

xGenius

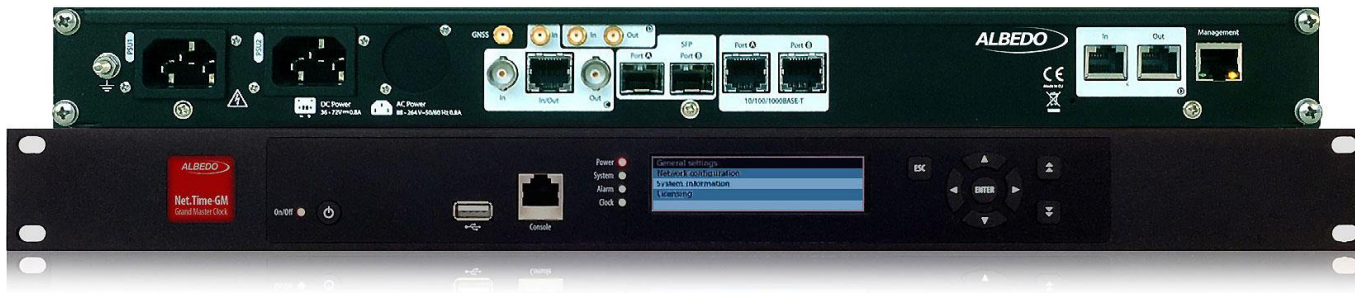


Cutting edge Transmission & synchronization Tester



ALBEDO
Telecom
the Path to Excellence

Global Manufacturer telecom nodes & instruments

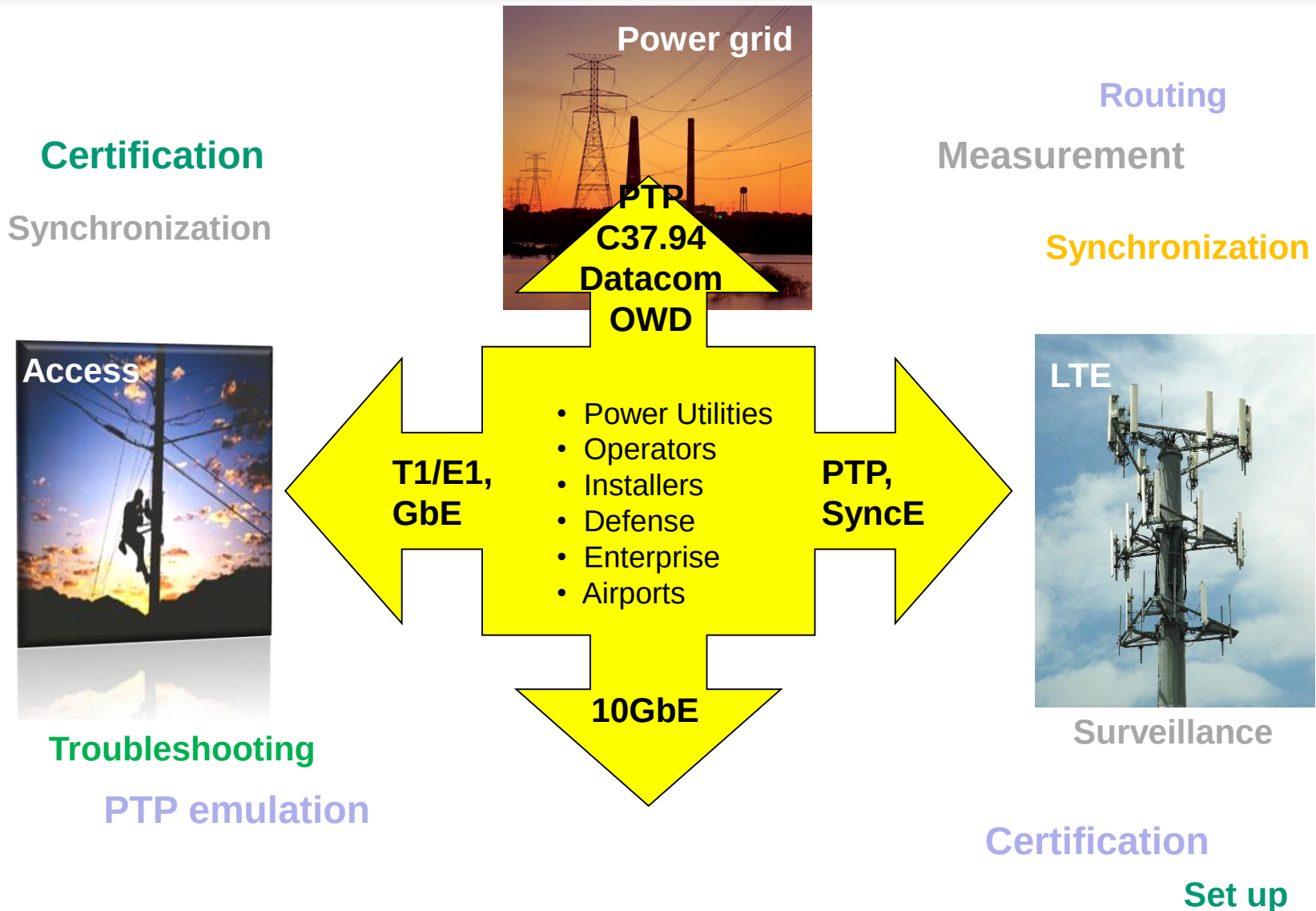


xGenius: **Transmission & Synchronization**



- ◆ 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

Ether.Genius markets



8-inch Capacitive Touch Screen

800 x 480
pixels



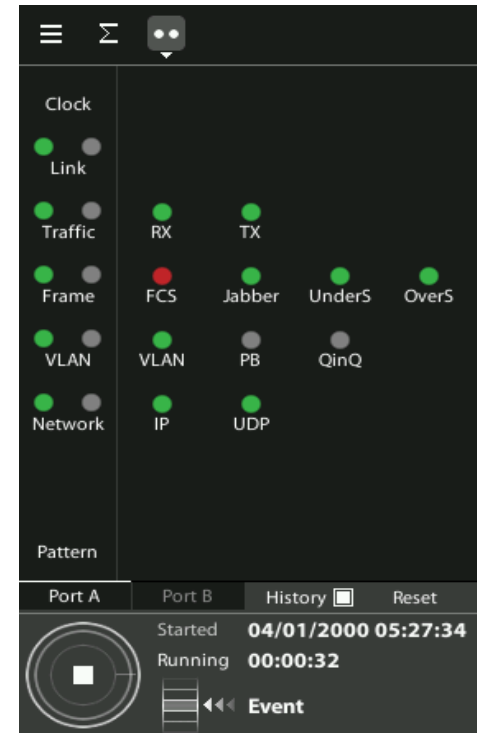
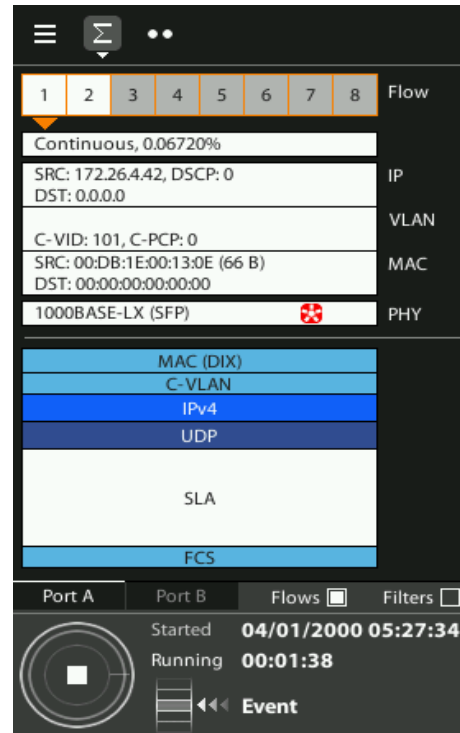
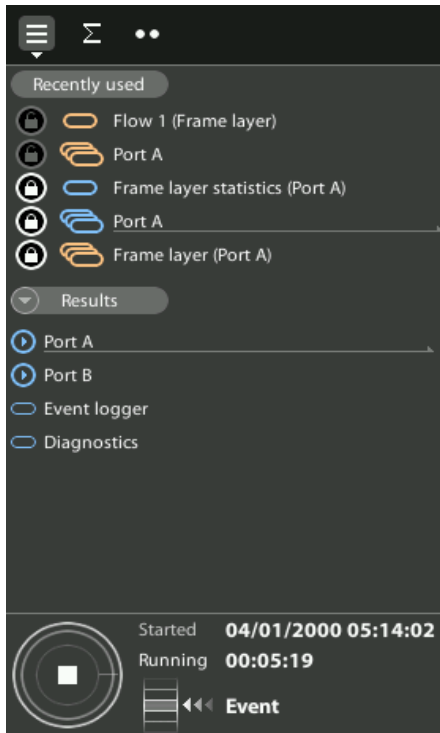
Tests, Settings and Results at a Glance

The screenshot displays the ALBEDO Telecom interface, which is divided into several sections:

- Top Bar:** Shows the status "Stopped" with a timer at "00:09:16" and a "PING" indicator. It also shows "Config-> Port A/Ping/Traceroute", a battery level of "100 %", and a signal strength icon.
- Left Sidebar:** Contains a "Recently used" list with items like "Ping/Traceroute (Port A)", "Local profile (Port A)", "Performance test", "eSAM objectives (Performance test)", and "Port A". Below this is a "Config" section with a tree view showing "Port A" expanded, containing "Local profile", "Physical layer", "Frame layer", "Ping/Traceroute", and "ESMC". Other options include "Port B", "Wander generator", and "Reference clock".
- Main Panel:** Displays a list of test parameters and their values:

