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Communication network dependability engineering

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is equivalent to IEC 61907.2009 "Communication Network Credibility Engineering".

Introduction

In order to meet various market demands and public communication needs, communication networks are becoming increasingly complex, such as mobile communication networks, e-commerce networks, internal

Department network and Internet services.

At the same time, the rapid development of communication technology provides effective network services and reliable performance required for the global communication field. like information exchange, data

Basic communication services such as data processing and network connectivity enable public and private communication work to be carried out effectively and under cost control. business and

The private sector relies heavily on these communication services that have become the fulcrum of their daily lives. An important step to ensure network performance and network service functions

The most important factor is credibility.

Network credibility is the ability of the network to operate normally and meet users' requirements for network performance and service operation when needed. from

From the user's perspective, credibility refers to the fact that the network service functions provided to meet the user's expected needs are credible and have this ability.

force. Network credibility is expressed through performance attributes, which include network performance availability and service quality.

The network concept is an extension of the system concept, which provides the interconnection of network elements and the internal operating relationships of service functions that integrate specific communication goals.

A common framework is provided.

In order to provide both service functions and communication services, the network requires specific performance parameters. Network Trustworthiness Engineering is a specific

Risk-based technical guidelines for addressing multiple application and configuration issues of basic communications services. Unlike the system life cycle where there is a decommissioning phase

During this period, networks rarely reach the decommissioning stage. With the development of time, the network has accumulated new characteristic applications and continuously provided services for communication needs. net

The network life cycle is evolutionary and needs to solve technology convergence issues, update methods, and representation of specific trustworthiness attributes that meet network performance goals.

question. The need for standardization of network trustworthiness is essential for cost-effective development and implementation of communication networks.

Communication network credibility provides important performance attributes to those who are primarily concerned with the international competitive environment, including developers of network equipment.

and suppliers, network integration personnel and network service function providers. The main reason is that credibility significantly impacts revenue generation and ROI.

Users of network business functions and communication services rely heavily on network functions and reliable services to ensure network security and audio, video and

Uninterrupted network connection for data transfer.

This document provides a general framework for communications network trustworthiness. Communication networks include telecommunications networks, the Internet and information technology

Internal network. This document describes the role of trustworthiness attributes and their impact on network performance. For network technology design, security service functions,

Guidelines and methods are provided for credibility assessment and service quality assessment. This document is the engineering and implementation process to achieve

network credibility goals

guide.

This document is part of the system reliability standard architecture and extends the concept of system reliability in IEC 60300-3-15 to the network

network applications, and supports the trustworthiness management of IEC 60300-1. Network performance and telecommunications services are based on ITU-T (International Telecommunication Union telecommunications standards

Chemical Bureau) related series of standards.

Communication network credibility engineering

1 Scope

This document provides communication network trustworthiness engineering guidelines, establishes a general framework for network trustworthiness, and provides a process for realizing network trustworthiness.

process, as well as standards and methods for network technology design, performance evaluation, security considerations and service quality measurement to achieve network credibility goals.

This document is intended for network equipment developers and vendors, network integrators, and network service function providers who plan, evaluate, and implement networks.

network credibility.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

lary(IEV)-Part 192.Dependability)

Note 1.GB/T 2900.99-2016 Credibility of electrical terminology (IEC 60050-192.2015, IDT)

Note 2.GB/T 37407-2019 Application Guide System Reliability Engineering (IEC 60300-3-15.2009, MOD)

3.1 Terms and definitions

The terms and definitions defined in IEC 60050-192 and the following apply to this document.

3.1.1

communication network communication network

A system of communication nodes and links that provide analog or digital signal transmission.

Examples. telecommunications networks, the Internet, intranets, extranets, wide area networks, local area networks and computer networks utilizing information technology.

Note 1.A network has its boundaries. All nodes at the network boundary are called endpoints. In some applications, the term "node" is used instead of "endpoint" to refer to the network's

Information access points, while representing connections between transmission links.

Note 2.A "backbone" communications network consists of a core network and high-speed transmission lines (domestic and international). These transmission lines connect a country or region's

The interconnection of main switching network nodes, i.e. transmission lines, at different locations.

3.1.2

Ability to perform as required when required to meet specified communications and operational requirements.

3.1.3

It is assumed that the necessary external resources are provided and the ability to perform as required when needed under specified conditions.

Note 1.Availability depends on the comprehensive characteristics of product reliability, maintainability and restorability, and, usually, maintenance supportability.

Note 2.The specified conditions include all aspects affecting reliability, maintainability and maintenance supportability.

3.1.4

(network)reliability

The ability to perform as required under specified conditions and within a specified time.