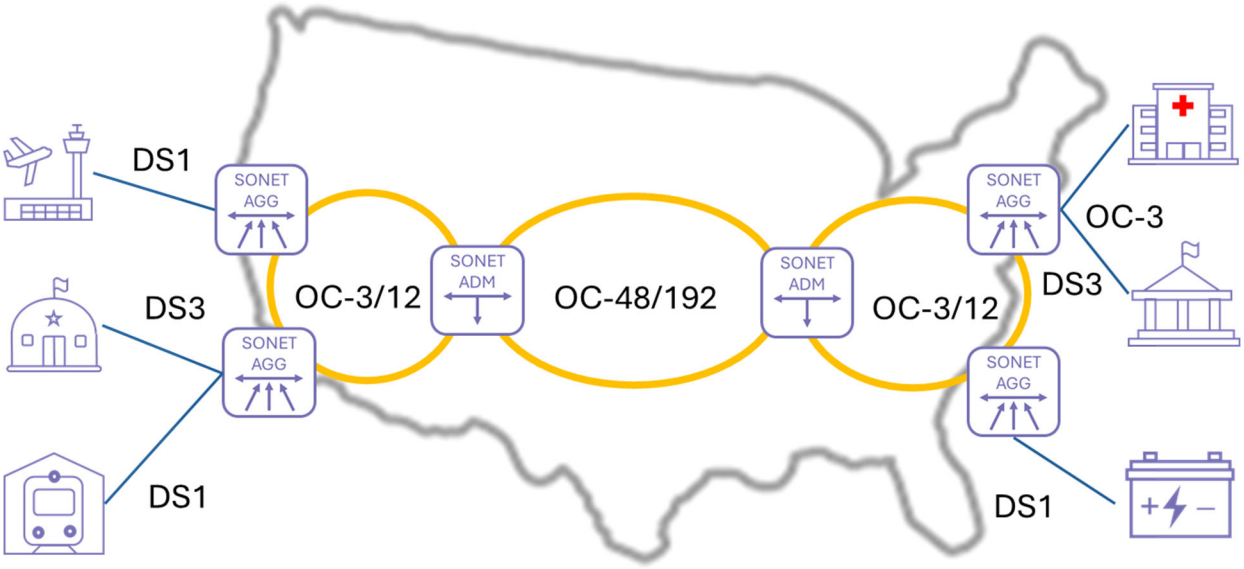
The Critical Infrastructure Dilemma

Critical infrastructure in the US has used Synchronous Optical Networking or SONET for communication transport since the early 1990's. SONET is a technology that provides reliable and high-bandwidth optical fiber transmission, making it well-suited for several critical infrastructure requirements. SONET ensures reliable communication, high bandwidth, and redundancy, which are essential for sectors like energy, communications, transportation, and emergency services.

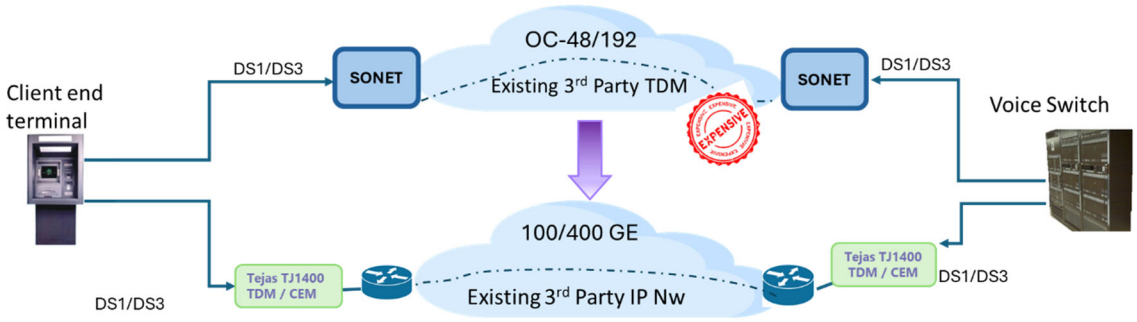


Continued use of this technology today is quite difficult. The technology is old, and most equipment manufacturers have discontinued (MD'd) or End of Life (EOL) these products. Thus, the cost of maintaining these networks has been steadily growing.

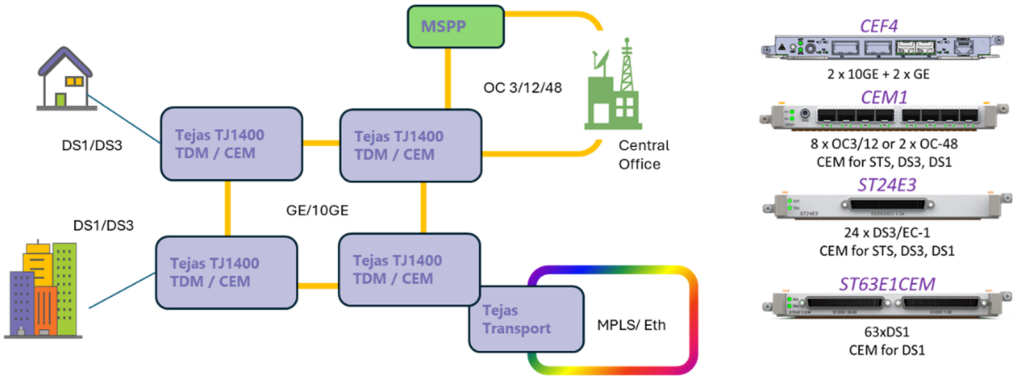
- Service and support contracts, when you can find one, are getting exorbitant.
- Since the equipment is EOL, you can't buy new cards for replacement, growth or spares and typically you are resorting to the gray market. Thus, the cost of spares is getting stratospheric.
- Finding staff with sufficient knowledge of the technology and equipment is challenging as the expertise to maintain and operate the SONET gear is hard to find.
- Lease rates for SONET OC-3/12/48 optical transport are increasing.

This is the dilemma, the demand is still there, but how do you meet that demand with a cost-effective solution? Most in the industry would like to do away with this technology and move to MPLS / Optical Transport, which can provide all of the same characteristics the SONET network provides.

Unfortunately, it is not practical or even feasible to suddenly replace all of the service equipment at each of these critical infrastructure sites. Luckily there is a technology called Circuit Emulation that can be used to mitigate this issue. With Circuit Emulation (CEM), a DS1 or DS3 can be carried over an MPLS packet network and the SONET transport equipment can be retired, thus solving the economic transport issue while still providing DS1 and DS3 services.



Maintaining critical infrastructure with a CEM solution is a challenging task, but the good news is that the Tejas has a solution with several options to meet all of these design objectives.



The Tejas TJ1400 CEM solution allows you to:

1. Replace EOL SONET Aggregation equipment
2. Circuit Emulate DS1/DS3 onto a MPLS packet network
3. Provide Ethernet services and MPLS services on the same equipment at the same time as providing CEM

If you are in need of exploring options to provide these TDM services for Critical infrastructure upgrade projects, Tejas welcomes the opportunity to work with you. Just email us at sales_northamerica@tejasnetworks.com to get started.