



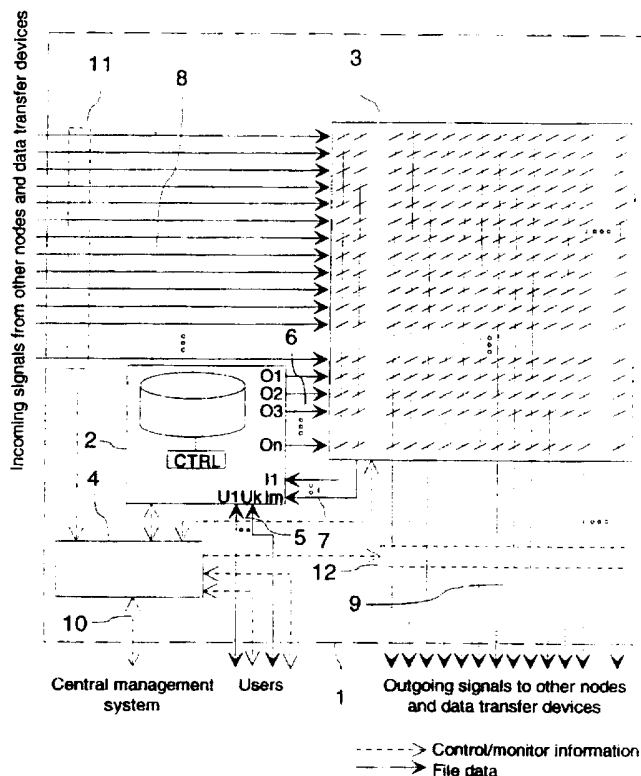
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : <b>H04N 7/173, G06F 17/30, G06F 13/00</b></p>	<p><b>A3</b></p>	<p>(11) International Publication Number: <b>WO 97/48049</b> (43) International Publication Date: 18 December 1997 (18.12.97)</p>
<p>(21) International Application Number: PCT/FI97/00366 (22) International Filing Date: 11 June 1997 (11.06.97) (30) Priority Data: 962467 13 June 1996 (13.06.96) FI (71)(72) Applicant and Inventor: OLLIKAINEN, Ville, Juhana [FI/FI]; Kämnerinkuja 2 D 19, FIN-00750 Helsinki (FI).</p>	<p>(81) Designated States: CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. In English translation (filed in Finnish).</i> (88) Date of publication of the international search report: 15 January 1998 (15.01.98)</p>	

(54) Title: FILE SERVER WITH A CONFIGURATION SUITED FOR DISTRIBUTION OF DECENTRALIZED DATA

(57) Abstract

The present invention is related to a file server particularly suited for video-on-demand service based on decentralization of files contained in the nodes over a configuration formed by nodes serving a single user or multiple users, each equipped with a magnetic or optical mass memory unit. Such nodes are designed to serve not only their own users but also other nodes of the decentralized file server so that files incoming to the node can be distributed forward to at least two other nodes of the server. A file fetched by several users simultaneously is copied automatically into a plurality of nodes in the file server. This arrangement permits the data transfer rate required from the magnetic or optical memory units to be defined as a constant which is independent from the number of users, mode of use and file server size without any compromise in the performance of the file server.



**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NI	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 97/00366

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
<b>IPC6: H04N 7/173, G06F 17/30, G06F 13/00</b> According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols)		
<b>IPC6: G06F, H04N</b>		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
<b>SE,DK,FI,NO classes as above</b>		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5371532 A (GELMAN ET AL), 6 December 1994 (06.12.94), column 3, line 23 - column 4, line 36, summary of the invention.	1-2,4-11
Y	column 5, line 60 - column 7, line 56, figures 2,3 --	3,12
Y	US 5045940 A (PETERS ET AL), 3 Sept 1991 (03.09.91), see the whole document. --	3
Y	US 5471580 A (FUJIWARA ET AL), 28 November 1995 (28.11.95), abstract --	12
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "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) "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
<b>2 December 1997</b>		<b>04 -12- 1997</b>
Name and mailing address of the ISA / Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. + 46 8 666 02 86		Authorized officer  <b>Björn Edlund</b> Telephone No. + 46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 97/00366

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	US 5673264 A (HAMAGUCHI), 30 Sept 1997 (30.09.97), column 1, line 43 - line 46; column 4, line 28 - line 51; column 6, line 1 - line 38, column 23, line 25 - line 59  --	1
X	EP 0701373 A1 (INTERNATIONAL BUSINESS MACHINES CORPORATION), 5 Sept 1995 (05.09.95), page 16, line 34 - page 17, line 41, figures 1,5, abstract  --	1-2,4-6
A	WO 9533309 A2 (INTEGRATED NETWORK CORPORATION), 7 December 1995 (07.12.95), page 58, line 24 - line 31; page 62, line 1 - page 63, line 2  --	1
P,A	WO 9637983 A1 (HYUNDAI ELECTRONICS AMERICA, INC.), 28 November 1996 (28.11.96), see summary of the invention  --	1
A	EP 0633694 A1 (DIGITAL EQUIPMENT CORPORATION), 11 January 1995 (11.01.95), see summary of the invention  -- -----	1

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

01/10/97

International application No.  
PCT/FI 97/00366

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5371532 A	06/12/94	NONE	
US 5045940 A	03/09/91	AU 652733 B AU 670875 B AU 6603894 A AU 7057796 A AU 7143391 A CA 2071975 A,C EP 0506877 A WO 9110323 A	08/09/94 01/08/96 22/09/94 16/01/97 24/07/91 23/06/91 07/10/92 11/07/91
US 5471580 A	28/11/95	JP 5204876 A	13/08/93
US 5673264 A	30/09/97	NONE	
EP 0701373 A1	05/09/95	JP 8154234 A US 5603058 A BR 9503820 A CA 2154038 A JP 8154236 A	11/06/96 11/02/97 10/09/96 09/03/96 11/06/96
WO 9533309 A2	07/12/95	AU 2511695 A CA 2190590 A EP 0760186 A IL 113768 D US 5555244 A	21/12/95 07/12/95 05/03/97 00/00/00 10/09/96
WO 9637983 A1	28/11/96	NONE	
EP 0633694 A1	11/01/95	CA 2127347 A US 5414455 A US 5442390 A	08/01/95 09/05/95 15/08/95