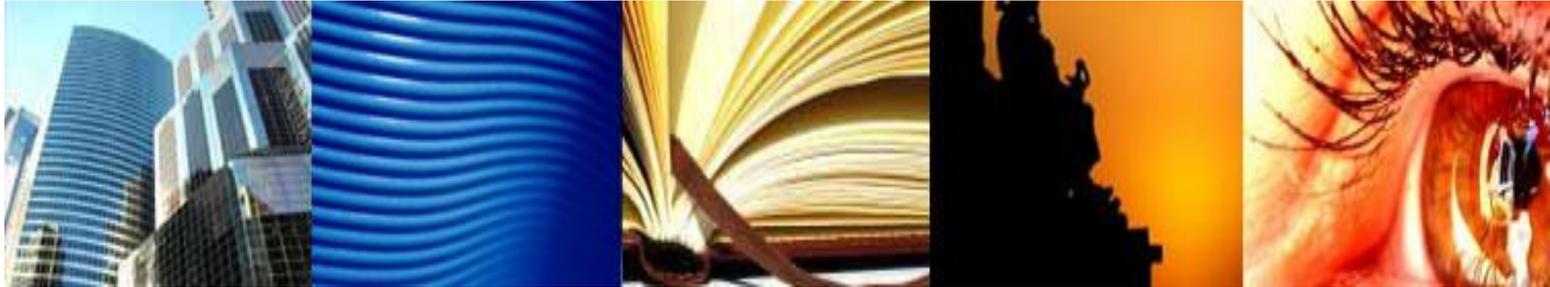


xGenius



Cutting edge Transmission & synchronization Tester



ALBEDO
Telecom
The Path to Excellence

ALBEDO: a **global** player of **telecom** appliances

ICT electronics
(1983)



Trend Comms
(2001)



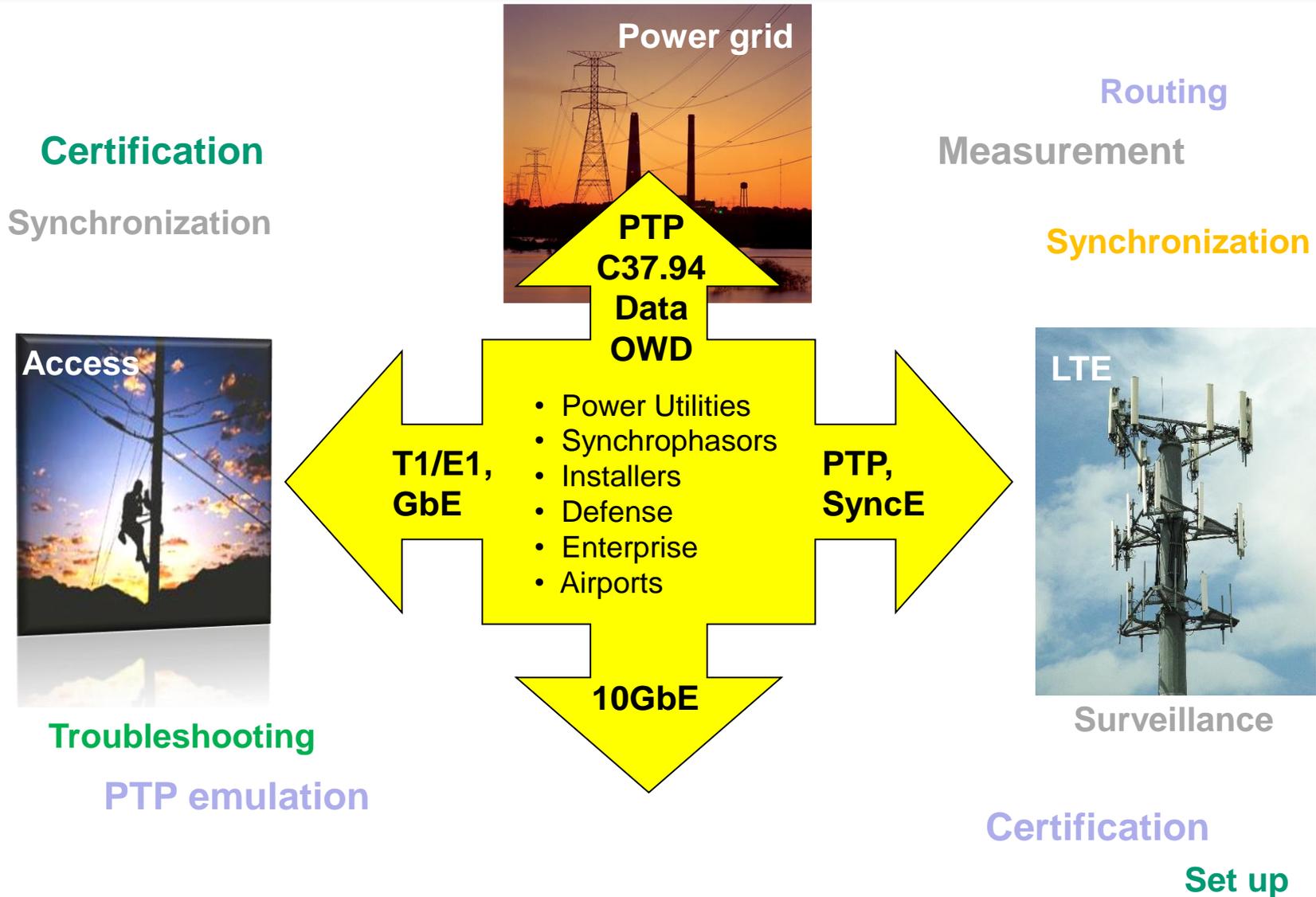
ALBEDO (2009-today)

