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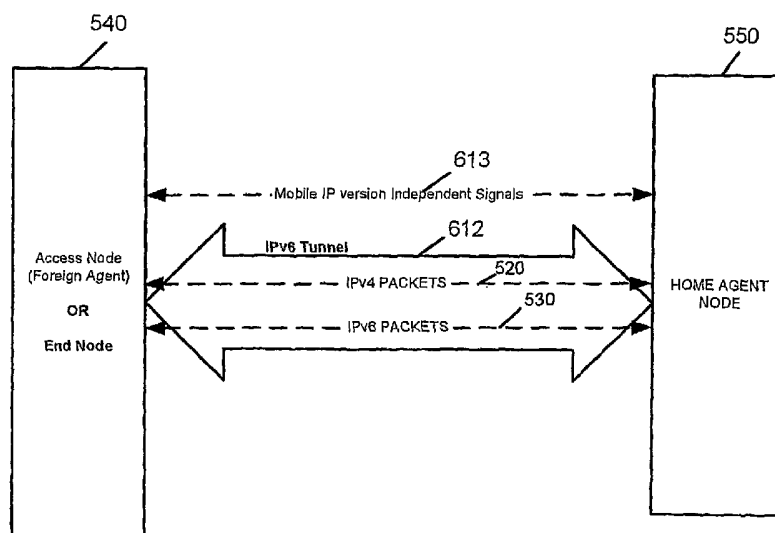
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[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR SUPPORTING AN INTERNET PROTOCOL (IP) VERSION INDEPENDENT MOBILITY MANAGEMENT SYSTEM



(57) Abstract: Methods and apparatus for supporting network layer protocol version independent mobility management are described. In accordance with the present invention, the signaling method used to set-up the redirection (encapsulation or tunnel) is separated from the type of redirection being set-up. Through the use of a Protocol Independent Mobility Management Protocol and/or modules for implementing one or more aspects of the Protocol of the present invention, Mobile IPv4 and IPv6 may run on top of any version of the network layer and can set-up tunnels of any network layer version over any other network layer version. Various features of the invention are used to establish tunnels which are capable of being used to commutate IPv4 and/or IPv6 packets (520, 530). Other features are directed to storing and using state information which allows IPv4 and/or IPv6 packets (520, 530) to be sent through a tunnel established using IPv4 or IPv6 type signaling (512).

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, 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, NA, 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, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, 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)
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OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, 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)

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B. FIELDS SEARCHED

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709/245, 370/400, 370/401, 370351, 370/466, 370/338

Electronic data base consulted during the international search (name of data base and, where practicable, 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.
A, E --- Y, E	Chen et al, U.S Patent No. 6842456, Figures 1, 3, 8, column 5 < lines 36-47 >, column 6 < line 64 > to column 8 < line 46 > column 2 < lines 38-51 >	1, 7-11, 15-19, 21-26, 29-38 ----- 2-6, 12-14, 20, 27, 28
A, E	Sundquist, US 20040136382, Figures 1, 2, 6, 7, paragraphs 0010, 0035-0052	1-38
Y, P	Abrol et al, US 20040006641, Figures 7, 8, 9, 0008, 0051, 0052, 0053, 0065, 0073	1-38
Y	Templin, US 20010040895, Figure 15e, 0008, 0225-0284	1-38
Y	Khalil et al, U.S Patent Pub. 20030002468, paragraphs 0055, 0065, 0066, 0068, 0073, 0081-0091, claim 9	1-38
A	Tsao et al, US 6862274, column 2 < line 40 > to column 3 < line 16 >, column 4 < line 16 > to column 5 < line 27 >	1-38
A, E	Koskiahde et al, U.S Patent Pub. 2004 0246939 A1	4-6

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Further documents are listed in the continuation of Box C.

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See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

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