



Service Description

Cyxtera IP Connect

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Cyxtera Data Centers, Inc.
2333 Ponce De Leon Blvd., Suite 900
Coral Gables, Florida 33134
www.cyxtera.com

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1 Introduction

IP Connect combines Cyxtera's network-neutral environment with automated routing to provide a reliable, dedicated Internet connection for customers. IP Connect is a blended bandwidth product offering a "best of" mix between several Internet service providers. Each IP Connect point of presence operates independently connecting customers to a blend of at least two independent upstream providers. The Service is available to Cyxtera colocation (space and power), Compute Node and Enterprise Bare Metal customers via the Digital Exchange.

IP Connect includes:

- Leased IPv4 and IPv6 address blocks
- Fixed and burstable bandwidth options
- Multiple configuration options including static route and BGP
- 24/7 monitoring

1.1 Self-Service Tools

IP Connect includes access to the following self-service tools:

- **Cyxtera Customer Support Portal** (the "Portal") provides management access to the Cyxtera interconnection product portfolio, including, but not limited to, subscription status, inventory viewing, management of entitlements, and customer support. See the [Cyxtera Customer Guide](#) for more information about the Portal.
- **Command Center** is the primary tool for access, consumption, and management of Cyxtera Platform enabled products, including IP Connect. The Command Center is accessed via the Portal.
- **Cyxtera Application Programming Interface (API)** for programmatic resource management. The Cyxtera API will allow customers the ability to create scripts that run system administration commands against Cyxtera Platform resources, such as IP Connect, equivalent to those actions that can be taken from the Command Center.

1.2 Availability

IP Connect is available in all Cyxtera data centers equipped with the Cyxtera Platform. Contact your sales representative for more information on current availability.

2 Product Description

IP Connect is a blended Internet bandwidth offering delivered solely from the Cyxtera Digital Exchange Platform. The Digital Exchange delivers a software powered architecture combining a software

defined network (“SDN”) fabric and service provisioning system to provide a revolutionary way of easily procuring and consuming data center services. Cyxtera colocation (space and power) customers must purchase a Cyxtera Digital Exchange Port (formerly called CXD Port) product prior to connecting to IP Connect. All Digital Exchange Port services are connected to the customer via a redundant cross connect configuration. Cyxtera Compute Node and Enterprise Bare Metal customers may utilize IP Connect for network access outside the data center however are not required to purchase a separate Digital Exchange Port as Compute Nodes and Enterprise Bare Metal servers include an always on connection to the Digital Exchange. For more information on Compute Nodes and Enterprise Bare Metal Servers please refer to the [Cyxtera Enterprise Bare Metal Service Description](#).

Once physically connected to the Digital Exchange, customers may then deploy a virtual cross connect, or “VLAN”, to enable the IP Connect service. The customer “stretches” the VLAN to the IP Connect service by assigning the VLAN ID to the IP Connect occurrence. VLANs may be turned up or turned down at any time via the Command Center or API.

The IP Connect service maximum transmission unit (MTU) size is 1500 bytes. This is the maximum size frame allowed to be transmitted over the internet.

2.1 Connecting to IP Connect

There are two methods for establishing connectivity to IP Connect:

- **Cyxtera Digital Exchange Port:** Cyxtera colocation customers access services on the Cyxtera Platform, such as IP Connect, by ordering a Digital Exchange Port. The Digital Exchange Port is connected to the customer environment via Ecosystem Connect. The service includes the cross connect from the Cyxtera Network Panel deployed with Ecosystem Connect to the Cyxtera Digital Exchange network fabric.
- **Compute Nodes/Enterprise Bare Metal Servers:** Compute Node or Enterprise Bare Metal customers can access the IP Connect service by creating VLANs from their server environment across the Cyxtera Platform established upon the ordering of Compute Nodes or Enterprise Bare Metal servers.

2.2 Committed Information Rate (“CIR”) Tiers

At the time of ordering, the customer will be directed to select a Committed Information Rate (“CIR”) tier for their IP Connect service. The CIR Tier selected sets the Mbps rate for the bandwidth utilized with IP Connect. Available rate tiers include:

- 10Mbps
- 20Mbps
- 50Mbps
- 100Mbps
- 300Mbps
- 500Mbps
- 1000Mbps
- 2000Mbps
- 3000Mbps
- 5000Mbps
- 6000Mbps
- 8000Mbps
- 10000Mbps

Once a CIR is selected, the customer can choose for the service to be Fixed or Burstable.

