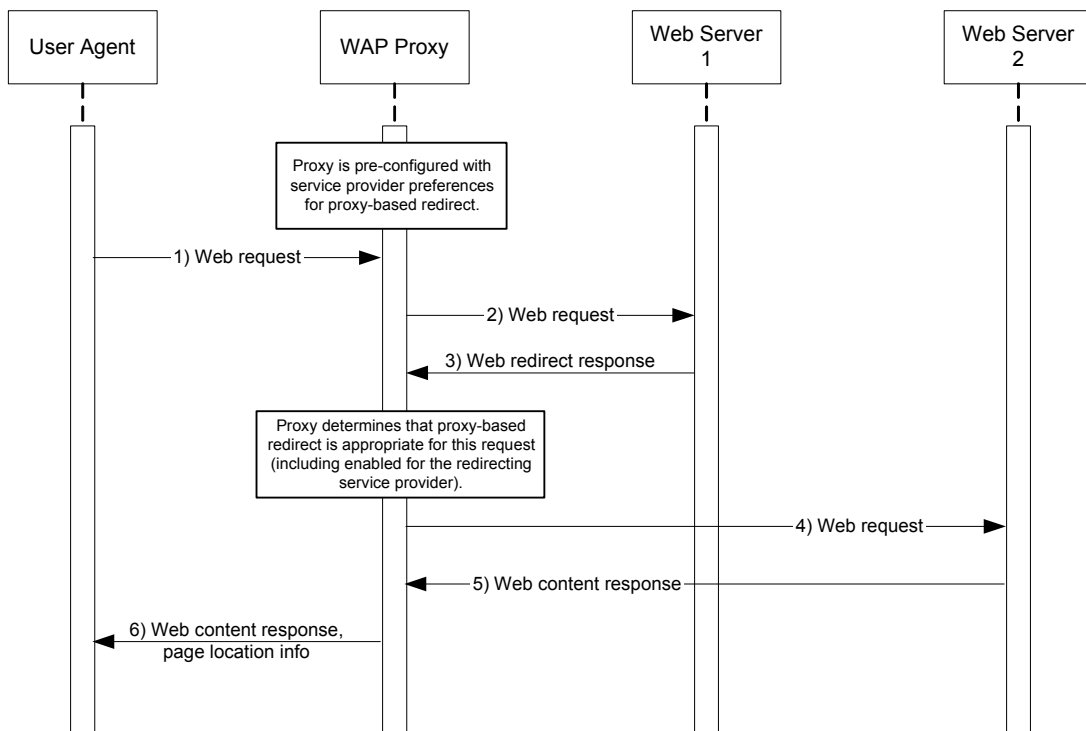


Figure 10 WAP Proxy Configuration Indicates Web-Based Service Provider Preference to Enable Proxy-Based Redirect

5.1.6.6 Operational and Quality of Experience Requirements

WAP proxies that provide a service provider preference for proxy-based redirect should support service provider control of the preference.

5.1.7 Web-based Service Provider Prefers to Disable Proxy-Based Redirect

Proxy-based redirect may not be considered desirable by all web-based service providers or for all requests, for example due to concerns over privacy or security. To address these concerns, origin servers may announce a preference to enable or disable proxy-based redirect for the current response. In addition, WAP proxies may provide web-based service providers

with a similar proxy-based preference applicable to all responses (e.g. as a service profile attribute). Support for either an origin server-based or proxy-based preference is optional. The WAP proxy may assume a default value for proxy-based service provider preferences. The WAP proxy may assume a default value for the origin server preference to enable or disable proxy-based redirect for the current response.

If an origin server expresses a preference to disable proxy-based redirect for the current response, the WAP proxy must not utilize proxy-based redirect for the current response. If a web-based service provider expresses a preference to disable proxy-based redirect for all responses, the WAP proxy must not utilize proxy-based redirect for responses from the service provider.

5.1.7.1 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.7.2 Pre-conditions

The user's device and the WAP proxy both support proxy-based redirect.

A web-based service provider preference to disable proxy-based redirect is expressed either through configuration of the origin server or WAP proxy, or assumed by default.

The web-based service utilizes redirection for the URL in the user device request.

5.1.7.3 Post-conditions

The current web redirect response is forwarded to the user.

