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Levanon et al.

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(54) **OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS**

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(73) Assignee: **Inovo Limited**, The Valley Anguilla (VG)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
This patent is subject to a terminal disclaimer.

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US 2010/0064002 A1 Mar. 11, 2010

Related U.S. Application Data

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(51) **Int. Cl.**
G06F 15/16 (2006.01)

(52) **U.S. Cl.** **709/217; 709/230; 345/625; 382/232; 382/305**

(58) **Field of Classification Search** **709/202, 709/203, 217, 230, 246, 247; 345/625; 382/232, 382/305**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | |
|-----------|-----|---------|-----------------------------|
| 5,929,860 | A | 7/1999 | Hoppe |
| 6,182,114 | B1 | 1/2001 | Yap et al. |
| 6,212,301 | B1 | 4/2001 | Warner et al. |
| 6,314,452 | B1 | 11/2001 | Dekel et al. |
| 6,326,965 | B1 | 12/2001 | Castelli et al. |
| 6,345,279 | B1 | 2/2002 | Li et al. |
| 6,346,938 | B1 | 2/2002 | Chan et al. |
| 6,397,259 | B1 | 5/2002 | Lincke et al. |
| 6,608,933 | B1 | 8/2003 | Dowell et al. |
| 6,704,024 | B2 | 3/2004 | Robotham et al. |
| 6,711,297 | B1 | 3/2004 | Chang et al. |
| 6,801,665 | B1 | 10/2004 | Atsumi et al. |
| 7,644,131 | B2* | 1/2010 | Levanon et al. 709/217 |

OTHER PUBLICATIONS

Hoppe, H. "Progressive Meshes", SIGGRAPH '96: Proceedings of the 23rd annual conference on Computer graphics and interactive techniques, 1996, pp. 99-108.

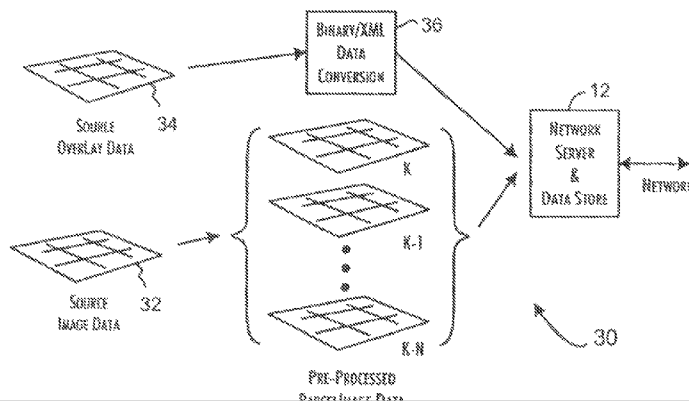
* cited by examiner

Primary Examiner — David Lazaro

(57) **ABSTRACT**

Large-scale images are retrieved over network communications channels for display on a client device by selecting an update image parcel relative to an operator controlled image viewpoint to display via the client device. A request is prepared for the update image parcel and associated with a request queue for subsequent issuance over a communications channel. The update image parcel is received from the communications channel and displayed as a discrete portion of the predetermined image. The update image parcel optimally has a fixed pixel array size, is received in a single and or plurality of network data packets, and is constrained to a resolution less than or equal to the resolution of the client device display.

