

## Service Description

# CXD Unified Services Port

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## 1. Introduction

Cyxtera’s Extensible Data Center platform, CXD, is a powerful platform that delivers the industry’s only programmable, software-defined intra-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 CXD 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 CXD Command Center or our easy to use API. The CXD platform utilizes its intelligent network design to deliver services to customer colocation environments via a CXD Unified Services Port. Through this single, redundant dual hand-off connection, customers can establish secure logical Layer 2 connections to all CXD network and data center services from colocation cabinets or cages. This includes access to select ecosystem providers who are also connected to the CXD platform. The Unified Services Port provides access to [CXD IP Connect](#), [CXD Compute Nodes](#), and [CXD Cross Connects](#), among other services.



CXD Unified Services Ports include:

- The cross connect required from the customer’s Ecosystem Connect Bundle in colocation to the CXD platform
- Seamless extension of the customer’s colocation environment to the CXD platform
- Connectivity via secure, Layer 2 network(s) throughout the data center and metro region across the CXD platform
- Access to CXD-enabled service providers – via a [CXD Cross Connect](#) – including those who offer direct connections to private and public clouds

CXD’s state-of-the-art software-defined network fabric links customers and resources throughout the data center and metro region. This secure, highly 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 CXD APIs or CXD Command Center web console.

All CXD-powered services are delivered over a Unified Services Port. Customers can choose to utilize the full port for a single service or stack multiple services, and customers can elect to provision multiple Unified Services Ports.

## 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 collocated, 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.

## 1.1 Portal, Tools, & APIs

### Self-Service Administrative Tools

The Service includes access to three self-service tools:

- **Cyxtera Customer Portal** provides access to subscription status, integrating navigation, viewing, and management of all Cyxtera products, entitlements, and customer support under a single account.
- **CXD Command Center** is the primary web console tool for access, consumption, and management of CXD Unified Services Ports and CXD-enabled products purchased from Cyxtera, including CXD Compute Nodes, CXD IP Connect, CXD Cross Connects, and management and configuration of networks.

Cyxtera will provide users with access to Application Programming Interfaces (API) for programmatic resource management.

- **Cyxtera APIs** allow customers to create scripts that run system administration commands against CXD Unified Services Ports and customer CXD resources, such as CXD Compute Nodes, CXD IP Connect, CXD Cross Connects, and networks, equivalent to those actions that can be taken from the CXD Command Center.

## 1.2 Connectivity

### Connection to CXD Unified Services Port

There is only one method for connecting an existing colocation environment to the CXD Unified Services Port:

- **Ecosystem Connect:** The Ecosystem Connect product is a bundle of fiber, copper (ethernet), or coaxial cables connecting a customer's colocation cabinet or cage to the Meet Me Room within a Cyxtera data center. Connection to a Unified Services Port requires a Single-Mode Fiber Ecosystem Connect bundle.
  - **Required:** An existing Cyxtera colocation environment.
  - **Required:** A Single-Mode Fiber Ecosystem Connect Bundle with two available ports.

## 2. Operations

The following outlines Cyxtera's roles and responsibilities in the service delivery of CXD Unified Service

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 the customer's responsibility.

## 2.1 Support

Cyxtera will provide support for problems that the customer reports, as well as selected additional Services to assist with adoption of CXD Unified Services Port. Support may be provided in any country in which Cyxtera or its agents maintain facilities. To the extent a customer provides his or her information and/or data in connection with support, we will handle the customer's information and/or data in any such country in accordance with the applicable service agreement, Cyxtera policies and all applicable laws.

## 2.2 Provisioning

Cyxtera will provide the following provisioning Services:

- Granting CXD Command Center access to administrative users using default administrator privileges and system preferences.
- Implementation of the CXD Unified Services Port cross connect.

The customer will be responsible for the following provisioning:

- Ensuring there are two available ports on the Ecosystem Connect Bundle for implementation.

## 2.3 Monitoring

Cyxtera will provide the following Services with respect to monitoring:

- Monitoring the CXD physical connections as well as the underlying network architecture.

