Easy Selection of QoS

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Goals

• Even a QoS ignorant application using ordinary unmodified APIs can benefit.
  • Get the benefit of signaling the network how to handle traffic through header fields, use of network slicing, ...

• No on-the-wire protocol changes.
• More flexibility and QoS control available to applications that understand QoS but continuing to minimize any API changes.
Application
• has DNS name of service / destination host,
• queries DNS and gets IP address, and
• opens connection and communicates.
Network Connection

DNS

Application

Host

Response encodes method of obtaining QoS

Network Operator

Early Hop

Network connection and traffic based on Response

Destination

Hot RFC: Easy Selection of QoS
Network Connection (cont.)

• DNS Request encodes desired QoS in the name being queried, probably in a prefix label.
  • draft-eastlake-expressing-qos-requirements

• Response from DNS encodes method of obtaining QoS, for example using some low order IPv6 address bits.
  • draft-farrel-irtf-introduction-to-semantic-routing

• A first/early hop router/switch can select packet header modifications or routing to maximize the chance of achieving desired QoS.
  • Typically useful in a limited domain.
Levels of Application

1. No change.
   • Requires that the application have or be given a DNS name that indicates QoS but otherwise just works.

2. DNS name knowledgeable.
   • Application can construct names that requests communication service quality.

3. New RRtype(s).
   • Application can request information from DNS on setting up and/or conducting the communication.

4. 2 and 3 can be combined.
Types of Communication Service Quality

• Coarse QoS
  • One of:
    • normal, minimize latency, maximize bandwidth, minimize jitter, minimize packet loss, minimize cost, ...

• Specific metrics
  • Any subset of:
    • Maximum acceptable latency
    • Minimum acceptable bandwidth
    • Maximum acceptable jittery
    • Maximum acceptable packet loss
    • ...
For further information

• Related Drafts
  • draft-eastlake-expressing-qos-requirements
  • draft-farrel-irtf-introduction-to-semantic-routing

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