Title: Comments on DIS 10747 (SC6 N7692): IDRP

Source: Project Editor (C. Kunzinger)

The following comments on IDRP have been brought to my attention:

1. Clause 11.9, page 77 (Minor Editorial): The decimal point and the final digit for the integer value of NonWrappingCounter are incorrect. The correct value is: 18446744073709551615
2. Clause 11.9, page 78 (Minor Editorial): Change ″ICIT″ to ″IMPLICIT″ in the description of ″sourcespecificqos″ within ″RIBattvalue″.
3. Figure 5, page 14 (Minor Editorial): The NLRI information within the UPDATE PDU can carry both OSI and non-OSI addressing, but the figure was not updated to reflect this. A suggested replacement figure is shown in Figure 1 on page 2.
4. Clause 6.3, page 20 (Minor Technical): The structure of the NLRI field is overspecified; in particular, the encoding for the Addr_Info field should be specified in a way that does not constrain encoding for protocols other than ISO 8473.

   To accomplish this, replace the first paragraph on Addr_Info with the following:

   This field contains a list of reachable address prefixes. The encoding of this field is specific to each protocol supported.

   For use with ISO 8473, this field shall be encoded as one or more 2-tuples of the form <length, prefix>, whose fields are described below:

   (The remainder of the text for Addr_Info remains unchanged.)
5. Table 2, Notes, page 29 (Minor Editorial): The cross references in notes ″d″ and ″e″ are incorrect. Change 8.5.4 to 7.5.3, and change 8.20 to 7.21.
6. Clause 7.13, page 46 (Minor Editorial): Insert the word ″to″ immediately after the word ″respect″ in the 4th line of the second paragraph.
7. Annex I, page 98 (Minor Editorial): In the first dashed list item, change ″con federation″ to ″confederation″.
8. Clause 7.14, item ″v″, page 47 (Minor Editorial): Item ″v″ does not explicitly mention what to do with the earlier (more specific) route, relying on the absence of text to indicate that there are no normative requirements to take any action with respect to the earlier route. For clarity, it may be worthwhile to append an informative sentence: ″The earlier, more specific route remains unaffected.″
9. Annex K, Page 103 (Minor Editorial): This annex is informative, and is no longer correct with respect to the DIS-level text. It has not been updated nor commented upon since the earliest working draft in which it appeared (SC6 N6387, November 1990). In its present form, it is more confusing than helpful. Therefore, as this annex is only informative, it is recommended that it be deleted in its entirety.
10. Clause 11.9, page 76 (Minor Editorial): Change the object identifier ″aoi″ to ″atoi″ in order to be consistent with the usage in clause 11.4.

