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Levanon et al.

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

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(*) 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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(51) **Int. Cl.**
G06F 15/16 (2006.01)
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(52) **U.S. Cl.**
CPC **H04L 67/327** (2013.01); **G06F 3/14** (2013.01); **G06T 3/4092** (2013.01); **G09G 5/003** (2013.01);

(Continued)

(58) **Field of Classification Search**

CPC H04N 1/40068; H04N 1/4172; H04N 1/64; H04N 21/234345; H04N 21/234363;

(Continued)

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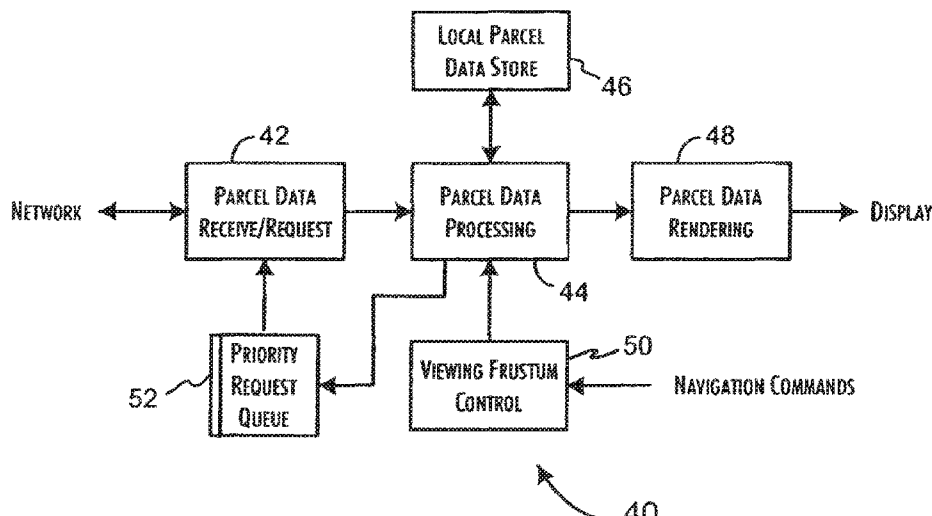
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(57) **ABSTRACT**

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 were the fixed pixel array may be constrained to a resolution less than or equal to the resolution of the client device display.

27 Claims, 5 Drawing Sheets



Related U.S. Application Data

- No. 14/970,526, filed on Dec. 15, 2015, which is a continuation of application No. 14/547,148, filed on Nov. 19, 2014, now Pat. No. 9,253,239, which is a continuation of application No. 13/027,929, filed on Feb. 15, 2011, now Pat. No. 8,924,506, which is a continuation-in-part of application No. 12/619,643, filed on Nov. 16, 2009, now Pat. No. 7,908,343, which is a continuation of application No. 10/035,987, filed on Dec. 24, 2001, now Pat. No. 7,644,131.
- (60) Provisional application No. 60/258,465, filed on Dec. 27, 2000, provisional application No. 60/258,466, filed on Dec. 27, 2000, provisional application No. 60/258,467, filed on Dec. 27, 2000, provisional application No. 60/258,468, filed on Dec. 27, 2000, provisional application No. 60/258,488, filed on Dec. 27, 2000, provisional application No. 60/258,489, filed on Dec. 27, 2000.
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- (58) **Field of Classification Search**
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 See application file for complete search history.

