Bandwidth Metrics

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Outline

1. Mbps Vs MBs

2. Measuring Bandwidth

3. Tracking Bandwidth Utilisation

Objective

To ensure that we understand our bandwidth and we can track it closely.

# Bandwidth Metrics: Mbps Vs MBs

- Bit – Smallest unit of data that can be stored or transmitted.

- Mbps – Megabits per second – 1 Mbps means 1 million bits can be transferred through the network in one second.

- 1 Gbps = 1000 Mbps.

- 1 Byte = 8 bits;

- MBs refer to Megabytes and are a measure of the amount of data whereas Mbps is a measure of the speed of data transfer.

- Cellular data is based on MBs whereas RENU bandwidth subscription is based on Mbps. i.e Volume vs Speed.

- Some tools use MBps - Megabyte per second = Mbps/8

Measuring Bandwidth - Mbps

- ## Online tools

  - Available to measure bandwidth to the Internet. I.e. Internet speed.

  - Common ones – speedtest.net, fast.com

  - Measurements always show what is instantaneously available.

  - Example; if you subscribe for 5 Mbps and you are downloading a movie at 4 Mbps average, a speed test will show 1 Mbps.

  - Low speeds relative to subscribed bandwidth in the absence of running bandwidth reveal bottlenecks that affect network performance.

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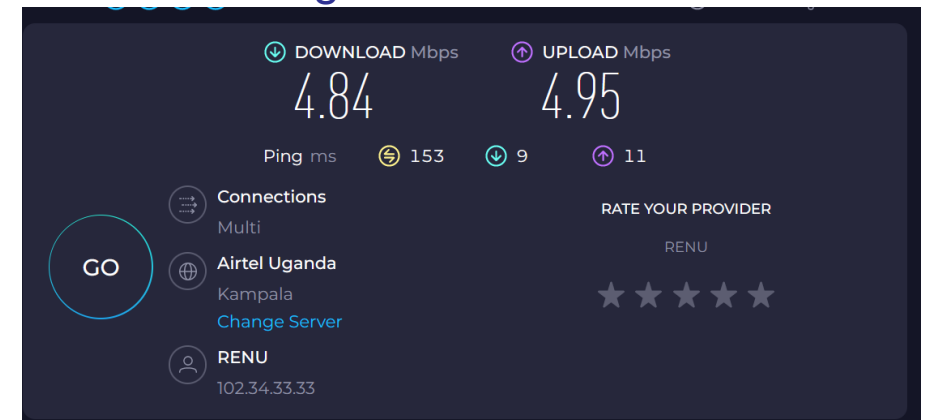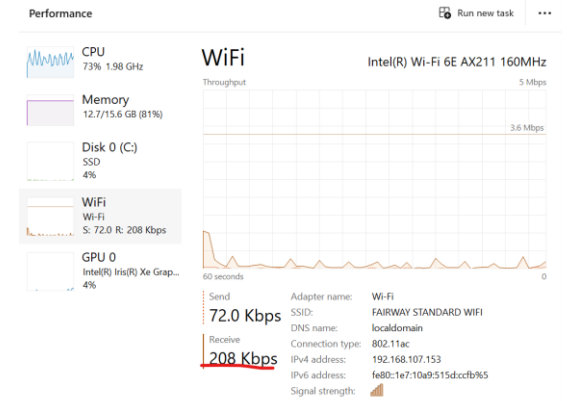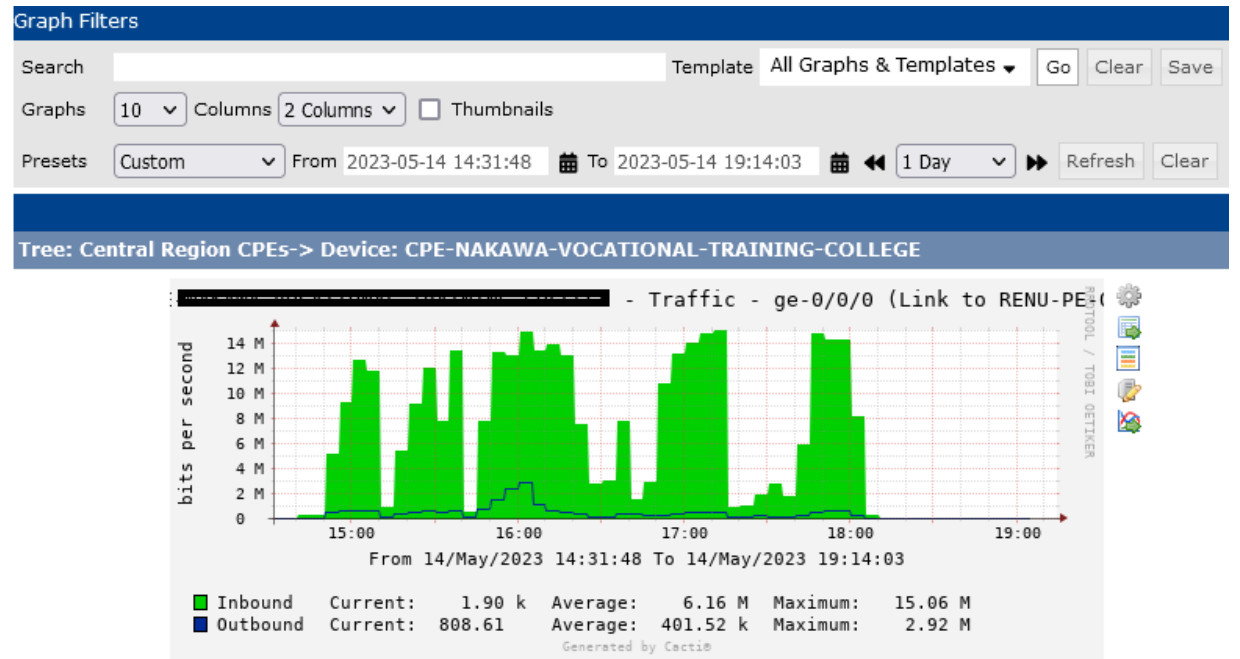
Tracking Bandwidth Utilisation

