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Published:
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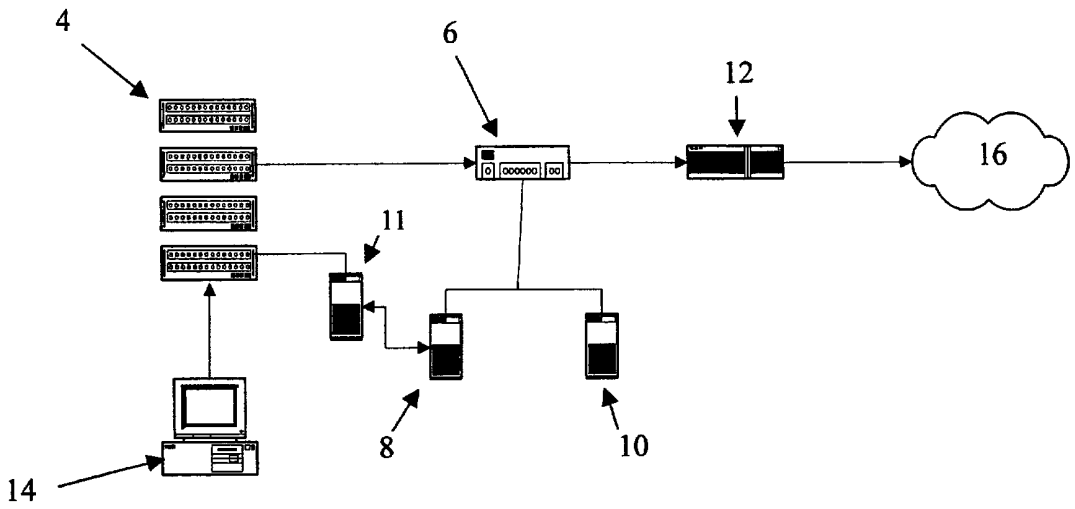
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A CHARGING METHOD AND SYSTEM



(57) Abstract: A charging method, including maintaining a record of content of a communications network accessed by a user of the network, determining on the basis of the record a charge for an affiliate based on access of content associated with the affiliate, and determining on the basis of the record a charge for the user based on access of other content of the record.

WO 00/75818 A1

A CHARGING METHOD AND SYSTEM

The present invention relates to a method and system for charging for use of a communications network, such as the Internet.

Most Internet users currently connect to the Internet via the equipment of an Internet service provider (ISP), and are charged for the time that they remain connected. The applicant has developed a method and system to provide users with access to certain content, without attracting the session connection charge, as described in the specification of International Patent Application No. PCT/AU00/00418, herein incorporated by reference and referred to as "the access system specification". The "free" content can be provided by organisations or individuals that are considered to be affiliates or associates of the ISP. The cost of providing the connection to the free content however still needs to be recovered by the ISP. Also the affiliates, in return for providing the free content, will wish to receive information which indicates that they are deriving a benefit from the affiliation with the ISP. It is desired to provide a method and system for charging which addresses the above problems or at least provides a useful alternative to existing charging methods or systems.

In accordance with the present invention there is provided a charging method, including:

maintaining a record of content of a communications network accessed by a user of the network;

determining if said content is affiliate content;

generating a charge for an affiliate based on access of said affiliate content; and

generating a charge for said user based on access of other content of said record.

The present invention also provides a charging method, including:

maintaining a record of content of a communications network accessed by a user of the network;

determining on the basis of said record a charge for an affiliate based on access of content associated with said affiliate; and

determining on the basis of said record a charge for said user based on access of other content of said record.

The present invention also provides a charging system and charging software for executing steps of the method.

A preferred embodiment of the present invention is hereinafter described, by way of example only with reference to the accompanying drawings, wherein:

Figure 1 is a block diagram of a preferred embodiment of a communications network access system; and

Figure 2 is a flow diagram of a preferred embodiment of a charging method executed by the system.