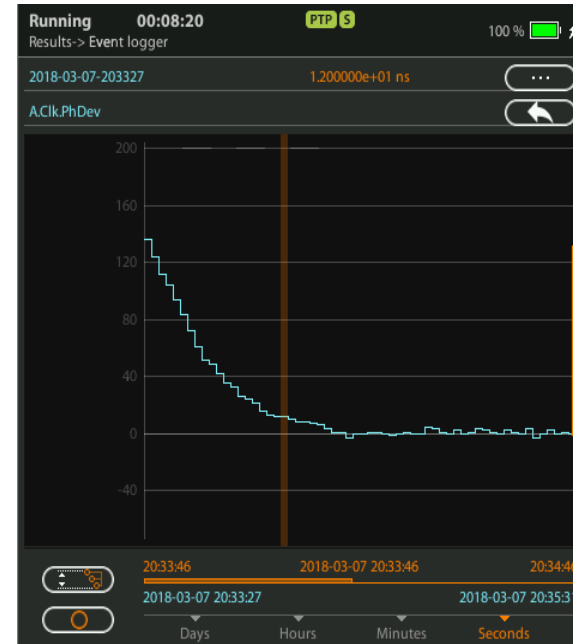
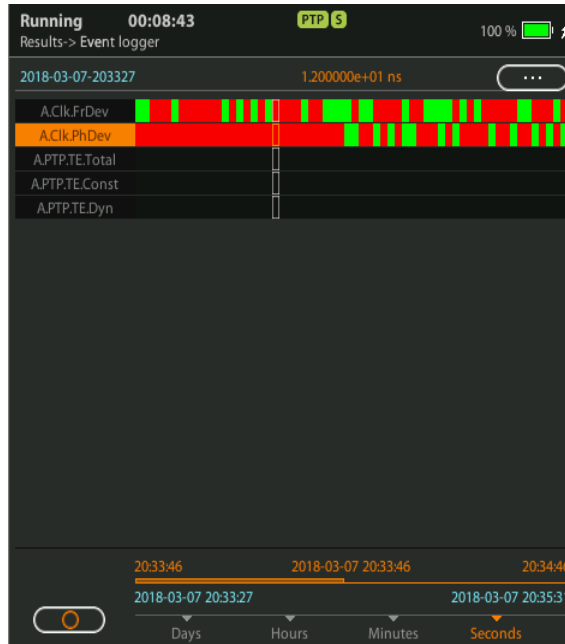
Parameter	Value
Destination IPv4 address from	Host name
Destination IPv4 address	0.0.0.0
Destination IPv4 address (DNS)	90.71.64.152
Destination host name	www.albedotelecom.com
Timeout	5.0 s
Interval	1.0 s
ICMP packet size (bytes)	56
TTL	255
Max. number of hops	30
Number of packets/hop	1
Traceroute protocol	ICMP
UDP port	33333
- Bottom Left:** Features a play button icon, a "Started" timestamp of "17/11/2017 18:02:01", a "Stopped" timestamp of "00:09:16", and an "Event" button.
- Right Sidebar:** Contains three large buttons labeled "TEST", "CONFIG", and "RESULTS", 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

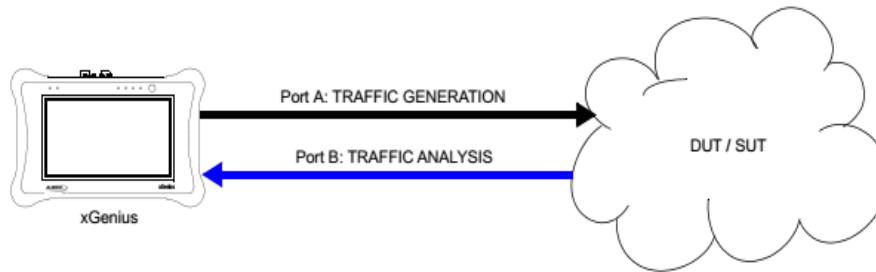


- ◆ Chronographs for virtually any event measured in xGenius
- ◆ Detailed view for events such as Latency or Time error
- ◆ Vertical axis auto-scale, custom zoom and positioning functions

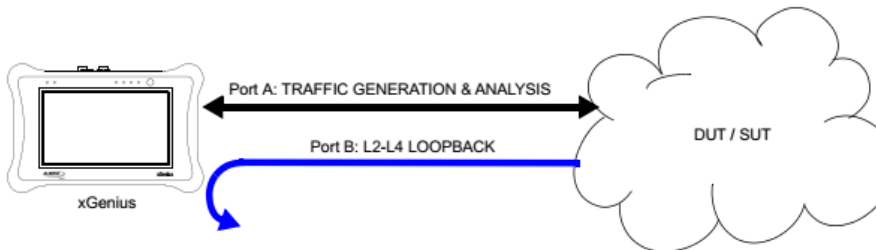
World Best testing features

- ◆ 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

Dual Port Traffic Generation

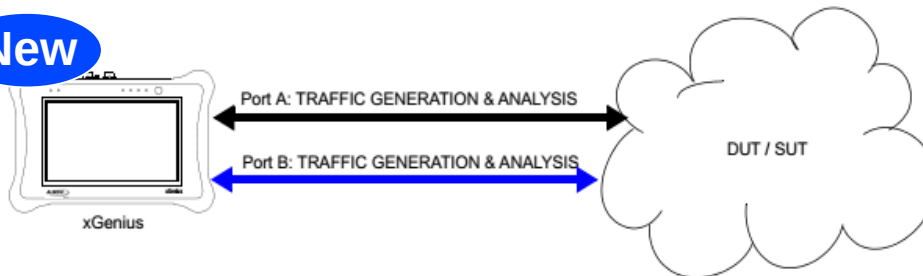


- ◆ Single direction traffic generation and analysis



- ◆ Loopback test for joint verification of both transmission directions

New



- ◆ 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 tests
- Supports colored traffic
- Tests up to 8 services

