

# Framework for QoS in Provider Provisioned VPNs

Fabio Chiussi

[fabio@lucent.com](mailto:fabio@lucent.com)

Jeremy De Clercq

[jeremy.de\\_clercq@alcatel.be](mailto:jeremy.de_clercq@alcatel.be)

Sudhakar Ganti

[sganti@tropicnetworks.com](mailto:sganti@tropicnetworks.com)

Wing Cheong Lau

[lau@lucent.com](mailto:lau@lucent.com)

Biswajit Nandy

[bnandy@tropicnetworks.com](mailto:bnandy@tropicnetworks.com)

Nabil Seddigh

[nseddigh@tropicnetworks.com](mailto:nseddigh@tropicnetworks.com)

Sven Van Den Bosch

[sven.van\\_den\\_bosch@alcatel.be](mailto:sven.van_den_bosch@alcatel.be)

# argumentation

- QoS is often a required service attribute of PPVPNs
- there is currently no PPVPN WG QoS-focussed activity
  - main focus: constrained connectivity
- current PPVPN approaches don't include detailed QoS discussion, but rely on existent QoS work @ IETF
  - DiffServ framework
  - MPLS and DiffServ
  - DS-TE IGP extensions
  - TE LSPs with bandwidth reservations via RSVP-TE/CR-LDP
- there are QoS issues that are specific to VPNs and that haven't been dealt with in other WGs

# argumentation (2)

- PPVPN approaches optimise SCALABILITY  
=> this is not always compatible with (required) QoS provisioning and assurance
- this issue needs to be discussed and solutions considering this trade-off defined
- PPVPN WG is best place for PPVPN - QoS co-ordination
  - to specify general framework
  - discuss potential extensions (e.g. to PPVPN signalling) and if required specify them
- PPVPN could benefit from additional **per-VPN level** QoS specification/realization mechanisms to simplify VPN configuration and support truly single-sided provisioning

# QoS issues with PPVPNs ?

- egress PE doesn't always know where traffic is coming from
- Tunnel LSP can be established using RSVP-TE instead of LDP DU but
  - => multiplexed 'inner LSPs' are signalled without QoS attributes
  - => provisioning at both sides
- not all PPVPN approaches allow for e.g. QoS pipe model to be used
- Should the VPN itself be assigned a certain QoS level (e.g. availability)

# draft-chiussi-ppvpn-qos-framework: scope

- Layer-2 and Layer-3 VPNs
- PE-based and CE-based VPNs
- MPLS, IPsec, L2TP, GRE, IP-in-IP based VPNs
- also in scope e.g. hierarchical VPNs
- QoS within VPN cloud (access part not covered)
- topics:
  - SLA's
  - Provisioning
  - Resource Allocation
  - Signaling
  - Protection/Restoration

# current outline of the draft

- Introduction
- background
- bandwidth guarantees and Service Level Agreement
- QoS issues in PPVPNs
  - resource allocation
  - aggregated versus non-aggregated models
  - QoS in VPN versus QoS of VPN
  - other
- QoS provisioning of the VPN endpoints in the PEs
- QoS signalling
- QoS and protection/restoration
  - network-specific aspects
  - VPN-specific aspects

# planned sections

- Scenarios for QoS in PPVPNs
- automatic provisioning of QoS in PPVPNs
- signalling issues for PPVPNs with multiple QoS levels
- scalability issues with QoS PPVPNs
- advanced QoS architectural issues

# last slide

- WG believes QoS framework draft is useful ?
- If yes, WG believes this document is a good start ?
- Current authors are group with different backgrounds and opinions on priorities
  - => comments on the draft
  - => WG directions on priorities ?