

CenturyLink® Cloud Connect: Wavelength to AWS (w/Dedicated Cross Connect)

Direct, Secure, Private Connection to AWS

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Purpose

The purpose of this document is to provide an end-to-end walk through for a customer setting up Direct Connect for the first time via CenturyLink's Cloud Connect with Dedicated Cross Connect.

Information contained is provided to serve as a supplement to AWS documentation linked throughout this document. Users should check the provided links to obtain the most up-to-date information and for more details pertaining to AWS processes.

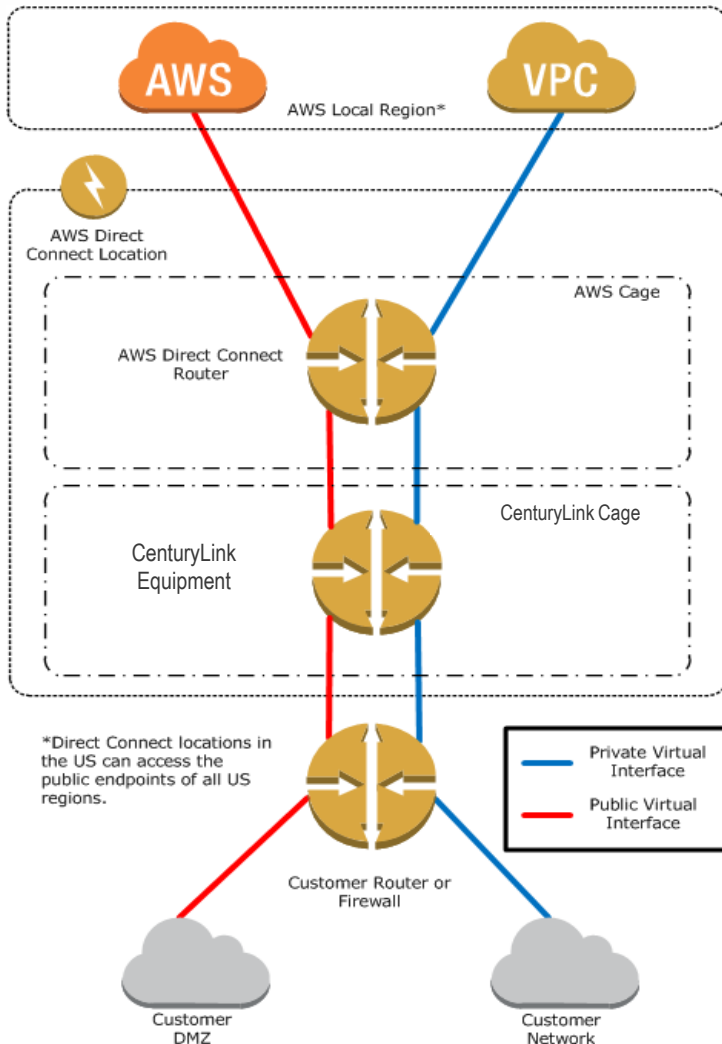
Disclaimer: The material in this guide is for informational purposes only and is taken from AWS's website material. All AWS related configuration information is based off of the AWS Console configuration instructions from the AWS website.

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1) Background Information

What is AWS Direct Connect (<https://aws.amazon.com/directconnect/>)



AWS Direct Connect links your internal network to an AWS Direct Connect location.

One end of the connection is connected to your CPE at your premise location, the other to an AWS Direct Connect router.

With this connection in place, you can create virtual interfaces directly to the AWS cloud services, bypassing the public Internet.

An AWS Direct Connect location provides access to Amazon Web Services in the region it is associated with, as well as access to other US regions.

For example, you can provision connections to any AWS Direct Connect location in the US and use it to access public AWS services in all US Regions.

