



## Defense Network Upgrades - Precision Time Synchronization

### SecureSync: Legacy Defense Timing Infrastructure Renewal Saves Significant CAPEX

#### Why This Case Study Is Relevant:

It demonstrates how Orolia's SecureSync® time server solutions can upgrade and enhance legacy defense timing infrastructure while preserving critical system functionality, at minimal cost.

#### Background

Orolia was contacted by a global defense infrastructure client to evaluate the obsolescence of its fixed site timing infrastructure, and the impact on overall system performance.

This legacy defense network was a large installation specifically designed to synchronize multiple clocks in shelters separated over a long distance of several kilometers. These private point-to-point links were at least thirty years old. A private phone network is an example of this type of infrastructure.

The core technology challenge was that their micro-modems had become obsolete, and they relied on a proprietary system to minimize time synchronization delays. Orolia's challenge was to map out new specifications on a very old legacy system and propose a modern solution that would meet the customer's sensitive mission requirements.



## Solution

Orolia developed an innovative, off the shelf solution that would easily accommodate the customer's needs while minimizing future obsolescence issues.

The primary technology challenge was linked to the low bandwidth SDSL limitations associated with network modems operating on long copper runs (< 10 Mbit/s). This dependency had a direct impact on the data transfer's time and frequency stability. Orolia evaluated the best possible protocol to perform time transfers over the newly-deployed system, and Precision Time Protocol (PTP) was the best candidate.

Orolia configured the appropriate data transportation protocol into the SecureSync platform to deliver accurate timing data across multiple computers, while guaranteeing the performance phase error (< 10  $\mu$ s), frequency stability and start time (< 20 min). The new PTP protocol also enabled the future evolution of the customer's high demand synchronization IP networks.

## Results

Orolia's time server solution offered equivalent performance as compared to replacing the legacy infrastructure, with significant savings on capital expenditures as well as the labor cost of replacing cables. The customer's obsolescence issues were resolved, and their new defense timing infrastructure system is modern and easy to upgrade on demand.

Orolia's SecureSync solutions are proven and widely deployed to serve multiple defense applications such as remote radar, communications, and mission control systems that require mission-critical, precision time synchronization.

## About Orolia

Orolia is the world leader in Resilient Positioning, Navigation and Timing (PNT) solutions that improve the reliability, performance and safety of critical operations, even in GPS-denied environments. With locations in more than 100 countries, Orolia provides virtually failsafe GPS/GNSS and PNT solutions to support military and commercial applications worldwide.