The customer is responsible for the following with respect to monitoring:

- Monitoring the assets deployed or managed within the customer's environment, including, but not limited to physical switches, routers, firewalls, security devices, Compute Nodes, hypervisors, virtual machines, operating systems, applications, specific network configurations, operating system or application vulnerabilities, etc.

## 2.4 Incident and Problem Management

Cyxtera will provide incident and problem management Services (e.g., detection, severity classification, recording, escalation, and return to service) pertaining to:

- Infrastructure over which Cyxtera has direct, administrative, and/or physical access and control, such as Cyxtera data center, physical switches, routers, Compute Nodes, management servers, and network devices.
- Service software over which Cyxtera has direct administrative access and control, such as the Cyxtera Customer Portal, CXD Command Center, and other Cyxtera-owned APIs and applications that Cyxtera uses in delivery of the Service.

The customer is responsible for incident and problem management (e.g., detection, severity classification, recording, escalation, and return to service) pertaining to:

- User-deployed and configured assets such as switches, routers, firewalls, security devices, hypervisors, virtual machines, operating systems, custom developed or third-party applications, network configuration settings, and user accounts.

## 2.5 Change Management

Cyxtera will provide the following change management elements:

- Processes and procedures to maintain the health and availability of the CXD Unified Services Port, Cyxtera Customer Portal, CXD Command Center, Cyxtera APIs, and CXD platform.
- Processes and procedures to release new code versions, hot fixes, and service packs related to the Cyxtera Customer Portal, CXD Command Center, Cyxtera APIs, and CXD platform.

The customer is responsible for:

- Management of change to the customer's physical switches, routers, firewalls, security devices, Compute Nodes, hypervisors, virtual machines, operating systems, custom or third-party applications, databases, and administration of general network changes within your control.
- Administration of self-service features provided through the Cyxtera user portals, up to the highest permission levels granted to the customer, including, but not limited to, CXD Unified Services Port, Compute Nodes and network functions, backup administration, user configuration and role management, general account management, etc.

## 2.6 Security

The end-to-end security of CXD Unified Services Port is shared between Cyxtera and the customer. Cyxtera will provide security for the aspects of the Service over which it has sole physical, logical, and administrative level control. The customer is responsible for the aspects of the Service over which the customer has administrative level access or control. The primary areas of responsibility between Cyxtera and the customer are outlined below.

Cyxtera will use commercially-reasonable efforts to provide:

- **Physical Security:** Cyxtera will protect the data centers, cages, and cabinets housing the CXD Unified Services Port from physical security breaches.
- **Information Security:** Cyxtera will protect the information systems used to deliver the Service for which it has sole administrative level control.
- **Network Security:** Cyxtera will protect the networks containing its information systems up to the point where the customer has some control, permission, or access to modify customer networks.
- **Security Monitoring:** Cyxtera will monitor for security events involving the underlying infrastructure hardware, networks, and information systems used in the delivery of the Service over which it has sole administrative control. This responsibility stops at any point where the customer has some control, permission, or access to modify an aspect of the Service.
- **Patching & Vulnerability Management:** Cyxtera will maintain the systems it uses to deliver the Service, including the application of patches it deems critical for its target management systems. Cyxtera will perform routine vulnerability scans to surface critical risk areas for the systems it uses to deliver the Service. Critical vulnerabilities will be addressed in a timely manner.

The customer should address:

- **Information Security:** The customer is responsible for ensuring adequate protection of the information systems, data, content or applications that the customer deploys and/or accesses on the Service. This includes, but is not limited to, any level of patching, security fixes, data encryption, access controls, roles and permissions granted to a customer's internal, external, or third-party users, etc.
- **Network Security:** The customer is responsible for the security of the networks over which the customer has administrative level control. This includes, but is not limited to, maintaining effective firewall rules, exposing communication ports that are only necessary to conduct business, locking down promiscuous access, etc.
- **Security Monitoring:** The customer is responsible for the detection, classification, and remediation of all security events that are isolated with the customer's account, associated with switches, routers, firewalls, security devices, Compute Nodes, hypervisor, virtual machines, operating systems, applications, data, or content, surfaced through vulnerability scanning tools, or required for a compliance or certification program in which the customer is required to participate, and which are not serviced under another Cyxtera security program.

