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Industrial internet platform - Technical requirement and testing methods - Part 2: Industrial PaaS platform

工业互联网平台 技术要求及测试方法 第2部分：工业PaaS平台

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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: This document is Part 2 of GB/T 44067 "Technical Requirements and Test Methods for Industrial Internet Platforms": GB/T 44067 has been The following parts were published:

--- Part 1: General;

--- Part 2: Industrial PaaS platform;

--- Part 3: Industrial DaaS Platform: Please note that some of the contents of this document may involve patents: The issuing organization of this document does not assume the responsibility for identifying patents: This document was proposed and coordinated by the National Technical Committee for Information Technology Standardization (SAC/TC28): This document was drafted by: China Academy of Information and Communications Technology, China Electronics Technology Standardization Institute, MeCloud Intelligence Technology Co:, Ltd:, Hesteel Digital Technology Co:, Ltd:, Caos Industrial Intelligence Research Institute (Qingdao) Co:, Ltd:, China Unicom Xiong'an Industrial Internet Co:, Ltd:, Beijing Defeng New Journey Technology Co:, Ltd:, Inspur Yunzhou Industrial Internet Co:, Ltd:, Beijing Oriental Guoxin Technology Co:, Ltd:, China Software Evaluation Center (Software and Integrated Circuit Promotion Center of the Ministry of Industry and Information Technology), the Fifth Institute of Electronics of the Ministry of Industry and Information Technology, and the National Industrial Information Security Development Research Center, Anhui Provincial Department of Economy and Information Technology, Xugong Hanyun Technology Co:, Ltd:, Jiangsu Hengtong Digital Intelligent Technology Co:, Ltd:, Beijing Baidu Netcom Technology Co:, Ltd:, Ziguang Cloud Technology Co:, Ltd:, Shanghai Baosight Software Co:, Ltd:, Jiangsu Provincial Industry Department of Information

Technology, Tencent Technology (Beijing) Co:, Ltd:, Hunan University, Dongfang Electric Corporation Science and Technology Research Institute Co:, Ltd:, Luculent Smart Technology Technology Co:, Ltd:, Beijing Aerospace Intelligent Manufacturing Technology Development Co:, Ltd:, Alibaba Cloud Industrial Internet Co:, Ltd:, Foxconn Industrial Internet Co:, Ltd: Co:, Ltd:, UFIDA Network Technology Co:, Ltd:, Huawei Cloud Computing Technology Co:, Ltd:, Lanzhuo Digital Technology Co:, Ltd:, Chongqing Humi Network Technology Co:, Ltd:, Gechuang Dongzhi (Shenzhen) Technology Co:, Ltd:, Yudongyuan (Beijing) Information Technology Co:, Ltd:, Beijing Bohua Xinzhi Technology Technology Co:, Ltd:, Antelope Industrial Internet Co:, Ltd:, Northwestern Polytechnical University, Guangyu Mingdao Digital Technology Co:, Ltd:, Zhejiang Toman Cloud Computing Co:, Ltd:, Chengdu Xingyun Zhilian Technology Co:, Ltd:, Hunan Huabo Information Technology Co:, Ltd:, Bayi Rubber Co:, Ltd:, Shenzhen Huixin Quanzhi Industrial Internet Technology Co:, Ltd: The main drafters of this document are: Zhu Min, Liu Mo, Tian Hongchuan, Zhou Yanfei, Zhao Zidong, He Chang, Ye Feihu, Wang Chengan, Cang Tianzhu, Huang Lin, Hou Baocun, Hao Peng, Ming Yongjie, Chen Yunpeng, Lu Xiaoping, Huang Yuchen, Cai Xiaoxian, Peng Saijin, Wang Qingjie, Li Nianzhen, Xiao Xue, Shang Guangyong, Chang Zhigang, Li Hang, Zhou Bo, Wang Huiying, Chen Ping, Wu Zhitao, Luan Yan, Zhang Juanjuan, Luo Jinyu, Zhang Qiliang, Wang Huan, Ma Jianqiang, Li Haoyue, Chang Cheng, Huang Feng, Li Dabin, Li Ming, Qian Weidong, Hu Bing, Wu Weidong, Li Nan, Wang Yaonan, Tan Haoran, Zhang Hui, Li Jinhang, Han Xin, Mao Xuchu, Hu Jieying, Yu Wentao, Dong Liang, Zhang Yunfang, Liu Zongchang, Yang Baogang, Zhang Youming, Zhao Hua, Tan Zhang, Zhou Weijie, Jiang Renjie, Jiang Hongfeng, Yuan Xin, Lin Lei, Ai Run, Wang Qidi, Zhao Dali, Dong Songwei, Jin Hui, Wang Longsheng, He Junhong, Wang Qing, Wang Xiaohu, Yan Hanqi, Zhao Chuanwu, Yu Chaojie, Dai Ting, He Liren, Jiang Honghui, Zhao Yan, Yang Shuo, Shang Mingjing, Tang Lianjie:

As an important tool for the transformation and upgrading of my country's manufacturing industry, the industrial Internet platform has developed rapidly in recent years with the support of governments at all levels: The platform application level has been significantly improved, and a multi-level systematic platform system has been initially formed: There are hundreds of platforms of various types in the country: There are so many companies, and a number of platforms with certain regional and industry influence have emerged, which have effectively promoted the digital transformation and upgrading of my country's manufacturing industry: In order to further promote the high-quality development of cross-industry and cross-field industrial Internet platforms, GB/T 44067 "Industrial Internet Platform Technology Requirements and Test Methods" divides the platform into layers according to the architecture and puts forward requirements for each part for the competent unit, users, suppliers and Independent evaluators carry out the research and development, testing, management and selection of industrial Internet platforms and related products: GB/T 44067 "Technical Requirements and Test Methods for Industrial Internet Platforms" is planned to consist of four parts:

--- Part 1: General: It puts forward technical requirements for the overall framework of the industrial Internet platform and describes the PaaS platform, The test content and test methods of edge computing platform, industrial DaaS platform and industrial APP are aimed at carrying out Testing work on the platform:

--- Part 2: Industrial PaaS Platform: It puts forward technical requirements for the overall capabilities of the Industrial Internet Platform PaaS platform and describes General PaaS, industrial models, industrial application development and human-computer interaction, industrial APP market and platform calls and other test contents and Test method: Aims to carry out testing of industrial PaaS platform:

---Part 3: Industrial DaaS Platform: Proposes the architecture and technical requirements of the Industrial Internet Data Service Platform (DaaS): The test content and test methods of industrial big data and related functional components in industrial data management of industrial DaaS platform are described: The purpose of this law is to guide the functional testing and certification evaluation of industrial DaaS platforms:

---Part 4: Edge computing platform: It puts forward technical requirements for the edge computing platform of the industrial Internet platform and describes the edge communication The test content and test methods include edge communication, protocol conversion, edge analysis and application deployment, edge operation and maintenance, etc: Computing platform testing work: Industrial Internet Platform Technical Requirements and Testing Methods Part 2: Industrial PaaS Platform

1 Scope

GB/T 44067.2-2024 is Part 2 of the Chinese series on industrial internet platforms and covers the industrial PaaS layer - the middle of the stack, where a general cloud platform is turned into something a process engineer can build on. What distinguishes it from ordinary PaaS is the industrial model: the mechanism and data models that encode how a compressor or a reactor actually behaves, which are what an industrial app is really built from. The standard describes the industrial PaaS framework and its parts - the general PaaS, the industrial models, industrial application development and human-machine interaction, the industrial app marketplace, the calling between platforms, and the industrial DaaS platform - then sets the technical requirements for each of them, and gives the corresponding test methods by which a platform is verified against those requirements. It took effect on 1 December 2024.

This document provides a testing framework for the Industrial Internet Platform Industrial PaaS platform, specifies technical requirements, and describes reference testing methods: This document is intended to guide developers, users, third parties and other related organizations to conduct testing on the industrial PaaS platform:

2 Normative references

This document has no normative references:

3 Terms and definitions

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

1 Industrial APP industrial APP Carrying industrial knowledge and experience (best practices), facing the industrial field, solving R&D design, production and manufacturing, operation and maintenance, business management, etc: Software that meets specific business needs in the scenario: [Source: GB/T 42562-2023, 3:1] 3:

2 The hub for the gathering of all industrial factors and the allocation of industrial resources is aimed at meeting the needs of digitalization, networking and intelligence in the manufacturing industry, and building a platform based on the sea A service system for collecting, aggregating and analyzing large amounts of data, supporting the ubiquitous connection, flexible supply, efficient configuration and collaborative innovation of manufacturing resources: [Source: Industrial Internet Platform White Paper, modified] 3:

3 Encapsulate industrial principles such as industrial technology, knowledge, experience, and models into microservice function modules, gather relevant industrial data capabilities, and provide services to the industry: Called by APP developers: 3:4 A mathematical model is established based on the internal mechanism of an industrial production process or a physical and chemical process, using industry knowledge, theorems, laws and principles: 3:5 microservices Based on a single functional component, the software architecture of "loosely coupled" application development is realized in a modular way, which can be deployed independently and provide Services that implement a specific piece of functionality for an application: [Source: ISO /IEC TS23167:2020, 3:15, modified] 3:6 A technical service that provides industrial Internet platform users with data integration, storage, calculation, analysis, processing and management capabilities: