

SatNAG

Satellite Network Advisory Group

2019 RVTEC UPDATE



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Satellite Network Advisory Group



SatNAG - Satellite Network Advisory Group

- Who We are
 - Laura Stolp / Woods Hole Oceanographic Institution
 - Ken Feldman / University Of Washington
 - Erich Gruebel/University Of Rhode Island
 - John Haverlack / University of Alaska
 - Ex Officio:
 - Jon Meyer / Scripps Institution of Oceanography
- Mission Statement
 - To steward the objective, effective and efficient use of ship to shore network resources and optimize positive customer experiences for the UNOLS fleet
- We pilot each of our recommendations at our home institutions



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SatNAG - Year in Review

- Working toward identifying next-generation firewalls
- Internet Use Policy being applied on SatNAG members' vessels
 - satnag.unols.org/internet-use-policy
- Metrics gathering continues
- Continue to engage our user communities at key meetings
- SatNAG wiki
 - Testing new software for improved user experience
 - Working on community documentation for Bandwidth Limiters

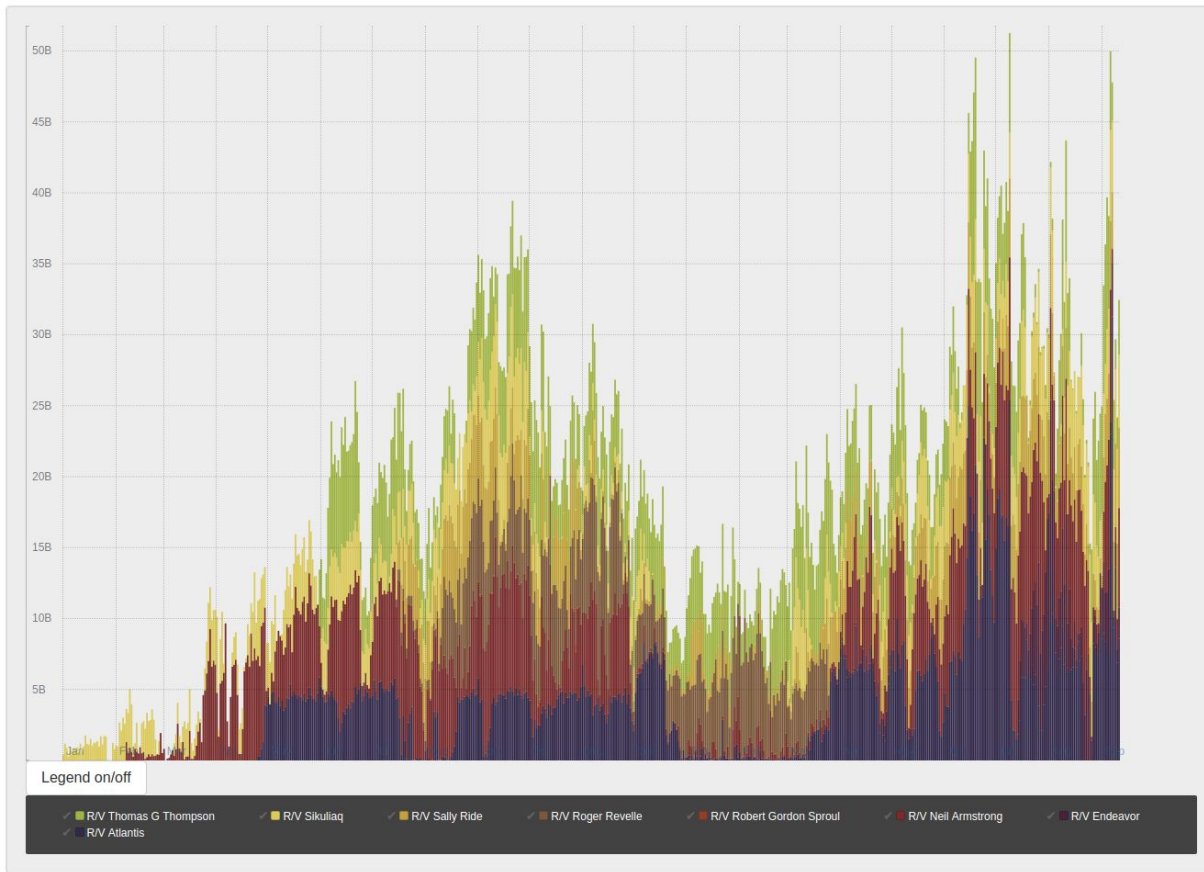


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1.5 Year Bandwidth Trend



2018-01-01



2019-01-01



2019-09-11



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Milestones: SatNAG Next-Generation Firewalls

