

## ISG 6000



### Overture Networks ISG 6000 – The Ethernet Multiservice Edge

**S**ervice providers worldwide are migrating their existing networks to Carrier Ethernet to deliver advanced services to enterprises and other businesses. For these carriers and their customers, Carrier Ethernet promises significant cost savings, operational simplicity and the ability to turn up added bandwidth and new services efficiently and quickly. However, the revenue produced by existing services and tied to existing infrastructure cannot be ignored during this migration.

The current crop of central office god-boxes has made it difficult and expensive to combine carrier Ethernet with these existing services and infrastructure technologies. The ideal platform would enable low cost aggregation of packet-based services delivered across both TDM and native Ethernet circuits and provide a resilient handoff to the packet metro core.

Overture Networks, with its long history of successful service deployments for Carrier Ethernet at the access edge, has developed this platform.

#### Introducing the ISG 6000

The ISG 6000 Carrier Ethernet Aggregation System, with its MaestrOS™ operating system, is the first member of a new family of products from Overture Networks that has been specifically designed to accelerate the transformation to Carrier Ethernet infrastructure and services. All in a compact two rack unit system.

Ethernet and IP services can now be delivered at a scale and cost point previously unheard of, enabling service providers to reduce expenses and generate ever-increasing revenues from premium Ethernet services.

The ISG 6000 comes standard with four Gigabit Ethernet interfaces and two interface card slots for adding more Ethernet ports or reaching hundreds of customers across SONET/SDH, PDH or copper connections.

With the ISG 6000 at the edge of your network, you can now fully embrace Carrier Ethernet while supporting the existing services and infrastructure that continue to pay the bills. In fact, by designing a Layer 2 access network using Carrier Ethernet, the service provider can actually simplify the job of their core network while still reaching all customer sites with a consistent set of Ethernet and IP services.

With the ISG 6000, you will maximize your revenue potential and make Carrier Ethernet easier.

#### APPLICATIONS

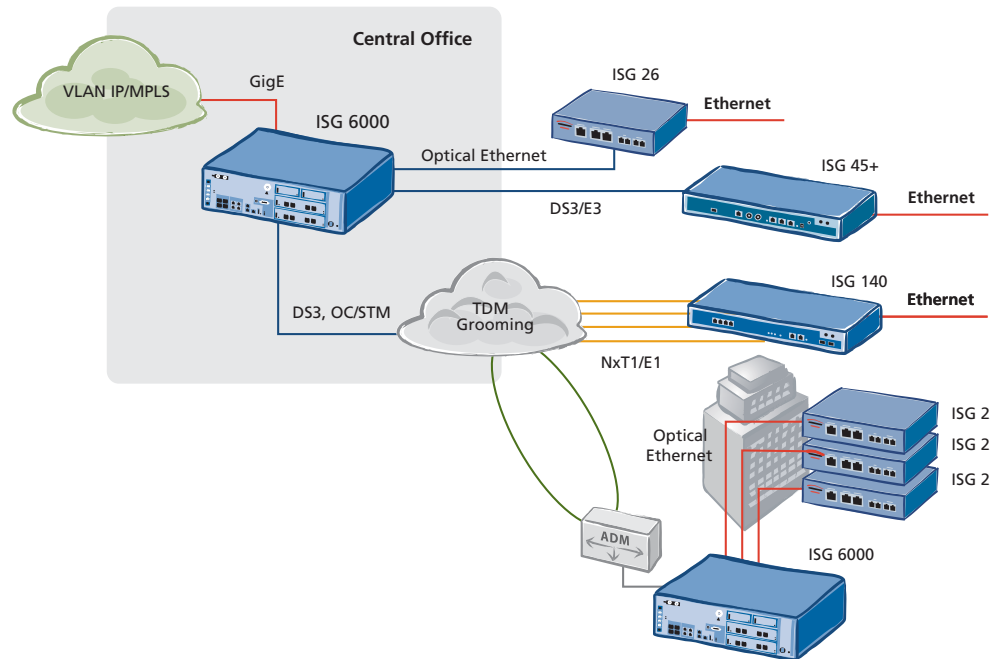
- Router Bypass
- Carrier Ethernet Edge Aggregation
- Ethernet TDM Interworking
- Wholesale Ethernet Aggregation

#### FEATURES

- Fine granularity, 8-queue traffic management
- Multi-function interfaces with channelized and clear channel modes
- Locally switched E-Line/E-LAN services
- Compact, high density form factor

