CLAIMS

1. A method of creating secure traffic and management tunnels within a network, wherein the traffic tunnels are for transmission of data and the management tunnels are for management functions to communicate, the method comprising

connecting a first router node to the network, wherein the first router node comprises a plurality of bearer interfaces, each having a virtual routing and forwarding VRF module;

receiving, from neighbouring nodes in the network, at least one loopback address for at least one bearer interface in the neighbouring nodes;

detecting, using the first router node, a routing prefix associated with a traffic or management tunnel within the at least one received loopback address;

in response to detecting a routing prefix, using the first router node to:

build a routing table comprising at least one loopback address for a bearer interface of the same type in one of the neighbouring nodes;

extract, from the built routing table, an IP address for each of the traffic and management tunnels to be created; and

set each extracted IP address as a destination address for each of the traffic and management tunnels; and

establishing a traffic and management tunnel to each neighbouring node, by

selecting a bearer interface to connect to each neighbouring node;

learning the set destination addresses for the traffic and management tunnels from the VRF module for the selected bearer interface; and

building the management tunnel and the traffic tunnel to each neighbouring node using the learnt destination addresses,

whereby each pair of traffic and management tunnels to each neighbouring node is built over a link between bearer interfaces in the first router node and the neighbouring node of the same type.

2. The method of claim 1, further comprising forming a prep tunnel between the first router node and a neighbouring node prior to establishing the traffic and management tunnels.

3. The method of claim 2, further comprising:

extracting, from the built routing table, an IP address for the prep tunnel;

setting the extracted IP address as the destination address for the prep tunnel; and

forming the prep tunnel by learning the set destination address for the selected bearer interface and building the prep tunnel using the learnt destination address.

4. The method of any preceding claim, wherein the loopback address comprises a usage value which determines the loopback address usage, an interface identification number which indicates the number of the interface for each type of interface and an ID of the node.

5. The method of claim 4, wherein building a routing table comprises determining whether the usage value of the received loopback address corresponds to an expected usage value for an interface of the same type.

6. The method of claim 4 or claim 5, wherein extracting an IP address for each of the secure tunnels comprises determining the usage value for the secure tunnel to be created and selecting the loopback address having a usage value which corresponds to the determined usage value.

7. The method of any one of the preceding claims, comprising receiving the loopback addresses via an OSPF protocol.

8. The method of claim 7, wherein the loopback address comprises a second octet which is a usage value which determines the loopback address usage, a third octet which is an interface identification number which indicates the number of the interface for each type of interface and a fourth octet which is an identification number of the node.

9. The method of any one of the preceding claims, further comprising starting a trigger delay command in response to detecting the routing prefix.

10. The method of any one of the preceding claims, wherein establishing the traffic and management tunnels comprises using generic routing encapsulation.

11. The method of any one of the preceding claims, wherein establishing the traffic and management tunnels comprises forming IP security over the one or more tunnels.

12. The method of claim 11, when dependent on claim 2, comprising sharing certificates using the prep tunnel before establishing the traffic and management tunnels.

13. A method of routing traffic across one or more secure tunnels in a network created using the method of any one of the preceding claims.

14. A router node which is configured to implement the method of any one of claims 1 to 12 to form traffic and management tunnels with one or more neighbouring nodes; and which comprises a memory for storing the or each routing table which is built by the method.

15. A non-transitory computer readable medium storing a computer program which when implemented on router node causes the router node to carry out the method of any one of claims 1 to 12.