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

GB/T 47677.1-2026

**Blockchain and distributed ledger technology - Service
operation - Part 1: General technical requirements for
blockchain as a service**

区块链和分布式记账技术 服务运营 第1部分：区块链即服务通用技术要求

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1 Scope

GB/T 47677.1-2026 is the Chinese national standard covering blockchain offered as a managed service - the provisioning of networks and nodes, the key custody, the monitoring and upgrade, the service levels and the division of responsibility between the provider and the customer whose ledger it is. Part 1 of the series, first edition, in force since 1 September 2026. It was issued on 25 May 2026 and has been in force since 1 September 2026, as a first edition. The document is under the responsibility of the Ministry of Industry and Information Technology. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

7. Infrastructure Layer Requirements The specific requirements for the infrastructure layer of a blockchain-as-a-service platform should comply with the provisions of section 7.5 of GB/T 42752-2023.

5 General Principles

5.1 High Availability Blockchain-as-a-Service platforms ensure stable service operation and high availability through redundant design, disaster recovery, and real-time monitoring.

5.2 Scalability The Blockchain-as-a-Service platform adopts an open, standardized, and highly adaptable design, supporting business volume expansion and business type growth to meet the requirements of blockchain technology. The need for the continued

development of blockchain-as-a-service platforms.

5.3 Maintainability Blockchain-as-a-Service platforms are characterized by their ease of use and high practicality, supporting simple operation and maintenance, and are tailored to users' daily maintenance needs. It is advisable to automate some management tasks to reduce the risk of human error.

5.4 Compatibility The Blockchain-as-a-Service platform supports mainstream operating systems and hardware devices, and has forward and backward compatibility, ensuring the system's broad applicability. Compatibility and continuous availability.

6. Blockchain-as-a-Service Platform Technical Architecture The technical architecture of the Blockchain-as-a-Service platform is shown in Figure

1. From bottom to top, it is divided into the infrastructure layer, blockchain layer, business layer, cross-layer, and application layer. Function.

---The infrastructure layer provides the necessary computing resources, storage resources, network resources, and other infrastructure support for the blockchain-as-a-service platform.

---The blockchain layer builds upon the infrastructure layer to create the underlying chain, providing various underlying blockchain adaptation capabilities and cross-platform compatibility for blockchain-as-a-service platforms. The blockchain service ensures the stable operation of the blockchain-as-a-service platform, and the specific requirements of the blockchain are not within the scope of this document.

---The business layer mainly refers to the blockchain-as-a-service platform's management and operation services related to blockchain, primarily including user accounts. Account management, alliance management, smart contract management, and developer tools.

---Cross-layer functionality provides modules that span the infrastructure, blockchain, and business layers, including monitoring and maintenance, security services, and interfaces. manage.

---The application layer mainly refers to blockchain applications running on top of the blockchain layer, including basic applications, industry applications, and other applications. This document focuses on the Blockchain-as-a-Service platform itself; therefore, the application layer is not within the scope of this document. Figure

8 Blockchain Layer Requirements

8.1 Blockchain The blockchain architecture connected to the Blockchain-as-a-Service platform should comply with the requirements of GB/T 42752-2023.

8.2 Low-level adaptation The blockchain layer supports flexible expansion for different underlying blockchain types.

- a) The blockchain layer should support plug-and-play compatibility with different blockchains and underlying consensus algorithms;
- b) The blockchain layer should support the addition or expansion of different underlying blockchain architectures;
- c) The blockchain layer should support the deployment of blockchain through different infrastructure service resources, including but not limited to. cloud services, physical machines, virtual machines, etc. Simulated machines, containers, etc.

8.3 Cross-chain services Cross-chain services include.

- a) Cross-chain communication between different blockchains should be supported;
- b) Cross-chain contracts and transactions between homogeneous and heterogeneous chains should be supported;
- c) It is advisable to ensure the integrity, security, and availability of each chain before cross-chain communication;
- d) Technical means should be adopted to ensure the security of inter-chain communication of cross-chain components.

9.1 User Account Management Requirements

9.1.1 Account Lifecycle Management The lifecycle management of user accounts (hereinafter referred to as "users") on a blockchain-as-a-service platform should include.

- a) Supports administrators in generating account passwords for Blockchain-as-a-Service platform users;
- b) Supports regular users to register accounts independently;
- c) Supports users in creating sub-accounts and assigning permissions to them;
- d) Supports administrators in reviewing authentication information submitted by regular users, allowing them to approve or reject authentications;
- e) Administrators can freeze the accounts of regular users, preventing frozen users from logging into the Blockchain-as-a-Service platform;
- f) Administrators can unfreeze frozen users, and unfrozen users can log in to the Blockchain-as-a-Service platform normally.

9.1.2 Account Information Management Account information management should include.

- a) Supports users submitting authentication information, which may include mobile phone number, email address, ID card number, organization code, etc.
- b) After the authentication information is approved, ordinary users can modify some

variable information such as mobile phone number and email address;

c) Allows administrators to view the account information and update history of all users on the Blockchain-as-a-Service platform.

9.1.3 Key Management Key management includes.

a) The blockchain-as-a-service platform should automatically create and distribute keys for users after they register;

b) Users should be able to create, download, and use both national cryptographic and non-national cryptographic keys;

9.2 Alliance Management Requirements

9.2.1 Automated Deployment Automated deployment should include.

a) Supports users in dynamically adjusting network and storage resources when deploying blockchain;

b) Supports users in deploying blockchain with a single click through a visual interface;

c) Supports user management of the entire lifecycle of the chain, including but not limited to. adding, starting, stopping, restarting, and deleting. Except for, etc.

d) Supports users in updating blockchain configurations, such as configuring TLS, flow control, maximum transaction count, etc.;

e) Supports users in visually viewing detailed information about the blockchain.

9.2.2 Node Management Node management includes.

a) Node lifecycle management should be supported, including but not limited to. adding, disabling, restarting, and deleting nodes;

b) It should support modifying and downloading node configuration files, such as node certificates, TLS configuration files, and node SDK configuration files;

c) The system should support visual viewing of the node list and detailed node information, which may include, but is not limited to, node ID, domain name, and port. Number, etc.;

d) It should support the management of node resources, including computing resources, storage resources, and network resources, throughout their entire lifecycle. This includes, but is not limited to. creating, dynamically adjusting, removing, and disabling.

9.2.3 Certificate Management Certificate management includes.

a) It should support viewing the certificate list and certificate details of consortium blockchain nodes;

b) Downloading node certificate files should be supported;