data or a device suitable for storing and/or transmitting the electronic image data, such as a client or server of a network. The electronic image data from the image source **110** is provided to an encoder **400** of the compression and decompression system.

In particular, the encoder **400** includes an image segmenting portion **410** that divides the electronic image data into a plurality of segments. The image is segmented into at least two different types of regions, blocked-data regions, such as picture regions, and non-blocked-data regions, such as text regions. That is, each segment contains either image data that is to be block compressed or image data that is to be non-block compressed, but not both. It should also be appreciated that the image can alternately be segmented into two different types of blocked-data regions, where each type of blocked data is compressed using a different compression technique. In one embodiment, the segmenting operation may be accomplished by windowing or cropping that enables transferring data comprising one or more segments of data from the input document to a segment memory of the encoder **400**.

Once stored, the data is output by the image segmenting portion **410** over the signal lines **412** and **414** to a hybrid compressor **430**. In particular, the blocked image data is output over the signal line **412** while the non-blocked image data image is output over the signal line **414**. In the compressor **430**, each of the segments of image data may be operated on using one of a variety of compression operations associated with the particular hybrid compression techniques to compress the image data within a segment.

Once compressed, each segment of the image data then is preferably transferred to the channel or storage device **300**. The channel or storage device **300** can be either or both of a channel device for transmitting the compressed image data to the decoder **500** or a storage device for indefinitely storing the compressed image data until there arises a need to decompress the compressed image data. The channel device can be any known structure or apparatus for transmitting the compressed image data from a first apparatus implementing the encoder **400** according to this invention to a physically remote decoder **500** according to this invention. Thus, the channel device can be a public switched telephone network, a local or wide area network, an intranet, the Internet, a wireless transmission channel, any other distributed network, or the like.

Similarly, the storage device can be any known structure or apparatus for indefinitely storing compressed image data, such as a RAM, a hard drive and disk, a floppy drive and disk, an optical drive and disk, flash memory or the like. Moreover, the storage device can be physically remote from the encoder **400** and/or the decoder **500**, and reachable over the channel device described above.

When the images is to be decompressed, the segments of data are then preferably provided to and processed by the decoder **500**. In particular, the decoder **500** includes a hybrid decompressor **530** that receives the segments of data from the channel or storage device **300** and an output controller **510** that pastes the decompressed segments from the hybrid decompressor **530** in their corresponding position in the decompressed image. Though the decoder **500** is shown in FIG. **2** as physically separate from the encoder **400**, it should be understood that the decoder **500** and the encoder **400** may be different functional and/or structural aspects of a single physical device.

The output controller **510** sends the reconstructed image to the output device **200**. It should be understood that the output device **200** can be any device that is capable of outputting the decompressed image data generated according to the invention such as a printer, facsimile device, a display device, or the like.

FIG. **3** shows one embodiment of a hybrid compressor according to this invention. The hybrid compressor **430** includes an image blocking portion **432**, a block analyzer **434** connected to the image blocking portion **432**, a recursive dilation data generator **436** connected to the block analyzer **434**, a blocked-data compressor **438** connected to the block analyzer **434** and the recursive dilation data generator **436**, a non-blocked-data compressor **433**, and a compressed data combiner **439** connected to the non-blocked-data compressor **433** and the blocked-data compressor **438**. It should also be appreciated that this structure assumes that the image data is divided into only two types of image data, and that those types are picture data, which is a type of blocked image data which is compressed on a block-by-block basis, and text data, which is a type of non-blocked image data which is not compressed on a block-by-block basis. Accordingly, the following description will refer more generally to "blocked data" and "non-blocked data", rather than picture data and text data, respectively. It should be appreciated that, depending on the image to be compressed, the image may be divided into any number of data types, which includes any known or later developed data type, such as continuous tone or picture data, halftone data, line art or graphics data, text data or the like. Thus any set of compression techniques for these various data types can be used to form the hybrid compression technique, and the system and method of this invention can be used with any such set of compression techniques if one or more of those compress techniques compress the image data on a block-by-block basis.

It should further be appreciated that one of ordinary skill in the art can easily modify the structure shown in FIG. **3** complementary known or later-developed image type and/or only known or later developed compression technique without any undue experimentation or any unpredictability in the results of such modifications. Thus, while the scope of this disclosure is specifically intended to encompass all such combinations or sets of data types and/or hybrid compression techniques, currently known or later developed, that include one or more block compression techniques, it is not necessary to describe to one of ordinary skill in the art each such combination and the resulting modifications to the structure shown in FIG. **3**.

It should also be appreciated that the structure shown in FIG. **3** also assumes that the non-blocked data is not compressed on a block-by-block basis, and thus does not have any "missing" data added. However, it should be appreciated that the text data may be compressed on a block-by-block basis, as described in copending application U.S. patent application Ser. No. 09/096,190 filed Jun. 12, 1998, incorporated herein by reference in its entirety. In such case, it should be appreciated that the image segmenting portion **410** may be combined with an image blocking portion to output image blocks to the hybrid compressor **430**. That is, the systems and methods according to this invention require at least a portion of the image data to be blocked data. However, the systems and methods of this invention do not need any portion of the image data to be non-blocked data if the image data contains a plurality of different types of blocked image data that use a plurality of different block compression techniques.

In operation, after the image data is split into segments by the image segmenting portion **410**, the blocked-data seg-