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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 865 days.

This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

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(60) Provisional application No. 60/258,488, filed on Dec. 27, 2000, provisional application No. 60/258,489, filed on Dec. 27, 2000, provisional application No. 60/258,465, filed on Dec. 27, 2000, provisional application No. 60/258,468, 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.

(51) **Int. Cl.**

**G06F 15/16** (2006.01)  
**G06F 3/14** (2006.01)  
**G06T 3/40** (2006.01)

(52) **U.S. Cl.**

CPC ..... **G06F 3/1454** (2013.01); **G06T 3/4092** (2013.01); **G09G 2340/02** (2013.01); **G09G 2350/00** (2013.01)

USPC ..... **709/217**; 709/203; 345/625; 382/232; 382/305

(58) **Field of Classification Search**

CPC ..... **G06T 3/4092**; **G09G 2340/02**; **G06F 3/14**  
USPC ..... 709/202, 203, 217, 230, 246, 247; 345/625; 382/232, 305

See application file for complete search history.

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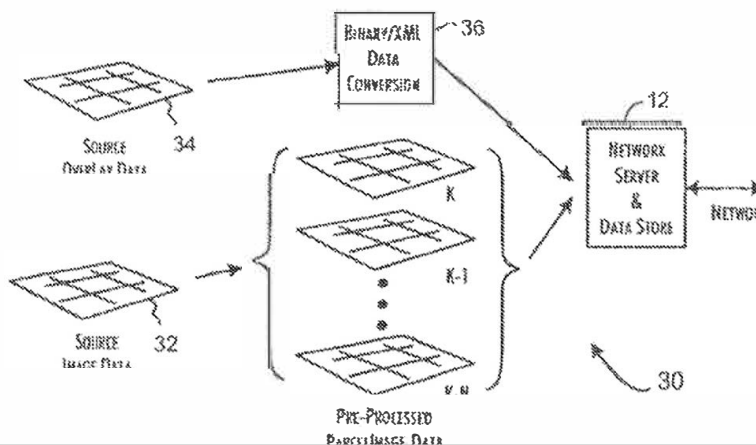
*Primary Examiner* — David Lazaro

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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.

**21 Claims, 5 Drawing Sheets**



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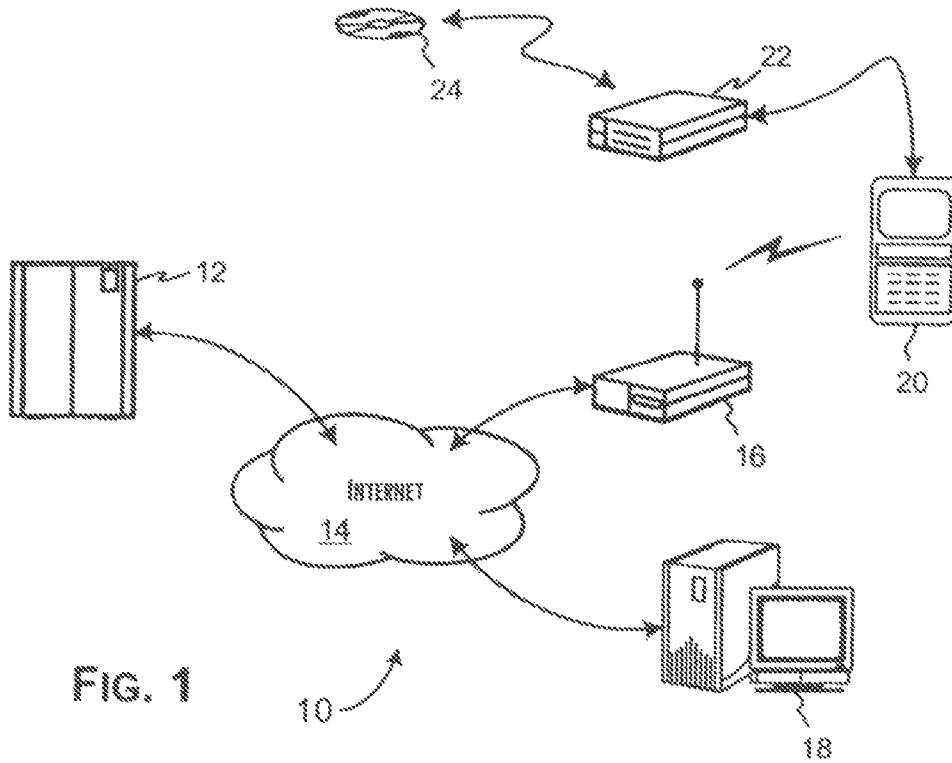