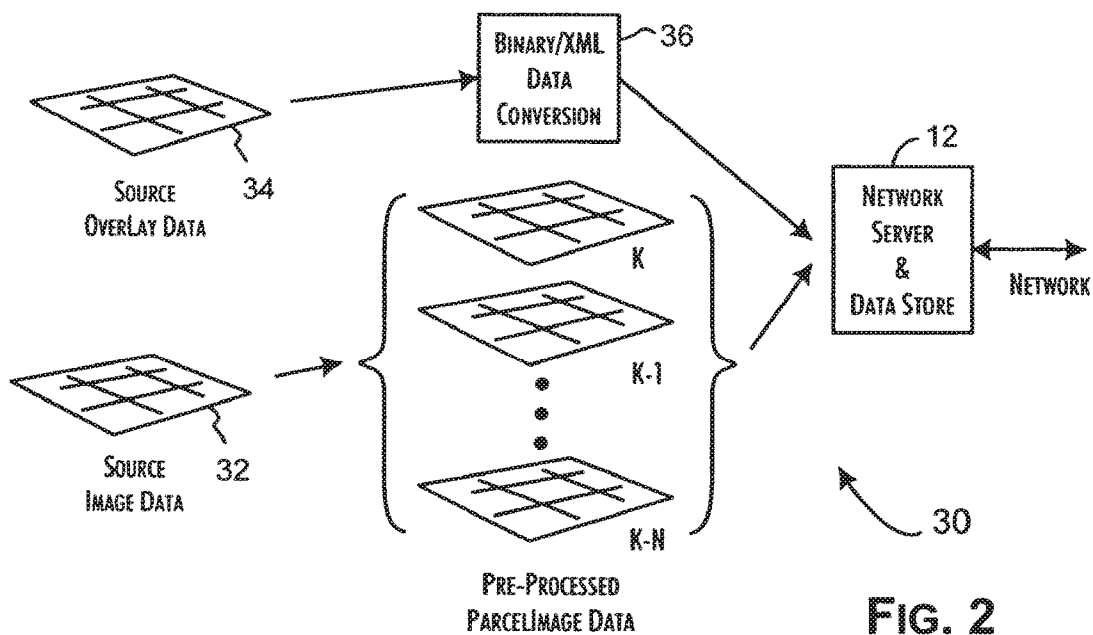
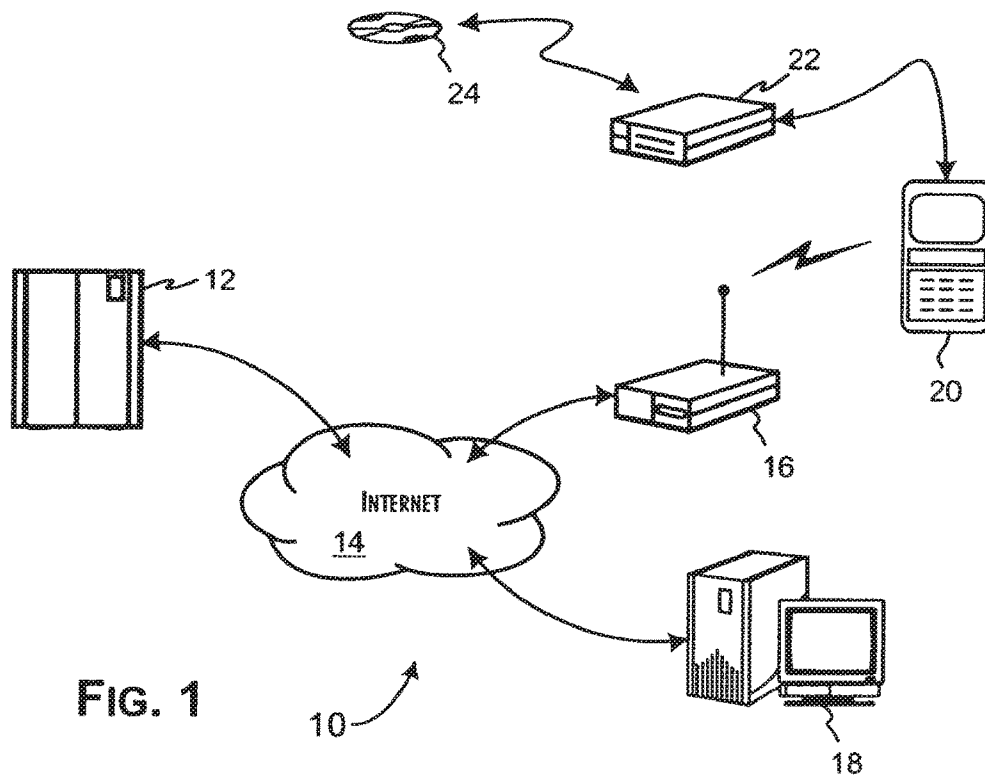
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