

Overture 4000e

Carrier Ethernet over Copper Aggregation

Overture's 4000e is a self-contained service delivery engine. The 4000e is a purpose-built Ethernet switching and VLAN labeling platform for delivering from 1 to over 100 Mbps of symmetrical Ethernet services over a single-bonded-copper-infrastructure. It effectively extends a carriers' service reach beyond their existing optical switching footprint - increasing the revenue potential while reducing OPEX.

SCALABILITY

Up to five 4000e switches (supporting 200 copper pairs) can be redundantly connected using a dedicated ring-based stacking interface. Each 4000e can be hot-inserted into a stack, with no effect on existing deployed services.. The virtual node is managed as a single entity; any copper pair can be bonded to any other pair across the stack. The ability to stack switches greatly lowers the initial cost of entry and enables the solution to scale to meet your growing needs.

RAPID SERVICE DELIVERY

With the 4000e, a carrier can quickly plan the service offering and optimize the copper pair requirements. To simplify the location of the copper pair, the 4000e supports tone-generation and open/short technologies. To qualify the loop, the 4000e includes Overture's TDRplus, an integrated Time Domain Reflectometer. With this technology, a carrier can measure the distance of the loop, analyze the quality of the loop, and detect the presence of the 400 or 600 series CPE (even when it is powered-off). Provisioning is easy and fast because the 4000e will automatically configure the CPE in a plug-and play manner. It will also automatically configure the modulation on the bonded-pair to obtain the highest data rate. The 4000e has an embedded GUI that simplifies installation and trouble-shooting. Powerful programmable macros accelerate provisioning and prevent errors.

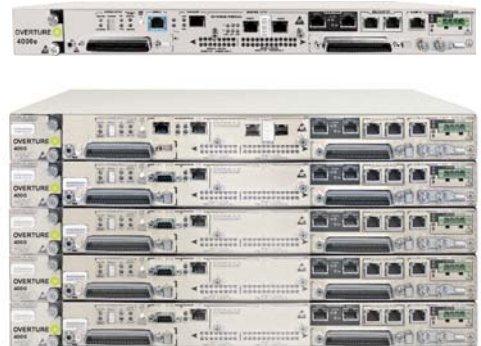
CARRIER CLASS FEATURES

The 4000e is NEBS level 3 certified, temperature-hardened, and has full front access to all of its cables. It is 1RU high and it can be deployed in a central office, a controlled environmental vault, or an outside plant remote-terminal.

Operators can assign SLAs on each Ethernet Virtual Circuit. It has a comprehensive monitoring system that includes 802.1ag, Y.1731, and IP SLA. It supports VLANs, stacked VLANs (Q-in-Q), Class-of-Service, Quality-of-Service, traffic shaping, and policing. New services can be added to existing customers without service interruption and without the need for a truck roll.

The 4000e enables the proactive monitoring of service variables such as performance, uptime, latency, and jitter. Within the network layer, the 4000e supports multiple levels of resiliency for network protocols, paths, systems, and management. Within the physical layer, the 4000e provides a dynamic level of protection against service interruptions. This includes self-healing bonding engines, cross-box bonding, and no single point of failure. The 4000e allows carriers to use familiar tools to trouble shoot the service path. This includes intuitive troubleshooting tools such as PING and TRACE ROUTE.

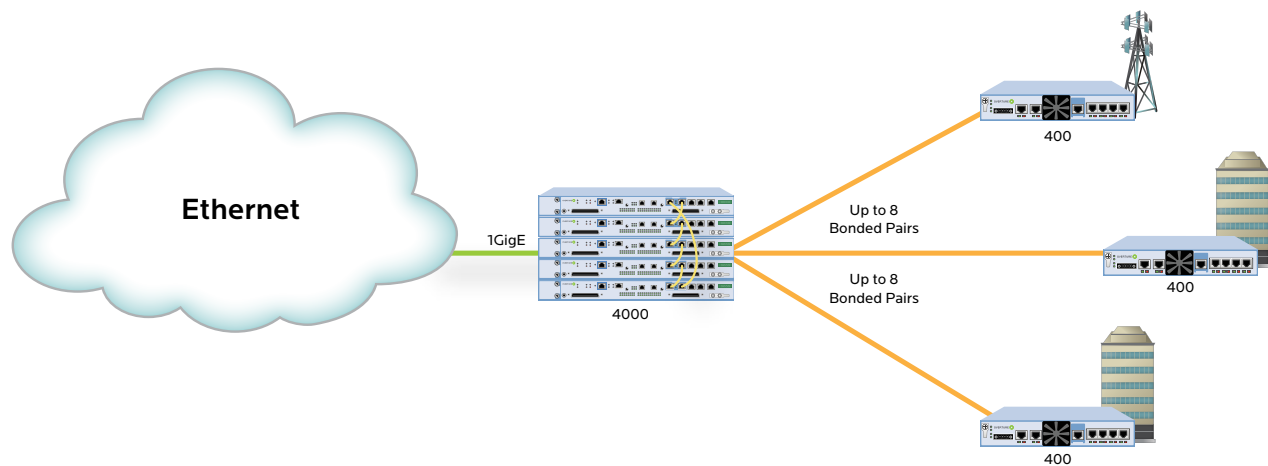
The 4000e is a carrier-class Ethernet switch that extends the carrier's Ethernet serving area beyond the limited reach of the optical network. It provides a carrier-class architecture that delivers demanding SLAs, cost-effective growth, fast and flexible deployment, and intuitive management tools.



