



Service Description

Digital Exchange Port

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1 Introduction

Cyxtera's Digital Exchange is a powerful platform that delivers a programmable, software-defined data center network. This massively scalable fabric enables customers to seamlessly extend existing VLANs to connect within our facilities, across a metro region, to cloud on-ramps, and an ecosystem of providers. It is also how customers can provision and connect dedicated infrastructure on-demand – from cabinets to bare metal servers and HCI nodes, all pre-configured, easy to deploy and scale via the Cyxtera Portal “the Portal” or our easy-to-use API. The Digital Exchange platform utilizes its intelligent network design to deliver services to customer colocation environments via a Digital Exchange Port. Through this single, redundant dual hand-off connection, customers can establish secure logical Layer 2 connections to all Digital Exchange network and data center services from colocation cabinets or cages. This includes access to select ecosystem providers who are also connected to the platform. The Digital Exchange Port provides access to [IP Connect](#), [Enterprise Bare Metal](#), and [Digital Cross Connects](#), among other services.

1.1 Key Terms

Provider Edge (PE): A Provider Edge device is Cyxtera-owned physical equipment that connects to any collocated Customer Edge device.

Customer Edge: A Customer Edge device is any co-located, customer-owned physical equipment that connects to any Cyxtera Provider Edge device.

Link Aggregation Control Protocol (LAG): Link Aggregation Control Protocol is the IEEE 802.1ad standard that defines control over the use of Link Aggregation Groups.

1.2 Self-Service Management Tools

The Portal provides customers access to subscription status, integrating navigation, viewing, and management of all Cyxtera products, entitlements, and customer support under a single account. Within the Portal, the Command Center serves as the primary web console tool for access, consumption, and management of Digital Exchange services purchased from Cyxtera, including Enterprise Bare Metal, IP Connect, Digital Cross Connects, and management and configuration of networks.

In addition to the Portal/Command Center, Cyxtera APIs allow customers to create scripts that run system administration commands against Digital Exchange services equivalent to those actions that can be taken from the Command Center.

1.3 Availability

The Digital Exchange platform and the Digital Exchange Port is available in the following Cyxtera Data Centers:

- Amsterdam - AMS1
- Atlanta – ATL1

- Boston – BOS₁
- Chicago – ORD₁, ORD₂
- Dallas – DFW₁
- Denver – DEN₁
- Frankfurt – FRA₂
- London – LHR₁, LHR₂, LHR₃
- Los Angeles – LAX₁, LAX₂, LAX₃
- New Jersey – EWR₁, EWR₂, EWR₃
- Northern California – SFO₁, SFO₂, SFO₃, SFO₄
- Northern Virginia – IAD₁, IAD₂, IAD₃
- Phoenix – PHX₁, PHX₂
- Toronto – YYZ₁, YYZ₂

2 Product Description

Cyxtera's Digital Exchange state-of-the-art software-defined network fabric links customers and resources throughout the data center and metro region. This secure, high availability architecture assures each customer's traffic is logically isolated and protected through the use of VXLAN protocol. Private virtual Layer 2 networks can be defined, provisioned, and configured through the Digital Exchange APIs or Cyxtera Portal.

All Digital Exchange services are delivered over a Digital Exchange Port. Customers can choose to utilize the full port for a single service or stack multiple services via the same port. Customers can elect to provision multiple Digital Exchange ports to meet their specific needs and may aggregate multiple ports using the LAG protocol for ports configured as Layer 2 CE.

