

APPLICATION NOTE

A Path to a Modern and Versatile Government Broadband Network

State, county, and municipal governments are struggling to solve multiple IT networking challenges. They need to consolidate and modernize their networks with efficient, high-performing solutions that support enterprise-wide cloud computing services and applications. At the same time, they need to prepare their networks to offer innovative services that will be expected of governments in the coming years, such as smart cities, intelligent transportation, enhanced public safety communications, and others. Many agencies also want to expand their networks to offer community broadband services, which can generate new revenues while helping improve local economies and way of life.

The challenges are daunting and require a migration from outdated legacy approaches, such as Time Division Multiplexer (TDM)-based technologies, which cannot support the needed capabilities or scale with consolidation or service growth. The accepted solution is to shift to high-capacity packet-based technologies that are versatile and capable of meeting a wide range of current and future needs. The migration must be smooth and seamless, however, so agencies can continue using their legacy networks for as long as necessary and shift over to packets when appropriate for their organizations.

This paper summarizes government networking challenges and opportunities and introduces Ciena's 6500 Packet Transport System (PTS), and a professional services framework for the network transformation. The 6500 PTS, a high-performing TDM-to-packet technology solution that can provide both legacy and packet networking services, enables agencies to evolve their technologies gracefully and consolidate services on a single foundation.

The 6500 PTS is an ultra-high density Plesiochronous Digital Hierarchy (PDH), SONET, SDH, and GbE/10GbE to 100GbE aggregation packet-optical solution. It is a major component of Ciena's TDM-to-Packet Solutions portfolio, which also includes TDM Small Form-factor Pluggable (SFP) devices, TDM modules, a common Blue Planet®

Ciena's 6500 PTS for TDM-to-packet migration and service modernization for government agencies

- **A true packet-optical solution:** Ultra-dense 10/100/1GbE/10GbE, 40GbE/100GbE connectivity
- **Key applications:** DACS replacement, MSPP replacement, head-end ADM ring consolidation, and network modernization
- **Hardware:** 800G packet switch and a portfolio of ultra-dense Ethernet and optical/Ethernet circuit packs, PDH circuit emulation modules, and PDH circuit packs
- **Programmable and adaptive:** Advanced merchant silicon, supporting next-generation packet routing
- **Service velocity:** Ciena's ZTP to simplify deployment and Blue Planet® MCP tools to facilitate software controls and automation
- **Efficient:** Up to 5x lower power consumption and 10x space savings, depending on the application
- **High capacity:** Up to 4x more TDM circuit emulation capacity than competing solutions
- **Future-proof:** Supporting TDM business, Ethernet, and TDM-to-packet modernization