

Better Satellite Bandwidth

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NSF

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Problems

- ◆ Bandwidth is usually saturated when more than 1 ship are operating
- ◆ Ships have little direct feedback or need to manage bandwidth
- ◆ Bandwidth problems on one ship spread to others
- ◆ Ships have different policies for acceptable use
- ◆ Sometimes hard to separate science work from ship operation or recreation work
- ◆ Difficult to plan for operations with variability
- ◆ Current bandwidth simply too low for good Quality of Service (QoS) control

Past Efforts

- ◆ On-The-Fly Acceleration -- [increase pipe]
 - ◆ Compression
 - ◆ Caching
 - ◆ Quality of Service tweaks
- ◆ Reduced connections and access terminals from ships -- [less demand]
- ◆ Web blacklist on shore -- [filter traffic voluntarily to reduce BW demand]
- ◆ Auto FBB/HiSeasNet failover

Possible Solutions Remaining

- ◆ Allocate bandwidth on a user-level
 - ◆ Remove the “tragedy of the commons” by giving users bandwidth quotas
 - ◆ Makes users more accountable for what bandwidth actions they take.
 - ◆ Finding the sweet spot will take a while
 - ◆ Filter spam/virus/spyware/websites
 - ◆ More regular multi-link failovers determined on ship
- ◆ Can build a box (zeroshell) to do this or buy one COTS (Cyberoam)