

Net.Storm a LAN/WAN emulator



Net.Storm is a general-purpose tool for emulating performance and QoS dynamics in IP networks. Net.Storm allows controlled, reproducible verification of sensitive/adaptive devices, applications and protocols in a simple laboratory.

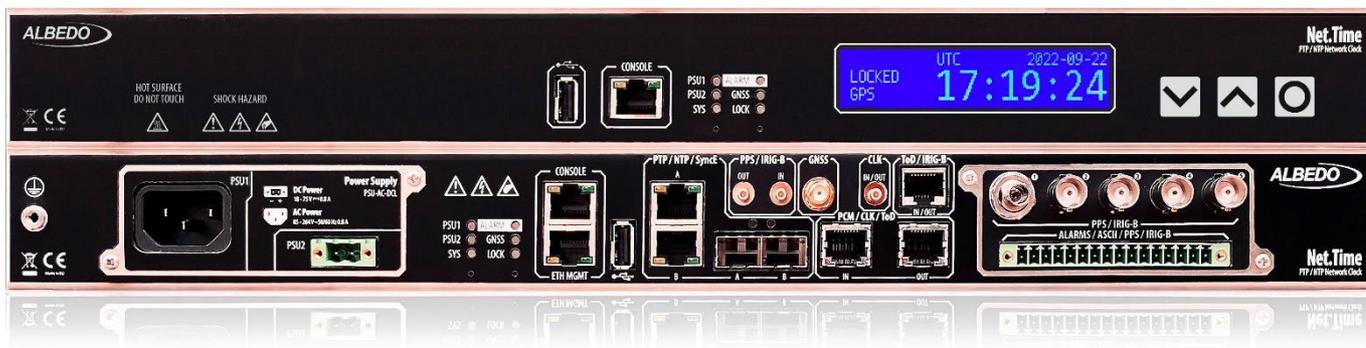
ALBEDO

experts in test, measurement & timing

ICT electronics
(1983)



Trend Comms
(1995)



ALBEDO (2009-today)

