



Plans to Re-Organize Sub-IP Technologies in the IETF

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Motivation

- ◆ IEEE 802 develops standards for LANs and MANs, mainly for the lowest two layers of the OSI Reference Model.
- ◆ Recent work items present challenges that seem to extend the problem space of IEEE 802 activity further than before
 - 802.3ae develops interfaces that allow for WAN deployments and SP applications
 - Ethernet in the First Mile (EFM) Study Group extends to the residential applications space
 - 802.17 – Resilient Packet Rings (RPR) targets availability, user separation and QoS capabilities that are new in the 802 space
- ◆ The new functional and Operations, Administration, management and Provisioning (OAM&P) requirements challenge the current standards model and seem to hint that 802 activity needs to develop awareness for ‘over-L2’ aspects
- ◆ Amazingly (or not) the IETF – traditionally a layer 3 and above standards body agonizes about similar issues coming from the complementary direction
- ◆ This presentation is part of an effort to enable communication and try to learn from each other group concerns and model of dealing with the problems

Above and below

- ◆ traditionally the IETF has been:
 - “above the wire and below the application”
 - not (often) defining user interfaces
 - not defining physical wire types
- ◆ while doing “IP over foo”
 - “foo” has been types of networks
 - Ethernet, Token Ring, ATM, SONET/SDH, ...
 - but foo has been changing

IP over “trails”, “circuits”, “paths”, ...

- ◆ what looks like wires to IP may not be physical wires
 - may instead be something where paths can be configured
 - where a path looks like a wire to IP
 - ◆ e.g. ATM VCs
 - might also be routed datagrams another layer down
 - ◆ e.g. IPsec tunnels
- ◆ and then there is MPLS
 - a progressively more important “foo”

Layer Violations

- ◆ there is another complexity when the sub-IP technology is configurable
 - e.g. MPLS, ATM, Frame Relay, ...
- ◆ how should the sub-IP technology be controlled?
 - what information should be taken into account?
 - question may be “could a new path exist with certain characteristics”
 - not just “can a path exist?”

A New Area

- ◆ a systematic approach to sub-IP issues would be nice
 - but exact scope is not clear
- ◆ IESG has created a temporary area for sub-IP
 - like what was done for IPng
- ◆ to be short lived (1-2 years)
 - 2 current Area Directors have been appointed to run the area

What's In and Out?

- ◆ boundaries of IETF work have been blurry
 - the sub-IP area will not help clarify this
- ◆ basic concept:
 - the IETF works on IP-related technology
 - if something does not have a relationship to IP networks then the work should be done elsewhere
- ◆ but since many networks (e.g. all-optical) carry IP, control of those networks may be IP-related

Non-Objectives

- ◆ the IETF is not expanding into standards for physical or virtual circuit technologies
 - no new circuit switch architecture from IETF
 - leave them to others
- ◆ but may form Working Groups to help advise other standards organizations on how to make things IP-friendly
 - e.g. iporpr
- ◆ need to communicate with other standards organizations on what we are actually doing

Area Objectives

- ◆ “Layer 2.5” protocol: MPLS
- ◆ protocols that monitor, manage or effect logical circuit technology
 - e.g. IP Over Optical, Traffic Engineering, Common Control and Management Protocols
- ◆ protocols that create logical circuits over IP:
 - e.g. Provider Provisioned VPNs
- ◆ protocols that interface to forwarding hardware
 - General Switch Management Protocol

IP over X Working Groups

◆ IP over Optics (ipo)

- framing methods for IP over optical data plane and control channels
- identify characteristics of the optical transport network
- define use of ccamp protocols for optical networks

◆ IP over Resilient Packet Rings (iporpr)

- input to the IEEE 802.17 WG to help it formulate its requirements

Label Switching and Virtual Private Networking Working Groups

◆ Multiprotocol Label Switching (mpls)

- label switching technology
- RSVP & CR-LDP signaling to establish LS paths
- MPLS-specific recovery mechanisms

◆ Provider Provisioned Virtual Private Networks (ppvpn)

- detail requirements for ppvpn technologies
- define the common components and pieces that are needed to build and deploy a PPVPN
- BGP-VPNs, virtual router VPNs, port-based VPNs
- security

Control Plane Working Groups

- ◆ Common Control and Management Protocols (ccamp)
 - measurement & control planes for ISP core tunnels
 - info collection via. link state or management protocols
 - e.g. OSPF, IS-IS, SNMP
 - protocol independent metrics to describe sub-IP links
 - signaling mechanisms for path protection
- ◆ Internet Traffic Engineering (tewg)
 - principles, techniques, and mechanisms for traffic engineering in the internet
- ◆ General Switch Management Protocol (gsmp)
 - label switch configuration control and reporting

Summary

- ◆ created temporary area to coordinate IETF sub-IP work
 - area to last a year or two
- ◆ big immediate task
 - evaluate, distribute & dispose of hundreds of ID
- ◆ will reevaluate experience after London IETF
- ◆ most work of the sub-IP WGs should be done by the time the area is closed
- ◆ any remaining working groups will be distributed to existing IETF areas
- ◆ looking for a name (and acronym) for the area (SIP taken!) dr_subip_01

VIPs and URLs

- ◆ two current IESG members appointed to be ADs for new area
 - Bert Wijnen (O&M) – bwijnen@lucent.com
 - Scott Bradner (Transport) – sob@harvard.edu
 - will continue current responsibilities
- ◆ Working group Charters can be accessed at http://www.ietf.cnri.reston.va.us/html.charters/wg-dir.html#Sub-IP_Area
- ◆ General Discussion list
 - subip-area@subip.ietf.org
 - To subscribe: majordomo@subip.ietf.org
 - in body: subscribe subip-area