- Cyberoam is going away
 - **End of Sale:** March 31, 2019
 - **End of Life:** March 31, 2022
- Group purchases will be explored to ease fleet logistics
- We are investigating a new choice that matches key criteria
 - Common commercial solution for better assurance of easier lifecycle management is a priority
 - Security Appliance functionality is needed to be able to meet modern security standards
 - Easy to configure and manage in low-bandwidth scenarios
 - Application Programming Interface (API) for custom viewing/auditing/reporting
 - Daily Quota not readily available in NGF, bandwidth controls by QoS, which should be explored



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Milestones: Internet Use Policy in the field

- Being applied aboard SatNAG members' vessels:
 - R/V Neil Armstrong
 - R/V Atlantis
 - R/V Endeavor
 - R/V Oceanus
 - R/V Roger Revelle (in midlife refit)
 - R/V Sally Ride
 - R/V Sikuliaq
 - R/V Thomas G. Thompson
- Metrics continue to be collected and analyzed
- Actively working with a few other operators to have them try the policies and practices aboard their ships.



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1 Year BW By Category

Available Data Date Range - 2017-05-09 to 2019-09-11 (UTC)

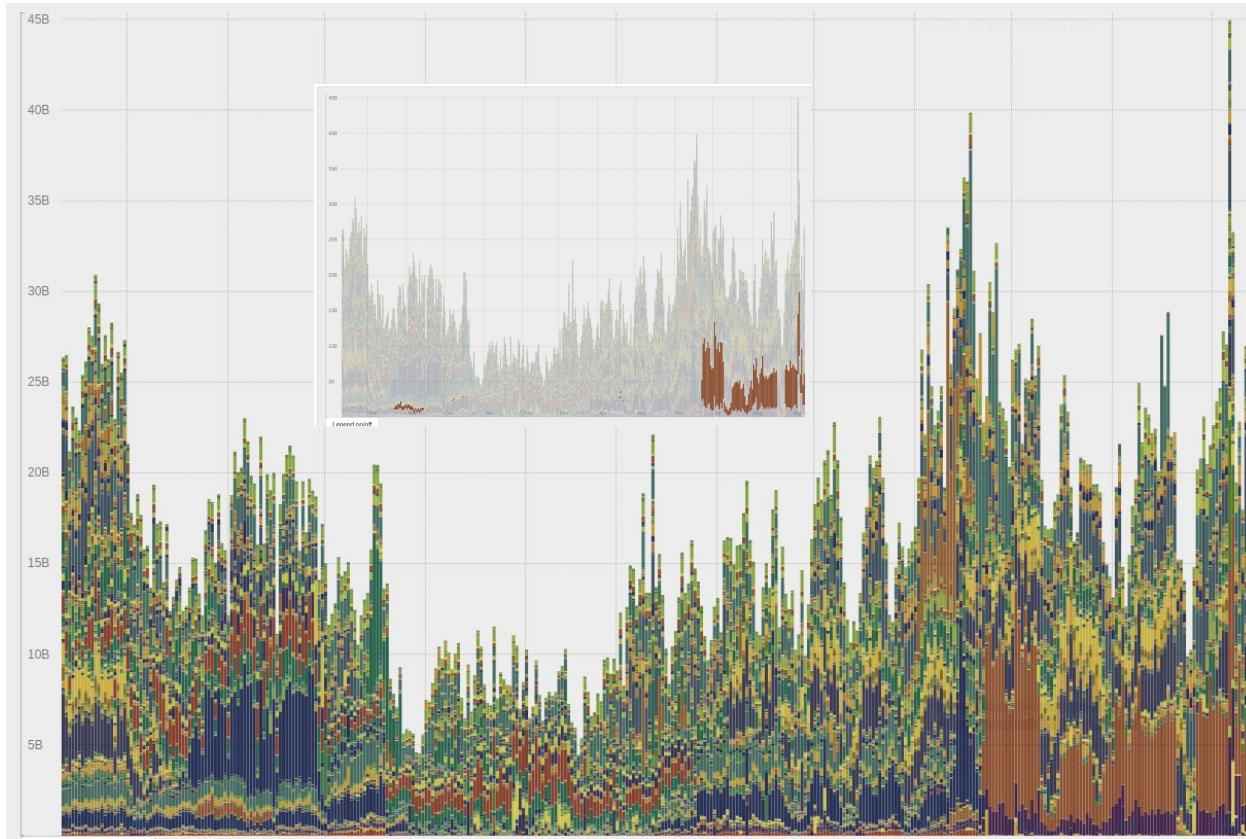
Date Range (UTC)

