NETFLIX

Netflix Open Connect Appliance Operating Level Agreement

November 2016

This Operating Level Agreement (OLA) summarizes our processes and procedures for maintenance and outage communications, and Open Connect Appliance (OCA) Return Material Authorizations (RMA). It also serves as a reference for the Netflix Network Operations Center (Netflix NOC) and Netflix Partner Operations, to support the goal of ensuring maximum service availability and quality of experience for our joint customers.

What this Agreement Covers

Unplanned Outage or Service-Impacting Events
Potential Service-impacting Maintenance
ISP Partner Maintenance Tips
OCA RMA Guidelines
OCA Fill Requirements
Health Monitoring
Netflix contact information

The Netflix NOC is available 24x7x365, and is the point of contact for Netflix on all OCA issues requiring repair, support, maintenance, or escalation. See the contact information below.

What this Agreement Does Not Cover

This agreement does not cover non-operational requests and inquiries. For questions around legal agreements, traffic forecasts, OCA expansion or network architecture, please contact your Netflix Open Connect Partner Engagement Manager (PEM).

Unplanned Outage or Service-Impacting Events

For service-wide outages with broad impact to the service of multiple OCA partners, partners might receive an initial notification, status updates on a regular basis if the outage is prolonged, and a final resolution notification. If you want to filter these announcements, the sender address is: cdn-noc@mailer.netflix.com.

For per-ISP partner incidents, including routing and connectivity anomalies that persist over a significant period of time, the Netflix operations team will be alerted by our internal monitoring tools. We will resolve any issues under our control as soon as reasonably possible. Depending on the severity and impact to traffic, we might ask select ISP partners for additional comments on the incident.

Potential Service-impacting Maintenance

Whenever possible, for any planned maintenance or activity that might adversely impact an OCA or the services that it provides, Netflix will communicate according to the following schedule:

1. Netflix will send a "Scheduled Maintenance" email notification to the partner NOC contact e-mail address in our system two (2) business days prior to the activity.
2. Netflix will send a "Confirm Maintenance" email two hours (02:00) before the start of the planned maintenance activity, to confirm that the maintenance will be performed as expected.
3. Netflix will send a "Maintenance Completed" email when the maintenance activity is completed, to signal the return to a normal operational state.

For emergency service activities that do not permit our standard advance period, we will notify as early as possible.

During scheduled and emergency Netflix maintenance windows, ISP partners might see their BGP session flap, notice a link-state change with their cache-connected interfaces, and see traffic served from the appliance decrease or go to zero. All of these events are expected.

Under normal conditions, software updates that are not service-impacting will occur during the fill window at a time of low traffic, thereby minimizing potential user impact.

ISP Partner Maintenance Tips

For ISP partners who are engaging in maintenance that might impact Netflix OCA availability, please observe the following guidelines:

• Plan your maintenance or downtime to occur during the cache fill window in order to minimize service disruption to our shared subscribers.

• Plan to drain appliances of traffic **2 to 3 hours in advance** of the maintenance. This will serve to direct any new Netflix viewing activity to an alternate source, and sessions that are currently associated with the appliance should finish by the start of the maintenance period. You can disable and drain appliances from the Open Connect Partner Portal following these instructions: https://openconnect.netflix.com/portal-drain/

• After completion of maintenance, please ensure that the OCAs are re-enabled to serve traffic. This will redirect new session starts away from the alternate sources.

OCA RMA Guidelines

OCAs are designed for resiliency, including the ability to have multiple hard drives fail without a noticeable impact on delivery. At times, however, hardware performance might degrade to a point where replacement of the entire OCA or a very limited set of components is necessary to maintain the ability to offload traffic in a meaningful manner.

In general, all RMA requests are initiated by the Netflix NOC team, who will reach out to ISP partners via email and request for them to fill out a short online form to start the RMA process.

Our standard process is to ship a replacement pre-loaded OCA within three business days. The partner returns the impacted hardware in the same shipping box, and Netflix pays shipping both ways, at no shipping cost to the partner. In some instances, we might need additional time in order to fully pre-load content for specific geographic regions. The total time until shipment from our US facility is likely to be 10 US business days at most, however customs clearance can vary according to region and country and might delay final receipt.

The only OCA components that Netflix will request partners to replace in the field are:

- Power supplies
- SFP+ optics

These components will be shipped to you in case of failure. Netflix will not request any ISP partner to install or replace any internal OCA hardware components such as memory, hard drives, or fans. Note that OCAs are designed to operate in data center environments with high-capacity fans that are required to cool the dense disk and memory installed. You might notice loud fan noise from OCAs, which is normal.

OCA Fill Requirements

For OCA fill requirements, including timing and bandwidth requirements, please review the OCA Deployment Guide at https://openconnect.netflix.com/deployment-guide/.

Health Monitoring

As part of the Open Connect program, Netflix continuously monitors all deployed Netflix OCAs, including all aspects of the performance and availability of the appliance.

In addition, you can monitor the basic health of the OCAs that are deployed on your network by using the Netflix Partner Portal at https://my.oc.netflix.com. You will be invited to create an account in the Partner Portal as part of the OCA installation and turn-up process.

Netflix contact information

For most non-urgent requests or questions, open a ticket via the Partner Portal following these instructions: https://openconnect.netflix.com/portal-ticket/

For emergencies or as an alternative, use this contact information:

Netflix Network Operations Center (NOC) - **For emergency support needs**
Phone: +1 408 724 9100
E-mail: cdn-noc@netflix.com
Availability: 7x24x365

Netflix Open Connect Operations (non-emergency support requests or questions)
E-mail: cdn-ops@netflix.com
Availability: M-F 9AM – 5PM Pacific Time