Meet the industry's first pluggable module for precise synchronization

Easily inject highly accurate timing into white boxes, switches, routers and other devices with the OSA 5400 SyncModule™

November 2021

OSCILLOQUARTZ
An ADVA Company

Assuring business continuity with precise timing

Fixed/mobile networks

Precisely synchronizing radio access networks

Accurate timestamping of video and audio streams

Broadcast

Utilities

Detecting and accurately localizing failures

Synchronizing backup and distributed compute processes

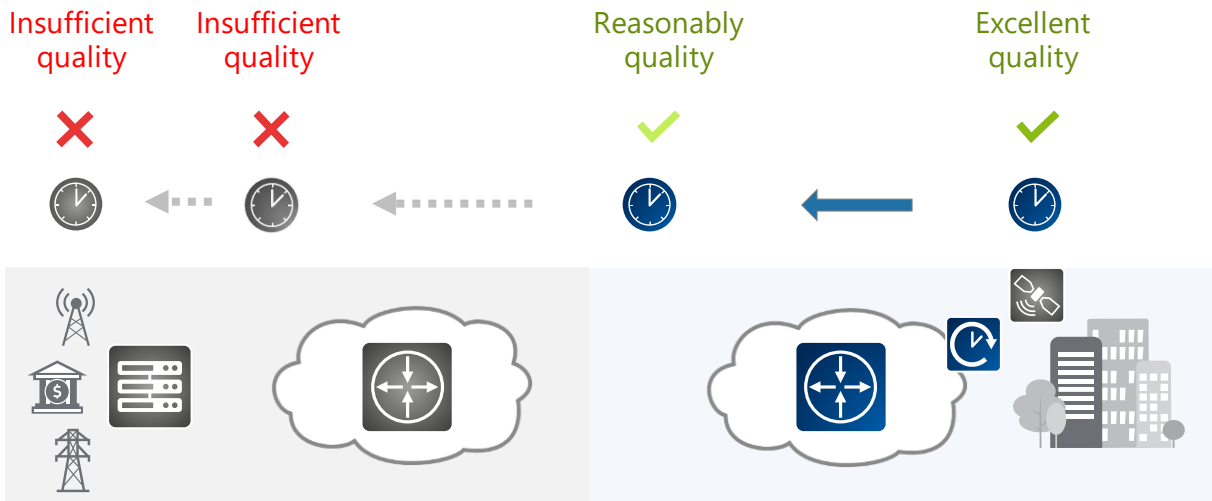
Data centers

OSCILLOQUARTZ
An ADVA Company

Challenge: appliances are not accurately synchronized

Need for precise time

- Radio base stations
- Remote PHY in cable networks
- Financial institutions
- Smart grid substations
- Servers and industrial control
- Security systems
- Critical infrastructure
- Broadcast networks
- … and many others



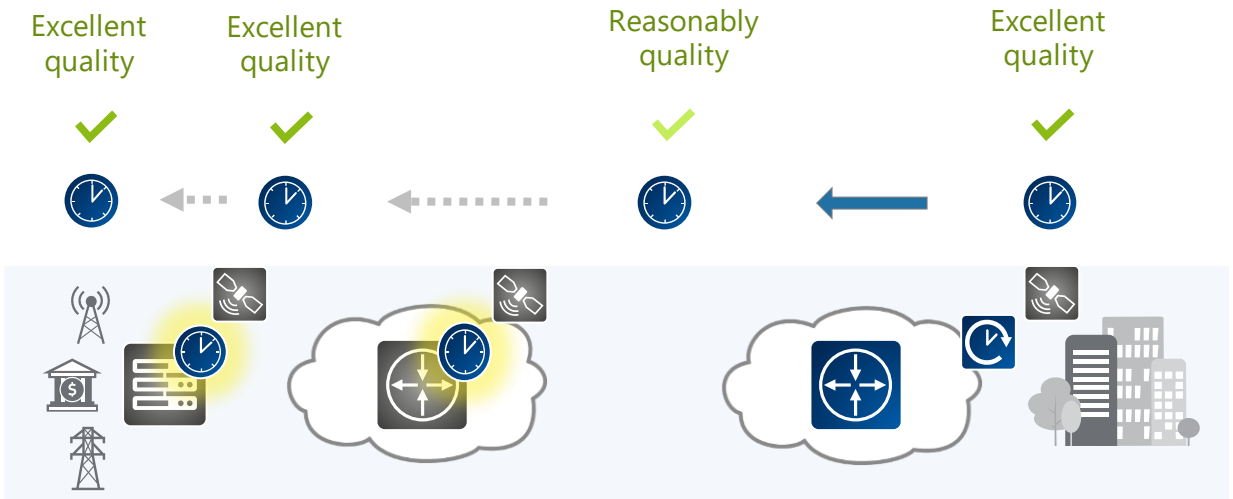
- No timing support in packet devices
- Poor timing protocol stacks and no hardware-assisted timing in servers/applications

- Packet devices with SyncE, PTP boundary clocks
- Dedicated synchronization network, optical timing channel (OTC)

Solution: upgrading onsite devices with sync

Adding timing capabilities

- Adding synchronization capabilities into network devices such as white box servers/switches and other appliances
- Features:
  - GNSS receivers for onsite access to precise time
  - SyncE and PTP/NTP support
  - Backup to GNSS from PTP
  - Oscillators with different quality levels
  - Management interface and sync assurance



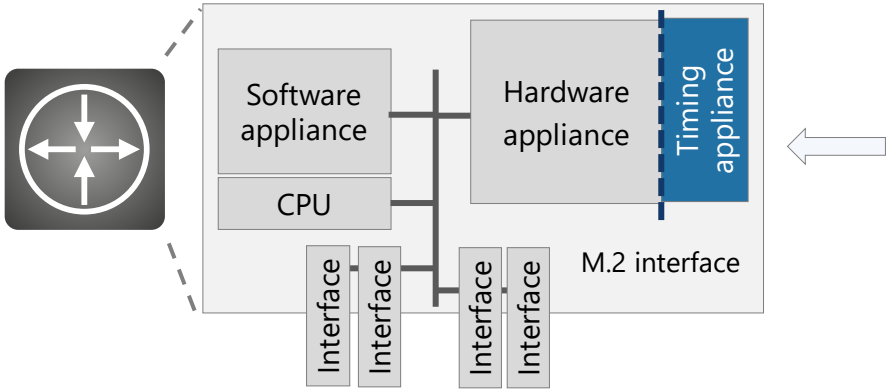
- Extending synchronization capabilities to the edge
- Upgrading existing network gear

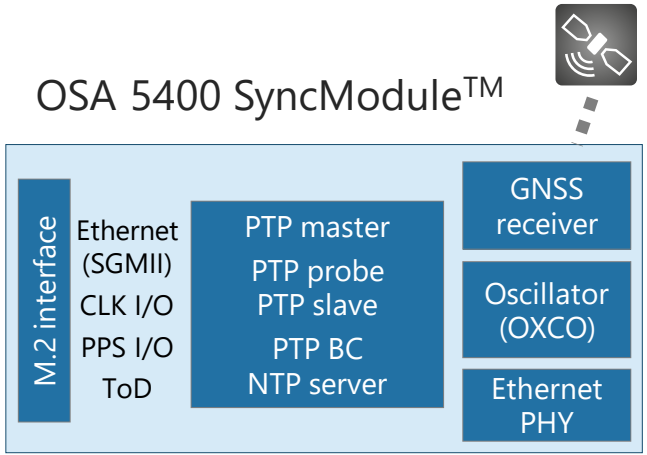
How to integrate sophisticated synchronization into network devices

Developed by device manufacturer	Modular subsystem from ADVA
• Lacking synchronization competence • Fast innovation cycles of GNSS receivers and PTP-related standards require frequent updates for device design and software • No experience with operating timing networks in an efficient and transparent way	• Proven, reliable and robust technology • Modularity eases feature innovation • Simplified integration and fast time to market • Sophisticated GNSS receivers, PTP grandmaster, various backup options for accuracy and resilience • Unique GNSS and PTP assurance features • Transparently managed with Ensemble Sync Director

OSA 5400 SyncModule™

Generic architecture of a network device





OSA 5400 SyncModule™ provides network device with access to GNSS and PTP

OSCILLOQUARTZ An ADVA Company

Introducing the OSA 5400 SyncModule™

- Low-power solution
- Easily integrated into systems due to M.2 interface
- Temperature range 0°C to +70°C

Comprehensive sync capabilities

- IEEE 1588 PTP grandmaster/boundary/slave clock
  - Up to 64 unicast clients at 128pps
  - Multiple PTP profiles
  - PTP profiles conversion
- GNSS receiver and GNSS assurance
- NTP server
- PTP input as backup to GNSS (APTS)
- Sync probe (Syncjack™)
- SyncE in/out
- OCXO-based holdover
- OSA 5405 extension option

