CLAIMS

What is claimed is:

1. An apparatus comprising:

an Ethernet switch platform configured to present web pages and templates via a web portal to enable a plurality of carriers to participate in the Ethernet switch platform, the templates soliciting information from the carriers and store the information into a relational database, the web portal enabling a buying carrier to submit a request for quote (RFQ) for network services, a selling carrier to submit a response to the RFQ, and either or both of the buying carrier and the selling carrier to initiate a provisioning order after entering into an agreement, wherein fields of the provisioning order are filled out based on the information stored in the relational database and based on information extracted from the RFQ and the response to the RFQ, and wherein the provisioning order is to enable an Ethernet network of the buying carrier to connect to an Ethernet network of the selling carrier using the Ethernet switch platform.

2. The apparatus of claim 1, wherein a first routine of the Ethernet switch platform is coded to extract the information from the RFQ and the response to the RFQ to fill out some of the fields of the provisioning order, and wherein a

second routine of the Ethernet switch platform is coded to extract the information from the relational database to fill out some other fields of the provisioning order.

3. The apparatus of claim 2, wherein the information extracted from the relational database includes network service information comprising virtual local area network (VLAN) frame type, VLAN identifier (ID), tag protocol identifier (TPID), quality of service (QoS) profile type and other related network service information, the network service information previously provided via the web portal.

4. The apparatus of claim 3, wherein the information extracted from the relational database includes profile information of the buying and selling carriers, the profile information previously provided via the web portal.

5. The apparatus of claim 4, wherein the provisioning order is processed by the Ethernet exchange platform to establish a logical virtual circuit interconnecting a physical port associated with the buying carrier and a physical port associated with the selling carrier to set up a private network to private network connection, wherein the virtual circuit is established with parameters called for in the RFQ and in the response to the RFQ.

6. The apparatus of claim 4, wherein each time service information is updated by the buying or selling carrier via the web portal, that information is extracted, stored and associated with the profile information of the buying or selling carrier.

7. The apparatus of claim 4, wherein the buying and selling carriers are to connect wirings of their Ethernet networks to their respective physical ports of a plurality of physical ports available with the Ethernet switch platform, wherein each of the plurality of physical ports is associated with one or more VLAN IDs.

8. The apparatus of claim 7, wherein each of the VLAN IDs is associated with a unique record to store that network characteristics information of that VLAN ID, wherein the network characteristics information is stored into the relational database and reused for subsequent provisioning of other virtual circuits between the buying and selling carriers, between the buying carrier and another carrier, or between the selling carrier and another carrier.

9. The apparatus of claim 2, wherein the second routine is configured to check for consistency of information used for provisioning and to cross check fidelity of the information included in the provisioning order.

10. The apparatus of claim 9, wherein the second routine is configured to check for consistency of information based on: a) a first table that maintains all virtual circuits established in the Ethernet switch platform and their characteristics; b) a

second table that maintains all physical networks connecting to the ports of the Ethernet switch platform and their characteristics; and c) the profiles of the buying and selling carriers and any associated VLAN records.

11. The apparatus of claim 1, wherein the Ethernet switch platform is configured to perform translation of frames and mapping of quality of service (Qos) as frames traverse from the Ethernet network of the buying carrier to the Ethernet network of the selling carrier, wherein the translation of frames includes translating Ethernet frame type and Ethernet type.

12. The apparatus of claim 11, wherein frame translation performed by the Ethernet switch platform comprises preserving a portion of an incoming frame including a service frame carrying data, and translating a portion of the incoming frame including at least Maximum Transmission Unit (MTU) translation, virtual local area network identifier (VLAN ID) translation and tag protocol identifier (TPID) translation.

13. The apparatus of claim 12, wherein the Ethernet switch platform is configured to perform handshaking, mapping, and conversion between the different protocols and guarantee of service metrics used by the buying and selling carriers.

14. The apparatus of claim 13, wherein the Ethernet switch platform is configured to enable the buying and selling carriers to perform real time monitoring and troubleshooting of the circuit in the Ethernet switch platform as well as their Ethernet networks connected to physical ports of the Ethernet switch platform.

15. The apparatus of claim 15, wherein the real time monitoring and troubleshooting are performed using the web portal or using application programming interface (API) associated with the web portal, and wherein the Ethernet switch platform is configured to provide steady state monitoring service as well as failure state service status test.

16. The apparatus of claim 15, wherein the web portal is configured to operate as an interactive tool enable monitoring performance of the Ethernet switch platform and providing service and maintenance calls, and providing automated troubleshooting and test or verification steps to fix issues related to the circuit.

