



# Making Sense of the ENERGY STAR SHEMS Program

**For Home Builders**

**December 4, 2019**

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## Welcome! We will begin shortly

- **Login or Audio Troubles**
  - Please type questions in the chat window for help
  - If you cannot hear the audio through the computer, you can listen in by calling:
    - US/Canada Toll Number: +1-415-655-0002
    - Access code: 293 153 002
- **Questions**
  - There will be a Q&A session at the end of the presentation
  - Submit questions to the organizer and panelists via chat to “All Panelists”
- **Presentation Slides & Recording**
  - Presentation slides will be sent to all participants
- **Notes**
  - To improve audio quality, all attendees are muted upon entry



## Introductions



**Abigail Daken**

EPA  
*ENERGY STAR HVAC Product  
Manager*

- ENERGY STAR technical lead for connected product criteria, smart thermostats, and many other product categories. Focus areas include HVAC, water heating and connected.
- SHEMS Co-lead with Taylor Jantz-Sell, who is currently out on maternity leave, returning January 2020.



## Agenda

- Introductions
- Program Overview
  - Why ENERGY STAR?
  - What's an ENERGY STAR SHEMS?
  - Roles in the SHEMS Program
    - Who can be a partner?
    - How might home builders get involved?
  - How might SHEMS be sold and installed?
- Questions and Discussion

Our goal today is to answer questions – please stop us and ask!



## Introductory poll

What is your role in the smart home space?

- New home builder
- Smart home/home automation installer or advisor
- Smart home device manufacturer or system provider.
- Utility or state efficiency program
- Other



## Introductory poll

How much do you know about the ENERGY STAR SHEMS program?

- None or very little
- Saw a presentation or read the specification but I'm having trouble wrapping my head around it
- Have a general understanding of how it works, but have specific questions
- I understand the program well



## Introductory questions

Introduce yourself with **name, organization, and the answer** to one of these questions:

- I want to know \_\_\_\_\_ about the ENERGY STAR SHEMS program.
- Which homebuyers will be interested in SHEMS?
- (Homebuilders) What do you wish you could offer your customers?
- (Device and service manufacturers) What do you wish homebuilders knew about your offering?

## The ENERGY STAR Brand

EPA's ENERGY STAR identifies the most energy-efficient **products, buildings, plants,** and **new homes** – all based on the latest government-backed standards.

Today, every ENERGY STAR label is verified by a rigorous third-party certification process.





# In American Households:

**Brand Preference and Loyalty**



MORE THAN

**90%**

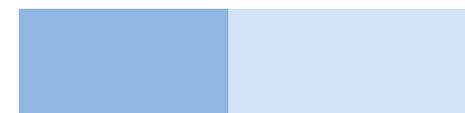
RECOGNIZE THE ENERGY STAR® LABEL



NEARLY

**85%**

UNDERSTAND WHAT IT MEANS



IN THE PAST YEAR,

**45%**

PURCHASED ENERGY STAR-LABELED PRODUCTS

**OF THESE PURCHASERS**

**74%** were influenced by the label in their decision

**80%** are likely to recommend ENERGY STAR to a friend

U.S. EPA  
2017



## Why ENERGY STAR?



- **Consumers and utilities are interested in the smart home**, as shown with smart thermostat adoption
- **ENERGY STAR is a known and trusted label**, backed by impartial, publicly available specifications and test methods, and a powerful branding tool
- Part of the ENERGY STAR brand promise is to **make difficult decisions about energy savings simple**, as with automated SHEMS energy savings
- Offering a **uniform national platform** allows for smoother, more coordinated, deployment of incentive programs
- ENERGY STAR SHEMS can be a win for the companies that offer them, for the consumers that want them, and for the environment



