



Fact Sheet

Network Design and Analysis Capability

Purpose: The National Communications System (NCS) developed the Network Design and Analysis Capability (NDAC) to analyze different operational aspects of communications networks, such as the public switched network (PSN), under various stress conditions. NDAC software resources include the tools, models, and communications databases used to assess network performance, perform modeling and simulation, and visualize network topologies. The NDAC will continue to be refined and expanded through software updates and application module development.

Background: As stipulated by Executive Order 12472, the NCS evaluates the capability of the Nation's communications resources to meet national security and emergency preparedness (NS/EP) requirements by using the NDAC to study natural and man-made disruptions to the communications infrastructure, perform vendor independent analyses, develop models and methodologies to identify vulnerabilities and congestion, and identify network effectiveness solutions. Because of Government and the NS/EP community's heavy reliance on the PSN, the NDAC was expanded to include Internet Protocol (IP), Internet Telephony, next generation packet switched IP networks, and supervisory control systems in addition to wireless and traditional wire line infrastructures. The NDAC is not only designed to detect and help mitigate damage caused by accident or attack but also to assist in reconstitution.

Highlights:

- Supports planning and provisioning of NS/EP communications for the Federal government under all circumstances, including crisis or emergency, attack, recovery, reconstitution
- Maintains current/valid representation of PSN
- Enables custom modeling/simulation studies of telecommunications networks under a variety of NS/EP conditions
- Performs analysis of PSN dependability and resiliency under stresses induced during NS/EP situations
- Examines the effect of new and emerging technologies on the PSN and the Internet infrastructure, specifically how these effects may modify future NS/EP requirements
- Provides laboratory test bed perspectives on network performance resulting from emerging technologies
- Incorporates flexibility to customize network architectures and routing schemes, introduce new carrier network data, and emulate the effects of emerging technologies

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