Digital Exchange Port includes:

- The cross connects required from the Cyxtera Network Panel (commonly deployed with [Ecosystem Connect](#)) at the customer's colocation environment to the Digital Exchange platform
- Connectivity via secure, Layer 2 network(s) throughout the data center and metro region across the platform
- Access to Digital Exchange enabled service providers – via a [Digital Cross Connect](#) – including those who offer direct connections to private and public clouds or for connections between regions
- Access to Digital Exchange services such as [IP Connect](#) and [Enterprise Bare Metal](#)

2.1 Connectivity

Cyxtera colocation customers connect to the Cyxtera Digital Exchange platform via a Digital Exchange Port. The Digital Exchange Port connects to the Cyxtera Network Panel deployed with the purchase of Ecosystem Connect and resides in the customers colocation environment. Ecosystem Connect connects the customer's colocation environment to the Cyxtera Meet Me Room via bulk cabling and is the pre-

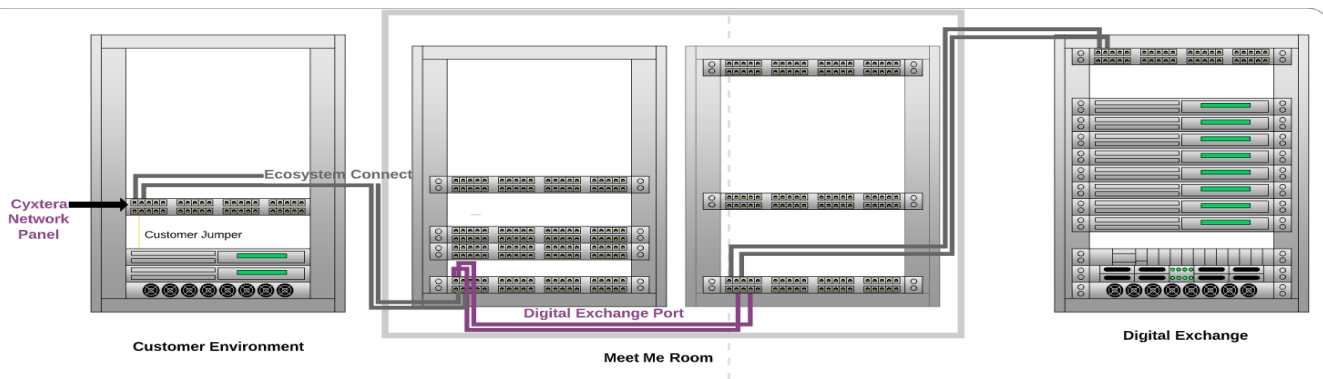
requisite for all Cyxtera network products. The Digital Exchange Port service includes the cross connects to connect the customer to the Digital Exchange platform from their Ecosystem Connect bundle.

The Digital Exchange Port service is delivered over single-mode fiber (SMF) with LC connectors. Since the Digital Exchange Port service is redundant, the customer must have (2) available SMF ports on the customer’s Ecosystem Connect bundle for connectivity. The service demarcation is at the Cyxtera Network Panel. The Cyxtera Network Panel which is the customer side termination for the Ecosystem Connect product is the demarcation point for all Cyxtera network products and the point at which Cyxtera will provide end to end testing. All connections complete behind the Cyxtera Network Panel are considered the customer’s network and are not included in end to end testing of network services sold to the customer.

Once physical connection to the Ecosystem Connect bundle is completed, Cyxtera will create the Digital Exchange Port in the Portal/Command Center and it will be placed in a “reserved” status. The customer will need to access either the Command Center within the Portal or API to configure the service. The service will begin billing once the entity has been reserved within the Command Center.

The customer will need to ensure a connection is completed between the Cyxtera Network Panel within the colocation environment and the customer side device that will be consuming the service(s). Cyxtera requires that the handoff to the device also utilize single mode fiber (1310nm wavelengths) with LC connectors. Media convertors are NOT supported. Cyxtera can complete this connection for customers, if desired, via a Remote Hands request. In addition, it is recommended that the device be configured for VLAN tagging although not required.

