

example, network link 620 may provide a connection through local network 622 to a host computer 624 or to data equipment operated by an Internet Service Provider (ISP) 626. ISP 626 in turn provides data communication services through the world wide packet data communication network now commonly referred to as the "Internet" 628. Local network 622 and Internet 628 both use electrical, electromagnetic or optical signals that carry digital data streams. The signals through the various networks and the signals on network link 620 and through communication interface 618, which carry the digital data to and from computer system 600, are exemplary forms of carrier waves transporting the information.

Computer system 600 can send messages and receive data, including program code, through the network(s), network link 620 and communication interface 618. In the Internet example, a server 630 might transmit a requested code for an application program through Internet 628, ISP 626, local network 622 and communication interface 618. In accordance with the invention, one such downloaded application provides for incrementally generating a virtual three-dimensional world as described herein.

The received code may be executed by processor 604 as it is received, and/or stored in storage device 610, or other non-volatile storage for later execution. In this manner, computer system 600 may obtain application code in the form of a carrier wave.

Thus, flexible methods and mechanisms for storing, dynamically reconstructing, and navigating a three-dimensional virtual world have been described.

In the foregoing specification, the invention has been described with reference to specific embodiments thereof. It will, however, be evident that various modifications and changes may be made thereto without departing from the broader spirit and scope of the invention. For example, certain nodes have been described in terms of specific VRML source code that is the preferred mode of implementing the nodes; however, other functionally equivalent code, in VRML or an equivalent language, can be used and is within the scope of the invention. Further, a database schema has been described as a specific example of one implementation or embodiment of the invention; however, the invention is not limited to that schema or the columns represented in the tables of the schema. Other equivalent data structures and data representations can be used in addition to or in place of the schema. And while the invention has been disclosed in the context of the VRML language, it is not limited to that context; the mechanisms of the invention can be used in the context of any other descriptive language. The specification and drawings are, accordingly, to be regarded in an illustrative rather than restrictive sense.

What is claimed is:

1. A method of selectively generating a display of a region of an image from a description of the image, the method comprising the steps of:

- receiving a request from a client for at least part of said image; in response to receiving said request, performing the steps of:
 - (A) determining a field of view of said client relative to said image;
 - (B) selecting a portion of said description based on said field of view;
 - (C) generating a source text based on the portion of said description that was selected based on said field of view; and
 - (D) delivering the source text to the client.

2. The method recited in claim 1, wherein said description is stored in a database in association with information that identifies regions of said image.
3. The method recited in claim 2, in which step (B) further comprises the step of:
 - selecting the portion of the description using the information that identifies the regions.
4. The method recited in claim 3, wherein said description includes nodes within each of the regions.
5. The method recited in claim 4, wherein:
 - the description includes a plurality of SELECTOR nodes in the description, wherein each of the SELECTOR nodes defines a particular region from said regions;
 - step (B) further comprises the steps of:
 - sensing when a virtual position of the client in the image moves so that the field of view encounters a new region among the regions; and
 - selecting one of the SELECTOR nodes associated with the new region.
6. The method recited in claim 5, wherein:
 - wherein each SELECTOR node of said SELECTOR NODES includes data that specifies coordinate values that describe the region defined by said each SELECTOR node;
 - the step of receiving a request includes receiving a request from the client that specifies coordinate values; and
 - the step of selecting includes selecting SELECTOR nodes based on the coordinate values specified by said Selector nodes and said request.
7. The method of claim 4, wherein said description includes a first set of nodes that are each associated with:
 - at least one region from said regions, and
 - selection criteria; and
 - the step of selecting source text includes selecting a first node from said first set of nodes based on whether selection criteria associated with said first node is satisfied.
8. The method recited in claim 7, wherein said first node satisfies a ServerSelector prototype definition of:

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PROTO ServerSelector
{
  Group {
    children IS children
  }
}

```

9. The method recited in claim 7, in which the step of receiving a request further includes the step of receiving a request from the client, wherein

the request includes a value of TRUE specified for a "selective" parameter.

10. The method recited in claim 9,

wherein the step of selecting a first node is performed in response to said request including said value of TRUE specified for said "selective" parameter.

11. The method recited in claim 1, wherein:

the region is a first region;

said description defines a sensor in a second region; and steps (B) and (C) further comprise the steps of:

- sensing when the sensor becomes within the field of view; and