PRODUCT SNAPSHOT

- **Aggregation for Carrier Ethernet over bonded copper**
- **Up to 15Mbps per copper pair, up to 24 pair bonding**
- **Zero-touch provisioning**
- **Robust pair qualification and service turn-up tools**
- **Temperature hardened**
- **Stack up to five units for greater scalability and High Availability**
 - **Manage up to five 4000e units from one IP Address**
 - **Cross-box bonding**

Overture 4000e



The Overture 4000e provides Ethernet over copper aggregation for Carrier Ethernet services

FEATURE	BENEFIT
15Mbps per copper	Copper pairs that can deliver more than seven times the bandwidth of a T1 or E1 service at a much lower cost
Pre-provisioning and Zero Touch	Pre-provision CPEs using pre-set service profiles before they are connected; when they are installed all configuration info and software updates are automatically pushed to ensure rapid service delivery
Copper pair management	Robust trouble shooting features like Time Domain Reflectometer and Tone Generation to detect pairs and prequalify loops help speed up service delivery
Stack up to five boxes	Simplified management in large scale deployments
Cross-box bonding	High availability services that eliminates stranded copper pairs

TECHNICAL SPECIFICATIONS

INTERFACES

- High speed uplink modules:
 - 2 port 100/1000Base-TX
 - 2 port 1000Base-X Optical (SFP)
 - 1 port unchannelized T3/E3
- EoC aggregation: 40 port IEEE 802.3ah
- Stack up to 5 units
- Metallic loop port and alarm contacts
- RS-232 management port

ETHERNET SERVICES

- MEF E-LINE, E-LAN and E-TREE
- 802.1d STP and 802.1w RSTP
- 802.3ad link aggregation
- 802.3x flow control and pause frames
- 802.1q VLAN tagging, stacking, swapping (Q-in-Q)
- 802.1p prioritization
- 256 EVCs, each supporting up to 4095 UNI bindings
- Unique SLA per EVC
- CoS: WFQ, SP and combo based on VLAN, p-bits or ToS/DSCP
- Hierarchical policing/shaping

MANAGEMENT

- Local RS-232 management interface
- Web GUI, familiar CLI

- Pre-provision and store CPE configs
- Zero Touch provisioning
- 802.3ah OAM
- 802.1ag CFM
- Y.1731 ETH-OAM
- FTP, SSHv2, HTTPS, SSL
- TACACS+ and RADIUS
- Management IP ACLs
- SNMPv1, v2 and v3 traps, alarms
- Syslog
- Copper pair management
 - Time domain reflectometer
 - Tone generation
 - Auto-bonding
 - Cross-box bonding
 - Detects powered and unpowered CPE

PHYSICAL

- 1.72H" x 17.45W" x 9.9D" (44 mm x 444 mm x 251 mm)
- Mounting: 1RU in 19" and 23" EIA/ANSI, WEKO and ETSI racks
- Weight: 11 lbs (5 kg)
- Full front access
- Rear or side exhaust options
- Field replaceable fan
- Operating temperature: -40° to +149°F (-40° to +65°C)

- Humidity: up to 85% non-condensing relative humidity
- Power consumption: 85w 48VDC
- Redundant power feeds
- Optional AC/DC 120/240 power supply
- Input voltage: -40 to -57.6VDC

COMPLIANCE

- TCPAM 16/32/64/128
- RFC 791 IP, RFC 792 ICMP, RFC 793 TCP
- Spectral compliance
- IEEE 802.3ah, 2BASE-TL, ITU-T G.991.2.bis (Annex A, B, F, & G)

CERTIFICATION

- C-Tick
- CE Mark
- EN 55022 Class A
- ETSI 300 386, 300 019, T1.2, T2.2, T3.5
- FCC Part 15 Class A
- GR-3108 Class 2
- ITU K.20/K.21
- MEF 9, 14
- NEBS Level 3
- RoHS



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