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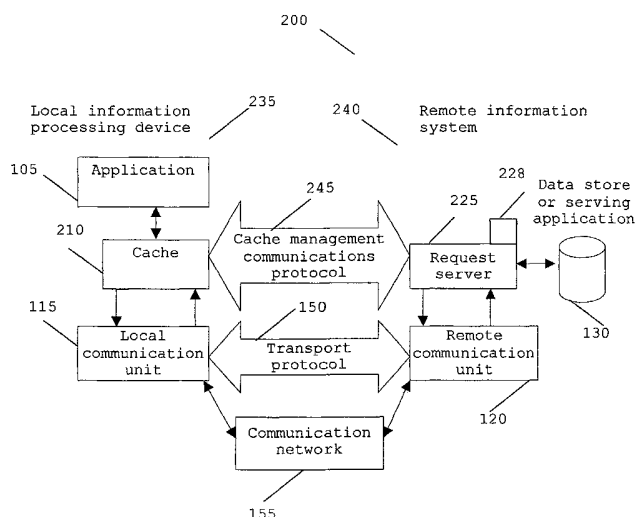
- (51) International Patent Classification⁷: **G06F 17/30**, H04L 29/08
- (74) Agent: **WRAY, Antony, John**; Optimus, Grove House, Lutyens Close, Chineham Court, Basingstoke, Hampshire RG24 8AG (GB).
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- (71) Applicant (*for all designated States except US*): **FLY-INGSPARK LIMITED** [GB/GB]; The Courtyard, White Horse Lane, Finchampstead, Berkshire RG40 4LW (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **GRABINAR, Paul, Lionel** [GB/GB]; 5 Ashley Road, Reading, Berkshire RG1 6HT (GB). **WOOD, Simon, David** [GB/GB]; 33 Eddington Road, Bracknell, Berkshire RG12 8GF (GB).

Declarations under Rule 4.17:

— *as to the identity of the inventor (Rule 4.17(i)) for all designations*

[Continued on next page]

(54) Title: METHODS AND SYSTEM FOR USING CACHES



(57) Abstract: A method of communicating data objects includes the steps of assembling at least one business object by a request server (225) from data held in a data store (230) in a remote information system (240) and storing a corresponding business object in a cache (210) in a local information processing device (235). A business object update message updates data held in the data store (230) or the cache (210). Furthermore, the cache stores at least one business object comprising a plurality of data objects as one retrievable entity. In this manner, business logic may be removed from an application and a cache, thereby making them easier to implement and increase the portability between the cache (210) and different data stores (130). Additionally, an improved cache management communications protocol removes the need for an application to recover from network problems, making the application easier to write.



- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
 - as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
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26 August 2004
- 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.*

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/02280

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G06F17/30 H04L29/08

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 7 G06F

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 practical, search terms used)

EPO-Internal, WPI Data, INSPEC, PAJ, COMPENDEX, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/58853 A (CHANNELPOINT INC) 5 October 2000 (2000-10-05) abstract page 2, line 1 -page 4, line 20 page 6, line 29 -page 9, line 8 figures 1,2,3,4A,4B ---	1-17, 34-42
Y	US 6 119 151 A (JAJI SEBNEM ET AL) 12 September 2000 (2000-09-12) column 3, line 31 -column 4, line 8; figures 1-7	18-33
A	column 4, line 57 -column 5, line 58 column 6, line 20 -column 8, line 53 --- -/--	1-17, 34-42

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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

17 May 2004

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10.06.2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Warry, L

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02280

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 5 931 961 A (RIDDLE GUY G ET AL) 3 August 1999 (1999-08-03) column 2, line 1 - line 36 column 3, line 62 -column 14, line 23 figure 2	18-33
A	----- FROESE K W ET AL: "The effect of client caching on file server workloads" SYSTEM SCIENCES, 1996., PROCEEDINGS OF THE TWENTY-NINTH HAWAII INTERNATIONAL CONFERENCE ON, WAILEA, HI, USA 3-6 JAN. 1996, LOS ALAMITOS, CA, USA,IEEE COMPUT. SOC, US, 3 January 1996 (1996-01-03), pages 150-159, XP010156640 ISBN: 0-8186-7426-1 the whole document -----	1-17, 34-42

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/02280

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-17, 34-42

A method of communicating data objects accross a data communication network between a cache in a local information processing device and a request server.

2. Claims: 18-33

A cache management communications protocol which controls the size and re-transmit of data blocks.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02280

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0058853	A	05-10-2000	AU 2608500 A WO 0058853 A1	16-10-2000 05-10-2000
US 6119151	A	12-09-2000	AT 177223 T BR 9500819 A CA 2142797 A1 CN 1121216 A ,B CZ 9602602 A3 DE 69416875 D1 DE 69416875 T2 WO 9524685 A1 EP 0749602 A1 HU 75264 A2 JP 2705006 B2 JP 7262074 A KR 170561 B1 PL 316565 A1 RU 2170454 C2	15-03-1999 07-11-1995 08-09-1995 24-04-1996 17-12-1997 08-04-1999 07-10-1999 14-09-1995 27-12-1996 28-05-1997 26-01-1998 13-10-1995 30-03-1999 20-01-1997 10-07-2001
US 5931961	A	03-08-1999	NONE	