MiNID®

Smart Miniature Network Interface Device on an SFP Sleeve

- Serves as a fully functional Network Interface Device (NID)
- SFP sleeve plugs easily into SFP ports of switches and routers (allowing full reuse of existing SFPs)
- Adds Carrier Ethernet demarcation and SLA assurance capabilities
- Enhances performance monitoring and diagnostics with comprehensive OAM tools
- Lowers OpEx by decreasing power consumption, space, and installation costs

RAD's MiNID is a revolutionary platform for service providers looking to upgrade their networks to deliver reliable bandwidth with end-to-end SLA assurance guarantees. MiNID's innovative patent-pending design helps break through the barriers of cost and complexity to make Carrier Ethernet available to everyone, everywhere.

MiNID provides instant Carrier Ethernet functionality for switches, routers, and mobile base stations. The NID sleeve is easily pluggable into standard SFP ports, eliminating power, space, and cabling expenses while MiNID's comprehensive OAM tools reduce truck rolls by enhancing performance monitoring, fault diagnostics, and wire-speed circuit validation.

MiNID transparently envelops a large variety of SFPs, enabling full reuse of customer equipment and seamless deployment over multiple access infrastructure types, such as short haul and long haul fiber connections, bidirectional single fiber links, and copper lines.

MiNID is a true plug-and-play solution. Its zero-touch provisioning capabilities enable easy installation by anyone.

MARKET SEGMENTS AND APPLICATIONS

MiNID is the perfect solution for service assurance in mobile backhauling networks, small cells, business services, and wholesale services, as an important part of the toolkit offered by RAD's Service Assured Access solution.
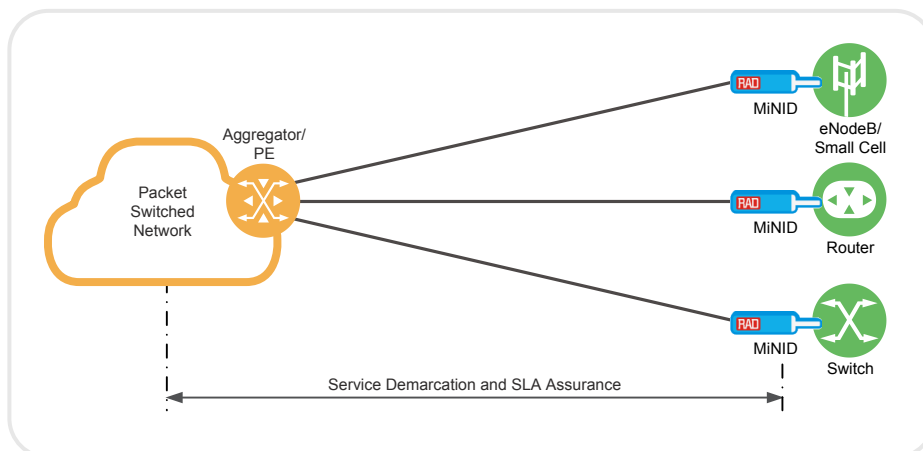
As a service demarcation device, it can attach Service VLAN and add priority marking to multiple services at the customer premises, ensuring proper service handling throughout the service provider network.

Its service assurance capabilities include in-service layer-2/3/4 loopbacks, performance monitoring, and end-to-end fault measurement, for continuous collection of key performance indicators for all services.

For the mobile backhauling market, MiNID also offers transparent SyncE, transparently forwarding ESSM messages. The device handles up to 1 Gbps of Ethernet user traffic with per-port and per-flow OAM capabilities using performance monitoring counters, while providing remote end-to-end service control.

As part of RAD's EtherAccess© portfolio, MiNID's fully standard functionality ensures seamless interoperability with any network as well as third-party devices for seamless integration into existing networks.

MiNID preserves existing investments, enhancing legacy networks to be MEF Carrier Ethernet 2.0-compliant without having to discard and replace existing equipment.

