

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
12 August 2004 (12.08.2004)

PCT

(10) International Publication Number  
**WO 2004/068801 A1**

(51) International Patent Classification<sup>7</sup>: **H04L 12/56**

(21) International Application Number:  
PCT/GB2003/004645

(22) International Filing Date: 28 October 2003 (28.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0302117.7 30 January 2003 (30.01.2003) GB

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

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FUENTE, Carlos,**

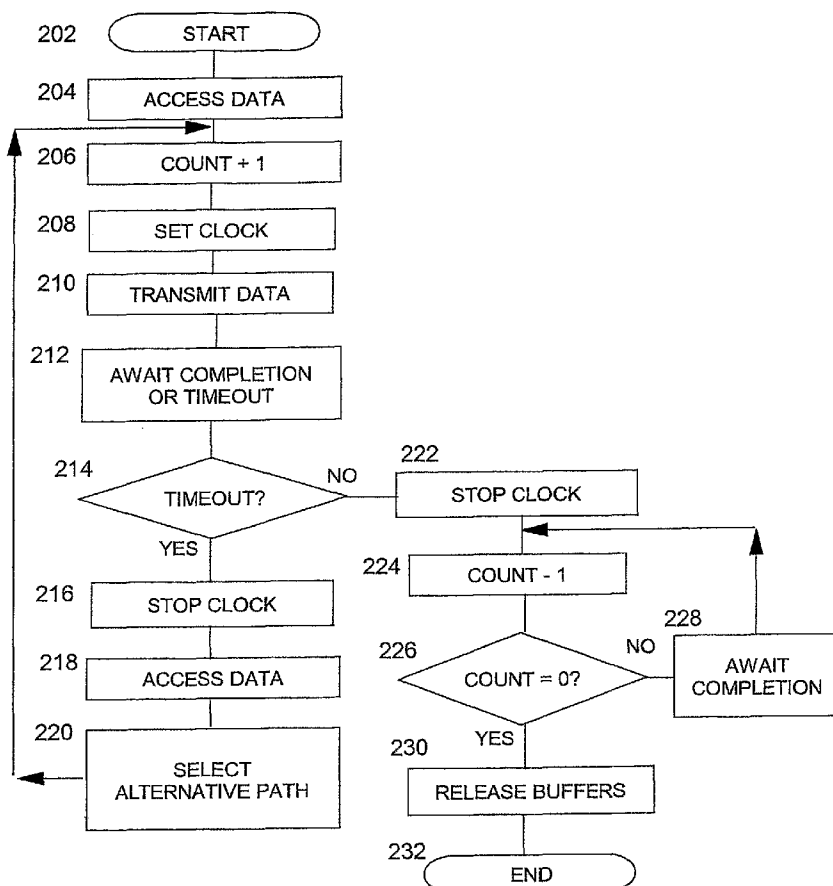
Francisco [GB/GB]; 43 White Hart Road, Portsmouth, Hampshire PO1 2TY (GB). **JONES, Robert, Michael** [GB/GB]; 102 Bromley Common, Bromley, Kent BR2 9PF (GB). **PASSINGHAM, William, John** [GB/GB]; 8 Precosa Road, Botley, Hampshire SO30 2NX (GB). **SCALES, William, James** [GB/GB]; 5 Portchester Road, Portchester, Fareham, Hampshire PO16 8AD (GB).

(74) Agent: **WILLIAMS, Julian, David**; IBM United Kingdom Limited, Intellectual Property Law, Hursley Park, Winchester, Hampshire SO21 2JN (GB).

(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, EG, 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, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: **PREEMPTIVE RETRANSMISSION OF BUFFERED DATA IN A NETWORK**



(57) Abstract: An apparatus for data transmission over a network comprises a buffer, a timer mechanism for timing an optimum interval (less than the round-trip error response delay) for retransmission of data. A first accessor accesses data in a buffer for transmission and starts a first timeout clock. Second or further accessors of the buffer are responsive to a timeout to access the data, start a timeout clock and attempt to transmit the data on a path avoiding path elements used by prior accessors. A counter increments and decrements a count of the references to the buffer by accessors and signals when the count reaches zero. A memory manager returns the buffer to a free buffer pool responsive to the reference counter signaling that the count has reached zero. An analysis mechanism can be used to determine the optimum interval and tune the timer mechanism.

WO 2004/068801 A1



**(84) Designated States (regional):** 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).

**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.*