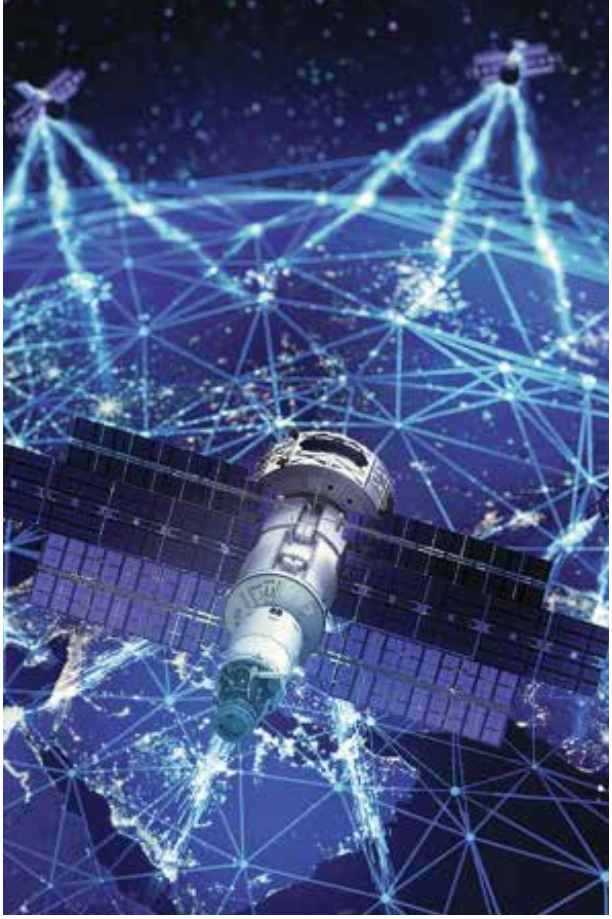
Syncworks

Case Study

Mitigating GNSS Vulnerabilities with Resilient Core Timing



Customer Challenge

Network growth and timing infrastructure needs to be modernized in a way that ensure that timing is still delivered with proper accuracy to meet applications requirements. And, as the network evolve, establish resilient and secure timing infrastructure with ePRTC for critical operations is a priority.

Solution Details

Integrated enhanced primary reference source (ePRTC) nodes into the critical infrastructure, which is now an additional layer of security and resiliency to the network that enables them to successfully distribute timing across the DWDM transport network (also applicable for MPLS) within standards and requirements.

Syncworks Response

Evaluate the details of current network and services and the expansion plan to identify the key points to start and divide the project into phases. Designed the solution to modernize and plan to build out ePRTC network cores.

Business Impact

Enhanced resilience against GNSS outages, reinforced security, and centralized sync visibility while maintaining a scalable network as new services, requirements and applications emerge.

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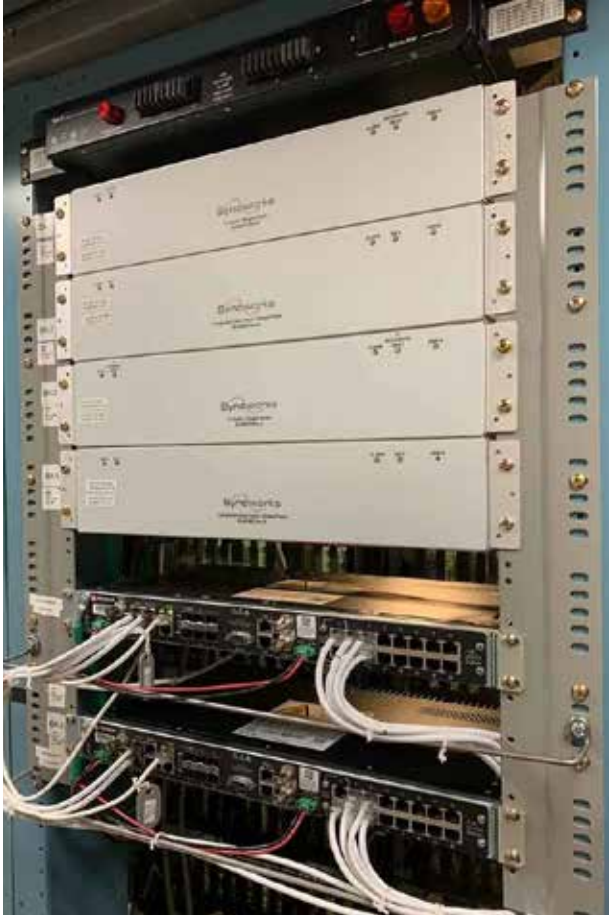
Modernization of the Sync and Timing Network



Customer Challenge

Legacy Network to support, scarce spare parts and in-house expertise to design a secure and reliable network where the legacy and the new technology can coexist and make a seamless transition when ready.

