US007685603B2

(12) **United States Patent**
Singler et al.

(10) **Patent No.: US 7,685,603 B2**
(45) **Date of Patent: Mar. 23, 2010**

(54) **SELECTING CLIENT ADAPTERS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1016 days.

(21) Appl. No.: **10/658,683**

(22) Filed: **Sep. 8, 2003**

(65) **Prior Publication Data**

US 2005/0055700 A1 Mar. 10, 2005

(51) **Int. Cl.**

G06F 3/00	(2006.01)
G06F 9/44	(2006.01)
G06F 9/46	(2006.01)
G06F 13/00	(2006.01)

(52) **U.S. Cl.** **719/311**

(58) **Field of Classification Search** 719/311, 719/316

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,644,720	A *	7/1997	Boll et al.	709/227
5,706,429	A *	1/1998	Lai et al.	709/230
5,802,306	A *	9/1998	Hunt	709/228
5,999,979	A *	12/1999	Vellanki et al.	709/232
6,003,094	A *	12/1999	Dean	719/315
6,237,041	B1 *	5/2001	H.ang..ang.l et al.	709/246
6,300,947	B1 *	10/2001	Kanevsky	715/866
6,912,588	B1 *	6/2005	Jardin et al.	709/238
7,003,773	B2 *	2/2006	Hoennig et al.	719/311
7,213,208	B2 *	5/2007	Reichel et al.	715/746
7,216,142	B2 *	5/2007	Whipple et al.	709/203
7,237,139	B2 *	6/2007	Hamilton et al.	714/4
7,356,562	B2 *	4/2008	Yoon	709/203
7,380,250	B2 *	5/2008	Schechter et al.	719/328
7,424,539	B2 *	9/2008	Gbadegesin	709/227
7,484,243	B2 *	1/2009	Dankovich et al.	726/8
2001/0047383	A1 *	11/2001	Dutta	709/201
2002/0038340	A1 *	3/2002	Whipple et al.	709/203
2002/0078371	A1 *	6/2002	Heilig et al.	713/200
2002/0133635	A1 *	9/2002	Schechter et al.	709/310
2003/0033356	A1 *	2/2003	Tran et al.	709/203

(Continued)

OTHER PUBLICATIONS

Chia-Chu Chiang , "Development of reusable components through the use of adapters," Jan. 2003, System Sciences, Proceedings of the 36th Annual Hawaii International Conference on, vol., Iss., 6-9, pp. 10 pp.*

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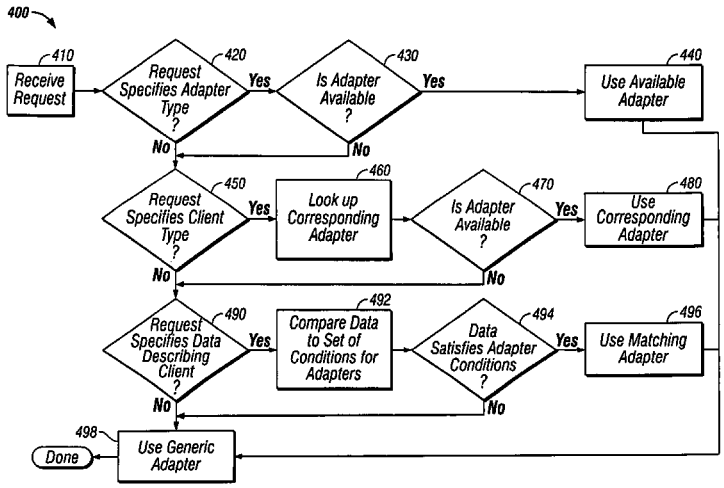
(57) **ABSTRACT**

Methods and apparatus, including computer program products, for selecting client adapters. A client abstraction layer identifies one or more selection data elements in a client request and selects an adapter to communicate with the client based on the selection data elements, wherein each selection data element specifies an adapter type, a client type, or data describing the client. The adapter can be selected based on a multi-stage selection process that involves performing an adapter-request process for selecting an adapter based on the selection data elements that specify the adapter type; if the adapter-request process fails to select an adapter, performing a client-identification process for selecting an adapter based on the selection data elements that specify the client type; and if the client-identification process fails to select an adapter, performing a client-description process for selecting an adapter based on the selection data elements that specify data describing the client.

23 Claims, 4 Drawing Sheets