

WHAT IS CLAIMED IS:

1. A network transpose box, comprising:

a first tier of network switches, each network switch configured to receive and transmit data over an external network;

a second tier of network devices, each network device configured to receive and transmit data from at least one of the network switches;

at least one transpose box configured to connect at least a portion of the first tier of network switches, the transpose box being of a type selected from a plurality of transpose box types based at least in part upon a connection topology of the network, the transpose box including:

a physical support structure;

a set of network connectors supported by the physical support structure, the set of network connectors separated into a first logical group and a second logical group each containing a plurality of the network connectors, each network connector configured to accept a network cable for transmitting a signal, at least one of the network connectors in the first logical group having a first type of identifying key that is different from a second type of identifying key of at least one of the network connectors in the second logical group, a number of types of identifying keys used by the set of network connectors based at least in part on the connection topology of the network; and

a plurality of connection media, each instance of the connection media connecting one of the network connectors of the first logical group to one of the network connectors of the second logical group to enable a signal to be communicated between a network cable connected to the network connector of the first logical group and a network cable connected to the network connector of the second logical group, the connection media configured such that each network connector of the first logical group is connected to each network connector of the second logical group and each network connector of the second logical group is connected to each member of the first logical group.

2. The network transpose box of claim 1, wherein each network device connected to a network connector of the first logical group ~~is capable of being connected~~

connects to each network device connected to one of the network connectors of the second logical group using a single network cable between each network device and the transpose box.

3. The network transpose box of claim 1, wherein at least one network device connected to at least one network connector of the first logical group ~~is capable of being connected~~ connects to at least one network device connected to at least one of the network connectors of the second logical group using multiple network cables between the network devices and the transpose box.

4. The network transpose box of claim 1, wherein at least one of the first logical group of connectors and the second logical group groups of connectors ~~is keyed~~ has an identifying key to restrict the type of network cable that can be connected to the connectors.

5. The network transpose box of claim 1, wherein at least one of the connectors in the first logical group of connectors has a type of identifying key different from at least one other connector in the first logical group of connectors.

6. The network transpose box of claim 1, wherein each of the network connectors in the first logical group of connectors and the second logical group of connectors has a unique type of identifying key.

7. The network transpose box of claim 1, wherein the connection media include at least one of electrical wires for transmitting electrical signals and optical fibers for transmitting optical signals.

58. The network transpose box of claim 1, wherein there are a different number of network connectors in the first logical group of network connectors than the second logical group of network connectors.

69. The network transpose box of claim 1, wherein the connection media are configured to implement a Clos network topology between network devices connected to the first logical group of network connectors and network devices connected to the second logical group of network connectors.

710. The network transpose box of claim 1, further comprising at least a third logical group of network connectors, connection media configured to connect the network connectors of the third logical group with at least one of network connectors of the first logical group, the second logical group, the third logical group, or a fourth logical group.

811. The network transpose box of claim 1, further comprising at least one loop back network connector separate from the first logical group and second logical group of network connectors.

912. The network transpose box of claim 1, wherein the connection media are configured to implement a butterfly or dragonfly network topology with respect to devices connected to the network transpose box.

13. The network transpose box of claim 1, wherein all of the set of network connectors are the same size and type.

1014. The network transpose box of claim 1, wherein network connectors of the first logical group are selected to accept a different type of network cable than the network connectors of the second logical group.

1115. The network transpose box of claim 1, further comprising:
circuitry for transforming a signal passed between a network connector of the first logical group and a network connector of the second logical group.

16. The network transpose box of claim 15, wherein the circuitry transforms the signal between an optical signal and an electrical signal.

1217. The network transpose box of claim 1, further comprising:
amplification circuitry of amplifying signals transmitted between a network connector of the first logical group and a network connector of the second logical group.

