EKINOPS360

EKINOPS PM 100G-AGG

100G aggregation module

KEY FEATURES & BENEFITS

- Efficient 10G and 40G services aggregation to 100G line
- SFP+ client ports with multiprotocol support:
  — 10GbE; OTU2/OTU2e; 8G/10G/16G Fibre Channel; OC-192/STM-64
- OTU4 line output simplifies higher order aggregation to 200G
- Increased bandwidth utilization

APPLICATIONS

- Carrier managed services
- Ethernet business services
- Campus connectivity
- SAN-based backup and recovery
- High speed Ethernet backhaul

OVERVIEW

The EKINOPS PM 100G-AGG is a multiprotocol aggregation module that allows network operators to deliver a wide range of connectivity and managed services. Designed as a companion card to the EKINOPS PM 200FRS02 (see separate data sheet), it aggregates both 10G and 40G services on to a single 100G optical carrier for greater bandwidth and spectral efficiency. The combination of the two modules provides extensive service flexibility to the network by providing a low cost on-ramp for lower speed services to a high speed 100G or 200G link.

The 100G line is G.709 OTU4-framed and allows the signal to be handed off natively as a client either to the Ekinops PM 200FRS02 to be further aggregated to a 200G coherent line or, alternately, to an OTN switched core.

This approach is designed to provide a modular, cost-efficient approach to multiplexing 10G and 40G services onto a 200G wavelength. It also allows the operator to add services quickly by simply plugging in a new client optic without having to turn up a new wavelength.

The EKINOPS PM 100G-AGG provides ten SFP+ client interfaces supporting 10GbE, 40GbE, OTU2/OTU2e, 8G/10G/16G Fibre Channel, OC-192/STM-64. It also comes in a PM 100G-AGGE40 variant that supports a combination of 10GbE and 40GbE clients. Occupying two slots, up to two modules can be co-located with their companion EKINOPS PM 200FRS02 in a single 2RU shelf..
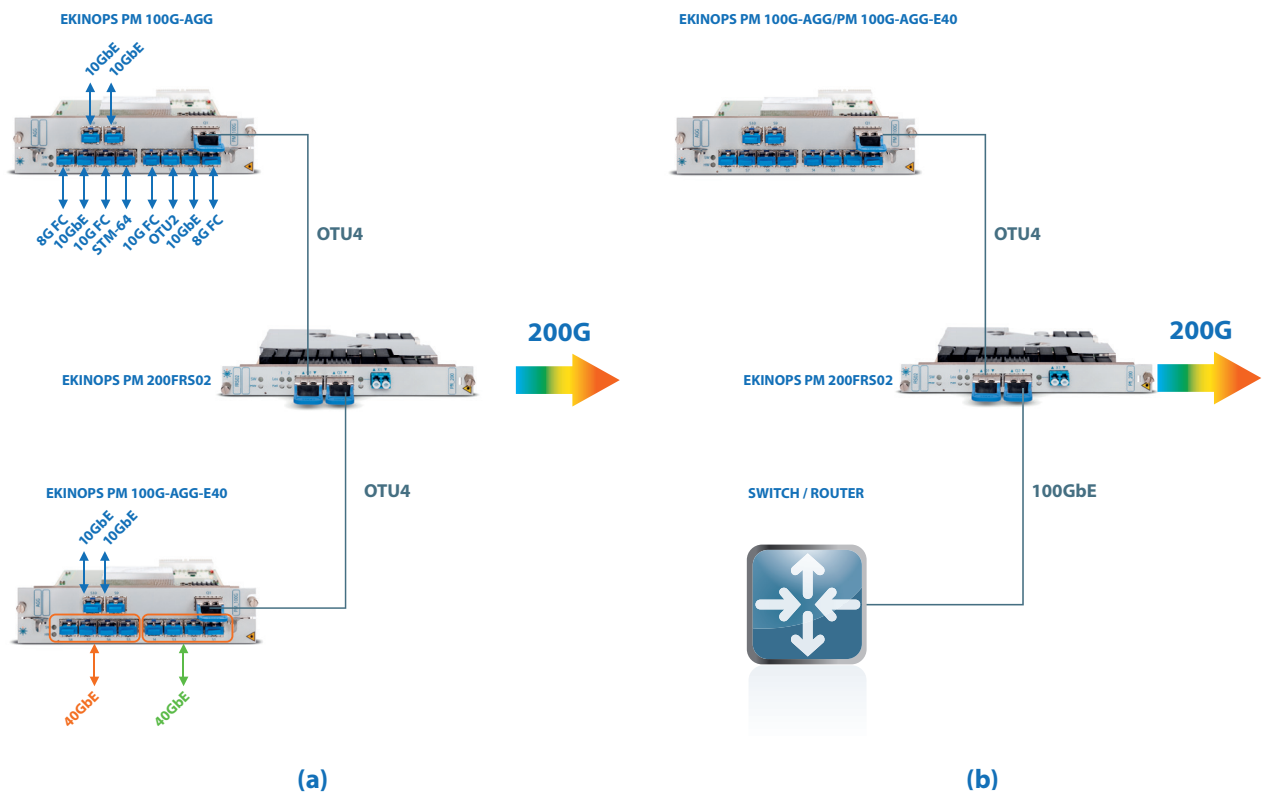

