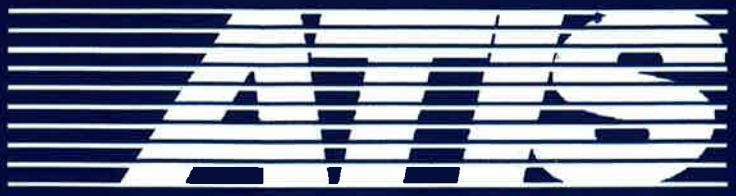

Alliance for Telecommunications
Industry Solutions

Keeping the Network Alive and Well

Solving the Problem of Cable Dig-Ups

Report and Recommendations
On Facilities Reliability

Prepared by the Facilities Solution Team
of the
Network Reliability Steering Committee
of the
Alliance for Telecommunications Industry Solutions

February 1996

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Alliance for Telecommunications Industry Solutions

Network Reliability Steering Committee

Facilities Solution Team Report

Results and Recommendations Pertaining to Facilities Reliability

February 1996

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1. Executive Summary

Facility failures continue to be the leading contributor to outages in the Public Switched Network. Approximately 50% of the FCC-reportable service outages and their impact have been caused by facility outages. Roughly 33 million customers over the past three years or 30,000 customers a day have lost access to the Public Switched Network for an average of 5 hours because of these problems. The ATIS/NRSC[1] Facilities Solution Team was chartered to determine the causes of those facility outages and to recommend ways to reduce their number and impact.

The Facilities Solution Team consists of members primarily from telecommunications companies but also included members from other public utilities and insurance companies. The team was broken into four subteams: the Legislative Subteam, the Tactical Implementation Subteam, the Rapid Restoration Subteam and the Facility Electronics Subteam. The team relied primarily on a detailed analysis of FCC-reportable outage data and questionnaires to focus its efforts and to determine the level of support for various recommendations.

Over 50% of the facility outages are categorized as Fiber Cut Dig-Ups. Over 50% of the Fiber Cut Dig-Ups occurred because the excavator either failed to notify the facility owner or provided inadequate notification. The Network Reliability Council in 1992 chartered a focus group to look at ways to reduce Fiber Cut Dig-Ups. One of that group's recommendations was to champion one-call legislation. The Facilities Solution Team has championed one-call legislation at the federal level and at the state level. The team has actively supported a one-call bill (HR-2842) that is before Congress. The team has been successful in removing the railroad exemption from the bill. The team has also written a Position Paper on one-call legislation. The Position Paper has been endorsed by the Network Reliability Council. The team strongly recommends that the FCC, the Chairperson of the Network Reliability Committee and the individual members of the Network Reliability Council champion and aggressively support one-call legislation. State one-call efforts are targeted at states with no or weak one-call laws. Texas, West Virginia, Hawaii and Alaska currently have no one-call laws. Texas alone represents greater than 20% of the Fiber Cut Dig-ups in the country.

Although legislative efforts are essential, proactive ways to reduce the number and the impact of facility outages are also needed. The Facilities Solution Team strongly recommends a Cable Damage Awareness/Prevention Program as a proactive way to work with contractors, municipalities, and One-Call Boards to prevent cable cuts. Reductions of up to 50% in the number of Fiber Cut Dig-Ups have been reported in locations with active Cable Damage Awareness/Prevention Programs. Other important proactive ways to reduce dig-ups include identifying and providing additional protection for critical routes, promoting industry standard markings of subsurface facilities, and developing joint relocation agreements. Physical diversity is strongly recommended on critical routes where economically feasible.

Engineering practices for locating facilities are continually improving. Subsurface Utility Engineering is an example of a current best practice for identifying subsurface facilities prior to

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excavation. Training, qualification and performance evaluation of internal and external excavators and locators are an essential ongoing effort to control and reduce facility outages.

The Facilities Solution Team also looked at ways to reduce the effects or impacts of facility outages. Its efforts were aimed at improving the restoration times for outages. These efforts centered on easy access to facility records, quicker ways to locate faults, ways to improve dispatch times and finally ways to speed up splicing. One company gathers splicing teams together and has the teams compete for prizes based on the speed and accuracy of the splicing, to bring focus to the effort.

Facility electronics currently is not a major cause of facility outages primarily because many of the new higher speed (2.4 to 10 gigabit/sec) systems have not been widely deployed. Requiring highly reliable memory and control hardware, deploying survivable architectures, and addressing robust operations are a few good ways to prevent major facility downtime when this next generation of facility electronics is deployed. Many of the Network Reliability Council DCS Best Practices also apply to these systems (i.e., SONET/ATM ADMs) as well.

All good outage prevention programs require good data. Tracking major facility outages and analyzing the information about the outages is an essential step to controlling and reducing the number and impact of facility outages. All service providers and suppliers are strongly encouraged to collect and use the minimum data elements recommended by the FCC in Docket 91-273 and those identified by ATIS/NRSC in its mailing to the industry on January 6, 1994.

The only way to ensure that recommendations are acted on is by constant vigilance and continued, dedicated effort. It is now time for all members of the telecommunications industry to place a higher priority in time, money, and effort to turn around this persistent national problem. The Facilities Solution Team, as part of the ATIS/NRSC, stands ready to help ensure that its recommendations are acted upon, to periodically analyze the effectiveness of its recommendations and to respond to any new reliability concerns that arise on telecommunications facilities.

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