17. A method for auto-provisioning circuits to interconnect private Ethernet networks using an Ethernet exchange platform, the method comprising:

providing templates to enable multiple Ethernet service providers to become qualified and participate in the Ethernet exchange platform configured to provide a many-to-many layer 2 Network-to-Network Interface (NNI) to enable the multiple carriers to connect to the

Ethernet exchange platform and be interconnected with other carriers also connected to the Ethernet exchange platform;

providing a web portal to enable the Ethernet service providers to offer their Ethernet services to other Ethernet service providers, the Ethernet services including lit building information, and capacity and bandwidth information, wherein the information is aggregated and stored in a relational database;

based on two Ethernet service providers having a service agreement related to a request for quote (RFQ), populating fields of a provision request using information from the RFQ and information related to the two Ethernet service providers from the relational database, wherein the RFQ and a response to the RFQ are generated using the web portal; and

provisioning one or more circuits in the Ethernet exchange platform based on the fields of the provisioning request to interconnect private Ethernet networks of the two Ethernet service providers.

18. The method of claim 17, wherein information provided by the Ethernet service providers via the templates is stored in the relational database for uses any number of times, wherein the provisioning of the one or more circuits is performed in real time by the Ethernet exchange platform based on receipt of the provisioning request.

19. A system comprising:

means for enabling a plurality of Ethernet service providers to become qualified and to participate in an Ethernet exchange platform configured to provide a many-to-many layer 2 Network-to-Network Interface (NNI) to enable the Ethernet service providers to connect to the Ethernet exchange platform and be interconnected with other Ethernet service providers also connected to the Ethernet exchange platform;

means for forming a web-based marketplace to enable collecting information from the Ethernet service providers and to enable the Ethernet service providers to offer and purchase Ethernet services from one another, the information from the Ethernet service providers stored in a relational database for reuses;

means for enabling two Ethernet service providers to become partners using the web-based marketplace;

means for at least one of the two Ethernet service providers to initiate a provisioning request; and

means for provisioning one or more circuits in the Ethernet exchange platform based on fields of the provisioning request to interconnect private Ethernet networks of the two Ethernet service providers.

20. The apparatus of claim 19, further comprising:

means for the Ethernet exchange platform to transmit frames in between the private Ethernet networks of the two Ethernet service providers while preserving data portions of the frames; and

means for representatives of the two Ethernet service providers to monitor and troubleshoot the one or more virtual circuits together with their private Ethernet networks.

What is claimed is:

1. An apparatus comprising:

an Ethernet switch platform configured to present web pages and templates via a web portal to enable a plurality of carriers to participate in the Ethernet switch platform, the templates soliciting information from the carriers and store the information into a relational database, the web portal enabling a buying carrier to submit a request for quote (RFQ) for network services, a selling carrier to submit a response to the RFQ, and either or both of the buying carrier and the selling carrier to initiate a provisioning order after entering into an agreement, wherein fields of the provisioning order are filled out based on the information stored in the relational database and based on information extracted from the RFQ and the response to the RFQ, and wherein the provisioning order is to enable an Ethernet network of the buying carrier to connect to an Ethernet network of the selling carrier using the Ethernet switch platform.

2. The apparatus of claim 1, wherein a first routine of the Ethernet switch platform is coded to extract the information from the RFQ and the response to the RFQ to fill out some of the fields of the provisioning order, and wherein a second routine of the Ethernet switch platform is coded to extract the information from the relational database to fill out the some other fields of the provisioning order.

3. The apparatus of claim 2, wherein the information extracted from the relational database includes network service information comprising virtual local area network (VLAN) frame type, VLAN identifier (ID), tag protocol identifier (TPID), quality of service (QoS), and profile type, the network service information previously provided via the web portal.

4. The apparatus of claim 3, wherein the information extracted from the relational database includes profile information of the buying and selling carriers, the profile information previously provided via the web portal.

5. The apparatus of claim 4, wherein the provisioning order is processed by the Ethernet switch platform to establish a logical virtual circuit interconnecting a physical port associated with the buying carrier and a physical port associated with the selling carrier to set up a private network to private network connection, wherein the virtual circuit is established with parameters called for in the RFQ and in the response to the RFQ.

6. The apparatus of claim 4, wherein each time the network service information is updated by the buying or selling carrier via the web portal, that information is extracted, stored and associated with the profile information of the buying or selling carrier.

