2018.9.20 Fujitsu

Proposal of the architecture document update

8. WoT Deployment

There are 4 kinds of entities in WoT. 3 types of Servients, such as Device Servient, Application Servient and Proxy Servient, and directory. In this chapter, the definitions of each entity and the deployment patterns with these entities integrated are described.

8.1 Device Servient

Device servient is one of the basic entities of WoT corresponding to devices such as sensors, home appliances, building facilities, and so on. These devices are connected to the networks to be accessed and controlled from applications.

Device servient has a function to expose the interface, which are properties, actions and events specified in Thing Description document.

Many kinds of devices have already connected to IoT systems in a various field. For promotion of WoT, it's useful to expose them as device servients with bridging original interface of legacy devices to the interface of device servients.

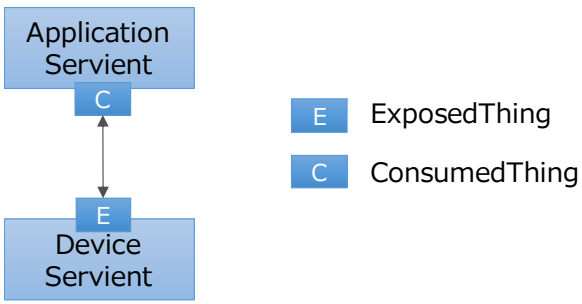

Figure xx. Application and device servient.

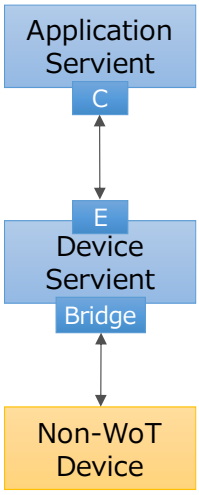

Figure xx. Non-WoT device converted to WoT device with bridge

8.2 Application Servient

Application servient is one of the basic entities of WoT corresponding to applications running on clouds, controllers and anywhere. These applications are connected to the networks to access and control the devices.

Application servient has a function to consume the interface, which access and control the device servients. These interfaces are some possible interface than are network interfaces and programming API, for example, specified in Scripting API document.

Some IoT specification have been already exited in a various field. For promotion of WoT, it's useful for the application compatible to existing standards to connect and consume device servients as application serivients with bridging original interface of legacy devices to the interface of device servients.

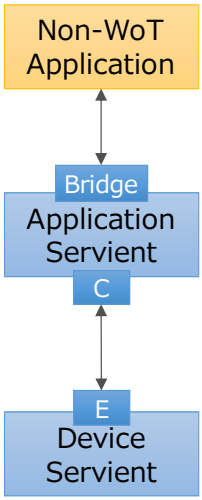

Figure xx. Non-WoT application converted to WoT application with bridge

8.3 Proxy Servient

Proxy servient is one of the basic entities of WoT corresponding to a relay node such as gateways and cloud platforms. This node can connect devices and applications with each other.

Proxy servient has both functions of device servient and application servient. It shall consume the interface of the real device connected to networks and expose the interface of the virtual devices instead of it.

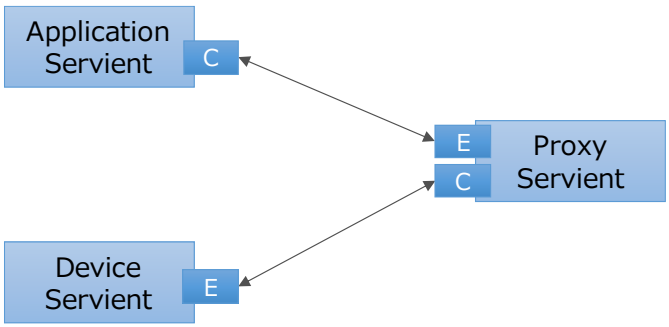

Figure xx. Proxy servient connects application and device servients.

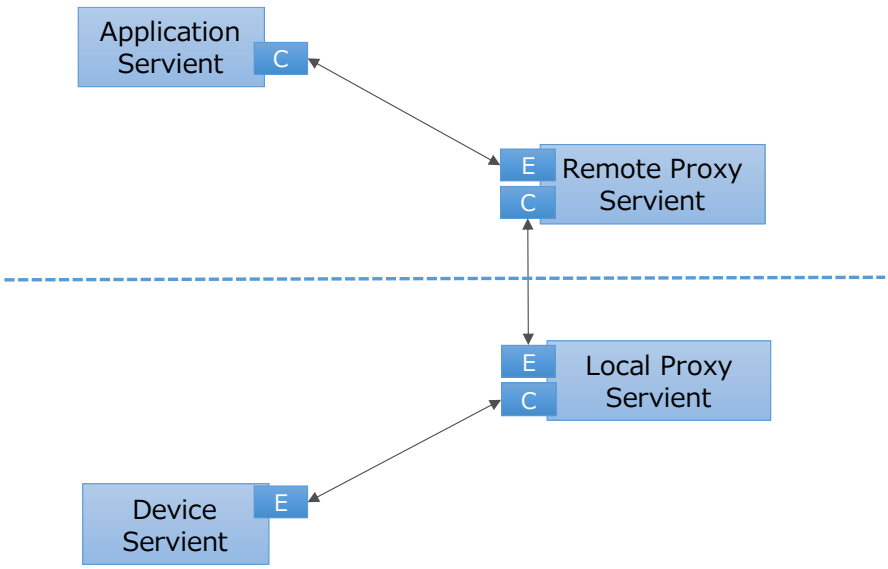

Figure xx. 2 proxy servients connect 2 servient on the different networks.

