SCALING DOWN WEB-BASED SOFTWARE FOR MOBILE PHONES AND PDAs

MWH3-05

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Introduction
This project aims to provide a convenient and user-friendly solution for users to browse the website using a comfortable scaled-down view display in the mobile devices.

Aim and Objectives
To achieve the functions of the program, two methods (PHP or Proxy) are proposed in order to evaluate the advantages and disadvantages.

Our program aims to reduce the cost due to the fact that all the graphic objects are re-sampled into a lower resolution before they are being downloaded to mobile devices and it can provide a quick response to the request website.

Methodology
PHP Approach
PHP will open connection with the web host server and retrieve the header and body of the web page.

After calculating the new size of each element that needs to be modified with a resize factor, the new values will be ready to replace the original values in the HTML body.

Then the scaled-down version will be sent back to the client device.
Proxy Server Approach
A proxy server maintains its role as a transparent intermediate between the client and the web host server.

Actually, it serves both as a server to the connected mobile clients and a client to the web host server.

As a result, TCP network connection control must be carefully established with the correct parameters such as port, socket type and protocol.

PHP Approach

Advantages:
Using PHP language makes it easy to implement the required function and it is widely supported by almost all available browsers.

Disadvantages:
Users need to access a specific web page and a text input area for inputting the web address. This is fixed at the top of the screen which as a result uses up a part of the display area. Occasional web pages written in special languages cannot be accessed.
Proxy Server Approach

Advantages:

Users are not required to access a specific website. All scaling function is done in the background within the proxy server.

Cache in proxy server helps to increase the speed of retrieving the web page as data can be accessed directly from the proxy server instead of the original web host server.

A database is also included to store users’ unique display settings.

Disadvantages:

This is more complicated than using PHP language, complex network connection management also needs to be implemented in codes.

Conclusion

<table>
<thead>
<tr>
<th>Browsing yahoo.com.hk</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Size</td>
<td>180KB</td>
<td>98KB</td>
</tr>
<tr>
<td>Loading Speed</td>
<td>37s</td>
<td>36.5s</td>
</tr>
<tr>
<td>Price *</td>
<td>$9</td>
<td>$4.9</td>
</tr>
</tbody>
</table>

*Assume using GPRS with charges $0.05 per KB

In our project, it can efficiently scale down web page in mobile devices and so the downloading price of each page is decreased.

The downloading time required for a scaled-down website is also decreased slightly.