

each computer along with their connected hardware (especially the hard drive), plus the stability of their operating system become paramount.

5 Modern computers, powerful as they are, are however known to fail from time to time due to their complexity. Many factors contribute to the failure of a computer, including abnormal ambient temperatures, power surges and interruptions, failure of a piece of connected hardware (such as the hard drive), bugs in the operating system or one of the software applications, and computer viruses.

10 While some computer failures are irrecoverable without human intervention, there are many occasions where a computer can be restored to its functional state without a human engineer having to take it apart. With a computer that runs a surveillance system, such convenience is most welcomed, since the surveillance system may be located where it is inconvenient or cost prohibitive to have a human engineer tasked to
15 monitor and maintain it.

Therefore, there is a need for a method and device that can take over the principal tasks of a human engineer to monitor and maintain a computer that runs a surveillance system.

20

SUMMARY OF THE INVENTION

The principal object of the present invention is to provide a method and device that automatically restores a computer that runs a surveillance system to its functional
25 state in the event of an unexpected failure. There is a further need to allow the restoration process to be initiated and carried out remotely.

According to one aspect of the invention, there is provided a method for restoring operation of a surveillance system comprising a computer running an operating
30 system, the method comprising: providing the computer with an independently operated local control unit comprising a microcontroller and a memory module; the local control unit monitoring and storing the status of the operating system of the computer on the memory module; transmitting the status of the operating system of the computer from the memory module to a remote server; and automatically

restoring operation of the computer when the status indicates the operating system of the computer is not operating by restoring the operating system on the computer using a backup image retrievable from the memory module.

- 5 The local control unit constantly monitors the status of the computer and determines when it is not operating normally. The local control unit further stores the status of the operating system in the memory module.

10 The backup image is a complete copy of the working operating system of the computer. The backup image is stored in the memory module within the local control unit.

According to one embodiment, the step of the local control unit restoring operation to the computer is optionally initiated by a remote device in communication with the
15 remote server.

In another embodiment, the remote device is a wireless device.

20 The wireless device may be a cellular phone, a tablet or the like communicating wirelessly with the server.

According to another embodiment, the surveillance system comprises a digital video recorder system.

25 In yet another aspect, there is provided an independently operated local control unit for restoring operation of a surveillance system comprising a computer running an operating system, wherein the local control unit comprises a memory module; a microcontroller to monitor and store the status of the computer on the memory module; a modem to transmit the status of the computer from the memory module to
30 a remote server; wherein the local control unit is arranged to automatically restore operation to the computer by restoring the operating system using a backup image retrievable from the memory module.

The modem may be wired or wireless, capable of TCP/IP communication. The modem is also able to encrypt the data prior to transmission and receive encrypted data.

5 According to one embodiment, the microcontroller optionally receives instructions to restore operation to the computer via the modem from a remote device that is in communication with the remote server.

10 According to a further embodiment, the local control unit comprises a backup power supply to maintain operation of the microcontroller and modem in the event of power failure.

CLAIMS

1. A method for restoring operation of a surveillance system comprising a computer (1) running an operating system, the method comprising:
5 providing the computer with an independently operated local control unit (2) comprising a microcontroller (3) and a memory module (4, 5);
the local control unit (2)
monitoring and storing the status of the operating system of the computer (1) on the memory module (4, 5);
10 transmitting the status of the operating system of the computer (1) from the memory module (4, 5) to a remote server (6); and
automatically restoring operation of the computer (1) when the status indicates the operating system of the computer (1) is not operating by restoring the operating system on the computer (1) using a backup image retrievable from
15 the memory module (4, 5).
2. A method for restoring operation of a surveillance system according to claim 1, wherein the step of the local control unit (2) automatically restoring operation of the computer (1) is optionally initiated by a remote device (7) in
20 communication with the remote server (6).
3. A method for restoring operation of a surveillance system according to claim 2, wherein the remote device (7) is a wireless device.
- 25 4. A method for restoring operation of a surveillance system according to any one of the preceding claims, wherein the surveillance system comprises a digital video recorder system.
5. An independently operated local control unit for restoring operation of a
30 surveillance system comprising a computer (1) running an operating system, wherein the local control unit (2) comprises
a memory module (4, 5);
a microcontroller (3) to monitor and store the status of the computer (1) on the memory module (4, 5);

a modem to transmit the status of the computer (1) from the memory module (5) to a remote server (6);

wherein the local control unit (2) is arranged to automatically restore operation to the computer (1) by restoring the operating system using a backup
5 image retrievable from the memory module (4, 5).

6. A local control unit for restoring operation of a surveillance system according to claim 5, wherein the microcontroller (3) optionally receives instructions to restore operation to the computer (1) via the modem from a remote
10 device (7) that is in communication with the remote server (6).

7. A local control unit for restoring operation of a surveillance system according to claim 5 or 6, wherein the local control unit (2) comprises backup power supply to maintain operation of the microcontroller (3) and modem in the
15 event of power failure.

8. A local control unit for restoring operation of a surveillance system according to any one of claims 5 to 7, wherein the surveillance system comprises a digital video recorder system.

ABSTRACT

RESILIENT SURVEILLANCE SYSTEM

A method and device (2) for monitoring and maintaining operation of a
5 computer-based surveillance system. The method and device automatically
attempts restoration of normal operation of the computer (1) in the event of
unexpected power interruption or software failure. The method and device
further reports the statuses of the computer (1) to a remote server (6) and
requests assistance from an off-site engineer in the event the automated
10 restoration processes are unable to restore normal operation of the computer (1).

Figure 1