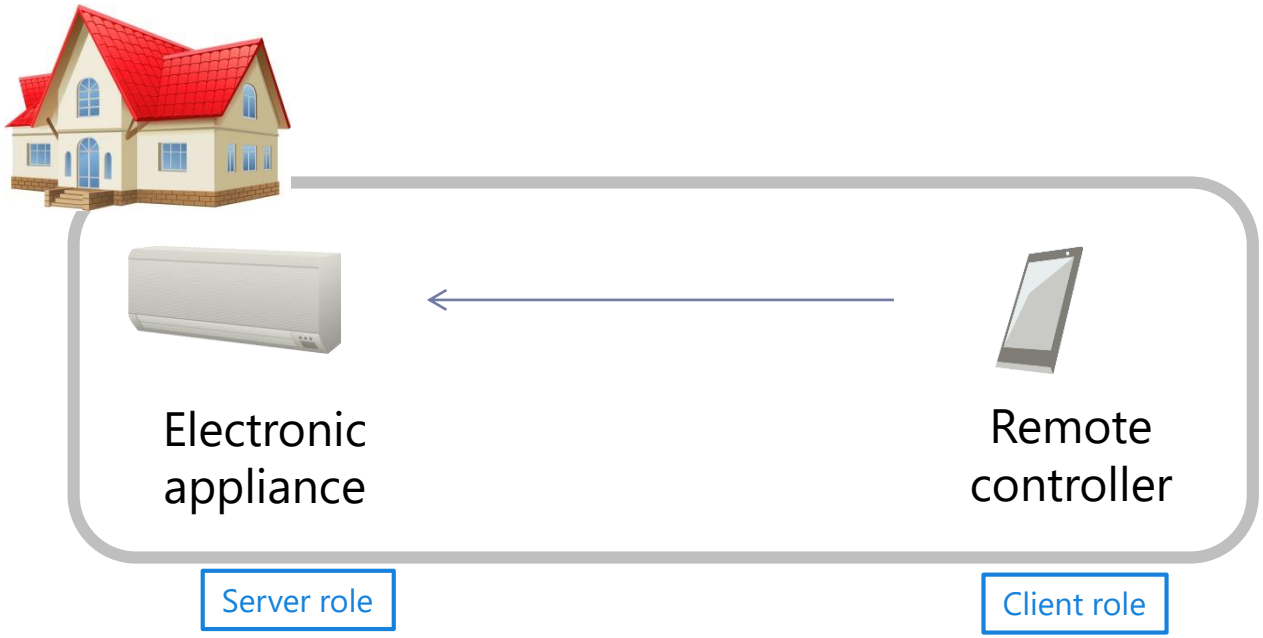
Proposal for architecture doc.

- Chapter 3.1.9 “common architecture patterns” and chapter 3.1.10 “summary” should move to 3.2 and 3.3
  - Sub chapters of “common architecture patterns” should be changed.
  - Sub chapter “legacy devices” should be deleted.
  - The figure “Use Case Overview” should be substituted with simplified version.
- In chapter 5, some figures should be changed.
  - Abstract architecture and Building blocks

