

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

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(54) **METHODS AND APPARATUS FOR ADAPTING MULTIMEDIA CONTENT FOR CLIENT DEVICES**

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(51) **Int. Cl.**⁷ **G06F 17/30**

(52) **U.S. Cl.** **707/104; 707/3; 707/5; 707/10; 707/501; 707/514; 709/224; 709/231; 709/217**

(58) **Field of Search** 707/103, 3, 102, 707/10, 513, 104, 5, 501, 203, 514; 709/224, 203, 217, 226, 231, 232, 227, 246, 235; 370/252; 713/201

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(List continued on next page.)

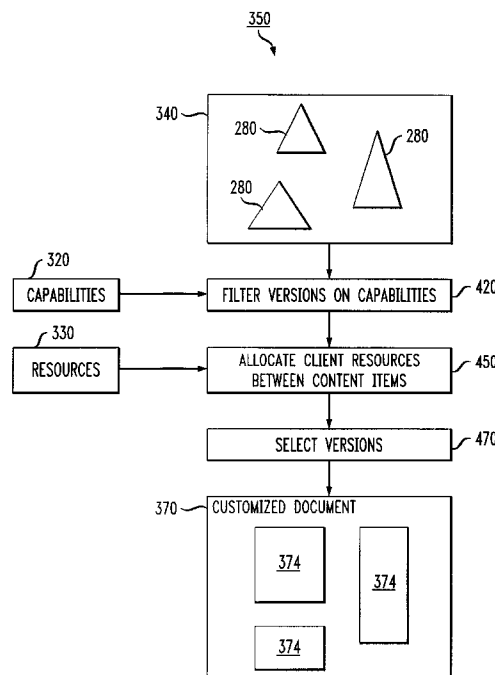
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(57) **ABSTRACT**

A method of adapting multimedia content to a client device, wherein the multimedia content includes one or more items and the client device has capabilities and resources associated therewith, is provided. The method includes transcoding the multimedia content into a plurality of transcoded content versions, wherein the plurality of transcoded content versions have different modalities and resolutions associated therewith. Next, the transcoded content versions that are not compatible with client device capabilities are filtered out. Then, at least a portion of the resources associated with the client device are allocated among the one or more items of the multimedia content. Lastly, one or more of the transcoded versions of the multimedia content are selected to generate a customized content based on allocation of the client device resources.

