

NETWORK TRANSPOSE BOX AND SWITCH OPERATION BASED ON BACKPLANE
ETHERNET
BACKGROUND

[0001] As an increasing number of applications and services are being made available over networks such as the Internet, an increasing number of content, application, and/or service providers are turning to networked and shared-resource technologies, such as cloud computing. Further, there is an increasing amount of data being stored remotely, such that *data centers are increasingly expanding the amount of storage capacity and related resources*. A user or customer typically will rent, lease, or otherwise pay for access to resources through the cloud or across a network, and thus does not have to purchase and maintain the hardware and/or software to provide access to these resources.

[0002] In many instances, a customer will require more than one resource, such as a computing device, server, or other computing or processing device, to perform portions of an operation. As the number of customers increases, and the average number of resources per customer increases, there is a corresponding need to increase the available number of resources. In a data center context, this can mean adding many additional racks of servers. In order to accommodate the additional resources, the portion of the data center network that connects those resources to the external network needs to scale accordingly. Such a network can require thousands of connections upon deployment, and the number can increase exponentially upon scaling to a larger deployment. In addition to the significant cost of purchase and installation, the large number of connections increases the likely number of connections that are made incorrectly, and thus can affect the performance of the network.

SUMMARY

[0002a] According to a first aspect of the invention, there is provided a data transmission system, the system comprising: a network switch device configured to transmit and receive data according to a backplane Ethernet standard; a network transpose box configured to transmit and receive data with the network switch device; and a transmission cable connecting the network switch device and the network transpose box, the transmission cable configured to facilitate the transmission of data between the network switch device and the network transpose box.

[0002b] According to a second aspect of the invention, there is provided a network switch device, comprising: a physical support structure; at least one network switching chip; and an edge connector supported by the physical support structure, the edge connector connected to the at least one network switching chip and configured to accept a transmission cable for transmitting a signal, wherein signal transmission is in accordance with a backplane Ethernet standard, wherein the network switch device is connected to a network transpose box via the transmission cable.

[0002c] According to a third aspect of the invention, there is provided a network transpose box, comprising: 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 transmission cable for transmitting a signal; and a plurality of connection media: wherein the plurality of connection media facilitate signal transmission based on a backplane Ethernet standard, and wherein 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 transmission cable connected to the network connector of the first logical group and a transmission cable connected to the network connector of the second logical group, the connection media configured such that each network connector of the first group is connected to each network connector of the second group and each network connector of the second group is connected to each member of the first group.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] Various embodiments in accordance with the present disclosure will be described with reference to the drawings, in which:

[0004] FIG. 1 illustrates an example environment in which various embodiments can be implemented;

[0005] FIG. 2 illustrates an example of a highly connected network design that can be used in accordance with various embodiments;