09/11/2018

- to -

09/11/2019

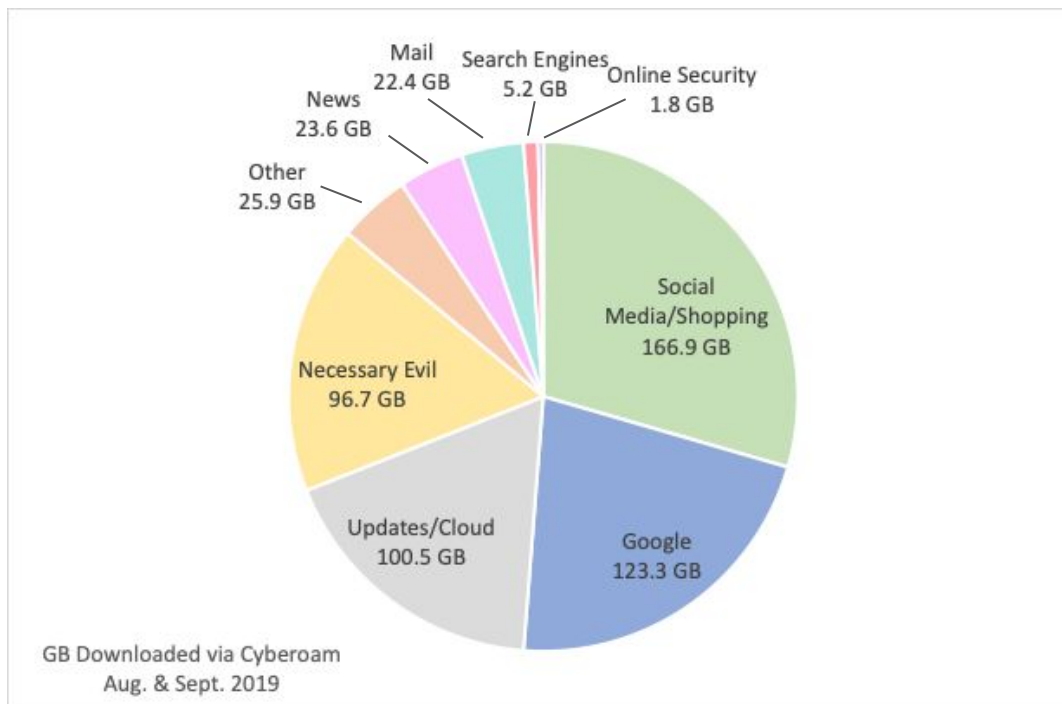
Bandwidth by Category per day
per vessel



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WEB USAGE: Top Domains Total Aug and Sept



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Milestones: Key Meetings

- Presenting at UNOLS 2019 Spring Council Meeting
 - <https://www.unols.org/document/2019-spring-council-meeting-agenda>
- Presenting at UNOLS 2019 RVOC Meeting
 - <https://unols.org/event/meeting/2019-rvoc-meeting>
- 2019 NFS Workshop on Connecting Large Facilities and Cyberinfrastructure
 - <https://facilitiesci.org>
- 2019 NSF Cybersecurity Summit for Large Facilities and Cyberinfrastructure
 - <https://trustedci.org/2019-nsf-cybersecurity-summit/>



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Milestones: SatNAG wiki

- Web based documentation and searchable knowledge base
- Documented procedures
- Links to online resources
 - Internet Use Policy
 - Expectations Memo
- Helpful Tips and Tricks for working in low bandwidth environments

