

NORTHLAND COMMUNICATIONS

BROADBAND INTERNET SERVICES

NETWORK MANAGEMENT POLICY

Northland is dedicated to providing high-quality Internet access services consistent with FCC regulations¹. Northland's Broadband Internet Services Network Management Policy ("Policy") provides information about Northland Communications' high-speed Internet services. This Policy covers Northland's mass-market, non-negotiated, retail broadband Internet access services sold on a standardized and undifferentiated basis to residential, business and other end-user customers, such as schools and libraries (collectively, the "Internet Services"). We welcome questions or comments about this information. You may contact us at:

Northland Communications
101 Stewart Street, Suite 700
Seattle, Washington 98101
Telephone: (206) 621-1351

NETWORK PRACTICES

1. **General Description.** We provide Internet Services to our residential and business customers over our broadband network and through third party facilities. We also contract with one or more companies for certain network monitoring and management services. We monitor our network and traffic patterns and make changes we deem necessary to manage and improve overall network performance. We use reasonable, nondiscriminatory, network management practices to improve overall network performance to ensure a high-quality online experience for all users. Our network management practices do not target any specific content, application, service or device. As network management issues arise and as technology develops, we may employ additional or new network management practices. We reserve the right to change our network management practices at any time and will update these disclosures as necessary.

2. **Related Documents and Disclosures.** Use of our Internet Services is also governed and described by:

- Northland Communications Terms and Conditions of Services, available [here](#).
- Northland Communications Terms and Conditions of Business Class Services, available [here](#).

3. **Congestion Management.** We describe in this section network management practices used to address congestion on our network.

A. Congestion Management Practices Used:

1. **Network monitoring:** We monitor our network for utilization trends. We receive regular reports showing changes in network traffic and congestion. We use this information to plan increases in bandwidth available, port additions, or additional connectivity to the Internet.

¹ 47 CFR 8.3 and *In re: Preserving the Open Internet, Broadband Industry Practices, Report and Order*, 22 FCC Rcd 17905 (2010).

2. Types of traffic affected: Our congestion management practices do not target any specific content, application, service or device.
3. Purposes of congestion management practices: Our Internet network is a shared network. This means that our customers share upstream and downstream bandwidth. The goal of our congestion management practices is to enable better network availability and speeds for all users. Our congestion management practices serve to help us:
 - adapt and upgrade our network to maintain or improve network performance as demand for our Internet Services increases;
 - adapt and upgrade our network to maintain or improve network performance as use of higher bandwidth applications increases. Some examples of higher bandwidth applications are gaming, streaming movies, and streaming high definition video; and
 - identify potential bandwidth abusers.

B. Congestion Management Criteria:

1. Network monitoring: Our network monitoring activities provide data to help us plan upgrades to our network, equipment, technology and connectivity to the Internet. As demand for our Internet Services and use of higher bandwidth applications increase, we monitor effects on network performance and plan upgrades as we deem necessary. We have not established specific criteria to govern our upgrade decisions.
2. Effects on end-user experience: Because our Internet network is a shared network, periods of high network demand may result in Internet traffic congestion. End users may experience reduced bandwidth or speed during these times.
3. Typical frequency of congestion: Congestion tends to occur during periods of peak use of higher bandwidth applications. Generally, congestion tends to increase between the hours of 6 p.m. – 1 a.m.

C. Application-Specific Practices. This section discloses application-specific practices we use, if any.

1. Management of specific protocols or protocol ports: To protect the security of our network and our customers, we block known hostile ports.
2. Modification of protocol fields: None.

D. Applications or Classes of Applications Inhibited or Favored: None.

4. Device Attachment Rules: This section addresses any limitations on attaching lawful devices to our network.

1. General restrictions on types of devices to connect to network: Our Internet Services work with most types of PCs and laptops including Macs and other Internet-compatible devices like game systems and Internet enabled TVs. If a wireless router is connected to our

Internet Services, wireless Internet-compatible devices including computers, tablets, smartphones and other devices can connect to our network. If a customer or potential customer believes they have an unusual configuration, our customer service department will help determine if there is a compatibility issue. We place no general restrictions on lawful devices that a customer may connect our network, so long as the device is: (i) compatible with our network; and (ii) does not harm our network or other users.

2. **Cable modems:** Internet Services provided through a wired connection to our network requires connecting a cable modem to our network. You can obtain a cable modem from us or you may purchase one from most retail electronics sellers. Only devices that have been certified by CableLabs as compliant with the DOCSIS 1.0, 1.1, 2.0 or 3.0 specifications may be used. If you have questions concerning modem compatibility, please contact us.

5. **Network and End User Security.** This section provides a general description of the practices we use to maintain security of our network.

A. Practices Used to Ensure End User Security, including Triggering Conditions:

1. **Hostile port blocking:** We block known hostile ports to prevent unwanted files, browser hacking and virus attacks.
2. **Virus and Spam filtering:** We filter email for virus activity and Spam using industry standard virus scanning and prevention techniques. Should an e-mail message be found to contain a virus or other harmful content, the message will be deleted without notification given to either the sender or the intended recipient(s).