RAD

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ETHERNET

Service Demarcation
MiNID provides the following:

- Port-based and flow-based classification of multiple services
- Flow classification per VLAN range, P-bits, DSCP, EtherType, source/destination MAC address
- Adding or replacing VLAN per flow with priority marking per P-bits and DSCP
- Layer-2 control protocol tunneling with optional MAC change (L2PT).

MONITORING AND DIAGNOSTICS

OAM
MiNID provides the following per EVC.COS:

- IEEE-802.1ag (CFM) for continuity check, loopback, and link trace, with MEP and MIP support
- ITU-T Y.1731 for loss, delay, and delay variation measurements, as well as fault propagation (AIS/RDI)
- IEEE 802.3-2005 (formerly IEEE 802.3ah) link OAM.

Dying Gasp
Upon power failure, MiNID sends an IEEE 802.3-2005 message or SNMP trap notifying of the loss of power.

Loopback Tests
MiNID provides on-demand intrusive and non-intrusive layer-2/3/4 loopbacks at wire speed, with optional MAC, IP and UDP port swap per flow. MiNID also offers UDP echo responder functionality

RFC-2544/Y.1564
MiNID responds to RFC-2544 and Y.1564 service activation tests.

Digital Diagnostic Monitoring
MiNID transparently relays Digital Diagnostics Monitoring (DDM) information from DDM-enabled optical SFPs to the hosting device.

MANAGEMENT

MiNID is ready for integration with host devices via I2C management channel, making MiNID an integral part of the host device.

Application software can be downloaded to MiNID via:

- SFP-CA unit, using YMODEM protocol
- TFTP server.

Management Options
MiNID can be managed as follows:

- Inband management (VLAN based), via host SFP or MSA edge connector
- Out-of-band management and software configuration from any Ethernet port in the host device.

Menu-driven Interface
The device provides a Web-based menu-driven interface for simple and intuitive operation.

Command Line Interface (CLI)
MiNID provides CLI in a Telnet session, allowing simple integration with network management systems.

RADView PM Portal
RADView manages MiNID, and the RADView PM portal provides SLA reports based on PM counters and utilization measurements.

Zero Touch Provisioning
Host IP address and configuration files can be automatically obtained using standard DHCP client functionality, allowing easy integration into the network.

Specifications

ETHERNET INTERFACE

Edge Connector
SFP-based, MSA-compliant

Type
100BaseFx or 1000BaseFx

SFP Transceivers
Optical: Dual/single, multi mode/single mode fiber:
  FE: 100Base-FX/LX/BX
  GbE: 1000Base-SX/LX/ZX/BX and CWDM
Electrical: 100BaseT or 1000BaseT

Compliance
IEEE 802.3

Max. Frame Size
2,048 bytes

GENERAL

Power
Max 1.4W (not including SFP)

Physical
Height: 12.7 mm (0.50 in)
Width: 14.3 mm (0.56 in)
Depth: 81.1 mm (3.19 in)
Weight: 30.0 g (1.0 oz)

Note: MiNID adds 33.5 mm (1.32 in.) to the depth of the host device.

Environment
Operating case temperature:
-20 to 85°C (-4 to 185°F)
Humidity: Up to 90%, non-condensing

Ordering

RECOMMENDED CONFIGURATIONS

MiNID/GE
1 Gbps per port

MiNID/FE
100 Mbps per port

OPTIONAL ACCESSORIES

SFP-CA
Adapter to connect MiNID to a PC

International Headquarters
24 Raoul Wallenberg Street
Tel Aviv 69719, Israel
Tel. 972-3-6458181
Fax 972-3-6498250, 6474436
E-mail market@rad.com

North America Headquarters
900 Corporate Drive
Mahwah, NJ 07430, USA
Tel. 201-5291100
Toll free 1-800-4447234
Fax 201-5295777
E-mail market@radusa.com

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