



CenturyLink[®] Content Delivery Network (CDN)

Customer Handbook | November 2019

Table of contents

- Welcome 3
- CenturyLink CDN services overview..... 4
- Account management 5
- Your key contacts..... 6
- Order management 7
- Service activation 8
- Billing 9
- CDN Support Center 10
- Network monitoring 11
- Network maintenance and notification 14
- Media portal 15
- Glossary of terms and acronyms 16

Welcome

Thank you for selecting CenturyLink as your content delivery network (CDN) provider.

As a trusted provider of CDN services, CenturyLink is dedicated to making your experience with us positive in every regard. From sales to service activation and CDN operations, we strive to deliver uncompromising service.

Part of our commitment to you is to anticipate your needs and efficiently provide straightforward, thorough answers to your questions. To help meet that commitment, we developed this customer handbook to guide you through our support structure—no matter what solution set we are delivering.

Today, CenturyLink connects more people in more countries than ever before with next-generation voice, data, video and managed solutions over a seamless, global IP network. We are focused on continuously optimizing our processes, network and systems. This handbook is a reference to the people and processes you can rely on—from sales account teams to customer care, implementation, service management, billing and portals.

This customer handbook offers a quick-reference guide to:

- Account management
- Order management
- Service activation
- Billing
- CDN support
- Media portal

As always, we welcome your feedback. If you have questions or suggestions related to this handbook, please email us at CDNSupport@centuryLink.com.

We appreciate your business,

Your CenturyLink Team



CenturyLink CDN services overview

CenturyLink is changing the business of content delivery by combining the advantages of an industry-leading Internet backbone with a sophisticated and proven content delivery network (CDN) platform.

This combination allows CenturyLink to connect you with the benefits of our high-performance, highly scalable service—and deliver those services in a simplified, cost-effective manner. Our full suite of CDN service offerings also allows you the flexibility to move between our network services as your content delivery requirements evolve.

Business solutions

- **Built for success**—CenturyLink CDN services enable customers to succeed online by leveraging the optimal blend of price, features, quality and ease of use—plus the scalability to support rapid and dramatic online delivery.
- **Built for your needs**—We recognize that each customer has specific objectives. Our CDN services can help you take advantage of our network scalability, global footprint and superior customer service. We combine our CDN services to develop content delivery solutions and configure a host of features to support your unique business objectives.
- **Streamlined delivery**—The CenturyLink CDN services offer a simplified way to deliver content with end-to-end support, all on the CenturyLink network.
- **Premium performance**—CenturyLink is committed to helping you deliver your content assets to your end users with speed and efficiency, to ensure an exceptional experience for your end users.

CenturyLink can help you deliver:

- Video downloads
- Streaming videos (both on-demand and live)
- Online games
- Software downloads and patches
- User-generated content (UGC)
- Music and audio downloads
- Websites

Account management

As a new customer, you can access knowledgeable resources for support across every step of service setup and delivery.

Account director

Your account director (AD) provides information about CenturyLink services and serves as your overall point of contact. Responsible for gathering and confirming the specifications and requirements necessary to submit an order, your account director works with you to execute all quotes and orders for new and additional CenturyLink services, and assists you through the credit application process.

Sales engineer

Your sales engineer (SE) works with you to identify technical options and define requirements for your services. The sales engineer is responsible for understanding your existing network, key locations and potential needs. This source for technical information works to help tailor network solutions to meet your specific needs, and manages the engineering portion of your service quote as well as the inventory and capacity process for your orders.

Customer care manager

Your customer care manager (CCM) proactively manages your service needs to ensure the highest levels of customer satisfaction and serves as the conduit and escalation point for issues in the areas of order entry, order validation, service activation, disconnects and billing activities.

Activation engineer

Your activation engineer will contact you regarding the technical details of the service upon handover. Your activation engineer works to ensure that service activation meets the technical specifications of your order, addresses any issues with testing and turn-up, and handles technical account management.

CDN support technician

Your CDN support technician is your single point of contact for post-installation support, and handles service changes, account inquiries and service impairments. Behind the scenes, your CDN support technician monitors the CenturyLink Media portal queue for tickets pertaining to customer services and routes tickets to the appropriate internal and external support agents until your issue is resolved.