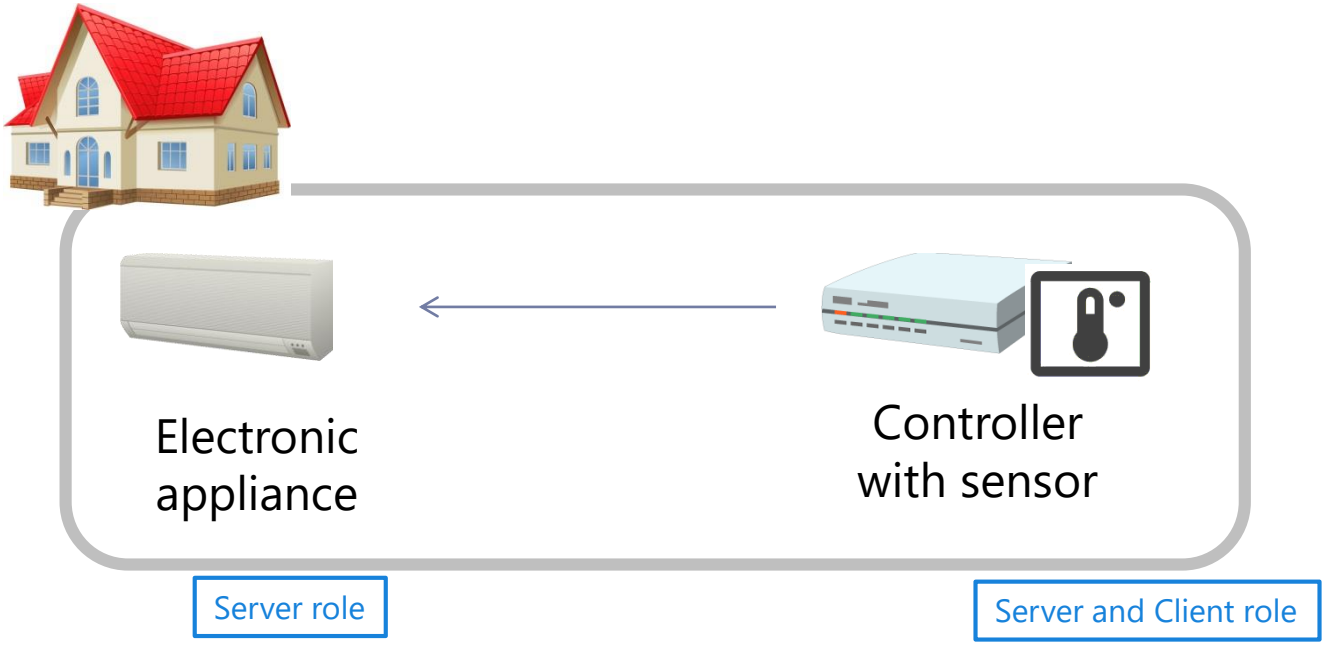
3.2.1 Device controllers

- A remote controller can access an electronic appliance through the local home network directly. In this case, the remote controller can be realized by a browser or native application.



