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(21) International Application Number: PCT/US99/18484 (22) International Filing Date: 12 August 1999 (12.08.99) (30) Priority Data: 09/132,813 12 August 1998 (12.08.98) US (71) Applicant (for all designated States except US): CONCORD SOLUTIONS [US/US]; Suite 1150, 2300 Clayton Road, Concord, CA 94520 (US). (72) Inventor; and (75) Inventor/Applicant (for US only): GUREVICH, Michael, N. [US/US]; 1422 Whitecliff Way, Walnut Creek, CA 94596 (US). (74) Agents: KAPOUYTIAN, Ararat, K. et al.; Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, CA 94304-1018 (US).	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 22 June 2000 (22.06.00)	
(54) Title: METHOD AND APPARATUS FOR DATA ITEM MOVEMENT BETWEEN DISPARATE SOURCES AND HIERARCHICAL, OBJECT-ORIENTED REPRESENTATION (57) Abstract Data moves between multiple, disparate data sources and the object-oriented computer programs that process the data. A data access server is interposed between the object-oriented programs and the data sources, and acts as an intermediary. The intermediary server receives requests for data access from object-oriented computer programs, correlates each request to one or more interactions with one or more data sources, performs each required interaction, consolidates the results of the interactions, and presents a singular response to the requesting computer program. The consolidated response from the intermediary server contains data items requested by the computer program, information regarding the hierarchical topology that relates the data items, and an indication of the possible object types that might embody the data items. The application program receives the consolidated response and builds an object hierarchy to embody the data items and to interface them to the rest of the application program. The class of an object used to embody data items is selected at execution time from a list of possible candidates.		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/18484

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G06F9/46 G06F17/30 G06F9/44

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 794 248 A (HOWE III JACK L ET AL) 11 August 1998 (1998-08-11)	1, 2, 5, 9, 13, 14, 17, 21, 25, 26, 29, 33, 37, 38, 41, 45, 91
Y	column 4, line 43 -column 7, line 37	3, 4, 6, 10, 15, 16, 18, 22, 27, 28, 30, 34, 39, 40, 42, 46
A	--- -/--	49-78

Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
20 March 2000	07/04/2000

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 Bijm, K
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International Application No

PCT/US 99/18484

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CAREY M J ET AL: "Towards heterogeneous multimedia information systems: the Garlic approach" PROCEEDINGS RIDE-DOM '95. FIFTH INTERNATIONAL WORKSHOP ON RESEARCH ISSUES IN DATA ENGINEERING-DISTRIBUTED OBJECT MANAGEMENT (CAT.NO.95TH8039), PROCEEDINGS RIDE-DOM'95. FIFTH INTERNATIONAL WORKSHOP ON RESEARCH ISSUES IN DATA ENGINEERING-DISTRIBUTED OB, pages 124-131, XP002133468 1995, Los Alamitos, CA, USA, IEEE Comput. Soc. Press, USA ISBN: 0-8186-7056-8	1,2,13, 14,25, 26,37, 38,91
Y	page 126 -page 128, paragraph 3 -----	49-78
X	US 5 694 598 A (DURAND JACQUES ET AL) 2 December 1997 (1997-12-02)	79,80, 83,84, 87,88
Y	column 3, line 23 - line 43 column 6, line 45 - last line -----	6,18,30, 42,49-78
X	US 5 765 159 A (SRINIVASAN VENKATACHARY) 9 June 1998 (1998-06-09)	1,2,13, 14,25, 26,37,38
A	column 2, line 50 -column 21, line 10 -----	49-71,91
Y	US 5 627 979 A (CHANG DANIEL T ET AL) 6 May 1997 (1997-05-06)	3,10,15, 22,27, 34,39,46
Y	column 5, line 1 -column 6, line 27 -----	4,16,28, 40
Y	US 5 764 973 A (HUFF ROBERT ET AL) 9 June 1998 (1998-06-09) column 6, line 48 -column 8, line 25 -----	4,16,28, 40
A	EP 0 504 085 A (IBM) 16 September 1992 (1992-09-16)	1,5,6, 13,17, 18,25, 29,30, 37,41, 42,49-91
	column 5, line 7 -column 8, line 6 -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/US 99/18484

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
US 5794248	A	11-08-1998	NONE	
US 5694598	A	02-12-1997	NONE	
US 5765159	A	09-06-1998	US 5799309 A	25-08-1998
US 5627979	A	06-05-1997	NONE	
US 5764973	A	09-06-1998	NONE	
EP 0504085	A	16-09-1992	US 5212787 A DE 69229453 D DE 69229453 T	18-05-1993 29-07-1999 20-01-2000