WoMaster

Product Introduction

DS306

Industrial 6-port Managed Ethernet Switch

Markets

Entry-level lite managed Ethernet switch with legacy SC/ST connector for field site Giga ring & fiber Ring communication

DS306 Benefits

- 4-port **Gigabit Ethernet** & 2-port 100M SS/MM Fiber in **SC/ST** connector
- Lite Management with the following function set
  - MGMT: WebGUI, CLI, SNMP, LLDP
  - Redundancy:
    - ITU-T G.8032 v1/v2 standard **ERPS** Ring
    - **Enhanced W-RSTP**, up to **80** nodes
  - Traffic: VLAN, QoS, port mirror, etc
- Robust design with
  - EN 61000-6-2/EN 61000-6-4 Heavy industrial EMC
  - Wide range design -40~70℃& 12~48VDC

DS306 Interfaces

System LED
- 2 x Power
- 1 x System Status
- 1 x DO
- 2 x Fiber
- 2 x Ring

Easy System Management
- USB for Configuration /Firmware update

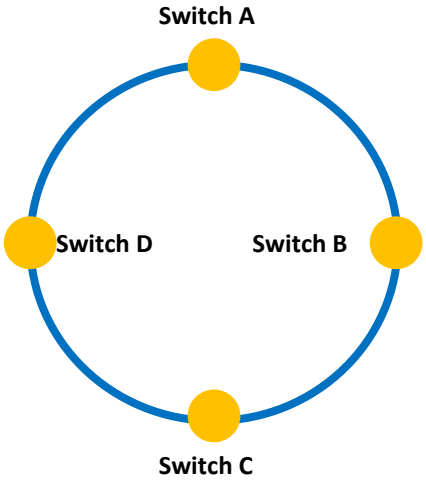
Fiber Communication
- 2-port 100M, SC/ST

Gigabit Ethernet
- 4-port 100/1000M RJ45

Power Connector
- 1 x 6-pin terminal block
  4 pin for redundant power input
  2 pin DO

Redundant Ring

- Ring topology
  - Link backup/ network reliability by Redundant link
  - Broadcast storm/ MAC table unstable
- STP (RSTP/MSTP)
  - Restoration in seconds
- Proprietary ring protocols for efficiency
  - MOXA turbo ring/Huawei RRPP/ Korenix MSR/ Oring O-Ring for <50ms (carrier grade)
  - Hard for complicated network integration



ITU-T G.8032 ERPS

- ITU (International Telecommunication Union, 國際電訊聯盟)
  - Recommendation name: series.id (ex: H.264)
- Features & Benefits
  - ITU-T G.8032, Ethernet Ring Protection Switching, a standard ring protocol for interoperability
  - Supported by Cisco, Huawei, Juniper, D-link, etc
  - Version I for single ring; Version II for multi-ring instance
  - Carrier grade restoration time: <50ms
    - No computing time when topology changed (user specified blocking ports)
    - No flush required in some cases
    - ➢ Ex: RPL/blocking ports failure
    - No BPDU forwarding
  - Maintenance mode (force switch)
  - Revertive/non-revertive

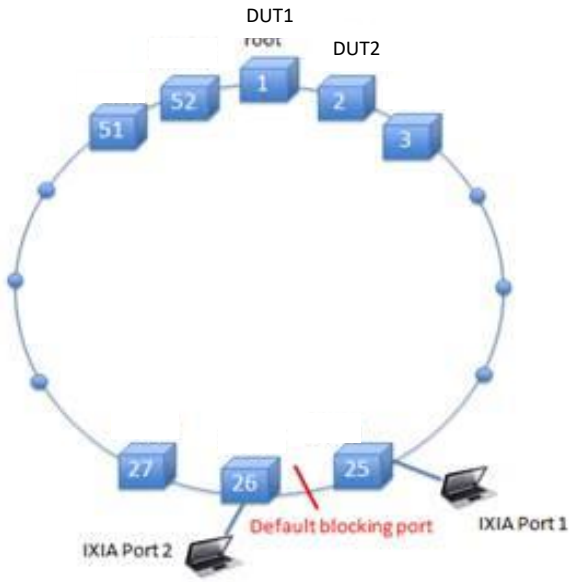
Based on single ring topology

	3 nodes	10 nodes	50 nodes
Recovery	3ms	4ms	8ms
Link detect	2ms		
Propagation delay per node	1ms	2/5= 0.4 ms	6/25= 0.24 ms
Large Scale Estimation	<20 ms: ((20-2)/0.24)*2=150 nodes <50 ms: ((50-2)/0.24)*2=400 nodes		