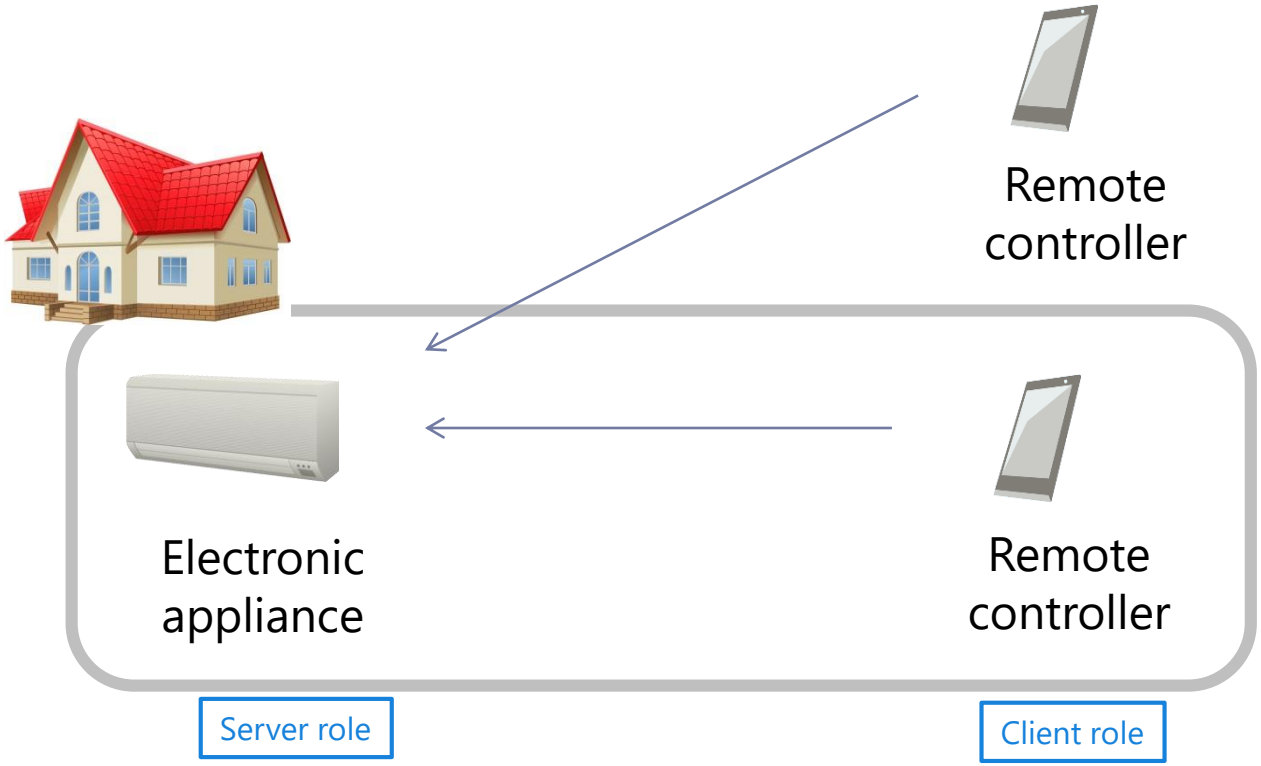
3.2.2 Thing-to-Thing

- A sensor detects the change of the room condition, for example the temperature surpassing a set threshold, and issues a control message like “Power ON” to the electronic appliance. The sensor unit can issue some trigger messages to other devices.



