

Cell Network Backup Protects T1 SLAs and Revenue

T1 circuits continue to be an important connectivity solution for many businesses. Whether providing Internet access, inter-office connectivity, credit card processing or critical 911 infrastructure; the key advantage for T1 service is its reliability. T1 is a mature access technology that, unlike cable and DSL, provides guaranteed performance and availability. So when a T1 circuit fails, every hour of down time is another nail in the coffin leading to Service Level Agreement (SLA) refund or, worse, an unhappy customer looking at service alternatives.

Providing T1 service is becoming increasingly challenging as the TDM infrastructure ages. Outages due to equipment failure, faulty copper, and backhoe cable cuts are more frequent, severely impacting an operator’s ability to maintain this critical connectivity to their business customers.

Traditional methods for increasing T1 availability include automatic protection switching to a backup T1 over copper, microwave or fiber links. Often, the primary and redundant circuits are transported over common network elements and can be impacted by the same outage. All of these backup methods rely on costly dedicated infrastructure, which can make them impractical.

With the increased availability of 3G/4G cellular technologies, an alternative method for backup of T1 links

has emerged. The cellular network’s bandwidth and reliability have increased to levels that can now support backup solutions for critical T1 connections. Cellular technology has the added benefit of providing on-demand capacity with quick connect times, reducing cost and complexity. A method is required, however, to convert circuit-based T1 connections into packets for transport over next generation IP-based cellular networks.

IP-Tube Circuit Emulation solutions from Engage Communication bridge the gap between circuit-based T1 and packet-based cellular technologies. The **IP-Tube** provides T1-over-IP transport, enabling T1 connections over fiber, satellite, wireless and, now, next generation cellular networks. In fact, rapid deployment T1-over-Cellular restoration kits can be created with appropriate Engage and cellular access equipment.

Immediate Restoration of T1 Service – Carriers can quickly deploy these T1-over-Cellular restoration kits to re-route customer T1 traffic over the cellular network while the primary T1 is being repaired, significantly reducing outage times. Combining **IP-Tube** circuit emulation with cellular routers allows technicians to easily deploy these kits at the customer’s premises for rapid restoration of customer T1 Router or PBX traffic. The cellular network provides the backup connection to the Central Office as shown in Figure 1.

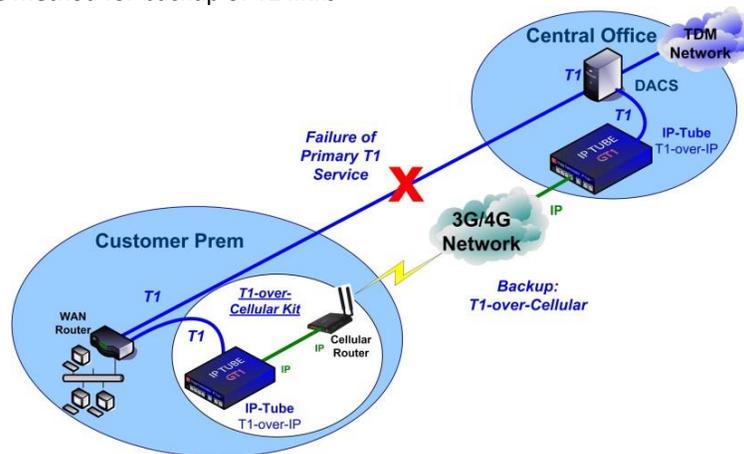


Figure 1 – Customer T1 Service Restored over 3G/4G Cellular Network upon Failure of T1 Service

Automatic Backup of T1 over Cellular – For customers with mission critical traffic who can't tolerate outages, Engage offers an Automatic Protection Switching (APS) solution. In this case, the T1-over-Cellular restoration kit is installed permanently at the customer premises. The Engage IP-Tube is ordered with the Link Protector (LPT)

option which continuously monitors the primary T1 connection and automatically switches traffic to the backup cellular path when a failure on the primary T1 is detected. Once the Primary T1 connection is restored, traffic is automatically switched back to the Primary T1. See Figure 2.

