

CloudMetro™ 10

1 Gigabit Carrier Grade SDN / Distributed NFV Platform

The CloudMetro 10 1GE Carrier Grade Distributed NFV Platform offers a new approach to service provider networks. By harnessing cutting-edge technologies, like Software Define Networking (SDN) and Networking Functions Virtualization (NFV) CloudMetro 10 enables service providers to turn their networks from transport networks into IT-aware networks. This new approach of transforming the network into a dynamic, highly orchestrated, agile and virtualized network enables service providers to increase their service offering and roll out new services within a very short time frame. By virtualizing and running different networking functions as software at the edge of the network, service providers can deploy and offer new services without any track role, minimizing the OPEX and CAPEX involved, and significantly reducing the complexity of new service introduction. By offering multiple IT services within close proximity to customers, service providers can start offering different virtualized IT services, and differentiate themselves from other providers. In order to enable this technology CloudMetro 10 was designed with a VNF-hosting CPU, and extensive virtualization capabilities support.

Distributed NFV Hosting Platform

CloudMetro 10 was designed as an innovative Distributed NFV platform, utilizing an Intel X86 architecture processor, including Intel's virtualization technology (VT-X) support, to host different VNFs, running as TelcoApps, and providing different networking functionalities in a distributed manner. The hosting CPU runs NFVTime-OS, the NFV infrastructure layer that enables VNF life cycle management as well as easy VNF and service attachment. The NFVTime-OS layer is also responsible for performing service chaining, in order to enable service providers to handle each flow differently, with the flexibility needed to cope with future network needs.

Carrier Grade CE 2.0 / SDN Support

CloudMetro 10 is a state-of-the-art, carrier grade platform that can bridge the gap between CE2.0 networks and future SDN networks- , and an innovative Distributed NFV platform. Powered by merchant ASICs, CloudMetro 10 offers 1GE line rate connectivity while running a comprehensive control plane, in either distributed or central manner. CloudMetro 10 offers service providers flexibility in their choice of transport technologies by supporting multiple transport technologies such as .1Q, Q-in-Q, IP/MPLS and OpenFlow as the emerging SDN data plane technology.

Next Generation Management Support

CloudMetro 10 offers next generation management support, including , NETCONF and YANG support. By implementing these modern management models CloudMetro 10 offers a high level of management flexibility, support in configuration commitment and rollout, and much more efficient management. Since NETCONF and YANG use XML file format, they are well-suited for process automation, and can shorten the NMS / OSS integration cycle.

Advanced Hardware-based OAM (Operations, Administration and Maintenance) Support

CloudMetro 10 is embedded with a comprehensive set of OAM and SLA monitoring and testing tools, which utilize the hardware engines on TelcoSystems' devices, as well as software processes, to provide real-time, accurate OAM capabilities. These capabilities include network measurements and service turn-up testing and verification, designed to reduce truck rolls and shorten time for activation and management. CloudMetro 10 supports a wide range of standards, including link level EFM industry standards like IEEE 802.1ag Connectivity Fault Management (CFM) protocols and ITU-T Y.1731 loss and delay measurement, as well as Y.1731 SLM for E-LAN testing, and RFC2544 and Y.1564 for service activation testing.



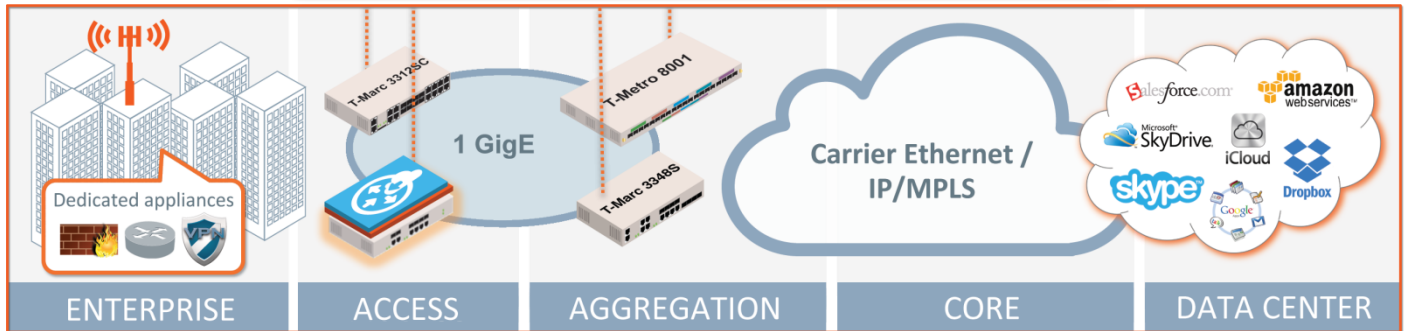
PRODUCT HIGHLIGHTS

- ❑ Multi-functional carrier grade Distributed NFV platform
- ❑ Powerful Intel X86 processor for VNF hosting
- ❑ Carrier Ethernet, MPLS (VPWS, VPLS and HVPLS) and OpenFlow transport technologies supported
- ❑ Wire speed non-blocking switching capacity
- ❑ Supports a large number of services using HQoS
- ❑ Multiple resiliency mechanisms
- ❑ Extensive, field-proven service OAM and SLA monitoring and assurance
- ❑ Comprehensive VNF hosting and virtualization infrastructure
- ❑ Time synchronization (SyncE and IEEE 1588v2)
- ❑ MEF, IEEE, ITU-T and IETF standards compliance for multi-vendor interoperability