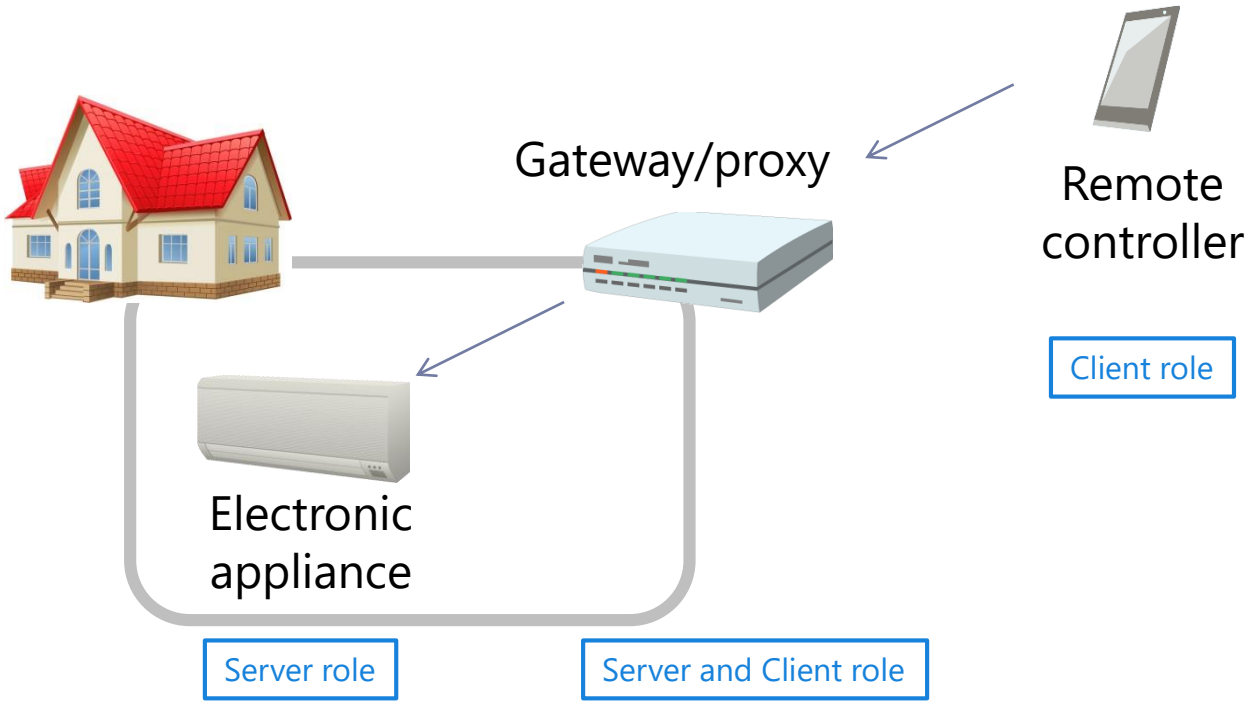
3.2.3 Remote access

- The remote controller can switch communication media between cellular network and home network such as Wi-Fi and Bluetooth. The controller choose the home network when it's at home, and the cellular while outside.



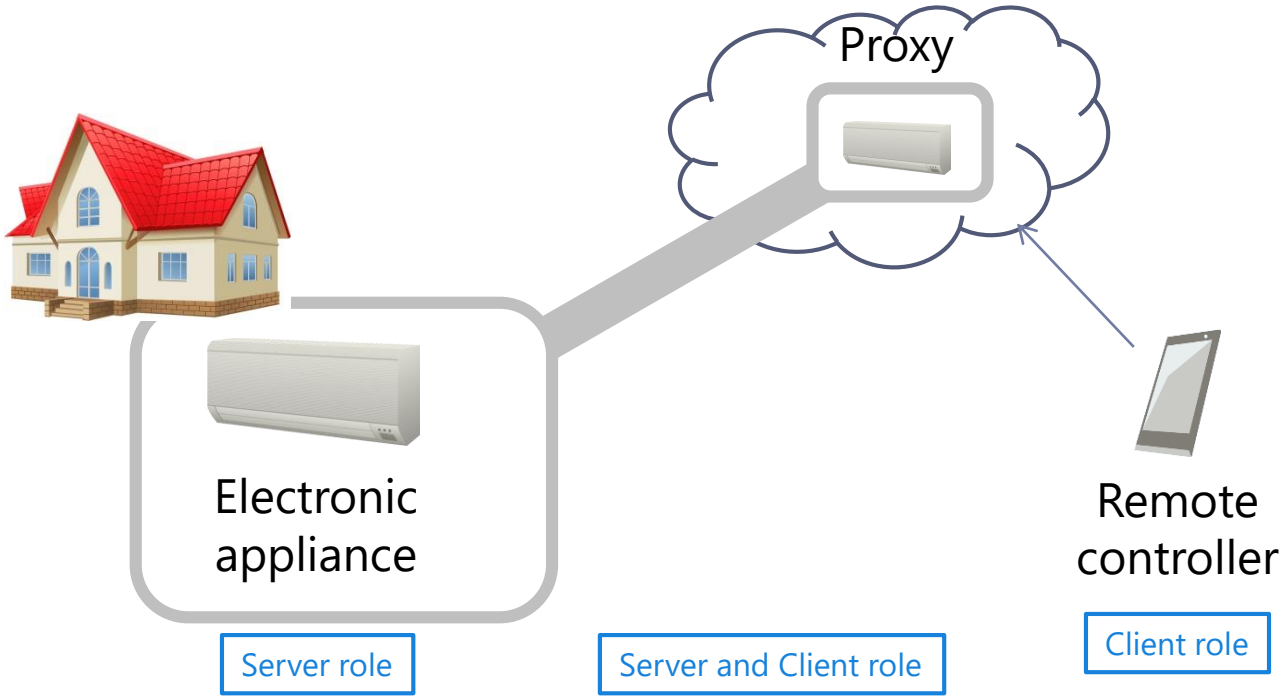
3.2.4 Gateways

- A smart home gateway is placed between a home network and the Internet. The gateway manages electronic appliances inside the house and can receive commands from a remote controller over the Internet, e.g., from a smartphone as in the previous use case. It is also is a virtual representation of a device.



