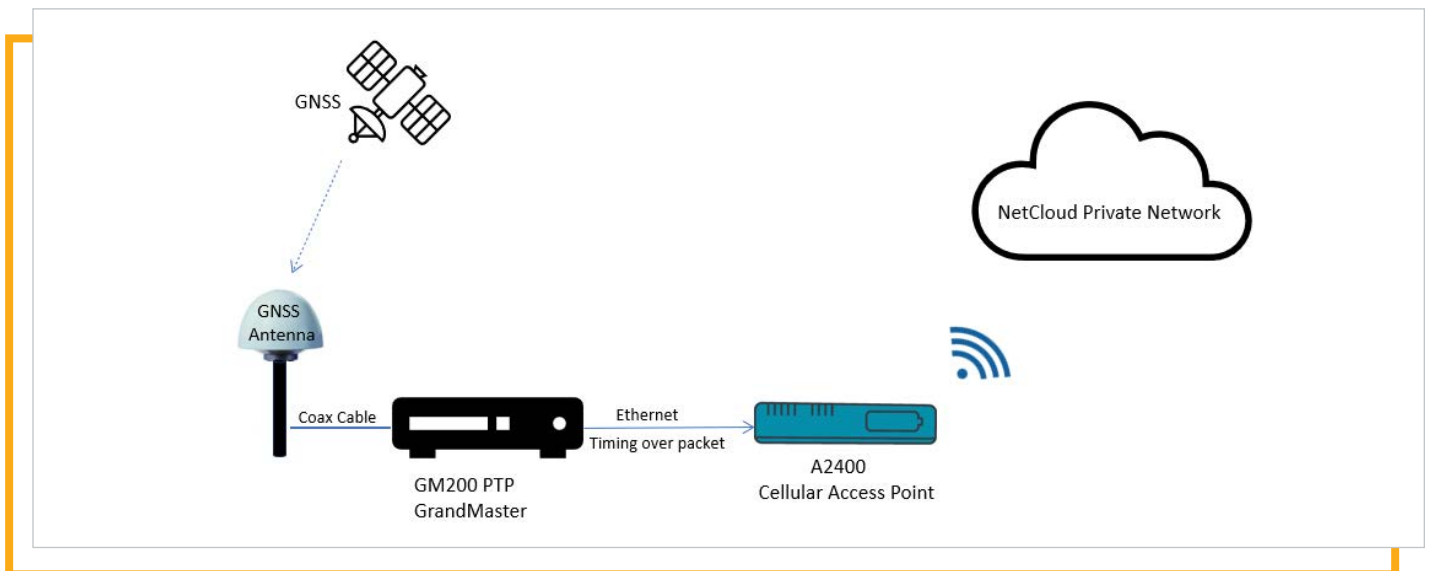# Enabling Precision GNSS Timing and PTP Timing Distribution in Private Cellular Networks

Synchronization is critical when using CBRS and other 5G solutions

Introduction

Private wireless operators encounter various synchronization challenges in their networks. Synchronization is a critical imperative of Citizens Broadband Radio Service (CBRS) and other 5G solutions since 5G spectrums are transmitted in precise time slots.

Wireless networks and services need continuous availability of Coordinated Universal Time (UTC). Distributing this precise timing over packets allows infrastructure devices to simultaneously synchronize to the same Grandmaster timing source. By using precise timing synchronized to the same source, devices are able to orchestrate their processes in concert with each other.

Cradlepoint and Protempis deliver a high availability private networking solution that can meet the stringent timing requirements of critical infrastructure.

• Cradlepoint NetCloud Private Networks (NCPN) delivers the end-to-end private cellular network solution designed for the needs of today's dynamic enterprise IT ecosystems.

• Protempis provides affordable and precise synchronization for private 5G Implementation.

Cradlepoint and Protempis deliver private cellular networking solutions that meet stringent timing requirements of critical infrastructure and help operators maximize the performance of their networks and optimize the return on their infrastructure investments."

Edward Rodemsky,
VP Global Sales, Protempis

Joint Solution Value

Protempis brings proven timing technologies to Cradlepoint's NetCloud Private Networks Solution. Benefits include:

• High availability for critical network applications and services: If the sync source is disrupted or temporarily unavailable, Protempis' products with holdover will maintain synchronization to ensure applications remain available.

• Performance: Protempis' timing product architecture produces near atomic-clock performance. Single- and dual-frequency multi-constellation GNSS receivers with anti-jamming and spoofing features are available.

• Proven reliability: Protempis' standard and customized products have been deployed by customers in a broad set of industries with an outstanding record of reliability across millions of devices shipped.

• Scalable performance: Cradlepoint and Protempis allow you to scale your network seamlessly while maintaining synchronization integrity.

• Compliance and interference mitigation: Ensure adherence to synchronization standards and mitigate potential interference sources.

Private cellular networking use case

Many organizations are embracing private cellular solutions as an alternative to Wi-Fi due to coverage, performance, and security considerations. Cradlepoints' NetCloud Private Networks and Protempis combines Cradlepoints' wireless expertise with Protempis' timing expertise to deliver a private cellular networking solution that meets strict wireless timing requirements.

About Cradlepoint

Cradlepoint enables the freedom to connect people, places, and things that drive more experiences, more ways to work, and better business results — anywhere. The company is a pioneer in Wireless WAN, offering advanced 4G and 5G routers and adapters — controlled through Cradlepoint NetCloud™. Enterprise businesses and public sector agencies rely on Cradlepoint and its Cellular Intelligence to build a reliable, secure network wherever they need it, connecting fixed and temporary sites, vehicles, IoT devices, and remote employees. Headquartered in Boise, Idaho, Cradlepoint is a wholly owned part of Ericsson's Enterprise Wireless Solutions Business Area. It has international offices in Asia Pacific, Canada, Europe, India, and Latin America.

About Protempis

Protempis is a leader in GNSS timing and synchronization technologies. Product lines include single- and dual-band GNSS receivers, antennas, PTP/NTP timing distribution devices, disciplined clocks, and more. Protempis brings timing and synchronization expertise in networking, telecommunications, wireless, data center, power, transportation, financial, and broadcasting industries.

Learn more at cradlepoint.com and protempis.com