2.2 Service Diagram



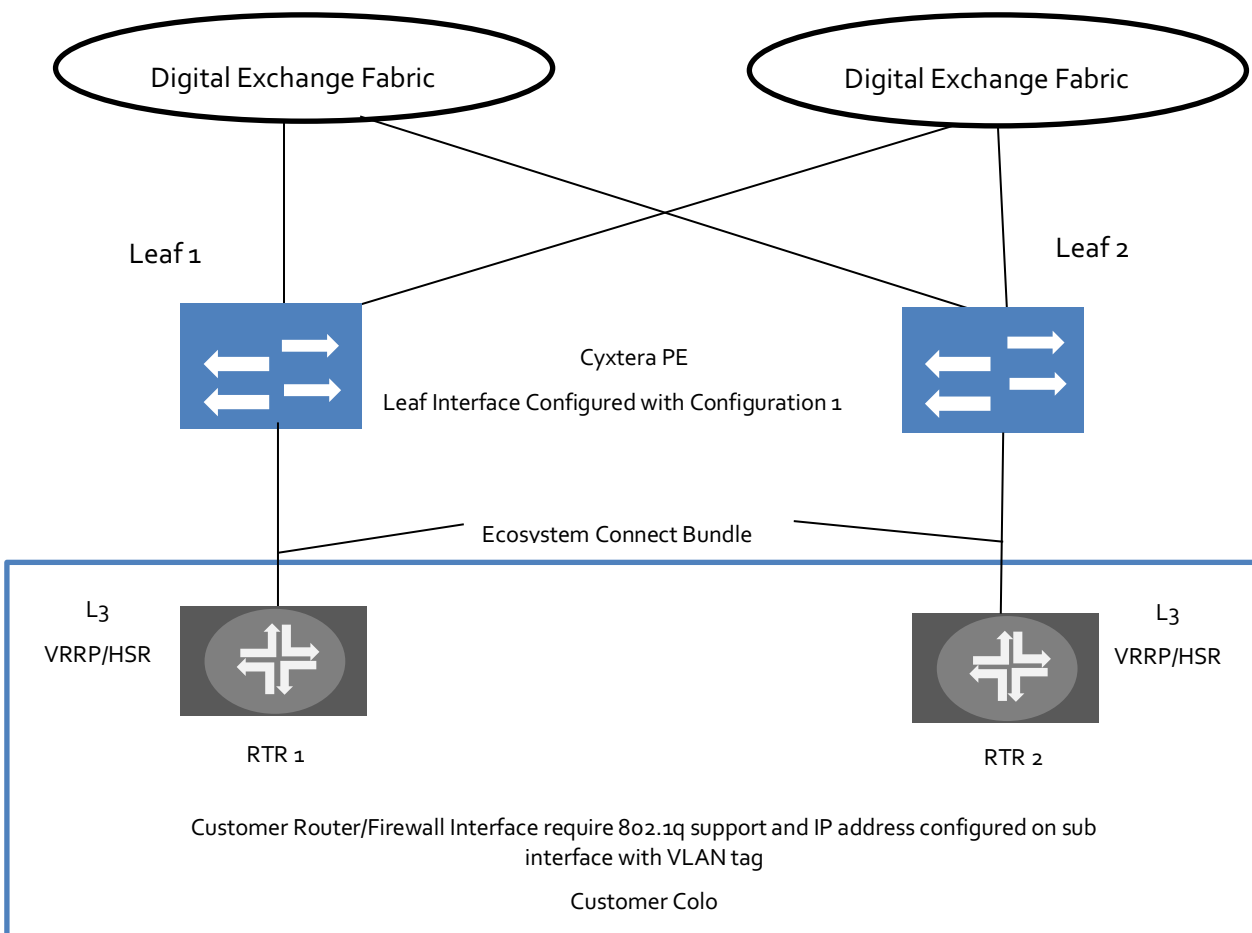
2.3 Port Configuration Options

The Digital Exchange Port has multiple configuration options, which are selected when activating the Digital Exchange Port from the Command Center or API. Customers should select the configuration option that matches their desired and/or existing network design. Available configuration options are detailed below.

Digital Exchange Port supports maximum transmission unit (MTU) of 8900-byte size. Frame size above 8900 bytes will have to be fragmented before ingress into the DX access port.

2.3.1 Layer 3 CE

A Digital Exchange Port configured as Layer 3 CE is typically used when a customer is connecting directly to a Layer 3 Customer Edge device that has physical interfaces configured with IPv4/IPv6 address and is considered to be a Layer 3 network device. Typically, HSRP/VRRP/GLBP first hop redundancy protocol would be used for failover on the customer router. Both tagged and untagged interfaces are supported with this type of configuration. LAG/MLAG is not supported.