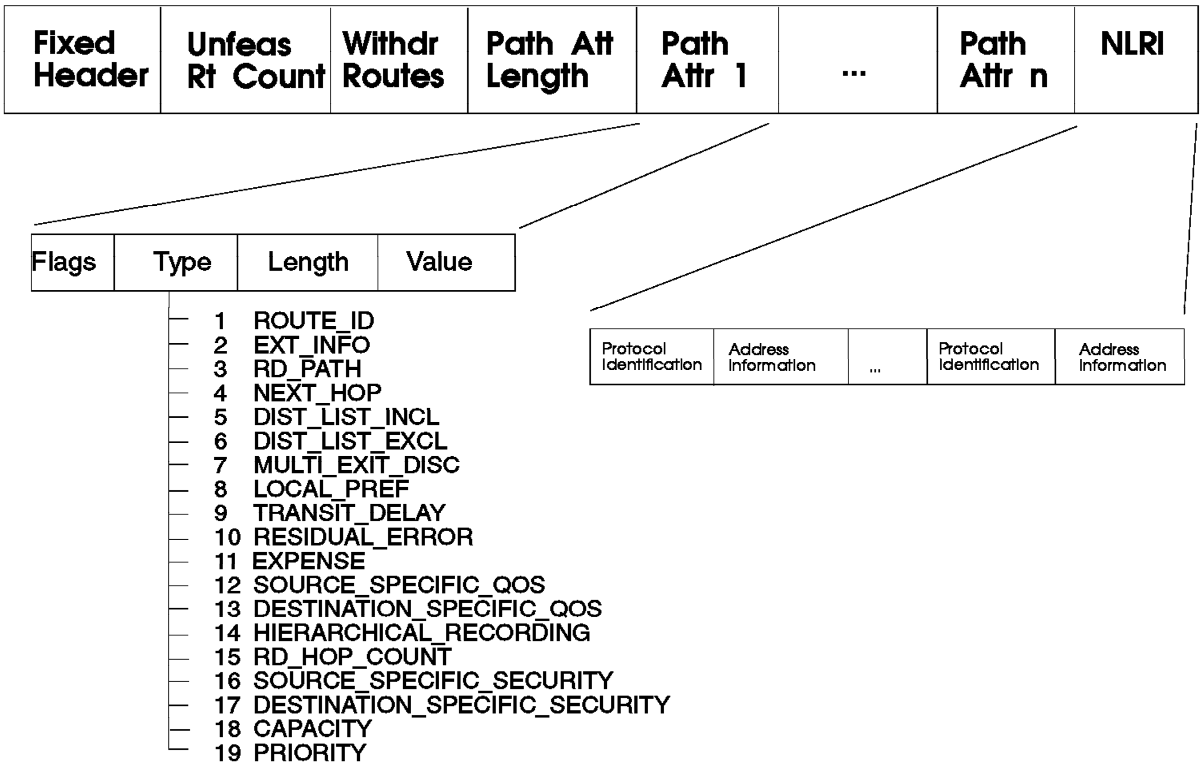

Figure 1. Replacement for Figure 5 of DIS 10747

11. Clauses 11.1 through 11.8, pages 63-76 (Minor Editorial): Throughout these sections, the objects identifiers defined in 11.9 (idrpoi, sseoi, moi, poi, proi, nboi, atoi, agoi, acoi, and noi) appear in many cases without the qualifier ″IDRP″ to disambiguate them. In all cases where this occurs in the ″REGISTERED AS″ constructions, make the following changes where necessary:

    - idrpoi --> IDRP.idrpoi
    - sseoi --> IDRP.sseoi
    - moi --> IDRP.moi
    - poi --> IDRP.poi
    - nboi --> IDRP.nboi
    - atoi --> IDRP.atoi
    - agoi --> IDRP.agoi
    - acoi --> IDRP.acoi
    - noi --> IDRP.noi

    No change is needed in those cases where the ″IDRP″ qualifier is already present.

12. Annex J, pages 100-102, (Minor Editorial): Change the words ″that destined″ to ″that is destined″ in three places: First and third line of the last paragraph of the first ″dashed″ bullet item at the bottom of page 100, and the first line in the lefthand column of page 102.

13. Clause 7.20, page 56 (Minor Editorial): In the last sentence of the clause, change the reference from ″clause 8.4, item b2″ to ″clause 8.4, item b1″.

14. Clause 8.4, page 60 (Minor Technical): The description of encapsulation in item ″b1″ of this clause fails to mention what should be done with the following parameters of an ISO 8473 NPDU, when present: segmentation permitted, error report flag, and lifetime. We suggest that the second sentence (″The QOS parameter of the encapsulating...″) be replaced with the following new text:

    Copy the following, when present in the header of the encapsulated (inner) NPDU, to the header of the encapsulating (outer) NPDU: QOS Maintenance parameter, Segmentation Permitted Flag, Error Report Flag, and PDU Lifetime field. When the inner NPDU is decapsulated, replace its PDU Lifetime field with PDU Lifetime field of the outer NPDU.

15. Clause 7.3, page 23, item ″d″ (Minor Technical): The description of **INTERNAL-SYSTEMS** as a ″list of the systems contained within the routeing domain″ does not address the form that the list can be expressed in; on the other hand, the associated ASN.1 entry for ″SystemIdGroup″ on page 79 indicates that the list should be constructed from complete NSAPs or NETs.

    This seems to be unnecessarily restrictive: since the information in **INTERNAL-SYSTEMS** is used to construct NLRI, which itself is expressed as prefixes, it would be more natural to use prefixes to express the contents of **INTERNAL-SYSTEMS**. Since a complete NSAP or NET is in fact only a special case of a prefix,. this does not preclude the use of full NSAPs or NETs, if desired.

    The following changes should be made:

    - Item ″d″, clause 7.3: Replace the clause ″which is the list...″ with: ″*which lists the address prefixes of the systems contained within the routeing domain*″.
    - Amend the associated ASN.1 definitions in clause 11.9 as follows:

```
  Add:     NETPrefix ::=NSAPprefix
           ESPrefix  ::=NSAPprefix

Replace:  SystemidGroup ::= SEQUENCE{
                        nETS SET OF NETPrefix,
                        nSAPS SET OF ESPrefix }
```

16. Clause 6.2, page 12 (Minor Editorial): The table that shows the structure of the RIB-AttsSet uses language such as ″Number of Distinguish Attributes in First Set″. For clarity, we suggest changing ″Set″ to ″RIB-Att″ throughout this table.

    The order in which the distinguishing attributes of a given RIB-Att are listed is immaterial (because the RIB-Att is defined as a set, not as a sequence). For clarity, we suggest adding the following sentence to the last paragraph on the bottom right-hand column of page 12:

    Since a RIB-Att consists of a set of distinguishing attributes, there is no significance to the order in which the distinguishing attributes of a given RIB-Att are listed.

