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Experiment No 6

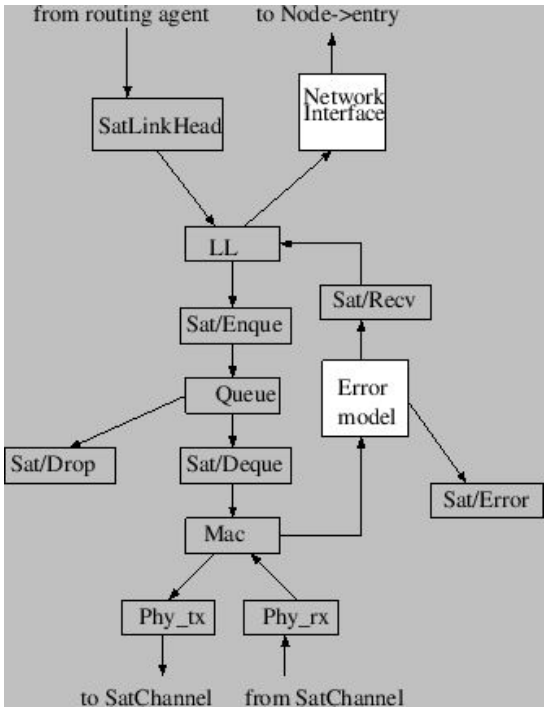
Title :
Simulation and analysis of satellite wirelesss communication using ns2

Theory:

Network simulator and Satellite Network Simulation.

NS-2 offers the simulation of different kinds of networks, modeling of different types of nodes, links, protocols, traffics and mobilities. Ns2 can be used for exact satellite network simulation with a detailed modeling of radio frequency characteristics such as interference, fading, protocol interactions such as interactions of residual burst errors on the link with error checking codes, and second-order orbital effects like precession, gravitational anomalies, etc.

The default Network visualization tool of ns2 – the Network Animator (NAM) will not support satellite network visualization. But there are open source software Sat-plot-scripts(Perl scripts), Savi and Geomview which can be used to visualize satellite constellations.



- sat-mixed.tcl A simulation with a mixture of polar and geostationary satellites.
- sat-wired.tcl Similar to the previous script, but shows how to connect wired nodes to a satellite simulation.
- sat-repeater.tcl Demonstrates the use of a simple bent-pipe geostationary satellite, and also error models.
- sat-aloha.tcl Simulates one hundred terminals in a mesh-VSAT configuration using an unslotted Aloha MAC protocol with a ``bent-pipe'' geostationary satellite. Terminals listen to their own transmissions (after a delay), and if they do not successfully receive their own packet within a timeout interval, they perform exponential backoff and then retransmit the packet. Three variants exist: basic, basic_tracing, and poisson. These variants are described further in the header comments of the script.
- sat-iridium.tcl Simulates a broadband LEO constellation with parameters similar to that of the Iridium constellation (with supporting scripts sat-iridium-links.tcl, sat-iridium-linkswithcross.tcl, and sat-iridium-nodes.tcl).

- sat-teledesic.tcl Simulates a broadband LEO constellation with parameters similar to those proposed for the 288 satellite Teledesic constellation (with supporting scripts sat-teledesic-links.tcl and sat-teledesic-nodes.tcl).