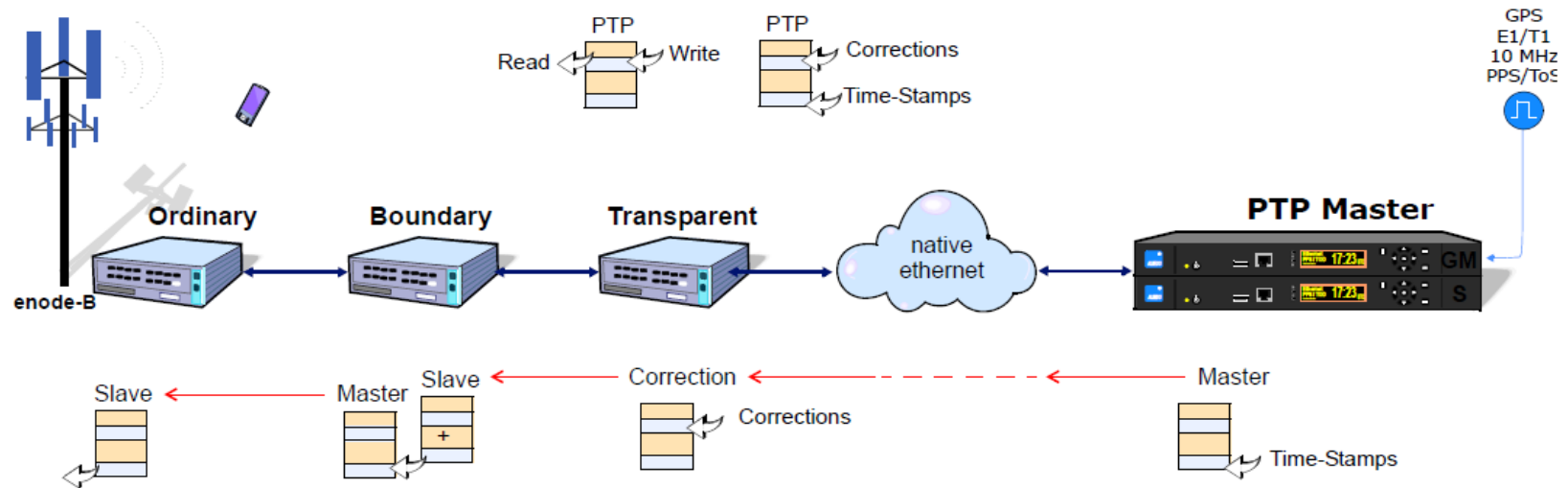
Stopped 00:09:16 eSAM 100 % 

Results-> Port B/eSAM/eSAM Performance test

eSAM Performance test PASS					
Serv.	IR (Mbit/s)	FLR	FTD (ms)	FDV (μs)	Avail (%)
1	50.000	0.000E+00	0.047	0	100.000
2	50.000	0.000E+00	0.047	0	100.000
3	50.000	0.000E+00	0.048	0	100.000
4	50.000	0.000E+00	0.047	0	100.000

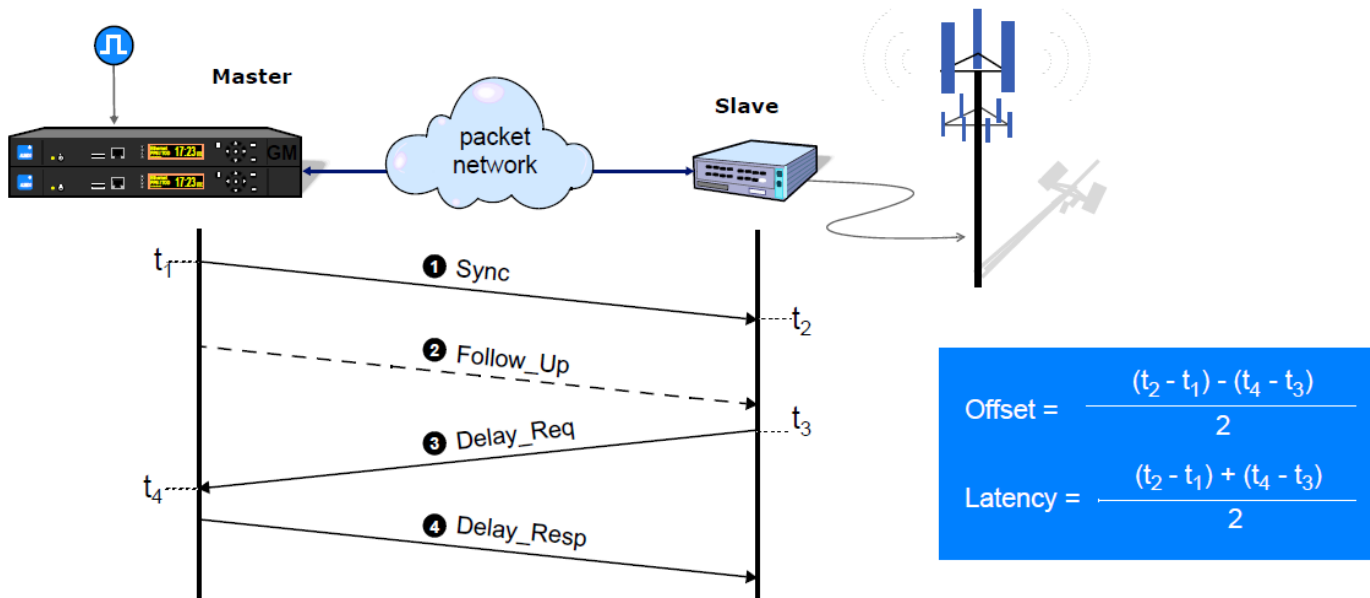
TEST CONFIG RESULTS

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

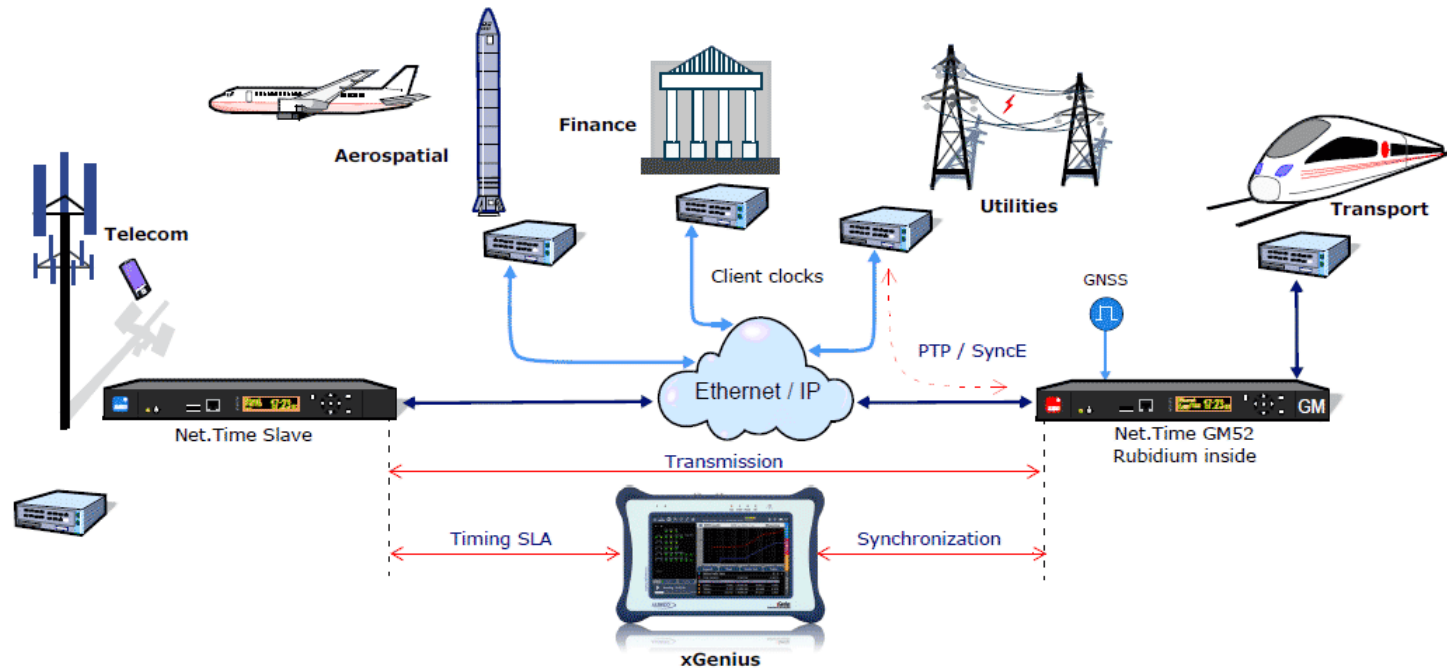
PTP latency & asymmetry test



Asymmetry generates a time offset in PTP slaves and for this reason it has to be tightly controlled

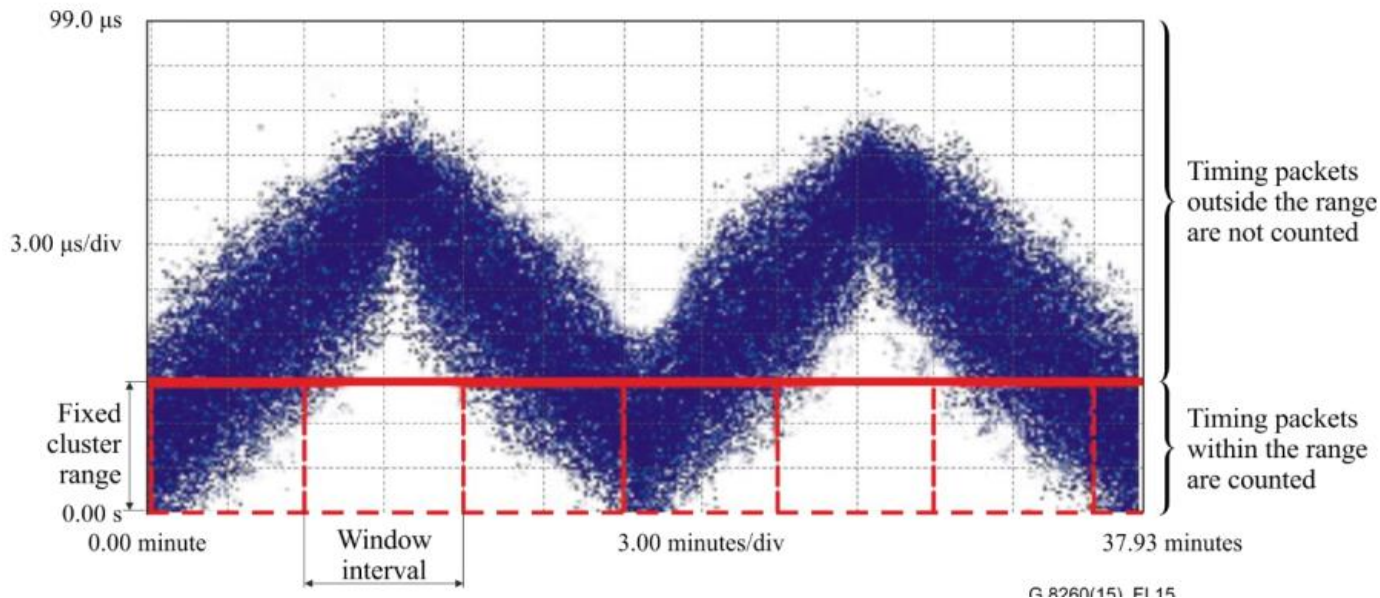
- ◆ Forward vs. reverse path delay
- ◆ Delay difference (asymmetry)

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)