20 Claims, 5 Drawing Sheets



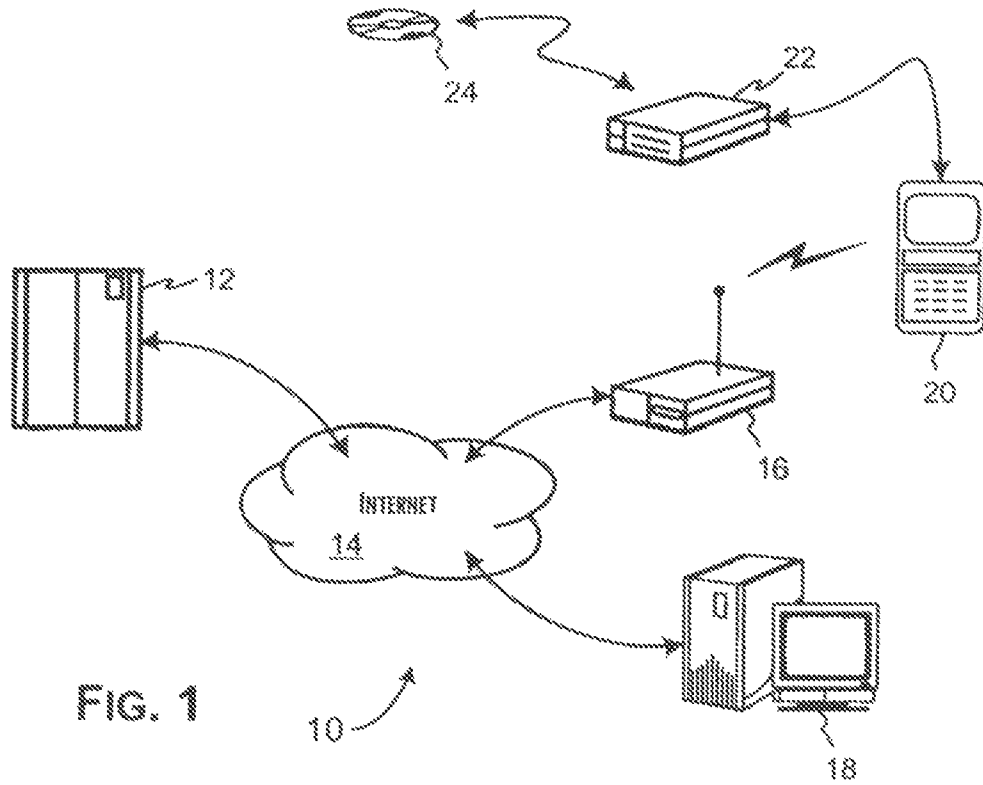


FIG. 1

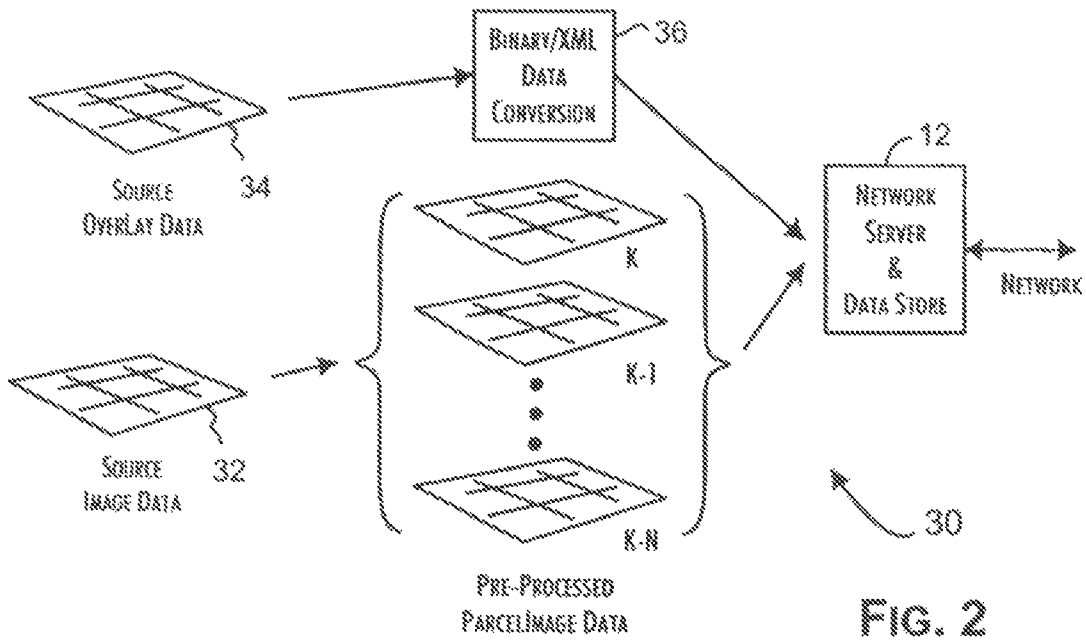