FIG. 1

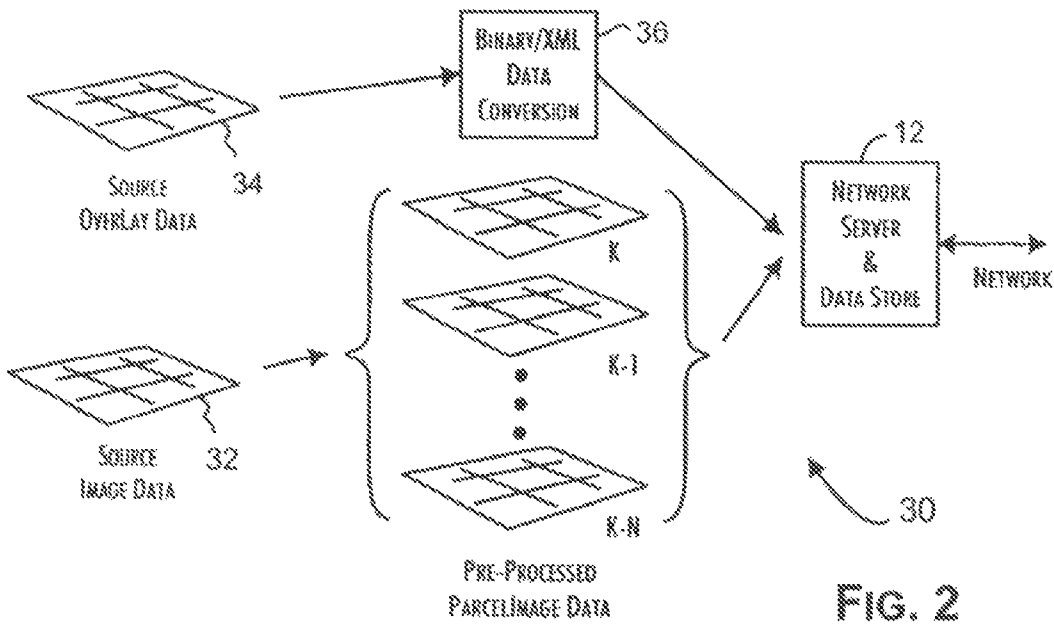


FIG. 2

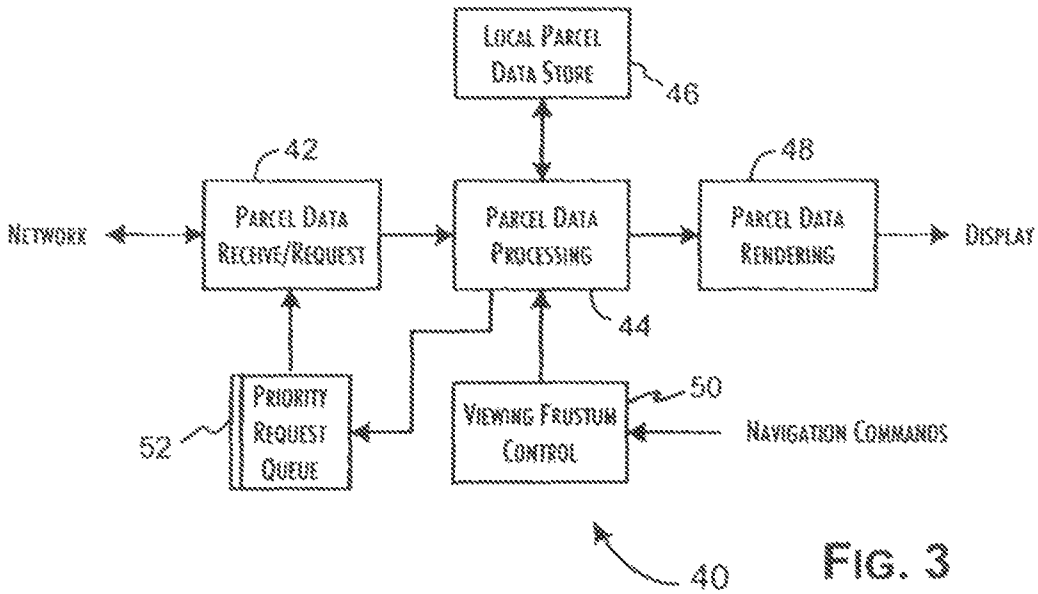


FIG. 3

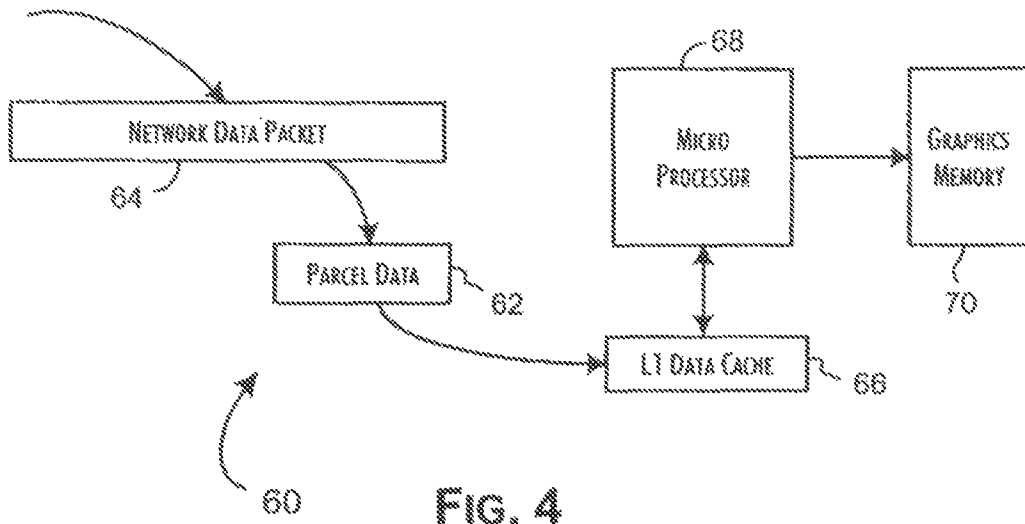