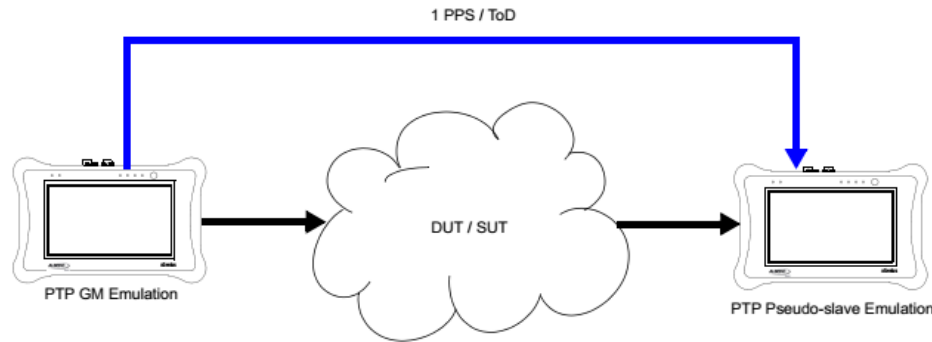
Floor Delay Statistics



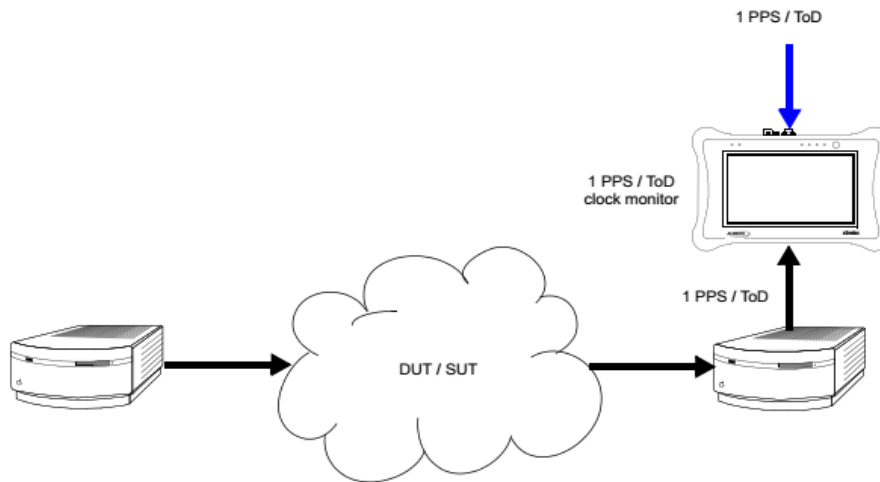
Packets suffer a variable delay (PDV). The floor delay population statistics account for the PDV magnitude:

- ◆ Floor Packet Count (FPC): Total number of valid packets
- ◆ Floor Percent Packet (FPP): Valid packets percentage (%)
- ◆ Floor Packet Rate (FPR): Effective valid packet rate (p/s)

ToD analysis and reference

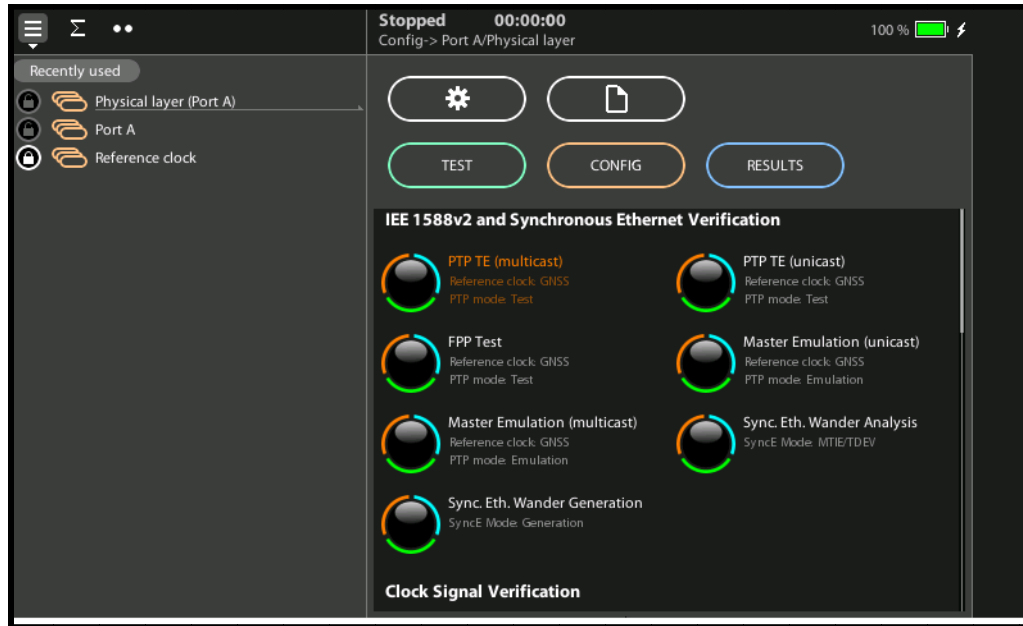


- ◆ Self-synchronized master and slave test with better accuracy (~10 ns)
- ◆ The same setup applies to OWD, RFC 2544 and eSAM test scenarios



