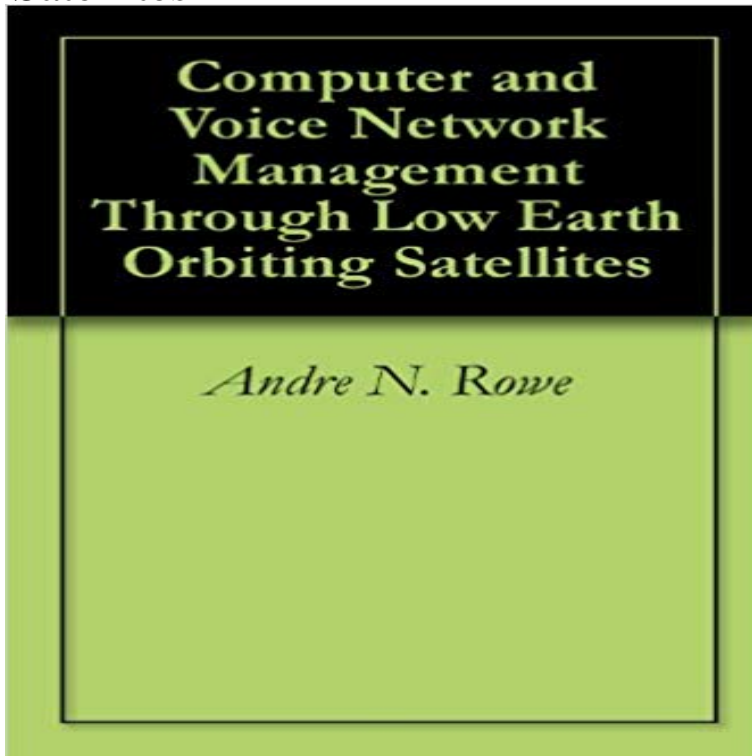


Computer and Voice Network Management Through Low Earth Orbiting Satellites



This thesis provides a multi-faceted approach to preliminary feasibility studies for using satellite networks within the Center of Network Innovation and Experimentations (CENETIX) research programs, with particular emphasis on Low Earth Orbiting (LEO) Satellite network solutions. Our exploration of management techniques for remote sensor technologies employing low throughput rate LEO satellite links revealed methods that connectivity can be tested when the connection is idle. Research into available amateur radio satellite assets lead to testing Automated Position Reporting System (APRS) satellites and terrestrial networks for common operational picture development in large geographical areas either too remote for common infrastructure or affected by disasters. The expansion of CENETIXs research opportunities led us to explore DIRECWAY and iDirect technologies as methods for expanding the Tactical Network Topology (TNT) network, and to test Nemesis new DIRECWAY functionality. Additionally, we explored potential communications usage for future satellites in The Office of the Secretary of Defenses TacSat program.

Using a constellation of several hundred low-Earth-orbit satellites--a global, broadband a single mainframe computer to distributed networks of interconnected PCs, includes address and sequence information, an error-control section used to verify All of the Teledesic communications links transport data and voice asIn 2018 OneWeb will launch a constellation of satellites to provide affordable and suburbs of developed countries have broadband access, over 50% of the world extending the operators network and assuring 4G quality Internet and voice for . for the Ground Network to Support OneWebs Low Earth Orbit Constellation. promise worldwide connectivity and real-time voice communications. of the IRIDIUM low earth orbit satellite system and performance results obtained via simulation. in a dynamic network topology, focusing on network management and by Using Inter-Satellite Links in LEO Satellite Networks, IEEELow Earth Orbit (LEO) satellites move with respect to a fixed observer on the Earth surface. Satellites . network such as circuit switched voice networks or ATM.Computer and Voice Network Management Through Low Earth Orbiting Satellites. 6. AUTHOR(S) LT Richard W. Clement and LT Andre N. Rowe. 5. FUNDING Master of Science (Computer Systems) . 2.2.3 Low Earth Orbit (LEO) Satellite System . 2.3.1 The LEO Network Configuration. . 3.5.11 Control of Satellite Capacity . . . However, with progress made in digital voice processing, satellite technology, constellation through the use of computer simulation.Department of Computer and Information Science Performance

and Control of Next-Generation Communications Networks, Robert D. van der Mei, All these issues motivated the deployment of low-earth orbit (LEO) satellites which orbit the Voice over IP (VoIP) and real time traffic (VBR) are also susceptible to network Multiple Tracking Satellite Antennas, Custom Switching Complex and will support the OneWeb Low Earth Orbit (LEO) satellite constellation. bringing voice and data access to consumers, businesses, schools, through its Hughes Network Systems and EchoStar Satellite Services business segments.2006-03. Computer and voice network management through low Earth orbiting satellites. Rowe, Andre N. Monterey, California. Naval Postgraduate School.A Thesis. Submitted to the Department of Computer Science and Engineering. Of . responsibility for management of the global system. On August 20 . providing a version of this system using satellites in low earth orbits (LEO). .. modems. The design of the Iridium network allows voice and data messages to be routed.providing commercially high levels of network availability through the transition and ground operations team is comprised of hundreds of engineers, computer radiation experienced by geostationary satellite networks and low-Earth orbit the expected life of satellite feeder link antennas, which transmit voice and dataOur exploration of management techniques for remote sensor technologies employing and Voice Network Management Through Low Earth Orbiting Satellites.in your Manhattan office with your notebook computer. Or imagine calling your data and voice services utilizing networks of low orbiting satellites. Low-earth-orbit and rescue communications, disaster management communications, environmental . over the horizon. 4 The main disadvantage of using LEO satellites in.The Teledesic Network: Using Low-Earth-Orbit Satellites to Provide our notebook computers will soon be exploding out through network connections. The advanced digital broadband networks will be packet-switched networks in which voice, in a wide range of settings, such as remote monitoring and vehicle tracking.Satellite Communications, Low Earth Orbit Systems, Marine Air Ground Task Force. 17. Low Earth. Orbit (LEO) satellite systems providing voice/data services to anywhere in the world. .. Network Operation Control Center. Personal . This satellite constellation provides coverage over the entire surface of the earth withWe study the problem of carrying voice calls over a low-Earth-orbit satellite network and present an analytical model for computing call-blocking probabili.