

The New IETF Sub-IP Area A Brief Summary for Service Providers

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Abstract:

The IESG has noticed an abundance of internet-drafts related to MPLS and optical networking (ie: was inundated). A few hundred internet-drafts were intended to be considered in the MPLS or IPO Working Groups and were not within the charter for those WGs.

In an attempt to return to sanity, the IESG formed a new area with seven WGs and has tried to divide the work among them.

Disclaimer: I'm not on the IESG and don't represent the IESG or IETF in any official capacity. Most of the information here is from the charters but some is my personal opinion on where things may be headed and may prove to be entirely wrong.



Sub-IP Area – Where to Find Information

The IETF Web Site <http://www.ietf.org>
Working Group Charters <http://www.ietf.org/html.charters/wg-dir.html>
Sub-IP Area http://www.ietf.org/html.charters/wg-dir.html#Sub-IP_Area
Area Directors: Scott Bradner, Bert Wijnen

Working Groups

ccamp	Common Control and Measurement Plane
gsmp	General Switch Management Protocol
ipo	IP over Optical
iporpr	IP over Resilient Packet Rings
mpls	Multiprotocol Label Switching
ppvpn	Provider Provisioned Virtual Private Networks
tewg	Internet Traffic Engineering
pwe3	still in the BOF stage (CEOT – > PWOT – > PWE) Private Wire Emulation Edge to Edge

Each WG has a mailing list archive. Also check the internet-drafts abstracts file at <http://www.ietf.org/1id-abstracts.html>

General Switch Management Protocol (gsmp)

Description of Working Group (from charter):

The base General Switch Management Protocol (GSMPv3) protocol has been submitted to the IESG with the request that it become a proposed standard. [...]

The working group is responsible for completing the standardization of the GSMP protocol by responding to protocol issues that arise during implementation of the current specifications.

Personal Observation:

GSMP originated as a means to configure ATM switches. Not being implemented by any tier 1 core router vendor (ie: OC48 or OC192 routers). Implemented by Nortel.

IP over Resilient Packet Rings (iporpr)

Description of Working Group:

Resilient Packet Rings, under development within the IEEE's 802.17 RPRWG, will provide substantial enhancements in both efficiency and flexibility over current bi-directional ring topologies. [...] Reference the IEEE 802.17 RPRWG at <http://www.ieee802.org/rprsg/index.html> for further information.

Important notes (also from the charter):

In particular, the IPoRPR Working Group would produce a requirements and framework document which will be used as input to the IEEE RPRSG to help it formulate its requirements.

Possible Translation of Above (IMHO):

IESG doesn't want to get involved with this. At most they'd like the IETF to produce comments to be forwarded to IEEE.

Provider Provisioned Virtual Private Networks (ppvpn)

Description of Working Group:

This working group is responsible for defining and specifying a limited number of sets of solutions for supporting provider-provisioned virtual private networks (PPVPNs). The work effort will include the development of a framework document, a service requirements document and several individual technical approach documents that group technologies together to specify specific VPN service offerings. [...]

Important Note:

The working group is expected to consider at least three specific approaches including BGP-VPNs (e.g. RFC 2547), virtual routers and port-based VPNs (i.e., where the SP provides a Layer 2 interface, such as Frame Relay or ATM, to the VPN customer, while using IP-based mechanisms in the provider infrastructure to improve scalability and configurability over traditional L2 networks). [...]

IP over Optical (ipo)

Description of Working Group (from the charter):

The advent of switched multi-channel (e.g., WDM, DWDM, OTDM) optical networks using OXCs (Optical Cross-connects) and other optical switching elements presents many new opportunities for improving the performance of IP networks and supporting faster and more flexible provisioning of IP services. ...

Important notes (also from the charter):

If a need is identified to develop new protocols [...], then a recharter must first be approved before undertaking such work.

The IP over Optical WG will coordinate with relevant working groups within the IETF to leverage existing work. The WG may also generate requirements for other IETF WGs as needed. [...]

Key Observations:

1. IPO does no protocol design, just requirements.
2. IPO was where the OIF UNI was being pushed. This (IMHO) sends the message that IESG wants nothing to do with OIF UNI, although opinions on OIF UNI vary widely.

Common Control and Measurement Plane (ccamp)

Theory? (from WG charter):

The CCAMP working group coordinates the work within the IETF defining a common control plane and a separate common measurement plane for ISP and SP core tunneling technologies.

Reality? (drafts within the WG):

"GMPLS Extensions for SONET and SDH Control", E Mannie, 05/11/2001, <draft-ietf-ccamp-gmpls-sonet-sdh-00.txt>

This document is a companion to the Generalized MPLS signaling documents, [GMPLS-SIG], [GMPLS-RSVP] and [GMPLS-LDP]. It defines the SONET/SDH technology specific information needed when using GMPLS signaling.

Observation:

Most discussion on mailing list has been regarding GMPLS. Some discussion of draft-bonica-tunneltrace-01 and draft-bonica-tunproto-00. The GMPLS work seems to be mostly happening in the MPLS WG. Restoration work is supposed to happen in this WG (subject to requirements from TE-WG).

Multiprotocol Label Switching (mpls)

Description of Working Group:

The MPLS working group has been responsible for standardizing a base technology for using label switching and for the implementation of label-switched paths over various link-level technologies, such as Packet-over-Sonet, Frame Relay, ATM, and LAN technologies (e.g. all forms of Ethernet, Token Ring, etc.). [...]