- ◆ Clock test using ToD as a test interface. The reference could be ToD or GNSS

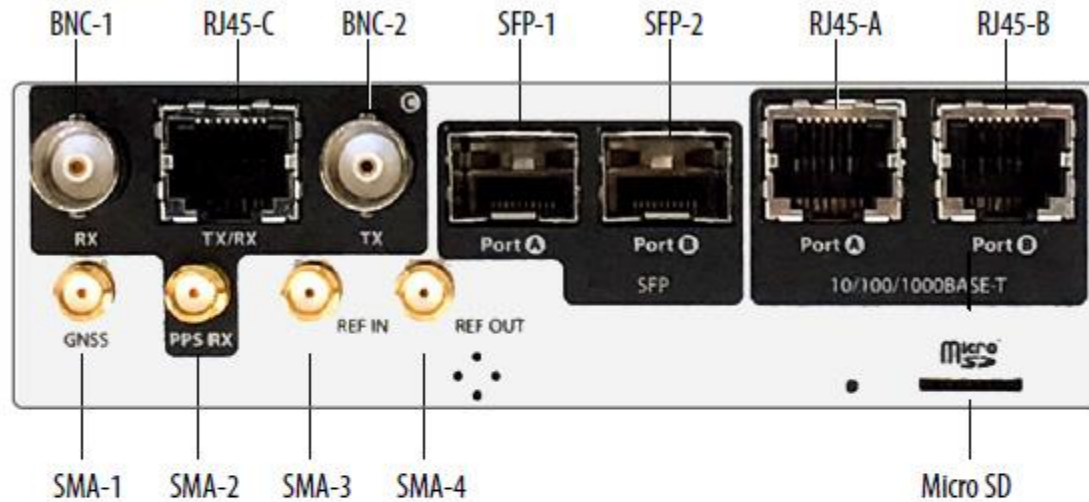
Predefined tests



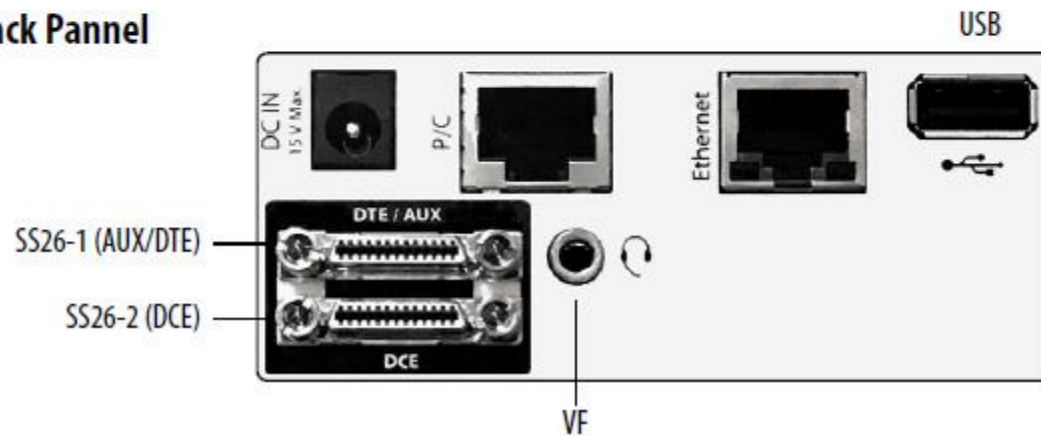
- ◆ Displays to the most relevant panel for every test
- ◆ Pre-configures the unit to run common tests
- ◆ Pre-loads shortcuts in the “Recently used” panel

New hardware

Front Pannel



Back Pannel



TCP throughput test



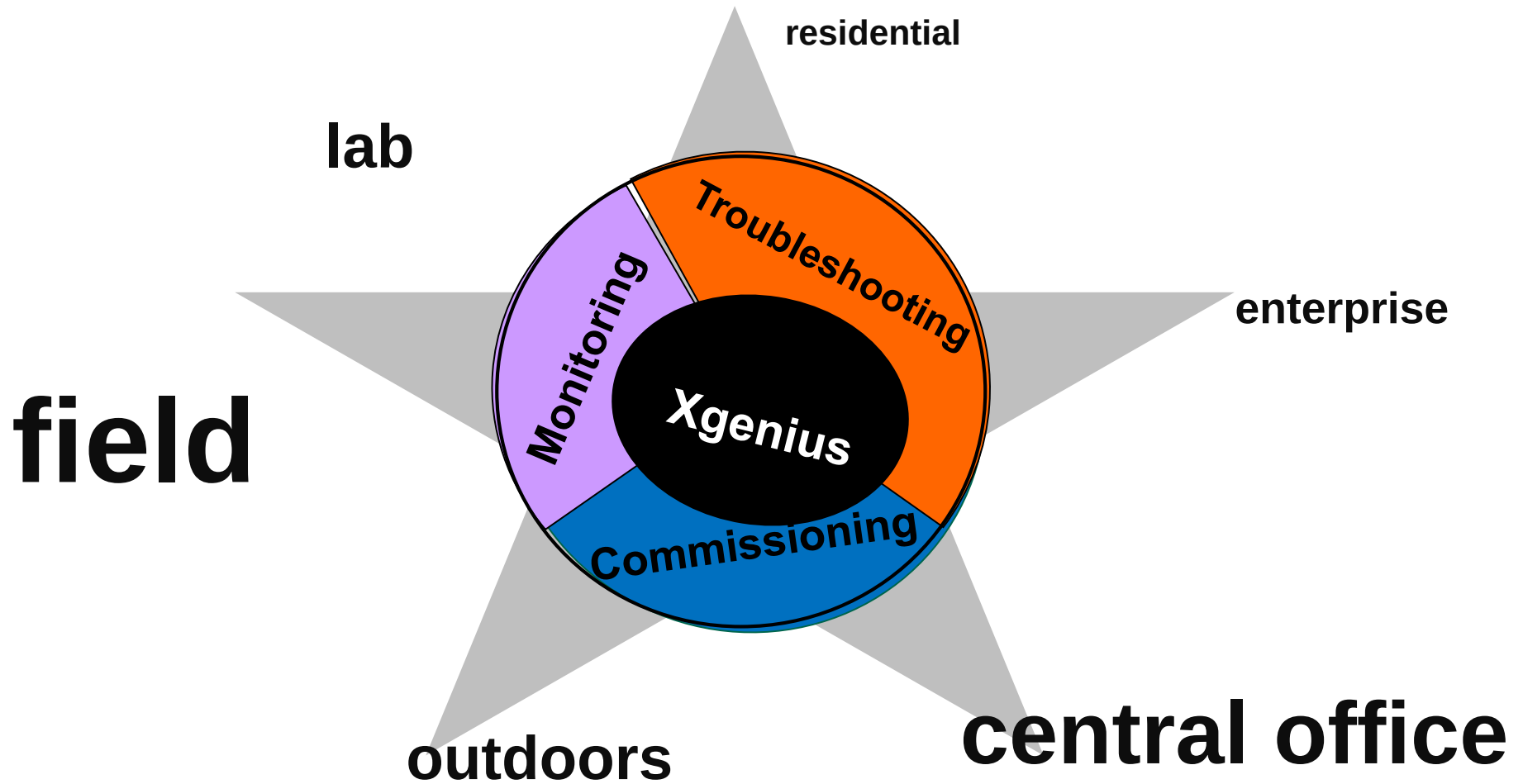
- ◆ Single flow and multi-flow configurations for the RFC 6349 test
- ◆ Compatible with Iperf and Albedo remote agents
- ◆ Simple to use, automatic parameter configuration whenever is possible