Enhanced RSTP (W-RSTP)

- Compatible with legacy RSTP
- Up to 80 nodes for RSTP ring
- Enhanced recovery and restoration time

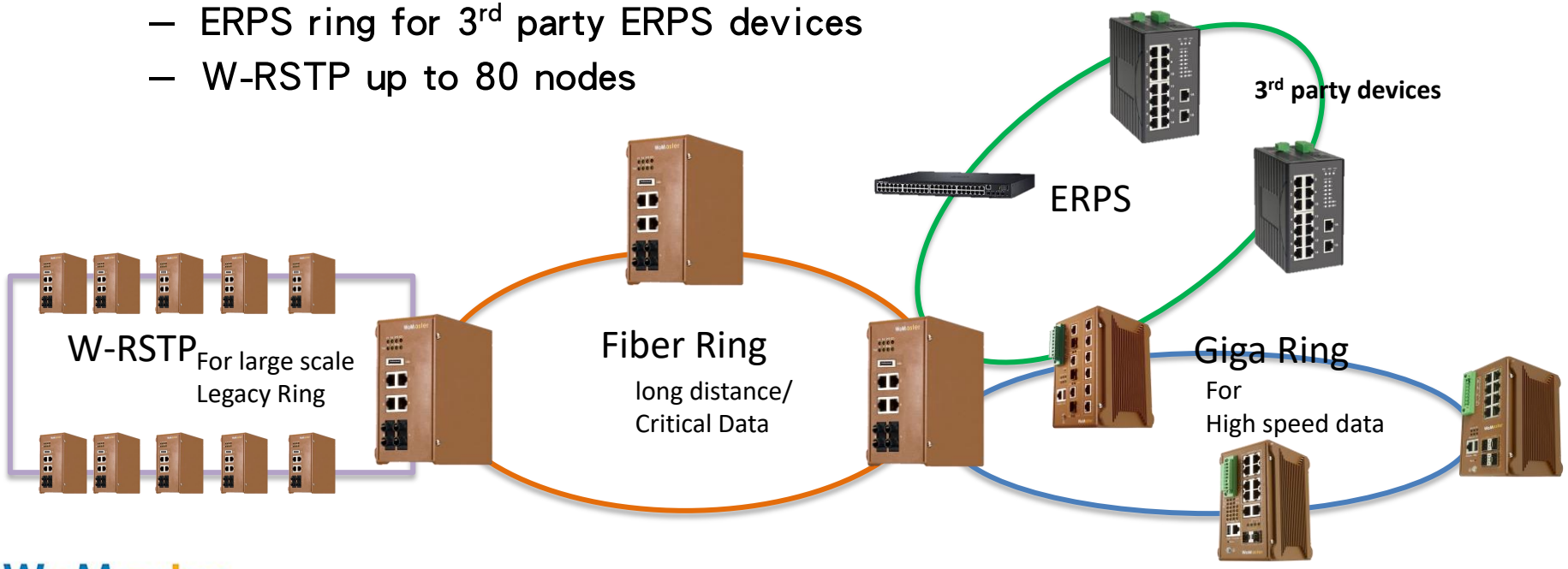
Recovery Technology	STP	RSTP	MSTP
Recovery Time	10 ~ 50 Seconds	3 ~ 5 Seconds	3 ~ 5 Seconds
Maximum Nodes	40	20 (Note: Recovery time is unpredictable if there are more than 9 nodes)	20 (Note: Recovery time is unpredictable if there are more than 9 nodes)



Blocking DUT : DUT no.26	Link down Recovery	Link up Restoration
DUT no.25	50ms	1ms
DUT no.20	296ms	3ms
DUT no15	465ms	3ms
DUT no.10	678ms	3ms
DUT no.5	873ms	4ms
DUT 2	1034ms	4ms
DUT 1	2330ms	2ms
DUT no.50	915ms	2ms
DUT no.45	907ms	2ms
DUT no.40	720ms	2ms
DUT no.35	470ms	1ms
DUT no.30	224ms	1ms

Combo Rings with SC/ST Connector

- Fiber ring for legacy deployment (government utilities) with
  - SC/ST connector
  - Entry-level with lite/smart management functions
  - Ring redundancy
- Combo ring design for new deployment
  - Fiber ring for critical data with SC/ST connector
  - Giga ring for high volume data switch
  - ERPS ring for 3rd party ERPS devices
  - W-RSTP up to 80 nodes



Wayside Surveillance & Traffic Control