FIG. 2

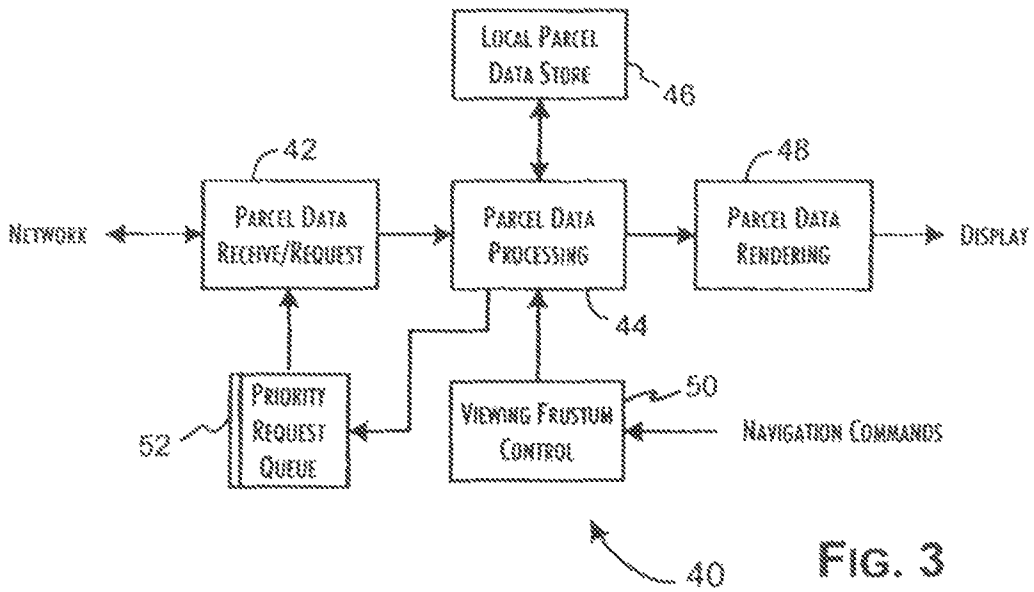


FIG. 3

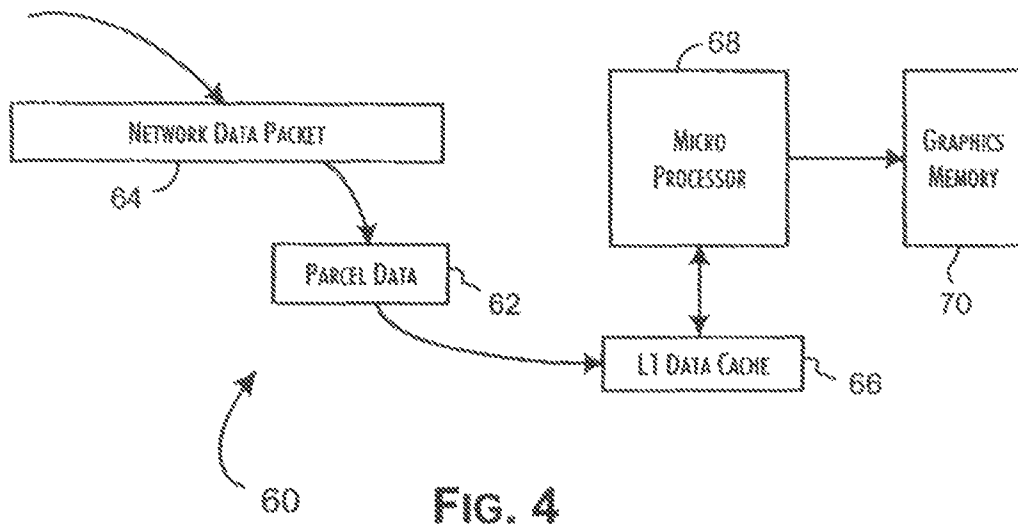
