

DNS Name Autoconfiguration for Home Network Devices

draft-jeong-homenet-device-name-autoconf-01



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Jaehoon (Paul) Jeong and Jung-Soo Park
Sungkyunkwan University & ETRI

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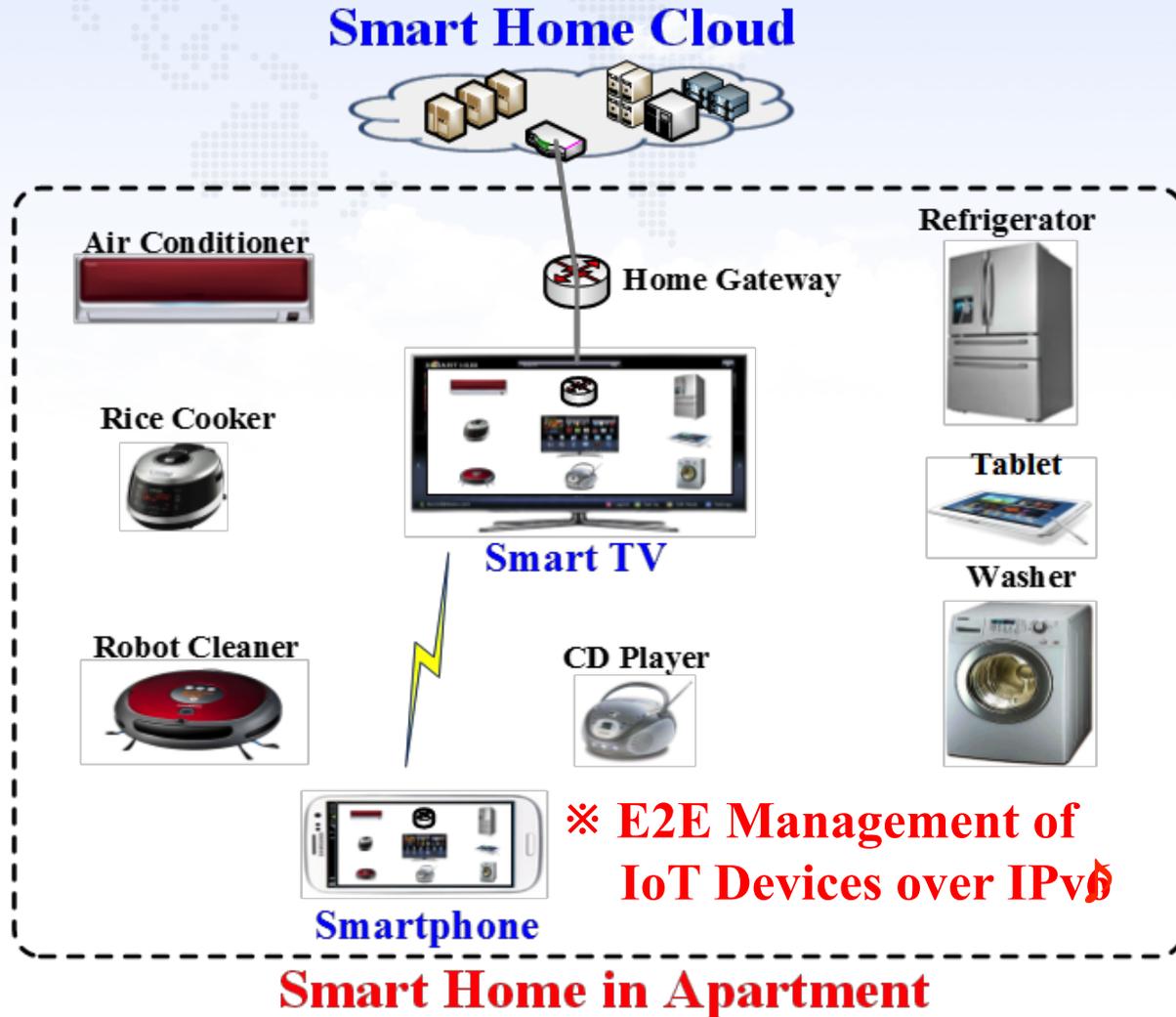
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Motivation (2/2)

❖ Naming for IoT Devices

- DNS naming for IoT devices facilitates the usage of IoT devices.