5.1.7.4 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response, which includes an indication that proxy-based redirect is disabled for this response. The WAP proxy forwards the redirect response to the user.
- 5) The user's device sends a web request to the origin server at the redirect location.
- 6) The WAP proxy forwards the request to the origin server.
- 7) The origin server replies with the content for the URL.
- 8) The WAP proxy forwards the reply to the user.

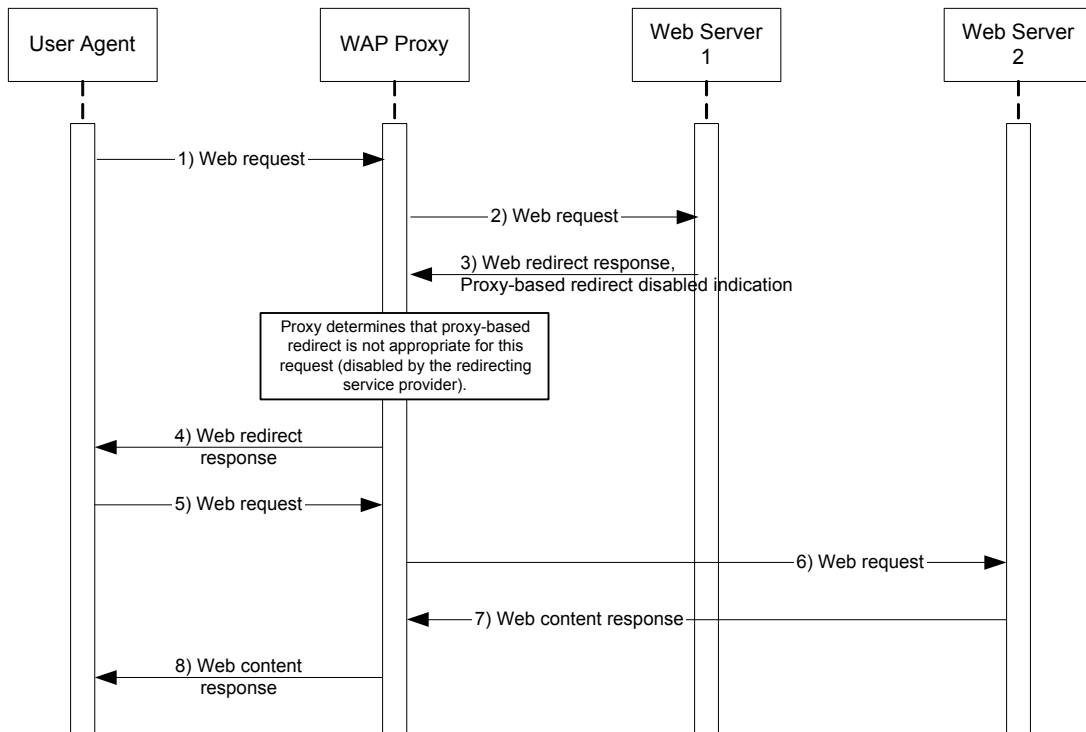


Figure 11 Web-Based Service Provider Indicates Preference to Disable Proxy-Based Redirect

5.1.7.5 Alternative Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response. WAP proxy configuration indicates that proxy-based redirect is disabled for the web-based service provider. The WAP proxy forwards the redirect response to the user.
- 5) The user's device sends a web request to the origin server at the redirect location.
- 6) The WAP proxy forwards the request to the origin server.
- 7) The origin server replies with the content for the URL.
- 8) The WAP proxy forwards the reply to the user.