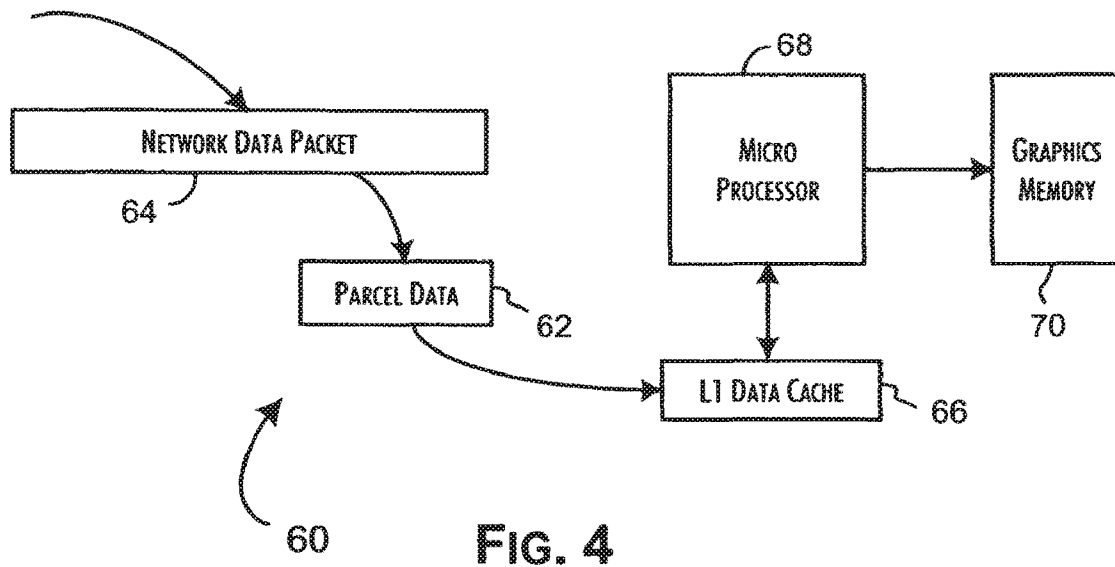
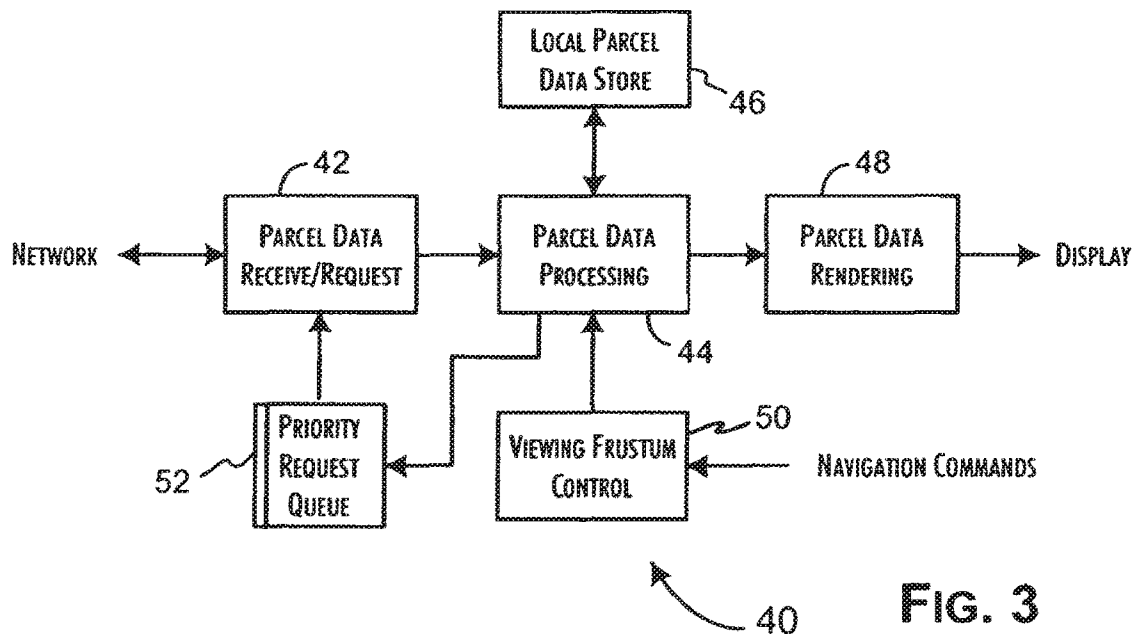
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