### 3. Configuration Options

The Unified Services Port has multiple configuration options, which should be selected when activating the Unified Services Port from the CXD Command Center or API. Customers should select the configuration option that matches their desired and/or existing network design, and this should be completed prior to connecting any customer-owned network device into the Unified Services Port in its colocation cabinet or cage where it was installed.

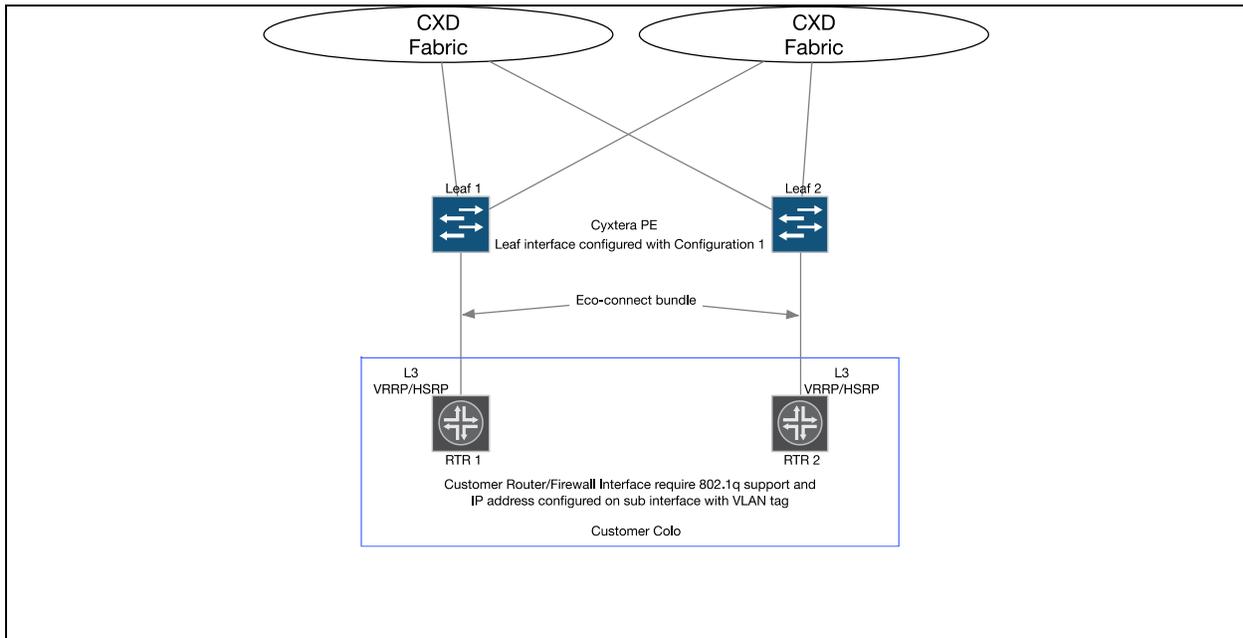
Available configuration options are listed below.

#### 3.1 Layer 3 CE

This option would be appropriate when the 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.

Limitations: LAG/MLAG is not supported.



