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(12) **United States Patent**
Levanon et al.

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(54) **SYSTEM AND METHODS FOR NETWORK IMAGE DELIVERY WITH DYNAMIC VIEWING FRUSTUM OPTIMIZED FOR LIMITED BANDWIDTH COMMUNICATION CHANNELS**

(58) **Field of Classification Search** 709/203, 709/246-247, 217-219; 345/418-420, 581, 345/619; 382/103, 232, 235, 240
See application file for complete search history.

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(73) Assignee: **3-D-V-U Israel (2000) Ltd.**, Rannana (IL)

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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 918 days.

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(21) Appl. No.: **10/035,981**

Primary Examiner—Philip B. Tran

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(65) **Prior Publication Data**

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Related U.S. Application Data

(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.

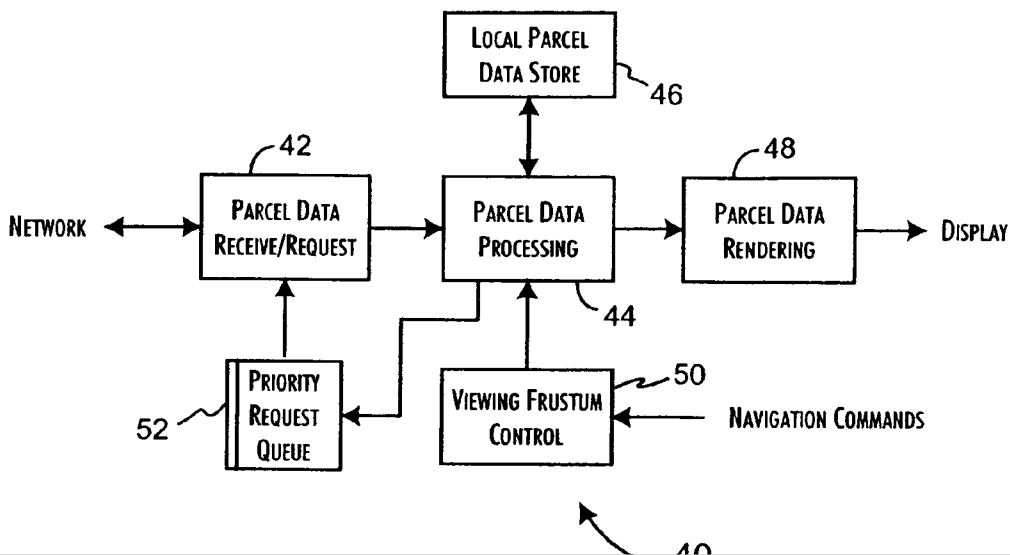
(57) **ABSTRACT**

Dynamic visualization of image data provided through a network communications channel is performed by a client system including a parcel request subsystem and a parcel rendering subsystem. The parcel request subsystem includes a parcel request queue and is operative to request discrete image data parcels in a priority order and to store received image data parcels in a parcel data store. The parcel request subsystem is responsive to an image parcel request of assigned priority to place the image parcel request in the parcel request queue ordered in correspondence with the assigned priority. The parcel rendering subsystem is coupled to the parcel data store to selectively retrieve and render received image data parcels to a display memory. The parcel rendering system provides the parcel request subsystem with the image parcel request of the assigned priority.

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

(52) **U.S. Cl.** **709/203; 709/246; 709/217; 709/219; 345/420; 345/581; 382/232; 382/235**