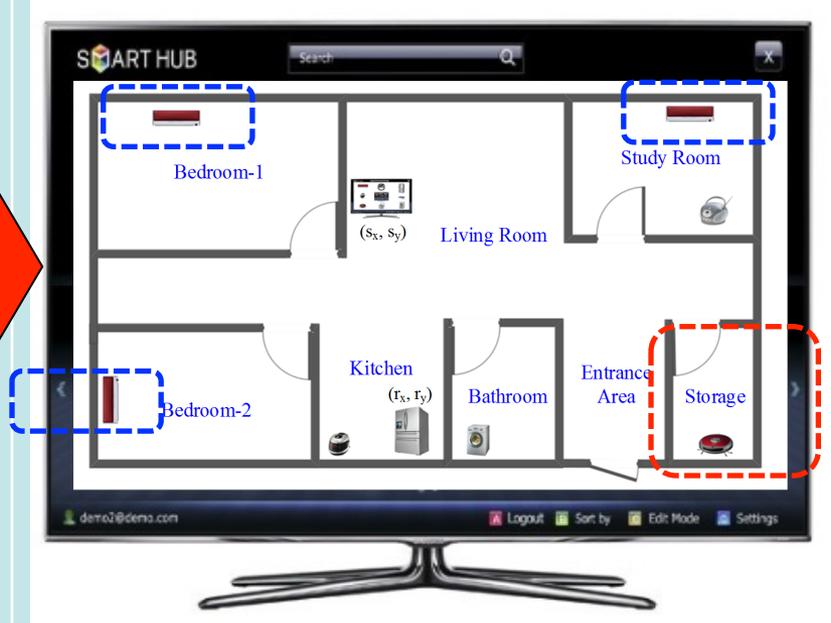


Target Application for Smart Home

Current AllJoyn for IoT Devices



New AllJoyn for IoT Devices



❖ Applicability Extension

- ✓ Mall (e.g., Walmart and Best Buy) and Factory (e.g., GM and Hyundai)

