METHOD FOR CHARGING OF WEB/WAP BROWSING

Abstract:
METHOD FOR CHARGING OF WEB/WAP BROWSING

TECHNICAL FIELD

The present invention relates to Internet access services, and more particularly to a method for charging for access to Internet services.

BACKGROUND OF THE INVENTION

As the number and variety of services available via the Internet have drastically increased, the number of users desiring to have regular access to the Internet has likewise increased. The competition for these users has increased among Internet service providers. One area in which Internet service providers may compete is in the manner in which the customers are billed for their Internet services. The current practice for Internet charging is the use of a flat fee or time-based charging of the connection. When charging a flat fee, it is difficult to compete between providers because all providers may gravitate toward a particular fee which provides necessary profit margins for the service providers. The flat fee based service also may be unacceptable to some consumers because a casual Internet user will not receive the same value with a flat fee charge that a user who continuously surfs the Internet may obtain.

Another billing model used for access to the Internet is time-based charging. A user is charged for the amount of time that they actually use a connection. However, with emerging access technologies, such as GPRS (general packet radio service) or ADSL (asynchronous digital subscriber line), end users are always connected to the Internet even when they are not actually using the connection. In this situation, actual usage of the Internet is no longer related to connection time. Thus, the charging model based upon the amount of time a connection is active is no longer valid. There exists a need for new methods and models for the charging of usage of the Internet.
SUMMARY OF THE INVENTION

The present invention overcomes the foregoing and other problems with a charging method based upon usage of service rather than on a fixed fee or actual access time. A measurement server is located between an end user and a network to receive a request for access to a location on the network. The received request is associated with a particular charging model based upon information contained within the request. The charge is calculated based upon the associated charging model, and communicated with some type of management system.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the method and apparatus of the present invention may be obtained by reference to the following Detailed Description when taken in conjunction with the accompanying Drawings wherein:

FIGURE 1 is a block diagram illustrating the placement of the measurement server of the present invention;

FIGURE 2 illustrates some of the information included within a request to a measurement server from an end user;

FIGURE 3 illustrates a manner in which requests may be grouped according to URL/media type; and

FIGURE 4 is a flow diagram illustrating the manner in which charges may be made based upon usage of Internet services according to the present invention.

DETAILED DESCRIPTION

Referring now to the drawings, and more particularly to FIGURE 1, there is illustrated a management server 10 for charging of a user based upon the usage of Internet services according to the method of the present invention. The measurement server 10 is placed between an end user 15 and an Internet/Intranet 20. Requests 30 (FIGURE 2) are transmitted from the end user 15 to the measurement server 10 as either an HTTP request or a WTP request. Each request 30 includes at least a URL 35, a media type 40, and optionally the size 45 of the request. This information is stored in a memory 50 within the measurement server
10. The request 30 may then be forwarded on to the Internet/Intranet 20.

Referring now also to FIGURE 3, there is illustrated the manner in which requests 30 are grouped according to their URL/media type group 55. The combination of the URL 35 and the media type 40 define the type of request/information needed by the end user or the information sent from the Internet/Intranet 20 to the end user 15. All requests 30 are grouped according to a particular URL/media type group 55 most closely matching the URL 35 and media type 40 of the request. Each received request 30 is analyzed to determine which URL/media type group 55 request should be associated with and the request is grouped according to that determination. Each URL/media type group 55 is associated with a particular measurement model 60. A set of rules 65 associates each measurement model with a particularly URL/media type group 55. Some examples of requests using the rules include:

               mediatype: text/html

               mediatype: image/gif

               mediatype: text/html

request 4:     URL:  http://www.song.com/latesthits/newsong.mp3
               mediatype: audio/mpeg

Available measurement models may include, for example:

Measurement Models
   - Aggregate group x
     - individual
     - free

Examples of the rules might include:

(part of ) URL            mediatype    model
  30 http://www.company.com/news   text        aggregate
     group 1
When a user requests a news article (request 1), rule 1 gives the best match and will apply. This request is measured with "aggregate group 1" model. The size of the article is added to "aggregate group 1". There is a price associated with each aggregate group.

When the user requests the current network status (request 2), rule 2 gives the best match and this request is free of charge. Any other request to www.company.com is covered by rule 3. Rule 3 applies to request 3 and this request is measured with "aggregate group 2".

When a user requests a song (request 4) from www.song.com, rule 4 applies and this request is rated individual.

The measurement models 60 define the manner in which a charge for request may be generated. While the following two descriptions are examples of two measurement models which may be utilized, it should of course be appreciated that any number of measurement models may be utilized according to the method and system of the present invention. In a first measurement model the total size of the information transported by each request 30 in particular URL/media type group 55 may be calculated and the total size of the transported information used to calculate a charge for the group 55. In a second model, rather than charging for the entire group 55, a charge may be calculated for each request 30 separately. The URL 35, media type 40 and size 45 in the requests are used to calculate a charge for the request.

Referring now to FIGURE 4, there is illustrated a flow diagram describing the method of the present invention. A management server 10 receives at step 70a request 30 from an end user 15. The request 30 may be formatted in either HTTP, WTP or any other type of network communication protocol. The request 30 is analyzed by the management server 10 such that the request may be grouped at step...
75 with the appropriate URL/media type group 55 based upon the best match with the URL 35 and medial type 40 of the request 30. The measurement model 60 associated with the group 55 is determined at step 80. The measurement model has been previously assigned to a group 55 by a particular rule set 65 as described in FIGURE 3. The charge for the request/requests is determined at step 85 according to the measurement model 60. The charging information is forwarded to a billing system at step 90. Using the above-described system and method, an end user may be charged based upon their actual usage of Internet services.

The previous description is of a preferred embodiment for implementing the invention, and the scope of the invention should not necessarily be limited by this description. The scope of the present invention is instead defined by the following claims.
WHAT IS CLAIMED IS:

1. A method for charging for access to a network, comprising the steps of:
   receiving a request for access to a location on the network;
   associating the request with one of at least one charging model based upon information contained in the request;
   calculating a charge for the request based upon the associated charging model; and
   forwarding the calculated charge.

2. The method of Claim 1, wherein the step of associating further comprises the steps of
   determining a URL and media type for the request;
   grouping the request according to the determined URL and the determined media type; and
   assigning the request to the at least one charging model based upon the grouping of the request.

3. The method of Claim 1, wherein the step of calculating further comprises the steps of:
   calculating a total size of information transported in a plurality of requests including the request; and
   deriving the charge based upon the total size of the information transported in the plurality of requests.

4. The method of Claim 1, wherein the step of calculating further comprises the steps of:
   determining a URL, media type, and size of the request; and
   deriving the charge for the request based upon the URL, the media type, and the size of the request.
5. The method of Claim 1, wherein the request comprises an HTTP request.

6. The method of Claim 1, wherein the request comprises a WTP request.

7. The method of Claim 1, wherein the network comprises an Internet.

8. A method for charging for access to a network, comprising the steps of:
   receiving a request for access to a location on the network;
   determining a URL and media type for the request;
   assigning the request to at least one charging model based upon the determined URL and the determined media type;
   calculating a charge for the request based upon the assigned charging model;
   and
   forwarding the calculated charge to a management system.

9. The method of Claim 7, wherein the step of calculating further comprises the steps of:
   calculating a total size of information transported in a plurality of requests including the request; and
   deriving the charge based upon the total size of the information transported in the plurality of requests.

10. The method of Claim 8, wherein the step of calculating further comprises the steps of:
    determining a URL, media type, and size of the request; and
    deriving the charge for the request based upon the URL, the media type, and the size of the request.
11. The method of Claim 8, wherein the request comprises an HTTP request.

12. The method of Claim 8, wherein the request comprises a WTP request.

13. The method of Claim 8, wherein the network comprises the Internet.

14. A server for charging for access to a network, comprising:

   a first interface for receiving requests from an end user;
   a second interface for transmitting requests to a network;
   a third interface for forwarding a determined charge to a management system;
   wherein said server is configured to:
       receive a request for access to a location on the network;
       associate the request with one of at least one charging model;
       calculate a charge for the request based upon the associated charging model;
   and
   forward the calculated charge to the management system.

15. The server of Claim 14, wherein the server is further configured to:
    determine a URL and media type for the request;
    assign the request to the at least one charging model based upon the determined URL and the determined media type.