- **Fixed:** The IP Connect service bandwidth will be rate limited to the tier selected.
- **Burstable:** Regardless of the rate tier selected, customers who order the Burstable option with the IP Connect service will be able to burst up to the bandwidths indicated in the table below. In addition to amounts payable by customer for their selected CIR tier, the customer will be billed for applicable overages above their selected CIR tier.

CIR	Max Burst Bandwidth
10Mbps	1000Mbps (1Gbps)
20Mbps	1000Mbps (1Gbps)
50Mbps	1000Mbps (1Gbps)
100Mbps	1000Mbps (1Gbps)
300Mbps	1000Mbps (1Gbps)
500Mbps	1000Mbps (1Gbps)
1000Mbps (1Gbps)	10000Mbps (10Gbps)
2000Mbps (2Gbps)	10000Mbps (10Gbps)
3000Mbps (3Gbps)	10000Mbps (10Gbps)
5000Mbps (5Gbps)	10000Mbps (10Gbps)
6000Mbps (6Gbps)	10000Mbps (10Gbps)
8000Mbps (6Gbps)	10000Mbps (10Gbps)
10000Mbps (6Gbps)	10000Mbps (10Gbps)

2.2.1 Burstable Bandwidth Overage Calculation

Customers who select burstable bandwidth in association with their IP Connect service will be charged for the overages above their CIR tier (in addition to amounts payable by

customer for their selected CIR tier). These overages will be calculated based on the industry standard of 95th percentile ("95th P") billing.

Bandwidth is measured (or sampled) from the Cyxtera router and recorded in a log file at regular increments throughout the month (typically every 2-5min). At the end of the month, the input samples are sorted from highest to lowest and the top 5% of data are discarded.

All values are rounded to the next highest whole number. For example, if the 95th percentile value is 11.3Mbps the value considered is 12Mbps. The same is then done with the output samples.

To arrive at the billable utilization for the month, Cyxtera selects the higher usage measurement of either the input or output traffic flows and calculates billing based on that usage measurement. All overage is billed at 1.5 times the per Mbps rate at which the CIR is billed.

The simplified example below assumes only 100 samples are taken per month, note the top ten usage rankings for the month sorted from highest to lowest. All measurements above line 95 are discarded and the 95th highest usage measurement is used to calculate billing for the month. Notice the higher usage number of the inbound and outbound traffic measurement on line 95 is used to calculate the 95th P.

Rank	Inbound Bandwidth Measurements	Outbound Bandwidth Measurements
100	250Mbps	130Mbps
99	140Mbps	110Mbps
98	130Mbps	90Mbps
97	110Mbps	70Mbps
96	80Mbps	50Mbps
95	60Mbps	40Mbps
94	50Mbps	30Mbps
93	40Mbps	10Mbps
92	20Mbps	9Mbps
91	10Mbps	9Mbps

In this example the 95th P for the month would be 60Mbps. If the customer had a 100Mbps CIR there would be no overages charges for the month, however if the CIR were 50Mbps, then there would be a 10 Mbps overage for the month shown.

60Mbps (95th P) – 50Mbps (CIR) = 10Mbps (Overage)

The overage charge would then be calculated as:

10Mbps (Overage) x Per Mbps Rate x 1.5 = Monthly Overage Charge

Overage charges are billed in arrears on the customer’s monthly invoice noting the specific overage and dollar amount owed.

2.3 IP Addressing

Cyxtera offers leased IP address space associated with IP Connect in the following Classless Inter-Domain Routing (“CIDR”) blocks:

CIDR Block	Number of Addresses	Notes
IPv4 /29	8	(3) usable by Customer
IPv4 /28	16	(11) usable by Customer
IPv4 /27	32	(27) usable by Customer
IPv4 /26	64	(59) usable by Customer
IPv4 /25	128	(123) usable by Customer
IPv4 /24	256	(251) usable by Customer Must have a minimum of 500Mbps CIR to order
IPv6 /56	4,722,366,482,869,645,213,696	Available at no charge

Customers ordering both IPv4 and IPv6 addresses will be configured as “Dual Stack” with no tunneling. IP addresses can be added at any time and will be priced per address block purchased.

