



Senior Design Project in Electrical & Computer Engineering



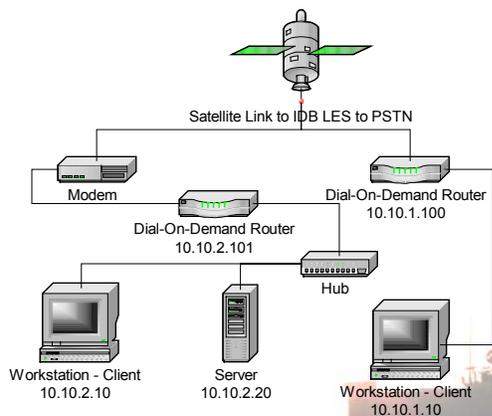
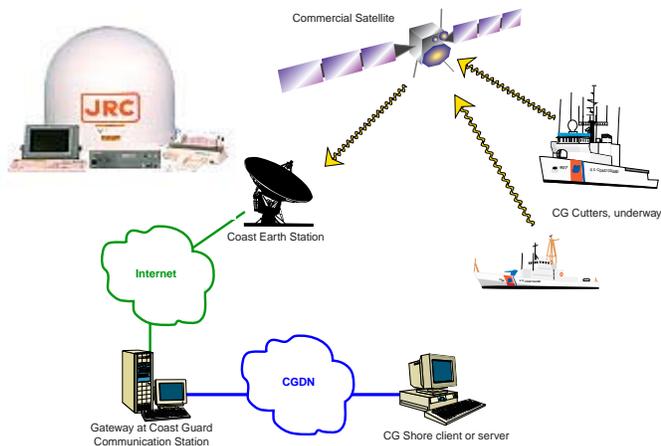
Improving the Performance of CG TCP/IP Applications Over Mobile Satellite Links

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Advisor: LCDR Gregory Johnson Sponsor: R&D Center/TISCOM

Project Background

The Coast Guard is transitioning to a Transmission Control Protocol/Internet Protocol (TCP/IP) – based terrestrial network, termed the Coast Guard Data Network (CGDN+). The need for a system that encompasses by Coast Guard cutters and aircraft is great due to the ever changing world. This project is in conjunction with the Telecommunications and Information Systems Command (TISCOM) to research, develop and test software applications over commercial satellite links to improve the connectivity of both the small and large cutters in the fleet. This project is a continuation of the projects carried out by ENS Tobias Reid, ENS David Bauer and ENS Robin Kawamoto during their respective first class years at CGA.



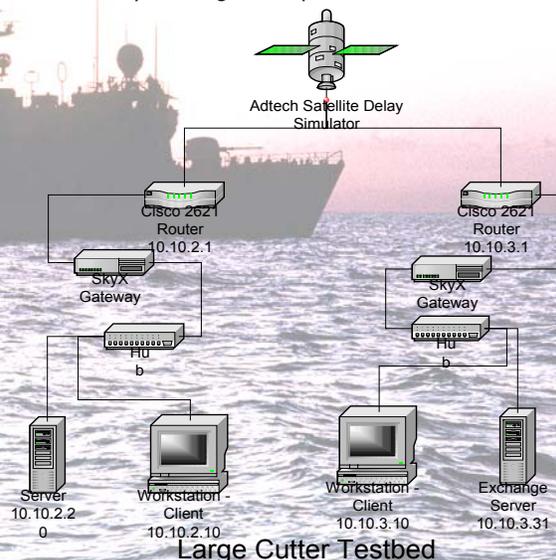
Small Cutter Testbed

Project Plans

The first step is to reconfigure the Test Beds for both the small and large cutters. This will include the updating of the operating systems from Windows NT to Windows 2000, which must be tested with the software being developed by Small Business Innovative Research, other software like Ether Peak and the hardware configurations of the Dial-On-Demand Router, SkyX Gateway and Satellite Simulator. Once the Test Beds are set up, initial testing and developments can begin on both the email and internet systems with respect to packet size and connectivity speed and reliability.

Project Goals

- Main Goal: To improve the performance of TCP/IP applications over mobile satellite connections
- Goals:
 - Establish current Test Beds
 - Determine software compatibility with Windows 2000
 - Develop and test an email system for the large cutters
 - Improve and test web proxy for the large cutters
 - Improve and test web-based email for small cutters
 - Improve and test web proxy for small cutters
 - Test the viability of using a 64kbps connection on small cutters



Large Cutter Testbed