Billing coordinator

Your billing coordinator (BC) is your single point of contact for requests pertaining to billing inquiries, disputes, credits, balance and payment information. Your billing coordinator can provide you with an overview of the billing capabilities in the Media portal, and coordinate more advanced training as needed. Your billing coordinator will collaborate with other CenturyLink resources as needed.

Your key contacts

Issue	Contact group	Contact Information	Targeted interval	Hours of operation
Service activation	Sales engineer	Direct email and phone number for assigned SE	3 business days from customer signature	8:00 am–5:00 pm MT, M–F
Service changes	CDN Support	CDNSupport@CenturyLink.com 877-612-9015 720-888-0080	4 hours	24/7
Service impairments (trouble ticket)	CDN Support	CDNSupport@CenturyLink.com 877-612-9015 720-888-0080	15-minute response time 6-hour resolution time	24/7
Media portal issues (trouble ticket)	CDN Support	CDNSupport@CenturyLink.com 877-612-9015 720-888-0080	24 hours	24/7
Billing issues	Billing	Access account information on the Media portal, or call 877-2538353, option 2	Resolution by start of next billing cycle	8:00 am–8:00 pm ET, M–F

Order management

Accurate and timely order submission

Our goal is to meet your due dates and ensure your services are turned up on time. Your account director works with you to confirm we have what we need to complete your order. Once we gather your requirements, your account director will provide you with the necessary signature documents that authorize us to proceed with service installation.

Order types

Various order types may be used during your service activation process:

- **New service orders**—required for the installation of a new service on our network.
- **Service order change or reconfiguration**—a change to your service after it has been installed, including a decrement of service or partial disconnect.
- **Service transfer order**—moves a service from one account to another; used, for example, when a company acquires another company and needs to transfer an order under an existing or new billing account.
- **Renewal**—continues your service when your existing MSA expires.
- **Disconnect**—termination of an active service.

Key service identifiers

You may need the key service identifiers listed below to manage your services. Please contact your account director or sales engineer with any questions.

Service ID	Example	Applies to	Used for	Where you find it
Property	cdn.example.com	Caching and download	CDN support reference Media portal	Activation email Media portal
Ingest/Hostname	world.ingest.cdn.level3.net	Origin Storage	CDN support reference Media portal	Activation email Media portal
PIID (Product Instance Identifier) Service ID	ABCD1234	All services	Billing	Invoice activation email Media portal
SCID (Service Component Identifier) Supporting ID	ABCD12345	All services	Billing	Invoice activation email Media portal

Trialing CDN services

To trial any of the CDN services, please contact your account director. Your trial experience will follow the same processes outlined in this document, through service activation and CDN support, so you experience the end-to-end operational touchpoints. This includes access to the Media portal for online management of your services.

Service activation

Once your service is activated, you will receive a service connection notice containing the technical details and support information for your service.

This email includes:

- Key service identifiers (outlined above)
- Configuration technical details
- Log file details (if applicable)
- CDN Support contact information

Billing

Invoicing

CenturyLink provides you with a monthly invoice for all installed services, with the details you need to verify charges. Depending on your services, your charges may include:

- **Monthly recurring charges (MRC)**—billed in advance
- **Non-recurring charges (NRC)**—may be billed in advance or in arrears
- **Usage charges, if applicable**—charged one month in arrears.

Billing cycles and delivery

Your CenturyLink invoice is delivered to you monthly. If you have a US billing address, invoices are mailed in paper or electronic format. If you have a non-US billing address, invoices are first emailed to a central depository in London, then printed and distributed from there.

If your bill only includes a partial month, it is prorated based on a calendar month. All undisputed invoices are due in accordance with your master service agreement (MSA). You have the option of sending electronic payments to CenturyLink via electronic funds transfer (EFT). Please contact your account director about using EFT.

