CLAIMS

1. A method comprising:

provisioning, by a programmable network platform, in a cloud exchange having access links with a first customer network, a second customer network that executes an application, and a service peering exchange, a first virtual circuit to create a first end-to-end path through the cloud exchange between the service peering exchange and the first customer network, wherein the service peering exchange is executed by one or more computing devices;

provisioning, by the programmable network platform, a second virtual circuit in the cloud exchange to create a second end-to-end path through the cloud exchange between the service peering exchange and the second customer network;

receiving, by the service peering exchange, service endpoint data describing a service endpoint of the second customer network that executes an application;

generating, by the service peering exchange, an association from a service exchange endpoint of the service peering exchange to the service endpoint of the second customer network that executes the application, wherein the service exchange endpoint comprises a combination of a network layer address and a transport layer port of the one or more computing devices;

receiving, by the service peering exchange at the service exchange endpoint, via the first end-to-end path through the cloud exchange, an incoming service request from the first customer network, wherein the incoming service request is destined to the network layer address and the transport layer port of the service exchange endpoint, and wherein the incoming service request can invoke an application programming interface of the application;

outputting, by the service peering exchange in response to receiving the incoming service request and based at least on the association, via the second end-to-end path through the cloud exchange, an outgoing service request destined to the service endpoint of the second customer network that executes the application, wherein the outgoing service request can invoke the application programming interface of the application.

2. The method of claim 1, wherein the service exchange endpoint comprises a first service exchange endpoint, the method further comprising:

receiving, by the service peering exchange and at a second service exchange endpoint of the service peering exchange that is different than the first service exchange endpoint, an additional incoming service request from the first customer network, wherein the additional incoming service request is destined to the second service exchange endpoint, and wherein the additional incoming service request can invoke an application programming interface of a second application; and

outputting, by the service peering exchange in response to receiving the additional incoming service request, an additional outgoing service request destined to a service endpoint of a third customer network that executes the second application, wherein the additional outgoing service request can invoke the application programming interface of the second application.

3. The method of claim 1, wherein the first customer network does not have network connectivity with the second customer network.

4. The method of claim 1, wherein each of the incoming service request and the outgoing service request comprises one of a Representational State Transfer (REST) communication using HyperText Transfer Protocol (HTTP), a JavaScript Object Notation (JSON)-Remote Procedure Call (RPC), a Simple Object Access Protocol (SOAP) message, an Apache Thrift request, and an eXtensible Markup Language (XML)-RPC, Message Queue Telemetry Transport (MQTT), Rabbit Message Queue (RabbitMQ), and Constrained Application Protocol (CoAP).

5. The method of claim 1, further comprising:

displaying, by a customer portal for the service peering exchange, an indication of accessibility of the application programming interface of the application at the service exchange endpoint.

6. The method of claim 1, further comprising:

receiving, by the service peering exchange, a discovery request that invokes a discovery application programming interface of the service peering exchange and requests a service endpoint for accessing the application programming interface of the application; and

outputting, by the service peering exchange, a discovery response responsive to the discovery request, the discovery response indicating the service exchange endpoint is a service endpoint for accessing the application programming interface of the application.

7. The method of claim 1,

wherein the service endpoint of the second customer network comprises a service endpoint of a service gateway of the second customer network for applications executing by the second customer network.

8. The method of claim 1, wherein the first customer network, the second customer network, and the service peering exchange each communicates, each via a different one of the access links.

9. The method of claim 1,

wherein the cloud exchange comprises a layer three (L3) autonomous system,

wherein each of the access links comprises an attachment circuit for an Internet Protocol-Virtual Private Network configured in the cloud exchange,

wherein the first end-to-end path includes the access link for communication between the first customer network and the cloud exchange and the access link for communication between the cloud exchange and the service peering exchange, and

wherein the second end-to-end path includes the access link for communication between the second customer network and the cloud exchange and the access link for communication between the cloud exchange and the service peering exchange.

10. A service exchange system comprising:

a programmable network platform;

a cloud exchange having access links with a first customer network, a second customer network, and one or more service peering exchanges,

wherein the programmable network platform is configured to provision a first virtual circuit in the cloud exchange to create a first end-to-end path through the cloud exchange between the one or more service peering exchanges and the first customer network, wherein the one or more service peering exchanges are executed by one or more computing devices,

wherein the programmable network platform is configured to provision, in the cloud exchange, a second virtual circuit in the cloud exchange to create a second end-to-end path through the cloud exchange between the service peering exchange and the second customer network;

and

a service gateway for an application configured for execution by a computing device of the second customer network,

