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CCS L79



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 42586-2023

**Information technology - Telecommunications and information
exchange between systems - Configuration for time sensitive
networking**

信息技术 系统间远程通信和信息交换 时间敏感网络配置

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting: Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This document is proposed and managed by the National Information Technology Standardization Technical Committee (SAC/TC28): This document is drafted by: Chongqing University of Posts and Telecommunications, China Institute of Electronic Technology Standardization, Shenzhen Saixi Information Technology Co., Ltd., Chongqing Post RTU Industrial Internet Research Institute, Jiangsu Saixi Technology Development Co., Ltd., Beijing Dongtu Technology Co., Ltd., Beijing Saixi Technology Development Co., Ltd: Exhibition Co., Ltd., Shanghai Gelinbei Technology Development Co., Ltd., Beijing Guyuan Network Technology Co., Ltd., State Grid Hubei Electric Power Co., Ltd: Division Electric Power Research Institute, Industrial Technology (Chongqing) Technology Co., Ltd., Beijing Zhixin Microelectronics Technology Co., Ltd., Shenzhen Huixin Communication Technology Co., Ltd., Anhui Telecom Planning and Design Co., Ltd: The main drafters of this document: Wei Min, Yang Hong, Huang Xueda, Wang Ting, Zhuo Lan, Guo Xiong, Huang Xuwei, Wang Hao, Huang Qingqing, Liu Yang, Sun Xu, Xue Baihua, Wang Ping, Cheng Yuan, Wang Jin, Zhang Yan, Xing Yiming, Niu Shuang, Liu Qiong, Liu Yong, Fan Xiaobing: Telecommunication and information exchange between information technology systems Time Sensitive Network Configuration

1 Scope

GB/T 42586-2023 covers how a time-sensitive network is configured. TSN adds deterministic delivery to ordinary Ethernet, so that a control loop or a motion axis can share a network with everything else and still be guaranteed its latency. That guarantee is not a

property of the switches alone: it comes from a schedule that has to be computed from the requirements of every stream on the network and then pushed to every device along its path. Configuration is therefore where TSN is actually made to work or not. This document specifies the configuration management requirements: the configuration management models - fully distributed, centralised network, and fully centralised - the user-network interface between them, the modelling of configuration information, the user and network configuration information itself, the computation performed by a centralised network configurator, the way stream requirements are expressed, and the data modelling language used to carry it all. Under ICS 35.110 and CCS L79, it is written for the vendors of industrial switches and controllers, for the integrators commissioning TSN networks in factories and vehicles, and for anyone who has to make equipment from several suppliers agree on one schedule.

This document specifies the configuration management requirements for time-sensitive networks, including configuration management models, user and network interfaces, and user and network configurations: Modeling of configuration information, user and network configuration information, configuration and computation of centralized network configurators, streaming requirements, and data modeling language: This document is applicable to the design, application, deployment and related product development of time-sensitive networks:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document: GB/T 15629:

3 Telecommunications and Information Exchange between Information Technology Systems Specific Requirements for Local Area Networks and Metropolitan Area Networks No:

3 Part: Access method and physical layer specification for carrier sense multiple access with collision detection (CSMA/CD) ISO /IEC /IEEE8802-1Q:2020/AMD31:2021 Local and metropolitan area bridges and bridged networks Amendment 31: Stream pre-processing Improvements]

3 Terms and Definitions

The following terms and definitions apply to this document: 3:

1 Based on a set of data link layer protocol specifications formulated by the IEEE802:1TSN task group, it supports time synchronization and deterministic scheduling: Mechanisms such as degrees, providing reliable, low-latency and deterministic Ethernet for data

transmission capabilities: 3:2 sender talker When a device supporting GB/T 15629:3 protocol sends an Ethernet message to another device supporting GB/T 15629:3 protocol, send message device: 3:3 receiver listener When a device supporting the GB/T 15629:3 protocol sends an Ethernet message to another device supporting the GB/T 15629:3 protocol, the receiving message device:

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