



Innovative R&D by NTT

Which IP address should be used to implement IoT/M2M services?

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Internet of Things (IoT) has become popular discussion topics.

- Many IoT services have been started.
- Many IoT related consortiums have been established and started to discuss many aspects of IoT.
 - Business, platform, security and so on.

To implement IoT services, “addressing” could be one important consideration point.

Assumption:

Target of this discussion is addressing for IoT/
M2M services with IPv6.

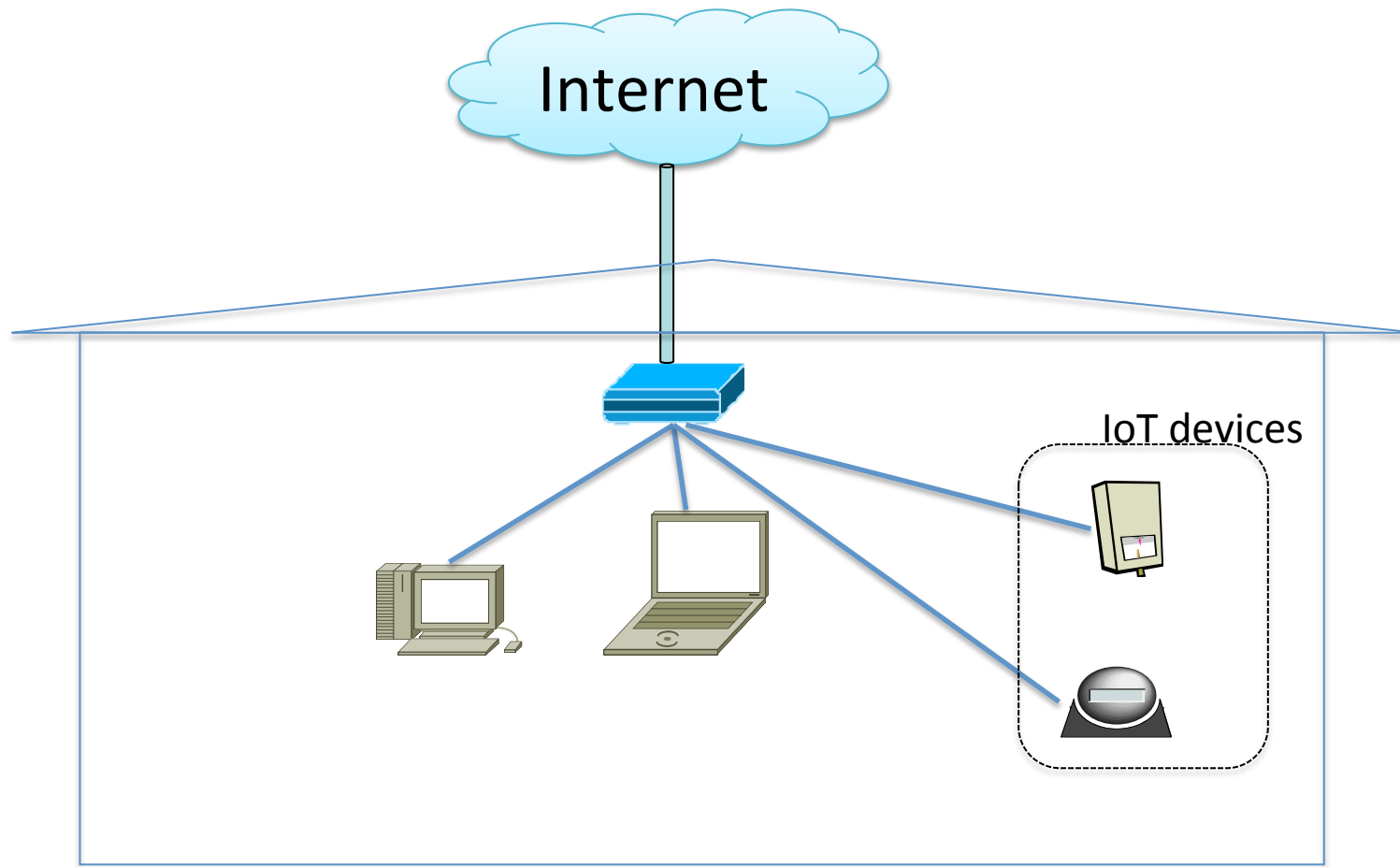
- Those of IPv4 will use IPv4 private address.

