

CLAIMS:

What is claimed is:

- 5 1. A method for transmitting secure data packets through a node network, the method comprising:
receiving unsecure data packets at a set of unsecure inputs and secure data packets at a number of secure inputs in a node in the node network,
10 wherein the secure data packets are authorized to be sent to a number of secure destination devices; and
wherein the unsecure data packets are not authorized to be sent to the number of secure
15 destination devices;
integrating the secure data packets and the unsecure data packets to form a number of output data streams based on a predetermined schedule; and
sending the number of output data streams to a
20 number of next nodes in the node network.
2. The method of claim 1, wherein the step of integrating the secure data packets and the unsecure data packets to form the number of output data streams based
25 on the predetermined schedule comprises:
forming the number of output data streams using the unsecure data packets; and
inserting each of the secure data packets into a corresponding output data stream in the number of output
30 data streams based on the predetermined schedule.
3. The method of claim 2, wherein the step of inserting the each of the secure data packets into the corresponding output data stream in the number of output

data streams based on the predetermined schedule
comprises:

5 inserting the each of the secure data packets into
the corresponding output data stream in the number of
output data streams based on a corresponding time at
which the each of the secure data packets is to be sent
to a next node in the number of next nodes.

4. A method for transmitting secure data packets to a
10 number of secure destination devices, the method
comprising:

receiving a number of input data streams at a node
in a node network;

15 separating the secure data packets from unsecure
data packets received in the number of input data streams
based on a predetermined schedule,

wherein the secure data packets are authorized
to be sent to the number of secure destination
devices; and

20 wherein the unsecure data packets are not
authorized to be sent to the number of secure
destination devices; and

sending the secure data packets to the number of
secure destination devices as a number of secure output
25 data streams from a number of secure outputs in the node.

5. The method of claim 4, wherein the step of
separating the secure data packets from the unsecure data
packets received in the number of input data streams
30 based on the predetermined schedule comprises:

identifying data packets in the number of input data
streams received at specified times indicated in the
predetermined schedule as the secure data packets.

6. The method of claim 4, wherein the step of sending the secure data packets to the number of secure destination devices as the number of secure output data streams comprises:

5 sending the secure data packets to the number of secure destination devices as the number of secure output data streams from the number of secure outputs in the node, wherein the number of secure destination devices includes at least one of a secure server, a secure end-
10 node, a secure end-device, and a secure Web server.

7. The method of claim 4 further comprising:

sending the unsecure data packets to a set of unsecure destination devices as a set of unsecure output
15 data streams from a set of unsecure outputs in the node, wherein the unsecure data packets include at least one of unsecure authorized data packets and unsecure unauthorized data packets.

20 8. A node in a node network, the node comprising:

a number of secure inputs configured to receive secure data packets, wherein the secure data packets are authorized to be sent to a number of secure destination devices;

25 a set of unsecure inputs configured to receive unsecure data packets, wherein the unsecure data packets are not authorized to be sent to the number of secure destination devices;

a timing controller configured to control
30 integration of the secure data packets and the unsecure data packets into a number of output data streams based on a predetermined schedule; and

a number of outputs configured to send the number of output data streams to a number of next nodes in the node network.

5 9. The node of claim 8 further comprising:

a first networking device configured to receive the unsecure data packets from the set of unsecure inputs and send the unsecure data packets to the number of outputs; and

10 a second networking device configured to receive the secure data packets from the number of secure inputs and send the secure data packets to the number of outputs.

10. The node of claim 9, wherein the timing controller
15 is configured to control at least one of the number of secure inputs, the set of unsecure inputs, the number of outputs, the first networking device, and the second networking device using the predetermined schedule.

20 11. The node of claim 9, wherein the first networking device comprises:
a set of buffers.

12. The node of claim 9, wherein the second networking
25 device comprises:
a set of buffers.

13. The node of claim 8, wherein the set of unsecure
inputs is not designated to receive any secure data
30 packets.

14. The node of claim 8, wherein the set of unsecure inputs is configured to receive the unsecure data packets from a set of unsecure source devices and wherein the

number of secure inputs is configured to receive the secure data packets from a number of secure source devices.

5 15. The node of claim 8, wherein the unsecure data packets include at least one of unsecure authorized data packets and unsecure unauthorized data packets.