PERFORMANCE CHARACTERISTICS

1. **General Internet Services Description.** Through our Internet Services, we serve as a local Internet service provider. Our Internet Services enable residential and business subscribers to access all lawful content, applications, and services of their choice available on the Internet. We provide our Internet Services over our hybrid fiber-coaxial network using the Data Over Cable Service Interface Specification (DOCSIS). Customers access our network using cable modems. This is a shared network, which means that our customers share upstream and downstream bandwidth.

2. **Expected and Actual Speeds and Latency.**

A. Expected Performance: We offer customers a variety of levels of Internet Services. We provide a description of the maximum transfer speeds associated with each service level on our website at <http://www.yournorthland.com/offers/>.

B. Speed: The speeds we identify for each level of Internet Services are the maximum upload and download speeds that customers are authorized to receive. We provision our customers' modems and engineer our network to deliver the speeds to which our customers subscribe. However, we do not guarantee that a customer will actually achieve those speeds at all times. A variety of factors can affect upload and download speeds, including customer equipment, network equipment, congestion in our network, congestion beyond our network, performance issues with an Internet application, content, or service, and more. [Test your speed here.](#)

C. **Latency:** Latency is another measurement of Internet performance. Latency is the time delay in transmitting or receiving packets on a network. Latency is primarily a function of the distance between two points of transmission, but also can be affected by the quality of the network or networks used in transmission. Latency is typically measured in milliseconds, and generally has no significant impact on typical everyday Internet usage. As latency varies based on any number of factors, most importantly the distance between a customer's computer and the ultimate Internet destination (as well as the number and variety of networks your packets cross), it is not possible to provide customers with a single figure that will define latency as part of a user experience.

D. **Actual Speed and Latency Performance:** Actual speed and latency may vary depending upon network conditions and other factors. Actual performance of our Internet Services in most cases will conform to national wireline broadband Internet speed and latency levels reported by the FCC². The FCC has reported that customers of coaxial cable-based broadband Internet services receive mean download speeds that are within 93% of advertised speeds during non-peak hours, and 85.7% of advertised speeds during peak hours³. In addition, the FCC has reported that these same customers experience average latency delays of 28 milliseconds, increasing by an average of 30 milliseconds during peak hours⁴.

E. **Suitability of the Service for Real-time Applications:** Our Internet Services are suitable for typical real-time applications including messaging, voice applications, video chat applications, gaming, and Internet video. If users or developers have questions about particular real-time applications, please contact us by phone at (206) 621-1351.

3. **Specialized Services.**

A. **Specialized Services Offered to End Users:** We offer specialized and managed services over our network, sharing network capacity with other high speed Internet services. Managed services include VoIP service and dedicated bandwidth to high volume residential and business users.

B. **Effects of Specialized Services on Availability and Performance of Broadband Internet Access Service:** Our specialized services have no effect on the availability and performance of our Internet Services.

COMMERCIAL TERMS

1. **Prices:** Monthly prices for our Turbo Service are available at your local office.

2. **Usage-Based Fees:** \$20 fee for use in excess of 250 GB for certain packages.

² See FCC's Office of Engineering and Technology and Consumer Affairs Bureau, *Measuring Broadband, A Report on Consumer Wireline Broadband Performance in the U.S.*, OET CGB DOC-308828A1, pp. 4-6 (Aug. 2, 2011) (available at: http://transition.fcc.gov/cgb/measuringbroadbandreport/Measuring_U.S._-Main_Report_Full.pdf).

³ The FCC has defined peak hours measured during "busy hour" as weeknights between 7:00 pm and 11:00 pm local time.

⁴ The FCC has defined latency is the total length of time it takes a signal to travel from an origination point to the nearest server, plus the time for an acknowledgement of receipt to travel back to the origination point. The nearest server is the server providing the minimum round trip time.

3. **Fees for Early Termination:** Certain offers for Internet Services may be subject to early termination penalties. Contact your local office for details.
4. **Privacy Policies:** View Northland's Privacy Policy [here](#).
5. **Inspection of Network Traffic:** We routinely monitor network and traffic patterns.
6. **Virus and Spam Filtering:** We may filter email for virus activity and Spam using industry standard virus scanning and prevention techniques. Should an e-mail message be found to contain a virus or other harmful content, the message may be deleted without notification given to either the sender or the intended recipient(s).
7. **Storage of Network Traffic Information:** DHCP (Dynamic Host Configuration Protocol) information is a code included in all network traffic that associates that traffic with a particular cable modem sending or receiving the traffic. We store DHCP information for at least six months.
8. **Provision of Network Traffic Information to Third Parties:** We may disclose network traffic information to third parties: (i) with your consent; (ii) as necessary to provide our Internet Services and to manage our network; (iii) in response to law enforcement requests, court order, or as otherwise required or authorized by law; and (iv) as necessary to protect our rights, property, and operations, and those of any affiliated providers.
9. **Complaints and Questions:** Complaints and questions relating to these disclosures should be directed to the following contact:

Northland Communications
101 Stewart Street, Suite 700
Seattle, Washington 98101
Telephone: (206) 621-1351
Attention: Legal Department