‘Addressing’ depends on the network structure.

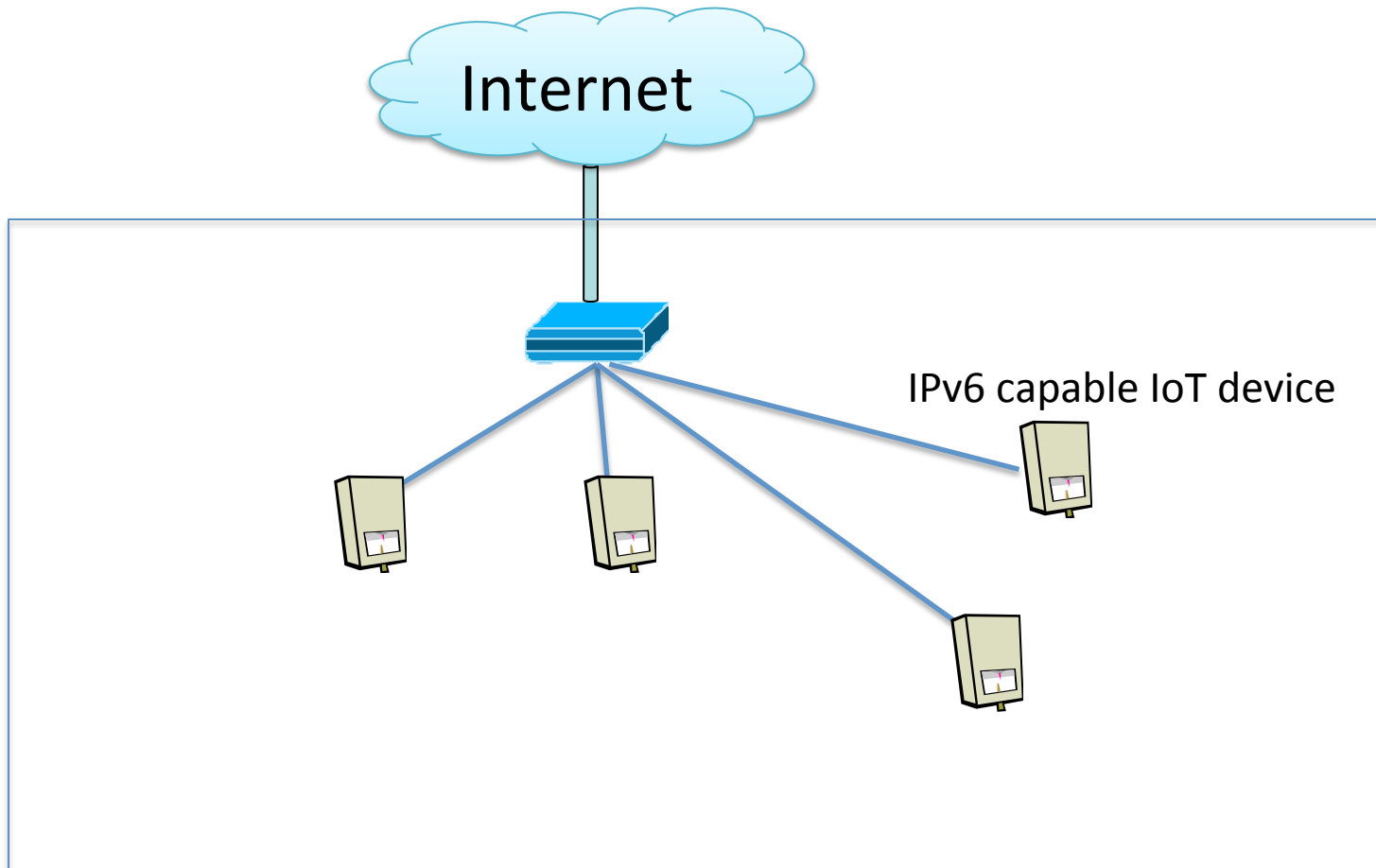
Type IoT service network:

1. Non dedicated network
 - “Things” connect to users’ network
2. Dedicated network connected to the Internet
3. IoT dedicated closed network
4. Non-IP network with IP gateway, etc.

