



iTN8800 – Intelligent Service Aggregation Device

Raisecom iTN8800 service aggregation device is optimized for multiservice adaption, aggregation and routing, especially onto a modern Ethernet and IP/MPLS infrastructure. It is well suited for the cost-effective delivery of residential, business and mobile services. The iTN8800 features industry-leading switching capacity and port density in a compact 2RU form factor. It supports up to 12x10GbE, 48xGbE, 96xE1, 24xSTM-1 ports with dual control and dual power modules. The iTN8800 provides a comprehensive and scalable feature set of Layer 2 VPN (L2VPN), Layer 3 VPN (L3VPN) and PWE3 services with routing technologies, MPLS technologies, TDMoP technologies and clock synchronization technologies optimized for service providers. The iTN8800 supports both MPLS-TP and IP MPLS stacks, provides comprehensive end-to-end OAM/SLA/Protection features.



iTN8800

Highlights >>

IP MPLS	Supports multiple routing functions, such as OSPF, ISIS, BGP, and MP-BGP, and support LDP and RSVP-TE to dynamically establish MPLS tunnels and PW services.
Multiservice	Supports multiple service type, including L2VPN, L3VPN, PWE3 service. Up to 96xE1 interfaces or 24xSTM-1 for connecting legacy TDM network.
Committed resiliency & Protection	Supports link-based, protocol-based, and service-based multi-layer protection functions, such as LAG/LACP, primary/secondary link aggregation, G.8031, G.8032, G.8131, TE Hot-standby, PW protection, and LSP protection with sub 50ms switching time.
Hardware-based SLA	Hardware-based BFD, TWAMP, MPLS-TP OAM, Y.1731 features supply multi-layer continuity check, frame delay, frame jitter and packet loss measurement mechanism. Includes on-board, line-rate RFC2544 and Y.1564 testing capabilities for end-to-end SLA verification.
Automated Provisioning	Supports auto-discover remote CPE devices to minimize OpEx and accelerate service turn-up with activation testing.
Synchronization for MBH	Compliant with ITU-T G.8261/G.8262 (SyncE) and IEEE1588v2 for network-based synchronization.
High Availability	Supports graceful restart for routing protocol. Dual main control card and dual power module redundancy design.

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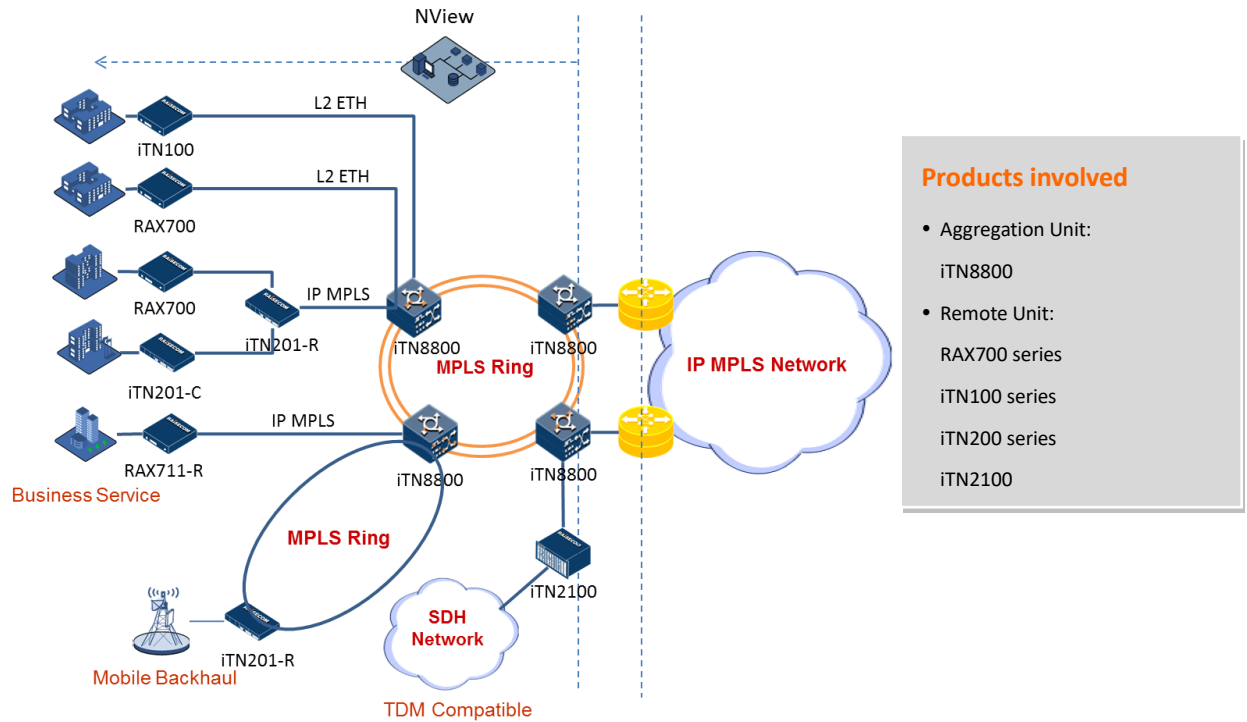
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Application >>