2 Claims, 5 Drawing Sheets



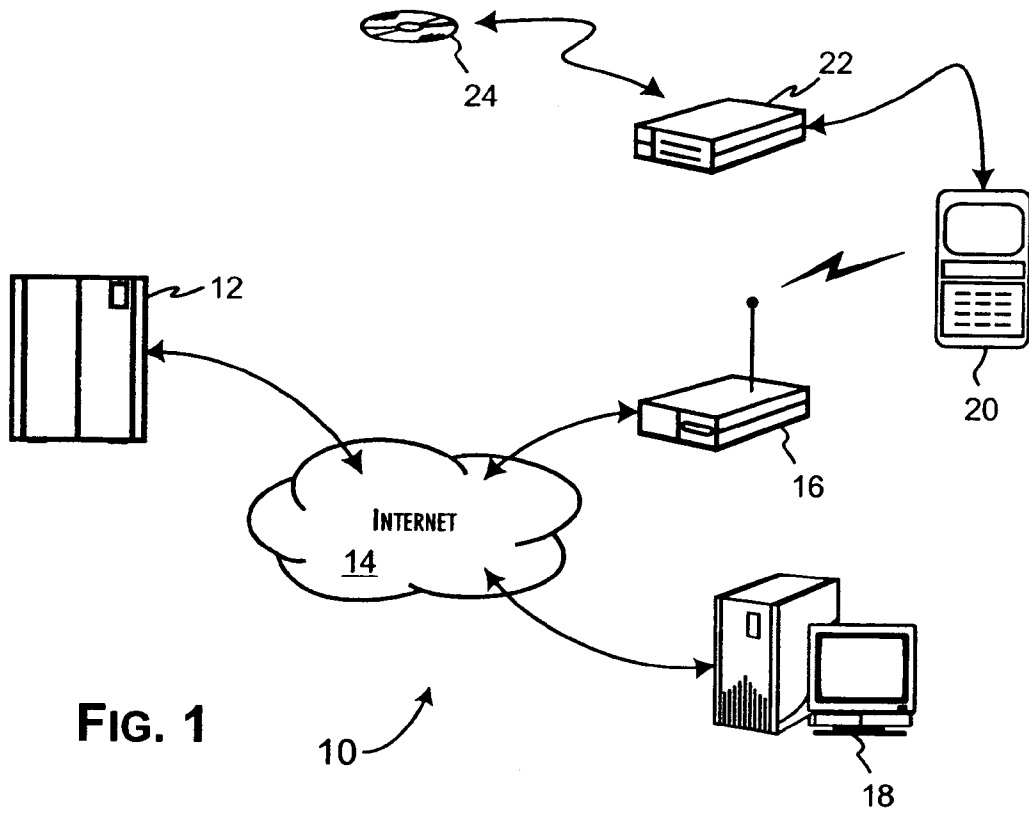


FIG. 1

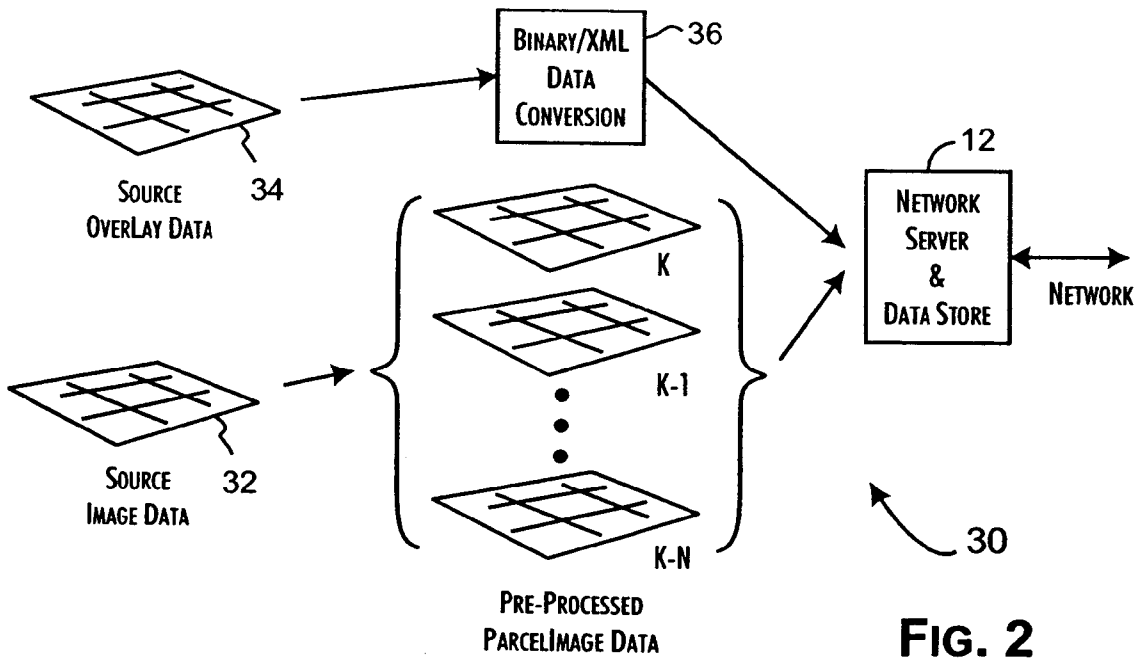