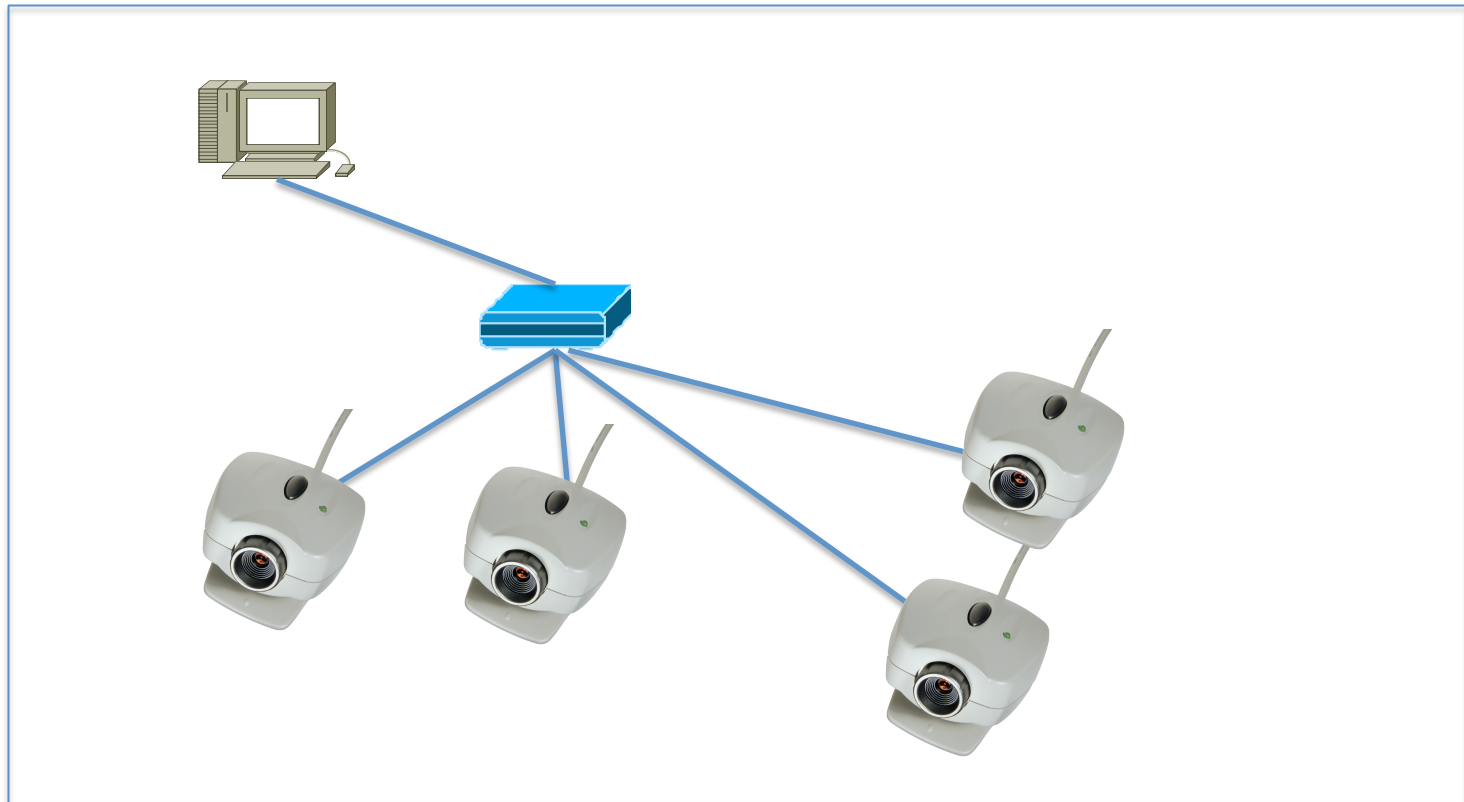
1. Non dedicated network



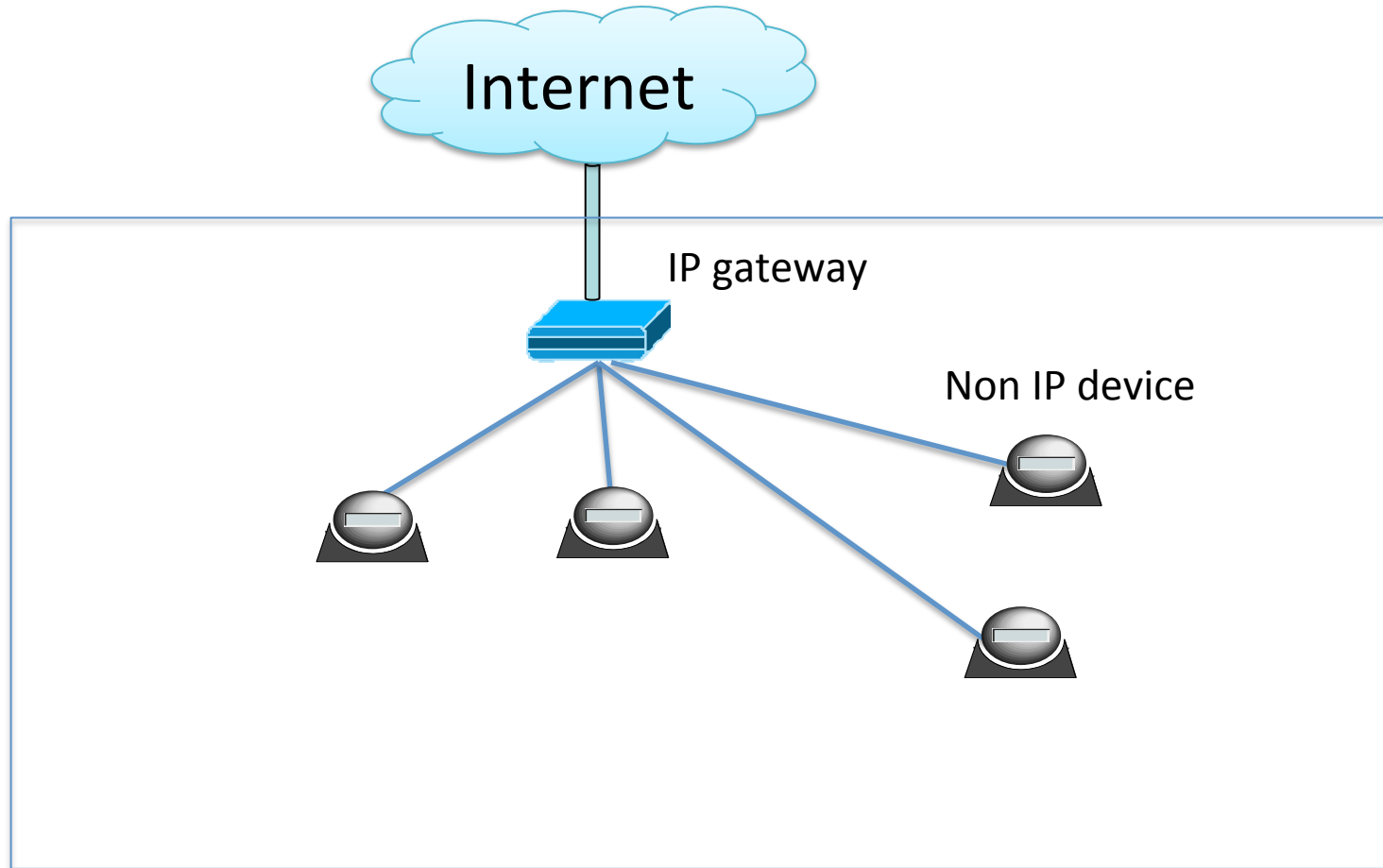
2. Dedicated network connected to the Internet



IoT dedicated closed network



Non-IP network with IP gateway



CURRENT IPV6 POLICY

Current IPv6 allocation policy



Allocation criteria

To qualify for an initial allocation of IPv6 address space, an organization must:

1. Be an LIR
2. Not be an end site
3. Plan to provide IPv6 connectivity to organizations to which it will make assignments.
4. Meet one of the two following criteria:
 - Have a plan for making at least 200 assignments to other organizations within two years, or
 - Be an existing LIR with IPv4 allocations from APNIC or an NIR, which will make IPv6 assignments or sub-allocations to other organizations and announce the allocation in the inter-domain routing system within two years.



