CLAIMS

1. A server computing device, comprising:

a processor configured to execute a game application in accordance with signals received from a client computing device to generate a sequence of video images corresponding to graphical output of the executed game application, the client computing device remotely located from the server computing device;

a network connection configured to connect the server computing device to a network over which data is transmittable to the client computing device;

a data storage device configured to store data associated with graphical output of the executed game application; and

an encoder configured to compress the sequence of video images corresponding to graphical output of the executed game application into at least two different video streams of different formats including a live video stream and a high quality video stream, the live video stream having a format based on characteristics of the network over which data is transmittable to the client computing device and based on video processing and display capabilities of the client computing device, the high quality video stream being of higher quality than the live video stream, the encoder configured to provide the live video stream to the network connection for transmission over the network to the client computing device, the encoder also configured to simultaneously provide the high quality video stream to the data storage device for storage therein in support of video playback functions as requested by the client computing device.

2. The server computing device as recited in claim 1, wherein the format of the high quality video stream includes insertion of an I-Frame at a constant periodicity, and wherein an available rate of rewinding of the

graphical output of the executed game application from a specified time is a multiple of the constant periodicity when the available rate of rewinding exceeds the constant periodicity, and wherein an available rate of a fast-forwarding of the graphical output of the executed game application from a specified time is a multiple of the constant periodicity when the available rate of fast-forwarding exceeds the constant periodicity.

3. The server computing device as recited in claim 1, wherein the format of the live video stream includes P-Frames.

4. The server computing device as recited in claim 3, wherein the format of the high quality video stream includes a periodic insertion of an I-Frame.

5. The server computing device as recited in claim 4, wherein at least one I-Frame is inserted within every 12 successive frames in the high quality video stream.

6. The server computing device as recited in claim 4, wherein the format of the high quality video stream includes P-Frames positioned between the periodic insertion of the I-Frame.

7. The server computing device as recited in claim 3, wherein the format of the high quality video stream includes only I-Frames.

8. The server computing device as recited in claim 1, further comprising:

stream replay logic configured to direct transmission of the high quality video stream from the data storage device to the network connection for transmission over the network to the client computing device in

accordance with a video playback request received from the client computing device.

9. The server computing device as recited in claim 8, the video playback request specifying playback of the graphical output of the executed game application from a specified time, or rewinding of the graphical output of the executed game application from a specified time, or fast-forwarding of the graphical output of the executed game application from a specified time, or pausing of the graphical output of the executed game application at a specified time.

10. The server computing device as recited in claim 9, wherein the format of the high quality video stream includes insertion of an I-Frame at a constant periodicity, and wherein a rate of rewinding of the graphical output of the executed game application from the specified time is a multiple of the constant periodicity when the rate of rewinding exceeds the constant periodicity, and wherein a rate of fast-forwarding of the graphical output of the executed game application from the specified time is a multiple of the constant periodicity when the rate of fast-forwarding exceeds the constant periodicity.

11. The server computing device as recited in claim 8, wherein the stream replay logic is configured to decode a portion of the high quality video stream present within the data storage device corresponding to the video playback request and then re-encode the decoded portion of the high quality video stream into a format suitable for transmission over the network to the client computing device.

12. The server computing device as recited in claim 8, wherein the stream replay logic is configured to directly provide a portion of the high

quality video stream present within the data storage device corresponding to the video playback request to the network connection for transmission over the network to the client computing device.

13. A method for operating a server computing device, comprising:

executing a game application on a processor in accordance with signals received from a client computing device to generate a sequence of video images corresponding to graphical output of the executed game application, the client computing device remotely located from the server computing device;

operating an encoder configured to compress the sequence of video images corresponding to graphical output of the executed game application into at least two different video streams of different formats including a live video stream and a high quality video stream, the live video stream having a format based on characteristics of a network over which data is transmittable to the client computing device and based on video processing and display capabilities of the client computing device, the high quality video stream being of higher quality than the live video stream;

operating the encoder to provide the live video stream to a network connection for transmission over the network to the client computing device; and

operating the encoder to simultaneously provide the high quality video stream to a data storage device for storage therein in support of video playback functions as requested by the client computing device.

14. The method as recited in claim 13, wherein the format of the high quality video stream includes insertion of an I-Frame at a constant periodicity, and wherein an available rate of rewinding of the graphical output of the executed game application from a specified time is a multiple of the constant periodicity when the available rate of rewinding exceeds the

constant periodicity, and wherein an available rate of fast-forwarding of the graphical output of the executed game application from a specified time is a multiple of the constant periodicity when the available rate of fast-forwarding exceeds the constant periodicity.

15. The method as recited in claim 13, wherein the format of the live video stream includes P-Frames.

16. The method as recited in claim 15, wherein the format of the high quality video stream includes a periodic insertion of an I-Frame.

17. The method as recited in claim 16, wherein at least one I-Frame is inserted within every 12 successive frames in the high quality video stream.

18. The method as recited in claim 16, wherein the format of the high quality video stream includes P-Frames positioned between the periodic insertion of the I-Frame.

19. The method as recited in claim 15, wherein the format of the high quality video stream includes only I-Frames.

20. The method as recited in claim 13, further comprising:

directing transmission of the high quality video stream from the data storage device to the network connection for transmission over the network to the client computing device in accordance with a video playback request received from the client computing device.

21. The method as recited in claim 20, wherein the video playback request specifies playback of the graphical output of the executed game

application from a specified time, or rewinding of the graphical output of the executed game application from a specified time, or fast-forwarding of the graphical output of the executed game application from a specified time, or pausing of the graphical output of the executed game application at a specified time.

22. The method as recited in claim 21, wherein the format of the high quality video stream includes insertion of an I-Frame at a constant periodicity, and wherein a rate of rewinding of the graphical output of the executed game application from the specified time is a multiple of the constant periodicity when the rate of rewinding exceeds the constant periodicity, and wherein a rate of fast-forwarding of the graphical output of the executed game application from the specified time is a multiple of the constant periodicity when the rate of fast-forwarding exceeds the constant periodicity.

23. The method as recited in claim 20, wherein directing transmission of the high quality video stream from the data storage device to the network connection includes decoding a portion of the high quality video stream present within the data storage device corresponding to the video playback request and then re-encoding the decoded portion of the high quality video stream into a format suitable for transmission over the network to the client computing device.

24. The method as recited in claim 20, wherein directing transmission of the high quality video stream from the data storage device to the network connection includes directly providing a portion of the high quality video stream present within the data storage device corresponding to the video playback request to the network connection for transmission over the network to the client computing device.