2) Background Information

Getting Started with AWS Direct Connect (<https://aws.amazon.com/directconnect/getting-started/>)

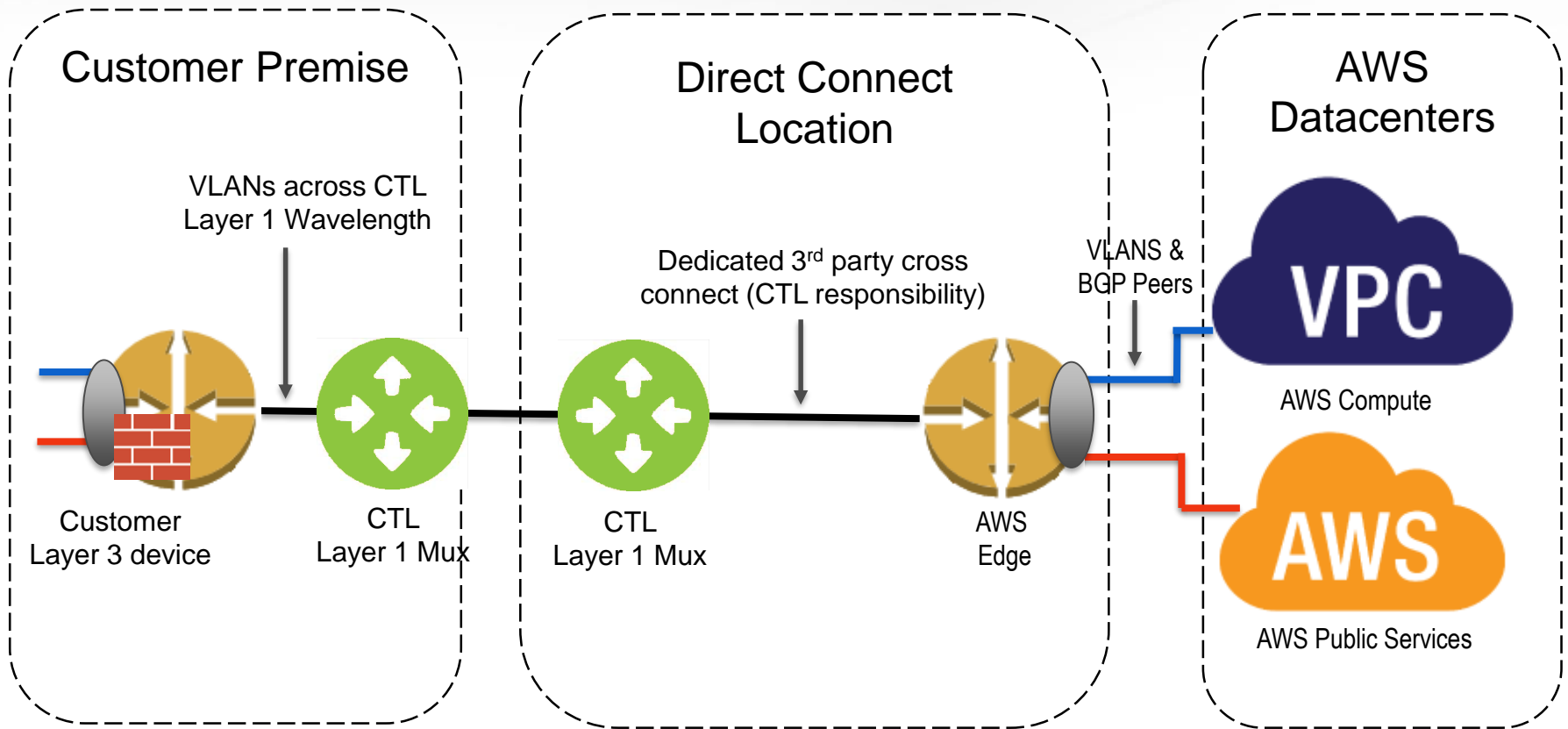
- This document is for Cloud Connect services connecting to AWS Direct Connect with a dedicated cross connect.
- The supporting service ordered from CenturyLink is Dedicated Cloud Connect to AWS.
- The 2nd option in the scenarios below (screenshot from the AWS Direct Connect Getting Started webpage – link above) is applicable to this CenturyLink service type.

AWS Direct Connect enables you to directly interface your on-premises network with a device at an AWS Direct Connect location. The following procedures demonstrate the common scenarios to get set up with an AWS Direct Connect connection. You can also refer to the article [How do I provision an AWS Direct Connect connection?](#) in the Knowledge Center.



You can set up an AWS Direct Connect connection in one of the following ways.