Assignment criteria

To qualify for an IPv6 assignment from APNIC, requestors must demonstrate their eligibility under one of the following four criteria;

- IPv6 for multihoming
- IPv6 for critical infrastructure
- IPv6 for Internet Exchange Points
- Provider Independent IPv6 assignment**

10.1.4. Provider Independent IPv6 assignment

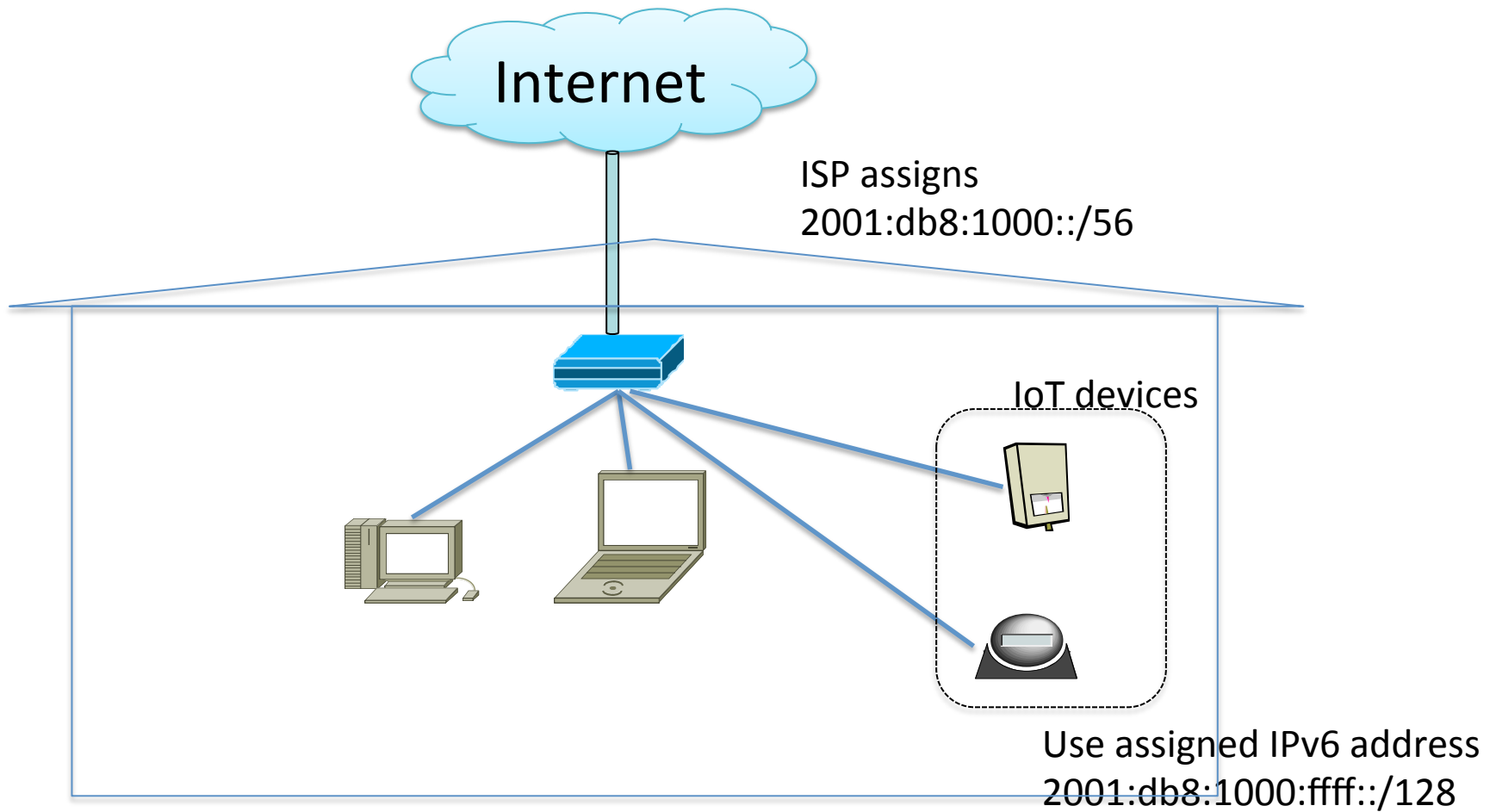
Requests for Provider Independent assignments must include a detailed plan of intended usage of the proposed address block over at least the 12 months following the allocation.