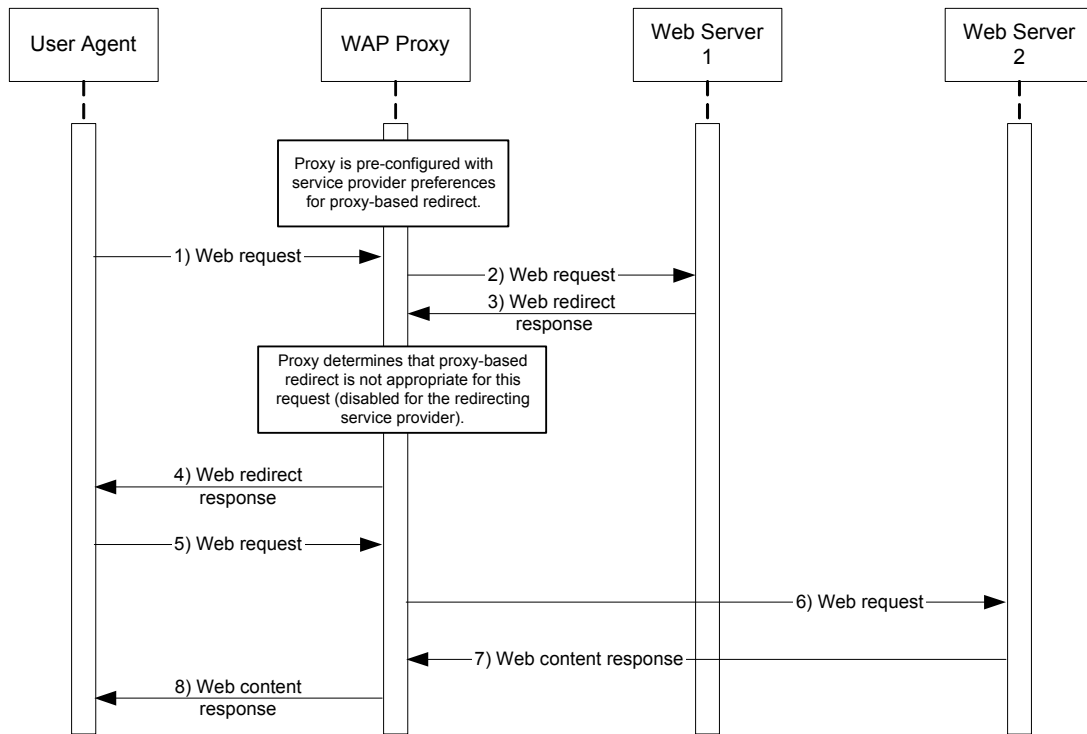


Figure 12 WAP Proxy Configuration Indicates Web-Based Service Provider Preference to Disable Proxy-Based Redirect

5.1.7.6 Operational and Quality of Experience Requirements

WAP proxies that provide a service provider preference for proxy-based redirect should support service provider control of the preference.

5.1.8 Incompatibility with Device-Managed Cookies

5.1.8.1 Short Description

WAP proxies can optionally provide cookie proxy services on behalf of users. This minimizes over-the-air data usage costs for cookie management on the device, and avoids issues arising from cookie-cache resource limitations on WAP devices. WAP devices can also manage cookies directly, either on an as-needed basis, or for all cookies.

Proxy-based redirect is incompatible with device-managed cookies. This arises since cached cookies must be added to any web request for which the URL domain and path match as specified in the cookie. In the proxy-redirect case, the WAP proxy issues web requests directly in response to redirect responses, so if cookies are being managed by the device, the browser has no chance to include any necessary cookies.

Thus in order to prevent interoperability issues when proxy-based redirect is supported and a device is managing cookies, the WAP proxy must not utilize proxy-based redirect for that device. This capability is mandatory if proxy-based redirect is supported.

5.1.8.2 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.8.3 Pre-conditions

The user's device and the WAP proxy both support proxy-based redirect.

The web-based service utilizes redirection for the URL in the user device request.

The user's device is managing cookies.

5.1.8.4 Post-conditions

Web redirect responses are forwarded to the user.

5.1.8.5 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.
- 3) The origin server replies with a redirect to another URL.
- 4) The WAP proxy receives the redirect response, and determines that the user's device is managing cookies. The WAP proxy forwards the redirect response to the user.
- 5) The user's device sends a web request to the origin server at the redirect location.
- 6) The WAP proxy forwards the request to the origin server.
- 7) The origin server replies with the content for the URL.
- 8) The WAP proxy forwards the reply to the user.

