



Bandwidth Utilization

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Announcements

Microsoft recently announced that Lync will be merged with Skype and rebranded as Skype for Business as a result of their purchase of Skype. The first update that begins the transition from Lync to Skype for Business was released

Overview

Network connectivity and bandwidth are essential resources for members of the Rose-Hulman community. The internal campus network encompasses routers and switches that interconnect the campus buildings using a mixture of fiber optic and copper cables. With the distributed nature of the internal network (i.e. individuals connect to the network using wired and wireless interfaces in many campus locations), the internal network generally has sufficient bandwidth for the needs of the campus community, e.g. email, learning management, etc.

However, Rose-Hulman's Internet connection, currently 1000Mb/s, is a single, limited resource that everyone accessing the Internet must share. As such, excessive utilization by a small number of individuals can significantly impact the ability of others to effectively access and use the Internet. The Rose-Hulman network and Internet service are provided to the entire community to support the Rose-Hulman mission, and automated systems are employed to limit disproportionate use of the campus Internet connection. The Institute expects all members of the community to use these resources in a responsible manner, respecting the rights, needs and privacy of other persons utilizing the network.

The bandwidth utilization policy applies to **individuals**, not devices, e.g. desktop and laptop computers, smart phones, tablets, game consoles, etc. This means that the aggregate utilization of all devices registered to an individual will count toward the utilization thresholds specified below. Internet utilization will be monitored on a continuous basis and changes may be made to the thresholds listed below to maintain an effective service level.

Details

- There were a couple of goals when designing this bandwidth utilization policy. They were:
- Minimize the impact for typical use cases, and provide adequate bandwidth for web surfing at the lowest step (see table below).
  - Craft a policy that would encourage network utilization during off-hours, i.e. 2:00am until 6:00am, when network utilization typically drops to its lowest levels.

The three steps, along with the corresponding bandwidth rates, are shown in the table below. The thresholds are measured in a 36-hour sliding window. For example, there are no bandwidth rate limits imposed on an individual until the total amount of data transferred across all registered devices reaches 8 gigabytes. At that time, the individual will have a 1024 kilobit per second (kbps) bandwidth rate limit. When a total of 9 gigabytes of data is transferred, the individual's bandwidth rate limit is set to 256 kbps. Since the amount transferred is measured in a 36-hour sliding window, reducing Internet transfers will allow the bandwidth rate to recover, eventually to the unrestricted rate.

*Note that download and upload transfers are counted separately, and exceeding the thresholds listed below in either direction will result in the stated bandwidth rate.*

Step	Threshold, gigabytes	Bandwidth Rate, kilobits per second (kbps)
1	Usage < 8	Unrestricted

in April. EIT has been testing the release and plans to roll it out to campus in June 2015.

Wireless access has been expanded to several outdoor locations including:

- o Football Stadium;
- o North and west sides of Apartment Res (lakeside hall, apartments hall & sand volleyball shelter areas);
- o North side of Olin (Quad);
- o North side of Mees & Scharpenberg (outdoor area around the triplets);
- o South side of the Student Union (union patio & lake area); and
- o West side of Percopo

*NOTE:* Wireless coverage at the baseball, softball, and intramural fields should be available in the near future.

#### REMINDER: The RHIT

##### Password Manager System

requires an initial login to establish a profile and answer security questions before the service may be used to reset your password. If you have not created your profile, please take time to do so now. Email reminders will be activated on Friday, April 24th. Detailed instructions are available at:

[https://web.rose-hulman.edu/eit/Services/Pages/self-service\\_password\\_manager.aspx](https://web.rose-hulman.edu/eit/Services/Pages/self-service_password_manager.aspx).

... more announcements

2	8 ≥ Usage < 9	1024
3	Usage ≥ 9	256

As mentioned above one of the design goals was to push some of the large downloads into the off-hours, i.e. from 2:00am through 6:00am. Data transfers from the Internet during these hours will only be counted at 25%. For example, a 1 gigabyte download during the off-hours will only count as 250 megabytes against an individual's transfer threshold. Data transferred during the weekend and academic breaks will be counted at 40% of the actual amount.

The weekend **bonus time** begins at 6:00pm on Friday and ends at 6:00am on Monday.

Internet performance will be monitored for average and total utilization, and changes to the thresholds, bandwidth rates, and off-hours adjustment may be made to maintain effective service levels for the Institute.

## Peer-to-Peer Bandwidth Limits

A Peer-to-Peer, or P2P, architecture is based on the concept of distributed and individually managed computers cooperating on an ad hoc basis to share resources like files, computation cycles, or network bandwidth. There is no central authority managing or coordinating the resource sharing. P2P protocols can be a highly efficient and reliable mechanism for resource sharing.

File sharing is a very popular application of the P2P architecture, and there are a number of programs that facilitate this function. This easy access to content and resources on the Internet can saturate, i.e. fully consume, the campus Internet connection. In addition, P2P applications like Bit Torrent, Direct Connect, and eMule make it very easy for an individual to consume a disproportionate amount of bandwidth. Because of this, **traffic classified as Peer-to-Peer is limited to 30 Mbps for the entire campus.**



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#### Connect with Us



#### Information For

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Students  
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Alumni and Friends  
Community  
Members

Industry Partners  
Trustees  
Parents

