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[Continued on next page]

(54) Title: DATA DELIVERY OPTIMIZATION

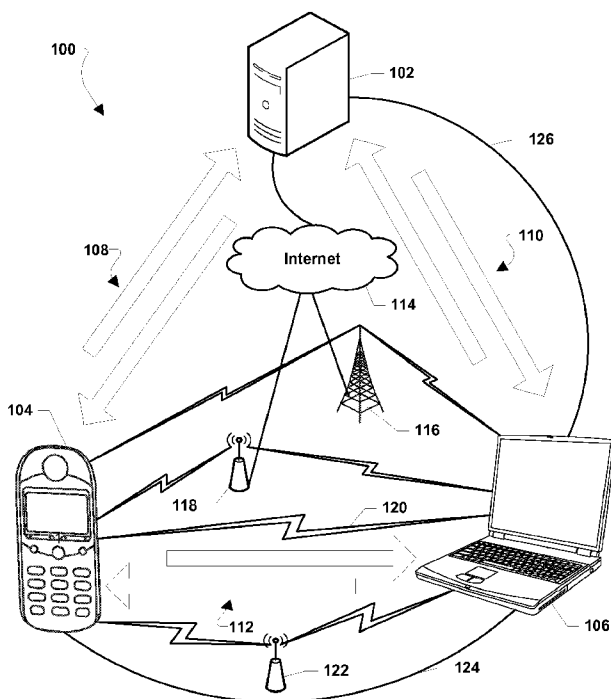


FIG. 1

(57) Abstract: The various embodiments provide systems, devices, and methods which optimize the way in which data is delivered between devices a group of interconnected devices. In one embodiment a data set intended for multiple devices may be segmented and different portions of the data set may be provided to each device. The intended devices may then share their data set portions to recreate the complete data set on each device. In another embodiment, multiple devices each storing a complete data set may need to upload the complete data set to a single device. The multiple devices may assign upload responsibility for segments of the complete data set among each other, and the multiple devices may each upload their assigned segments to the single device. The single device may then combine the segments to recreate the complete data set.





**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))*
- *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))*

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29 August 2013

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- *with international search report (Art. 21(3))*

## INTERNATIONAL SEARCH REPORT

International application No  
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| A. CLASSIFICATION OF SUBJECT MATTER<br>INV. H04L12/58<br>ADD.  |  |  |
|--|--|--|
| According to International Patent Classification (IPC) or to both national classification and IPC  |  |  |
| B. FIELDS SEARCHED   |  |  |
| Minimum documentation searched (classification system followed by classification symbols)<br>H04L  |  |  |
| 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   |  |  |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT   |  |  |
| Category*  | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.  |
| X  | Wikipedia: "BitTorrent",<br>30 December 2011 (2011-12-30),<br>XP002695081,<br>Retrieved from the Internet:<br>URL:https://en.wikipedia.org/w/index.php?title=BitTorrent&oldid=468634786<br>[retrieved on 2013-04-08] | 1-3,8,9,<br>11,12,<br>14-16,<br>20-22,<br>27,28,<br>30,31,<br>33-35,<br>39-41,<br>46,47,<br>49,50,<br>52-54,<br>58,59,<br>64,65,<br>67,69,<br>70,75,<br>76,78,<br>80,81,<br>86,87,<br>89,<br><br>-/--  |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.   |  |  |
| * 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<br><br>10 April 2013   |  | Date of mailing of the international search report<br><br>05/07/2013   |
| 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>Frey, Richard  |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2012/072344

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-3, 8, 9, 11, 12, 14-16, 20-22, 27, 28, 30, 31, 33-35, 39-41, 46, 47, 49  
50, 52-54, 58, 59, 64, 65, 67, 69, 70, 75, 76, 78, 80, 81, 86, 87, 89  
91-94, 98-101, 105-108

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/072344

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.  |
|-----------|--|--|
| X         | <p>the whole document -----</p> <p>Wikipedia: "Torrent file",<br/> 25 December 2011 (2011-12-25),<br/> XP002695082,<br/> Retrieved from the Internet:<br/> URL: <a href="http://en.wikipedia.org/w/index.php?title=Torrent_file&amp;oldid=467671884">http://en.wikipedia.org/w/index.php?title=Torrent_file&amp;oldid=467671884</a><br/> [retrieved on 2013-04-08]</p> <p>the whole document -----</p> | <p>91-94,<br/> 98-101,<br/> 105-108</p> <p>1-3,8,9,<br/> 11,12,<br/> 14-16,<br/> 20-22,<br/> 27,28,<br/> 30,31,<br/> 33-35,<br/> 39-41,<br/> 46,47,<br/> 49,50,<br/> 52-54,<br/> 58,59,<br/> 64,65,<br/> 67,69,<br/> 70,75,<br/> 76,78,<br/> 80,81,<br/> 86,87,<br/> 89,<br/> 91-94,<br/> 98-101,<br/> 105-108</p> |

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 2, 14-16, 20, 21, 33-35, 39, 40, 52-54, 58, 69, 80, 91-94, 98-101, 105-108

Method for data delivery with separation of data set into data segments, the delivery possibly using a segment map

- 1.1. claims: 3, 8, 9, 11, 12, 22, 27, 28, 30, 31, 41, 46, 47, 49, 50, 59, 64, 65, 67, 70, 75, 76, 78, 81, 86, 87, 89

Method for data delivery with separation of data set into data segments, further refinement with respect to segmentation, architecture or data type

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2. claims: 4-7, 13, 23-26, 32, 42-45, 51, 60-63, 68, 71-74, 79, 82-85, 90

Method for data delivery with separation of data set into data segments, the segmentation taking into account delivery cost based on bandwidth considerations

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3. claims: 10, 29, 48, 66, 77, 88

Method for data delivery with separation of data set into data segments, where data segments are only allocated to collocated devices

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4. claims: 17-19, 36-38, 55-57, 95-97, 102-104, 109-111

Upload method with separation of data set into data segments, determination and communication of upload responsibilities between devices, performing upload according to responsibilities, asking for user approval

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