18. A data transmission network, comprising:
a first tier of network switches, each network switch configured to receive and transmit data over an external network;
a second tier of network devices, each network device configured to receive and transmit data from at least one of the network switches; and
a network transpose box being of a type selected from a plurality of transpose box types based at least in part upon a connection topology of the data transmission network, the network transpose box comprising a first group of network connectors and a second group of network connectors, at least a portion of the first group of network connectors each being connected to two or more of the second group of network connectors, at least a portion of the second group of network connectors each being connected to two or more of the first group of network connectors,
wherein at least one of the network connectors in the first group having a first type of identifying key that is different from a second type of identifying key of at least one of the network connectors in the second group, a number of types of identifying keys used by the set of network connectors based at least in part on the connection topology of the network,
wherein each of the first tier of network switches is connected to one of the first group of network connectors using a single network cable and each of the second tier of network devices is connected to one of the second group of network connectors using a single network cable, and
wherein a meshing of communication media connecting the first and second groups of network connectors implements a network topology wherein multiple switches of the first tier are each connected to multiple devices of second tier via the transpose box.

19. The data transmission network of claim 18, wherein the network topology is one of a Clos network topology, butterfly network topology, a dragonfly network topology, or a combination or variant thereof.

20. The data transmission network of claim 18, wherein at least a portion of the network connectors of the network transpose box have identifying keys to ensure connection to the proper type of network switch or network device.

21. The data transmission network of claim 18, further comprising:

circuitry for transforming a signal passed between a network connector of the first group and a network connector of the second group.

22. The data transmission network of claim 18, further comprising:
at least one additional network transpose box connecting the first tier of network switches with the second tier of network devices in order to provide redundancy for the connections.

1323. A method of deploying a data transmission network, comprising:
selecting a network topology for at least a portion of the data transmission network;

based at least in part upon the selected network topology, selecting a network transpose box including a plurality of network connectors connected using a plurality of communication media, the communication media being meshed in a way to implement the selected network topology, the network connectors being logically separated into a first group of

network connectors and a second group of network connectors, at least a portion of the first group of network connectors each being connected to two or more of the second group of network connectors according to the selected network topology; at least one of the network connectors in the first group having a first type of identifying key that is different from a second type of identifying key of at least one of the network connectors in the second group, a number of types of identifying keys used by the set of network connectors based at least in part on the connection topology of the network; and

connecting, for each transpose box, a first set of network devices to at least a portion of the network connectors of the first group and connecting a second set of network devices to at least a portion of the network connectors of the second group, each of the network devices being connected to one of the network connectors using a single respective network cable,

wherein the first set of devices are able to communicate with the second set of devices according to the selected network topology.

4424. The method of claim 4323, wherein the selected network topology is one of a Clos network topology, butterfly network topology, dragonfly network topology, or a combination or variant thereof.

4525. The method of claim 4323, wherein multiple transpose boxes are connected to implement the selected network topology, each transpose box implementing a portion of the selected network topology.

4626. The method of claim 4323, wherein selecting a network transpose box is further based upon a type of signal to be transmitted between the first and second tier of network devices.

27. A non-transitory computer-readable storage medium including instructions that, when executed by a computing device, cause the computing device to:

receive information indicating at least one resource capacity to be provided by a network deployment;

identify a network topology to be used for the network deployment;

identify network devices to be used for the network deployment;

based at least in part upon the network topology and the at least one resource capacity, select a network transpose box from at least two types of network transpose boxes, each type of network transpose box to be used in connecting a first tier of network devices with a second tier of network devices, each type of network transpose box including a plurality of network connectors connected using a plurality of communication media, the communication media being meshed in a way to implement the network topology, the network connectors being logically separated into a first group of network connectors for connecting to the first tier and a second group of network connectors for connecting to the second tier, at least a portion of the first group of network connectors each being connected to two or more of the second group of network connectors according to the selected network topology, at least one of the network connectors in the first group having a first type of identifying key that is different from a second type of identifying key of at least one of the network connectors in the second group, a number of types of identifying keys used by the set of network connectors based at least in part on the connection topology of the network;

based at least in part upon the type of transpose box and a type of network devices in at least one of the first and second tiers, selecting cabling for connecting each of the network devices in the first and second tiers to one of the network connectors of the transpose box; and
generating connection information including at least one type of the selected transpose box and identifying the selected cabling for use by an installer in physically installing at least a portion of the network deployment.