

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 March 2011 (31.03.2011)

PCT

(10) International Publication Number
WO 2011/038013 A3

- (51) **International Patent Classification:**
H04L 29/06 (2006.01) *H04N 7/24* (2011.01)
- (21) **International Application Number:**
PCT/US2010/049842
- (22) **International Filing Date:**
22 September 2010 (22.09.2010)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**

61/244,767	22 September 2009 (22.09.2009)	US
61/257,719	3 November 2009 (03.11.2009)	US
61/258,088	4 November 2009 (04.11.2009)	US
61/285,779	11 December 2009 (11.12.2009)	US
61/296,725	20 January 2010 (20.01.2010)	US
61/372,399	10 August 2010 (10.08.2010)	US
12/887,476	21 September 2010 (21.09.2010)	US
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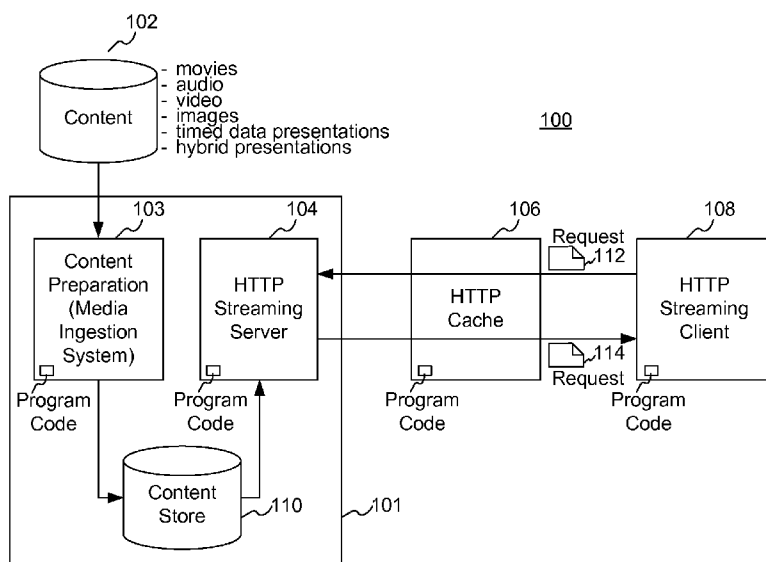
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(81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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.

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH,

[Continued on next page]

(54) **Title:** ENHANCED BLOCK-REQUEST STREAMING SYSTEM USING SIGNALING OR BLOCK CREATION



(57) **Abstract:** A block request streaming system provides for improvements in the user experience and bandwidth efficiency of such systems, typically using an ingestion system that generates data in a form to be served by a conventional file server (HTTP, FTP, or the like), wherein the ingestion system intakes content and prepares it as files or data elements to be served by the file server. The system might include controlling the sequence, timing and construction of block requests, time based indexing, variable block sizing, optimal block partitioning, control of random access point placement, including across multiple presentation versions, dynamically updating presentation data, and/or efficiently presenting live content and time shifting.

Fig. 1

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GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *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))*

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

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

11 August 2011

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/049842

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H04L29/06 H04N7/24
 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)
 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 practical, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	QUALCOMM EUROPE S A R L: "Baseline Architecture and Definitions for HTTP Streaming", 3GPP DRAFT; S4-090603 HTTP STREAMING ARCHITECTURE, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no. Kista; 20090812, 12 August 2009 (2009-08-12), XP050356889, the whole document ----- -/--	1-8

Further documents are listed in the continuation of Box C. 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 "E" earlier document but published on or after the international filing date "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) "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	"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 "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 "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. "&" document member of the same patent family
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Date of the actual completion of the international search 8 February 2011	Date of mailing of the international search report 28/06/2011
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Biro, Udo Bela
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/049842

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.:

1-8

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-8

Method for transmitting media as a plurality of blocks to clients upon request, allowing media streaming over HTTP.

2. claims: 9-13

Method for a client device requesting media data of different data rate versions from a media ingestion system, allowing switch over between data rate versions without interruption.

3. claims: 14, 15

Method for a client device receiving media data and a minimum start-up delay value from a media ingestion system, allowing a seamless start of media playout.

4. claims: 16-19

Method for a client device receiving a media data stream and a media presentation description, MPD, file associated with the media data stream.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/049842

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PANTOS R ET AL: "HTTP Live Streaming; draft-pantos-http-live-streaming-01.txt", HTTP LIVE STREAMING; DRAFT-PANTOS-HTTP-LIVE-STREAMING-01.TXT, INTERNET ENGINEERING TASK FORCE, IETF; STANDARDWORKINGDRAFT, INTERNET SOCIETY (ISOC) 4, RUE DES FALAISES CH- 1205 GENEVA, SWITZERLAND, no. 1, 8 June 2009 (2009-06-08), XP015062692, sections 2,6 -----	1-8
X	US 2009/043906 A1 (HURST MARK B [US] ET AL) 12 February 2009 (2009-02-12) paragraphs [0013], [0014], [0051] - [0054], [0062] - [0064], [0080], [0092], [0111] -----	1-8
A	US 2004/031054 A1 (DANKWORTH HARALD [NO] ET AL DANKWORTH HARALD [NO] ET AL) 12 February 2004 (2004-02-12) paragraphs [0001] - [0024] -----	1-8
A	Alex Zambelli: "IIS Smooth Streaming Technical Overview", Microsoft 25 March 2009 (2009-03-25), XP002620446, Retrieved from the Internet: URL:http://www.microsoft.com/downloads/en/ details.aspx?FamilyID=03d22583-3ed6-44da-8 464-b1b4b5ca7520 [retrieved on 2011-01-21] the whole document -----	1-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2010/049842

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009043906 A1	12-02-2009	WO 2009020552 A1	12-02-2009
US 2004031054 A1	12-02-2004	WO 02054284 A1	11-07-2002
		NO 20010056 A	05-07-2002
		US 2008209490 A1	28-08-2008