- Products involved**
- Aggregation Unit:
iTN8800
 - Remote Unit:
RAX700 series
iTN100 series
iTN200 series
iTN2100

Figure.1 Converged fixed and mobile networks offer a wider range of services

Large Enterprise, Small/Medium Business services Application

The iTN8800 can work with iTN200/RAX700/iTN100 series together for Large Enterprise, Small/Medium Business services. Its MPLS features allow creating a scalable network with huge capacity and protection mechanism. It is flexible with various different CPEs for Imaging/video distributions, business data, L2VPN, L3VPN, TDM services etc. Meanwhile, such solution can guarantee Carrier-grade end-to-end SLA (hardware-based) performance monitoring for frame delay, jitter and packet loss.

New Generation Mobile Backhaul Application

The iTN8800 is easy to create multiple GE or 10GE MPLS rings with iTN201-R to transmit LTE eNodeB service with sync Ethernet frame. To guarantee the huge mobility data application as well as voice, its LSP protection/TE Hot-standby features conform to switch over within 50ms. Its huge switch capability and routing table will help to converge and schedule largely mobility data to the core IP MPLS network.

Legacy TDM Network Compatible Application

The Ethernet service carried in the legacy TDM network can access into the packet switch network cooperate with iTN2100 EOS feature. The iTN2100 can extract the original Ethernet packets from SDH and then ingress into iTN8800. Or the iTN8800 can encapsulate the E1 service into MPLS frames with TDMoP and PWE3 features.

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Key Features >>

Ethernet service	IEEE 802.1Q VLAN; 4K active VLANs; QinQ; VLAN translate
MPLS Service	MPLS VPWS,VPLS, HVPLS, L3VPN, Multi-Segment PW LDP for LSP/PW, MPLS-TP, RSVP-TE
PWE3	PW payload type: SAToP, CESoPSN PSN type: MPLS Configurable Jitter buffer RTP configuration
Layer 3 Service	IPv4 Stack IPv4 hardware forwarding OSPF for IPv4, ISIS for IPv4, BGP for IPv4, MP-BGP, VRRP, Multi-VRF
Switching mode	Store and Forward mode Supports Jumbo frames
MAC Address Table	MAC address learning/add/remove/searching
Packet forwarding	MTU: 9600 byte (default: 1500 byte) Storm control on DLF, Multicast and Broadcast packets L2CP Tunnel/Discard/Peer
Link Aggregation	Up to 64 link aggregation groups, with up to 8 ports in each group Load balance based on MAC, MPLS label and IP address
Link Resilience	PW redundancy, PW dual-home protection PW 1:1 and LSP 1:1 based on ITU-T G.8131 TE Hot-standby IP FRR LAG (static/IEEE 802.3ad LACP) and MC-LAG(Multi-chassis LAG) ITU-T G.8031 ELPS & ITU-T G.8032 ERPS Port based Ethernet local loop detection Link fault pass through
IP and MPLS OAM	IPv4 Ping, IPv4 Traceroute LSP Ping/PW Ping/Tunnel Ping/L3VPN Ping LSP Traceroute/PW Traceroute/Tunnel Traceroute/L3VPN Traceroute Supports BFD message is sent per 3.3ms BFD for OSPF/ISIS/VRRP BFD for PW/Static LSP/LDP LSP/CR-LSP/Tunnel/IP TWAMP-Lite Supports up to 1000 concurrent SLA sessions Supports SLA monitor on Raisecom SLA Web Portal
MPLS-TP OAM	Supports MPLS-TP OAM on PW/LSP/Section based on ITU-T G.8113.1