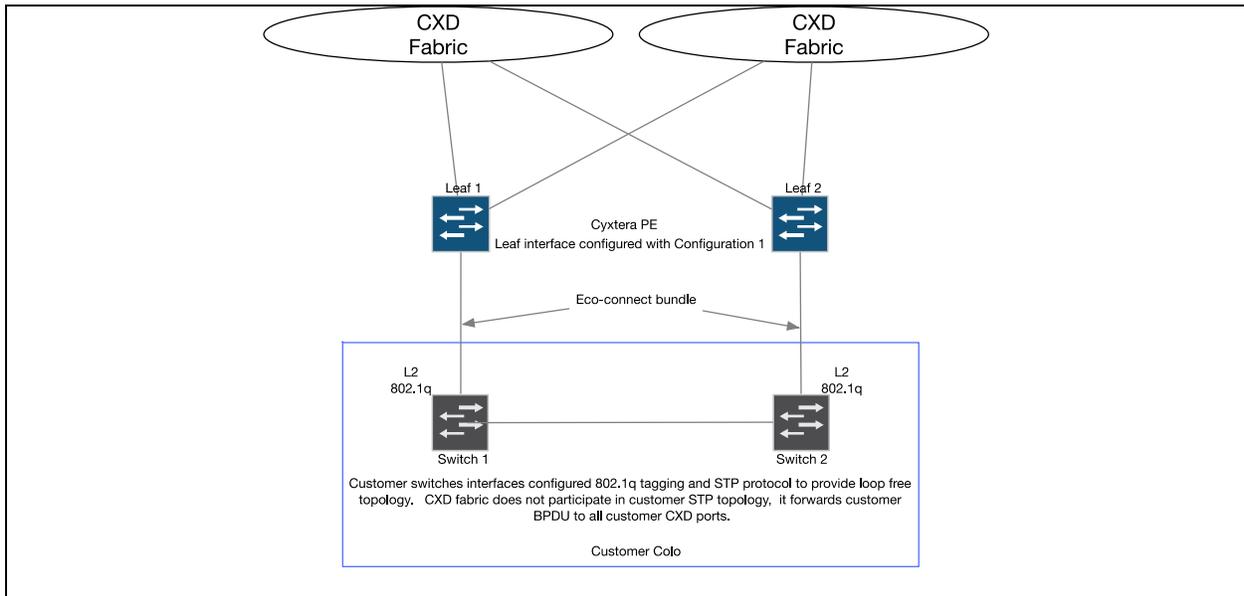
### 3.2 Layer 2 CE

This option would be appropriate when the 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.
- CXD does not participate in customer STP topology, however STP BPDU will be passed through the CXD 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.

Limitations:

- 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.



### 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 CXD PE device.
- LAG/MLAG configuration is considered to be active/active.
- The CXD fabric uses flow-based load balancing for forwarding traffic towards Layer 2 CE ports.
- The CXD Unified Services Port requires LACP protocol for fast convergence of a link or device failure.
- The CXD Unified Services Port LACP is configured for fast periodic updates.

Limitations:

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

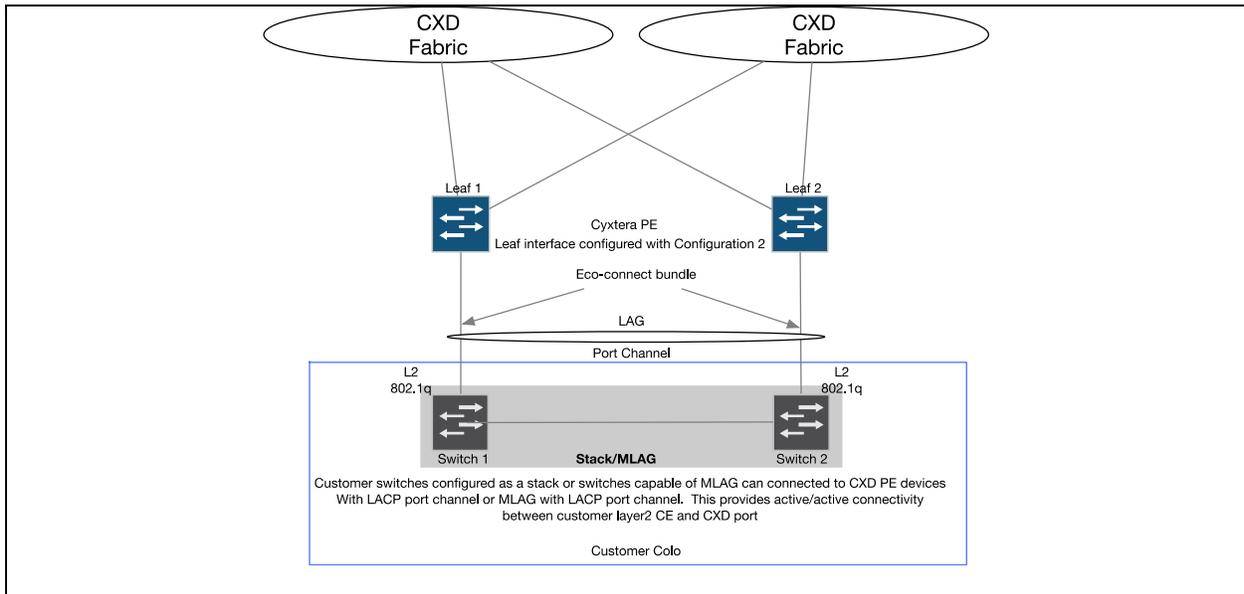


Figure 1 - Layer 2 MLAG example

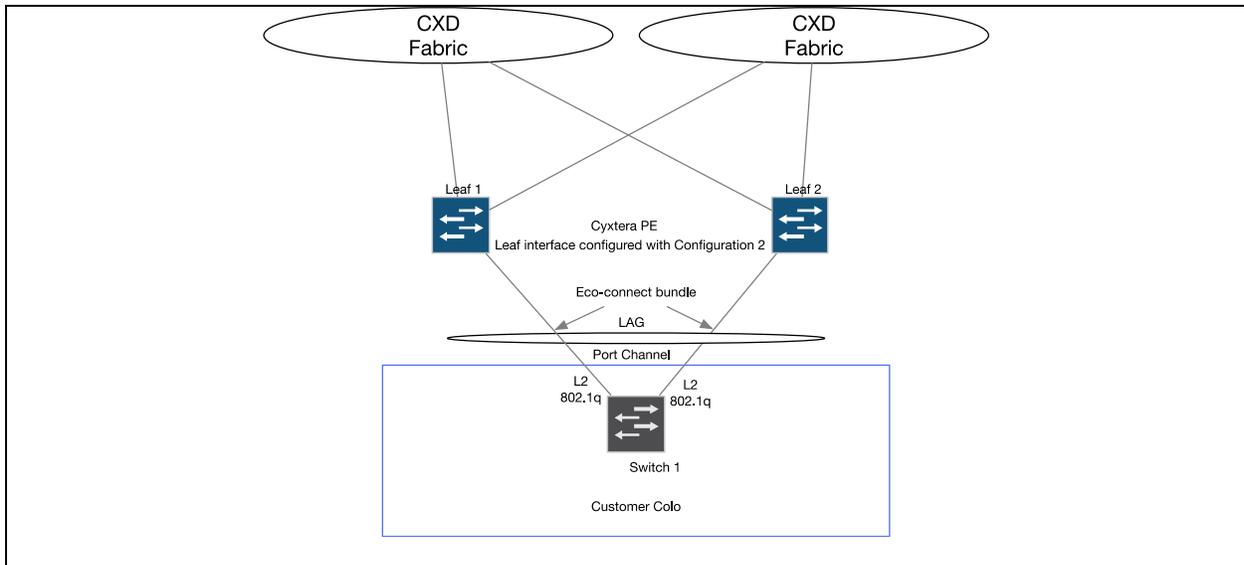


Figure 2 - Single homed Layer 2 LAG example

## 4. Business Operations

This section summarizes processes for ordering your CXD Unified Services Port(s).

### 4.1 Ordering

#### CXD Unified Services Port Ordering

Ordering the CXD Unified Services Port can be initiated via self-service through the CXD Command Center

web console or CXD API, or by contacting your Cyxtera Sales Representative. Provisioning is handled via data center services and installed directly to the colocation environment. The prerequisite Ecosystem Connect bundle can be ordered as a new service via the Cyxtera Customer Portal or through your Cyxtera Sales Representative if one is not already in place to support the purchase of a CXD Unified Services Port.