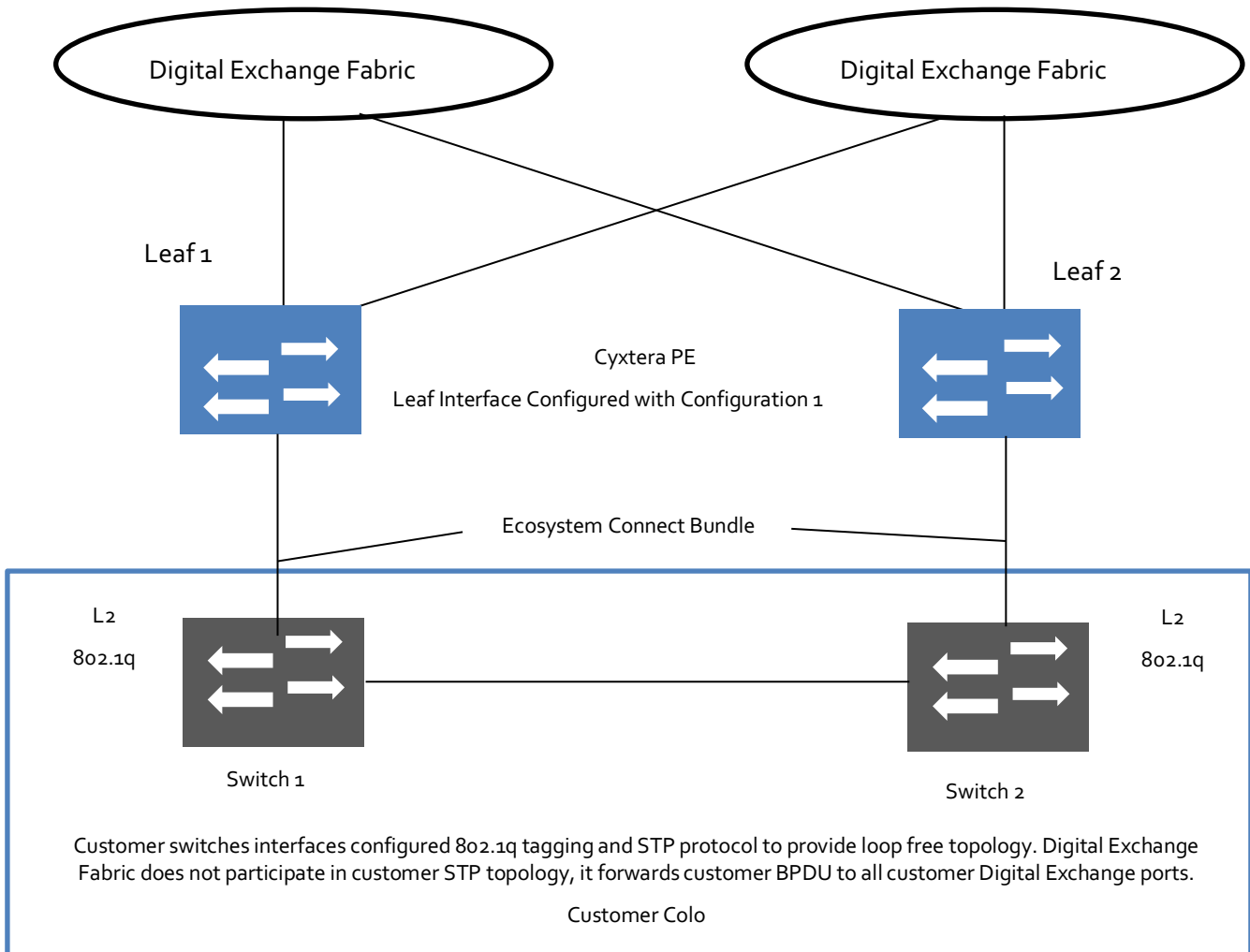


2.3.2 Layer 2 CE

A Digital Exchange Port configured as Layer 2 CE is typically used when a customer is connecting directly to a Layer 2 Customer Edge device that has physical interfaces configured with 802.1q and is considered to be a Layer 2 networked devices. Customers that use this type of connection typically run STP within their environments to provide loop protection. Cyxtera’s Digital Exchange platform does not participate in customer STP topology, however STP BPDU will be passed