2.4 Routing Protocols

Cyxtera offers multiple routing protocols to support customer use cases. These protocols are optional, and an additional charge will apply as defined for each offered protocol/service.

2.4.1 BGP Routing (Customer Provided IP addresses)

As part of the standard offering, IP Connect supports static default routing utilizing Cyxtera-provided IP addresses.

Customers wanting to advertise their own IPv4 or IPv6 public address space may choose to add Border Gateway Protocol (“BGP”) service for an additional charge. The minimum block Cyxtera will announce for IPv4 is a /24 and /56 for IPv6. Customers selecting BGP service must acknowledge ownership of the IP space they wish to use, which will be validated by Cyxtera prior to activation of the service. This validation will occur electronically when configuring the service in the Command Center. Customers may provide their own public Anonymous System Number (“ASN”) or Cyxtera will provide a Cyxtera-owned ASN during provisioning. In addition, a Layer 3 device such as a firewall or router and a Layer 2 VLAN to act as the Internet VLAN within the customer’s network environment is also required for BGP service when advertising customer supplied IP addresses. BGP service can support full, default and/or full + default route advertisement route types which are configurable by the customer in the Command Center Portal or API.

2.4.2 Bidirectional Forwarding Detection (BFD)

Cyxtera supports BFD for all IPv4 BGP customers to assist with failure detection in the network between two neighbors. The Bidirectional Forwarding Detection (BFD) protocol is a simple hello mechanism that detects failures in a network. A pair of routing devices exchange BFD packets. The devices send hello packets at a specified, regular interval. The device detects a neighbor failure when the routing device stops receiving a reply after a specified interval. BFD does not have a discovery mechanism; sessions must be explicitly configured between endpoints. BFD is included with your IP Connect service when BGP service is purchased at no additional charge. Configuration parameters are as follows:

- Minimum interval 300 (ms)
- Multiplier 3 (packet Loss)
- Session mode automatic

2.4.2.1 Minimum interval

The minimum interval (Milliseconds) at which the local routing device transmits hello packets and then expects to receive a reply from a neighbor with which it has established a BFD session.

2.4.2.2 Multiplier

Configure the number of hello packets not received by a neighbor that causes the originating interface to be declared down.

2.4.2.3 Session mode

Configured for single hop or multi-hop BGP sessions, or Auto.

Customers also can easily remove sessions as needed. If the customer wishes to discontinue using BFD it is recommended that before removing the config from the endpoint, the customer administratively shutdown the system which will initiate and ‘AdminDown’ to

Cyxtera BFD client, this will ensure that the remote system is aware and thus not accidentally triggering an event.

2.4.3 Advanced Network Services

Advanced Network Services provides additional Layer 3 network capabilities to IP Connect including Network Address Translation (NAT), Virtual Private Networking (VPN), and basic routing. Advanced Network Services does carry an additional charge when ordered with your IP connect service.

2.4.3.1 SNAT/DNAT

Networks are connected to the IP Connect instance and, by default, have access to the Internet via Source NAT (SNAT). Destination NATs (DNAT) allow traffic in to private networks from the Internet. The traffic is filtered by port, protocol and source address. Customers may enable routing between networks if more than one network is configured. When configuring networks, the first (3) IP addresses in each network will be used by Cyxtera. The first address will be the default gateway for the network.

Please note Cyxtera does not offer firewall capability between networks at this time.

2.4.3.2 VPN/IPSEC

IPSEC is used to configure a LAN-to-LAN VPN connection. Cyxtera uses a 'routed' configuration for IPSEC to simplify managing many networks on either side of the tunnel.

Only one routing protocol may be configured on a given customer instance of IP Connect. Customers may not bring their own IP addresses using the BGP routing protocol while applying Advanced Network Service options at this time.

2.5 Domain Name Services (“DNS”)

Customers are responsible for setting and managing their DNS. IP Connect does not support Reverse Domain Name Service (“RDNS”) at this time.