Questions about your invoice

Please submit all billing inquiries or disputes via the MyLevel3 customer portal. You can create a new billing request in the Billing section. You can initiate, track, update, and cancel any requests, communicate with your billing analyst via the Notes feature, and see a comprehensive set of comments on all of your requests. For further details, please review the Billing Request help topic in the MyLevel3 customer portal user help documentation (click the (?) help icon at the top left of every customer portal page). You may also reach out to your AD for assistance accessing the customer portal.

Non-payment

Payment is governed by the terms and conditions of your MSA. Failure to make a payment when due may subject your service to interruption and result in termination of your service agreement.

Early termination

If you choose to disconnect service prior to the end of your service term, early termination charges may apply. For services nearing the agreed-upon termination date, the disconnect request must be received 30 calendar days prior to the contract termination date. Otherwise, your service may continue to be provided by CenturyLink on a month-to-month basis or as otherwise set forth in your MSA. If the cessation date is the same as your service term end date, no termination fees will apply.

CDN Support Center

CenturyLink is dedicated to providing you with ongoing support. We embrace a strong operational philosophy that is customer focused and highly responsive. Strict performance metrics drive our internal organizations to deliver quality service to you on a consistent basis. In the event an issue arises with your service, CenturyLink will work to rapidly respond to your inquiries and resolve any problems.

CDN support locations and schedule

The CenturyLink CDN support centers operate 24/7 in the following redundant operating locations:

- Broomfield, CO
- Tulsa, OK
- Dublin, IE
- London, UK

Multi-language support is available upon request.

CDN support technician

Once your CenturyLink service has been installed, a CDN support technician will be your single point of contact for service-related issues. The CDN support technician is trained to quickly address technical issues related to your service. The primary objective of a CDN support technician is to provide start-to-finish accountability for network service performance and to drive the resolution of issues based on the first call.

You can reach a CDN support technician at any time. Please refer to Your key contacts, in the Order Management section, for a complete list of contact information.

The CDN support technician will create a ticket with a reference number for tracking. Your technician will initiate a number of tests and processes to determine a fault and fix agent. The technician will either solve the problem or collaborate with internal or external fix agents until a resolution is established.

Customer reported service impairment

If you experience trouble with your CenturyLink service, we will work to resolve your issue in the shortest time possible. To facilitate troubleshooting, please be prepared to provide the following required information:

- CenturyLink Service Identifier (provided upon installation)—see the key service identifiers table in the Order Management section.
- Description of the problem and alarm information
- Time the problem first occurred
- Contact information: name, email address, telephone number(s) and alternate or after-hours contacts

Network monitoring

The CenturyLink CDN network operations center (NOC) is responsible for all facilities and network management, monitoring and repair. The organization staffs highly trained operations managers and network technicians at regional monitoring centers located in Broomfield, CO and Tulsa, OK. These centers enable geographically diverse, 24/7 network management.

CenturyLink has uniformly implemented operational processes across all CenturyLink Gateway Data Centers globally. By maintaining this consistency, we enhance effectiveness and efficiency—resulting in swift fault isolation and repair.



CenturyLink NOC in Broomfield, CO

The CDN NOC performs regular network connectivity performance reviews. If a problem is detected, the group follows documented procedures to restore service. The CDN NOC is responsible for performing the following repair-related functions:

- Proactively monitoring, managing and controlling the network
- Managing recovery and repair processes across internal and external organizations
- Acting as an escalation resource for the CDN support technicians and giving status to CDN Support for all service issues; CDN Support, in turn, informs customers of problem resolution status and an estimated completion time.

Severities matrix

Severity value	Definition	Examples
Urgent	Reserved for network-wide impact to multiple customers	<ul style="list-style-type: none"> • Origin storage network outage causing substantial geographic impact • System failure
High	Issue indicating large geographic impact to serving content for a single customer or exposure to invalid content serving	<ul style="list-style-type: none"> • Critically high reject rate (5XX status codes) • Severe performance reported from monitoring tools across multiple geographies • Authentication errors allowing unauthorized access • Token set up incorrectly or not operating as expected • Geo-blocking set up incorrectly or not operating as expected • Content rights issues • Content served is incorrect (stale content) • Unable to publish to live streaming ingest
Medium	Significant performance issue, possibly regionally isolated or inhibiting proper content serving	<ul style="list-style-type: none"> • Significant performance problems across isolated geographies (single city or market) • Higher than expected reject rate • Invalidation issues, unable to invalidate • Portal issues related to service add or change requests • Impact to streaming playback • Unable to upload new content to CenturyLink origin storage
Low	Isolated performance issue, non-content serving related issue	<ul style="list-style-type: none"> • Logging issues • Localization issues, poor routing • Non-critical Media portal issues • Client has small number of users experiencing performance issues • One client cannot access streaming video

CDN support escalations

Escalations happen when progress is not being made. You have the option to escalate to any level in the CenturyLink organization at any time.