A communications access system, as shown in Figure 1, includes a plurality of remote access servers (RASs) 4, a layer four or higher switch 6, a database server 8, a web server system 10 and a router 12. The RASs 4 are provided to allow the computers 14 of remote users to dial into the system using standard telecommunication lines and modems and connect to the input ports of the RASs 4, respectively. On connection to a port of a RAS 4, the RAS 4 and the user's computer 14 establish a unique TCP/IP session and the IP traffic for that session is switched by the switch 6. Once the user is authenticated or approved, as described below, the user's computer 14 is allowed to access requested data on the Internet 16. The web server system 10 is used to control pages presented to a user 14 connected to the RAS 4 and handle authentication using a member profile database maintained on the database server 8, as described below. A RADIUS (Remote Authentication Dial In User Service) authentication server 11 is also provided for use in authentication. As far as the user 14 is concerned, the equipment 4, 6, 8, 10, 11 and 12 of the access system is part of the Internet.

The equipment 4 to 12 preferably includes standard commercially available hardware and basic database, web server and Internet access software which is known to those skilled

in the art and is used in the access systems of most ISPs. The equipment 4 to 12 then also includes unique program code to manage and control each session. The layer four or higher switch 6 is another exception. The switch 6 is normally used by ISPs to balance the traffic handled by the RASs 4. An example of a suitable layer four switch is the AceDirector AD3™ produced by Alteon WebSystems Inc. The access system differs from that offered by ISPs, as described in the access system specification, in that the layer four switch 6 is used to connect users to the web server system 10 and control access to the Internet 16 for the users 14 on the basis of a limited number of access states encoded in the switch 6. Alternatively the unique program code and the equipment 4 to 12 could be substituted, entirely or in part, by unique integrated circuits, such as ASICs, to execute the same functions. The system is the same as that described in the access system specification, except that it further includes software components executed by either the database server 8 or the web server 10 to execute the charging method described below.

On connecting to the Internet using the access system, all of the locations, or URLs, which the user 14 accesses are passed by the switch 6 and stored in the database 8 as part of a member access record. With the locations, an initial time of access is also recorded. This occurs at step 20 as shown in Figure 2. Thus for each TCP session for a user, the member access record indicates the start of the session and holds a set of locations and initial access times. The differences between the initial access times provide information on the time which a user spends at each location during the session.

When the access system is to be used as a charging system, to facilitate charging of users and affiliates who provide free content, the member access records are retrieved from the database 8 at step 22 and sequentially processed. A determination is made at step 24 as to whether the recorded locations of a member or user record correspond to affiliate locations. Affiliate locations are those locations on the Internet 16 or web server 10 designated by URLs which hold free content of parties affiliated with the provider of the system. If the location is not an affiliate location, then this is reported at step 26 and a charge record compiled for the user based on the user's access of the locations in the member access record which are not affiliate locations. The charge may be a standard flat rate charge or a time rate charge based

on the time of access, or any other charging basis which may be employed by ISPs to charge users.

If it is determined at step 24 that a location is an affiliate location, then this is reported at step 28 and details of the access of the affiliate location retained in order to charge the affiliate. An affiliate record is generated at step 30 based on the captured data which would include the affiliate locations accessed, the access times, and the period of time for which the locations are accessed, together with identifying details concerning the user accessing the locations. The affiliate record is stored on the database 8 and can be accessed as part of a secure web site on the web server 10 for affiliates. The data held in the affiliate records can be reported to the affiliates in various formats on the secure web site. The affiliates can be charged automatically at step 28 based on time rates for access or other charging schemes based on the user's access of the affiliate locations. The charge can also be determined and rendered after subsequent processing of the affiliate record. The charges can be passed on to members and affiliates in various ways, such as by invoicing or electronic credit card transactions.

The above charging method and system is particularly advantageous as it establishes for ISPs an entirely different charging model to that which is presently exploited. Content providers, i.e. affiliates, can be charged as well as users who connect to the Internet. This is also particularly advantageous for users as they are provided with access to content free of charge. The content providers are also provided with detailed information by the affiliate record concerning the benefit they are deriving from providing the content. The actual locations accessed and the user details are provided to the content providers. As the access system has access profiles attached to each user, these profile details can also be provided to content providers in the affiliate records to provide further information on the users accessing their content.

Many modifications will be apparent for those skilled in the art without departing from the scope of the present invention as herein described with reference to the accompanying drawings.

5

CLAIMS:

1. A charging method, including:

maintaining a record of content of a communications network accessed by a user of the network;

determining if said content is affiliate content;

generating a charge for an affiliate based on access of said affiliate content; and

generating a charge for said user based on access of other content of said record.