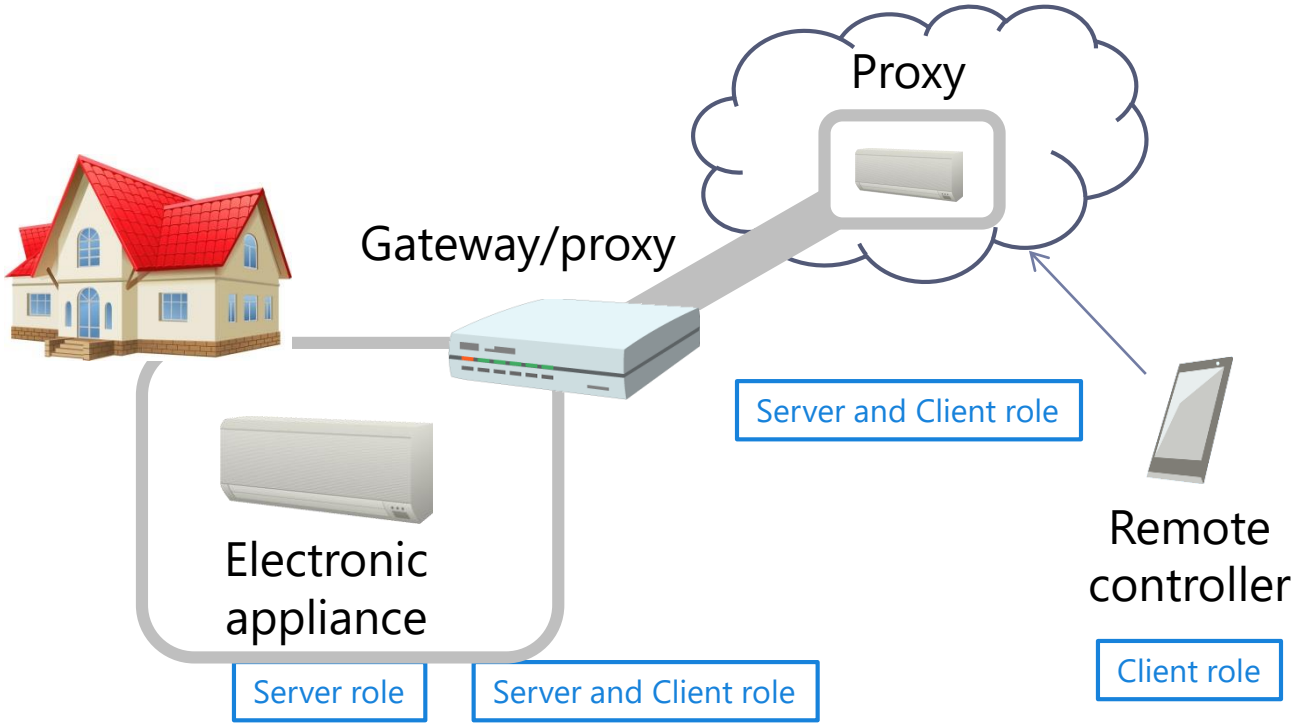
3.2.5 Cloud-ready devices

- An electronic appliance can be directly connected to the cloud. The cloud mirrors the appliance and, acting as a proxy, can receive commands from remote controllers. Authorized controllers can be located anywhere, as the proxy is globally reachable.