xGenius: Transmission & Synchronization



- ◆ BNC + RJ-45: E1 / T1 balanced / unbalanced testing
- ◆ Dual SFP / SFP+ ports: GbE, 10GbE
- ◆ Double RJ-45 ports: 10 / 100 / 1000 Mb/s Ethernet
- ◆ Full Datacom and C37.94 support
- ◆ RTD and OWD (GPS assisted)
- ◆ Built in clock reference inputs and outputs, including GNSS
- ◆ MicroSD card support

xGenius markets



8-inch Capacitive Touch Screen

800 x 480
pixels



Designed by ALBEDO Telecom inc.

ALBEDO

xGenius
Transmission & Synchronization

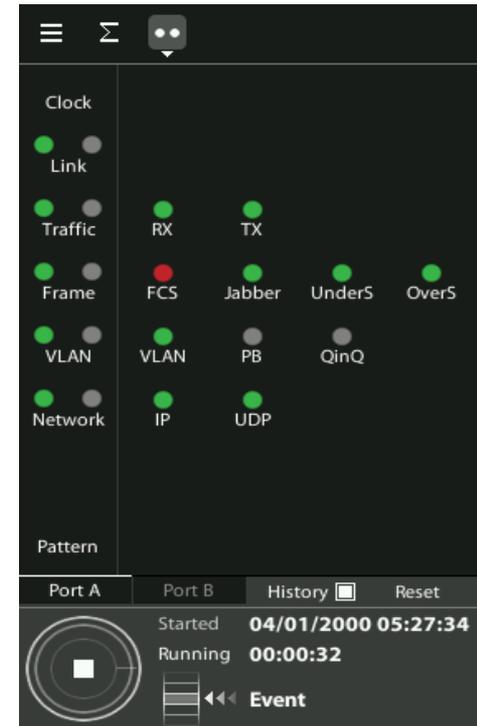
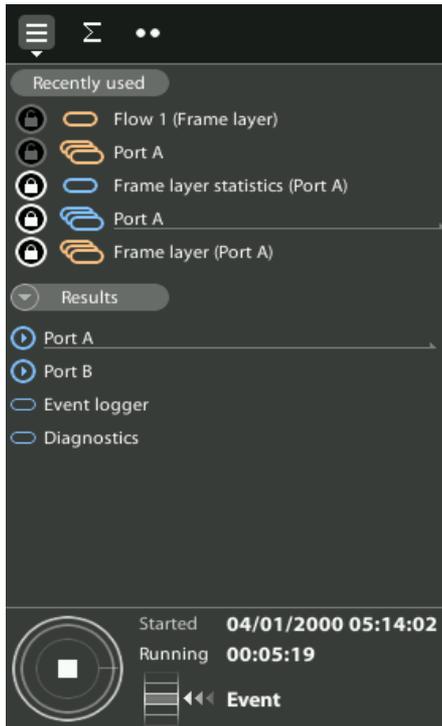
Tests, Settings and Results at a Glance