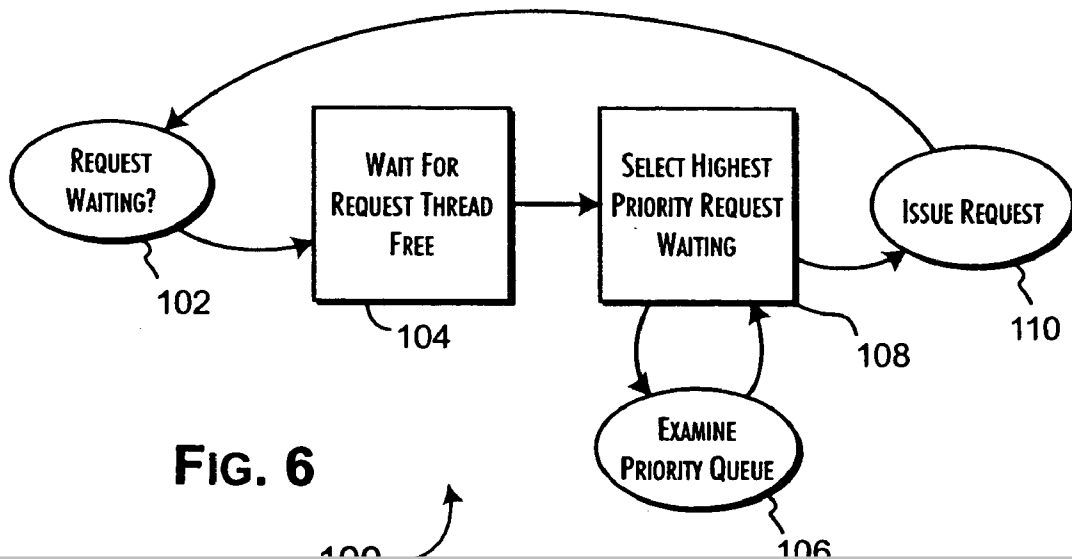
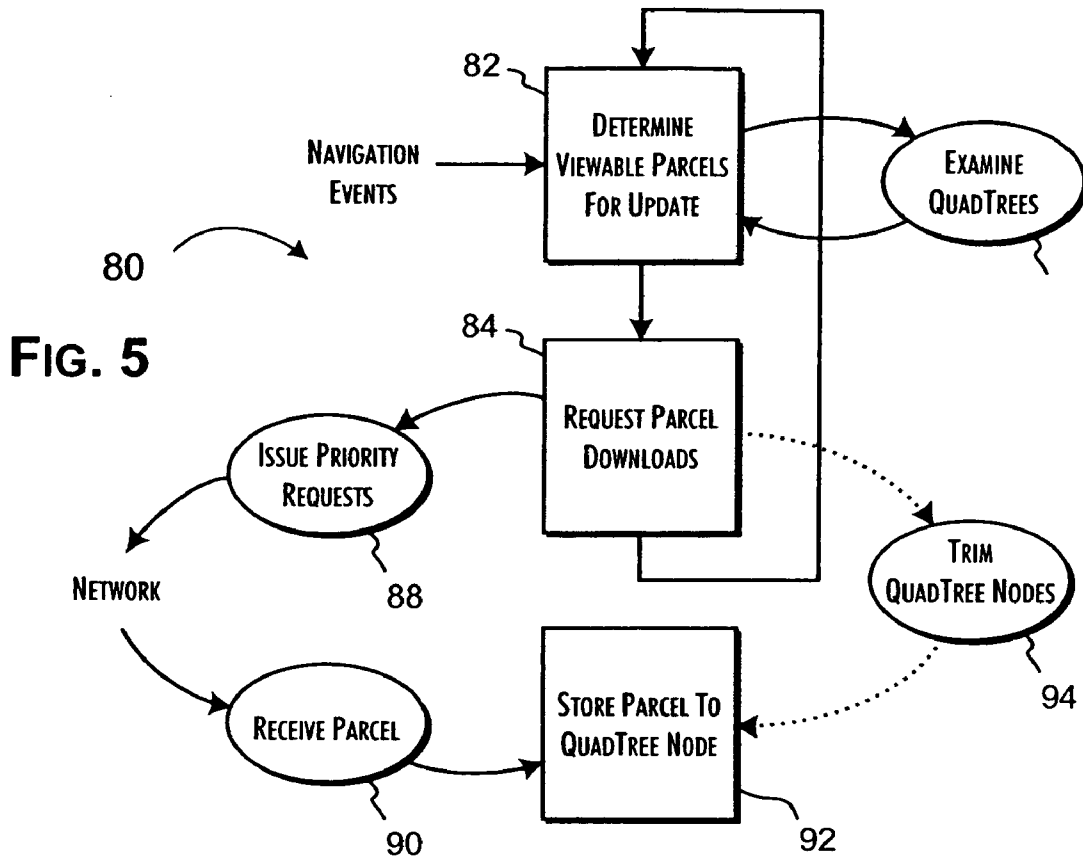