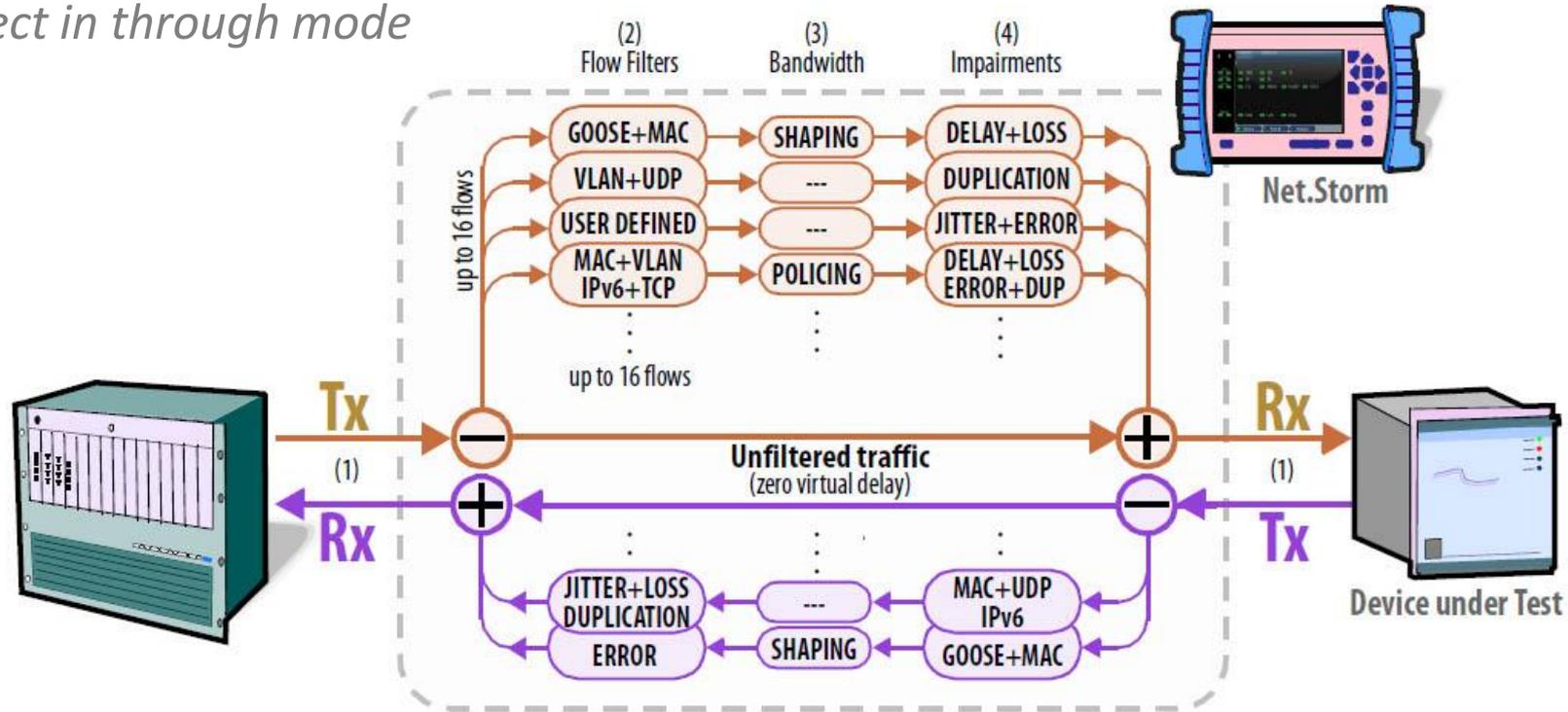


Net.Storm simulates links and networks in terms of bandwidth and quality of service. Traffic is separated by user-defined filters into independent flows that receive specific treatment to replicate real-world traffic conditions through impairments and bandwidth limitations. Net.Storm allows you to model network dynamics using arbitrary impairments and throughput management to verify how tolerant your designs are to degradations in the parameters that define the quality and capacity of your transmission network. The goal is to better understand the behavior of new devices and systems or to identify what is causing problems.