Here's who to contact:

Escalation level	Contacts
First level	Name: CDN Support Title: Support technician Phone: 877-612-9015 or 720-888-0080 Email: CDNSupport@CenturyLink.com
Second level	Name: Chris Smith Title: Sr. manager, CDN Service Management Phone: 720-888-7436 Email: Chris.Smith@CenturyLink.com
Third level	Name: Rick Gibson Title: Director, CDN Operations Phone: 720-888-7085 Email: Rick.Gibson@CenturyLink.com

Network maintenance and notification

There are two different types of network maintenance: scheduled and unscheduled. To ensure top performance and grow the network, CenturyLink performs scheduled network maintenance. Unscheduled maintenance happens, but we are ready.

Scheduled maintenance

We plan scheduled network maintenance with as much advanced notice to you as possible. Our standardized methods and procedures ensure efficient and prompt handling of all changes, to minimize the adverse impact of change-related incidents on service quality.

CenturyLink sends email notifications about scheduled maintenance events that address:

- Description of the work
- Date and time (GMT) of the scheduled maintenance
- Expected impact to the listed services
- Location of the maintenance
- Contact information for questions or concerns

Call support

877-612-9015 or 720-888-0080

Email support

CDNSupport@CenturyLink.com

Media portal

The CenturyLink Media portal gives you secure and private access to your network and billing data. You can view and download invoices, generate service order requests, run network traffic and performance reports, open trouble tickets, and more:

- **Reporting**—historical usage reporting and real-time traffic statistics for caching, streaming, and storage; network performance data
- **Managing CDN services**—add new service on the Services Dashboard; invalidate content for specific assets; test and troubleshoot Flash streams
- **Invoicing**—electronic copies of the current and recent invoices
- **Ticketing**—submit trouble tickets

Take advantage of convenient customer self-service for delegated access management, and selfprovisioning for additional properties.

You will receive your log-in credentials upon completion of the first CDN service that you order from CenturyLink.

We designate one user—typically the customer’s technical contact—as the first delegated administrator for your Media portal accounts. Use this administrator account to create additional user accounts and assign permissions for those users.

Online help is right there for on-the-spot assistance. The Media portal Help also includes CDN service descriptions to help you understand how to make the most of CenturyLink CDN services.

Log in to the Media portal at: <https://mediaportal.level3.com>.

Glossary of terms and acronyms

AD	Account director	Your point of contact for all your sales-related issues.
CCD	Customer commit date	The date that CenturyLink expects to deliver service to you.
CDN	Content delivery network	A network of distributed servers facilitating content delivery services.
CCM	Customer care manager	Manages order entry and service implementation.
EFT	Electronic funds transfer	A CenturyLink form that must be completed to make your payments electronically.
GMT	Greenwich mean time	The time zone assigned to network event notifications.
ICB	Individual-case basis	A determination upon analysis of your specific type of service and requirements.
MSA	Master service agreement	A contract that documents the terms and conditions applicable to your services.
MTTR	Mean time to repair	A standard measurement for service restoration.
MRC	Monthly recurring charges	Charges that are billed every month on your account.
NOC	Network operations center	The CenturyLink CDN NOC is responsible for all CenturyLink facilities and network management, monitoring, and repair 24/7.
NRC	Non-recurring charges	A one-time charge on your account (i.e., activation fee).
NSA	Non-service affecting	Any scheduled maintenance activity that will not impact your service.
SE	Sales engineer	Your point of contact for technical service information and network design issues.
SA	Service affecting	Any scheduled maintenance activity that will directly impact your service.