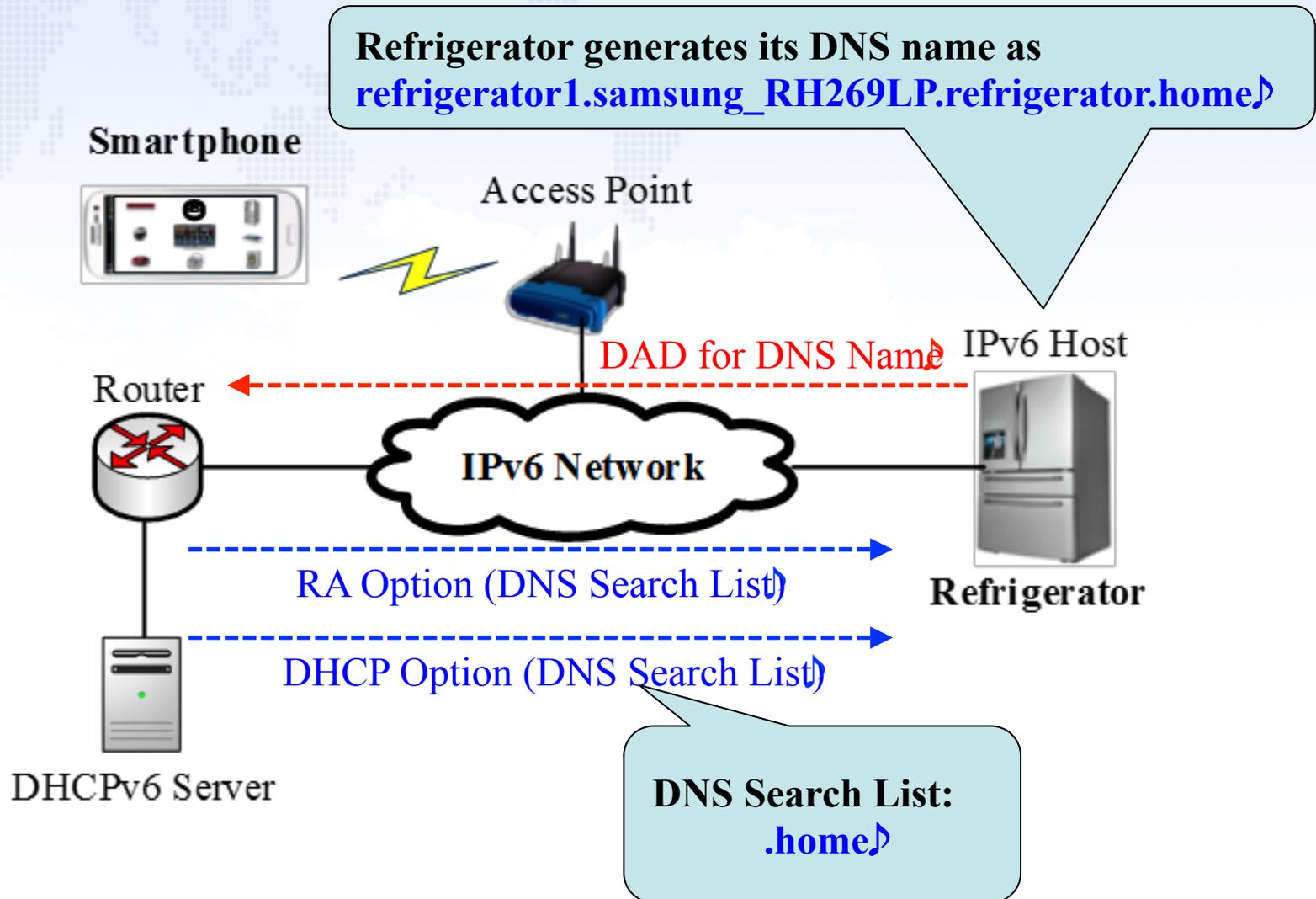
Limitation of IPv6 Stateless Autoconfiguration

❖ IPv6 Stateless Autoconfiguration for IoT Devices

- **Prefix Information, Default Gateway, and MTU**
 - Neighbor Discovery for IP version 6 (RFC 4861)
- **IPv6 Address**
 - IPv6 Stateless Address Autoconfiguration (RFC 4862)
- **Recursive DNS Server Addresses & DNS Search List**
 - IPv6 Router Advertisement Options for DNS Configuration (RFC 6106)
- **Missing?**
 - **DNS Name Autoconfiguration** for IoT-Device DNS Name
 - DNS Configuration for IoT Devices **can be automated** without the intervention of a network administrator (or home users).