2. A charging method as claimed in claim 1, wherein said record includes locations of a communications network which represents said content, and said determining step involves determining if said locations correspond to affiliate content.

3. A charging method as claimed in claim 1, including a plurality of said affiliate having respective affiliate content, and generating the charge for said affiliate based on said user accessing said respective affiliate content.

4. A charging method as claimed in claim 1, including generating for said affiliate an affiliate record of said locations corresponding to said respective affiliate content accessed by said user.

5. A charging method as claimed in claim 4, wherein said affiliate record includes access time for each location and for each user.

6. A charging method as claimed in claim 5, wherein said affiliate record is accessible via the communications network.

7. A charging method, including:

maintaining a record of content of a communications network accessed by a user of the network;

determining on the basis of said record a charge for an affiliate based on access of content associated with said affiliate; and

determining on the basis of said record a charge for said user based on access of other content of said record.

8. A charging system including system components for executing the steps of the charging method as claimed in any one of the preceding claims.

9. Charging software stored on a computer readable storage medium and having code for executing the steps of the charging method as claimed in any one of claims 1 to 7.

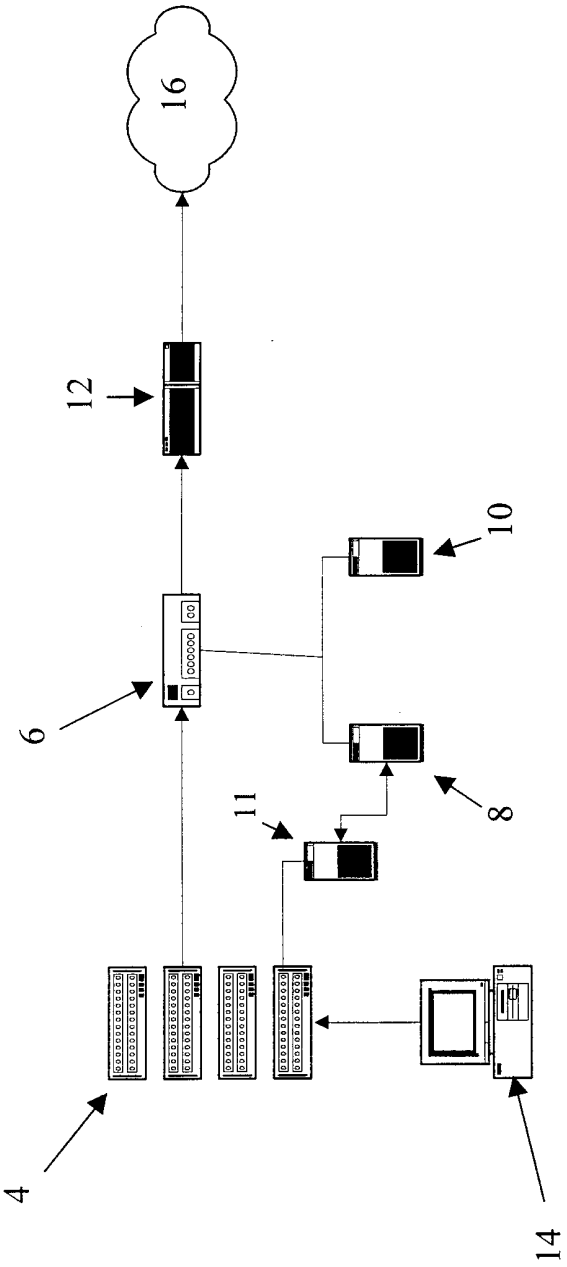


Figure 1

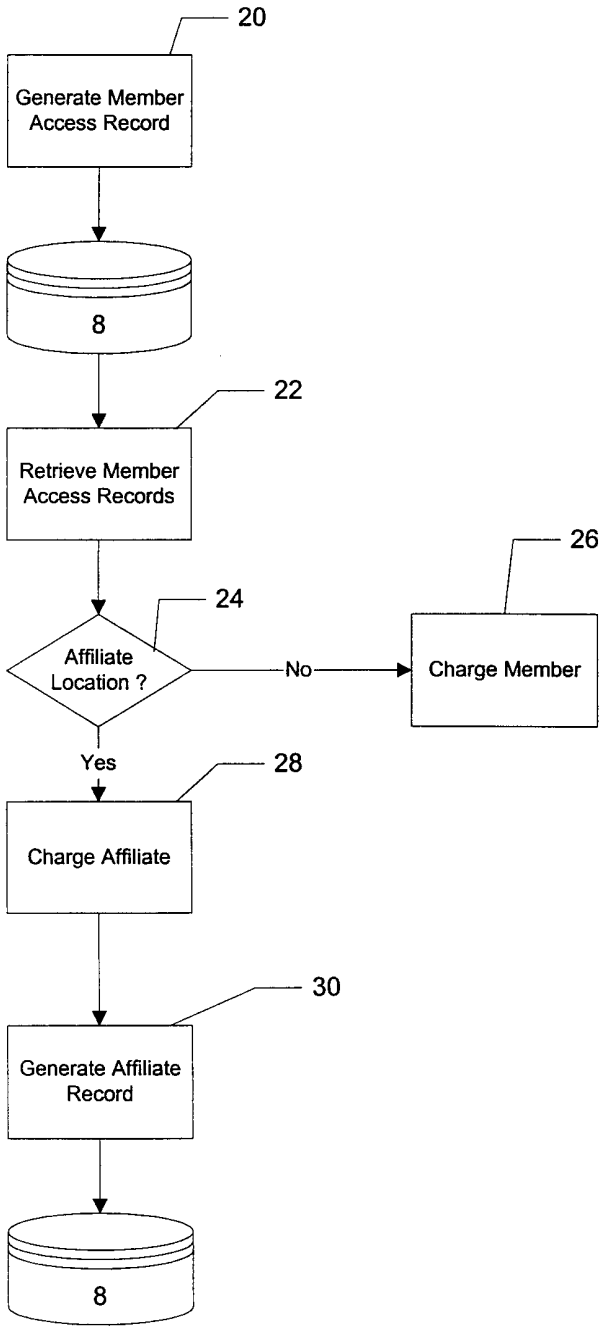

20
Generate Member Access Record
8
22
Retrieve Member Access Records
24
Affiliate Location ?
No
26
Charge Member
Yes
28
Charge Affiliate
30
Generate Affiliate Record
8

Figure 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00639

