ATNP/WG 2

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AERONAUTICAL TELECOMMUNICATION NETWORK PANEL

WORKING GROUP 2 (Internet)

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Agenda Item 6.7

ANALYSIS OF TRANSPORT AND NETWORK FAST BYTE

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Summary: As a part of the Future Work Plan from ATNP/2, WG 2 was tasked to evaluate the ITU-T Recommendations on Transport and Network Fast Byte to see if they would apply. This paper presents an analysis of the two Recommendations, and concludes that the protocols are inappropriate for use in the ATN.

1. Introduction

The ITU-T has adopted Recommendations on Transport Layer and Network Layer Fast Byte. These Recommendations focus on finding mechanisms: to reduce the number of round-trip delays in establishing a transport connection, and in reducing the amount of protocol complexity.

As a part of WG2's work plan for ATNP/3, it was proposed that an analysis of the Recommendations be made. This paper presents an analysis of the two Recommendations.

2. References

ITU-T Recommendation X.634 | ISO/IEC 14699 - Open Systems Interconnection - Transport Fast Byte Protocol.

ITU-T Recommendation X.633 | ISO/IEC 14700 - Open Systems Interconnection - Network Fast Byte Protocol.

3. Transport Layer Fast Byte

3.1 Description

The Recommendation for Transport Fast Byte Protocol specifies a protocol that operates only over a connection-oriented network, e.g., X.25. The protocol is designed to take advantage of the reliability of the underlying network and does not include: error recovery, resequencing, or flow control. In particular, the protocol consists of a single Transport Protocol Data Unit (TPDU) with the interpretation of the TPDU based on the status of the network connection. To establish a transport connection, a network connection is requested with the network connection request user data containing the Fast Byte TPDU. This TPDU is interpreted as a transport connection request and processed. The successful completion of the network connection marks the establishment of the transport connection. Likewise, the state of the transport connection is based on the state of the network connection.

3.2 Analysis

The ITU-T Recommendation for Transport Fast Byte Protocol is inappropriate for the ATN since the ATN:

- is based on a CLNP network, and
- requires a transport protocol with error recover, resequencing, and flow-control.

Therefore, further analysis of the Transport Fast Byte Protocol is not necessary.

4. Network Layer Fast Byte

4.1 Description

The Recommendation for the Network Fast Byte Protocol specifies a protocol that operates only over a connection-oriented data link service. The protocol is designed to take advantage of the reliability of the underlying data link and does not include any added functionality to enhance the QoS obtained from the data link.

4.2 Analysis

The ITU-T Recommendation for Network Fast Byte Protocol is inappropriate for the ATN since the ATN is based on a connectionless network. For connectionless networks, the Recommendation states that ITU-T Rec. X.233 | ISO/IEC 8473-1 applies.

Therefore, further analysis of the Network Fast Byte Protocol is not necessary.

5. Recommendation

WG2 is recommended to accept the analysis of the two Fast Byte protocols and to consider the work for ATNP/3 on these items closed.