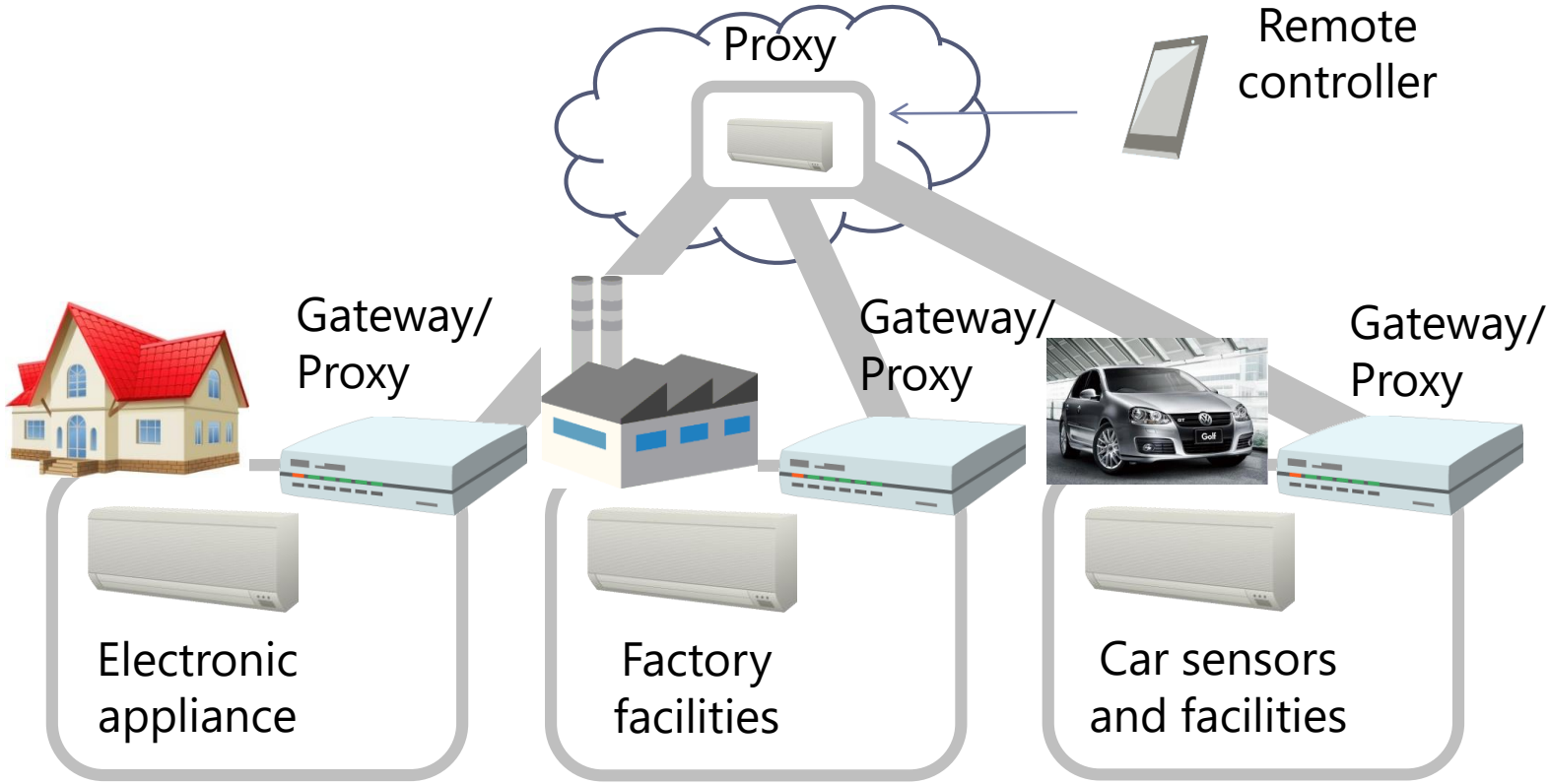
3.2.6 Cloud proxies

- A cloud proxy is a virtual representation of a device, that resides on a cloud server or edge device. Proxies can model a single device, or they can aggregate multiple devices in a virtual representation of the combined devices. This is often called a digital twin.