The initial goals of the working group have been largely completed. [...]

Important Note:

The charter doesn't match the list of accepted WG items. In particular, the GMPLS documents are in last call in the MPLS WG but are not called for in the charter. Some documents are in the IESG or RFC Editor process and should be listed on the RFC list in the near future.

MPLS WG Internet-Drafts (from WG charter)

1. Carrying Label Information in BGP-4
2. Definitions of Managed Objects for the Multiprotocol Label Switching, Label Distribution Protocol (LDP)
3. LDP State Machine
4. RSVP-TE: Extensions to RSVP for LSP Tunnels
5. Constraint-Based LSP Setup using LDP
6. MPLS Traffic Engineering Management Information Base Using SMIPv2
7. MPLS Support of Differentiated Services
8. Framework for IP Multicast in MPLS
9. MPLS Label Switch Router Management Information Base Using SMIPv2
10. ICMP Extensions for MultiProtocol Label Switching
11. Applicability Statement for CR-LDP
12. Applicability Statement for Extensions to RSVP for LSP-Tunnels
13. LSP Modification Using CR-LDP
14. LSP Hierarchy with MPLS TE
15. Link Management Protocol (LMP)
16. Framework for MPLS-based Recovery
17. Multiprotocol Label Switching (MPLS) FEC-To-NHLFE (FTN) Management Information Base Using SMIPv2
18. Fault Tolerance for LDP and CR-LDP
19. Generalized MPLS - Signaling Functional Description
20. MPLS LDP Query Message Description
21. Signalling Unnumbered Links in CR-LDP
22. LDP Extensions for Optical User Network Interface (O-UNI) Signaling
23. Signalling Unnumbered Links in RSVP-TE
24. Requirements for support of Diff-Serv-aware MPLS Traffic Engineering
25. Extensions to RSVP-TE and CR-LDP for support of Diff-Serv-aware MPLS Traffic Engineering
26. Generalized MPLS Signaling - CR-LDP Extensions
27. Generalized MPLS Signaling - RSVP-TE Extensions

MPLS WG Request For Comments:

1. Requirements for Traffic Engineering Over MPLS (RFC 2702)
2. Multiprotocol Label Switching Architecture (RFC 3031)
3. MPLS Label Stack Encoding (RFC 3032)
4. Use of Label Switching on Frame Relay Networks Specification (RFC 3034)
5. MPLS using LDP and ATM VC Switching (RFC 3035)
6. LDP Specification (RFC 3036)
7. LDP Applicability (RFC 3037)
8. VCID Notification over ATM link for LDP (RFC 3038)
9. The Assignment of the Information Field and Protocol Identifier in the Q.2941 Generic Identifier and Q.2957 User-to-user Signaling for the Internet Protocol (RFC 3033)
10. MPLS Loop Prevention Mechanism (RFC 3063)

Joint Last Call in MPLS and CCAMP WGs

1. Generalized MPLS - Signaling Functional Description
<draft-ietf-mpls-generalized-signaling-04.txt>
2. Generalized MPLS Signaling - RSVP-TE Extensions
<draft-ietf-mpls-generalized-rsvp-te-03.txt>
3. Generalized MPLS Signaling - CR-LDP Extensions
<draft-ietf-mpls-generalized-cr-ldp-03.txt>
4. GMPLS Extensions for SONET and SDH Control
<draft-ietf-ccamp-gmpls-sonet-sdh-00.txt>

GMPLS appears to be moving ahead in the MPLS WG despite not being on the charter and the only activity in the CCAMP WG moving forward (so far) seems to be the GMPLS SONET/SDH draft.

Internet Traffic Engineering (tewg)

Description of Working Group: (from charter)

Internet Traffic Engineering is defined as that aspect of Internet network engineering concerned with the performance optimization of traffic handling in operational networks, [... highly verbose ...]

The Internet Traffic Engineering Working Group defines, develops, specifies, and recommends principles, techniques, and mechanisms for traffic engineering in the internet. The working group also serves as a general forum for discussing improvements to IETF protocols to advance the traffic engineering function.

Note: (also from charter)

The tewg interacts with the common control and measurement plane working group to abstract and define those parameters, measurements, and controls that traffic engineering needs in order to engineer the network.

The tewg also interacts with other groups whose scopes intersect, e.g. mpls, is-is, ospf, diffserv, ippm, rap, rtfm, policy, rmonmib, disman, etc.

Relevance of the TE WG to NANOG Folks?

Real Work in TE WG (from charter):

The work items to be undertaken by TE WG encompass the following categories:

- BCP documents on ISP uses, requirements, desires (TEBCPs)
- Operational TE MIB (TEMIB)
- Document additional measurements needed for TE (TEM)
- TE interoperability & implementation informational notes (TEIMP)
- Traffic Engineering Applicability Statement (TEAPP)

Possible Relevance to NANOG Folks:

The TE WG explicitly solicits the input of Internet Service Providers and Telecommunications Carriers rather than equipment providers to get the requirements of those building networks rather than those building equipment.

Where is the IP Sub-Area Headed?

1. The MPLS WG at one point seemed to be headed at full speed in all directions at once.
2. To some extent, breaking up the MPLS WG and forming some new related WGs may have eased the task of weeding out the "contributions".
3. The IETF is looking for input from network operators to insure that protocols are designed to meet real requirements and are likely to be deployed.
4. They REALLY DO want OPERATOR input!
5. We'll have to see how this further evolves at the next IETF meeting this August.