CLAIMS

Claim 1: A method comprising:

by an interconnection platform for a cloud exchange comprising a plurality of interconnection assets located within a data center, receiving a request from an application,

wherein the data center includes respective ports of a switching fabric to which a plurality of networks connect, each of the networks comprising computing resources co-located within the data center,

wherein a first network of the networks is associated with a cloud service provider and provides at least one cloud service,

wherein the plurality of interconnection assets are configured to connect, using a first virtual circuit that comprises a path through the switching fabric of the data center, a second network of the networks with the first network associated with the cloud service provider to enable layer three (L3) connectivity by the second network to the at least one cloud service provided by the first network,

wherein the plurality of interconnection assets are configured to connect, using a second virtual circuit that comprises a path through the switching fabric of the data center, a third network of the networks with the second network to enable L3 connectivity between the third network and the second network; and

accessing, by the interconnection platform, a plurality of interconnection assets of the data center to satisfy the request.

Claim 2: A cloud exchange comprising:

a data center that includes respective ports of a switching fabric to which a plurality of networks connect, each of the networks comprising computing resources co-located within the data center,

wherein a first network of the networks is associated with a cloud service provider and provides at least one cloud service;

a plurality of interconnection assets within the data center,

wherein the plurality of interconnection assets are configured to connect, using a first virtual circuit that comprises a path through the switching fabric of the data center, a second

network of the networks with the first network associated with the cloud service provider to enable layer three (L3) connectivity by the second network to the at least one cloud service provided by the first network, and

wherein the plurality of interconnection assets are configured to connect, using a second virtual circuit that comprises a path through the switching fabric of the data center, a third network of the networks with the first network associated with the cloud service provider to enable L3 connectivity by the third network to the at least one cloud service provided by the first network; and

an interconnection platform configured for execution by one or more computing devices and presenting a software interface configured to, in response to receipt of a request from an application, access the plurality of interconnection assets to satisfy the request.

Claim 3: The cloud exchange of claim 2,

wherein the interconnection assets are configured to forward service traffic for the at least one cloud service via the port of the switching fabric to which the first network connects, and

wherein the port of the switching fabric to which the first network connects is a single port.

Claim 4: The cloud exchange of claim 2, wherein each network of the plurality of networks has a different network address space.

Claim 5: The cloud exchange of claim 2, wherein the software interface is configured to, in response to receipt of the request from the application, return a description of one or more of the plurality of interconnection assets.

Claim 6: The cloud exchange of claim 2, wherein the software interface is configured to, in response to receipt of the request from the application, provision one of the first virtual circuit and the second virtual circuit, validate one of the first virtual circuit and the second virtual circuit, and confirm deletion of one of the first virtual circuit and the second virtual circuit.

Claim 7: The cloud exchange of claim 2, wherein the software interface comprises a

Representational State Transfer (RESTful) interface, and

wherein the request comprises application data that specifies an interface method and a resource identifier for an interconnection asset of the plurality of interconnection assets.

Claim 8: The cloud exchange of claim 2, wherein the plurality of the interconnection assets include at least one of the port to which the first network connects, a location, a cloud service of the at least one cloud service, a bandwidth of the first virtual circuit, a bandwidth of the second virtual circuit, the first virtual circuit, and the second virtual circuit.

Claim 9: The cloud exchange of claim 2, wherein the interconnection platform comprises:

a plurality of microservices configured to execute cloud exchange services; and

an orchestration engine configured to orchestrate the plurality of microservices to execute the cloud exchange services according to a workflow to satisfy the request.

Claim 10: The cloud exchange of claim 2, wherein to access the plurality of interconnection assets to satisfy the request, the interconnection platform is configured to provision one of the first virtual circuit and the second virtual circuit.

Claim 11: The cloud exchange of claim 2, further comprising:

a layer three (L3) autonomous system located within the data center and comprising the switching fabric,

wherein the L3 autonomous system is configured to receive, from the first network, service traffic for the at least one cloud service and for distribution to the second network and the third network;

first one or more attachment circuits configured to connect, within the data center, the first network to the L3 autonomous system;

second one or more attachment circuits configured to connect, within the data center, the second network to the L3 autonomous system; and

third one or more attachment circuits configured to connect, within the data center, the third network to the L3 autonomous system,

wherein the L3 autonomous system is configured to connect the second network with the first network by establishing a first end-to-end L3 path for the first virtual circuit between the second network with the first network, the first end-to-end L3 path including one of the first one or more attachment circuits and also including one of the second one or more attachment circuits,

wherein the L3 autonomous system is configured to connect the third network with the first network by establishing a second end-to-end L3 path for the second virtual circuit between the third network with the first network, the second end-to-end L3 path including one of the first one or more attachment circuits and also including one of the third one or more attachment circuits, and

wherein the L3 autonomous system is configured to forward the service traffic, received via the first one or more attachment circuits, along the first end-to-end L3 path and the second end-to-end L3 path, to the second one or more attachment circuits and the third one or more attachment circuits.