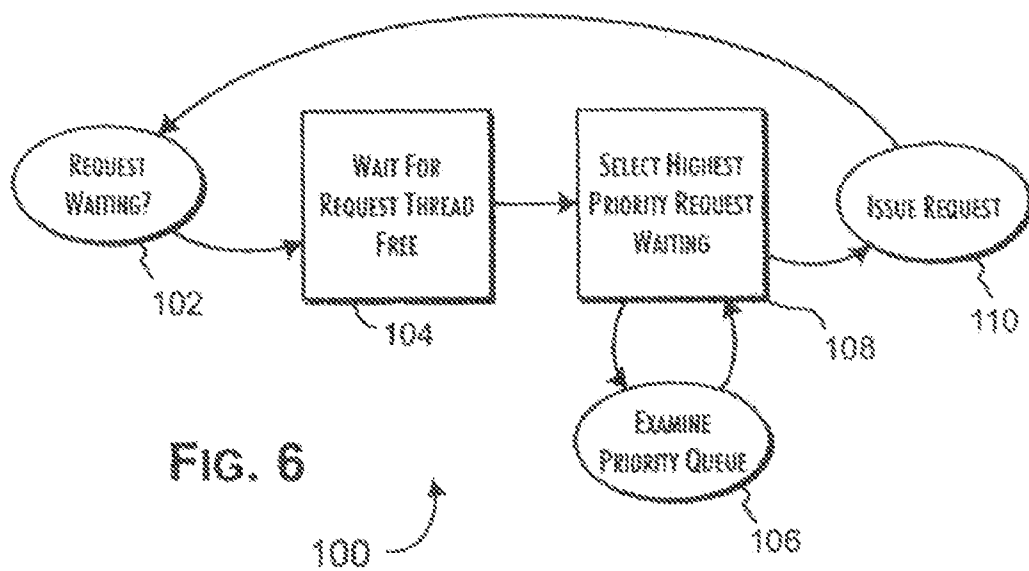
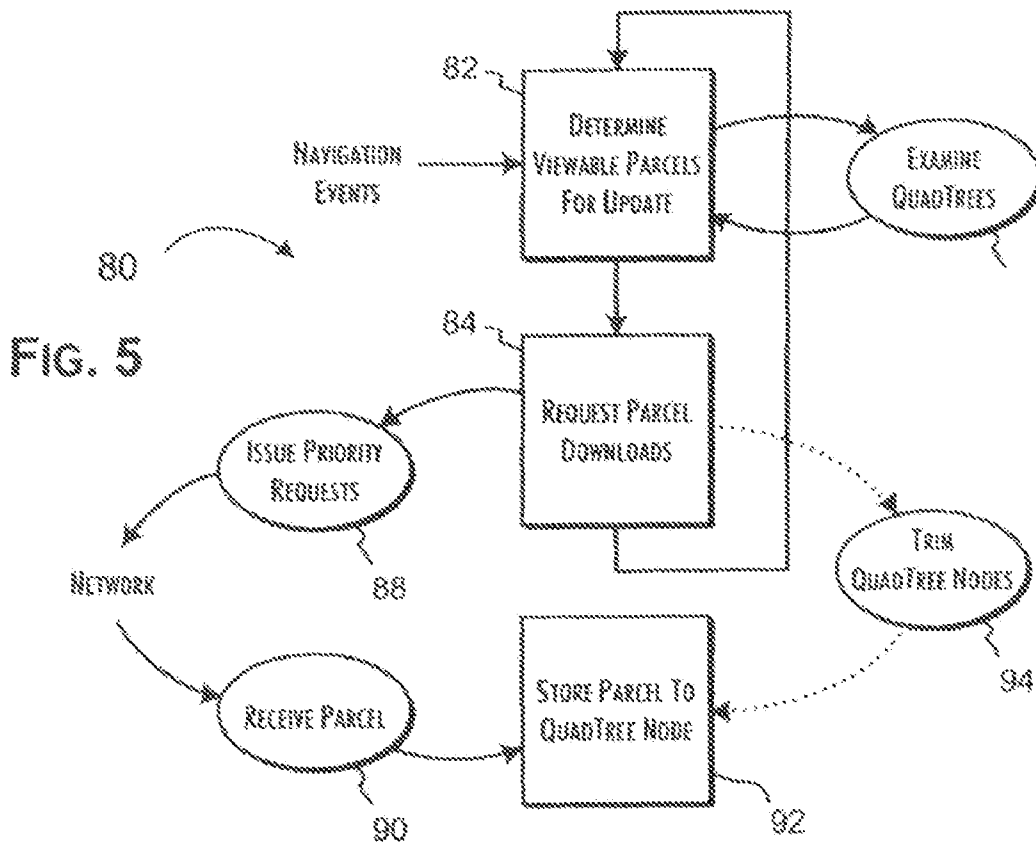