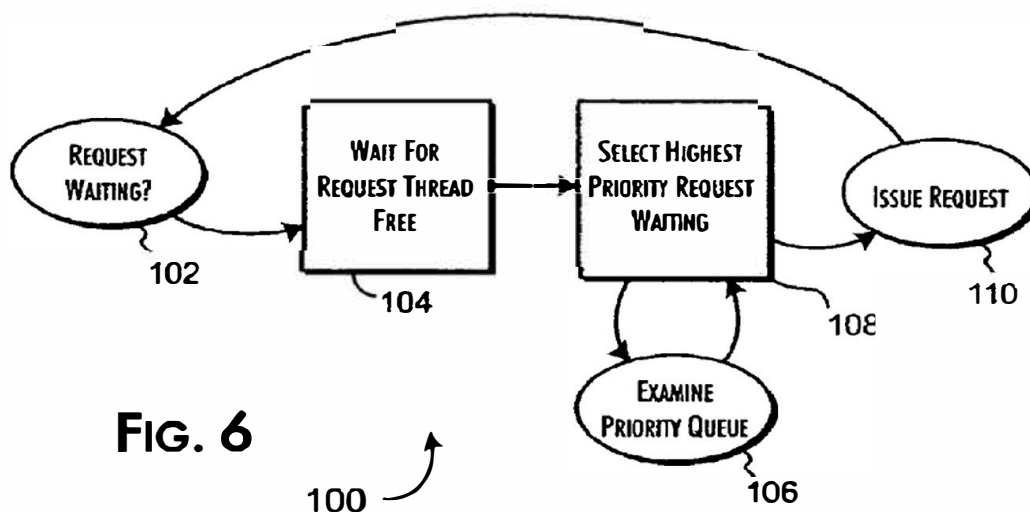
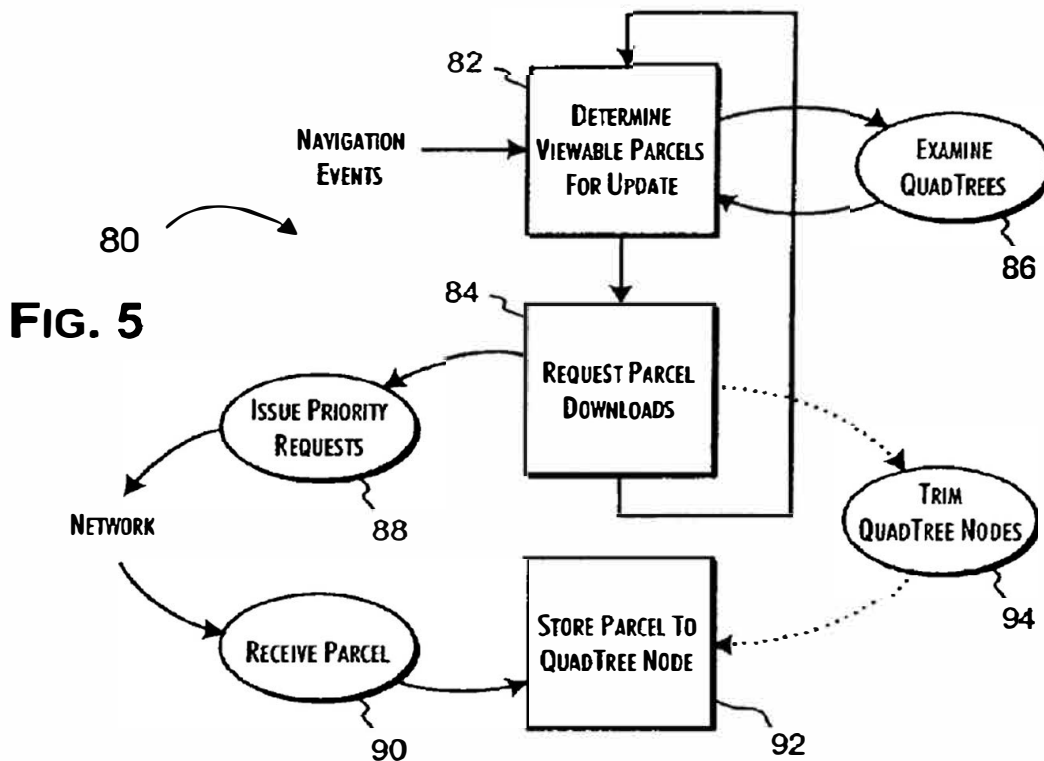


FIG. 4



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