Scenario	Method
Present at AWS Direct Connect Location	Connect directly to an AWS device from your router at an AWS Direct Connect location using 1Gbps or 10Gbps connection.
Connect from your premises	Work with a partner in the AWS Partner Network (APN) or a network provider that will help you connect a router from your data center, office, or colocation environment to an AWS Direct Connect location. The network provider does not have to be a member of the APN to connect you.
Connection via AWS Direct Connect Partner	Work with a partner in the AWS Partner Network (APN) who will create a hosted connection for you. Sign up for AWS, and then follow the instructions to accept your hosted connection .

3) Topology - Dedicated Cloud Connect for AWS Direct Connect



- All VLAN tagging, IP addressing, and BGP configurations are the sole responsibility of the customer as CenturyLink does not participate at layer 3 routing with this service type.
- Any NAT configuration that is required due to the use of any AWS Public Services will be the responsibility of the customer.

Private VPC(s) 
AWS Public Services 

4) Roles and Responsibilities

Roles and Responsibilities

STEPS REQUIRED TO SET UP AWS DIRECT CONNECT CONNECTIVITY	END CUSTOMER	CENTURYLINK	AWS
SET UP CONNECTIVITY TO AWS DIRECT CONNECT LOCATION			
Order CenturyLink Dedicated Cloud Connect service(s) to AWS Direct Connect	X		
Provide LOA/CFA to CenturyLink Account Team	X		
Create Virtual Circuit to AWS		X	
Monitor Virtual Circuit to AWS		X	
SET UP BGP PEERING BETWEEN CENTURYLINK PROVIDED CUSTOMER EDGE AND AWS EDGE DEVICE			
Configure BGP Peering on Customer Layer 3 Device facing AWS	X		
Configure BGP Peering on AWS side via Portal facing Customer	X		
LINK SERVICES ON AWS TO THE DEDICATED CIRCUIT			
Create & link Virtual Interface, Virtual Private Gateway, VPC, Direct Connect Gateway etc.. As applicable via AWS Console	X		

5) Customer requests CenturyLink Cloud Connect service

- To order CenturyLink Cloud Connect to AWS Direct Connect, contact your CenturyLink Account Representative
- Information needed by CenturyLink to complete the connection:
 - Determine the amount of bandwidth needed to each Direct Connect location
 - Which AWS Region and/or Direct Connect location do you require connectivity to
 - Do you require any network protection or diversity with this service
 - What contractual term length is desired (1yr, 3yr, 5yr etc...)
 - Confirm you will be providing LOA/CFA to CenturyLink for connection at the Direct Connect location.

6) Creating the Direct Connect and Generating LOA/CFA

https://docs.aws.amazon.com/directconnect/latest/UserGuide/getting_started.html

For Dedicated Cloud Connect to AWS Direct Connect service, you will need to obtain LOA/CFA from AWS via your AWS user console. To do this you first need to create an AWS Direct Connect, then select the appropriate Direct Connect Location, which will then generate an LOA/CFA.

Once you obtain the LOA/CFA document, please provide it to your CenturyLink account team immediately. This is required for the CenturyLink account team to submit your order for services to be provisioned.

Before you create the Direct Connect via the AWS user console, please ensure you have the following information:

- The port speed that you require. You cannot change the port speed after you've created the connection request. This port speed will match that of the CenturyLink Cloud Connect port speed (either 1Gb or 10Gb).
- The AWS Direct Connect location at which the connection is to be terminated.
If you are not sure what these are, please consult with your CenturyLink Sales Engineer

To complete the above steps, please see instructions from the AWS website continued on the next 2 pages.

7) Creating the AWS Direct Connect from the AWS User Console

https://docs.aws.amazon.com/directconnect/latest/UserGuide/getting_started.html

To create a new AWS Direct Connect connection

1. Open the AWS Direct Connect console at <https://console.aws.amazon.com/directconnect/>.
2. In the navigation bar, select the Region for the connection.
3. On the **Welcome to AWS Direct Connect** screen, choose **Get Started with Direct Connect**.
4. In the **Create a Connection** dialog box, do the following:
 - a. For **Connection Name**, type a name for the connection.
 - b. For **LAG Association**, specify whether the connection is standalone, or if it should be associated with a link aggregation group (LAG) in your account. This option is only available if you have a LAG in your account. To associate the connection with a LAG, select the LAG ID. The connection is created with the same port speed and location as specified in the LAG. For more information, see [Link Aggregation Groups](#).
 - c. For **Location**, select the appropriate AWS Direct Connect location.
 - d. If applicable, for **Sub Location**, choose the floor closest to you or your network provider. This option is only available if the location has meet-me rooms (MMRs) in multiple floors of the building.
 - e. Select the appropriate port speed, and then choose **Create**.