- RENU uses an open-source tool, Cacti, to track bandwidth utilization.

- Institution receives credentials to access its utilization.

- How often do you monitor your Cacti bandwidth graph?

- Why should you access your bandwidth graph?

    - Plan for your bandwidth efficiently.

    - Troubleshooting slow speeds – rule out maximum utilization of bandwidth.

    - Build a case for bandwidth upgrade needs for your institution

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Tracking Bandwidth Utilisation – Cacti Interpretation
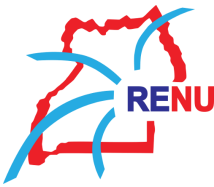
- Cacti graph the speed of traffic going through an interface or port (on CPE for RENU).

- Shows download and upload bandwidth history.

- On CPE graph, interface facing RENU;

  - Inbound = Download

  - Outbound = Upload

- On interface facing school LAN;

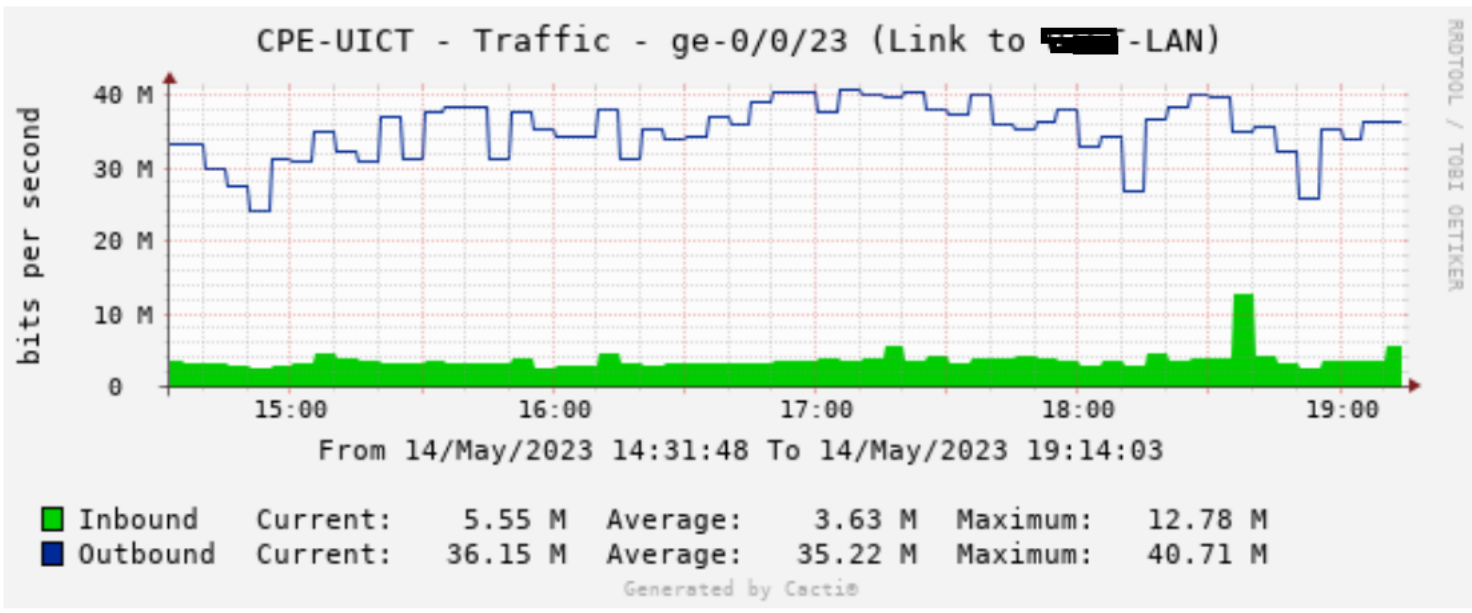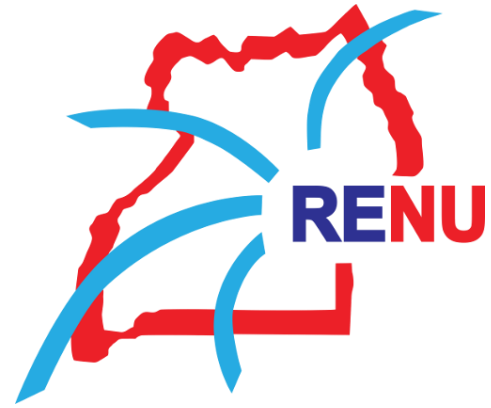 - Inbound = Upload

