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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number
WO 00/77630 A1

(51) International Patent Classification[7]: G06F 9/46

(21) International Application Number: PCT/GB00/02245

(22) International Filing Date: 9 June 2000 (09.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
99304559.0 11 June 1999 (11.06.1999) EP

(71) Applicant *(for all designated States except US)*: **BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY** [GB/GB]; 81 Newgate Street, London EC1A 7AJ (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **POWERS, Simon, Julian** [GB/GB]; 2A Redan Street, Ipswich, Suffolk IP1 3PQ (GB). **HINDS, Michael, Reuben** [GB/GB]; 25 Spriteshall Lane, Trimley St.-Mary, Felixstowe, Suffolk IP11 9QY (GB).

(74) Agent: **LLOYD, Barry, George, William**; BT Group Legal Services, Intellectual Property Department, Holborn Centre, 8th Floor, 120 Holborn, London EC1N 2TE (GB).

(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*
— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

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.

G00001

(54) Title: COMMUNICATION BETWEEN SOFTWARE ELEMENTS

(57) Abstract: It will be well known that a so-called object-oriented approach to computer programming has become widespread over the past few years and applications such as large multiplayer games are no exception. A number of approaches to allowing objects to communicate with one another have been developed. One set of these approaches relate to allowing so-called distributed objects, which is to say objects distributed over a client/server system, to communicate with one another. With reference to applications such as large multiplayer games, dynamic real time distributed communications between mobile objects must be considered. Present day techniques, involving the use of simple TCP/IP or UDP/IP, CORBA or DCOM are unable to provide such real time dynamic performance. According to one aspect of the invention a method of providing communication between two or more application software elements is provided comprising associating each application software element with a communication software element through which to send and/or receive messages, holding the communication state of the associated application software element in each communication software element, allowing each application software element to communicate with other application software elements by sending and receiving messages through the respectively associated communication software elements and allowing each application software element and associated communication software element to move. Holding the communication state in the communication software element associated with each application software element allows the application software element and communication software element assembly to communicate and move in particularly dynamic fashion. Messaging consequently enabled, carried out on a per software element basis, allows for continuity of communication between objects even if they move in a dynamic fashion.

WO 00/77630 A1

162162