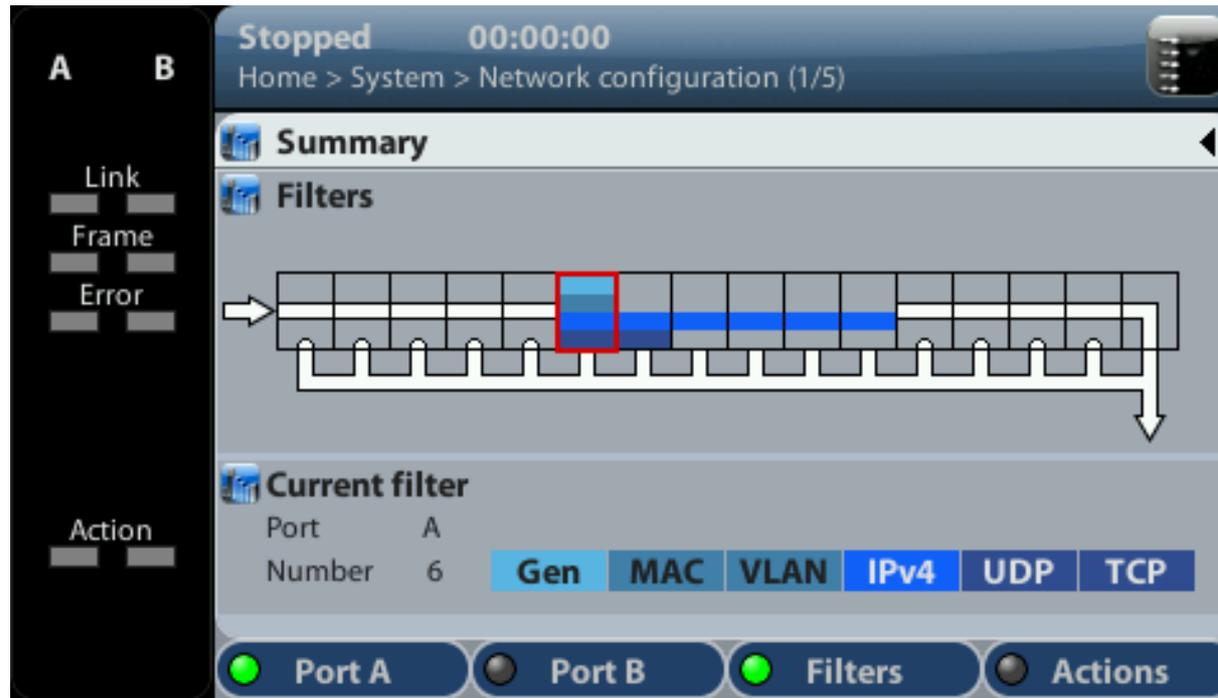


- 2 x 1Gb/s Optical
- 2 x 1Gb/s RJ45 Electrical
- Control
- RJ45: Console and Management
- 1 x USB: Storage