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Supports Check message is sent per 3.3ms
Supports Hardware-based Frame Delay and Packet Loss Measurement
Connectivity Check, Non-intrusive Loopback, Link-Trace, Performance Monitor; AIS/RDI/APS/LM/DM/CSF

Carrier Ethernet OAM IEEE802.3ah OAM including discovery, link performance, remote loopback, fault detection & performance stats per OAM standards
OAM Active/Passive mode
OAM Dying Gasp
OAM MIB Variable Get function
OAM Event function

Carrier Ethernet CFM Supports IEEE 802.1ag CFM and ITU-T Y.1731 SLA
Supports Check message is sent per 3.3ms
Supports Hardware-based Frame Delay and Packet Loss Measurement
Connectivity Check, Non-intrusive Loopback, Link-Trace, Performance Monitor; ETH-AIS/RDI/LCK/APS/LM/DM/LCK
Supports IEEE 802.1ag CFM and ITU-T Y.1731 SLA over MPLS PW EFP

SAT Supports RFC2544, Y.1564
Supports RFC2544 over MPLS PW EFP
Supports Y.1564 over MPLS PW EFP

ACL Supports MAC/IP/MPLS based ACL and L2~L4 based ACL MAP
Supports user defined ACL
MAC based ACL combination with VLAN/CoS/MAC/EtherType
IP based ACL combination IP/L4 protocol/DSCP/VRF
MPLS based ACL combination with MPLS Label/MPLS EXP

QoS Supports Port/Trunk/VlanIf/Sub-interface mapping
Supports CoS/DSCP/MPLS EXP mapping
Supports SP, WRR, DRR, SP+WRR, and SP+DRR scheduling
Supports port-based/flow-based shaping
Up to 8 queues per port
Flow-based statistics/mirroring/rate-limiting/redirecting/VLAN-rewriting
Rewriting of 802.1p CoS/DSCP/IP Precedence per EVC
Supports Weighted Random Early Detection, weight 0-15

MPLS QoS Supports MPLS Pipe and Uniform mode
Bandwidth configuration check between PW/LSP/Port
H-CAR(Hierarchical bandwidth rate-limit) between PW/LSP/Port

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Rate-Limit	H-QoS(Hierarchical QoS) between PW/LSP/Port Supports ingress rate-limit and egress rate-limit Supports H-CAR based on Cos/IPP/DSCP binding sub-interface Based on Flow/RFC2697/RFC2698/RFC4115/MEF modes
LLDP	Discovery remote base on link layer Get remote basic information
Mirror	Mirroring per port Separate mirroring configurations for ingress port & egress port & CPU port
Synchronization	SyncE according to ITU-T G.8261/G.8262, supports SSM-QL IEEE1588v2 OC/BC/TC
DHCP	Supports DHCP Server with option 60 Supports DHCP Relay with option 82
High Available	Supports system hot standby based on dual main control Supports graceful restart on OSPF/ISIS/BGP
Statistics	Ingress and egress statistics based on Port/Interface/Rate-Limit/VPWS/VPLS/VRF In-profile and out-profile statistics based on ACL
Auto-Provisioning	Discover and manage remote CPEs as RAX700/iTN100/iTN200 series
Management	CLI/ARP/Telnet/Console/SNMP/SSH/SysLog/Trap/NAT Raisecom NMS FAN/Power/Temperature/CPU/Memory/Card/Module management
Safety Features	Client classification and password protection RADIUS TACACS+ CPU protection based on rate-limit Port Isolation
Time management	Timezone, Time modification Supports SNTP & NTP
DDM	SFP digital diagnostic function

Specifications >>

Performance	Switching fabric: 120Gbps
Main Control Card	iTN8800-NXU: Management port: 1 Console (USB) 1 NEG (RJ45) 1 Debug (Reserve) EXT1 (Reserve) EXT2 (Reserve)

