Update on IP VPN work in ITU-T

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ITU work on IP VPNs starts in Kyoto, March 00

- Study Group 13 Question 20 (IP services using MPLS) launches a work item on IP VPNs over MPLS :
  - ”standardisation of fully interoperable, carrier-class solutions for IP VPN over MPLS is crucial for SPs”
  - The Q13/20 successor in the new study period end.2000-end.2003 shall produce a Recommendation on IP VPNs over MPLS (it was just for MPLS at that time)
  - liaison sent to IETF in order to have a feedback and to build ITU-IETF cooperation since the beginning

Two interim meetings and an official one

- Paris (May)
  - work on requirements and technical approaches
  - **first version of Recommendation "Network based IP VPN over MPLS Architecture" (now Y.1311.1)**
  - discussion on synergy and task sharing with IETF (R. Coltun was there)
- Ottawa (September)
  - enhancements to the MPLS-specific recommendation
  - **launch of an additional generic Recommendation "Network based IP VPN Service - Generic framework and service requirements" (now Y.1311)**
- Geneva (November) : official SG13 meeting
  - additional requirement enhancements to the MPLS-specific recommendation (plan to move a lot of them to the generic recommendation)
  - discussion on service model (service/transport decomposition)

Next steps

- Interim meeting at the end of February (probably in Boston)
  - main objective : finalize a stable version of the MPLS-specific recommendation **in order to prepare the consent call in May official SG13 meeting**
- Continue cooperation with IETF
  - the suggestion is **to re-use the produced service requirements** (implication of several SPs like FT, Sprint, NTT, DT) **as one of the basic input for the first PPVPN service requirement ID**
- Progress the work on the generic recommendation
  - the service/transport decomposition goes in the same direction of a basic concept for PPVPN (abstraction from the underlying transport infrastructure)

Y.1311 Recommendations

See the current versions of Y.1311 and Y.1311.1 Draft Recommendations at **http://nbvpn.francetelecom.com/ituRelated.html**

Y.1311.1 “Network based IP VPN over MPLS Architecture”

- **Scope**
- **Reference model**
- **Service definitions**
  - functional, quantitative
- **Service requirements**
- **Framework architecture**
  - learning customer-site reachability information
  - distributing reachability information within the VPN
  - constrained distribution of routing information
  - LSP tunnel establishment and usage
- **Technical approaches for NBVPN**
  - 2 identified (based on deployment):
    - **BGP/MPLS (2547)**
    - **Virtual Router**
- **QoS approaches**
- **Interworking between different approaches**
- **Interworking with other VPN architectures (FFS)**

The generic Y.1311 recommendation

- Objectives
  - Brief document including a definition of NB IP VPN, generic service requirements, a generic framework and service deployment scenarios as basis for specific IP VPN architectures
  - Introduction of non-MPLS based IP VPNs
  - Inclusion of non-IP services provided by a Network Based IP VPN (e.g. SDH, ATM, Frame relay, Optical path)
- VPN transport-specific Y.1311.X recommendations (such as the current Y.1311.1 for MPLS transport) will be produced based on market requirements

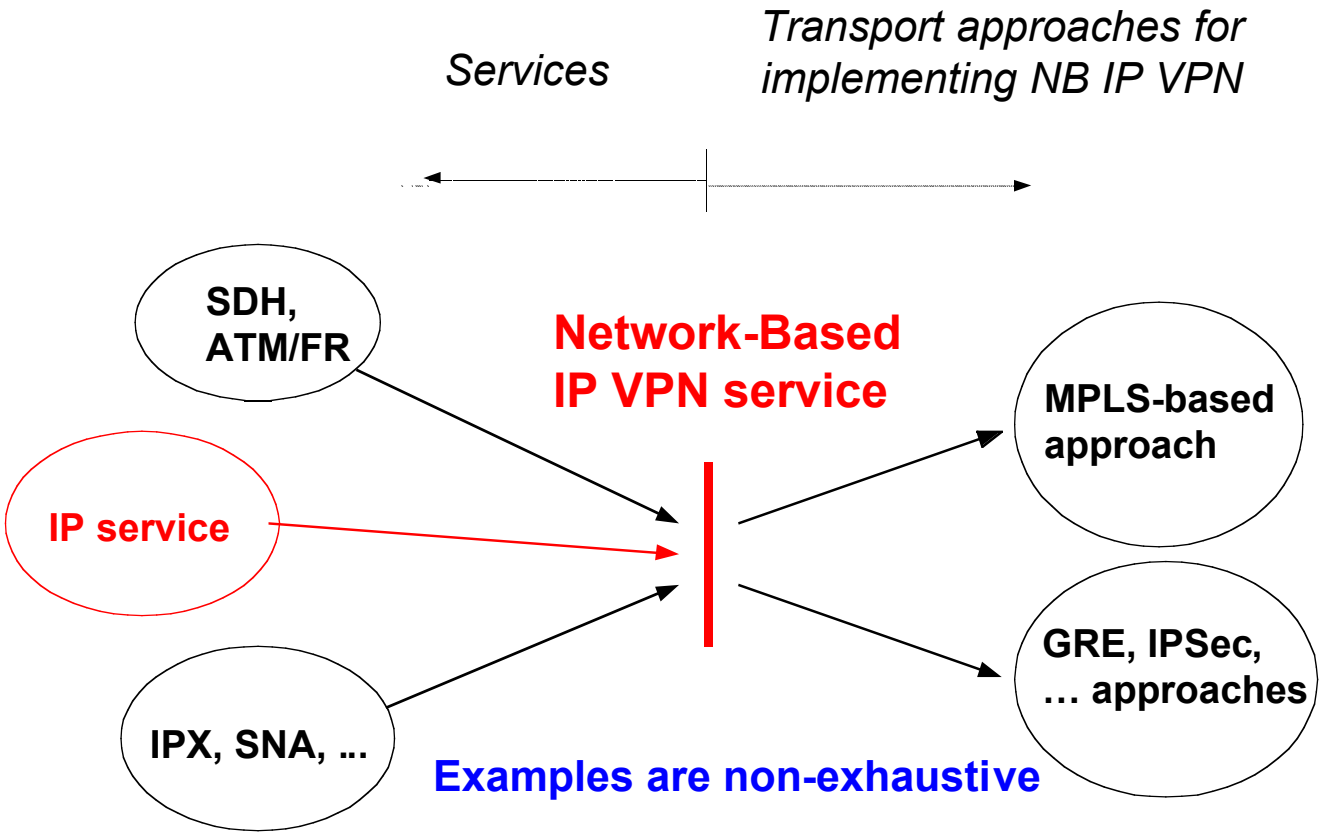
Current list of service requirements

- Multi-vendor interoperability (at different levels)
- Service management capabilities (Provider/User perspective)
  - Areas: network connectivity, service monitoring, security management, SLA and QoS management
  - Some capabilities as examples: single VPN configuration not impacting other sites/VPNs, interoperability with standard management platforms, automated operations, per-VPN and per-device MIBs
- Security functions
  - isolation, user identification and authentication, security of the flow, peer identification and authentication, site protection
- Quality of Service support (SLS)
  - using DiffServ or IntServ mechanisms, per-VPN (measurable) SLAs, strict QoS (guaranteed bw VPN), QoS support in more complex scenarios (inter-SP VPN, …)
- Routing capabilities
  - various routing protocols at edge and core of the SP backbone, scalable routing

Service requirements - cont.

- Autodiscovery (to convey dynamically VPN information among PEs)
- Various types of customer IP traffic and VPN topology
- Access requirements
  - various customer access scenario and technologies
- Addressing requirements
  - VPN address overlapping, minimized usage of IP addresses, NAT not precluded, various customer IP numbering schemes, support of dynamic allocation and outsourcing
- Various service deployment scenarios
  - multiple VPNs per site, VPN plus Internet access, Intranet/Extranet, Inter-AS VPN, Inter-Provider VPN, Carrier's Carrier, alliances of VPNs
- Reliability and fault tolerance, efficiency ((per-VPN) TE)
- Outsourcing of IP services (ex. DNS, DHCP)
- Some numerical assumptions for a Service Provider VPN offering

Service component decomposition



From ITU-T Draft Rec. Y.1311