17. Clause 11.9, page 78, item ″Ribattributes″ (Minor Technical): The ASN.1 description for ″RIBattributes″ in 11.9 does not reflect the characteristics of a valid RIB-Att, as defined in 7.11.2: in particilar, the ASN.1 notation does not show that a valid RIB-Att can consist of at most three distinguishing attributes.

    To rectify this situation, the following changes should be made to 11.9:

    a. Replace the definition of ″Ribattributes″ on page 78 with:

```
Ribattributes ::= SEQUENCE {
          priority [0] EXPLICIT Priority OPTIONAL,
          security [1] EXPLICIT SEC OPTIONAL,
```

qosmaint [*2*] *EXPLICIT QOS OPTIONAL }*

b. Add the following new items to 11.9:

SEC ::= CHOICE { ssSEC[*0*] *EXPLICIT Ribattsec,*
dsSEC[*1*] *EXPLICIT Ribattsec }*

QOS ::= CHOICE { global[*0*] *EXPLICIT GLOBAL,*
ssQOS[*1*] *EXPLICIT QOSTV,*
dsQOS[*2*] *EXPLICIT QOSTV }*

GLOBAL ::= ENUMERATED (delay(0), expense(1), capacity(3), error(4) }

QOSTV ::= SEQUENCE { preflgth NSAPorefixLength,
prefix NSAPpreifx,
qOSlgth QOSlength,
qOSval QOSvalue }

18. Clause 7.14, page 47, item ″d)2)ii, (Minor Editorial):

    For clarity, it needs to be pointed out that items ″ii″ and ″iii″ differ in that ″iii″ assumes identical path attributes, while item ″ii″ assumes that some of the non-distinguishing path attributes are different between the new route and the earlier route. Hence, add the italicized words immediately after ″...contained in the Adj-RIB-In″:

    ...contained in the Adj-RIB-In *and the non-distinguishing path attributes of the new route differ from those of the earlier route,...*

19. Clause 7.20, page 56 (Minor Editorial): In cases where the BIS FSM is in the ESTABLSIHED state, BISPDUs will be delivered to the flow control function for initial processing before the FSM state machine takes further action on them. Hence, we suggest the following changes to clause 7.20:

    - In item ″a″, add the italicized words: ″...to the *IDRP flow control process* or to the Update-Receive process, or″
    - Replace the second sentence of the paragraph beginning ″If the NPDU contains...″ with the following new sentence:

      If the connection with the BIS from whom the BISPDU was received iS in the ESTABLISHED state, the BISPDU shall be passed to the flow control procedures of clause 7.5.3, which will either discard it or pass it to the Finite State Machine for further processing. Otherwise, the BISPDU shall be passed directly to the Finite State Machine described in 7.6.

20. Clause 7.6.1, page 26-27, (Minor Editorial): Since the previous change to 7.20 will clarify that the BISPDU can be presented to the FSM either directly or via the flow control procedures, the phrases ″and that the BISPDU has satisfied the flow control procedures of 7.5.3″ and ″or that the BISPDU has not satisfied the flow control procedures of 7.5.3″ (in items ″a″ and ″b″, respectively, are superfluous, and should be deleted.

21. Table 2, page 29 (Minor Editorial): In the box at the intersection of ″Receive RIB Refresh PDU with No Errors″ and ″ESTABLISHED″, it would be helpful to insert a reference to clause 7.10.3. Therefore, change ″A=Restart Hold Timer″ to *A=7.10.3, Restart Hold Timer*.

    In the box at the intersection of ″Receive OPEN PDU with errors″ and ″CLOSED″, change S=CLOSE-WAIT to S=CLOSE.

The cross reference in the box at the intersection of ″Receive UPDATE PDU with no errors″ and ″ESTABLISHED″ should be to clause 7.14 (8.14 is a non-existent clause).

22. Clause 7.6.2, page 31 (Minor Editorial): In items ″a″ and ″c″, the phrase ″deallocate all resources...″ is used, but not defined anywhere Furthermore, the normative requirement is only that the FSM enter the CLOSE-WAIT state. Hence, the phrase ″shall deallocate...peer BIS″ in item ″a″ and the phrase ″shall deallocate...associated with it″ in item ″b″ should be deleted.

    For clarity and consistency with clause 5.6, item ″c″ on page 8, it would also be helpful to insert a new final paragraph in 7.6.2:

    When the connection enters the CLOSED state, all routes that had been exchanged between the pair of BISs are implicitly withdrawn from service, and the local BIS should rerun its Decision Process.

