

Transport for Satellite

draft-jones-tsvwg-transport-for-satellite-02

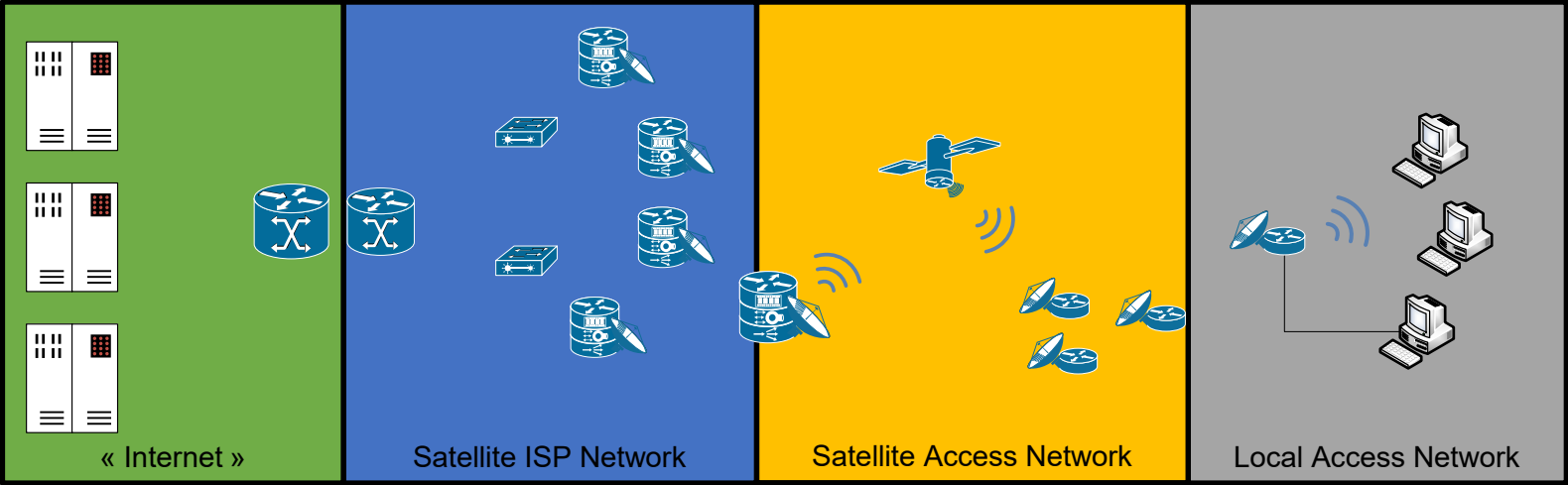
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IETF-112 PAN Research Group, November 8-12, 2021.

Transport for Satellite - Context

- tcpsat wg produced RFC2488 and RFC2760 - concluded 2000
 - TCP features that require tuning for GEO satellite deployment
- Modern satellite services:
 - Are much faster than 20 years ago!
 - TCP is much more sophisticated than it was 20 years ago!
 - TCP over satellite today is accelerated by PEPs
- However:
 - PEPs are a deployment barrier to new features, e.g. QUIC
 - PEPs are impractical for VPN, etc
 - A range of other satellite systems and orbits: LEO, MEO, Hybrid terrestrial, etc

Transport for Satellite – SATCOM systems



GEO	Data rate	High	High	High/Variable	High
	Latency	Low	Low	High	Low
	Loss	Very low	Congestion losses	Very low	Loss if Wi-Fi

LEO	Data rate	High	High	Medium/Variable	High
	Latency	Low	Low	Low/Variable	Low
	Loss	Very low	Congestion losses	Very loss	Loss if Wi-Fi

XXX The authors solicit feedback and experience from users and operators of satellite systems in LEO orbits. XXX

Transport for Satellite – being path aware

- Satellite systems:
 - Point-to-point links or TV broadcast
 - Access technology for remote locations
 - Backup and rapid deployment of new services
 - Transit networks
 - Backhaul (various types of IP networks)
- Satellite: IP network segment ***one part*** of the end-to-end Internet path
 - User traffic can experience a path that includes:
 - Satellite network segment (higher delay link, variable delay links, etc.)
 - Path combined with a wide variety of other network technologies
 - Ethernet, cable modems, WiFi, cellular, radio links, etc

Changes from *-00 to *-02

- New terminology section
 - Using I-D.irtf-panrg-path-properties
- A generic SATCOM system could contain the following entities:
 - A: Host providing the end service
 - B: Node being the point-of-presence for the SATCOM
 - C: Node gathering network functions
 - D: Node gathering MAC and PHY functionalities
 - E: Node being one of the satellite
 - F: Node receiving the signal from the satellite
 - G: Host providing the end service

Path properties:

- Protocol Features available
- Transport Protocols available
- Transparency

Path properties:

- Symmetric Path
- Disjointness
- Transparency
- Link Capacity
- Link Usage
- One-Way Delay
- One-Way Delay Variation
- One-Way Packet Loss

Next Steps

- Path awareness helps
 - Using the PANRG path properties terminology helps
 - Awareness of typical characteristics helps Internet Protocol designers
 - Awareness of actual characteristics allows better decisions in future
- More work needed to exploit PANRG terminology in all the document
- Should this document be a research group document ?