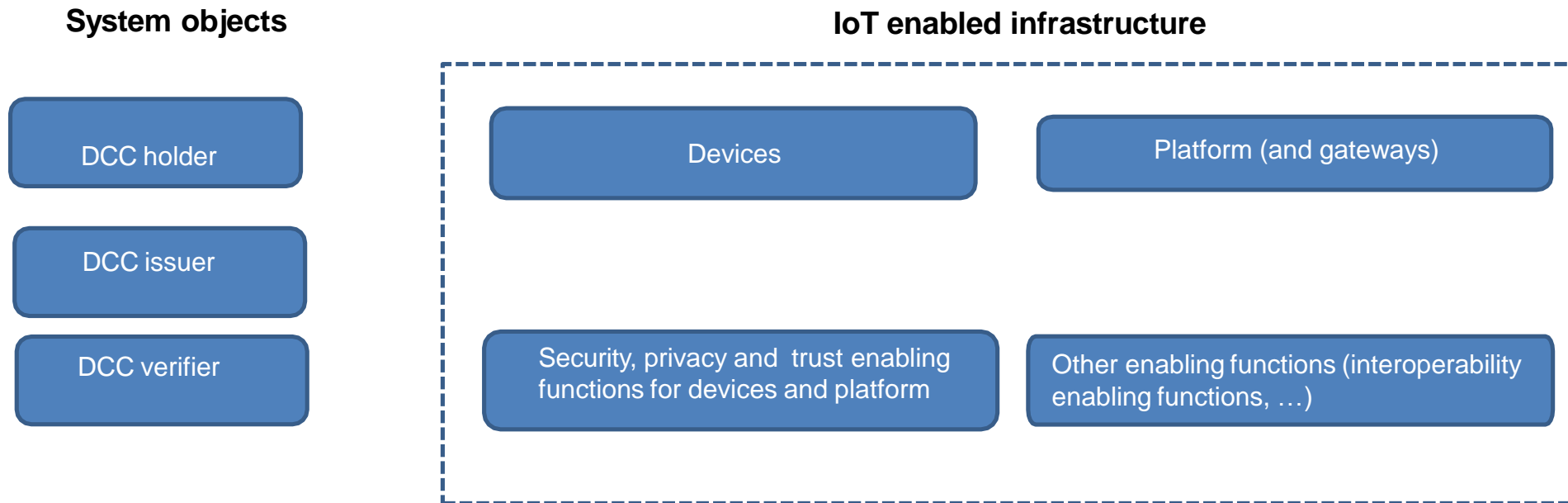


Internet of Things standardization activities with relevance for Digital COVID-19 Certificates

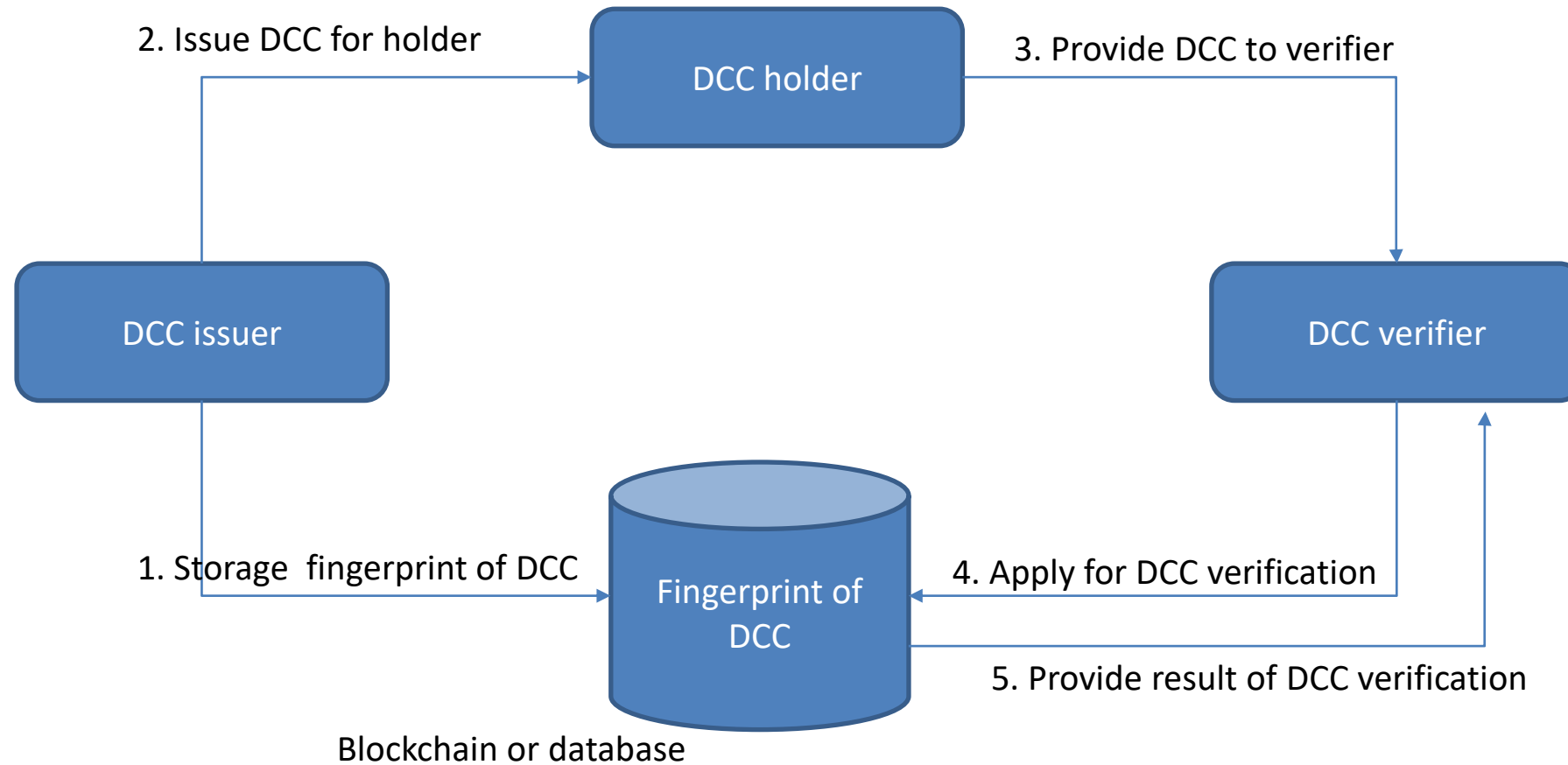
ITU-T SG20 input to the 2nd Joint ITU/WHO Workshop
on Digital COVID-19 Certificates

