

WHITE PAPER

Packets for All

Revenue enablement through TDM-to-Packet migration

Introduction

For decades, TDM was the backbone for global bandwidth, transporting voice, data, and video. In 2012, global bandwidth was transformed when Ethernet surpassed TDM and other legacy protocols. Ethernet's trend is expected to continue, growing to 75 percent of global bandwidth in 2017 and exceeding 80 percent in 2020.¹

Packet networks are helping reshape the new business economy and its opportunities. However, with decades of TDM deployments still in use, the legacy protocol will be around for many years.

Opportunity in complexity

As the protocol of choice in the 1990s and 2000s, TDM fueled the digital era with services like basic telephony, trunked radio, studio transmission links for broadcast of audio and video, and low- to medium-rate data services (mobile, Internet, email). The protocol was very effective for service providers and their customers, but circuit-switched networks were never built to scale dynamically with the demand of that era, let alone cope with today's voracious data traffic demands.

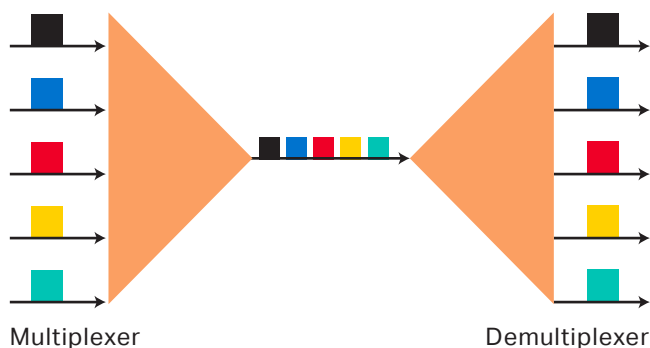


Figure 1. TDM

TDM's basic tenet is to allow multiple signals to be transported over the same signal path by multiplexing the signals, then demultiplexing them in specific time slots.

Historically, private or leased-line services were used to deliver T1/E1 and T3/E3 fixed, dedicated TDM bandwidths to all vertical markets. However, in general, it took several months for service providers to provide a service, and scaling from 1.544 Mb/s (T1) to 44.736 Mb/s (DS3) was very inefficient for most customers. Additionally, TDM equipment is getting older and difficult to support as the industry migrates to newer technologies.

Will service providers be ready when growth presents itself?

Those using TDM—government, Small to Medium-sized Businesses (SMBs), utilities, enterprises, and business customers—face unique challenges. Equipment in TDM networks used to transport both TDM services and data is becoming obsolete, operationally expensive, difficult to maintain, power- and space-inefficient, and simply unable to handle packet traffic efficiently.

Just as network operators face the dilemma of rising packet services and declining TDM traffic, some customers want to maintain profitable TDM services or, in some cases, are required to do so by government regulatory controls.

Where possible, operators of these TDM systems should begin migration to a packet-based architecture as soon as possible, as services now favor IP as the service vehicle of choice. The push is on to replace traditional phone systems with one that works entirely over IP networks, with Ethernet providing the underlying transport layer.

1. Vertical Systems Group - ENS, Global Business Bandwidth Trends Ethernet vs. Legacy Services 20 Year Perspective