  - Outbound = Download

Tracking Bandwidth Utilisation – Cacti Interpretation

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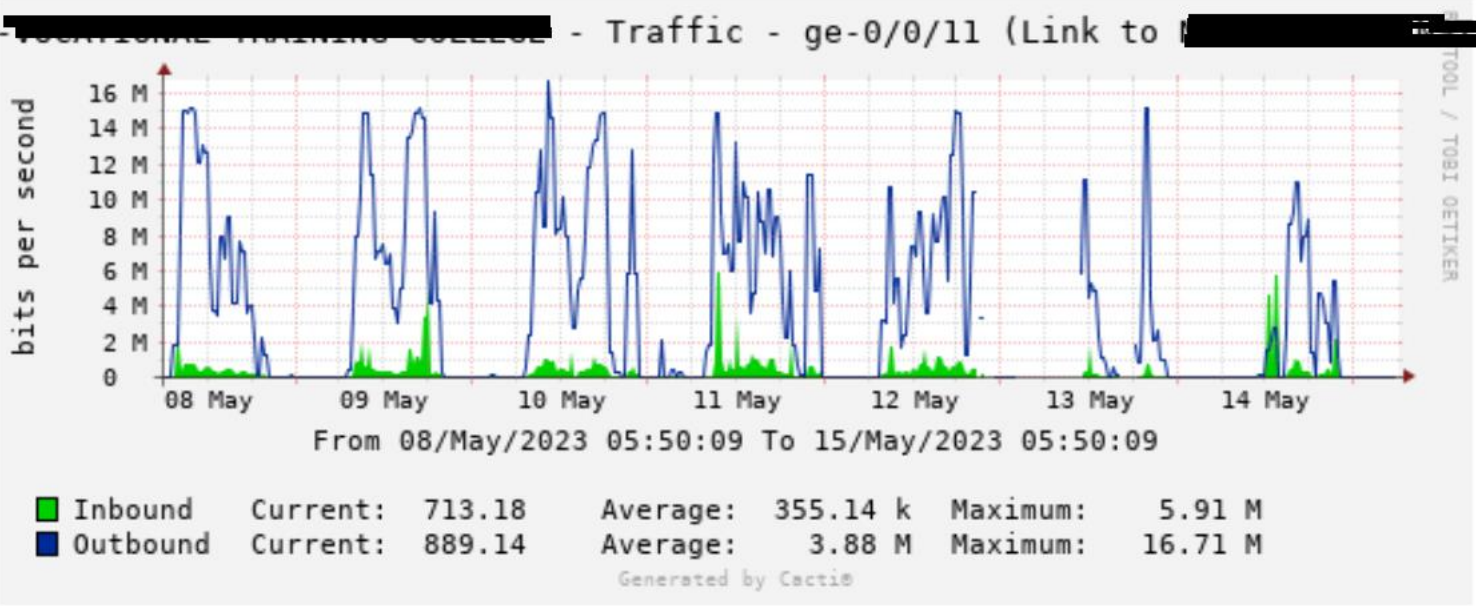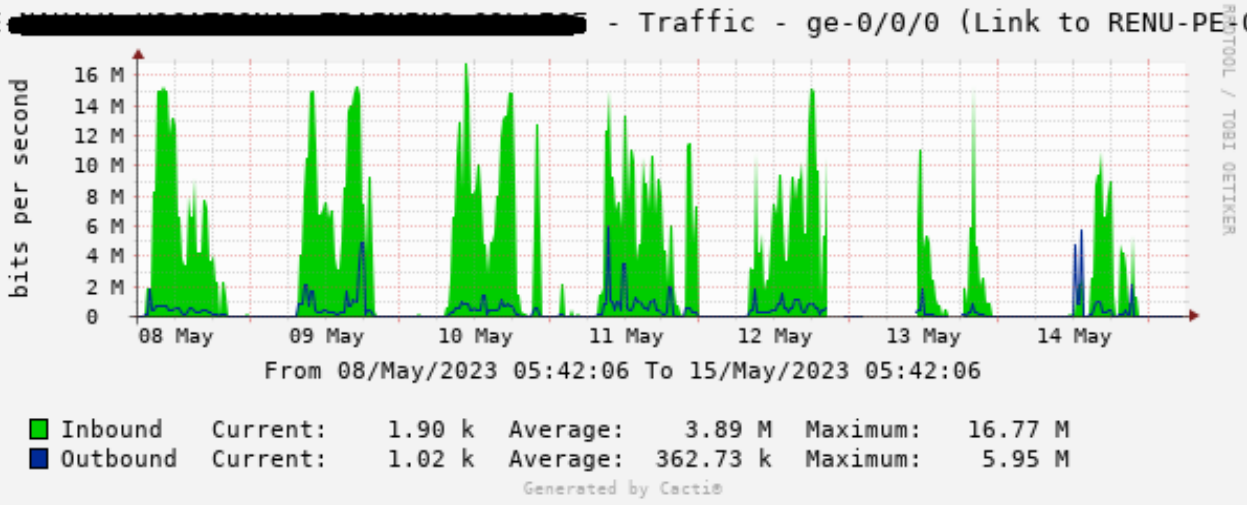
Tracking Bandwidth Utilisation

- Maximum utilization example – Institution has 40 Mbps

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Thank You