Title: Some Comments on 92-227 (″Issues Relating to QoS Maintenance, Priority, and Security″)

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1. Sequence preserving probability (see 3.1.1).

   8473 ″sequencing″ bit in the globally unique QoS means to ″favor sending all PDUs to the specified destination NSAP address over a single path″ (see 7.5.6.3).

   Having two inter-domain routes, one that provide load-splitting, and one that doesn′t is not needed to satisfy ″sequencing″ bit requirement. If a BIS has only a single route to a destination, then the issue of sequencing is moot. If a BIS has multiple routes to a destination, then the BIS may satisfy ″sequencing″ bit requirement by purely local means. For example, the BIS may select one of these routes to be used for forwarding NPDUs with ″forwarding″ bit set.

   To summarize, accommodation of ″sequencing″ bit QoS can be done without any new IDRP attribute.

2. Congestion sensitive routing (see 3.1.2).

   Load sensitive routing is explicitly stated as a non-goal for both IS 10589 and IDRP. This is due to some well-known destabilizing effects that may result from an attempt to perform load sensitive routing in connectionless networks.

   Since the congestion experience bit is nothing more than an indication of the load, routing based on the congestion experience bit is likely to have the same undesirable effects as any load sensitive routing.

   To summarize, routing in a connectionless network should not try to perform load sensitive routing.

3. Strong vs weak QoS (see 3.1.3.1)

   Ability of an ES to specify a bound (either lower or upper) on certain performance metrics for an NPDU generated by the ES, and to discard an NPDU if the IS does not have a route with the required bound of the performance metric (as specified by the ES) can be supported via the notion of strong QoS forwarding.

4. Problem with address-specific QoSs (see 3.1.3.1)

   This will be addressed by the notion of ″authority-specific″ QoS suggested by US. Such ″authority-specific″ QoSs would satisfy QoS requirements in a context independent of either the source or destination, as suggested by the UK proposal. Note that the US proposal does not require backward incompatible changes to ISO 8473.

5. On defining new path attributes (see 3.1.3.2)

   We probably need to have an appendix that provides general guidelines for defining new path attributes. Such guidelines must include the following:

   a. attribute type (well-known vs optional)
   b. if well-known, then mandatory or discretionary
   c. if optional, then transitive or non-transitive

d. if well-known, then distinguishing or not
e. if distinguishing then whether the type or the type-value
f. rules for handling aggregation
g. if distinguishing, then how to determine NPDU-derived Distinguishing attributes from an ISO 8473 NPDU, and how to match the path attribute into an NPDU-derived distinguishing attribute.

Above information should be sufficient to provide guidelines for defining new path attributes.

6. Adding Version Number distinguishing attribute (see 4.2.1)

   In view of comment 5 above, this attribute will be well-known, mandatory, distinguishing. Only routes with the same value of the attribute can be aggregated. NPDU-derived distinguishing attribute is determined by extracting the version number from an NPDU. Mapping is done by comparing the value of the NPDU-derived distinguishing attribute and the Version Number RIB-Att. Match is when both values are the same.

   However, we may think more about how feasible is such a requirement. On the one hand, adding such attribute now would not do any harm, but on the other hand, we don′t know how useful it will be if v2 of 8473 will happen.

7. QoS Maintenance System Information Base (see 4.2.1)

   There are two separate questions that need to be considered.

   The first one deals with consistent mapping between IDRP distinguishing path attributes and the information carried in ISO 8473 PDUs. Such mapping needs to be consistent across all the BISs, or otherwise, unpredictable routing may result. Therefore, there is a need to standardize on the mapping between IDRP distinguishing attributes and information carried in ISO 8473 PDUs.

   The second question deals with what is the appropriate place for such standardization. Current IDRP places this into the base text. UK argues that it should be taken out of the base text, and should be a separate document.

   In fact, the UK proposal suggests creation of multiple independent standards, one per each distinguishing attribute defined in IDRP.

   Regardless, of whether there will be a single place (like current IDRP), or multiple independent documents, mapping needs to be standardized.