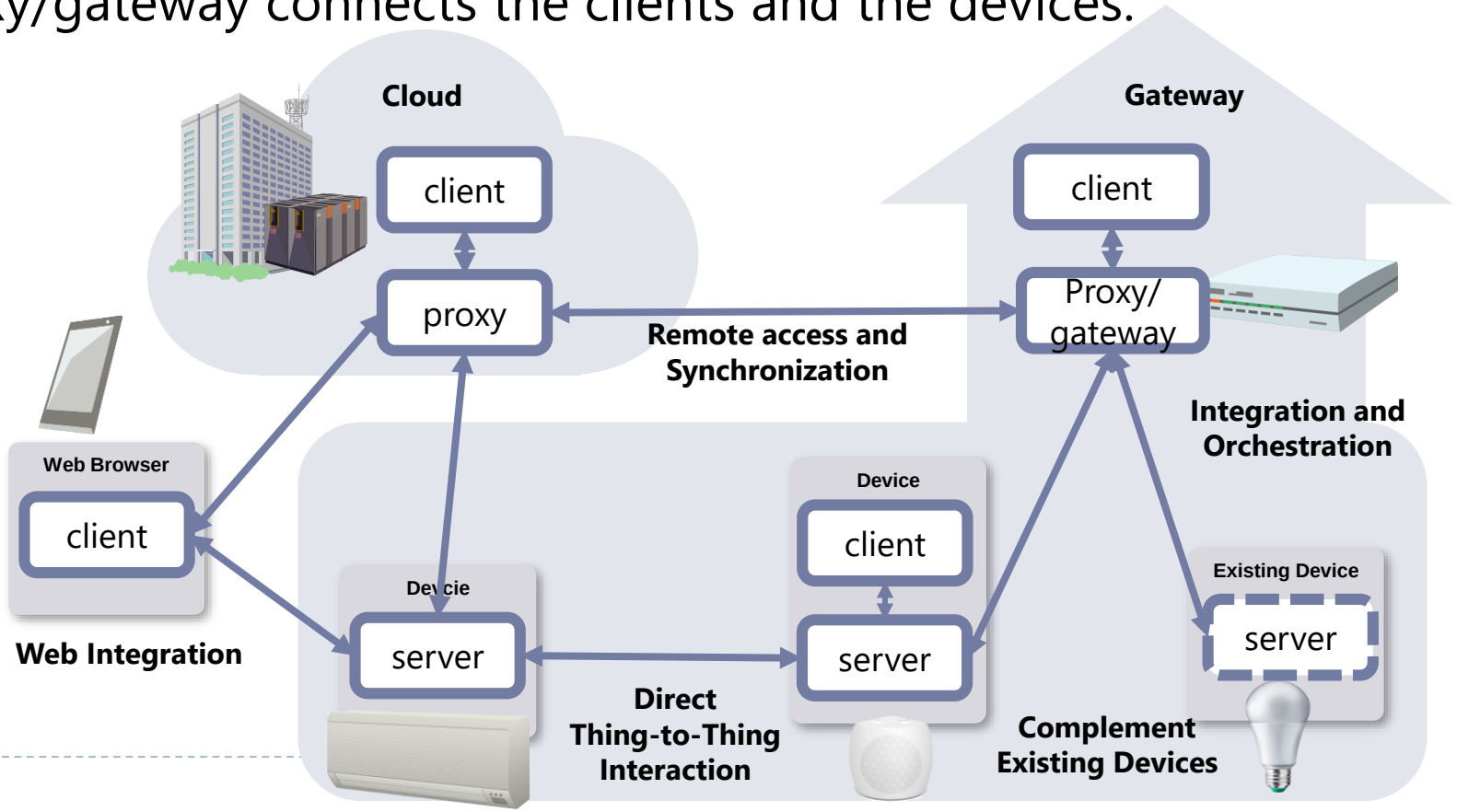
3.2.7 Multiple Subsystems

- A cloud proxy can aggregate some local proxies that connect domain dependent devices in each field.



