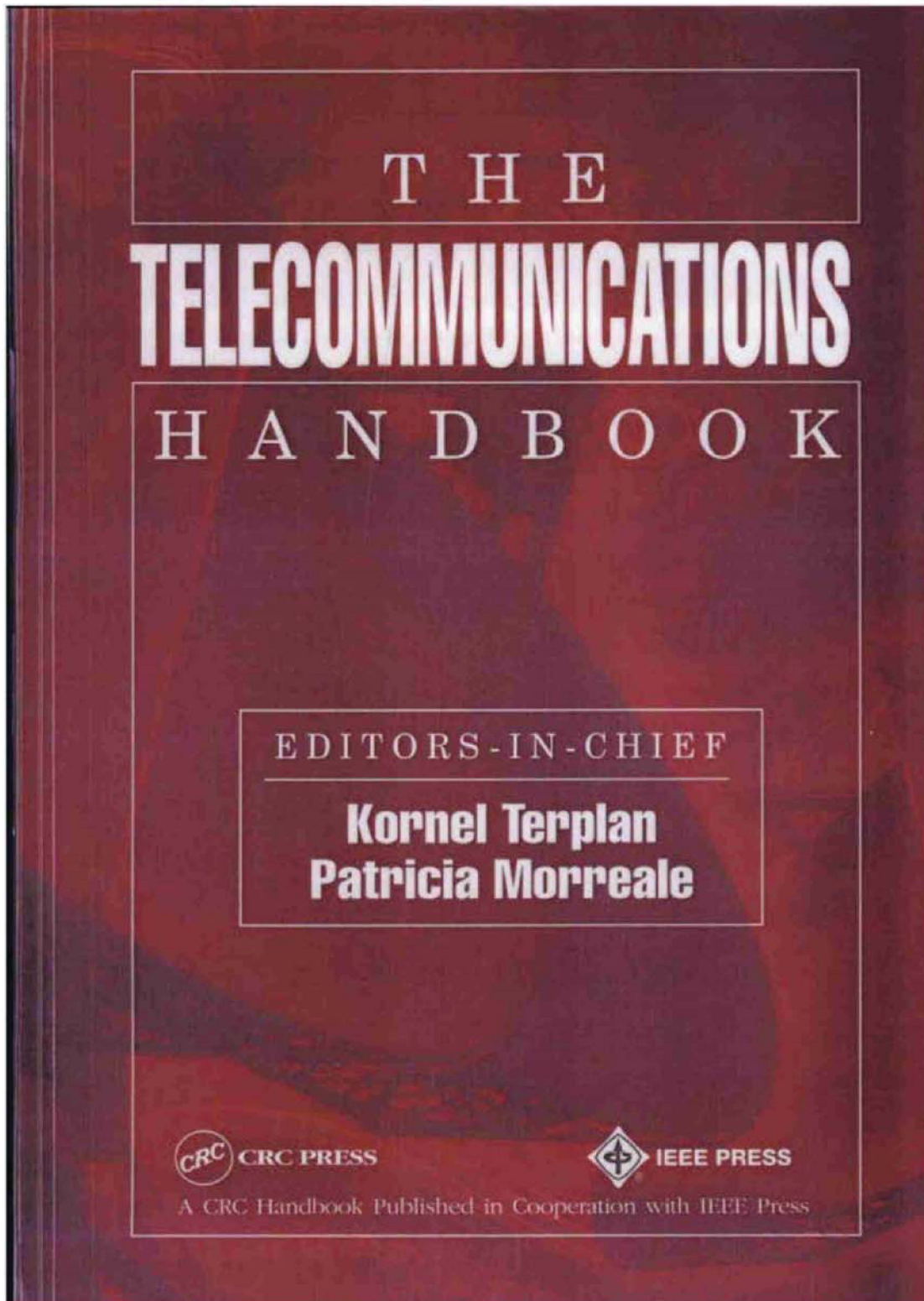


Exhibit 10



ANCA 3432

T H E

TELECOMMUNICATIONS

H A N D B O O K

EDITORS-IN-CHIEF

Kornel Terplan
Patricia Morreale



A CRC Handbook Published in Cooperation with IEEE Press



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2.1.6 Techniques

The advanced information processing techniques are playing a major role in the realization of telecommunications services and the underlying network architectures. Among these techniques, we find object-oriented methods, open distributed processing, and the agent technology.

2.1.6.1. Open Distributed Processing

A telecommunications service is a distributed application that runs over the multiple nodes of a telecommunications network. The ODP reference model jointly defined by ISO and ITU-T provides a framework for the design of distributed systems with the introduction of viewpoints. Each viewpoint represents a different abstraction of the original system. Informally, a viewpoint leads to a representation of the system with emphasis on a specific concern. Five viewpoints were identified: enterprise, information, computation, engineering, and technology (Figure 2.6).

The *enterprise* viewpoint is concerned with the overall environment within which an ODP system is to operate. The *information* viewpoint focuses on the information requirements of the system, and deals with information object types, together with their states and permitted state changes. The *computational* viewpoint shows processing functions and data types, abstracting away from the underlying hardware structures via transparency functions. The *engineering* viewpoint establishes transparency services utilizing concepts from operating systems and communications. The *technology* viewpoint is concerned with the realization of an ODP system in terms of specific hardware and software components. ODP has been extensively used for the definition of TINA.²¹

2.1.6.2 Mobile Agents

An agent is a program, which, with a certain degree of autonomy, performs tasks on behalf of a user or an application. An agent may move between network sites and cooperate with other agents to achieve its goals.²²

Agent development finds its roots in two research domains: intelligent agents stemming from artificial intelligence, which studies the capabilities of learning and decision making of cooperative autonomous entities; and mobile code technology that enables programs to migrate from a machine to another, while preserving their execution environment. This latter domain is evolving at a fast pace because of the emergence of languages such as Tcl²³ and Java,²⁴ and of their portable execution environment.

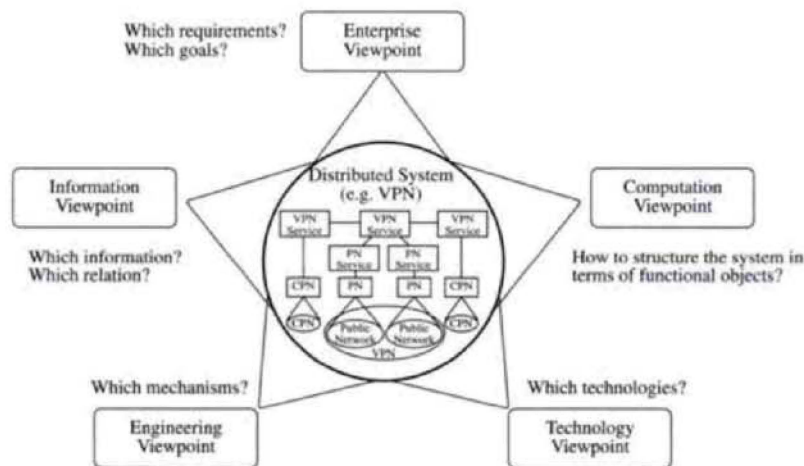


FIGURE 2.6 ODP viewpoints: different projections of a system.

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