Test Professional Markets

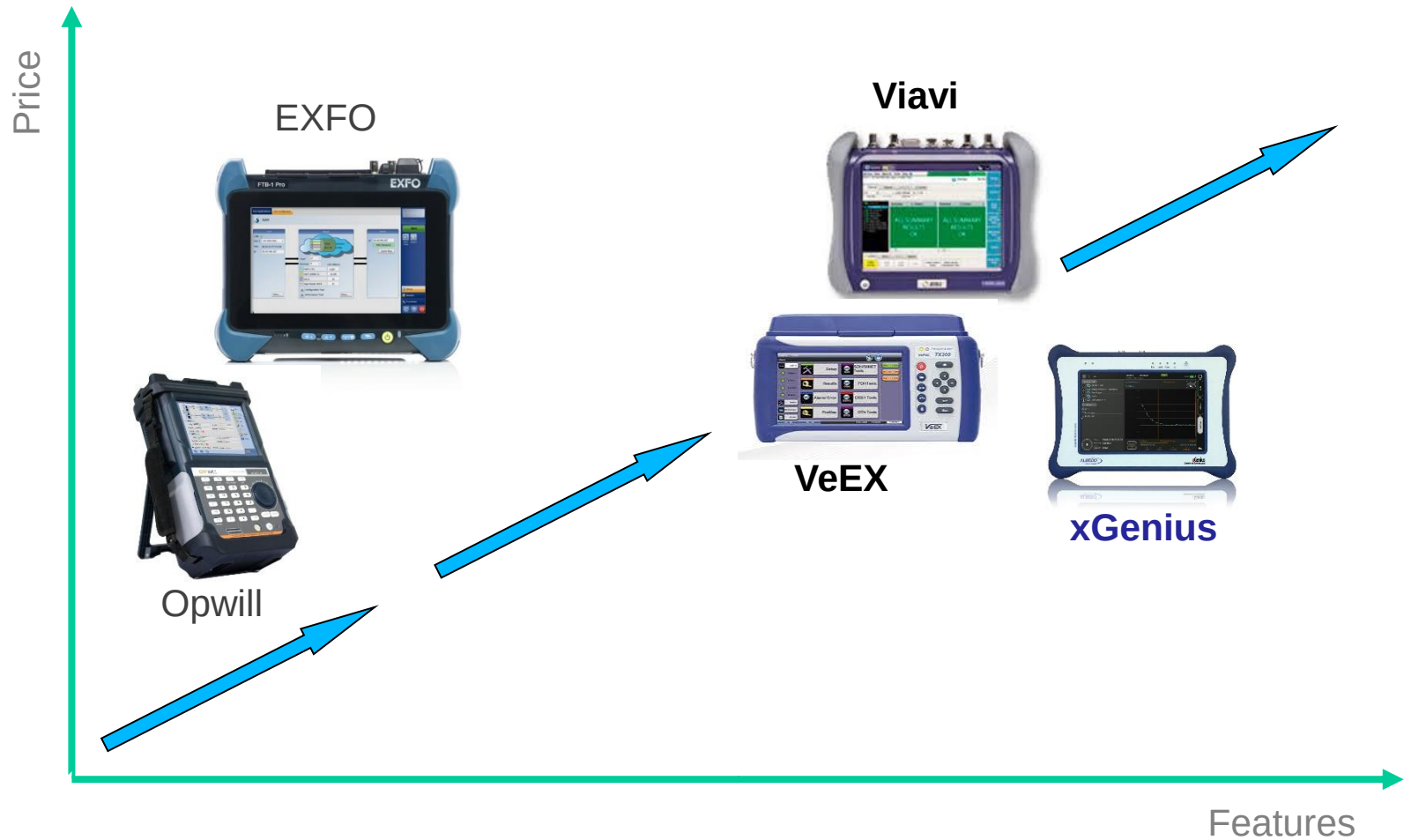
- ◆ Telecom operators, vendors, installers and service integrators
- ◆ 4G, 5G cellular communications applications
- ◆ Utility companies: Power, Gas...
- ◆ Railways, Defence, Finance market, Air traffic control
- ◆ Enterprise



Field & Lab multitechnology tester



Market Analysis



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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