Figure: Service flexibility using EKINOPS PM 100G-AGG, PM 100G-AGG-E40 and PM 200FRS02 for (a) pure 10G or (b) combined 10G/40G and 100G aggregation to 200G line

EKINOPS
Empowering Networks

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MANAGEMENT

The EKINOPS PM 100G-AGG modules can be managed through SNMP or via the Ekinops standard element level management interfaces, which include a Command Line Interface *(CLI)* and an Ekinops Graphical User Interface *(GUI)*. The CLI is accessible via Secure Socket Shell *(SSH)* and Telnet remotely or via a local serial port on the management board.

Complete performance monitoring and management are provided, including laser shutoff and local and remote loopback, which is useful for maintenance and fault isolation.

Digital Diagnostics Management *(DDM)* is supported for SFP+ and QSFP28 interfaces. This includes link status, transmit *(TX)* and receive *(RX)* signal power monitoring, and operational temperature, as well as manufacturer and transceiver model information essential for inventory management. The EKINOPS PM 100G-AGG modules are also supported by Celestis **NMS**, the Ekinops advanced Network Management System.

SPECIFICATIONS

• CLIENT INTERFACE

Protocols	40GbE; 10GbE; OTU2/OTU2e; 8G/10G/16G Fibre Channel; OC-192/STM-64
Optical interface	SFP+
Number of ports	10

• LINE INTERFACES

Specifications

Protocol	OTU4
Optical interfaces	QSFP28
Number of ports	1

• MANAGEMENT

MIB	SNMP V2c Private MIB

• PHYSICAL SPECIFICATIONS

Module size	2 slots in all Ekinops chassis *(C200HC and C600HC)*
Chassis compatibility	C200HC *(2x100G modules per chassis)* C600HC *(10x100G modules per chassis)*
Operating temperature	0°C to +50°C / +32°F to +122°F
Storage temperature	-20°C to +85°C / -4°F to +185°F

• INDICATORS

Status	HW Ready, SW Ready
Alarm	Port Down *(client and line)*

• PERFORMANCE

Typical power consumption	68W *(includes client optics)*
Max. power consumption	75W *(includes client optics)*

• REFERENCE STANDARD

ITU-T G707 12/2003 edition; ITU-T G709; IEEE 802.3-2002; IEEE 803.3ae-2002; IEEE 802.3ba

ORDERING INFORMATION

PLUGGABLE MODULE (PM)

EKINOPS CHASSIS

PRODUCT CODE	DESCRIPTION
PM_100G-AGG	10G to 100G aggregator module, 10 multiprotocol client ports, 1 line port, SFP+ clients and QSFP28 OTU4 line interface *(SFP+ and QSFP28 not included)*.
PM_100G-AGG-E40	2 x 10GbE & 2 x 40GbE to 100G aggregator module, 10 client ports, 1 line port, SFP+ clients and QSFP28 OTU4 line interface *(SFP+s and QSFP28 not included)*.
C600HC	High Capacity modular chassis 7RU
C200HC	High Capacity modular chassis 2RU
PM_MNGT4	Management card
400EEM	Ekinops Craft interface Software

CONTACT

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