Claim 12: A cloud exchange comprising:

a data center that includes respective ports of a switching fabric to which a plurality of networks connect, each of the networks comprising computing resources co-located within the data center,

wherein a first network of the networks is associated with a cloud service provider and provides at least one cloud service;

a plurality of interconnection assets within the data center,

wherein the plurality of interconnection assets are configured to connect, using a first virtual circuit that comprises a path through the switching fabric of the data center, a second network of the networks with the first network associated with the cloud service provider to enable layer three (L3) connectivity by the second network to the at least one cloud service provided by the first network,

wherein the plurality of interconnection assets are configured to connect, using a second virtual circuit that comprises a path through the switching fabric of the data center, a third network of the networks with the second network to enable L3 connectivity between the third network and the second network; and

an interconnection platform configured for execution by one or more computing devices and presenting a software interface configured to, in response to receipt of a request from an application, access the plurality of interconnection assets to satisfy the request.

Claim 13: The cloud exchange of claim 12,

wherein the interconnection assets are configured to forward service traffic for the at least one cloud service via the port of the switching fabric to which the second network connects,

wherein the interconnection assets are configured to forward service traffic between the third network and the second network via the port of the switching fabric to which the second network connects, and

wherein the port of the switching fabric to which the second network connects is a single port.

Claim 14: The cloud exchange of claim 12, wherein each network of the plurality of networks has a different network address space.

Claim 15: The cloud exchange of claim 12, wherein the software interface is configured to, in response to receipt of the request from the application, return a description of one or more of the plurality of interconnection assets.

Claim 16: The cloud exchange of claim 12, wherein the software interface is configured to, in response to receipt of the request from the application, provision one of the first virtual circuit and the second virtual circuit, validate one of the first virtual circuit and the second virtual circuit, and confirm deletion of one of the first virtual circuit and the second virtual circuit.

Claim 17: The cloud exchange of claim 12, wherein the software interface comprises a Representational State Transfer (RESTful) interface, and

wherein the request comprises application data that specifies an interface method and a resource identifier for an interconnection asset of the plurality of interconnection assets.

Claim 18: The cloud exchange of claim 12, wherein the plurality of the interconnection assets include at least one of the port to which the first network connects, a location, a cloud service of the at least one cloud service, a bandwidth of the first virtual circuit, a bandwidth of the second virtual circuit, the first virtual circuit, and the second virtual circuit.

Claim 19: The cloud exchange of claim 12, wherein the interconnection platform comprises:

a plurality of microservices configured to execute cloud exchange services; and

an orchestration engine configured to orchestrate the plurality of microservices to execute the cloud exchange services according to a workflow to satisfy the request.

Claim 20: The cloud exchange of claim 12, wherein to access the plurality of interconnection assets to satisfy the request, the interconnection platform is configured to provision one of the first virtual circuit and the second virtual circuit.

Claim 21: The cloud exchange of claim 12, further comprising:

a layer three (L3) autonomous system located within the data center and comprising the switching fabric,

wherein the L3 autonomous system is configured to receive, from the first network, service traffic for the at least one cloud service and for distribution to the second network;

first one or more attachment circuits configured to connect, within the data center, the first network to the L3 autonomous system;

second one or more attachment circuits configured to connect, within the data center, the second network to the L3 autonomous system;

third one or more attachment circuits configured to connect, within the data center, the third network to the L3 autonomous system,

wherein the L3 autonomous system is configured to connect the second network with the first network by establishing a first end-to-end L3 path for the first virtual circuit between the second network with the first network, the first end-to-end L3 path including one of the first one or more attachment circuits and also including one of the second one or more attachment circuits,

wherein the L3 autonomous system is configured to connect the third network with the second network by establishing a second end-to-end L3 path for the second virtual circuit between the third network with the second network, the second end-to-end L3 path including one of the third one or more attachment circuits and also including one of the second one or more attachment circuits, and

wherein the L3 autonomous system is configured to forward the service traffic, received via the first one or more attachment circuits, along the first end-to-end L3 path, to the second one or more attachment circuits.

Claim 22: A method comprising:

by an interconnection platform for a cloud exchange comprising a plurality of interconnection assets located within a data center, receiving a request from an application,

wherein the data center includes respective ports of a switching fabric to which a plurality of networks connect, each of the networks comprising computing resources co-located within the data center,

wherein a first network of the networks is associated with a cloud service provider and provides at least one cloud service,

wherein the plurality of interconnection assets within the data center are configured to connect, using a first virtual circuit that comprises a path through the switching fabric of the data center, a second network of the networks with the first network associated with the cloud service provider to enable layer three (L3) connectivity by the second network to the at least one cloud service provided by the first network, and

wherein the plurality of interconnection assets are configured to connect, using a second virtual circuit that comprises a path through the switching fabric of the data center, a third network of the networks with the first network associated with the cloud service provider to enable L3 connectivity by the third network to the at least one cloud service provided by the first network; and

accessing, by the interconnection platform, a plurality of interconnection assets of the data center to satisfy the request.