10 16. A node in a node network, the node comprising:
a number of inputs configured to receive a number of input data streams from a number of previous nodes in the node network;

a timing controller configured to separate secure data packets from unsecure data packets received in the
15 number of input data streams based on a predetermined schedule,

wherein the secure data packets are authorized to be sent to a number of secure destination devices; and

20 wherein the unsecure data packets are not authorized to be sent to the number of secure destination devices; and

a number of secure outputs configured to send the secure data packets to the number of secure destination
25 devices as a number of secure output data streams.

17. The node of claim 16 further comprising:

a set of unsecure outputs configured to send the unsecure data packets to a set of unsecure destination
30 devices as a set of unsecure output data streams.

18. The node of claim 17 further comprising:

a first networking device configured to receive the unsecure data packets from the number of inputs and send

the unsecure data packets to the set of unsecure outputs;
and

5 a second networking device configured to receive the
secure data packets from the number of inputs and send
the secure data packets to the number of secure outputs.

19. The node of claim 18, wherein the timing controller
is configured to control at least one of the number of
inputs, the number of secure outputs, the set of unsecure
10 outputs, the first networking device, and the second
networking device using the predetermined schedule.

20. The node of claim 16, wherein the unsecure data
packets include at least one of unsecure authorized data
15 packets and unsecure unauthorized data packets.

Claims

1. A method for transmitting secure data packets through a node network, the method comprising:

receiving unsecure data packets at a set of unsecure inputs (203) and secure data packets at a number of secure inputs (205) in a node (112) in the node network,

characterized in that:

the secure data packets are authorized to be sent to a number of secure destination devices (111); and

the unsecure data packets are not authorized to be sent to the number of secure destination devices (111); and the steps of:

integrating the secure data packets and the unsecure data packets to form a number of output data streams (220) based on a predetermined schedule; and

sending the number of output data streams (220) to a number of next nodes in the node network.

2. The method of claim 1, wherein the step of integrating the secure data packets and the unsecure data packets to form the number of output data streams (220) based on the predetermined schedule comprises:

forming the number of output data streams (220) using the unsecure data packets; and

inserting each of the secure data packets into a corresponding output data stream in the number of output data streams (220) based on the predetermined schedule.

3. The method of claim 2, wherein the step of inserting the each of the secure data packets into the corresponding output data stream in the number of output data streams (220) based on the predetermined schedule comprises:

inserting the each of the secure data packets into the corresponding output data stream in the number of output data streams (220) based on a corresponding time at which the each of the secure data packets is to be sent to a next node in the number of next nodes.

4. A node (112) in a node network, the node (112) comprising:

a number of secure inputs (205) configured to receive secure data packets, wherein the secure data packets are authorized to be sent to a number of secure destination devices (111);

a set of unsecure inputs (203) configured to receive unsecure data packets, wherein the unsecure data packets are not authorized to be sent to the number of secure destination devices (111);

a timing controller (210) configured to control integration of the secure data packets and the unsecure data packets into a number of output data streams (220) based on a predetermined schedule; and

a number of outputs (204) configured to send the number of output data streams (220) to a number of next nodes in the node network.

5. The node of claim 4 further comprising:

a first networking device (206) configured to receive the unsecure data packets from the set of unsecure inputs (203) and send the unsecure data packets to the number of outputs (204); and

a second networking device (208) configured to receive the secure data packets from the number of secure inputs (205) and send the secure data packets to the number of outputs (204).

6. The node (112) of claim 4 or 5, wherein the timing controller (210) is configured to control at least one of the number of secure inputs (205), the set of unsecure inputs (203), the number of outputs (204), the first networking device (206), and the second networking device (208) using the predetermined schedule.
7. The node of claim 5, wherein the first networking device comprises:
a set of buffers.
8. The node of claim 5, wherein the second networking device comprises:
a set of buffers.
9. The node of any one of claims 4 to 8, wherein the set of unsecure inputs is not designated to receive any secure data packets.
10. The node (112) of any one of claims 4 to 8, wherein the set of unsecure inputs (203) is configured to receive the unsecure data packets from a set of unsecure source devices (108) and wherein the number of secure inputs (205) is configured to receive the secure data packets from a number of secure source devices (109).
11. The node of any one of claims 4 to 10, wherein the unsecure data packets include at least one of unsecure authorized data packets and unsecure unauthorized data packets.