(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
28 November 2002 (28.11.2002)

PCT

(10) International Publication Number
WO 02/095605 A1

(51) International Patent Classification[7]: G06F 15/16, 15/173

(21) International Application Number: PCT/US01/31268

(22) International Filing Date: 5 October 2001 (05.10.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

09/864,663	23 May 2001 (23.05.2001)	US
09/864,607	23 May 2001 (23.05.2001)	US
09/864,608	23 May 2001 (23.05.2001)	US

(71) Applicant: **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, NY 10504 (US).

(72) Inventors: **BRITTENHAM, Peter, J.**; 1645 Pricewood Lane, Apex, NC 27502 (US). **DAVIS, Douglas, B.**; 5717 Thistleton Lane, Raleigh, NC 27606 (US). **LINDQUIST, David, B.**; 4001 Lake Spring Court, Raleigh, NC 27613 (US). **WESLEY, Ajamu, A.**; 10213 Riverstone Place, Raleigh, NC 27614 (US).

(74) Agents: **ROTH, Steven, W.** et al.; IBM Corporation, Dept. 917, Building 006-1, 3605 Highway 52 North, Rochester, MN 55901-7829 (US).

(81) Designated States *(national)*: 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, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, 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, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

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.

WO 02/095605 A1

(54) Title: DYNAMIC DEPLOYMENT OF SERVICES IN A COMPUTING NETWORK

(57) Abstract: A process is defined whereby conditions such as usage metrics for incoming client requests (or other network conditions such as load balancing considerations) are monitored, and used to trigger dynamic deployment, redeployment, and/or undeployment of web services to locations in the network in order to improve efficiency. The undeployment may apply to distributed locations of a service and may also apply to an origin server from which the service was originally deployed. Service requests are dynamically routed to the destination where the service resides, in a manner which is transparent to the client. In an optional aspect, programmatic replication of system upgrades may be implemented by redeploying services using this same dynamic deployment approach, enabling the complexity of upgrading previously-deployed software to be reduced significantly. As another optional aspect, previously-deployed software may also be automatically and programmatically undeployed using disclosed techniques.