OPEN METRO EDGE SOLUTION SHEET

EMPOWERING NETWORKS WITH INNOVATIVE SDN & NFV SOLUTIONS

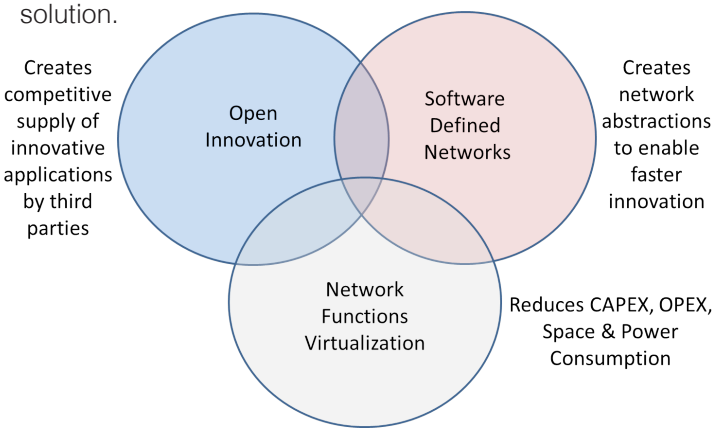
The world of telecommunications is experiencing dramatic changes. Telecommunications service requirements are shifting from voice services to packet-based connectivity services. Packet-based technologies like Carrier Ethernet, MPLS and IP are becoming dominant technologies, and connectivity services are becoming data services.

This environment creates major risk for telecommunications service providers as the requirement for more bandwidth mandates them to keep investing in expanding their networks, even though their revenue streams from the extended bandwidth are not growing at the same pace. Moreover, the value of these services has shifted from the telecommunications service providers to the OTT (over-the-top) players.

Open Metro Edge (OME) is Telco Systems' new and highly innovative metro edge solution, designed to empower service providers and enable them to use their competitive advantages both by optimizing their total cost of ownership, and by offering new types of services at a much faster pace to increase their revenues.

The OME is designed using the most advanced and evolved networking technologies out there, and utilizes the "power of AND" to leverage the synergies between Software Defined Networks (SDN), Network Function Virtualization (NFV) and open innovation.

The key advantage provided with OME is that it is a full edge solution, but follows a very modular open approach. This means that every element (demarcation, aggregation, controller etc.) can be taken separately to fit each service provider's needs, or it can be bundled as a complete solution.



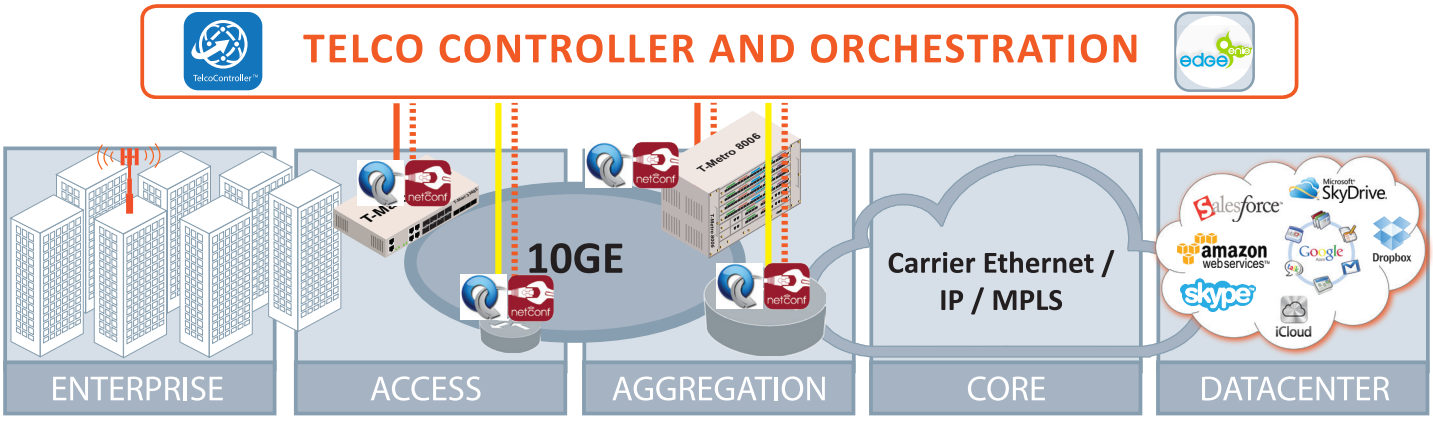
OME SOLUTION BUILDING BLOCKS

SDN / OPENFLOW SUPPORT:

Telco Systems' OME solution is built to enable a smooth evolution from current Carrier Ethernet 2.0 networks into the future SDN networks. The first step is to provide more programmability into the devices. Therefore, we have implemented NETCONF protocols to program the devices that utilize YANG data modeling languages. This is in order to increase the flexibility and intuitiveness of the device configuration while greatly simplifying interoperability.

By adding OpenFlow support to Telco Systems' CE 2.0 product offering, our customers can plan for a gradual evolution path towards OpenFlow and SDN based networks. Our roadmap towards OpenFlow hybrid switching will allow our customers to benefit from SDN technologies while continuing their use of some of the CE 2.0 dedicated mechanisms like resiliency, OAM and HQoS.

Telco Systems will introduce TelcoController, a carrier-grade SDN controller aimed towards removing the hard limitation of third party integration by leveraging the OpenFlow southbound interface. Telco Systems will also be introducing TelcoOrchestrator which is intended to hold a lot of the application-level logic and northbound API for other business applications.