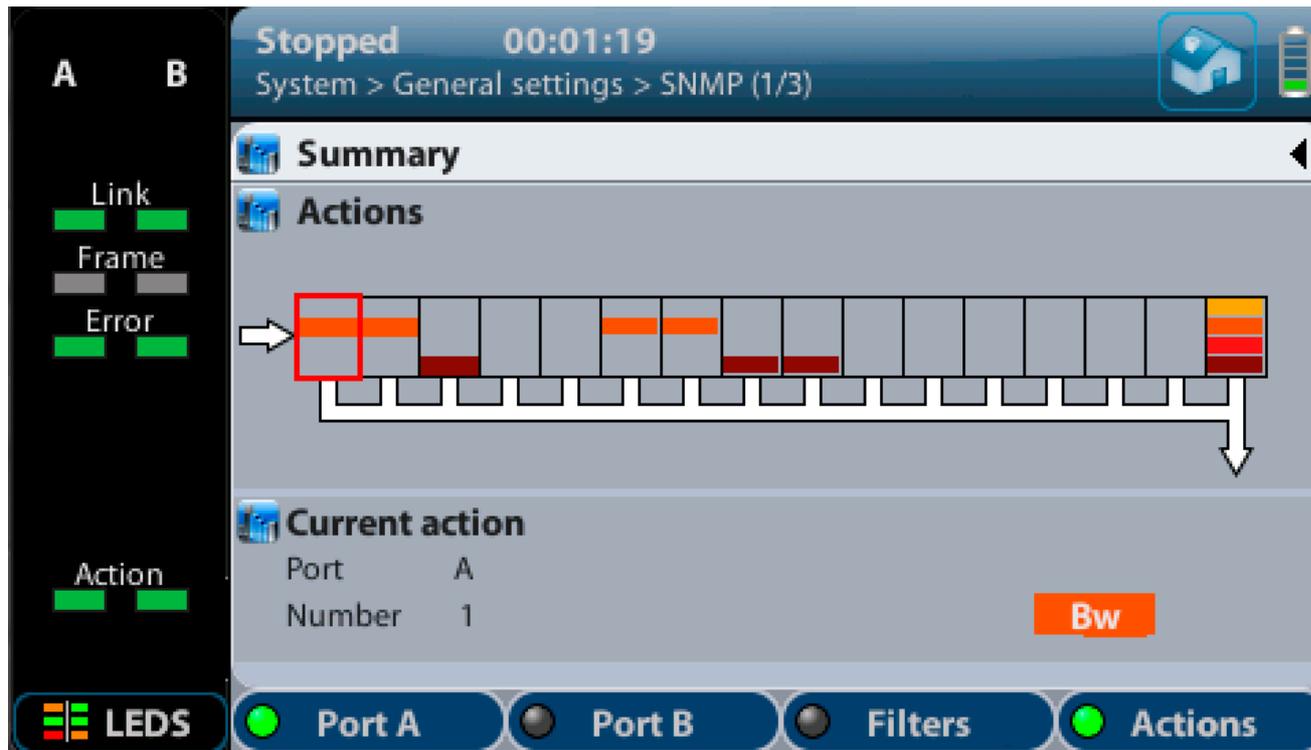
Connect in through mode



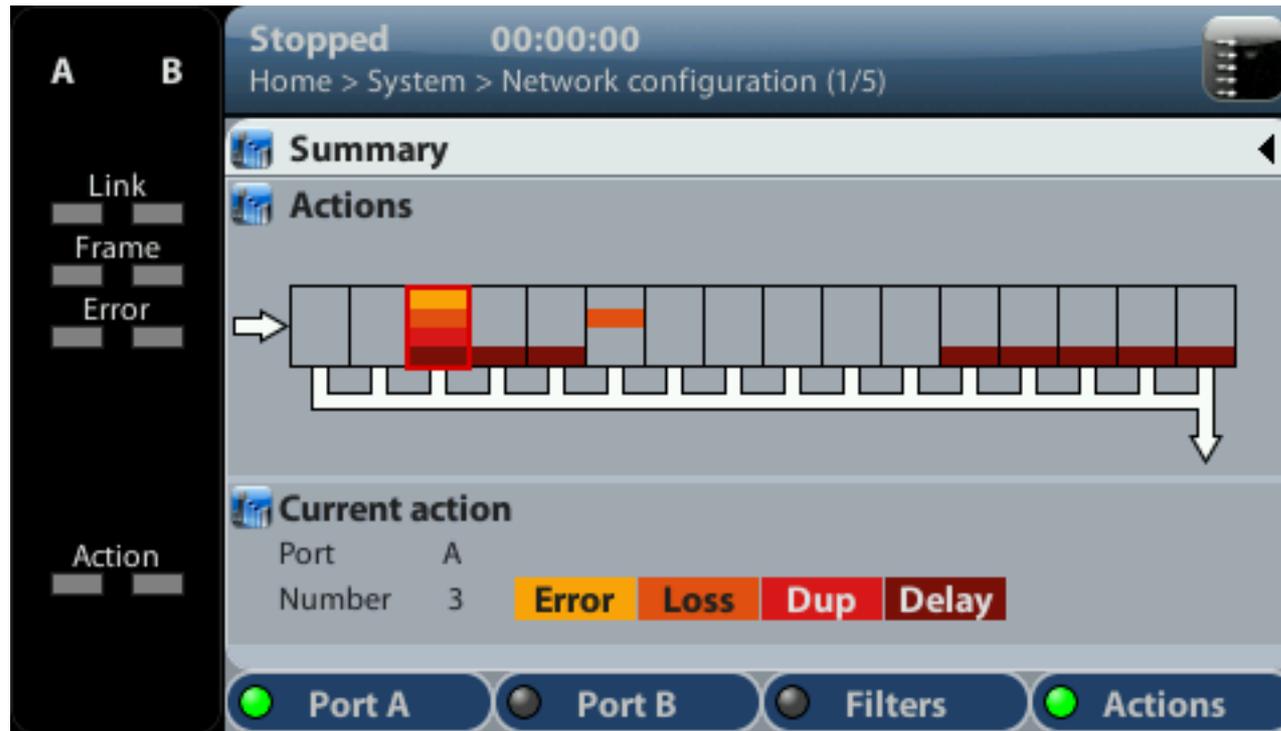
- ◆ Program flow filters
 - MAC, VLAN, MPLS, TCP, UDP, etc. User defined: GOOSE, SV, etc
- ◆ Characterize bandwidth
 - Traffic Shaping, Traffic Policing
- ◆ Select impairments
 - Loss, Delay, Jitter, Reordering, Duplication, Error, etc.



