

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 July 2008 (31.07.2008)

PCT

(10) International Publication Number
WO 2008/092104 A3

- (51) **International Patent Classification:**
H04N 7/00 (2006.01)
- (21) **International Application Number:**
PCT/US2008/052092
- (22) **International Filing Date:** 25 January 2008 (25.01.2008)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
60/886,577 25 January 2007 (25.01.2007) US
- (71) **Applicant (for all designated States except US):** **SKY-FIRE LABS, INC.** [US/US]; 444 Castro Street, Suite 130, Mountain View, CA 94041 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **SWENSON, Erik, R.** [US/US]; C/o Dvc Labs, Inc., 444 Castro Street, Ste. 130, Mountain View, CA 94041 (US). **BHANDARI, Nitin** [US/US]; C/o Dvc Labs, Inc., 444 Castro Street, Ste. 130, Mountain View, CA 94041 (US). **KUMAR, Vijay**

[IN/US]; C/o Dvc Labs, Inc., 444 Castro Street, Ste. 130, Mountain View, CA 94041 (US).

(74) **Agents:** **SUEOKA, Greg, T.** et al; Fenwick & West LLP, Silicon Valley Center, 801 California Street, Mountain View, CA 94041 (US).

(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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) **Title:** DYNAMIC CLIENT-SERVER VIDEO TILING STREAMING

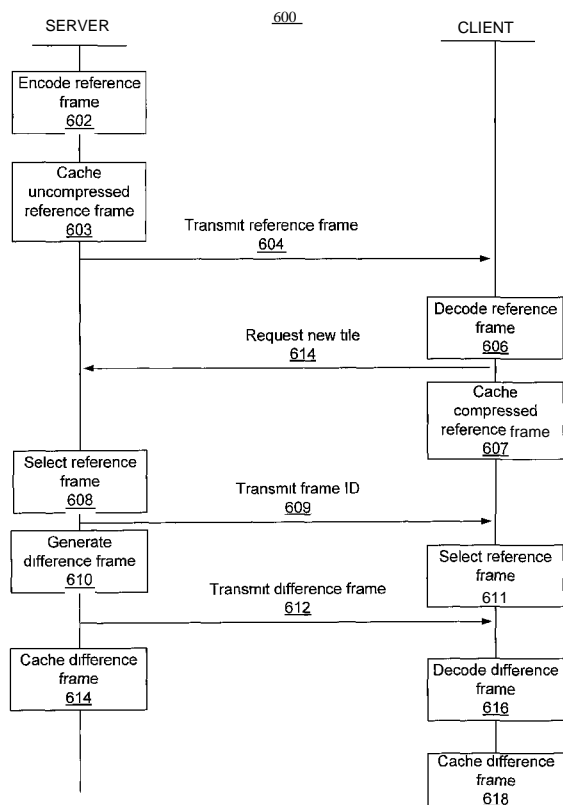


FIG. 6

(57) **Abstract:** A system and a method for communicating video data associated with content across a network are disclosed. A server partitions the content into a plurality of tiles where each tile includes a subset of the content and index data describing a relationship between a tile and one or more adjacent tiles. Each tile is then encoded as a video frame, for example each tile is encoded according to the H.264 standard. The plurality of tiles are then transmitted to a client which combines the plurality of tiles using the index data to locally recreate the content. The client associates a predetermined viewport tile with a client viewport representing the area of the content that is visible in a client display device to allow viewing of the content while tiles not associated with the client viewport are cached to expedite subsequent retrieval.

WO 2008/092104 A3



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

Published:

— *with international search report*

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

25 September 2008

INTERNATIONAL SEARCH REPORT

International application No

PCT/US 08/52092

A CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - H04N 7/00 (2008.04) USPC. 348/474
USPC - 348/474
 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)
 IPC(8) H04N 7/00 (2008 04)
 USPC 348/474

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 USPC 348/474, 469, 725/1 17, 118, 709/234, 715/716, 719 (text search)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 WEST(USPT ,PGPB ,EPAB ,JPAB ,USOCR), DialogWEB(E πgινeeπrπg), Freepatentsonline.com, Google Search terms tie block equal greater display screen index header width height resolution size adjacent enhancement low high resolution slice layer frame reference base 16

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication where appropriate, of the relevant passages	Relevant to claim No
Y	US 2006/0233246 (PARK et al) 19 October 2006 (19 10 2006), para [0036]-[0040], [0044]-[0049]	1-23
Y	US 2005/0052294 A1 (LIANG et al) 10 March 2005 (10 03 2005), para [0081]-[0083], [0184], [0185], [0222], [0223], [0245]	1-16
Y	US 2006/0291561 A1 (SEONG et al) 28 December 2006 (28 12 2006), para [0053], [0056], [0059], [0089]	17-23
A	US 2005/0232357 A1 (HUBRICH et al) 20 October 2005 (20 10 2005), para [0045]-[0064], [0078]	1, 8, 17
A	US 7,095,782 B1 (COHEN et al) 22 August 2006 (22 08 2006), abstract, col 2-4	1, 8, 17

I Further documents are listed in the continuation of Box C

* Special categories of cited documents	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 2 July 2008 (02 07 2008)	Date of mailing of the international search report 14 JUL 2008
---	--

Name and mailing address of the ISA/US Mail Stop PCT, Attn ISA/US, Commissioner for Patents P O Box 1450, Alexandria, Virginia 22313-1450 Facsimile No 571-273-3201	Authorized officer Lee W Young PCT Helpdesk 571-272-4300 PCTOSP 571-272-7774
--	---