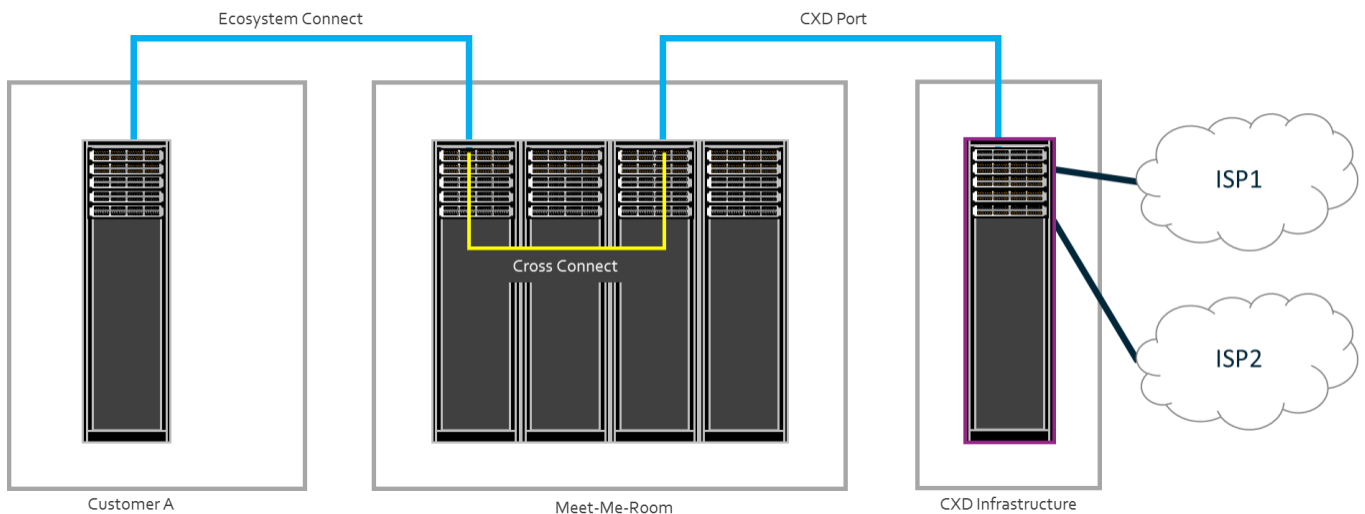
2.6 Diversity Options

IP Connect is a multi-homed product and provides two physical handoffs between the customer environment and the Cyxtera Platform. These connections are built in an active-passive configuration and are not intended for load-balancing between connections. Cyxtera will manage failover in the case of service interruption on either connection.

2.7 Latency Standards

IP Connect provides a connection to the Internet and as such may be impacted by elements outside of Cyxtera’s control such as customer side equipment, round trip latency or network congestion. Cyxtera strives to ensure latency is minimized through the use of best in class network gear, partnerships with Tier One Internet upstream providers and management of upstream bandwidth links ensuring utilization levels result in little to no need for packet retransmit.

2.8 Service Diagram



3 Service Delivery and Support

The following outlines Cyxtera’s roles and responsibilities in the service delivery of IP Connect. 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 and API access to administrative users using default administrator privileges and system preferences.
- Reservation of the IP Connect instance in the Command Center and assignment of IP addresses (if required) for services ordered via an Account Representative.

Customer is responsible for the following provisioning activities:

- Configuration and management of the of the IP Connect instance to include creation and assignment of VLANs, IP Addresses, Fixed/Burstable settings, BGP settings and/or Advanced Network Services within the Command Center or API.

3.2 Support

Cyxtera employs skilled on-site technicians in each of their data centers that can assist with physical provisioning. If the customer requires support with their IP Connect service, they may request assistance by creating a case within the Portal. Cyxtera will provide assistance to the customer for all Cyxtera-managed hardware and the underlying network to deliver the IP Connect service. Cyxtera does not provide support for the customer's own network configuration. Support charges may be incurred. See the [Cyxtera Customer Guide](#) for more information about obtaining such support from Cyxtera.