FIG. 2



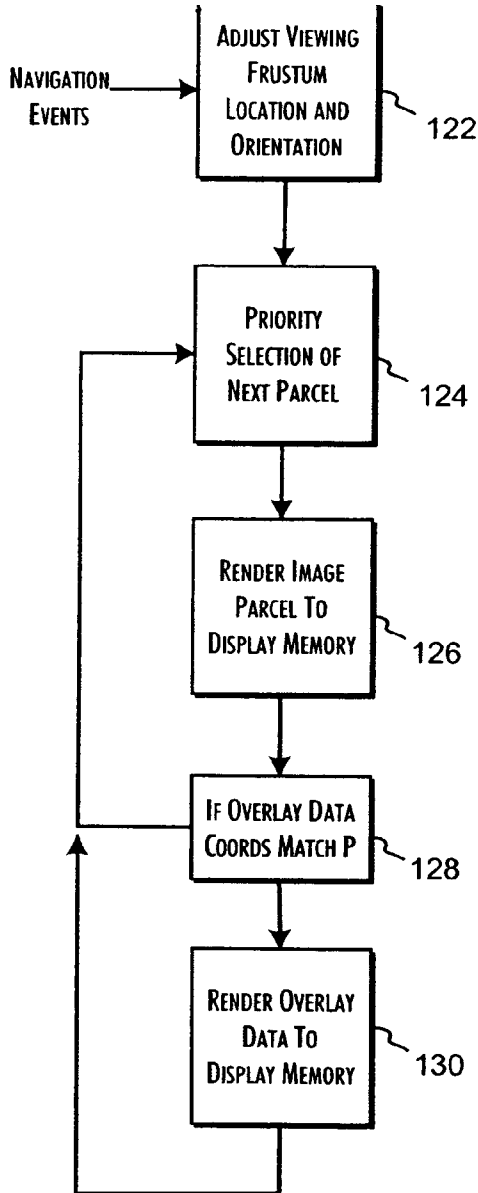
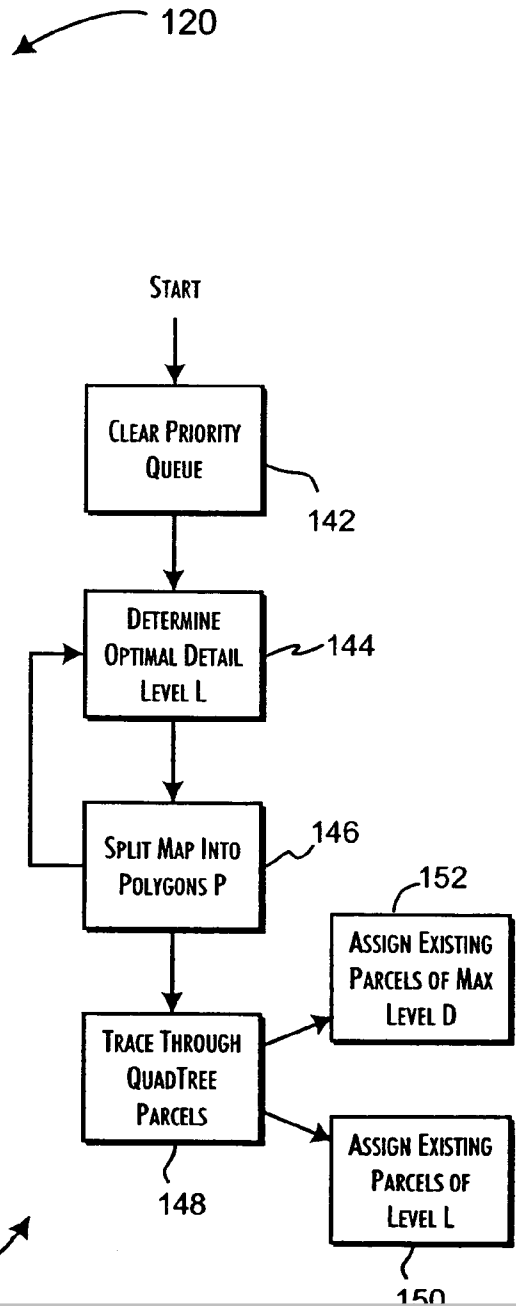


FIG. 8

FIG. 7



140

150

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