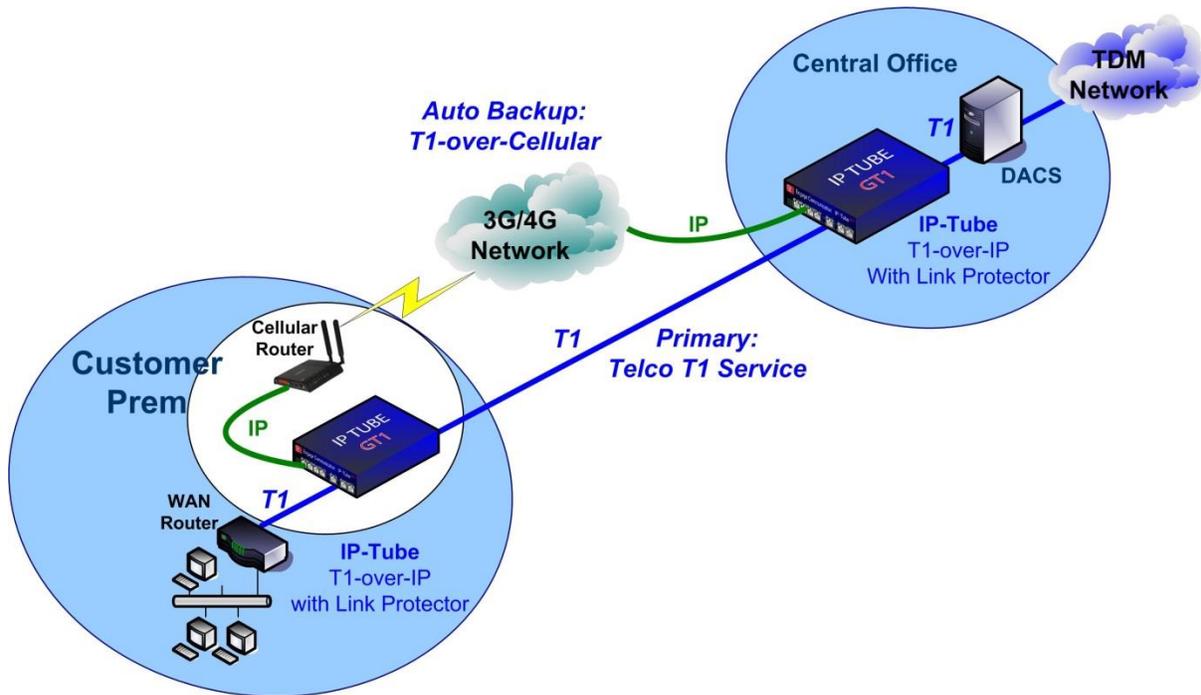


Figure 2– Link Protector: Continuous Monitoring of Primary T1 with Auto Failover to T1-over-Cellular

IP-Tube circuit emulation solutions from Engage Communication offer a number of specialized features which help to ensure a quality T1 connection over the cellular network:

- Lossless Data Compression reduces Ethernet bandwidth by eliminating idle and redundant data, minimizing cellular bandwidth required;
- Far-End Echo Cancellation suppresses echo in PBX and other voice applications;
- Transparent TDM over IP mode ensures all customer traffic types can be carried over the emulated T1 circuit;
- Alternatively, the HDLC-over-IP protocol makes efficient use of cellular bandwidth for WAN router traffic.

The availability of higher capacity / higher reliability cellular networks and IP-Tube T1 Circuit Emulation from Engage Communication makes it possible now to meet T1 customer Service Level Agreements and retain business customers.

Since 1989 Engage Communication has developed and delivered specialized Networking & Telecom products for mission critical applications to the Service Provider, Enterprise, Government, Defense, Utility, and Education markets.