FIG. 4



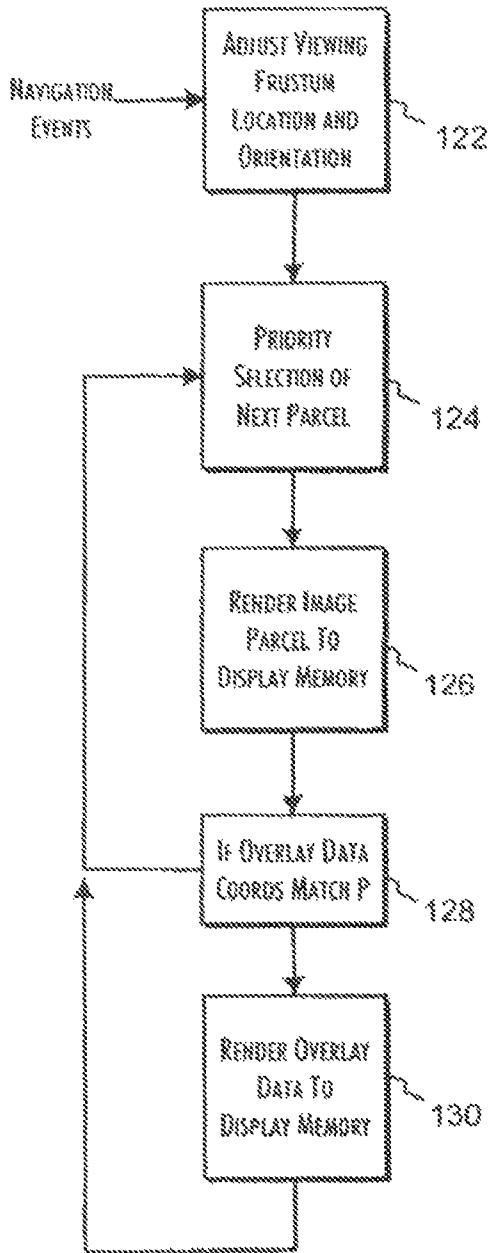
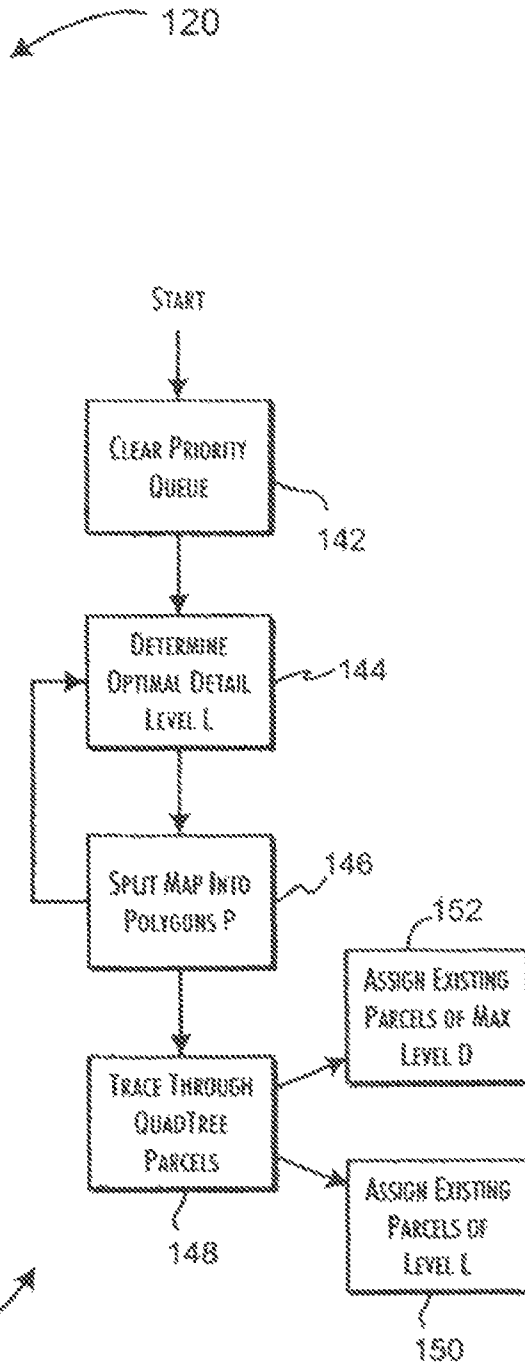


FIG. 8

FIG. 7



140

150

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