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Part 9: Error and flow control protocol

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Partie 9: Protocole de contrôle d'erreurs et de flux

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Foreword

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Introduction

This document describes the Error and Flow Control Protocol (EFCP) specification. EFCP is the data transfer protocol of the Recursive InterNetwork Architecture (RINA).[1],[2],[3] It supports a permanent connection with all types of data transfer services.

RINA is a new network architecture based on the idea that networking is inter-process communication (IPC) and only IPC. RINA imposes the strict separation of mechanisms and policies as one of the main architectural features. EFCP assumes that other RINA components are in place and supplies other mechanisms such as addressing and flow allocation, which are outside of its scope.

EFCP[4] is based on the concept of timer-based reliable management of connections.[5],[6] In this way, EFCP operates with a minimum exchange of packets to manage connections and to keep protocol machines involved in a connection synchronised. EFCP uses direct control messages to preserve data from being lost, mis-sequenced or duplicated.

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Telecommunications and information exchange between systems — Recursive inter-network architecture —

Part 9:
Error and flow control protocol

1 Scope

This document provides the Error and Flow Control Protocol (EFCP) specification. EFCP provides an inter-process communication (IPC) service to an application process, which can be a (N+1)-IPC process (IPCP), with the requested Quality of Service (QoS). One or more service data units (SDUs) are passed on the (N)-port-id to the (N)-DIF (distributed IPC facility) to be sent to the destination application process. Protocol data units (PDUs) transferred by the (N)-DIF are delivered to the (N)-port-id for the using Application Process. This document describes the placement of EFCP within RINA, the components EFCP consists of, and the mechanisms and policies that are involved in EFCP's work, and the timers and control mechanisms required to manage the connection.

EFCP comprises two logical components, the data transfer procedures (DTP), providing tightly bound mechanisms and the data transfer control procedures (DTCP), which provides loosely bound mechanisms.

This document provides:

— the service definition;

— an overview of EFCP;

— a description of the placement of EFCP within recursive internetwork architecture (RINA);

— the common elements of data transfer protocol (DTP) and data transfer control protocol (DTCP);

— DTP structure and functions;

— DTCP structure and functions;

— an informative list of all policies in EFCP.en

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 4396-1, *Telecommunications and information exchange between systems — Recursive Inter-Network Architecture — Part 1: RINA Reference Model*

ISO/IEC 4396-7, *Telecommunications and information exchange between systems — Recursive Inter-Network Architecture — Part 7: RINA Flow Allocator*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 4396-1, ISO/IEC 4396-7 and the following apply.

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