23. Note 26, page 38 (Minor Editorial): The material in this note is more germane to the Update-Receive Process than it is to description of the RD_PATH attribute. Hence, we recommend moving it from clause 7.12.3.2 to the very end of clause 7.14, and renumbering all notes accordingly.

24. Annex H, Page 94 (Minor Editorial): This annex is informative, and is no longer correct with respect to the DIS-level text. Originally, it illustrated very simple syntax, which was appropriate for the early working draft text of IDRP. However, in view of the changes to the base text during its progression, its usefulness is now very limited—in fact, its simplicity could be a source of confusion. Therefore, as this annex is only informative, it is recommended that it be deleted in its entirety.

25. Clause 7.15.1, page 47 (Minor Editorial): The term ″local BIS″ in the second sentence of the first paragraph is imprecise: it actually refers to the BIS that is advertising the route in question. Hence, we suggest replacing this sentence with the following:

    The value of LOCAL_PREF for a particular route is generated by the BIS that advertises the route, and is equal to the degree of preference for that route.

26. Clause 7.21.3, item ″n″, page 58 (minor editorial): There an unresolved cross reference in 7.21.3. The reference should be to 7.12.3.3, item b.

27. Clause 7.12.3.3, page 38 (minor technical): The checks made in the CD text to insure that the nesting order of confederations as depicted in the RD_PATH attribute are consistent with the information in managed object **RDC-Config** do not appear in the DIS text. To rectify this situation, insert a new third paragraph into item ″b″ of 7.12.3.3:

    If two confederation, RDC-A and RDC-B, are listed in the same ENTRY_SEQ, and managed object **RDC-Config** *indicates that RDC-B is nested within RDC-A, then the RDI of RDC-A must precede that of RDC-B in the ENTRY_SEQ. If it does not, the local BIS shall send an IDRP ERROR to the BIS that advertised the route, reporting a Misconfigured_RDCs error.*

28. Clause 7.16.3.1, page 50 (Minor technical): The restrictions presented in the last paragraph overly constrain the handling of overlapping routes. In particular, it outlaws the installation of a less specific route from a given neighbor if the more specific route from that *same neighbor* is not also installed. However, as long as a more specific route is installed by the local BIS, even if from a *different neighbor*, then no NPDUs whose destination addresses lie in the overlapping region (that is, destinations listed in the *uninstalled* more specific route of the given neighbor) will be forwarded to the given neighbor: the ″longest match″ rule will insure that such NPDUs are forwarded to the ″different neighbor″, whose more specific route has been installed.

Therefore, we suggest that the text in the last paragraph of 7.16.3.1, including the list, be replaced with the following new text (changes are italicized):

If a BIS receives overlapping routes, the Decision Process shall not alter the semantics of the overlapping routes. In particular, a BIS shall not accept the less specific route from a given neighbor *(A)* while rejecting the more specific route from that same neighbor *(A) unless the BIS installs another route from a different neighbor (B) that is simultaneously more specific than the less specific route from A and also less specfic than the more specific route from A. This ensures that NPDUs whose destination address is contained in the overlap of A's more specific and less specific routes will be forwarded to "B" rather than along the more specific route advertised by "A".*

For example, a BIS could comply with this restriction by updating the associated Adj-RIB-Out in any of the following ways:

1. Install both the less specific and more specific routes received *from the given neighbor (A)*
2. Install only the more specific route received *from the given neighbor (A)*
3. Install the non-overlapping part of the less specific routereceived *from the given neighbor (A)*
4. Install a route fromed by the aggregation of the less specific and the more specific route received *from the given neighbor (A)*
5. *Install the less specific route received from the given neighbor (A), and also install another route received from a different neighbor (B) that is simultaneoulsy more specific than the A's less specific route and also less specific than A's more specific route*
6. Install neither of the routes *received from A*.

29. Clause 7.21.1, page 56 (Minor editorial): For completeness, add two items to the list, stating the the minimum length of a CEASE PDU is 30, and the minimum length of an IDRP ERROR PDU is 32 octets.

30. Annex A.4, page84ff (Minor Editorial): Although claue 12.2.2 list support for RDCs as an optional function, there is no PICS question to address this. We suggest adding a new table on page 84, which contains the following information:

- ITEM: RDC
- Question: Does the BIS support routeing domain confederations?
- References: 7.13
- Status: O
- Support: YES __ NO __

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+++EDF113I UL ended by OL end tag. (Page 6  File: DISCMTS SCRIPT)
DSMMOM397I '.EDFELIST' WAS IMBEDDED AT LINE 374 OF 'DISCMTS'
DSMBEG323I STARTING PASS 2 OF 2.
+++EDF113I UL ended by OL end tag. (Page 6  File: DISCMTS SCRIPT)
DSMMOM397I '.EDFELIST' WAS IMBEDDED AT LINE 374 OF 'DISCMTS'
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