Only if applicable

It can take up to 72 hours for AWS to review your request and provision a port for your connection. During this time, you may receive an email with a request for more information about your use case or the specified location. The email is sent to the email address that you used when you signed up for AWS. You must respond within 7 days or the connection is deleted.

8) Obtaining LOA/CFA from the AWS User Console

https://docs.aws.amazon.com/directconnect/latest/UserGuide/getting_started.html

After you request a connection, AWS makes a Letter of Authorization and Connecting Facility Assignment (LOA-CFA) available to you to download, or emails you with a request for more information. The LOA-CFA is the authorization to connect to AWS, and is required by the colocation provider or your network provider to establish the cross-network connection (cross-connect).

To download the LOA-CFA

1. Open the AWS Direct Connect console at <https://console.aws.amazon.com/directconnect/>.
2. In the navigation pane, choose **Connections**.
3. Select the connection and choose **Actions, Download LOA-CFA**.

Note

If the link is not enabled, the LOA-CFA is not yet available for you to download. Check your email for a request for more information. If it's still unavailable, or you haven't received an email after 72 hours, contact [AWS Support](#).

4. Optionally type the name of your provider to have it to appear with your company name as the requester in the LOA-CFA. Choose **Download**. The LOA-CFA is downloaded to your computer as a PDF file.
5. After you've downloaded the LOA-CFA, do one of the following:
 - If you're working with an APN member or network provider, send them the LOA-CFA so that they can order a cross-connect for you at the AWS Direct Connect location. If they cannot order the cross-connect for you, you can **contact the colocation provider** directly.

AWS Direct Connect locations that are listed as multiple sites (for example, Equinix DC1-DC6 & DC10-DC11) are set up as a campus. If your or your network provider's equipment is located in any of these sites, you can request a cross connect to your assigned port even if it resides in a different campus building.

Important

A campus is treated as a single AWS Direct Connect location. To achieve high availability, configure connections to different AWS Direct Connect locations.

IMPORTANT:

Once you have the LOA/CFA, please email it to your CenturyLink Account Team as your order cannot be placed until this is received



9) CenturyLink and Customer Provisions Cloud Connect to AWS

- Upon network order submission, CenturyLink will provision a Layer 1 Wavelength ethernet connection to the requested interconnect point
- Upon provisioning completion by CenturyLink, you will receive the appropriate information from the CenturyLink provisioning team regarding order completion, activation scheduling, etc.. As applicable to your order.
- Customer will complete the end to end configuration for layer 2 VLAN Tagging and Layer 3 IP routing – including BGP configuration on the customers layer 3 equipment at customer premise, and within the AWS environment via the AWS user console.

NOTE: CenturyLink is providing a layer 1 service only and will not be participating in any VLAN Tagging, IP addressing, or BGP peering. All required VLAN's, IP addressing, and BGP routing must be configured by the customer on their layer 3 device at their premise location and also within the AWS cloud environment via their AWS user console. Customer will also be responsible for any/all NAT configurations required for AWS public services.

10) Additional AWS Direct Connect Resources

Overview	https://aws.amazon.com/directconnect/
Details	http://docs.aws.amazon.com/directconnect/latest/UserGuide/Welcome.html
VPC Endpoints	http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/vpc-endpoints.html
Pricing	https://aws.amazon.com/directconnect/pricing/ <ul style="list-style-type: none">• There are different price rates for traffic to the local AWS region and remote AWS regions
FAQ	https://aws.amazon.com/directconnect/faqs/
Getting Started	https://docs.aws.amazon.com/directconnect/latest/UserGuide/getting_started.html
AWS Direct Connect Limits	https://docs.aws.amazon.com/directconnect/latest/UserGuide/Welcome.html#directconnect_limits
Notes	<ul style="list-style-type: none">• A single CenturyLink Dedicated Wavelength Cloud Connect service will support connectivity to a the customers cloud environment within AWS. You will be responsible for all VLAN, IP, and BGP configurations from end to end to connect to the appropriate VPC's and Public Services within AWS.