The screenshot displays the ALBEDO Telecom interface for a PING test. The interface is divided into several sections:

- Header:** Shows the test status as "Stopped" with a duration of "00:09:16". A "PING" indicator is visible in a green box. The battery level is at 100%.
- Left Sidebar:** Contains a navigation menu with sections for "Recently used" (listing Ping/Traceroute, Local profile, Performance test, eSAM objectives, and Port A), "Config" (listing Port A, Port B, Wander generator, and Reference clock), and a control panel at the bottom with a play button, start time "17/11/2017 18:02:01", stop time "00:09:16", and an "Event" log.
- Main Content Area:** A list of test parameters and their values:

Destination IPv4 address from	Host name
Destination IPv4 address	0.0.0.0
Destination IPv4 address (DNS)	90.71.64.152
Destination host name	www.albedotelecom.com
Timeout	5.0 s
Interval	1.0 s
ICMP packet size (bytes)	56
TTL	255
Max. number of hops	30
Number of packets/hop	1
Traceroute protocol	ICMP
UDP port	33333
- Right Sidebar:** Features three large, vertically-oriented buttons: "TEST" (green), "CONFIG" (yellow), and "RESULTS" (blue), along with a back arrow at the bottom.

Intuitive while effective GUI



- ◆ Quick access to panels
- ◆ Flows, filters, protocols and frames
- ◆ Always visible, real-time / historic events

Powerful Trace

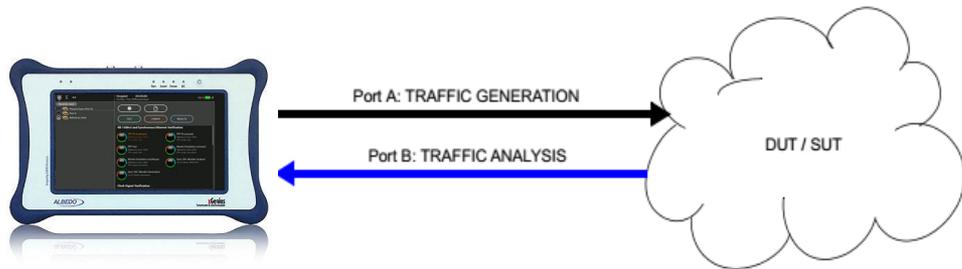


- ◆ Chronographs for virtually any event measured in xGenius
- ◆ Detailed view for events such as Latency or Time error
- ◆ Vertical axis auto-scale, custom zoom and positioning functions