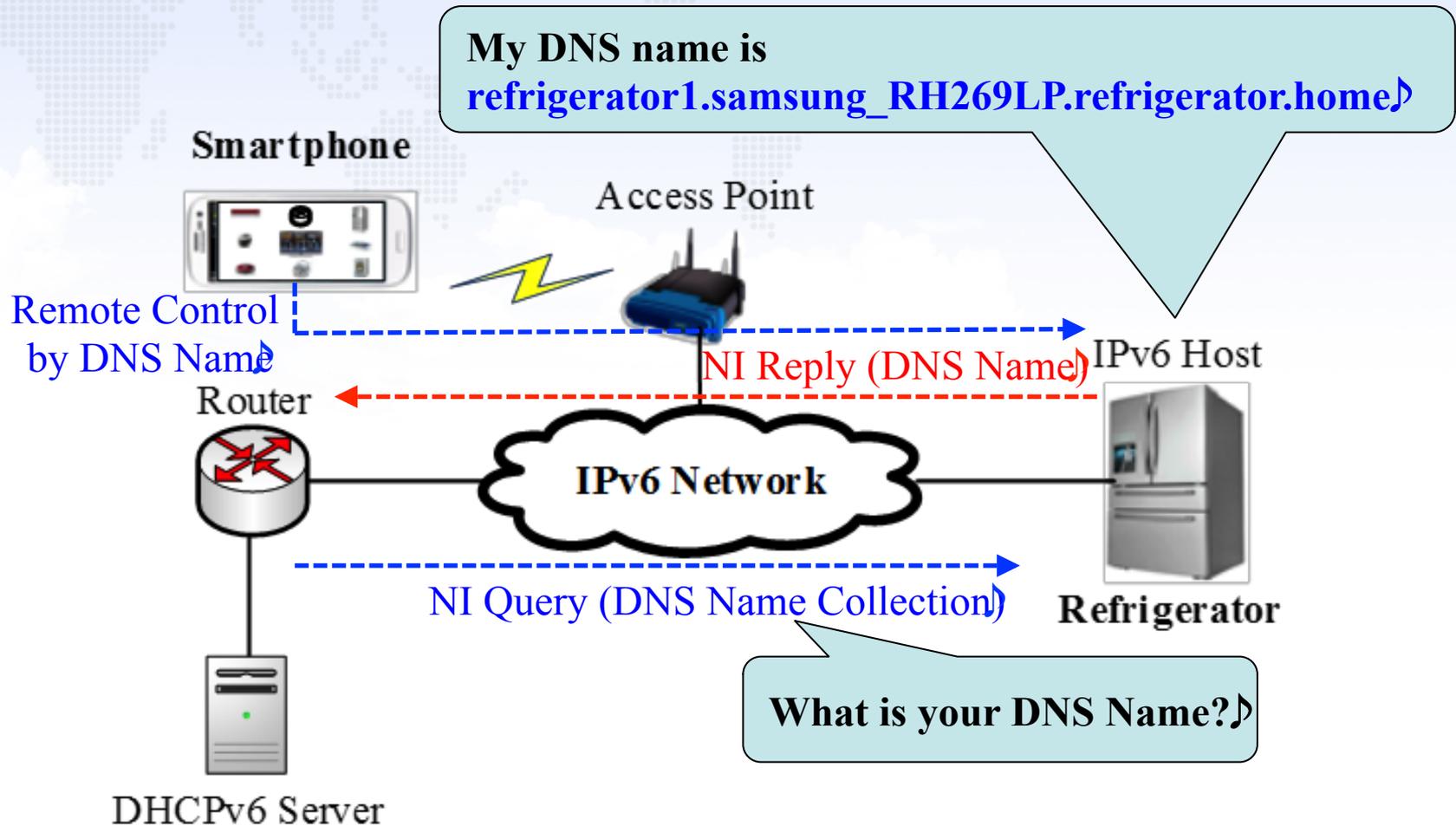
DNS Name Autoconfiguration (1/2)

❖ IoT Device's DNS Name **Generation**



DNS Name Autoconfiguration (2/2)