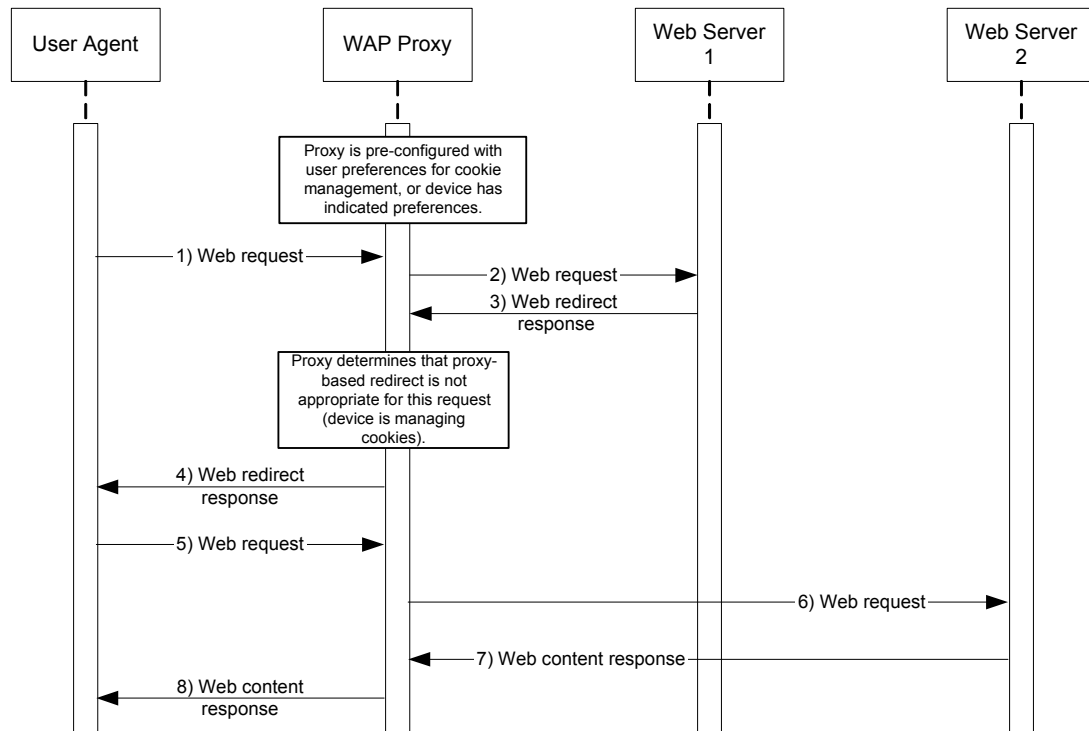


Figure 13 Incompatibility with Device-Managed Cookies

5.1.8.6 Alternative Flow

None.

5.1.8.7 Operational and Quality of Experience Requirements

None.

5.1.9 Incompatibility with Redirect between URLs of Differing Security Levels

5.1.9.1 Short Description

Web redirects sometimes involve a transition between content retrieved with different security levels. For example, when a WAP device requests a URL requiring no security, the origin server may redirect the device to another link that does require security, and vice versa. Users may prefer to be informed of these security level changes, and given the option to abandon the redirection. This is a typical wired web browser capability that is also supported by some WAP devices.

Proxy-based redirect is inappropriate if the redirect occurs between URLs of different security levels, for the following reasons:

- It interferes with device-based security level change notices. This arises since the notice depends upon the device bring aware of the security level of the redirect URL as compared to the originally requested URL. In the proxy-redirect case, the WAP proxy issues web requests directly in response to redirect responses, so if there is a security level change, the device has no chance to detect it.
- When being redirected from a non-secure to a secure URL, the proxy must deliver the redirect to the device so that a secure connection can be setup.

Thus when a change in security level occurs in a web redirection, the WAP proxy must not utilize proxy-based redirect for that response. This capability is mandatory if proxy-based redirect is supported.

Note that a WAP2 device redirect from a secure URL to a non-secure URL cannot be detected by WAP proxies, since the connection is secure end-to-end, thus proxy-based redirect is not applicable anyway.

5.1.9.2 Actors

End-user

WAP proxy operator

Web-based service provider

5.1.9.3 Pre-conditions

The user's browser and the WAP proxy both support proxy-based redirect.

The web-based service utilizes redirection for the URL in the user device request.

The link selected by the user is redirected by the origin server to a URL with a different security level.

5.1.9.4 Post-conditions

The current web redirect response is forwarded to the user.

5.1.9.5 Normal Flow

- 1) The user selects a link in a web page being viewed. A web request is sent to the origin server.
- 2) The WAP proxy forwards the request to the origin server.

- 3) The origin server replies with a redirect to another URL with a different security level.
- 4) The WAP proxy receives the redirect response, detects the change in security level, and forwards the redirect response to the user.
- 5) The user's device sends a web request to the origin server at the redirect location.
- 6) The WAP proxy forwards the request to the origin server.
- 7) The origin server replies with the content for the URL.
- 8) The WAP proxy forwards the reply to the user.

