be leveraged to change operation functionality as well. One or more of these needs is addressed by one or more aspects of the present invention.

SUMMARY

[009] The present disclosure includes many aspects and embodiments. Moreover, while many aspects and embodiments relate to, and are described in, the context of network routing and network communications associated with the Internet, the present disclosure is not limited to use only in conjunction with the Internet and is applicable in other networked systems not associated with the Internet, as will become apparent from the following summaries and detailed descriptions of aspects, and one or more embodiments of the present invention.

[010] A first aspect relates to a method of communicating data which includes splitting into a first plurality of data streams, at endpoint software running on a first device, first data for communication to a destination device; selecting, at the first device by the endpoint software, a first plurality of deflects for use in communicating the first plurality of data streams; communicating each of the first plurality of data streams over a different one of the selected first plurality of deflects; splitting, at a first deflect, a first data stream of the first plurality of data streams into a second plurality of data streams; selecting, at the first deflect, a second plurality of deflects for use in communicating the second plurality of data streams; and communicating each of the second plurality of data streams over a different one of the selected second plurality of deflects;

receiving, at a second deflect from a first set of deflects, the second plurality of data streams; reassembling, at the second deflect, the second plurality of data streams into the first data stream, and communicating the first data stream onward to another device; receiving, at a second device from a second set of deflects, the first plurality of data streams including the reassembled first data stream; and reassembling, at the second device, the first plurality of data streams into the first data.

[027] In an embodiment, each deflect represents deflect software loaded on a distinct physical computing device.

[028] In an embodiment, two or more deflects represent deflect software loaded on the same physical computing device.

[029] In an embodiment, the first device or the second device has both deflect software and endpoint software loaded thereon.

[030] In an embodiment, one or more deflects represent deflect software loaded on a guest operating system running in a virtual machine.

[031] In an embodiment, the method involves communication of a data stream between two virtual machines running on the same physical computing device.

[032] In an embodiment, the method involves utilizing encryption for communications between nodes.

[033] In an embodiment, the method involves utilizing node-to-node encryption for communications between nodes in combination with end-to-end encryption for the entire communication from the first device to the second device.

[034] In an embodiment, application-level encryption is utilized.

[035] In an embodiment, public-key encryption is utilized and a key is communicated utilizing a methodology involving splits inside of splits.

[036] In an embodiment, interleaving is utilized inside of one or more splits.

[037] In an embodiment, the insertion of red herring data is utilized within one or more splits.

[038] In an embodiment, selecting, at the first device by the endpoint software, the first plurality of deflects for use in communicating the first plurality of data streams comprises selecting the first plurality of deflects based at least in part on networking information.

[039] In an embodiment, endpoint software is loaded on a desktop computer.

[040] In an embodiment, endpoint software is loaded on a laptop computer.

[041] In an embodiment, endpoint software is loaded on a tablet.

[042] In an embodiment, endpoint software is loaded on a smartphone.

[043] In an embodiment, endpoint software is loaded on a smart watch.

[044] In an embodiment, endpoint software is loaded on a wearable computing device.

[045] In an embodiment, endpoint software is loaded on a smart appliance.

[046] In an embodiment, deflect software is loaded on a desktop computer.

[047] In an embodiment, deflect software is loaded on a laptop computer.

[048] In an embodiment, deflect software is loaded on a tablet.

[049] In an embodiment, deflect software is loaded on a smartphone.

[050] In an embodiment, deflect software is loaded on a smart watch.

[051] In an embodiment, deflect software is loaded on a wearable computing device.

[052] In an embodiment, deflect software is loaded on a smart appliance.

[053] Another embodiment relates to one or more computer readable media containing computer executable instructions for performing the disclosed method.

[054] Another embodiment relates to a system for performing the disclosed method.

[055] Another embodiment relates to software program for performing the disclosed method.

[056] In addition to the aspects and embodiments of the present disclosure, it should be noted that the present disclosure further encompasses the various possible combinations and subcombinations of such aspects and embodiments. Thus, for example, any aspect may be combined with an aforementioned embodiment in accordance with the present disclosure without requiring any other aspect or embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

[057] One or more preferred embodiments of the present invention now will be described in detail with reference to the accompanying drawings.

[058] FIG. 1 illustrates components of a VDR software client loaded onto a client device in accordance with an embodiment of the present invention.

[059] FIG. 2 illustrates how a VDR client gathers LAN routing information and queries an external network for backbone information and application-specific routing information in accordance with an embodiment of the present invention.

[060] FIG. 3 illustrates how data is added to the payload of a packet on each of a plurality of hops in accordance with an embodiment of the present invention.

[061] FIGS. 4A-C provide a simplified example of a VDR software response to a network attack in accordance with an embodiment of the present invention.

What is claimed is:

1. A method of communicating data, the method comprising:
   (a) splitting into a first plurality of data streams, at endpoint software running on a first device, first data for communication to a destination device;
   (b) selecting, at the first device by the endpoint software, a first plurality of deflects for use in communicating the first plurality of data streams;
   (c) communicating each of the first plurality of data streams over a different one of the selected first plurality of deflects;
   (d) splitting, at a first deflect, a first data stream of the first plurality of data streams into a second plurality of data streams;
   (e) selecting, at the first deflect, a second plurality of deflects for use in communicating the second plurality of data streams;
   (f) communicating each of the second plurality of data streams over a different one of the selected second plurality of deflects;
   (g) receiving, at a second deflect from a first set of deflects, the second plurality of data streams;
   (h) reassembling, at the second deflect, the second plurality of data streams into the first data stream, and communicating the first data stream onward to another device;
   (i) receiving, at a second device from a second set of deflects, the first plurality of data streams including the reassembled first data stream; and
   (j) reassembling, at the second device, the first plurality of data streams into the first data.
2. The method of claim 1, wherein each deflect represents deflect software loaded on a distinct physical computing device.
3. The method of claim 1, wherein two or more deflects represent deflect software loaded on the same physical computing device.
4. The method of claim 1, wherein the first device or the second device has both deflect software and endpoint software loaded thereon.
5. The method of claim 1, wherein one or more deflects represent deflect software loaded on a guest operating system running in a virtual machine.
6. The method of claim 1, wherein the method involves communication of a data stream between two virtual machines running on the same physical computing device.
7. The method of claim 1, wherein the method involves utilizing encryption for communications between nodes.

8. The method of claim 1, wherein the method involves utilizing node-to-node encryption for communications between nodes in combination with end-to-end encryption for the entire communication from the first device to the second device.
9. The method of claim 1, wherein application-level encryption is utilized.
10. The method of claim 1, wherein public-key encryption is utilized and a key is communicated utilizing a methodology involving splits inside of splits.
11. The method of claim 1, wherein interleaving is utilized inside of one or more splits.
12. The method of claim 1, wherein the insertion of red herring data is utilized within one or more splits.
13. The method of claim 1, wherein selecting, at the first device by the endpoint software, the first plurality of deflects for use in communicating the first plurality of data streams comprises selecting the first plurality of deflects based at least in part on networking information.
14. The method of claim 1, wherein endpoint software is loaded on a desktop computer, a tablet, a smartphone, a smart watch, a wearable computing device, or a smart appliance.
15. The method of claim 1, wherein deflect software is loaded on a desktop computer, a tablet, a smartphone, a smart watch, a wearable computing device, or a smart appliance.
16. One or more computer readable media containing computer executable instructions for performing the method of claim 1.
17. A system for performing the method of claim 1.
18. A software program for performing the method of claim 1.