Claims

1. A communication link for transferring data between a first computing device and a second computing device, comprising:

(i) a first unidirectional link for transferring data from the first computing device to the second computing device; and

(ii) a second unidirectional link for transferring data from the second computing device to the first computing device, wherein the second computing device is comprised in a data handling device, and wherein encryption is performed on the data transferred using the first unidirectional link to encrypt the data prior to being received at the second computing device, and the encrypted data is not decrypted within the second computing device.

2. The communication link according to claim 1, further comprising a hardware encryption device configured to perform the encryption on the data transferred using the first unidirectional link.

3. The communication link according to claim 2, wherein the hardware encryption device is configured to generate random bits or receive random bits from the second computing device for use at the hardware encryption device as encryption keys, and wherein the hardware encryption device is configured not to provide the generated or received encryption keys to the first computing device.

4. The communication link according to claim 2 or claim 3, wherein the first unidirectional link further includes a first data diode and the second unidirectional link includes a second data diode, wherein the first data diode is positioned between the first computing device and the hardware encryption device.

5. The communication link according to claim 4, wherein the second unidirectional link includes a hardware decryption device to decrypt data prior to being received at the

first computing device, wherein the second data diode is positioned between the second computing device and the hardware decryption device.

6. The communication link according to any one of claims 1 to 5, wherein the first computing device or the second computing device comprises two or more computers in communication with each other.

7. A computing apparatus including one or more first computing devices; a second computing device, and at least one communication link according to any one of claim 1 to 6 for transferring data between each of the one or more first computing devices and the second computing device, wherein each of the one or more first computing devices comprises one computer, or two or more computers in communication with one another, and wherein the second computing device comprises one computer, or two or more computers in communication with one another.

8. The computing apparatus according to claim 7, wherein the one or more first computing devices and the second computing device are communicatively connected only via the at least one communication link between them, or wherein the one or more first computing devices are configured to transfer data out of the one or more first computing devices only via the first unidirectional link of the at least one communication link, or wherein the second computing device is configured not to receive transferred data into the second computing device except via the first unidirectional link of the at least one communication link, or wherein at least one of the one or more first computing devices is configured to receive transferred data only via the second unidirectional link of the at least one communication link, or wherein the second computing device is configured to perform data handling operations only in accordance with its internal computer programs or instructions received through inputs from one or more peripheral input devices.

9. The computing apparatus according to claim 7 or claim 8, further comprising

at least one third unidirectional link;

a fourth unidirectional link;

a third computing device, wherein the at least one third unidirectional link is configured to transfer data from the third computing device to at least one of the one or more first computing devices that are not configured to receive transferred data only via the second unidirectional link of the at least one communication link, wherein the fourth unidirectional link is configured to transfer data from the second computing device to the third computing device, and wherein only the fourth unidirectional link is provided between the third computing device and the second computing device, and wherein only the at least one third unidirectional link is provided between the third computing device and the at least one of the one or more first computing devices that are not configured to receive transferred data only via the second unidirectional link of the at least one communication link.

10. The computing apparatus according to claim 9, further comprising a network interface, the network interface is configured to enable a plurality of fourth computing devices to be connected to the third computing device via the network interface to send data via the at least one third unidirectional link to the at least one of the one or more first computing devices that are not configured to receive transferred data only via the second unidirectional link of the at least one communication link, and to receive data from the second computing device via the fourth unidirectional link.

11. The computing apparatus according to claim 9 or claim 10, wherein the third computing device is a networked computer system.

12. The computing apparatus according to any one of claims 7 to 11, wherein at least one of the one or more first computing devices is connected to an intranet.

13. A computing apparatus for protecting data against malware, comprising:

a networked computer system;

a user computer system;

a data handling device;

a first unidirectional link, wherein the only means of outputting data from the user computer system is via the first unidirectional link, and the only means of receiving data into the data handling device is via the first unidirectional link;

a second unidirectional link, wherein the data handling device sends data to the user computer system via the second unidirectional link;

a third unidirectional link for transferring data from the networked computer system to the user computer system;

a fourth unidirectional link for transferring data from the data handling device to the networked computer system; and

at least one peripheral input device in communicative connection with the data handling device,

wherein encryption is performed on the data that pass through the first unidirectional link prior to the data being received by a computing device in the data handling device, and wherein the encrypted data are not decrypted within the computing device.

14. The computing apparatus according to claim 13,

wherein the data handling device is configured to receive data from the user computer system only in response to a command being received at the at least one peripheral input device, or wherein the data handling device is configured to store received data in encrypted form in the data handling device, or wherein the data handling device is configured to transfer data out of the data handling device only in response to a further command being received at the at least one peripheral input device, or wherein the data handling device is configured to transfer a decryption key from the data handling device only in response to a command being received at the at least one peripheral input device.

15. The computing apparatus according to claim 13 or claim 14, further comprising a storage device communicatively connected to the data handling device and wherein

the data handling device is configured to transmit data received by the data handling device to the storage device in encrypted form for storage in the storage device.

16. The computing apparatus according to any one of claims 13 to 15, wherein the user computer system does not have access to an encryption key used in the encryption.

17. The computing apparatus according to any one of claims 13 to 16, further comprising a hardware encryption device configured to perform the encryption on the data that pass through the first unidirectional link.

18. A computing apparatus comprising:
the first computing device;
the second computing device; and
the communication link according to any one of the claims 1 to 6 connecting the first computing device and the second computing device, wherein the first computing device is a networked computer.

19. A communication link for transferring data between a first computing device and a second computing device, comprising:
(i) a first unidirectional link for transferring data from the first computing device to the second computing device; and
(ii) a second unidirectional link for transferring data from the second computing device to the first computing device,
wherein the first unidirectional link includes a hardware encryption device configured to perform data transformation prior to being received at the second computing device, and the first computing device does not have means to figure out the data transformation, and
wherein the transformed data is not reversed within the second computing device.

20. The communication link according to claim 19, wherein the second unidirectional link includes a hardware decryption device configured to reverse the data transformation before data is sent back to the first computing device.