10.1.4.1. Initial assignment

Organizations are eligible for an IPv6 Provider Independent delegation **if they are able to demonstrate a valid reason that an assignment from their ISP, or LIR, is not suitable**. For guidelines on what will be considered a valid technical or other reason, see "APNIC guidelines for IPv6 allocation and assignment requests".

<http://www.apnic.net/ipv6-guidelines>

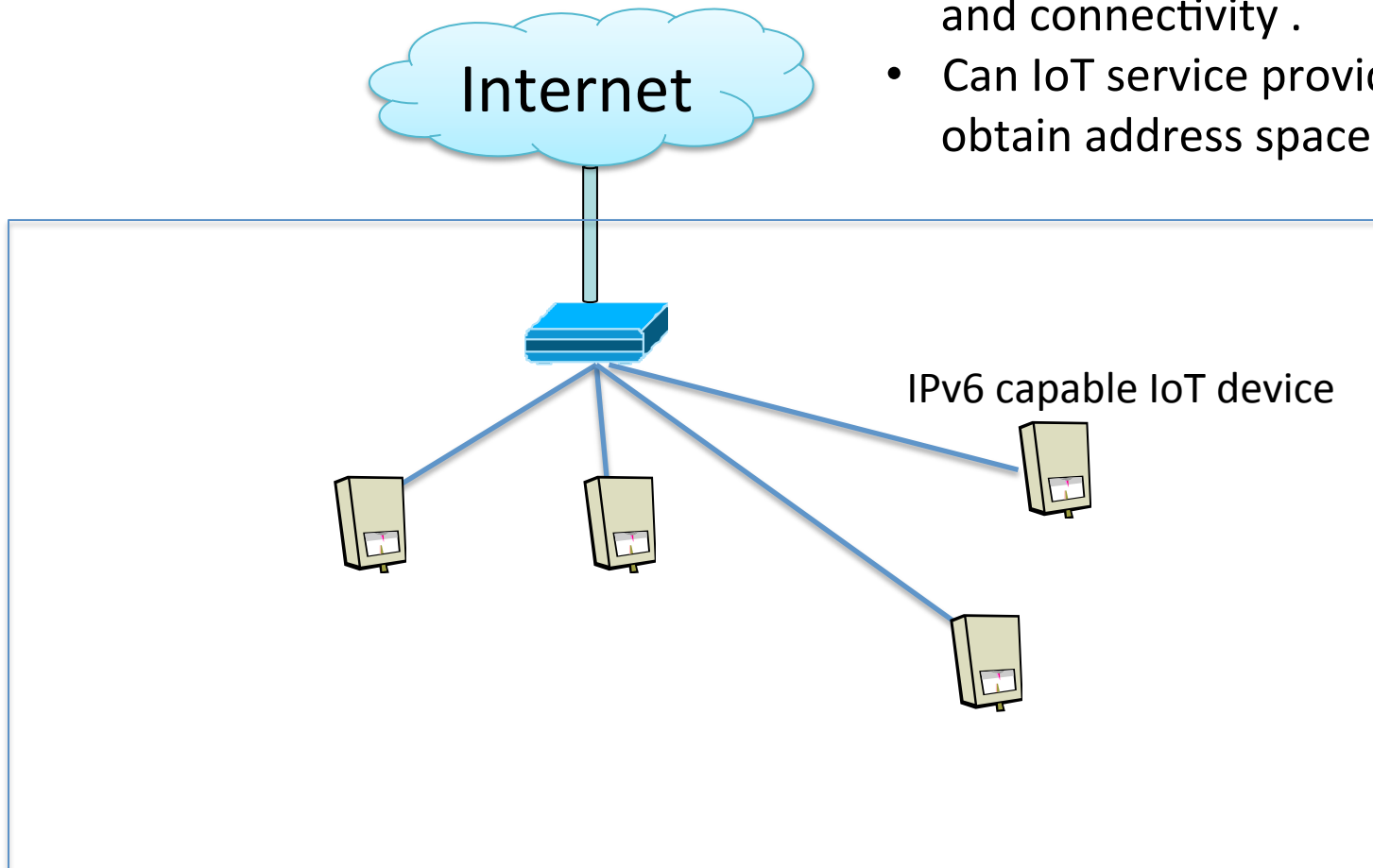
1. Non dedicated network



2. Dedicated network connected to the Internet

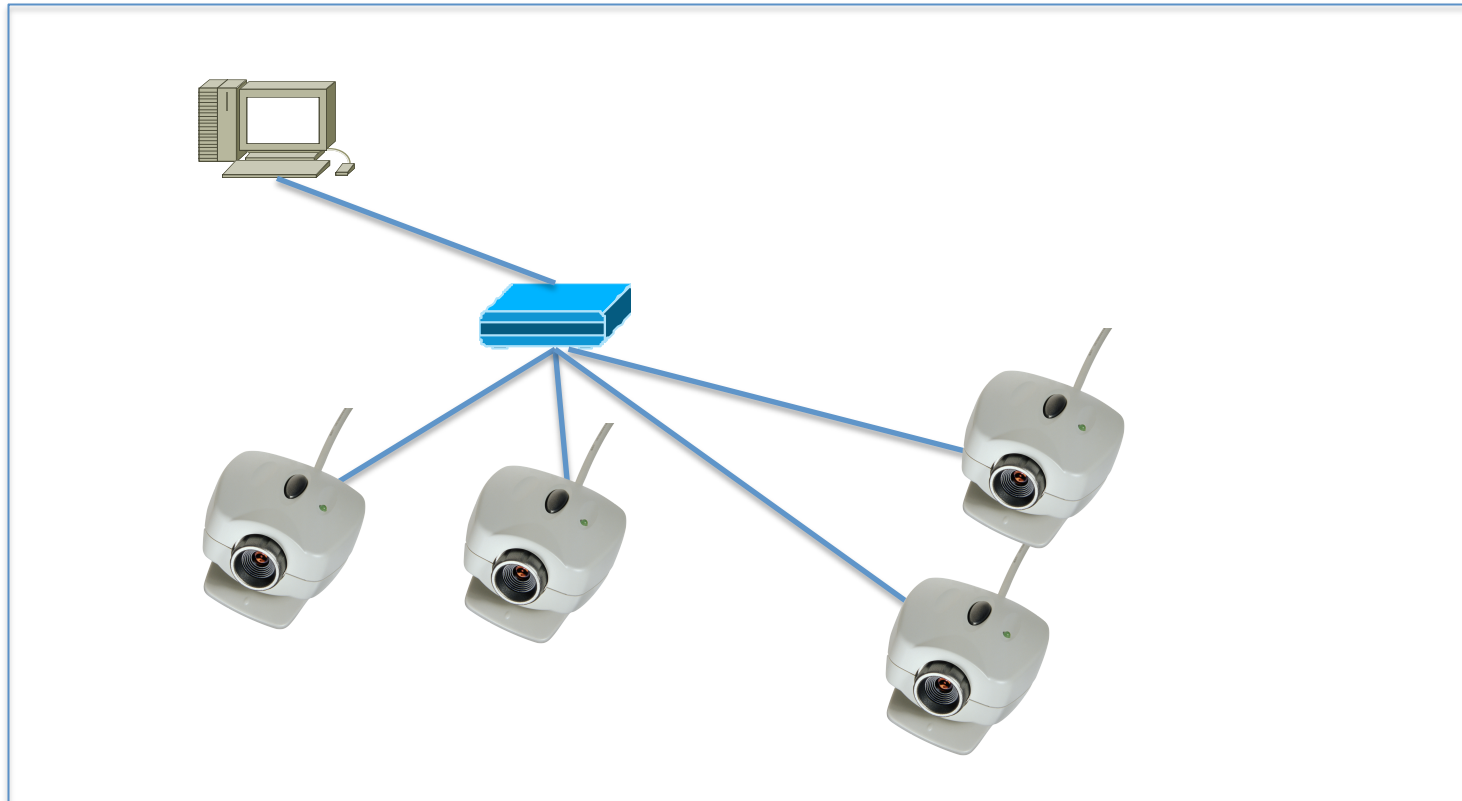


- It's OK if using ISP's address and connectivity .
- Can IoT service provider obtain address space?

