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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, QA, RO, RS, RU, RW, SC, SD,

[Continued on next page]

(54) **Title:** ADAPTIVE BITRATE MANAGEMENT ON PROGRESSIVE DOWNLOAD WITH INDEXED MEDIA FILES

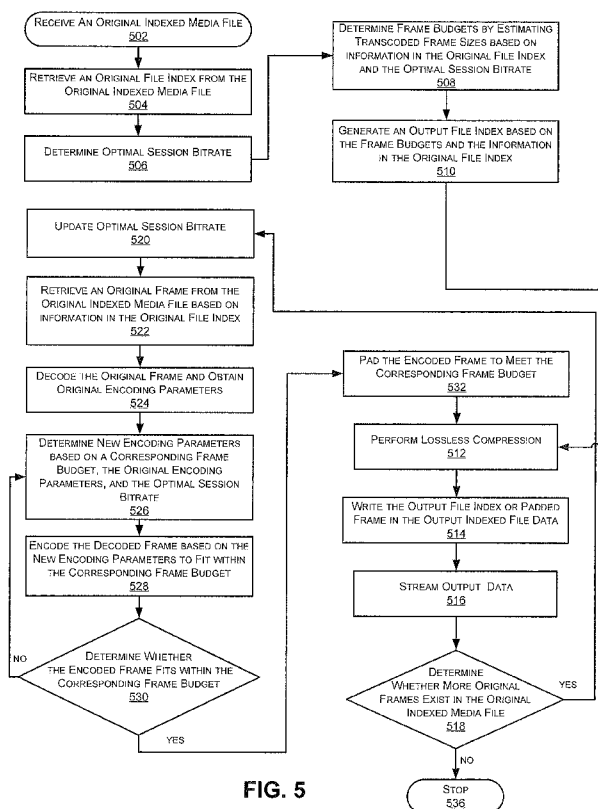


FIG. 5

(57) **Abstract:** A method includes receiving streaming media data having an original media frame and an original frame index referencing the original media frame; determining an optimal session bitrate, wherein the optimal session bitrate is based on the available network bandwidth between a server and a terminal; allocating a frame budget for an output media frame by estimating a frame size of the output media frame based on the original frame index and the optimal session bitrate; generating the output media frame by processing the original media frame based on first encoding parameters and, if the allocated frame budget is greater than a frame size of the processed media frame, padding the processed media frame; and providing the output media frame.



SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Published:

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4 April 2013

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/041684

A. CLASSIFICATION OF SUBJECT MATTER

INV. H04L29/06 H04N21/2343 H04L65/60
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 practicable, search terms used)

EP0-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.
Y	WO 2011/046618 A2 (BYTEMOBILE INC [US]; MELNYK MIGUEL [US]; KIDD ROBERT [US]; SESTRICH JO) 21 April 2011 (2011-04-21) the whole document	1-21
Y	----- US 2009/254657 A1 (MELNYK MIGUEL A [US] ET AL) 8 October 2009 (2009-10-08) paragraph [0029] - paragraph [0086]; figures 1, 2, 3A, 4, 5	1-21
A	----- US 2011/082945 A1 (MYERS ROBERT LINWOOD [CA] ET AL) 7 April 2011 (2011-04-07) figures 1,2,5,11-13 paragraph [0031] - paragraph [0060] paragraph [0115] - paragraph [0165] ----- -/-	1-21



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

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"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

Date of the actual completion of the international search

14 January 2013

Date of mailing of the international search report

22/01/2013

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/041684

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/093900 A1 (PATEL VIPUL [US] ET AL) 21 April 2011 (2011-04-21) figures 3, 3a, 3b, 5, 6, 7, 11 paragraph [0028] - paragraph [0036] paragraph [0124] - paragraph [0154] paragraph [0169] - paragraph [0196] paragraph [0230] - paragraph [0237] -----	22,23

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/041684

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.:

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: 1-21

Methods, server and program stored on a medium for encoding streamed media data received according to determined network bandwidth

2. claims: 22, 23

Methods for transcoding received media according to a media format determined of being supported by a terminal's media player.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/041684

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2011046618 A2	21-04-2011	CN 102783147 A EP 2489190 A2 US 2011090953 A1 WO 2011046618 A2	14-11-2012 22-08-2012 21-04-2011 21-04-2011
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US 2011093900 A1	21-04-2011	NONE	