7. The apparatus of claim 4, wherein the buying and selling carriers are to connect wirings of their Ethernet networks to their respective physical ports of a plurality of physical ports available with the Ethernet switch platform, wherein each of the plurality of physical ports is associated with one or more VLAN IDs.

8. The apparatus of claim 7, wherein each of the VLAN IDs is associated with a unique record to store that network characteristics information of that VLAN ID, wherein the network characteristics information is stored into the relational database and reused for subsequent provisioning of other virtual circuits between the buying and selling carriers, between the buying carrier and another carrier, or between the selling carrier and another carrier.

9. The apparatus of claim 2, wherein the second routine is configured to check for consistency of the information used for provisioning and to cross check fidelity of the information included in the provisioning order.

10. The apparatus of claim 9, wherein the second routine is configured to check for consistency of information based on: a) a first table that maintains all virtual circuits established in the Ethernet switch platform and their characteristics; b) a second table that maintains all physical networks connecting to the ports of the Ethernet switch platform and their characteristics; and c) the profiles of the buying and selling carriers and any associated VLAN records.

11. The apparatus of claim 1, wherein the Ethernet switch platform is configured to perform translation of frames and mapping of quality of service (Qos) as frames traverse from the Ethernet network of the buying carrier to the Ethernet network of the selling carrier, wherein the translation of frames includes translating Ethernet frame type and frame identifier (ID).

12. The apparatus of claim 11, wherein the frame translation performed by the Ethernet switch platform comprises preserving a portion of an incoming frame including a service frame carrying data, and translating the portion of the incoming frame including at least Maximum Transmission Unit (MTU) translation, virtual local area network identifier (VLAN ID) translation and tag protocol identifier (TPID) translation.

13. The apparatus of claim 12, wherein the Ethernet switch platform is configured to perform handshaking, mapping, and conversion between different protocols and guarantee of service metrics used by the buying and selling carriers.

14. The apparatus of claim 13, wherein the Ethernet switch platform is configured to enable the buying and selling carriers to perform real time monitoring and troubleshooting of the virtual circuit in the Ethernet switch platform as well as their Ethernet networks connected to physical ports of the Ethernet switch platform.

15. The apparatus of claim 14, wherein the real time monitoring and troubleshooting are performed using the web portal or using application programming interface (API) associated with the web portal, and wherein the Ethernet switch platform is configured to provide steady state monitoring service as well as failure state service status test.

16. The apparatus of claim 15, wherein the web portal is configured to operate as an interactive tool, enabling monitoring performance of the Ethernet switch platform and providing service and maintenance calls, and providing automated troubleshooting and test or verification steps to fix issues related to the virtual circuit.

17. A method for interconnecting private Ethernet networks using an Ethernet exchange platform, the method comprising: presenting web pages and templates via a web portal to enable a plurality of carriers to participate in an Ethernet switch platform, soliciting information through the templates from the carriers; storing the information into a relational database, enabling a buying carrier via the web portal to submit a request for quote (RFQ) for network services, a selling carrier via the web portal to submit a response to the RFQ, and either or both of the buying carrier and the selling carrier to initiate a provisioning order after entering into an agreement, filling out fields of the provisioning order automatically by the Ethernet switch platform based on the information stored in the relational database and based on information extracted from the RFQ and the response to the RFQ, and wherein the provisioning order is to enable a first private Ethernet network of the buying carrier to connect to a second private Ethernet network of the selling carrier using the Ethernet switch platform.

18. The method of claim 17, further comprising extracting the information from the RFQ and the response to the RFQ to fill out some of the fields of the provisioning order by a first routine of the Ethernet switch platform, and extracting the information from the relational database to fill out some

other fields of the provisioning order by a second routine of the Ethernet switch platform.

19. The method of claim 18, further comprising processing the provisioning order by the Ethernet exchange platform to establish a logical virtual circuit interconnecting a physical port associated with the buying carrier and a physical port associated with the selling carrier to set up a private network to private network connection, wherein the virtual circuit is established with parameters called for in the RFQ and in the response to the RFQ.

20. The method of claim 17, further comprising connecting wirings of the buying and selling carriers' first and second private Ethernet networks to their respective physical ports of a plurality of physical ports available with the Ethernet switch platform, wherein each of the plurality of physical ports is associated with one or more VLAN IDs; wherein each of the VLAN IDs is associated with a unique record to store that network characteristics information of that VLAN ID, wherein the network characteristics information is stored into the relational database and reused for subsequent provisioning of other virtual circuits between the buying and selling carriers, between the buying carrier and another carrier, or between the selling carrier and another carrier.