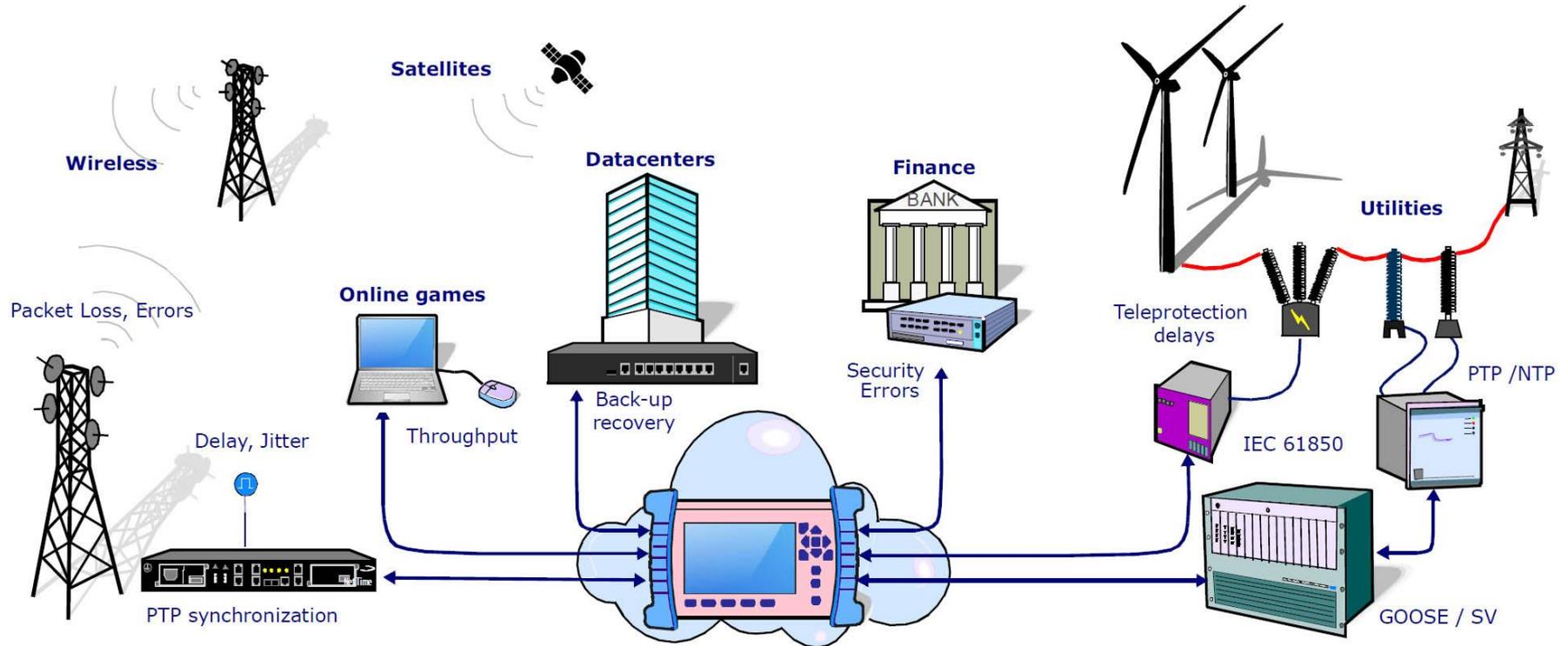
- MAC: source address & mask, destination address & mask, ethertype & mask.
- VLAN: VID, priority bits, etc
- IP: IPv4 / IPv6, source address & mask, destination address & mask, DSCP, etc
- TCP: Source/Destination Port, Min/Max Source/Destination Port
- UDP: Source/Destination Port, Min/Max Source/Destination Port
- User filter: Protocols such as GOOSE, SV, VoIP can be identified by frame start, offset, match code, mask.