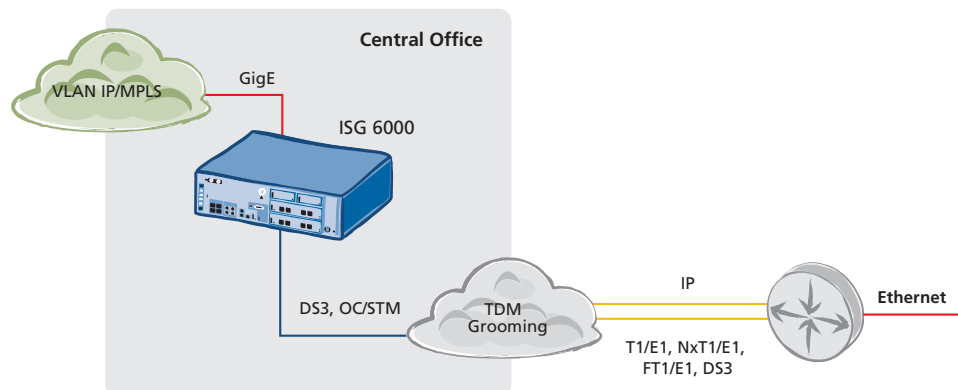
## Example Application 1 – Carrier Ethernet Services over Any Infrastructure

Whether your last mile is fiber or copper or an existing SONET/SDH network, the ISG 6000 will help you deliver and manage your Carrier Ethernet services. You can reach your customer sites from a single aggregation platform regardless of the access infrastructure in place. The ISG 6000 is available not just with direct Ethernet connections, but also a variety of TDM interfaces, including channelized and clear channel SONET/SDH, DS3 that support single and bonded links to provide Carrier Ethernet to all of your customer locations.



## Example Application 2 – IP Service Aggregation

If your service portfolio includes any type of IP service offering, such as direct Internet access, VoIP or managed router service, the ISG 6000 will provide a more cost-effective alternative to channelized router interface modules. Rather than spend a small fortune on router modules and drain performance from your critical service edge routers, deploy the ISG 6000 to save money and free up resources by using only Ethernet ports on your routers. Using IP to Ethernet Service interworking, the ISG 6000 terminates the TDM connection, repackages IP traffic into separate VLANs for each customer and hands it off to your router across one or more Ethernet interfaces.



## MaestrOS™ Operating System

The ISG 6000 is powered by Overture Networks' MaestrOS™ software, a network operating system that provides the foundation for flexible, reliable and operationally efficient Carrier Ethernet aggregation.

Overture Networks MaestrOS grew out of years of successful Carrier Ethernet deployments at some of the world's largest service providers and is based on three fundamental principles:

- Deliver the highest possible performance with maximum flexibility
  - Wide range of traffic classification, packet manipulation, class of service and quality of service options
  - Aggregation (many to one) or standalone (any to any) switching
  - Programmability in the data path allows for adaptation to evolving encapsulation and signaling schemes
- Offer highly resilient and reliable operation -Modular architecture supports in-service software upgrades
  - Built-in support for multiple levels of hardware, facilities and service redundancy
  - Backed by Overture Networks' industry leading support infrastructure and 24x7 TAC
- Provide the right set of tools to manage the equipment and maintain services – a common service provisioning model independent of technology
  - Familiar CLI and streamlined provisioning model
  - Extensive statistics, performance monitoring and troubleshooting tools

With MaestrOS, service providers can be assured they have long term investment protection and a solid foundation on which to build their Carrier Ethernet service offerings.

## Features and Benefit Highlights

Feature	Description	Benefit
Support for complete business services "offering	Standards-based Carrier Ethernet and IP services all supported in the same platform	Allows service providers to consolidate all services from 1 Mbps to 1 Gbps on a single Layer 2 aggregation platform, realizing the full revenue potential of their Carrier Ethernet investment
MaestrOS Carrier Ethernet Aggregation Operating System	Purpose-built software platform for delivering flexible, reliable and operationally efficient Carrier Ethernet aggregation, familiar industry-standard CLI, backed by Overture Networks	Simplifies network architecture and deployments with long term investment protection and peace of mind
Compact carrier class hardware platform	Redundant field-replaceable cooling unit and DC power supplies, field replaceable air filter, dry alarm relay contacts and remote telemetry inputs, multiple I/O module and facility redundancy options, NEBS L3-compliant 10" deep 2 RU platform	Ensures high level service availability, field serviceability and deployment flexibility
Support for 100s of customers	Up to 672 channelized customer interfaces (e.g. DS1) and 1,500 service ports	Aggregates all low-speed (T1/E1-DS3/E3) traffic in a CO or PoP onto single platform
MEF 9 and 14 compliant	Support for E-Line, E-LAN and E-Tree services and all required attributes	Enables service providers to certify their offerings as MEF compliant
Local Switching	Locally build E-Line and E-LAN over TDM or Ethernet interfaces	Results in lower backhaul, lower network port consumption and lower traffic latency
L2+ Classification	Traffic classification by combinations and ranges of port, 3-levels of VLAN stacking, p-bit and DSCP values, and flexible options for encapsulation, tagging, header manipulation and bandwidth policing, per egress interface queueing	Supports deployment of multiple differentiated services to customers in a variety of applications
Standards-based Ethernet OA&M	Fault management and performance monitoring based on industry standards such as 802.1ag and Y.1731	Allows for fully interoperable management of end to end services
Standards-based TDM OA&M	Loopbacks, alarms and performance monitoring based on ITU-T, ANSI, Telcordia specifications	Equipment placed in unmanned CO's can be remotely tested
Integrated TDM Test Heads	Generate and monitor BERT test patterns. Generate and respond to TDM looping codes	Remote control of TDM testing over Ethernet WAN and elimination of stand-alone test equipment