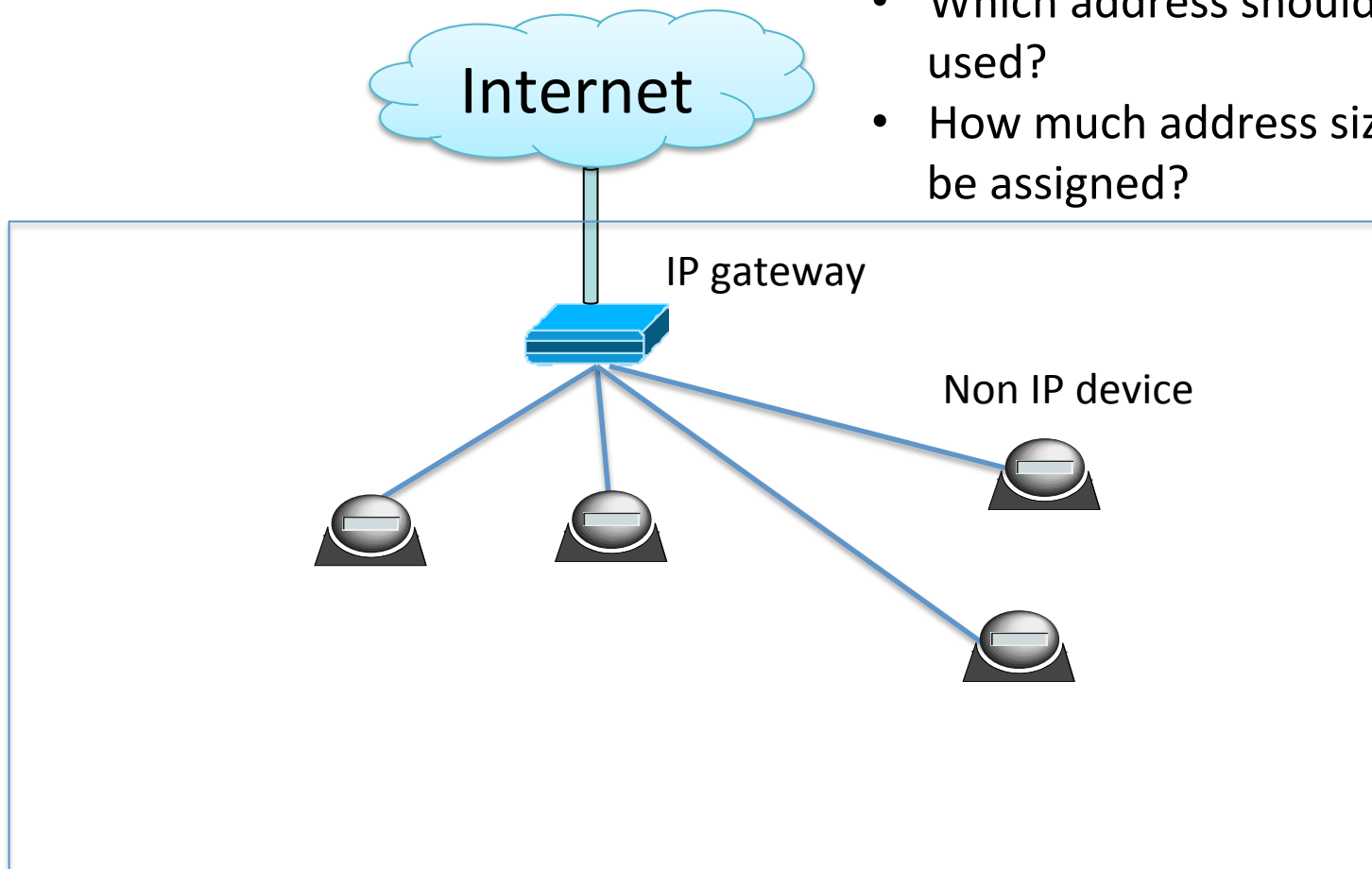


3. IoT dedicated closed network

- Which address should be used?
 - PI address?
 - ULA address? (ULA-C suitable?)



4. Non-IP network with IP gateway



- Which address should be used?
- How much address size should be assigned?



‘Addressing’ depends on the network structure.

Type IoT service network:

1. Non dedicated network

- “Things” connect to users’ network

2. Dedicated network connected to the Internet

- Can “IoT service providers” obtain IPv6 address?

3. IoT dedicated closed network

- PI? ULA? ULA-C will be better?

4. Non-IP network with IP gateway, etc.

Are there any cases where current IPv6 address policy cannot cover?

- Other type of IoT network?
- Need policy change?

Which address should be used in 'closed IoT' network?

- Possible to assign global PI address?
- 'ULA Central' ?