



- (51) International Patent Classification:  
*H04L 29/06* (2006.01)    *H04N 21/2668* (2011.01)  
*H04L 12/18* (2006.01)
- (21) International Application Number: PCT/IB2012/055083
- (22) International Filing Date: 24 September 2012 (24.09.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
13/194,392                      29 July 2011 (29.07.2011)                      US
- (71) Applicant (for all designated States except US): TELEFONAKTIEBOLAGET LM ERICSSON (PUBL) [SE/SE]; 164 83 Stockholm (SE).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): REDMOND, Stefan, Paul [GB/CA]; 103 Av. Buckingham, Pointe-Claire, Québec H9R1K9 (CA).
- (74) Agents: ANDRADE, Dilip, C. et al.; 8400 Decarie Boulevard, Town Mount Royal, Québec H4P 2N2 (CA).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

[Continued on next page]

(54) Title: OPTIMIZED NEAR-SIMULTANEOUS DISTRIBUTION OF MULTIMEDIA CONTENT

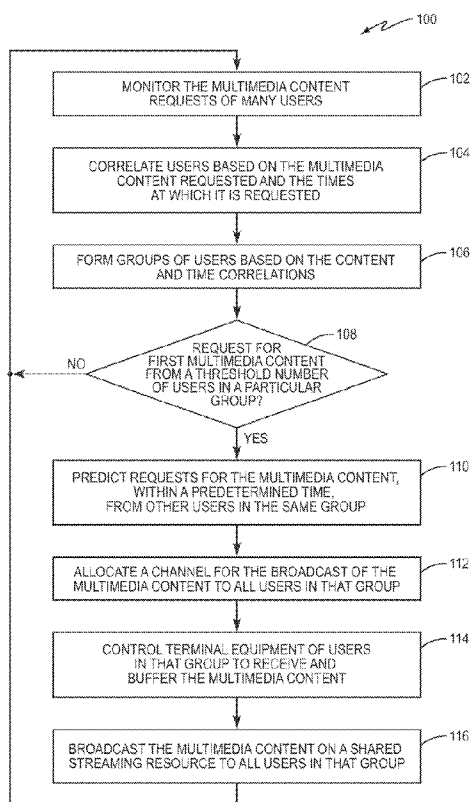


FIG. 3

(57) Abstract: The "swarming" behavior of multimedia content distribution network subscribers - numerous, near-simultaneous requests for the same content by different users - is predicted, based on analysis of past viewing habits. Users are grouped based on correlations in the multimedia content requested and the time at which it is requested. When a set of users of a group requests particular multimedia content, that content is autonomously distributed, via a shared distribution channel, to the terminal equipment of all users in the group, where it is buffered. As other users in the group request the same multimedia content, an initial portion is distributed to each requesting user via an individual channel. As the rendered content catches up to the buffered content, the terminal equipment switches from the content delivered via the individual distribution channel to the buffered content. The individual distribution is then terminated, and the individual distribution channel released.



**(84) Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

**Published:**

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- the filing date of the international application is within two months from the date of expiration of the priority period (Rule 26bis.3)

**(88) Date of publication of the international search report:**

23 May 2013

# INTERNATIONAL SEARCH REPORT

|   |
|---|
| International application No<br>PCT/IB2012/055083 |
|---|

|  |  |                       |
|--|--|-----------------------|
| <b>A. CLASSIFICATION OF SUBJECT MATTER</b><br>INV. H04L29/06 H04L12/18 H04N21/2668<br>ADD.   |  |                       |
| According to International Patent Classification (IPC) or to both national classification and IPC  |  |                       |
| <b>B. FIELDS SEARCHED</b><br>Minimum documentation searched (classification system followed by classification symbols)<br>H04L H04N  |  |                       |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  |  |                       |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)<br>EPO-Internal, WPI Data, COMPENDEX  |  |                       |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>  |  |                       |
| Category*  | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
| X  | US 2007/005771 A1 (COLLET JEAN-LUC [FR] ET AL) 4 January 2007 (2007-01-04)<br>figures 3-6<br>paragraph [0020] - paragraph [0038]<br>paragraph [0053] - paragraph [0074]<br>-----   | 1-22                  |
| X  | WO 2009/073372 A1 (GEN INSTRUMENT CORP [US]; SCHLACK JOHN [US]) 11 June 2009 (2009-06-11)<br>column 8 - column 9<br>paragraph [0019] - paragraph [0023]<br>paragraph [0030] - paragraph [0049]<br>page 2; figures 2,3,4,7<br>-----<br>-/--   | 1-22                  |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <span style="margin-left: 150px;"><input checked="" type="checkbox"/> See patent family annex.</span>   |  |                       |
| * Special categories of cited documents :  |  |                       |
| "A" document defining the general state of the art which is not considered to be of particular relevance<br>"E" earlier application or patent but published on or after the international filing date<br>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)<br>"O" document referring to an oral disclosure, use, exhibition or other means<br>"P" document published prior to the international filing date but later than the priority date claimed | "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<br>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art<br>"&" document member of the same patent family |                       |
| Date of the actual completion of the international search  | Date of mailing of the international search report   |                       |
| 27 February 2013   | 11/03/2013   |                       |
| Name and mailing address of the ISA/<br>European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016   | Authorized officer<br><br>Riegler, Jörg  |                       |

INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2012/055083

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | JACK Y B LEE ET AL: "Design, Performance Analysis, and Implementation of a Super-Scalar Video-on-Demand System", IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 12, no. 11, 1 November 2002 (2002-11-01), XP011071891, ISSN: 1051-8215 page 984 - page 989<br>----- | 1-22                  |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No  
PCT/IB2012/055083

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|--|------------------|-------------------------|------------------|
| US 2007005771                          | A1               | 04-01-2007              | NONE             |
| -----                                  |                  |                         |                  |
| WO 2009073372                          | A1               | 11-06-2009              | US 2009150926 A1 |
|  |                  |                         | WO 2009073372 A1 |
|  |                  |                         | 11-06-2009       |
|  |                  |                         | 11-06-2009       |
| -----                                  |                  |                         |                  |