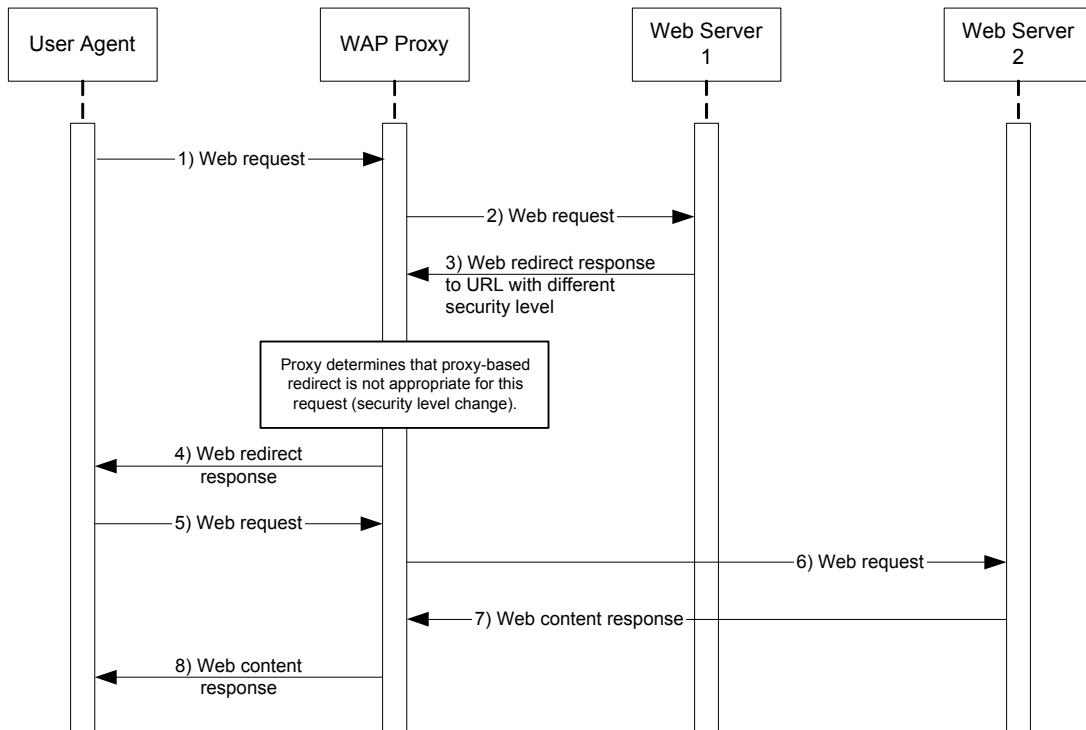


Figure 14 Incompatibility with Redirect between URLs of Differing Security Levels

5.1.9.6 Alternative Flow

None.

5.1.9.7 Operational and Quality of Experience Requirements

None.

6. Requirements (Normative)

6.1 High level requirements

The proxy-based redirect specifications **MUST** leverage existing web and WAP protocols, with enhancements as needed for new functions related to proxy-based redirect support.

The proxy-based redirect specifications **MUST** enable deployment of the feature with a minimum of mandatory requirements.

When utilized, proxy-based redirect **MUST** enable achievement of the intended benefits.

6.2 Security

When a change in security level occurs in a web redirection, the WAP proxy **MUST NOT** utilize proxy-based redirect for that response.

6.3 Charging

None.

6.4 Administration and configuration

WAP proxies that provide a user preference for proxy-based redirect **SHOULD** support user control of the preference.

WAP proxies that provide a service provider preference for proxy-based redirect **MAY** support service provider control of the preference.

6.5 Terminal devices and smartcards

6.5.1 Terminal devices

WAP devices **MUST** be capable of receiving an indication of the base URL for content retrieved by proxy-based redirect.

WAP devices **MUST** be capable of processing received content based upon the base URL indication received from the WAP proxy.

WAP devices **SHOULD** support user notification of proxy-based redirect use in reception of the current content.

WAP devices that are compatible with proxy-based redirect **SHOULD** provide an indication of this capability.

WAP devices **MUST** support user or user agent control of proxy-based redirect.

WAP device controls of proxy-based redirect **MAY** be invoked as a related function of more general user preferences. If so, the use of proxy-based redirect **MUST** be consistent with the current setting for the related preferences.

WAP devices **MAY** announce a preference to enable or disable proxy-based redirect for the current WAP session, or for the current request.

6.5.2 Smartcards

None.

6.6 Platforms

When appropriate, WAP proxies **MUST** directly retrieve content at URLs indicated in web redirect responses.