## Technical Specifications

### Built-in Physical Interfaces

- 4 x Gigabit Ethernet (SFP and RJ-45)
- 1 x 10/100/1000 - Management
- 1 x USB2 - bulk configuration and software
- 1 x RS-232 - DB9 craft (female)
- 3 alarm relay outputs and 3 dry contact inputs with ACO
- BITS input and output (RJ48C)

### Interface Modules (2 slots)

- All modules are hot-swappable
- Dual protected multi-service channelized OC-3/STM-1
- 12 port multi-service channelized/clear channel DS3/E3
- Protected multi-service channelized OC-12/STM-4
- 8 x 10/100/1000 Ethernet
- 6 x VCAT OC-3/STM-1
- 2 x VCAT OC-12/STM-4

### Management Access

- In band or out of band
- SNMP v2, v3
- Command line interface (CLI) via RS232, Telnet, SSH
- USB2 and FTP for configuration and software image management

### Management

- ITU-T Y.1731, IEEE 802.1ag
- IEEE 802.3ah OAM
- Multiple software images
- In-service software upgrades

### Synchronization

- Centralized clock distribution with Stratum 3E synchronization
- ITU-T G.8261 Synchronous Ethernet (all ports)
- IEEE 1588

### Ethernet Services

- MEF compliant E-Line, E-LAN, E-Tree
- Direct Ethernet (Fiber or twisted pair)
- Ethernet over NxDS1 (MLPPP), NxE1 (MLPPP)
- Ethernet over SONET/SDH
- Ethernet over DS3/E3

### IP Services

- IP to VLAN interworking
- IPCP over PPP and MLPPP
- PPP over DS1, E1, DS3, E3
- MLPPP over NxDS1, NxE1

### Traffic Management

- Eight COS classifications mapped to eight queues
- Queue management using Strict and WRR priorities
- WRED intelligent discard
- Classification rules on 802.1p, 3-level VLAN ID (802.1q), TOS/DSCP, and physical port
- Fine granularity virtual interface QoS
- Ingress Policing
- Egress hierarchical traffic rate shaping

### Power

- Dual DC
  - Dual power feeds (front or rear options)
  - Dual redundant field-replaceable power supplies
  - -48 VDC, nominal
  - 350 watts max
- AC
  - Single field-replaceable power supply
  - IEC connector
  - 90 VAC – 264 VAC auto-ranging
  - 350 watts max

### Physical and Regulatory

- 3.5" H x 17.4" W x 11.3" D
- 89mm H x 441mm W x 286mm D
- Weight: 13 lbs (5.9 kg)
- NEBS Level 3
- FCC Part 15 – Class A
- IEC 60950, UL 60950
- CE Mark
- RoHS

*\*Please contact Overture Networks for availability of specific features*

## ISG 6000 System Components

PN	Description
6050-930	<b>ISG 6000 DC Front Access Kit</b> - ISG 6000 chassis, DC Power Supply, four Gigabit Ethernet ports - optical and tri-speed electrical, Quick Start Guide, 19"/23" Mounting Kit, front blanks, SW
6070-930	<b>ISG 6000 DC Rear Access Kit</b> - ISG 6000 chassis, DC Power Supply, four Gigabit Ethernet ports - optical and tri-speed electrical, Quick Start Guide, 19"/23" Mounting Kit, front blanks, SW
6008-204	<b>ISG 6000 DC Power Supply</b> (one is included with ISG 6000 DC Kit)
6011-910	<b>ISG 6000 OC-3/STM-1</b> - 2-port protected, multiservice, channelized module
6012-910A	<b>ISG 6000 DS3</b> - 12-port, multiservice, channelized or clear channel module, plus 12-port license
6006-404	<b>ISG 6000</b> - 2 Meter Cable 4-port DS3/E3 Cable Harness Breaks out 4 ports to 8 BNC male connectors
6006-405	<b>ISG 6000</b> - 10 Meter Cable 4-port DS3/E3 Cable Harness Breaks out 4 ports to 8 BNC male connectors

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