31 Claims, 5 Drawing Sheets



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FIG. 1

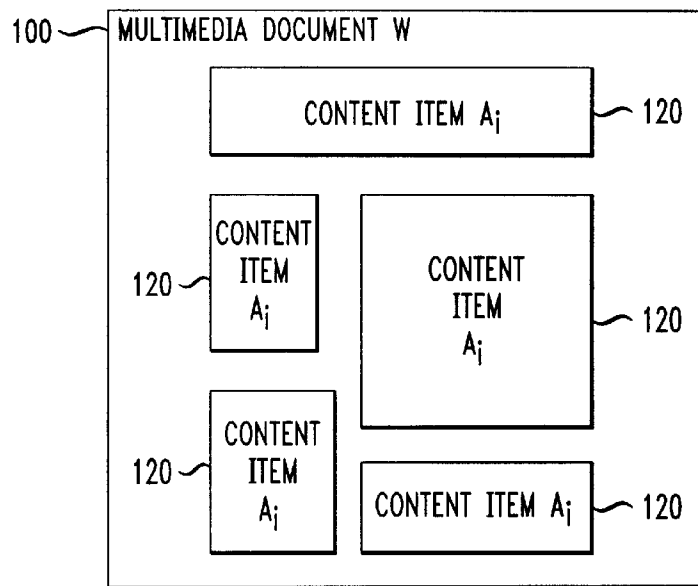


FIG. 2

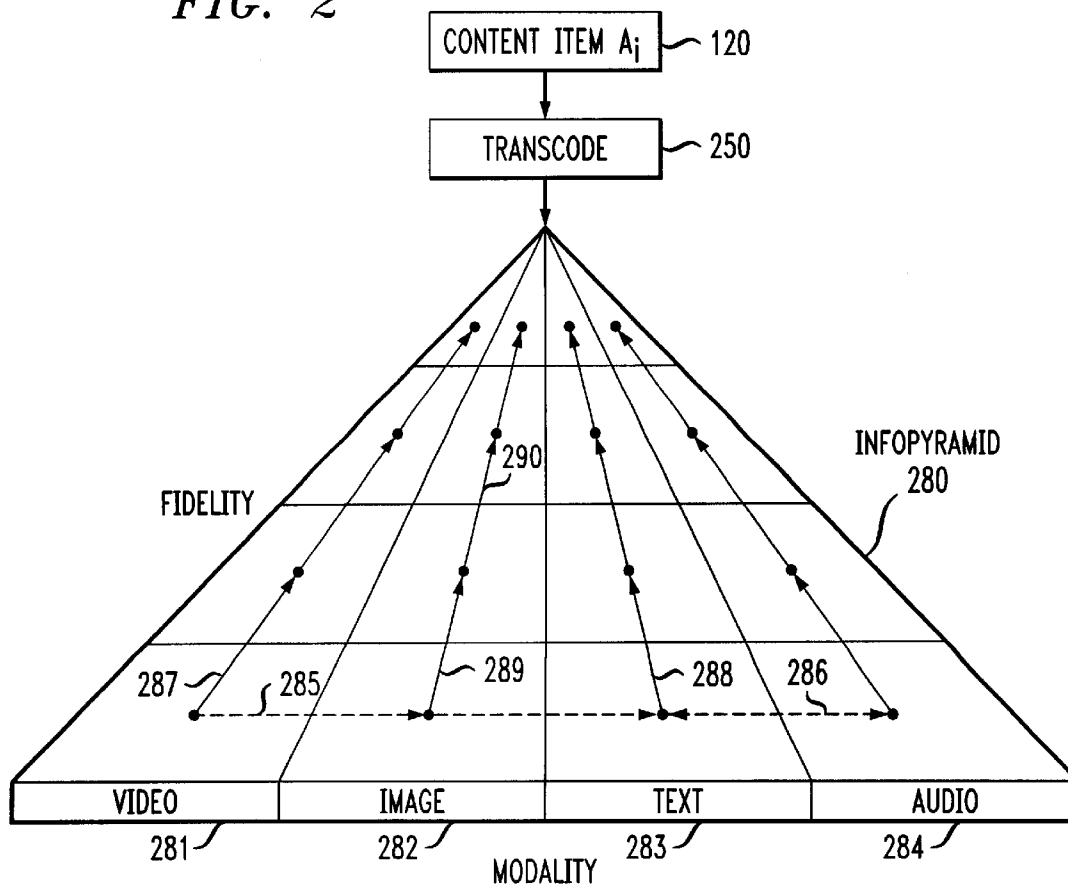