16. The server of Claim 14, wherein the server is further configured to:
    calculate a total size of information transported in a plurality of requests including the request; and
    derive the charge based upon the total size of the information transported in the plurality of requests.

17. The server of Claim 14, wherein the server is further configured to:
determine a URL, media type, and size of the request; and
derive the charge for the request based upon the URL, the media type, and
the size of the request.

18. The server of Claim 14, wherein the request comprises an HTTP request.

19. The server of Claim 14, wherein the request comprises a WTP request.

20. The server of Claim 14, wherein the network comprises the Internet.

21. A server for charging for access to an Internet, comprising:
a first interface for receiving requests from an end user,
a second interface for transmitting requests to the Internet;
a third interface for forwarding a determined charge to a management system
wherein said server is configured to:
  receive a request for access to a location on the Internet;
determine URL and media type for the request;
assign the request to the at least one charging model based upon the determined
URL and the determined media type;
calculate a charge for the request based upon the associated charging model;
and
forward the calculated charge to the management system.
PATENT COOPERATION TREATY

PCT

DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

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Applicant

TELEFONAKTIEBOLAGET LM ERICSSON (pub1)

This International Searching Authority hereby declares, according to Article 17(2)(a), that no international search report will be established on the international application for the reasons indicated below:

1. □ The subject matter of the international application relates to:
   a. ☐ scientific theories.
   b. ☐ mathematical theories
   c. ☐ plant varieties.
   d. ☐ animal varieties.
   e. ☐ essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
   f. ☐ schemes, rules or methods of doing business.
   g. ☐ schemes, rules or methods of performing purely mental acts.
   h. ☐ schemes, rules or methods of playing games.
   i. ☐ methods for treatment of the human body by surgery or therapy.
   j. ☐ methods for treatment of the animal body by surgery or therapy.
   k. ☐ diagnostic methods practised on the human or animal body.
   l. ☐ mere presentations of information.
   m. ☐ computer programs for which this International Searching Authority is not equipped to search prior art.

2. □ The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:
   ☐ the description
   ☐ the claims
   ☐ the drawings

3. □ The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:
   ☐ the written form has not been furnished or does not comply with the standard.
   ☐ the computer readable form has not been furnished or does not comply with the standard.

4. Further comments:

SEE NEXT PAGE

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Authorized officer

Mustafa Corapci

Form PCT/ISA/203 (July 1998)
The claims relate to subject matter for which no search is required according to Rule 39 PCT. Given that the claims are formulated in terms of such subject matter or merely specify commonplace features relating to its technological implementation, the search examiner could not establish any technical problem which might potentially have required an inventive step to overcome. Hence it was not possible to carry out a meaningful search into the state of the art (Art. 17(2)(a)(i) and (ii) PCT; see Guidelines Part B Chapter VIII, 1-6).

Die Ansprüche beziehen sich auf einen Sachverhalt, für den eine Recherche nach Regel 39 PCT nicht durchgeführt zu werden braucht. In Anbetracht dessen, dass der beanspruchte Gegenstand entweder nur derartige nichttechnische Sachverhalte oder allgemein bekannte Merkmale zu deren technologischen Umsetzung anführt, konnte der Rechercheprüfer keine technische Aufgabe feststellen, deren Lösung eventuell eine erfinderische Tätigkeit beinhalten würde. Es war daher nicht möglich, sinnvolle Ermittlungen über den Stand der Technik durchzuführen (Art. 17(2)(a)(i) und (ii) PCT; Richtlinien Teil B Kapitel VIII, 1-6).

Les revendications concernent un object pour lequel aucune recherche n'est requise conformément à la règle 39 PCT. Étant donné que les revendications sont formulées de façon à revendiquer de tels objets ou leur réalisation technologique à l'aide de caractéristiques triviales, l'examineur de recherche n'a pas pu définir de problème technique dont la solution pourrait éventuellement impliquer une activité inventive. Par conséquent il n'était pas possible d'effectuer une recherche significative sur l'état de la technique (Art. 17(2)(a)(i) et (ii) PCT; voir Directives Partie B Chapitre VIII, 1-6).