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OME SOLUTION BUILDING BLOCKS

DISTRIBUTED NFV:

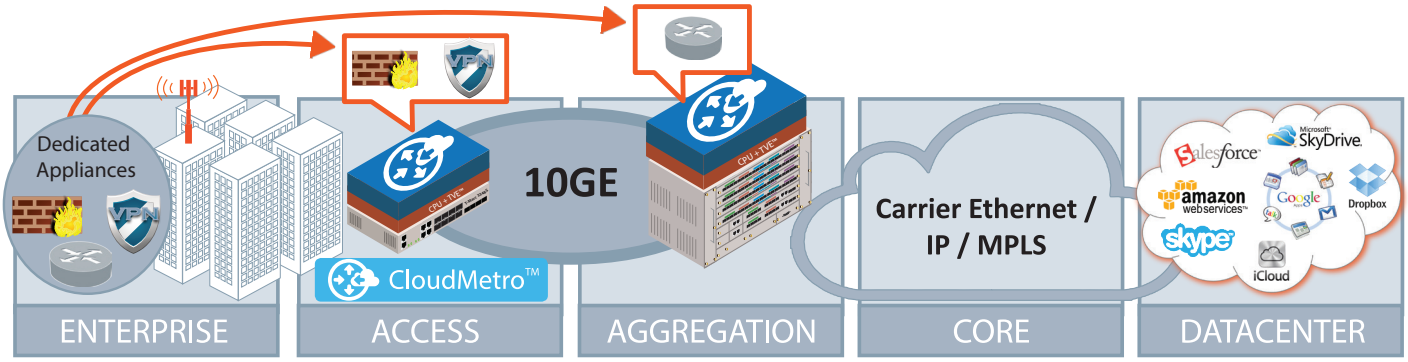
Another building block in the OME solution is a new product family called CloudMetro. This product family will be comprised of 1GE and 10GE demarcation and high density 10GE aggregation devices.

The CloudMetro product family is made up of full carrier grade CE 2.0 and IP/MPLS switches that have additional processing resources (hosting CPUs) that can run VNFs (virtualized network functions), or as we call them, TelcoApps©.

This will turn service providers' switches from single purpose devices to multi-functional devices and will enable service providers to deliver many types of new services to their customers. Many of these services have mandated the service providers or the enterprises to install dedicated appliances in the enterprise, but now these can be delivered virtually as a service.

The hosting processors will be powered down by Telco Virtualization Engine (TVE©) to handle the virtualization workload, TelcoApps installation, TelcoApps instantiation and more.

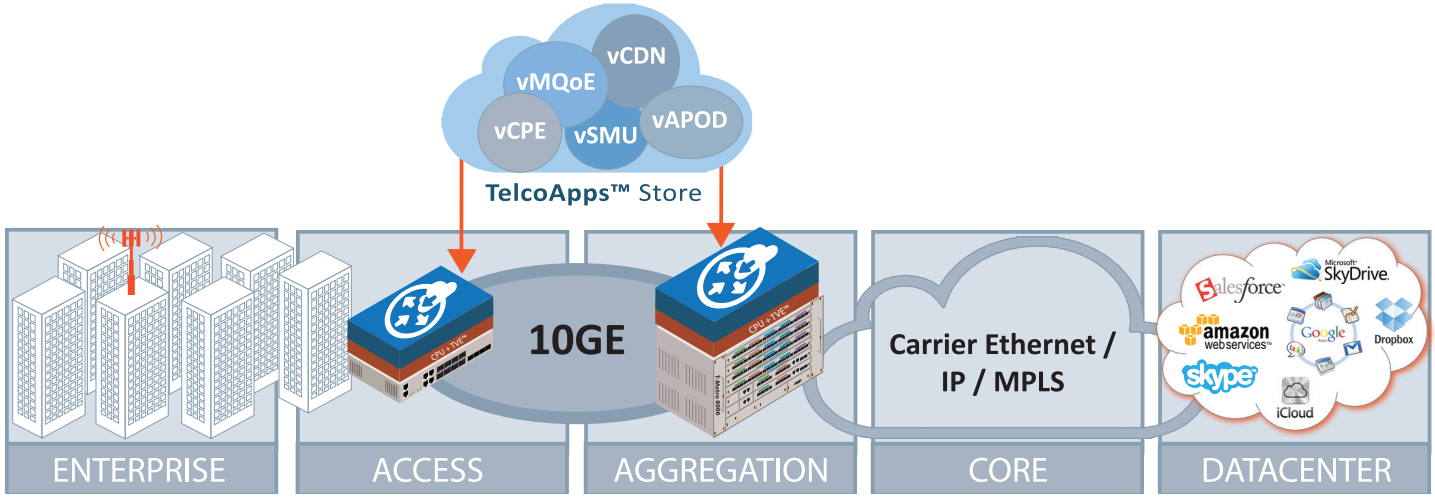
The CloudMetro solution offering can help service providers choose which network position they would like to host the VNFs, allowing them to optimize the location (either demarcation or aggregation) per the specific customer and application need.



OPEN INNOVATION - TELCO APPS:

Telco Systems will launch a new line of software products, Telco Apps. These products are VNFs aimed to add value by virtualizing some of the networking functionality and performing them at the different network locations. While Telco Systems will develop some TelcoApps products, the portfolio itself will contain many more TelcoApps that will be third party developed. This approach will allow our customers to access the "best of breed" products. Most of these TelcoApps will be utilizing the Intel X86 Architecture in order to gain access to a very large pool of third party TelcoApps. Some of the TelcoApps that are planned:

- vCPE –Virtual CPE
- vRouter – Virtual Router
- vFirewall – Virtual Firewall
- vSMU – Virtual Service Measurement Utilities



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