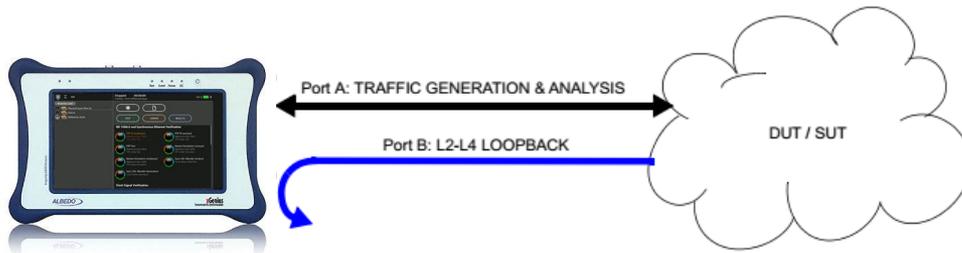
World Best testing features

- ◆ Built in Rubidium or OCXO
- ◆ Multistream for Multiplay
- ◆ RFC 2544, eSAM symmetric and asymmetric
- ◆ RTD and OWD assisted with GNSS
- ◆ VLAN, Q-in-Q MPLS and Ipv6
- ◆ Datacom: V11, V24, V35, V36, EIA530, EIA530A, Co-dir
- ◆ E1 / T1 test with pulse mask, frame verification and BER
- ◆ IEEE 1588v2 / PTP master and slave emulation
- ◆ 1PPS and clock analysis, including SyncE
- ◆ Synchronization tests: TE, cTE, dTE, TIE, MTIE, TDEV, FPP
- ◆ Comprehensive C37.94 support with Terminal/Monitor modes
- ◆ VF comprehensive testing

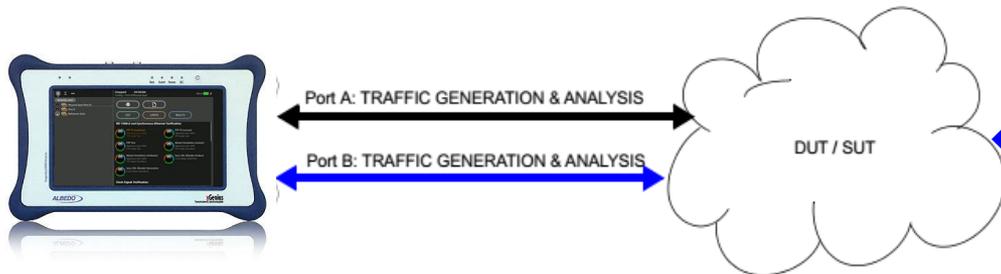
Dual Port Traffic Generation



- ◆ Single direction traffic generation and analysis



- ◆ Loopback test for joint verification of both transmission directions



- ◆ Double concurrent traffic generation and analysis (two multi-stream traffic generators and two analysers)