3.3 Incident and Problem Management

Cyxtera actively monitors uptime for IP Connect, however 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 IP Connect service. In the event of a service failure, please refer to your Service Level Agreement for details regarding your rights and remedies.

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 Customer Guide](#) for more information about such security and access controls.

4 Business Operations

4.1 New Orders

IP Connect can be ordered through a Cyxtera Account Representative who will provide the customer a sales order for execution or via the Command Center. For Cyxtera colocation (space and power) customers, a Cyxtera Port must be ordered prior to ordering IP Connect.

The customer will be required to select a CIR, any additional IP Addresses and optional BGP or Advanced Network Services features upon ordering IP Connect.

For Compute Node or Enterprise Bare Metal customers, access to the Cyxtera Platform is included with the service enabling immediate access to IP Connect. Refer to the [Enterprise Bare Metal Service Description](#) for more information.

NOTE: For IP Connect orders initiated on a sales order via a Cyxtera Account Representative, the IP Connect instance and any associated IP Addresses will be “reserved” in the Command Center and a notice will be sent to the customer once available. The Customer can then access the Command Center to select and configure the IP Connect service. The “reserved” status does not apply to orders initiated directly in the Command Center.

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 IP Connect Service before installation of such Service or (b) a previously installed IP Connect Service, they will need to submit a disconnect order and a new order to implement the change, and additional charges may apply. The customer is able to manage routing and VLAN configurations within the Command Center or API in real-time. Changes to the CIR tier may be made via the Command Center or API at any time and any charges will be prorated on your bill based on the date of the change. A new sales order contract or addendum will need to be signed if a CIR, BGP or Advanced Network Services change is requested on a paper order via your Account Representative.

4.3 Disconnects

Disconnects may be requested (a) in the customer portal made available by Cyxtera to customer for such purpose or (b) through any other process permitted by Cyxtera. Additional details can be obtained from your Account Representative.

4.4 Expedite Requests

Request for expedited installation of IP Connect can only be approved by Cyxtera's Implementation Services team. Upon receipt of such a request, Cyxtera's Implementation Services 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 Objective (Install)

Cyxtera offers an installation Service Level Objective for IP Connect. A Service Level Objective ("SLO") is a metric which Cyxtera makes all reasonable efforts to achieve during standard business operations. For IP Connect sales orders, Cyxtera will make all commercially reasonable efforts to complete installation and testing within 3 business days of an accepted sales order assuming all pre-requisite products are available. Orders placed via the Command Center or API are generally provisioned within minutes. Note: BGP orders require additional time for validation of ownership of IP addresses prior to the service being approved for provisioning.

Cyxtera does not offer remediation for missed Service Level Objectives.

6 Service Level Agreement (Uptime)

Cyxtera offers an uptime Service Level Agreement for IP Connect. For more information regarding the service levels offered for IP Connect and rights and remedies offered in conjunction with IP Connect please refer to your Service Level Agreement.

7 Contract Terms

IP Connect incurs monthly recurring charges in connection with the provision of such IP Connect. IP Connect is considered a month-to-month service and may be canceled with a 30-day notice and customer shall have no liability for early termination charges in connection with such a cancellation. There is no charge to disconnect a IP Connect.

All use of the IP Connect Service must comply with Cyxtera's [Acceptable Use Policy](#) which may be modified by Cyxtera from time to time by posting an updated AUP at

<https://www.cyxtera.com/legal/Cyxtera-Acceptable-Use-Policy.pdf> or a successor website designated by Cyxtera.

7.1 Burstable Bandwidth Overage Invoicing

Customers who select the Burstable bandwidth option with the IP Connect service will be billed for applicable overages on the invoice following the month of the usage. Refer to the [Burstable Bandwidth Overage Calculation](#) section of this document for details on how overages are calculated.

8 Appendix

Included below are links to additional documentation that are related to IP Connect service.

- [Acceptable Use Policy](#)
- [Cyxtera Digital Exchange Platform Terms and Conditions](#)
- [Cyxtera Customer Guide](#)
- [Cyxtera Portal](#)
- [Cyxtera Digital Exchange Port Service Description](#)
- [Enterprise Bare Metal Service Description](#)
- [Ecosystem Connect Service Description](#)
- [IP Connect Quick Start Guide](#)