wherein the one or more service peering exchanges are configured to receive service endpoint data describing a service endpoint of the service gateway,

wherein the one or more service peering exchanges are configured to generate an association from a service exchange endpoint of the service peering exchange to the service endpoint of the service gateway, wherein the service exchange endpoint comprises a combination of a network layer address and a transport layer port of the one or more computing devices,

wherein the one or more service peering exchanges are configured to receive, at the service exchange endpoint, via the first end-to-end path through the cloud exchange, an incoming service request from the first customer network, wherein the incoming service request is destined to the to the network layer address and the transport layer port of the service exchange endpoint, and wherein the incoming service request can invoke an application programming interface of the application,

wherein the one or more service peering exchanges are configured to output, in response to receiving the incoming service request and based at least on the association, via the second end-to-end path through the cloud exchange, an outgoing service request destined to the service endpoint of the service gateway, wherein the outgoing service request can invoke the application programming interface of the application, and

wherein the service gateway is configured to receive the outgoing service request at the service endpoint and route the outgoing service request to the application.

11. A service exchange system comprising:

a programmable network platform; and

a cloud exchange having access links with a first customer network, a second customer network, and one or more service peering exchanges configured for execution by a service peering exchange platform comprising one or more computing devices,

wherein the programmable network platform is configured to provision a first virtual circuit in the cloud exchange to create a first end-to-end path through the cloud exchange between the one or more service peering exchanges and the first customer network, wherein the one or more service peering exchanges are executed by one or more computing devices,

wherein the programmable network platform is configured to provision, in the cloud exchange, a second virtual circuit in the cloud exchange to create a second end-to-end path through the cloud exchange between the service peering exchange and the second customer network,

wherein the one or more service peering exchanges are configured to receive service endpoint data describing a service endpoint of the second customer network that executes an application,

wherein the one or more service peering exchanges are configured to generate an association from a service exchange endpoint of the service peering exchange to the service endpoint of the second customer network that executes the application, wherein the service exchange endpoint comprises a combination of a network layer address and a transport layer port of the one or more computing devices,

wherein the one or more service peering exchanges are configured to receive, at the service exchange endpoint, via the first end-to-end path through the cloud exchange, an incoming service request from the first customer network, wherein the first incoming service request is destined to the to the network layer address and the transport layer port of the service exchange endpoint, and wherein the incoming service request can invoke an application programming interface of the application,

wherein the one or more service peering exchanges are configured to output, in response to receiving the first incoming service request and based at least on the association, via the second end-to-end path through the cloud exchange, an outgoing service request destined to the

service endpoint of the second customer network that executes the application, wherein the outgoing service request can invoke the application programming interface of the application.

12. The service exchange system of claim 11,

wherein the service exchange endpoint comprises a first service exchange endpoint,

wherein the one or more service peering exchanges are configured to receive, at a second service exchange endpoint that is different than the first service exchange endpoint, an additional incoming service request from the first customer network, wherein the additional incoming service request is destined to the second service exchange endpoint, and wherein the additional incoming service request can invoke an application programming interface of a second application, and

wherein the one or more service peering exchanges are configured to output, in response to receiving the additional incoming service request, an additional outgoing service request destined to a service endpoint of a third customer network that executes the second application, wherein the additional outgoing service request can invoke the application programming interface of the second application.

13. The service exchange system of claim 11, wherein the first customer network does not have network connectivity with the second customer network.

14. The service exchange system of claim 11, wherein each of the incoming service request and the outgoing service request comprises one of a Representational State Transfer (REST) communication using HyperText Transfer Protocol (HTTP), a JavaScript Object Notation (JSON)-Remote Procedure Call (RPC), a Simple Object Access Protocol (SOAP) message, an Apache Thrift request, and an eXtensible Markup Language (XML)-RPC, Message Queue Telemetry Transport (MQTT), Rabbit Message Queue (RabbitMQ), and Constrained Application Protocol (CoAP).

15. The service exchange system of claim 11, further comprising:

a customer portal for the one or more service peering exchanges, the customer portal configured to display an indication of accessibility of the application programming interface of the application at the service exchange endpoint.

16. The service exchange system of claim 11,

wherein the one or more service peering exchanges are configured to receive a discovery request that invokes a discovery application programming interface of the service peering exchange and requests a service endpoint for accessing the application programming interface of the application, and

wherein the one or more service peering exchanges are configured to output a discovery response responsive to the discovery request, the discovery response indicating the service exchange endpoint is a service endpoint for accessing the application programming interface of the application.

17. The service exchange system of claim 11,

wherein the service endpoint of the second customer network comprises a service endpoint of a service gateway of the second customer network for applications executing by the second customer network.