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TelcoOrchestrator



Product Specifications

Hardware Characteristics	4x 100FX/1000BaseX SFP ports 2 x copper 10/100/1000BaseT ports Non-blocking 6Gbps FD platform AC power supplies
Distributed NFV	Computing blade based on Intel® Core™ i3/i7
Services	All MEF services, IEEE 802.1Q bridging, IEEE 802.1ad QinQ (TLS), MPLS L2VPN - VPWS, VPLS, H-VPLS, Dynamic routing and signaling utilizing OSPF, ISIS, RSVP-TE and T-LDP for path computation and signaling, Virtual OSPF support, OpenFlow 1.3.1 IP Services: Virtual Routing and Forwarding (VRF) Static IP routing, OSPFv2, BGPv4, BFD*, DHCP server/client/relay, VRRP-RFC 3768
Timing Resiliency	SyncE, IEEE 1588v2 PTP Sub-50ms ITU-T G.8031 EPS, ITU-T G.8032v2 R-APS and MSTP Fast Ring Sub-50ms RSVP-TE FRR, H-VPLS dual home, secondary LSP xSTP, Resilient Link, LAG (static/IEEE 802.3ad LACP)
Quality of Service	Per port/EVC/flow single/dual rate limiting, hierarchical rate limit per EVC Hierarchical QoS – Multi-level SP, WRR and hybrid frames scheduling, CoS marking and mapping per EVC, IPv6 data path support WRED, flow control for congestion handling
Multicast Management	IGMP snooping v1/v2, IGMP Proxy, Multicast VLAN registration (MVR)
OAM	Hardware-based IEEE 802.3ah EFM, IEEE 802.1ag CFM, OAM over VPLS (OAMoVPLS)
Testing & Monitoring	Hardware-based ITU-T Y.1564 and RFC2544 Test Head and service performance analyzer ITU-T Y.1731 PM, SM and SLM Per-port/EVC/VLAN/COS, hardware-based flexible MAC-based loopbacks*
Management	Console, Telnet, SSHv2, Radius, TACACS+, SNMP v1/2/3, xFTP, NTP, DNS resolver, SD card, DHCP client and Zero-Touch provisioning*
Security	ACLs, RADIUS, SSHv2, SNMPv3, SFTP, port security, broadcast storm prevention, secured access, IS-IS authentication
General Specifications	Dimensions: (H) 1RU 1.75" (44 mm), (W) 19" (482mm), (D) 9.25" (235 mm) Weight: 6.6 lbs (3 kg) Operating Temperature: 0°C to 50°C (32°F to 122°F) Humidity: 5% to 95% non-condensing Input power: 100-240 VAC, 50/60 Hz
Regulatory Compliance	Safety: NRTL certified: C-UL 60950, CSA 22.2 No. 950, EN/IEC 60950, TUV/GS (EN60950), CB, EN60825-1/2 EMC: CE Mark: EN50081-1: EN55022 Class A, EN60555-2/3; North America: FCC 47 CFR Part 15 Class A; ICES-003 Issue 4 Class A (Canada); Japan: VCCI Class A; Australia/NZ: CISPR 22 Class A Immunity: EN50082-1, EN/IEC 61000-4-2/3/4/6/11 RoHS Compliance

Key Applications

- Edge Distributed NFV hosting platform
- SDN / Carrier Ethernet network evolution
- Virtualized IT-enabled vCPE Business Services
- Advanced automatic traffic engineered (TE) networks
- Next Generation Mobile backhaul and mobile backhaul (wholesale)

Ordering information

Part Number	Description
CM-10-AC-x-P01	Carrier-Grade Distributed-NFV 1GE Demarcation Platform: 4 x 100Base-FX/1000Base-X UNI/NNI, 2 x 10/100/1000Base-T, 1 x RJ-45 ASCII management console port, 1 x RJ-45 ASCII out of band management port – switch; Intel® Core™ i3-6300 3.7GHz Dual-Core Processor, 16GB memory, 64GB/128GB mSATA SSD Storage; AC power supplies; 'x' specifies power supply and cord types: NA for North America, EUR: for Europe, UK: for United Kingdom; License includes runtime license up to 3 concurrent VMs or 2 concurrent VMs in DPDK mode, not including VNF software



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