Sync Jack™

OSCILLOQUARTZ An ADVA Company

Precisely synchronizing a wide range of applications

Managing and operating transport and synchronization networks

PTP G.8265.1	PTP G.8275.2	PTP G.8275.1	PTP/NTP enterprise	PTP broadcast	PTP power
2G/3G/4G/5G FDD	DOCSIS 3.1 small cells APTS	5G/LTE TDD LTE-A small cells	MIFID II automation	Professional broadcast	Power utilities

Ensemble Sync Director – GNSS assurance

Benefit

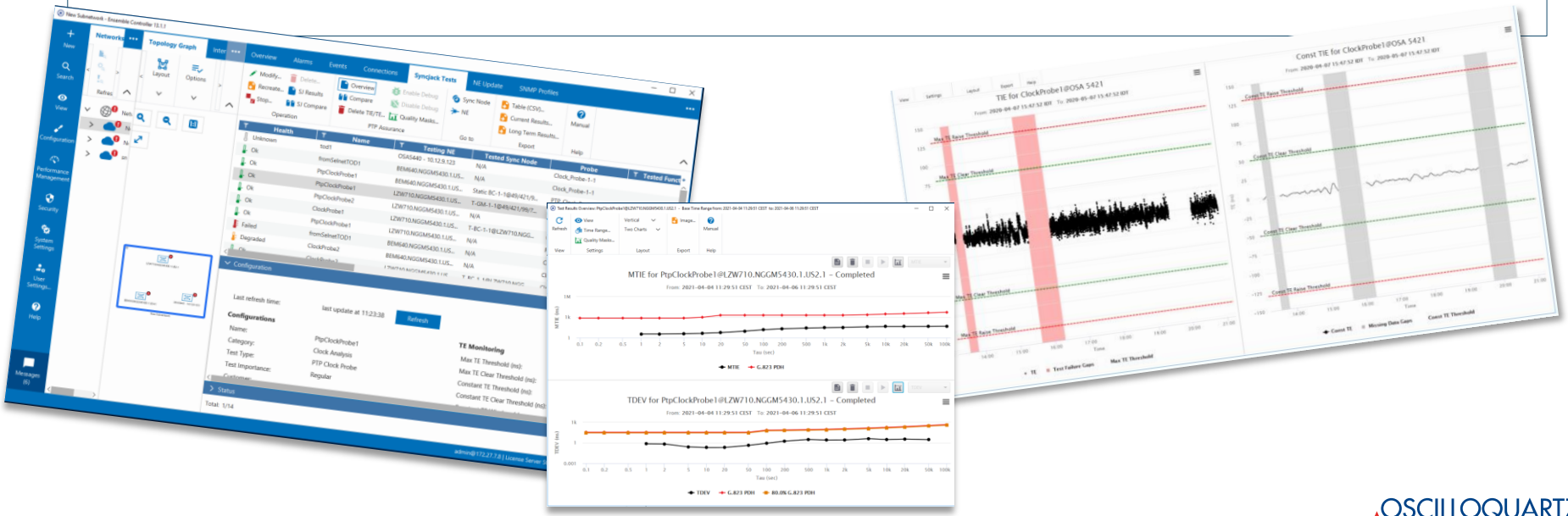
- GNSS troubleshooting and historical analysis
- Short term: active monitoring, identification of GNSS installation/blocking issues, detect blind/poor spots for antenna
- Long term: optimize antenna positioning and receiver setting for optimal performance for time synchronization across a transport network

OSCILLOQUARTZ
An ADVA Company

Ensemble Sync Director – sync and PTP assurance

Benefit

- In-service sync and PTP monitoring and assurance
- Accurate measurement of PTP clock and physical clock on the OSA 5400 SyncModule™
- Raw data is sent to Ensemble Sync Director for analysis and display
- Time error, MTIE and TDEV calculation and monitoring vs. masks and threshold



OSCILLOQUARTZ
An ADVA Company

Towards ubiquitous timing

Precise timing

Combining multi-band GNSS receivers, class D boundary clocks and cesium atomic clocks

Resilient timing

Backing up network timing with satellite-delivered timing; fully redundant hardware

Assured timing

Security and availability with comprehensive monitoring and AI-assisted analysis

Ubiquitous timing

Making any network device timing-aware with embedded timing modules and virtual clocks

OSAinside
Stay in sync

New

OSCILLOQUARTZ
An ADVA Company

Summary

- Stringent timing accuracy requirements in mobile networks, critical infrastructure and data centers require time-aware IT networks
- Network device manufacturers often lack sophisticated synchronization competence
- ADVA is offering embedded timing modules for cost-efficient integration of accurate synchronization into any network device

Enhancing third-party network devices with precise synchronization

OSCILLOQUARTZ
An ADVA Company

Thank you

www.oscilloquartz.com | info@adva.com