IEEE Communications Magazine Feature Topic on "*Next-Generation Carrier Ethernet Transport Technologies"*

The share of packet-dominated traffic has grown exponentially in networks worldwide. A majority of this traffic is now either Ethernet or Internet Protocol (IP), so enterprises (and even residential customers) familiar with Ethernet technology have begun demanding a simple, inexpensive and high-speed universal Ethernet *service*. The Metro Ethernet Forum (MEF) has defined such a *Carrier Ethernet*, service characterized by some key attributes: reliability, hard Quality-of-Service (QoS), service management, and scalability, which set it apart from the ubiquitously deployed LAN-based Ethernet.

There are several options for building the underlying transport infrastructure to deliver such a carrier Ethernet service. These include, for example, using: IP/MPLS technology to deliver point-to-point Ethernet circuits joined together with physical Ethernet bridges/switches; IP/MPLS with Virtual-Private LAN Service (VPLS) or Hierarchical Virtual Private LAN Service (H-VPLS) (developed at the IETF); Transport-MPLS (T-MPLS) being proposed at the ITU-T, using modified Ethernet technology with Provider Backbone Bridging (PBB) and Provider-Backbone Transport (PBT) being proposed at the IEEE; using a combination of a modified Ethernet data-plane and a GMPLS-based control-plane with VLAN cross-connect (being proposed by several vendors and under consideration at the IETF) and Circuit Emulation Services (CES) over an Ethernet fabric to provision Pseudo Wires (PWs).

This special issue aims to consolidate and disseminate the latest developments and advances in transport technology options for *Carrier Ethernet* service. With this objective, the list of topics includes (but will not be limited to) the following:

- Metro Ethernet and Carrier Ethernet evolutions – requirements, services specifications, carrier drivers, customer drivers
- Requirements for QoS, traffic engineering, resilience, manageability, OAM, and service scalability for carrier Ethernet transport technologies
- IP/MPLS (VPLS, H-VPLS) for carrier Ethernet services – choices, pros, cons, costs/benefits
- Provider Backbone Bridging (PBB) and Provider Backbone Transport-Traffic Engineered (PBT-TE) as alternatives to IP/MPLS for Ethernet transport – pros, cons, costs/benefits
- Transport-MPLS (T-MPLS) for carrier Ethernet – pros, cons, costs/benefits
- GMPLS-based control of Ethernet – changes in the data and control planes
- OAM, network management, service management – options, choices, pitfalls, needs, and cost analysis and comparison of solutions.
- Traffic engineering and dimensioning of carrier Ethernet transport networks
- Techniques to ensure QoS & resilience, with a mix of transport technologies
- Studies comparing the different transport technologies along multiple dimensions – deployment cost, day-to-day running cost, features provided, ease of deployment/management, and so on
- Case-studies from the provider community highlighting why existing technologies meet or do not meet current and evolving provider requirements.
- Network operators, vendors, and standards bodies' perspectives.
- Implementations, test-beds, field trials for carrier Ethernet transport technologies

- State of current standards

Submission

Articles should be tutorial in nature and should be written in a style comprehensible to readers outside the specialty of the article. Articles may be edited for clarity and grammatical accuracy, and will be copyedited according to the Magazine's style. Mathematical equations should not be used (in justified cases up to three simple equations could be allowed, provided there is consent of the Guest Editor; more than three equations require permission from the Editor-in-Chief). Articles should have no more than 4,500 words, no more than 6 tables/figures, and no more than 15 references. Guidelines for prospective authors can be found on-line at http://www.comsoc.org/pubs/commag/sub_guidelines.html. Please submit no later than 31 July 2007. All articles to be considered for publication must be submitted through IEEE Manuscript Central (http://commag-ieee.manuscriptcentral.com). Please select "March 2008/Next-Generation Carrier Ethernet Transport Technologies" in the drop down menu.

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