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: G06F 17/60, 151:00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC: AS ABOVE

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT,INSPEC (affiliate, content, charging)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	US 5 948 061 (Merriman et al.) 7 September 1999 Abstract, column 1, lines 62-65, column 8, lines 32-38	1,7
X	US 5 819 092 (Ferguson et al.) 6 October 1998 Abstract, column 3, lines 40-50, column 4, lines 28-32,53-60, column 12, lines 15-23, column 29, lines 41-44, column 30, lines 28-30, 51-55, column 31, lines 1-7	1,3,7-9
X	US 5 717 923 (Dedrick) 10 February 1998 Whole document, especially column 2, lines 12-15, column 4, lines 14-16 column 8, lines 1-4, column 9, lines 34-36, 62-67, column 11, line 62 to column 12, line 6, column 13, lines 19-25, column 15, lines 1-10	1,3-9

[X] Further documents are listed in the continuation of Box [X] See patent family annex

* Special categories of cited documents:

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 July 2000	21 JUL 2000
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer **DALE E. SIVER** Telephone No : (02) 6283 2196

INTERNATIONAL SEARCH REPORT	International application No. PCT/AU00/00639

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	"Vicarious certification and billing agent for Web Information service" (Yoon) IEEE Proceedings of 13th Int. Conf. on Information Networking – ICOIN'98 pp 344-349 dated 21-23 January 1998 Whole document	1,7
Y	"Value-added Internet: a pragmatic TINA-based path to the Internet and PSTN Integration" (De Zen et al.) IEEE TINA 97 pp 13-21 Global Convergence of Telecommunications and Distributed Object Computing 17-20 November 1997 Figure 1, Sections 2.1,2.2,2.3 , Figure 3, Section 7	1,7

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00639

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	5819092	CA	2204736	DE	69511425	EP	792493
		JP	10508964	WO	9615505		

END OF ANNEX