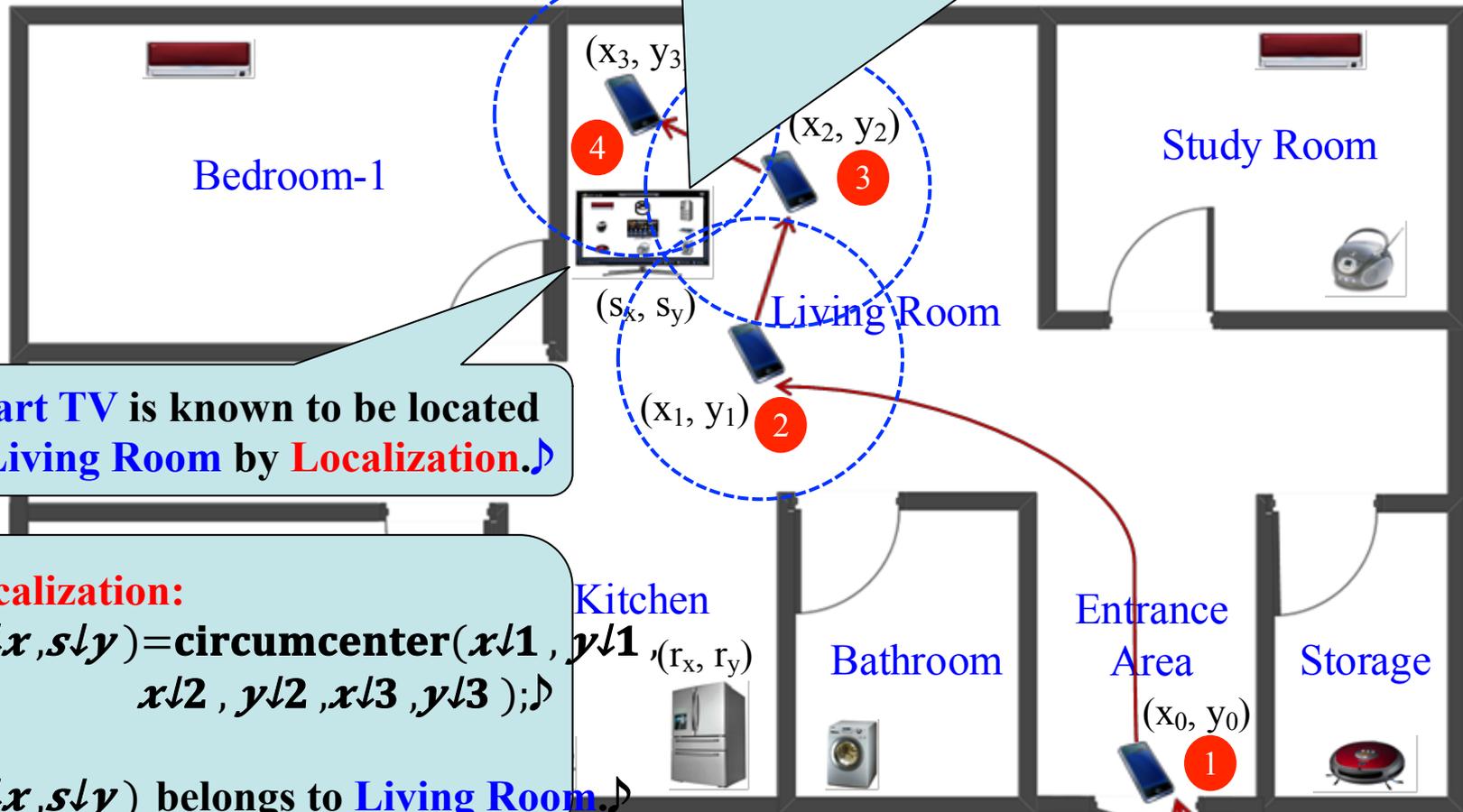
❖ IoT Device's DNS Name Registration



Location-Aware DNS Name Autoconf

Smart TV's **DNS name** becomes

`smart_tv1.samsung_HG32NA470PFXZA.smart_tv.living_room.home`



Smart TV is known to be located at **Living Room** by **Localization**.

Localization:

$(s \downarrow x, s \downarrow y) = \text{circumcenter}(x \downarrow 1, y \downarrow 1, r_x, r_y, x \downarrow 2, y \downarrow 2, x \downarrow 3, y \downarrow 3);$

$(s \downarrow x, s \downarrow y)$ belongs to **Living Room**.

Security Considerations

- ❖ **DNS Name Collection** is based on **Node Information (NI) Protocol**.
- ❖ **Security issues** are the same as **NI Protocol** in RFC 4620.

Discussion

- ❖ Thanks for your attention.
- ❖ Any Comments or Questions?

