

YES, Teleprotection-over-IP

Common Concerns

Packet Loss

- Collisions
- Congestion
- Interference
- Faulty Hardware

Mis-Ordered Packets

Packets traversing the network over different routes may arrive at their destination out of order

Packet Delay Variation (PDV)

- Store and Forward
- Variable Packet Length
- Congestion

Clock Recovery

There is no Clock Synchronization on Ethernet

How it Works

QoS & VLAN

Mitigates Packet Delay Variation

TDM over IP/Ethernet

- Interpolation of lost packets to maintain clock
- Rearrangement of mis-ordered packets
- Provisioned "Pseudowire"

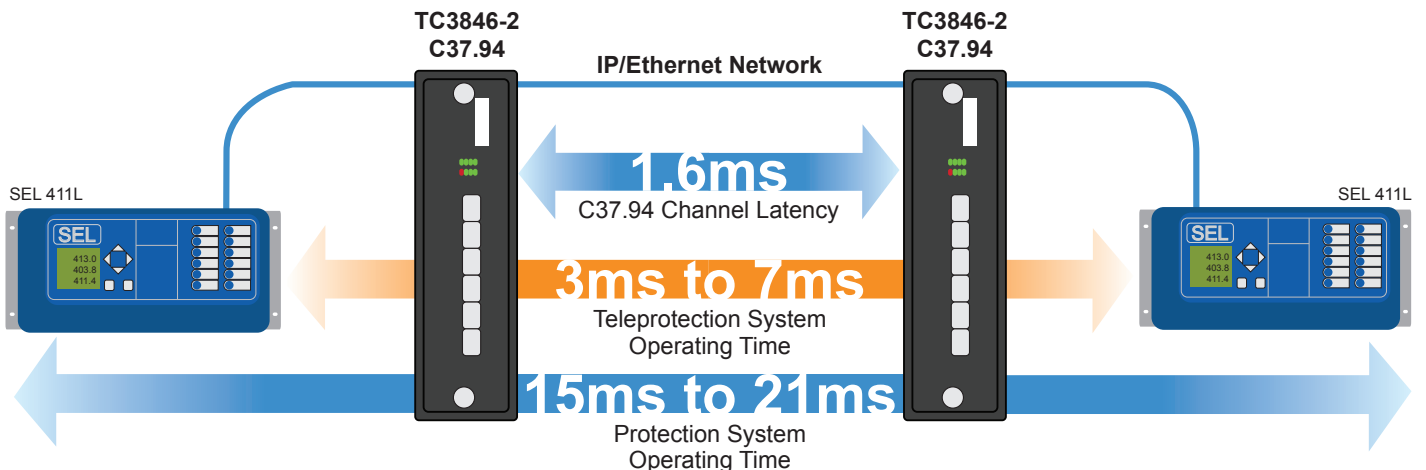
Adaptive Clock Recovery

Recover clock from packet stream

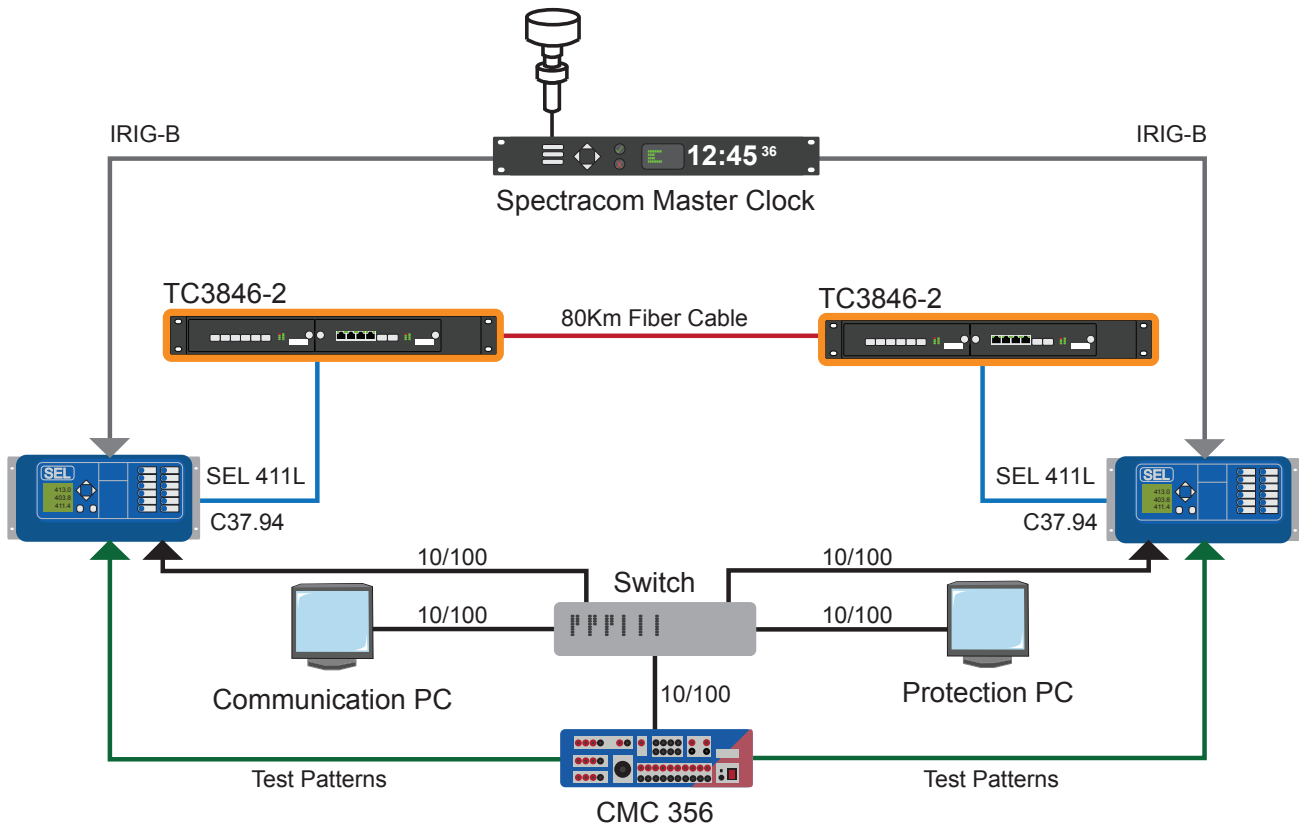
Carrier Ethernet Advantages

Real-time deterministic transport Sub-50 ms protection switching
Clock synchronization: 1588v2 PTP & SyncE

Bandwidth Efficiency
Flexible Network Topologies
Easier to Use



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How it Works

	Latency Over Direct Serial Connection (in milliseconds)			
	Average	Standard Deviation	Largest Value	Smallest Value
Test 1	8.95	1.79	13	6
Test 2	8.93	1.82	13	6
Test 3	9.17	1.61	13	6
Test 4	8.85	1.91	13	6
Test 5	9.34	1.67	13	6
Test 6	8.73	1.74	13	6
Across All Points	9.00	1.77	13	6

	Latency Connection (in milliseconds)			
	Average	Standard Deviation	Largest Value	Smallest Value
Test 1	11.10	1.71	15	8
Test 2	10.94	1.79	15	8
Test 3	10.81	1.68	15	8
Test 4	11.24	1.64	15	8
Test 5	10.92	1.83	15	8
Test 6	10.82	1.83	15	8
Across All Points	10.97	1.75	15	8

Information Contained is Subject to Change Without Prior Notice