Digital COVID-19 Certificate (DCC) supporting system from an Internet of Things (IoT) perspective

Key elements of a DCC supporting system



Main service flows for verifiable credentials of DCC



Standardization tasks with relevance for SG20

Scenarios, Service requirements

- system objects and their service relationships, service requirements for the system objects, existing scenarios of devices and system infrastructures, cross-country scenarios
- DCC holder/issuer/verifier's hardware (including terminals, wristbands, etc.) and software (trusted execution environment) (minimum requirements) and interoperation with platforms

Service flows

- service flows among the system objects; devices, platforms and other facilities which may be used

Capabilities and functions

- integration of DCC issuer/verifier and fingerprint storage functionalities into appropriate platforms/applications (e.g. smart city applications, smart government), modularity and reusability

Data models

- data collection, data sharing, data interoperability

Architectures, interfaces and protocols

- architectural (component) interoperability, interfaces and protocols consolidation, modularity and reusability

Main SG20 standardization studies of interest for DCC – 1/2

- **Blockchain/DLT Recommendations: ITU-T Y.4464** “Framework of blockchain of things as decentralized service platform”, **ITU-T Y.4476** “OID-based resolution framework for transactions of a distributed ledger assigned to IoT resources”, **ITU-T Y.4560** “Blockchain-based data exchange and sharing for supporting IoT and SCCs”, **ITU-T Y.4561** “Blockchain-based data management for supporting IoT and SCCs”
 - Dealing with blockchain-based service platform, data management and exchange, IoT resource identity
- **ITU-T Y.4459** “Digital entity architecture framework for IoT interoperability”
 - Architecture framework for information management based on the use of digital entity, and common set of secure services for registration, discovery, resolution and dissemination of such digital entities
- **ITU-T Y.4811** “Reference framework of converged service for identification and authentication for IoT devices in decentralized environment“ (currently in AAP)
 - Dealing with a service targeted to overcome challenges of effective and efficient interaction (e.g. secured interoperability, scalability, low latency) in decentralized IoT identification (id) and authentication (auth) management systems. It takes advantage of blockchain and cloud technologies, and is compatible with traditional id and auth services. Same or different types of decentralized IoT id solutions can be used by IoT devices. For consideration in relation to interoperability among different DCC types.

Main SG20 standardization studies of interest for DCC – 2/2

- **Ongoing ITU-T Y.IoT-BC-reqts-cap** “IoT requirements and capabilities for support of blockchain”
 - Requirements and capability framework of the IoT to support blockchain
- **Ongoing ITU-T Y.RA-PHE** “Requirements and reference architecture of smart service for public health emergency”
 - Dealing - among others - with health information management, early warning of epidemic situations
- **Ongoing ITU-T Y.eHealth-Semantic** “Framework to support Web of Objects ontology based semantic mediation of eHealth services”
 - Framework to support Web of Objects ontology based semantic mediation of eHealth services in accordance with Y.4452 “Functional framework of web of objects” and ITU Technical Specification D3.3 of FG-DPM “Framework to support data interoperability in IoT environments”