through the Digital Exchange fabric to all customer Layer 2 CE ports to assure loop free environment through the fabric. This configuration is considered active/standby because of the blocked STP port. Please note:

- At this time, only per-VLAN implementation of STP is supported. (Example - Cisco PVST, Juniper VSTP).
- Dual home connectivity to single Layer2 CE is not supported.
- Layer2 CE with LAG is required.



2.3.3 Layer 2 CE with LAG

An additional option for Layer 2 CE is LAG/MLAG configuration. This option builds on the standard Layer 2 CE configuration. Devices that are 'stacked' / 'virtual chassis' or capable of MLAG can be configured to take advantage of forwarding on all links connected to a Digital Exchange PE device. LAG/MLAG configuration is considered to be active/active. The Digital Exchange fabric uses flow-based load balancing for forwarding traffic towards Layer 2 CE ports. The Digital Exchange Port requires LACP protocol for fast convergence of a link or device failure and is configured for fast periodic updates. Please note:

- Per packet load balancing is not supported on Digital Exchange Ports.
- Vendor proprietary protocols are not supported for LAG/MLAG configuration.

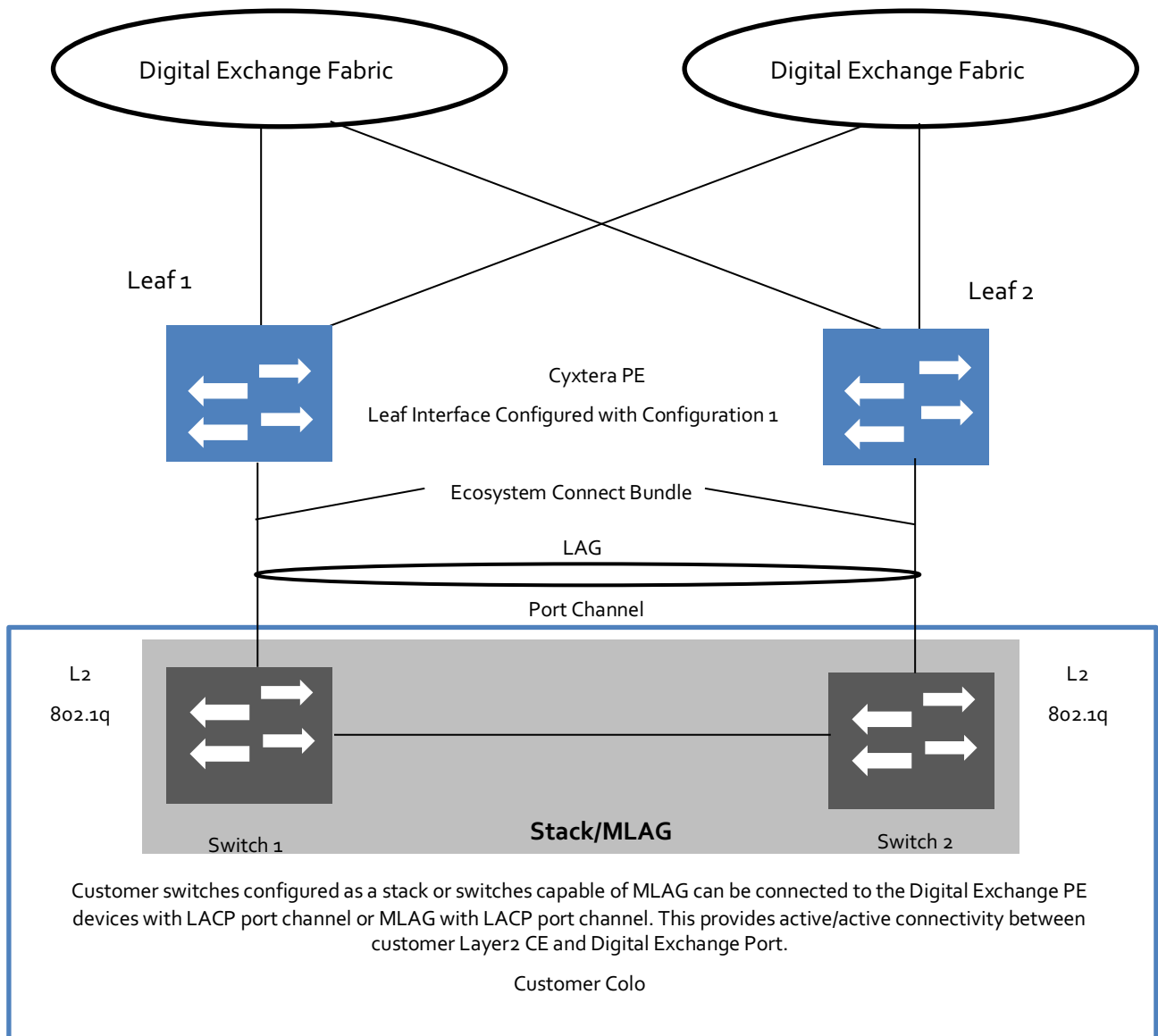


Figure 1 - Layer 2 MLAG example

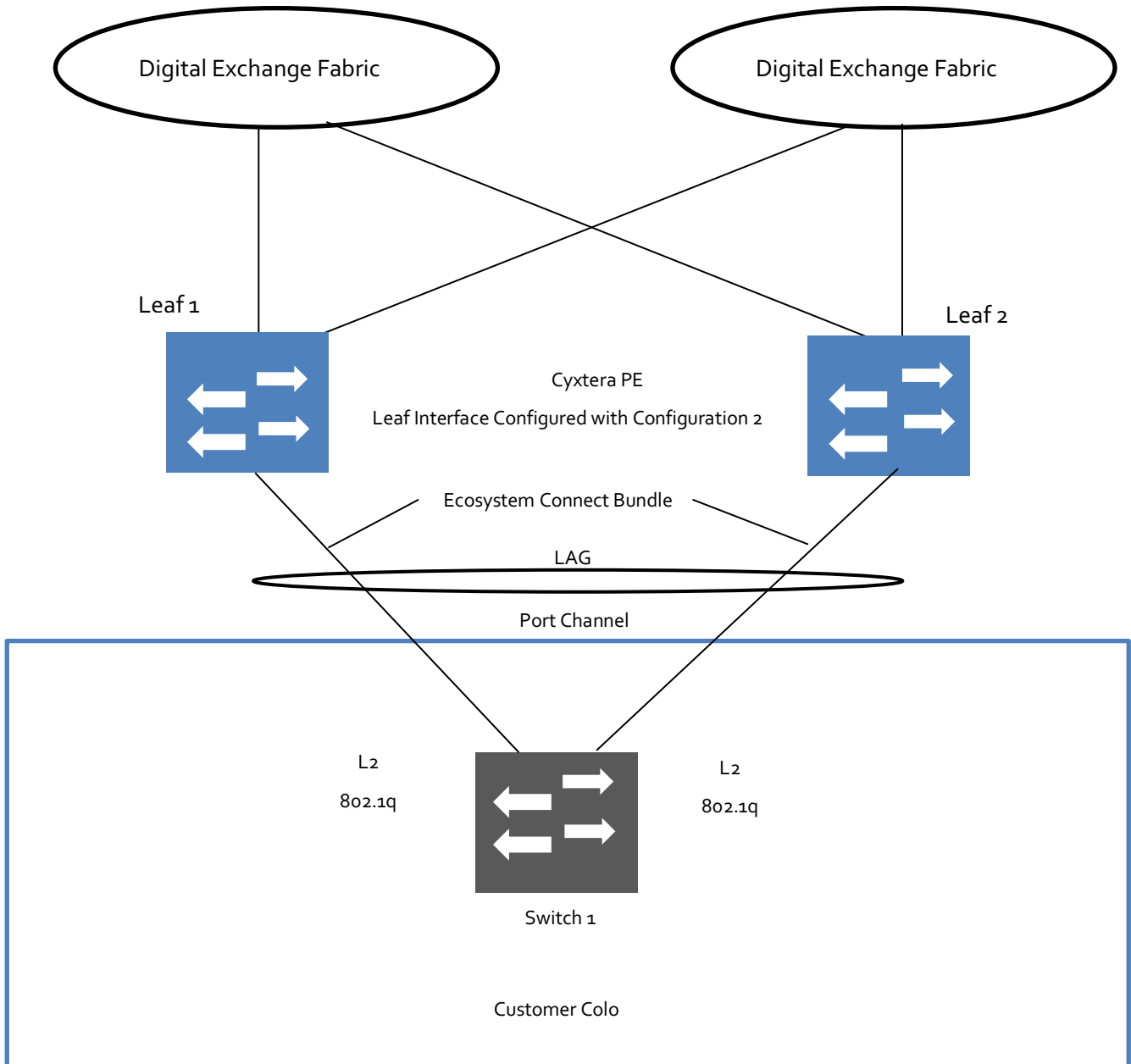


Figure 2 – Single homed Layer 2 LAG example

2.4 Diversity Options

The Digital Exchange Port is natively redundant up to the handoff on the pre-requisite Ecosystem Connect. Full route diversity to the customer environment for Digital Exchange deployments is dependent on the availability of a diverse route to the Meet Me Room from the customer's environment via a separate Ecosystem Connect deployment. Customers must have a diverse Ecosystem Connect in place in order to request a diverse Digital Exchange Port. The customer will need to order two separate instances of Digital Exchange Port and notate diverse paths are requested during the ordering process.

Cyxtera does not manage any failover associated with diverse Digital Exchange Port implementations. The customer is responsible for any failover between deployments.

3 Service Delivery and Support

The following outlines Cyxtera's roles and responsibilities in the service delivery of Digital Exchange Port. While specific roles and responsibilities have also been identified as being owned by the customer, any roles or responsibilities not contained in this document are either not provided with the service or assumed to be customer's responsibility.

3.1 Provisioning

Cyxtera will provide the following provisioning Services:

- If not previously completed, granting Portal/Command Center access to administrative users using default administrator privileges and system preferences
- Design, installation and test of cabling/cross connects between the customer's Ecosystem Connect and the Digital Exchange platform
- Physically label all components – cabling, patch panels, ports
- Update inventory within the customer's account for viewing in the Portal
- Creating and placing the Digital Exchange Port in reserved status within the Portal/Command Center

Customer is responsible for the following provisioning activities:

- Ensuring (2) Single Mode Fiber Ecosystem Connect ports are available on the Cyxtera Network Panel in their space prior to ordering a Digital Exchange Port, or ordering an appropriate Ecosystem Connect service with the Digital Exchange Port service
- Connection between the Cyxtera Network Panel to the network device within their colocation environment
- Configuration of the Digital Exchange Port service within the Portal/Command Center or API.
- Ongoing management of the service, as required, within the Portal/Command Center or API.

3.2 Support

Cyxtera employs skilled on-site technicians in each of its data centers. If the customer requires support with their Digital Exchange Port service, they may request assistance from technicians by creating a case within the Portal. Cyxtera will provide all reasonable assistance to the customer while abiding by Cyxtera policies. Support charges may be incurred. See the [Cyxtera Colocation Customer Information Guide & Handbook](#) for more information about obtaining such support from Cyxtera.

3.3 Incident and Problem Management

Cyxtera does not actively monitor uptime for Digital Exchange Ports. Any service interruption should be reported by the customer via a case in the Portal. Cyxtera will provide incident and problem management services (e.g. classification, recording, escalation, and return to service) pertaining to the infrastructure associated with the Digital Exchange Port service.

3.4 Security

Cyxtera will provide security for the aspects of the Service over which it has sole physical and administrative level control. Cyxtera will use commercially reasonable efforts to provide data center security, protection of cabling within the cable troughs and/or trays within the data center and administrative controls for access within the facility where the service is provided. Security and access controls will be implemented per Cyxtera standard operating policies. See the [Cyxtera Colocation Customer Information Guide & Handbook](#) for more information about such security and access controls.

4 Business Operations

4.1 New Orders

Digital Exchange Port is ordered through a Cyxtera Account Representative who will provide the customer a sales order for execution. A single mode fiber Ecosystem Connect service with (2) available ports on the Cyxtera Network Panel must be in place prior or ordered at the same time with the Digital Exchange Port. The customer will be required to identify the available ports on their Cyxtera Network Panel deployed with Ecosystem Connect to which the Digital Exchange Port should be connected.

4.2 Changes to Ordered Services and/or Existing Services

Unless otherwise agreed by Cyxtera, in its sole discretion, or as permitted pursuant to the following paragraph, if the customer requires any changes to (a) an ordered Digital Exchange Port service before installation of such service or (b) a previously installed Digital Exchange Port, they will need to submit a disconnect order and a new order to implement the change, additional charges may apply.

4.3 Disconnects

Disconnects may be requested (a) through a Cyxtera Account Representative or (b) through any other process permitted by Cyxtera.

4.4 Expedite Requests

Request for expedited installation of a Digital Exchange Port can only be approved by Cyxtera's Service Delivery team. Upon receipt of such a request, Cyxtera's Service Delivery Team will take various factors into account when considering whether or not to approve such request, including, but not limited to, products and services being purchased in the order, scope and scale of the installation of the services being purchased in the order, current Cyxtera workload and/or projects already in flight at the data center, customer's existing environment and procurement lead-times. An expedite fee may apply. Contact your Cyxtera Account Representative to inquire about an expedite request

5 Service Level Objectives

Cyxtera offers Service Level Objectives for Digital Exchange Port. A Service Level Objective ("SLO") is a metric which Cyxtera makes all reasonable efforts to achieve during standard business operations. Cyxtera does not offer remediation for missed Service Level Objectives.

Digital Exchange Port is governed by the following SLOs:

5.1 Install

Cyxtera will make all commercially reasonable efforts to complete installation and testing of a Digital Exchange Port within 3 business days of an accepted sales order assuming the prerequisite Ecosystem Connect bundle with the prescribed available port quantity is already deployed.

5.2 Uptime

Cyxtera will make all commercially reasonable efforts to ensure that a Digital Exchange Port is available 100% of the time.

A Digital Exchange Port is deployed as a redundant service with (2) physical handoffs. However, the service is considered unavailable when the passive physical media used for both the connections fail and the endpoints of the connections are not able to maintain communication. A Digital Exchange Port does not employ a protection scheme to re-route traffic in the event of equipment or passive physical media failure. Cyxtera views each Digital Exchange Port as a stand-alone item and does not build a relationship between different orders.

6 Contract Terms

Digital Exchange Port incurs a non-recurring charge to cover the materials and labor associated with installation as well as the monthly recurring charges in connection with the provision of such service. Unless otherwise agreed in the service order for the Digital Exchange Port, Digital Exchange Port requires a minimum 12-month term.

7 Appendix

Included below are links to additional documentation that are related to Digital Exchange Port service.

- [Digital Exchange Terms and Conditions / Acceptable Use Policy / Service Level Agreement](#)
- [Cyxtera Colocation Customer Information Guide and Handbook](#)
- [Cyxtera Portal](#)
- [Cyxtera Portal Documentation](#)
- [Cyxtera API Reference Documentation](#)
- [Digital Exchange Port Quick Start Guide](#)
- [Ecosystem Connect Service Description](#)
- [IP Connect Service Description](#)
- [Enterprise Bare Metal Service Description](#)
- [Digital Cross Connect Service Description](#)