WAP proxies MUST deliver an indication of the base URL for content retrieved by proxy-based redirect to WAP devices.

WAP proxies MUST be capable of receiving and caching indications of WAP device compatibility with proxy-based redirect.

WAP proxies MAY provide a proxy configuration option to specify device compatibility with proxy-based redirect.

If a WAP proxy determines that a device is incompatible with proxy-based redirect, proxy-based redirect MUST NOT be utilized.

WAP proxies MUST be capable of receiving and caching indications of user preference to enable or disable proxy-based redirect for the current WAP session, or for the current request.

WAP proxies MAY provide users with the ability to define a preference to enable or disable proxy-based redirect for all requests.

If a user expresses a preference to disable proxy-based redirect, the WAP proxy MUST NOT utilize proxy-based redirect for requests from the user in the current WAP session or the current request, as applicable.

The WAP proxy MAY assume a default value for proxy-based user preferences.

Origin servers MAY announce a preference to enable or disable proxy-based redirect for the current response.

WAP proxies MUST be capable of receiving indications of origin server preference to enable or disable proxy-based redirect for the current response.

The WAP proxy MAY assume a default value for the origin server preference to enable or disable proxy-based redirect for the current response.

WAP proxies MAY provide web-based service providers with the ability to define a preference to enable or disable proxy-based redirect for all requests.

WAP proxies that provide a service provider preference for proxy-based redirect MAY support service provider control of the preference.

The WAP proxy MAY assume a default value for proxy-based service provider preferences.

If an origin server expresses a preference to disable proxy-based redirect for the current response, the WAP proxy MUST NOT utilize proxy-based redirect for the current response.

If a web-based service provider expresses a preference to disable proxy-based redirect for all responses, the WAP proxy MUST NOT utilize proxy-based redirect for responses from the service provider.

WAP proxies MUST NOT utilize proxy-based redirect if a device is managing cookies.

6.7 Network interfaces

The WAP proxy to WAP device network interface MUST support delivery of an indication of the base URL for content retrieved by proxy-based redirect.

The WAP proxy to WAP device network interface MUST support delivery of an indication of WAP device compatibility with proxy-based redirect.

The WAP proxy to WAP device network interface MUST support delivery of an indication of user preference to enable or disable proxy-based redirect for the current WAP session, or for the current request.

The WAP proxy to WAP device network interface MAY provide a single indication supporting the previous two requirements.

The WAP proxy to origin server network interface MUST support delivery of an indication of origin server preference to enable or disable proxy-based redirect for the current response.

6.8 Usability

WAP devices that support user notification of proxy-based redirect **MUST** utilize unobtrusive notification means.

If WAP proxies support proxy-based user preferences, the WAP proxy **SHOULD** support user management of the preferences via WAP or web devices.

Device controls for proxy-based redirect **SHOULD NOT** impact the usability of WAP devices.

6.9 Interoperability

Proxy-based redirect support in a WAP proxy **MUST NOT** impact the service provided to users of WAP devices that do not support it.

The proxy-based redirect feature **MUST** be reliable under any combination of supported optional requirements.

Appendix A. Change History

(Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Section	Description
Draft Versions	Jan 20, 2003	All	Initial draft
OMA-RD_WAPproxyBasedRedirect-V1_0	March 14, 2003	5	Incorporation of use case diagrams, and comments from OMA-Req. Detailed changes: Use case diagrams added and descriptions updated for all use cases. Domain-based proxy selection interaction clarified in 5.1.4.1 and 5.1.5.1.
	March 24, 2003	5	Incorporation of comments from review of the last draft. Detailed changes: Improved wording in 5.1.9.1.
	April 16, 2003	All	Results from OMA Requirements group review, discussions with Privacy and Device Management work item teams. Details included in OMA-REQ-2003-0271-ReviewReport-WAP_Proxy-Based_Redirect_stage1-V0_3-20030324-D.doc.
	April 29, 2003	6	Results from 7+7 review within OMA Requirements group. Detailed changes: Document name/number changed to conform with OMA practice. Security-related requirements moved to Security section. Document history on page 2 dropped on request of OMA-OPS.
	May 20, 2003	Title	Removed draft version info, changed document type to 'C'.
Candidate Version	03 Jun 2003	n/a	Status changed to Candidate by TP TP ref # OMA-TP-2003-0245-InputContribution_OMA-RD_WAPproxyBasedRedirect-V1_0-20030520-C