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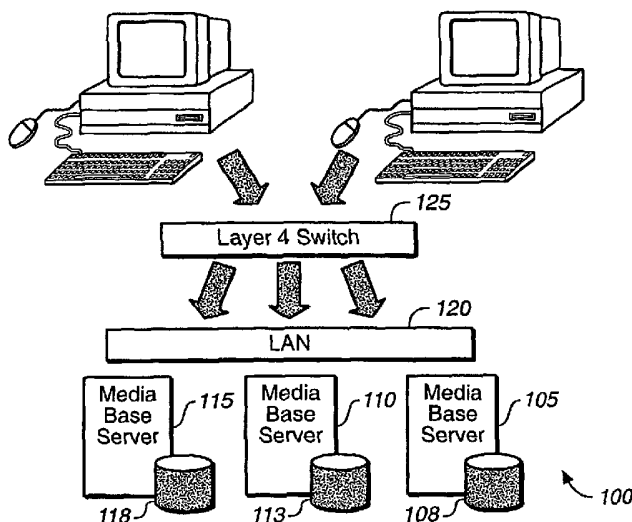
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[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR HIGHLY-SCALABLE REAL-TIME AND TIME-BASED DATA DELIVERY USING SERVER CLUSTERS



(57) Abstract: The present invention provides loosely-coupled cluster systems comprising a plurality of servers based on storage attached to the plurality of servers. Videos, or other assets, are automatically replicated within the server system to increase the number of concurrent play requests serviceable. The server systems can detect spikes in demand that may exceed the guaranteed number of concurrent play requests serviceable and dynamically transfer the high-in-demand or 'hot' asset to servers in the cluster that do not have the video. Alternatively, instead of transferring the entire asset, varying length prefixes of the asset may be transferred depending on the availability of resources. The remainder of the asset is transferred in some embodiments on demand with sufficient buffering or other storage to guarantee playback to the user or subscriber according to the required quality of service (QOS).

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/23566

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 15/173
 US CL : 709/226, 231, 232

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)

U.S. : 709/226, 231, 232; 718/105; 725/115; 709/203; 709/219; 455/304

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM-TDB

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,377,996 B1 (LUMELSKY et al) 23 April 2002 - see the whole document.	1 - 4, 8 - 13, 16, 17, 19, 20, 23, 32, 36-40, 42, 44-46 & 54-58 ----- 5 - 7, 14, 15, 18, 21, 22, 24 - 31, 33 - 35, 41, 43 & 47 - 53
Y,P	US 2003/0018978 A1 (SINGAL et al) 23 January 2003 - claim 5 para. 20, claim 29 para. 0005.	7, 14, 15 & 18
Y,P	US 2002/0103928 A1 (SINGAL et al) 01 August 2002 - claim 5 para. 20.	5, 6, 18, 31 & 33 - 35

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search

06 May 2004 (06.05.2004)

Date of mailing of the international search report

17 MAY 2004

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,737,747 A (VISHLITZKY et al) 07 April 1998 - col. 24, lines 53-58, col. 24, lines 58-63, col. 1, lines 44-49, fig. 18, col. 10, lines 1-10.	21, 22, 24 - 30,31 & 33 - 35
Y	US 6,026,425 A (SUGURI et al) 15 February 2000 - col. 9, lines 8-15, col. 9 lines 15-21, col. 3 lines 1-10, col. 9 lines 8-21.	41 & 43
Y	US 5,586,264 A (BELKNAP et al) 17 December 1996 - col. 12, lines 63, col. 13, line 3, col. 2 lines 35-41, col. 33, lines 13-16, col. 5 lines 31-34, col. 5, 46-53, col. 1, lines 63, col. 2, line 2, lines 42-48.	47 - 53
A	US 6,223,210 B1 (HICKEY) 24 April 2001, (14 October 1998).	1 - 58
A	US 2002/0049846 A1 (HOREN et al) 25 April 2002 (27 July 2001).	1 - 58
Y	US 5,892,913 A (ADIGA et al) 06 April 1999 (02 December 1996).	1 - 58
A	US 5,682,597 A (GANEK et al) 28 October 1997 (15 June 1995).	1 - 58

INTERNATIONAL SEARCH REPORT

PCT/US03/23566

Continuation of B. FIELDS SEARCHED Item 3:

time same based media streaming, server store storage harddrive, load near balanc\$, shared near storage near network stream, predetermined adjustable, quantitative numeric, play range hour hours real.