8.4 Directories

Directory is an another entity that manages TDs of Device servients.

Device servients should register their TD to a TD directory and application servients

should get TD from it. The TD that the application servient gets is ID to access and control.

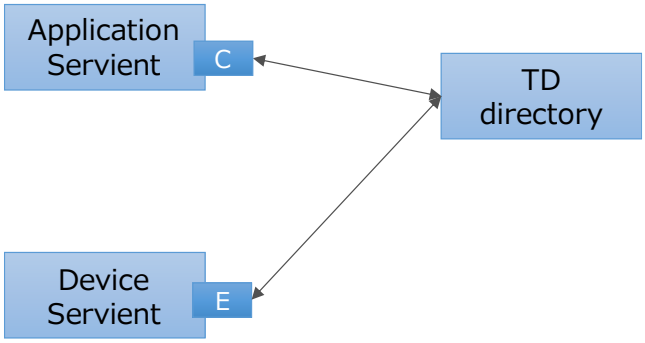

Figure xx. TD directory registered by a device servient

The shadow devices created on the proxy servient should be registered to the directory instead of the real device servient. The purpose of this operation can be prohibited to directory access from the application servient.

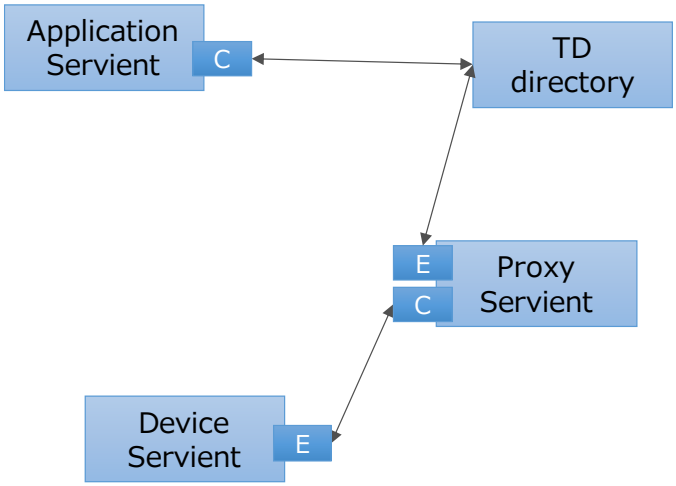

Figure xx. TD directory registered with shadows devices on Proxy servient

8.5 Integrations

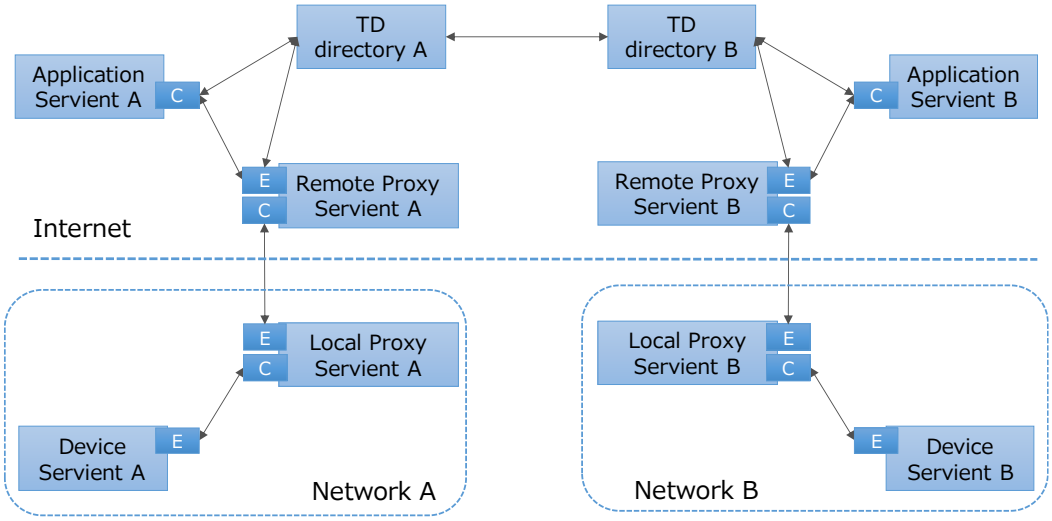

Figure xx. 2 different system integrated with WoT interface.