Automatic Quality test



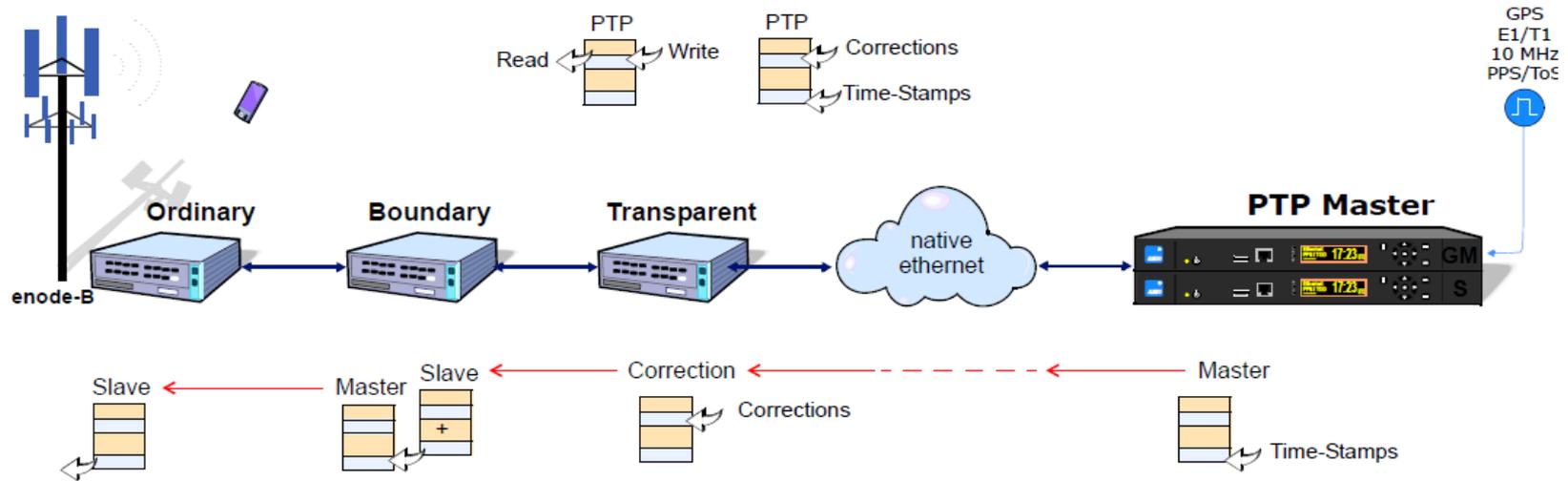
◆ RFC 2544

- Throughput
- Frame loss
- Latency / Jitter
- Back-to-back frames
- System recovery time

◆ eSAM

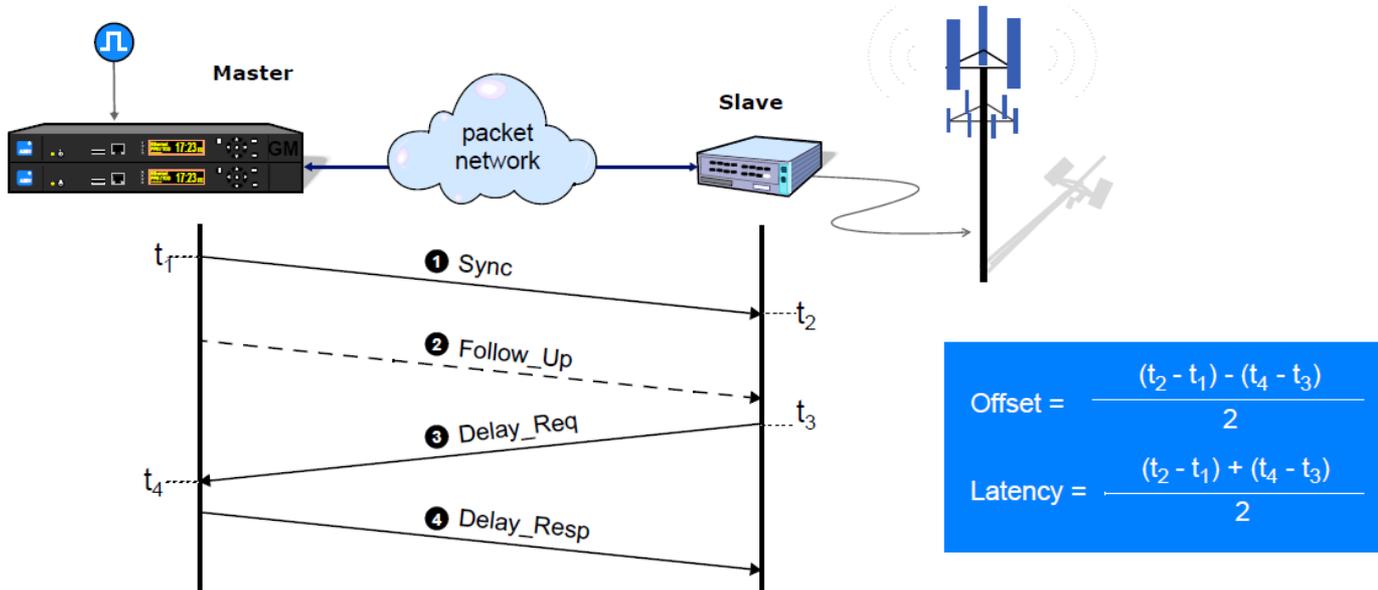
- Configuration and performance
- Supports colored traffic
- Tests up to 8 services