Syncworks Response

Evaluate the details of current network and services and the expansion plan to most vulnerable points of the network to later design a plan to overlay or replace 20-30 years-old BITS distributions with a futureproof platform.

Solution Details

Overlayed (and in some cases replace) the legacy BITS distribution clocks with new solutions that provided support for the SONET network but also enabled the customer to plan for an even more resilient network with ePRTC nodes (ePRTC + GPS Firewall + Cesium + BITS)

Business Impact

Minimized any possible future outages for outdated and manufacturer discontinued equipment in the network, ability to reinforce security, and centralized sync visibility.

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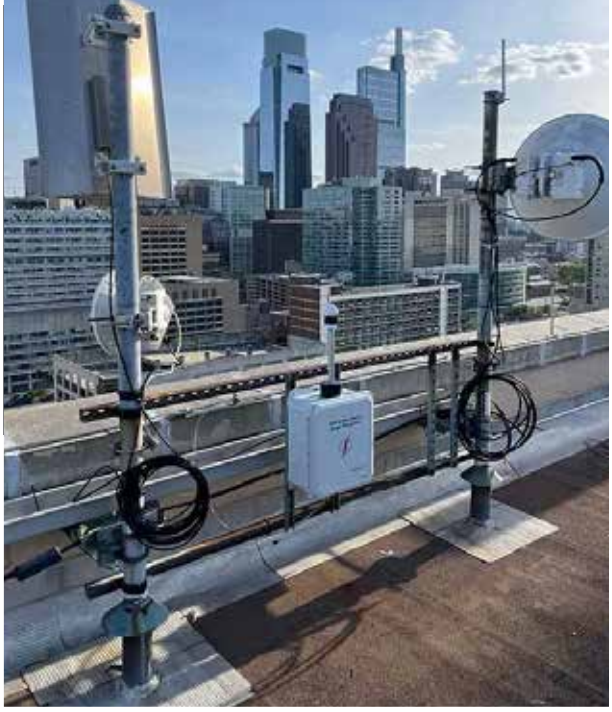
Case Study

Critical Antenna Installation Under Time Constraints



Customer Challenge

A regional utility urgently needed to restore timing services after a GPS antenna failure left critical systems without accurate time. To maintain network reliability during a key maintenance window, the project had to be completed within 48 hours.

Solution Details

The emergency installation featured:

- Rapid deployment of ruggedized GNSS antenna systems with enhanced signal reception
- Implementation of proper grounding and lightning protection following industry standards
- Strategic cable routing and weatherproofing for long-term reliability
- Integration with existing timing distribution infrastructure
- Comprehensive testing and validation to ensure performance compliance
- Documentation and handover to utility maintenance teams

Syncworks Response

Our emergency team quickly deployed experienced engineers with pre-configured equipment, conducted rapid site surveys, and implemented streamlined installation procedures to restore services promptly while ensuring long-term reliability.

Business Impact

Critical timing services were restored within 48 hours, ensuring continued utility operations and preventing service disruptions. The installation improved GNSS reception and environmental protection, enabling compliance with timing standards and supporting future infrastructure upgrades.

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Case Study

Emergency Response for City-Wide Outage

Customer Challenge

A major telecommunications provider experienced a catastrophic city-wide outage in West Virginia caused by a critical DCD (Digital Clock Distributor) failure. The failure disrupted synchronization across multiple network elements, affecting voice, data, and emergency services for hundreds of thousands of customers. With legacy BITS infrastructure and limited spare parts availability, the provider faced mounting pressure to restore services while managing public safety concerns and regulatory compliance issues.

Solution Details

Engineers executed a three-phase approach—first restoring services with loaner equipment, then replacing the legacy BITS system, and finally adding monitoring and redundancy. The solution featured robust holdover timing sources and improved GNSS reception with proper installation.

Syncworks Response

Leveraging our 24/7 emergency response capabilities, Syncworks deployed experienced field engineers within 24 hours of the initial outage notification. Our technical team immediately assessed the failure, identified the critical path for restoration, and coordinated with our extensive spare parts inventory to source emergency replacement equipment. We implemented a rapid deployment protocol, prioritizing the most critical network elements to restore basic services while planning for comprehensive system replacement.

Business Impact

Services were restored within 48 hours, minimizing impact and preventing revenue loss. The provider restored legacy services with a modern, resilient timing system, reducing future risks and protecting their reputation.

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