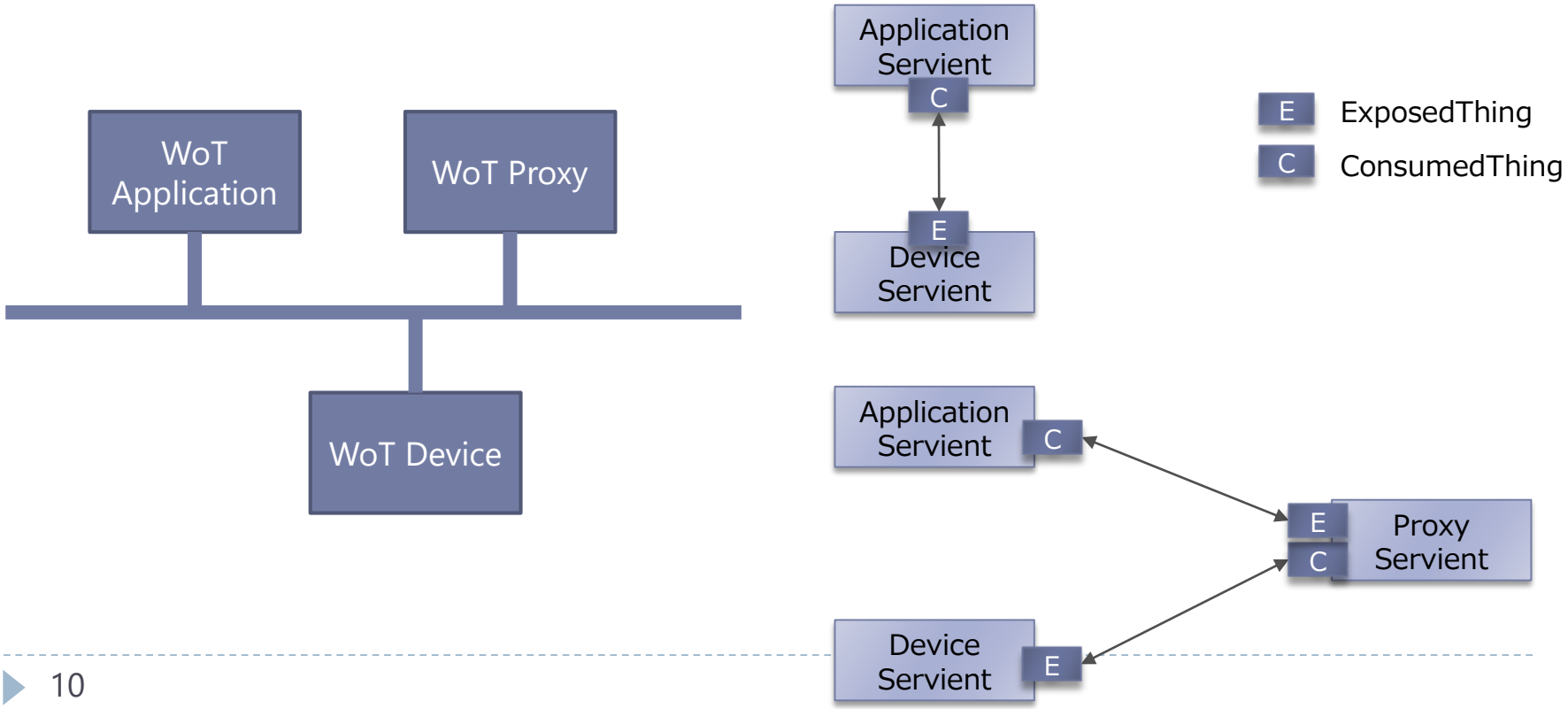
3.3 Summary

- The possible architecture patterns are shown in chapter 3.2 and lead to the integrated use case overview. These use cases specify the functional roles on each location. The client is an application or controller. The server is a device. The proxy/gateway connects the clients and the devices.



5.1 Overview

- The use cases and the requirements identifies three basic components such as devices, applications, and devices. These components are on the same network.
- IoT services are executed with cooperation of the applications and devices. The proxy can help to connect them under some conditions.



5.3 Building Blocks