FIG. 3

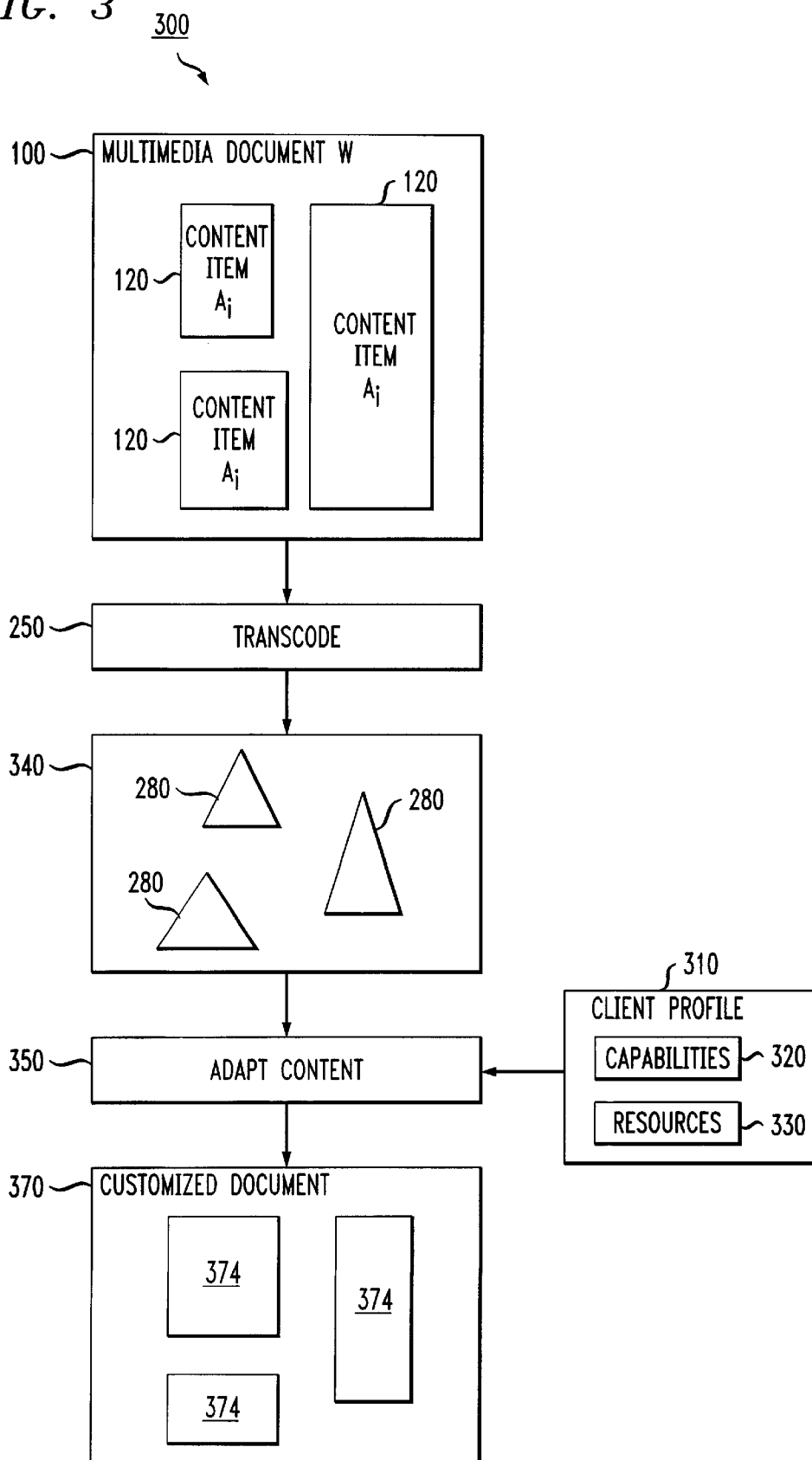
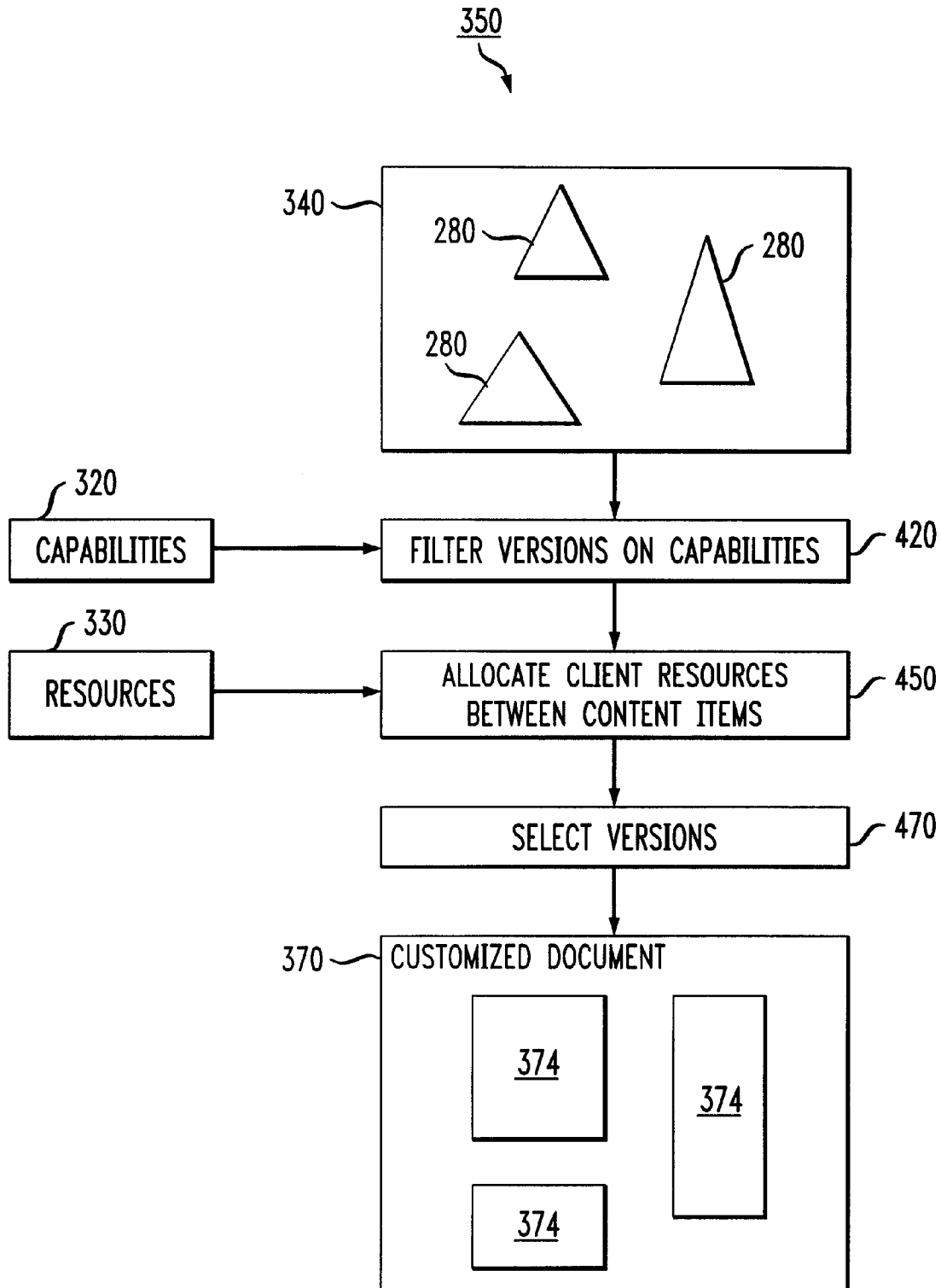


FIG. 4



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