Time / Phase testing



- ◆ IEEE 1588v2 / PTP pseudo-slave emulation
- ◆ 1PPS / ToD and clock analysis, including SyncE
- ◆ Synchronization tests: TE, cTE, dTE, TIE, MTIE, TDEV, FPP
- ◆ Higher precision

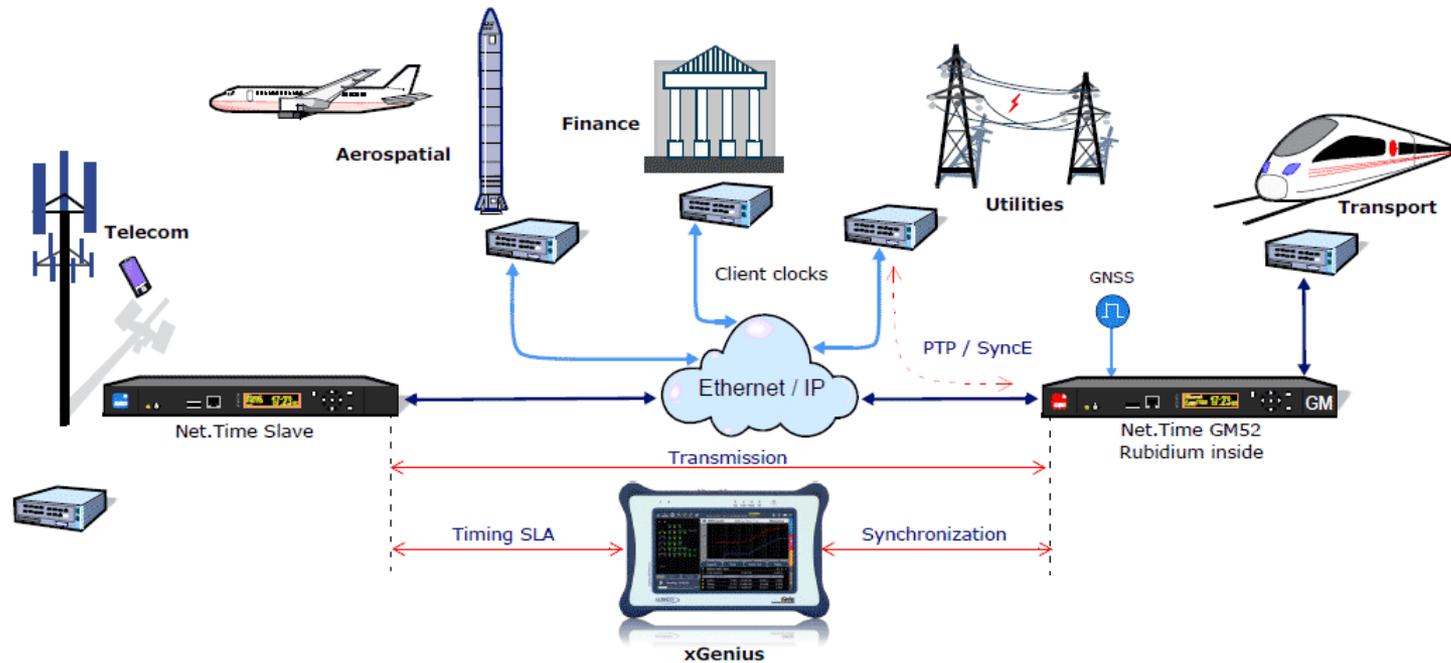
PTP latency & asymmetry test



Asymmetry generates a time offset in PTP slaves then it has to be tightly controlled

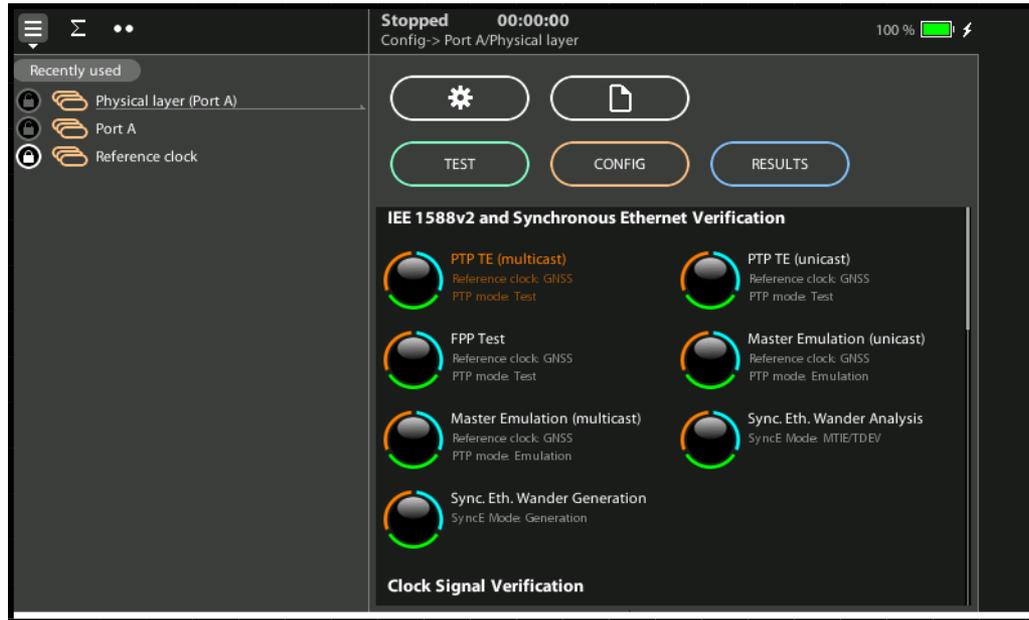
- ◆ Forward vs. reverse path delay
- ◆ Delay difference (asymmetry)

MTIE / TDEV test



- ◆ Measured in the PTP interface (pktFilteredTIE / MTIE / TDEV)
- ◆ Measured in the ITU-T G.8271 / G.703 1 PPS slave output
- ◆ Measured in freq. Interfaces (E1, T1, 2048 kHz, 1544, 10 MHz)

Predefined tests



- ◆ Displays to the most relevant panel for every test
- ◆ Pre-configures the unit to run common tests
- ◆ Pre-loads shortcuts in the “Recently used” panel

