Network Reliability Steering Committee

Annual Report

Network Reliability
Steering Committee

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To the Telecommunications Industry:

This Annual Report reviews the health of the wireline telecommunications networks for the year 2002, as well as trends observed over the last ten years of outage reporting to the FCC. It was a year of challenge as the Telecommunications Industry addressed dimensions of reliability that were brought to the forefront following the September 11, 2001 terrorist attack. A major focus of the Network Reliability and Interoperability Council VI (NRIC VI) is Homeland Security, and the collective effort of its members and contributors has resulted in the addition of approximately 500 new Best Practices (now 750 total) in the areas of Physical Security, Cyber Security, Public Safety, and Disaster Recovery. The criticality of the nation's communications infrastructure is highlighted as never before, and the industry's cooperation and commitment to service and reliability has never been more important.

During the past year the frequency of outages and the outage index, a measure of impact on customers, remained within the "green" area of the control charts. These results are consistent with those observed in recent years, and demonstrate the continued overall reliability of telecommunications networks and services. However, further analysis shows departures from these limits in several areas. The number of outages and the aggregated outage index were lower than in any year to date. The Facility outage category had the lowest annual frequency and aggregated outage index to date, and Local Switch had the lowest annual frequency and second lowest aggregated outage index to date. Common Channel Signaling outages had the highest aggregated outage index among failure categories, the first time that any category exceeded the aggregated outage index of the Facility category. 2002 had the outage with the highest outage index to date and outage durations were significantly longer that in the Baseline Years.

Analysis of outage data over the course of the ten-year data history shows that total outage frequency has been decreasing at a rate of 16% over the last three years. Facility outage frequency has been decreasing at a rate of 9% annually over the last six years. The Facility outage aggregated outage index has been decreasing at a rate of 7% annually. Local Switch outage frequency has been decreasing at a rate of 25% annually over the last five years while Local Switch aggregated outage index has been decreasing 14% annually over the entire 10-year history. CCS outage frequency has been increasing at a rate of 13% annually over the last seven years and CCS aggregated outage index has a statistically significant increasing trend since 1994. Central Office Power outage frequency has been increasing at a rate of 7% annually. Digital Cross-connect Systems (DCS) outages have been twice more frequent in the last six years than in the first four years while DCS aggregated outage index has been significantly higher over the same period as well. Outage indexes in the last two years have been significantly higher than in the first eight years.

As in previous Annual Reports, I encourage all service providers and vendors to review the best practices documents available on the NRSC web site ("Timing Outages Task Group Report", "Fixing Facilities Damages", "Procedural Outage Reduction Report", and "NRIC IV Analysis and Recommendations on Best Practices") at http://www.atis.org/atis/nrsc/nrschome.htm and the NRIC Best Practices available on the web in searchable format at http://www.nric.org/ .

The work of the NRSC over the past ten years represents a great heritage of raising the level of the industry platform for circuit switched voice services in the United States. This process of analyzing data, conducting special studies, and making recommendations based on Best Practices is a model that can improve the platform for other communications services and industry segments. I am confident that the industry will realize tremendous benefit from this forward looking work, both because of this process that has evolved and because of the collaboration and dedication of the industry, consumer, and government representatives that make up the NRSC.

Given this rich history and the interdependency of critical infrastructures, it might also be time to reach out and share our processes and best practices with other industries beyond communications.

P.J. Aduskevicz
Chair NRSC

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INTRODUCTION

This report provides an analysis of U.S. telecommunications network performance based on outage reports made by service providers to the FCC from January 1, 1993 through December 31, 2002. While service providers are required to make such reports for outages meeting various criteria, the vast majority of reports are made for outages that potentially affect 30,000 or more customers for 30 minutes or more. The majority of the analysis results presented here are limited to those outages reported on the basis of these 30,000 customer/30 minute thresholds. The report is divided into two major sections. The first section describes network performance overall and within failure categories. The second section provides further breakdown analyses of failure subcategories and root cause categories within each failure category. In both sections, the major metrics examined are number of outages and aggregated outage index. The first section also examines the number of customers potentially affected and outage duration per outage. The report concludes with a summary of 2002 results relative to prior history.

The "Special" Outages section covers reports filed by carriers below the 30,000 customer threshold that affect major airports, major military installations, key government facilities, nuclear power plants, and 911 service, as well as fire-related incidents which impact 1,000 or more lines for 30 minutes or longer.

During 2002, members and participants in the NRSC included:

AT&T
BellSouth
Consumer Representative
CTIA
Federal Communications Commission (FCC)
Lucent Technologies
National Communications System (NCS)
Nortel Networks
Qwest Communications
SBC
Sprint
Tellabs
Telcordia Technologies
Union Pacific Railroad
Verizon