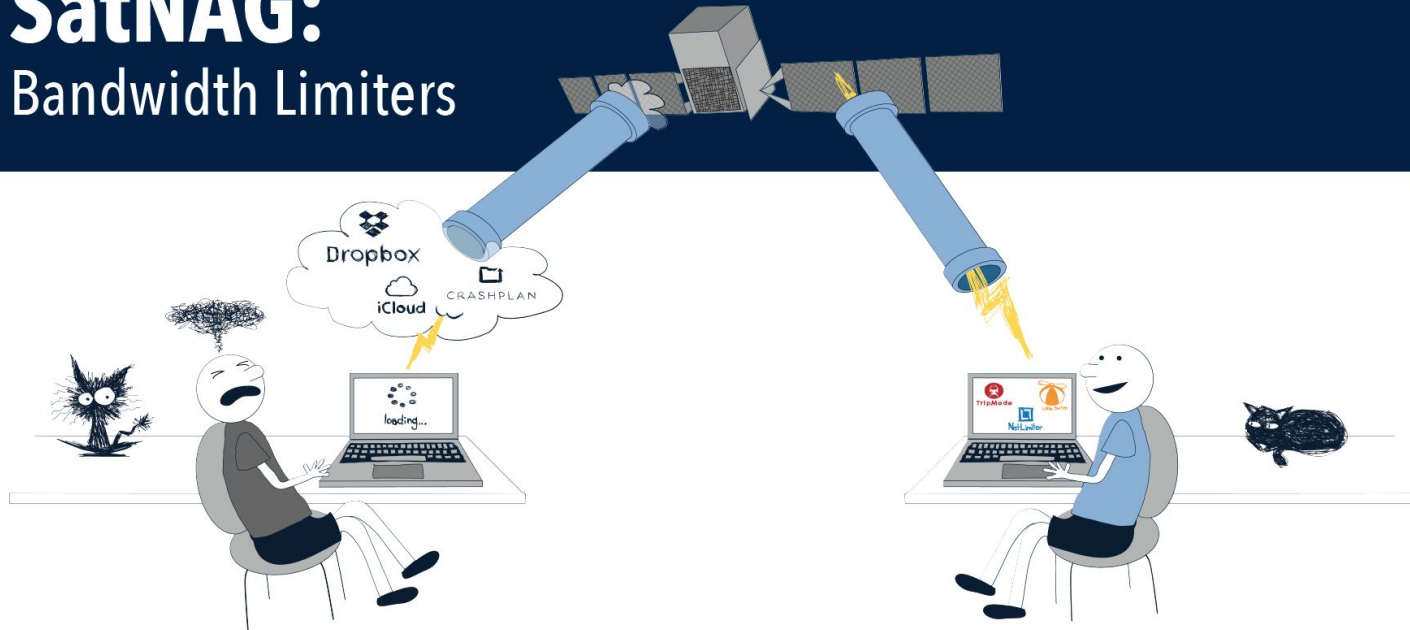


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SatNAG: Bandwidth Limiters



Don't let this be you!

... so, you are headed off to sea with your brand new state of the art laptop, all loaded up with the latest and greatest software, instantaneously jetting you off to the far reaches of the Internet. Unfortunately, you never seem to manage to leave the confines of your screen and you have become intimately familiar with the little spinning orb in the corner of your browser.

This is an all too familiar story. Bandwidth is finite, the more users, the more applications accessing the cloud, the more congested the satellite connection becomes, and the more frustrating the users experience.

Bandwidth limiters

... can monitor and control bandwidth usage on a per application basis, and can be a big help in controlling individual device bandwidth usage.

Bandwidth Limiters including TripMode (MAC and Windows), Little Snitch (MAC), and Netlimiter (Windows only) are useful for blocking unwanted network access while at sea. They can also show you what connections your computer is making to the outside world. They will not limit bandwidth per se, but will allow you to see what connections are being made and thus allowing the user to stop unwanted activities.

Bandwidth management

... is the process of measuring and controlling the communication on a network link to avoid filling the link to capacity. A full link can result in network congestion and poor performance. SatNAG is currently working on a program to use individual quotas (captive portal), application/ web filtering rules (cyberoam), and analyzing metrics (cyberoam) to mitigate the congestion. If all parties, including individual users and their devices, ship IT, Institution IT, satellite IT, work together, a more viable internet experience can be our future.



Laura Stolp, Woods Hole Oceanographic Institution
 Ken Feldman, University of Washington
 Jon Meyer, SCRIPPS/University of California San Diego
 John Haverlack, University of Alaska Fairbanks



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2019-2020 Goals

- Continued wiki work to updating user-facing SatNAG website content
- Identify next-generation firewalls
- Develop testing strategy prior to deployment
- Define a deployment strategy for the next-generation firewalls, at scale
- Revisit a coding effort to produce metrics collection, which will drive facts-based decisions
- Explore practices for scalable deployments and security



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Thank You!

Questions?



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