Compliances >>

Standards & protocols	IEEE802.3 IEEE802.3z IEEE802.3x Flow Control IEEE802.3ad Link Aggregation IEEE802.1p IEEE802.1Q VLAN IEEE802.1ad QinQ IEEE802.3ah OAM IEEE802.1ag CFM IEEE1588v2
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	Clock port:	
		1 Bits (2MHz/2Mbits)
		Support in slot1~slot2.
Port Expansion Card	iTN8800-RG8:	8 x GE SFP
	iTN8800-RG8T:	8 x GE RJ45
	iTN8800-RF8:	8 x FE SFP
		Support in slot3~slot8, slot7/slot8 only supply 4xFE access.
	iTN8800-RX2:	2 x 10GE XFP or SFP+
		Support in slot3~slot8, all supply 2x10GE access.
	iTN8800-RXG8:	1 x 10GE SFP+ with 8 x GE SFP
		Support in slot7~slot8
PWE3 Expansion Card	iTN8800-RE16:	16 x E1 SCSI100 Female
	iTN8800-RE16-BL:	16 x E1 RJ45 Balance
	iTN8800-RS4:	4 x STM-1
Clock Card	iTN880-TAU:	1 x ALMI RJ45
		1 x ALMO RJ45
		2 x 1PPS+TOD RJ45
		1 x 1PPS CC3
Optical Card	iTN8800-ODM8:	8 x CWDM Channels
Power Specs	Dual DC:	-48V(-40~-57V)
	Full load:	≤350W
Us Conditions	Operating temp:	-5~55°C (23~131°F)
	Storage temp:	-25~65°C (-13~149°F)
	Humidity:	10~90% non-condensing
Lightning Proof		1kV
Dimensions		440(W) x 220(D) x 88.1(H) mm ³
Weight		≤ 9.42Kg

- ITU-T G.8261/G.8262 SyncE
- ITU-T Y.1731 Services OAM
- ITU-T G.8031 ELPS ITU-T G.8032 ERPS
- ITU-T G.8131 MPLS Linear Protection
- ITU-T G.8113.1 MPLS-TP OAM
- RFC2544 Y.1564
- RFC2328 OSPFv2
- RFC1195 IS-IS
- RFC4271 BGPv4 RFC4760 MP-BGP
- RFC3031 MPLS Architecture
- RFC3985 PWE3
- RFC4664 L2VPN RFC4762 VPLS
- RFC2547 BGP/MPLS VPN
- RFC5036 LDP RFC4447 LDP for PW
- RFC3209 RSVP-TE
- RFC5659 Multi-Segment PWE3
- RFC5880 BFD
- RFC5086 CESoPSN RFC4553 SAToP
- RADIUS TACACS+
- SNMPv1/v2c/v3
- EMC Class A
- RoHS compliance
- MEF 9 & MEF 14

Ordering Information >>

iTN8800-II-DC	2RU chassis, with 2 DC power and 1 Intelligent FAN. The chassis has 2 slots for main control card and 6 slots for interface sub card.
iTN8800-II-NXU	Main control card, providing Console interface and SNMP interface. Dual main control card redundancy design, supporting 1:1 hot backup.
iTN8800-RG8	GE Interface card, providing 8 SFP Ethernet optical/electrical interfaces, and supporting GE, FE.
iTN8800-RG8T	GE Interface card, providing 8 RJ45 Ethernet electrical interfaces, and supporting GE, FE.

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iTN8800-RF8	FE Interface card, providing 8 SFP Ethernet optical interfaces, and supporting manage Raisecom RC-LINK media convertor.
iTN8800-RX2	10GE interface card. 2 type cards with different interface type. One type providing 2 10GE XFP, another type providing 2 10GE SFP+ Ethernet optical interfaces.
iTN8800-RXG8	10GE plus GE interface card, providing 1 10GE SFP+ and 8 GE SFP Ethernet optical interface.
iTN8800-RE16	TDMoP interface card, providing 16 E1 SCSI100 female electrical interfaces.
iTN8800-RE16-BL	TDMoP interface card, providing 16 E1 RJ45 balance electrical interfaces.
iTN8800-RS4	TDMoP interface card, providing 4 x STM-1 interfaces.
iTN8800-TAU	IEEE1588v2 Clock card, providing IEEE1588v2 OC/BC/TC.
iTN8800-OMD8	CWDM Mux and De-Mux card, providing 8 CWDM Optical channels with SC interface.
RPD1351-S-48S48	DC Power module, providing -48V DC power.
PAD500-220S48	AC Power module chassis, providing 2 AC to DC power convertor slots.
RPA1501-S-220S48	AC Power module, providing 220V AC to -48V DC power convertor.
FANS331	Replacement Intelligent FAN.

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