New hardware

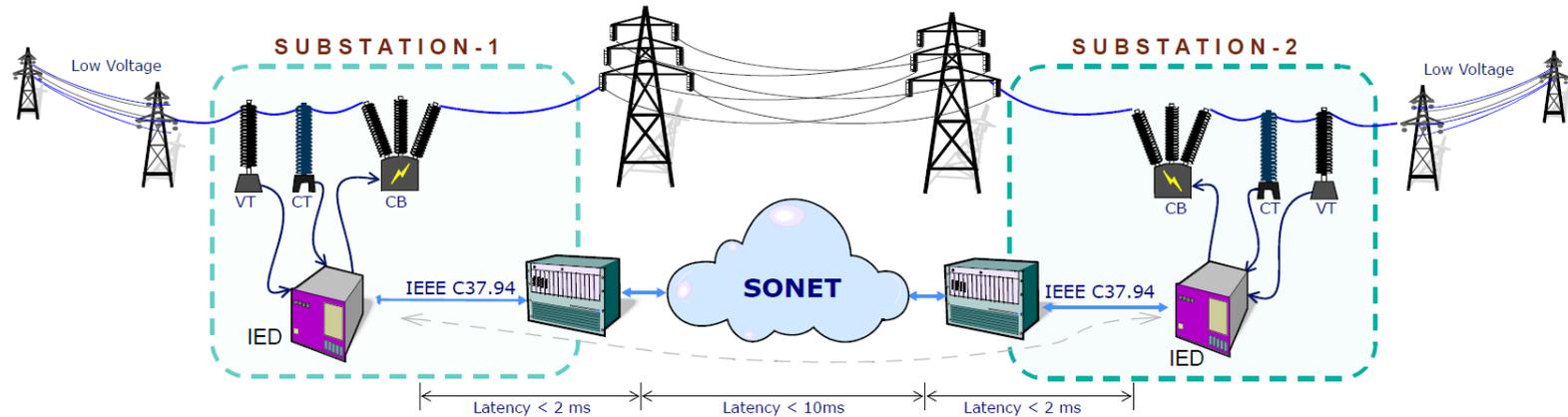


hot swappable modules

- ◆ Hot swappable modules
- ◆ Datacom
- ◆ C37.94
- ◆ IRIG-B
- ◆ VF Port
- ◆ Codirectional - G703



C37.94 protection

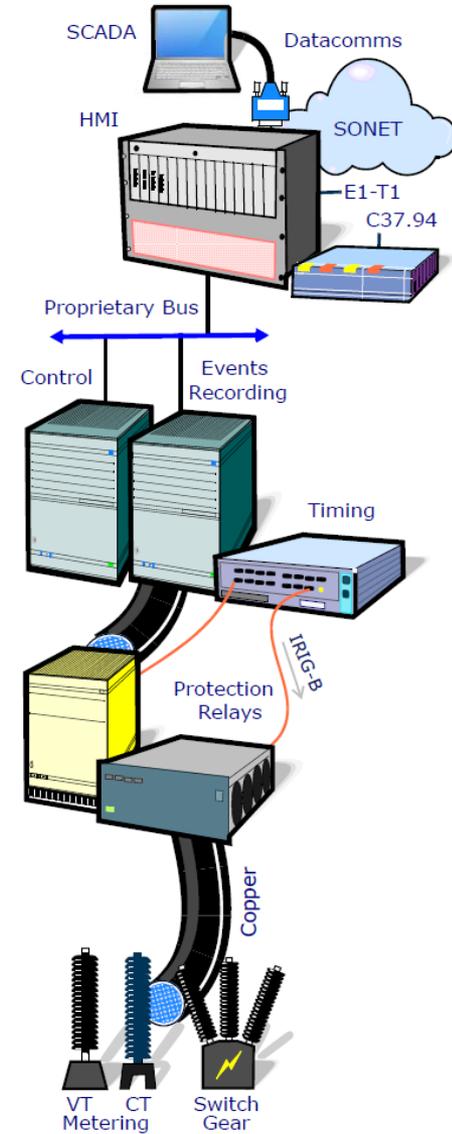


C37.94 defines a $N \times 64$ Kbps ($N = 1 \dots 12$) multi-mode optical fiber interface between tele-protection and digital multiplexer equipment, for distances of up to 2km. Allowing protection relays with C37.94 compliant interfaces to be directly connected to the unit.

IRIG-B support



IRIG-B in



TCP throughput test

Stopped 00:06:17
Results -> Port A/RFC 6349 (TCP)/Throughput test

Throughput test

	Upstream	Downstream
Status	PASS	Idle
Window size	2.560 kB	0 B
Connections	1	0
M. throughput	941.482 Mb/s	0 b/s
Efficiency	100.0 %	0.0 %
Buffer delay	25.0 %	0.0 %

Started 21/12/2018 09:25:30
Stopped 00:06:17

Event

- ◆ Single flow and multi-flow configurations for the RFC 6349 test
- ◆ Compatible with Iperf and Albedo remote agents
- ◆ Simple to use, automatic parameter configuration

Why xGenius?

- ◆ Latest electronics: Fast, powerful, long operation time
- ◆ Multi-technology: Handheld, battery powered
- ◆ Built in GNSS and Rubidium for great synchronization
- ◆ Includes SyncE, PTP: Ready for LTE testing
- ◆ Datacom and C37.94 support
- ◆ 1 / 10 GbE double port (generation and analysis)
- ◆ E1 / T1 to facilitate migration from legacy installation
- ◆ Easy navigation in 8 inches: Touch, Mouse & Keyboard



That's all



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