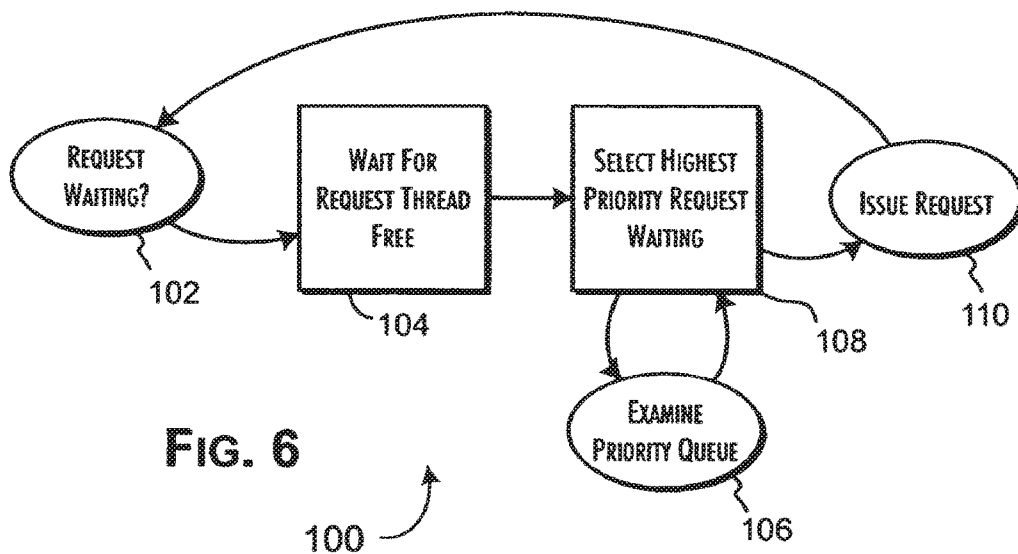
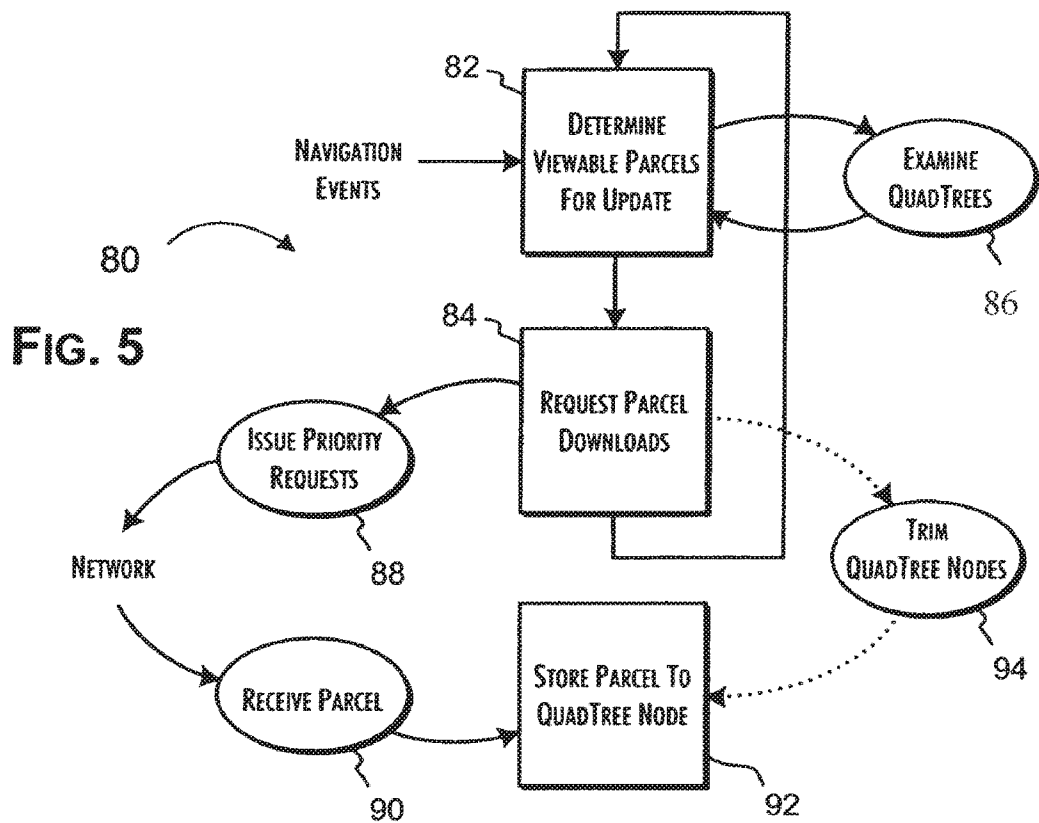
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