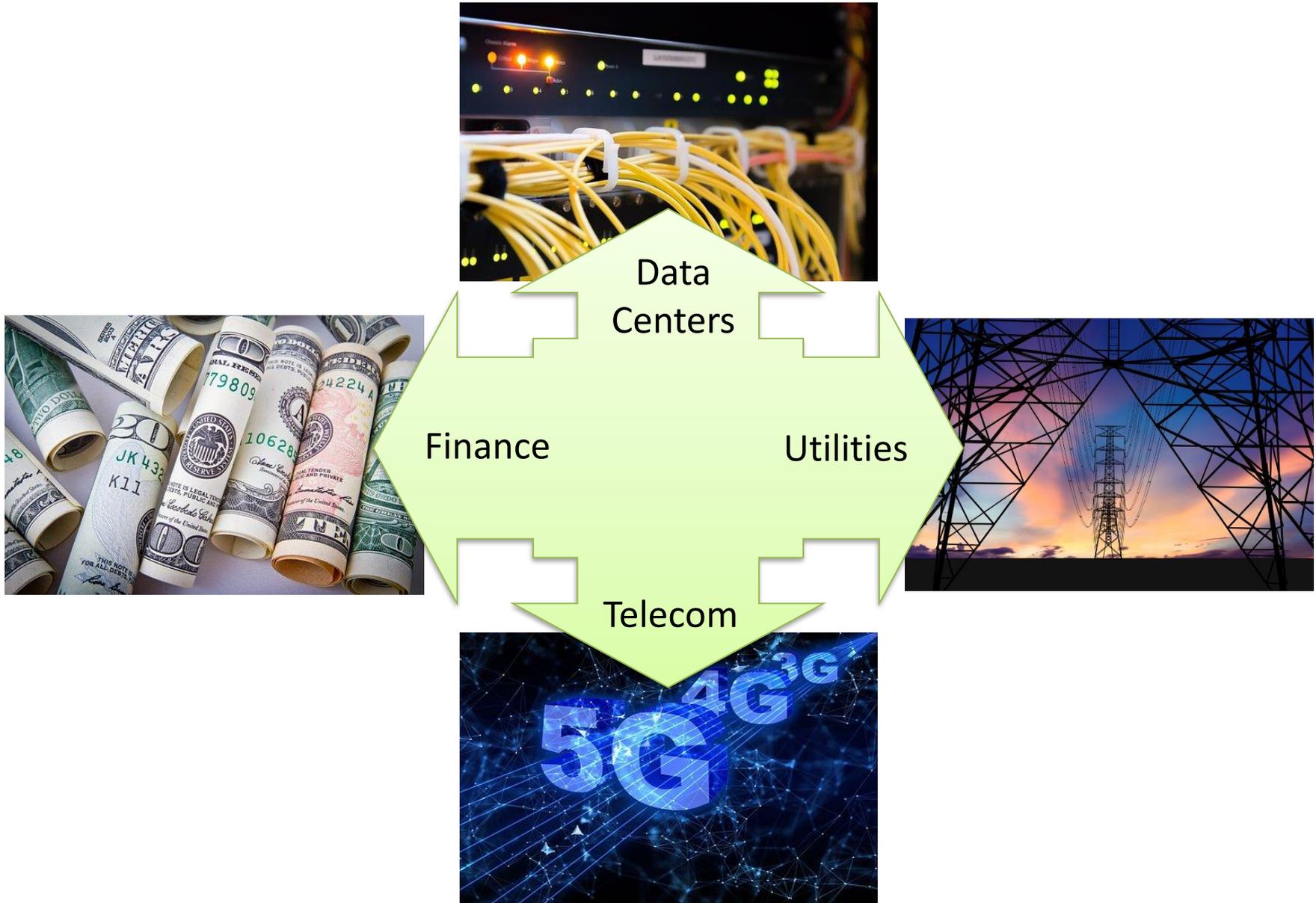
- **Traffic Policing:** This strategy preserves the timing of the data stream, but non-conforming packets are lost.
- **Traffic Shaping:** In this case, nonconforming packets are held in a buffer that, if not overloaded, is simply delayed.



- **Loss:** in multiple modes such as single, statistical, burst, etc.
- **Delay:** according to deterministic or random distributions
- **Jitter:** according to deterministic or random distributions.
- **Reordering** function associated to the delays
- **Duplication** in simple, random and as probability in percent.
- **Error** in simple, random and as probability in percent.



- 5G Telecom
- Data Center backup Recovery
- IEC 61850 Deployments
- Teleprotection Simulations
- GOOSE acceptance testing
- PTP/NTP clock rollout
- Wireless delays and failures
- Traffic priority assurance
- Satellite delay emulation
- Online game development
- Internet streaming
- Audio and video application



That's all



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