Deploying value-added IP services: concerns and requirements

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Enforcing QoS policies: concerns and requirements

- Agenda:
  - A range of (standard) tools for deploying value-added IP services
  - Missing pieces and requirements
  - Conclusion

Deploying QoS-based IP services (1/2)

- A range of tools:
  - *DiffServ* mechanisms for differentiating traffic treatment over an IP network
    - Traffic classification and aggregation
    - PHB enforcement based upon metering, policing, shaping and scheduling functions
      - For local processing-based decisions
  - *IntServ* mechanisms for signaling QoS requirements through an IP network
  - Dynamic routing protocols for:
    - Selecting and installing routes
    - Conveying QoS-related information that may possibly influence the route selection process

Deploying QoS-based IP services (2/2)

- A range of tools (cont'd):
  - Management protocols for:
    - Retrieving statistical and configuration information from the routers
    - Configuring network elements and enforcing policies
      - Including dynamic resource provisioning and allocation

Enforcing QoS policies

- The contractual issue:
  - Concepts of SLA/SLS/TCS have been promoted through the *DiffServ* specification effort
    - BUT the actual contents of such specifications are currently left to service providers
    - THUS yielding some limitation when using them for *contractual purposes* between:
      - Customers and service providers
      - Service providers for services deployed across domains
    - BECAUSE
      - Customers and providers need to agree on (a set of) well-defined QoS parameters
        - » Including an agreed methodology to measure these parameters
      - QoS policies may dramatically differ from one domain to another

Requirements for SLS-related standards (1/3)

- A high level of automation:
  - Because of a multi-service environment
    - For the dynamic dimensioning and the provisioning of intra-domain resources
      - Thus reducing the cost of service exploitation
    - For the provisioning of a standard interface between customers and service providers
      - Thus simplifying the subscription procedure and facilitating the access to a whole range of information
        - » The administrative information, as depicted in the SLA
        - » The technical (QoS-related) information, as depicted in the SLS

Requirements for SLS-related standards (2/3)

- Enforcing commitments:
  - Because the provisioning of (different levels of) quality of service implies the ability to honor contractual agreements
    - Based upon a common understanding of what quality of service means
    - Thus yielding an agreed formalism of the SLS template between the customer and the service provider
      - Including inter-domain considerations

Requirements for SLS-related standards (3/3)

- Deploying QoS-based IP services worldwide:
  - Based upon a common understanding of the QoS information being exchanged between domains
    - Even if the processing of such information may differ from one domain to another
      - Because the network design is different
      - Because the capacity of the switching and the transmission resources is different
    - Provided the customer is appropriately serviced
      - Thus yielding an agreed formalism of the SLS template between service providers

Where to put the SLS standardization effort?

- IETF is the most natural place:
  - Because this is about IP service offerings
  - Because there are already investigations in the IP QoS field
    - The SLS standardization effort should therefore benefit from:
      - Already existing standards (*e.g.* RFC 2475 and affiliates)
      - Experience and expertise from current contributors

Support for an SLS WG

- The charter should include the production of:
  - A framework document (03/01)
    - Including the specification of an SLS negotiation model
  - An SLS template specification document (03/01)
    - Including the specification of the QoS parameters to be negotiated
  - A protocol analysis document (H2' 01)
    - As far as the dynamic negotiation and invocation of a given SLS template is concerned
      - Possibly yielding the specification of an SLS negotiation protocol
  - An applicability statement document (02)
    - To reflect operational deployment