## What's a SHEMS?

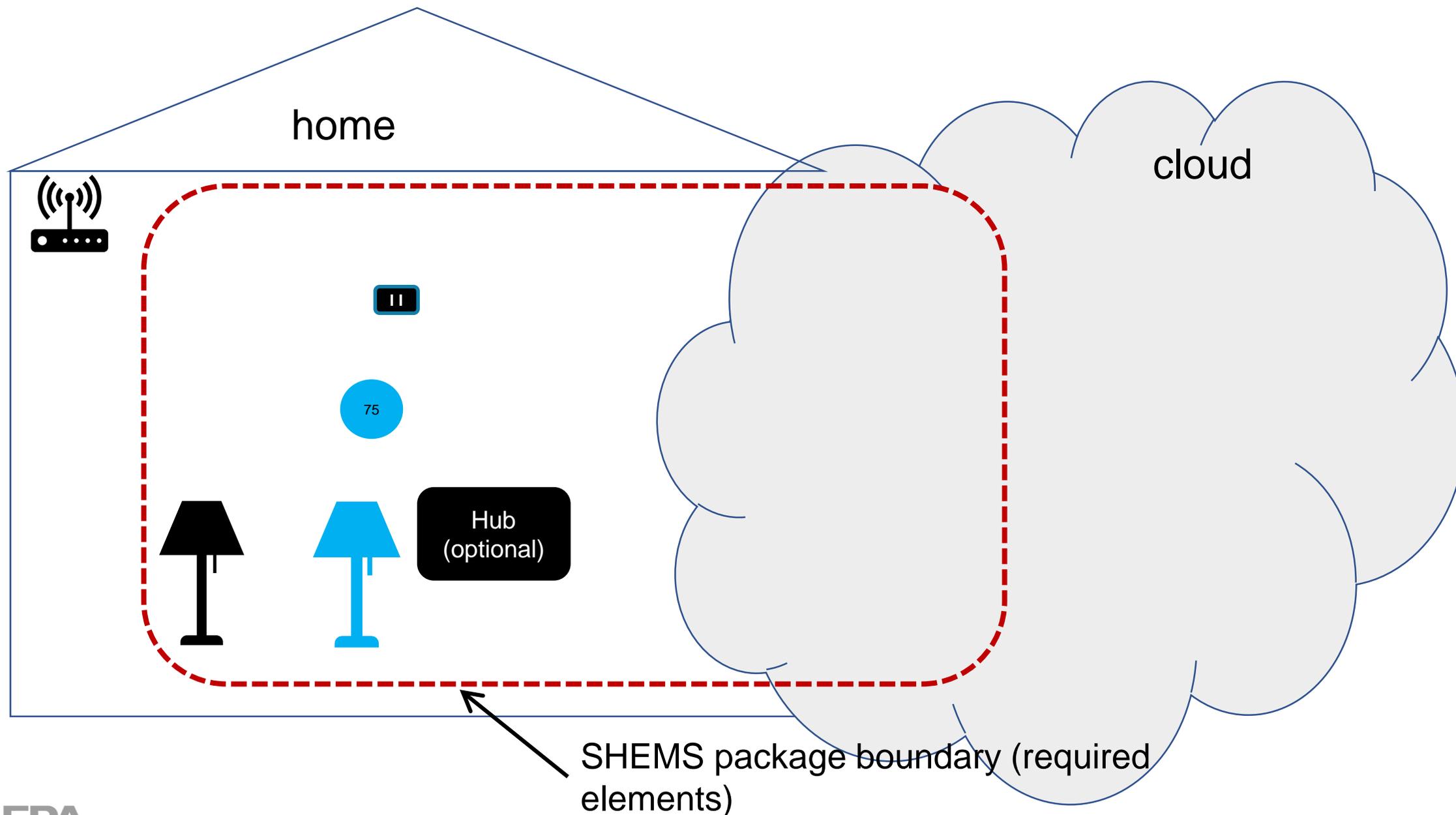
**An ENERGY STAR Smart Home Energy Management System (SHEMS) consists of a smart home service platform and a subset of smart home devices which, when connected:**

- Senses home occupancy
- Controls those devices based on occupancy to save energy (via scheduling and automation)
- Reports device energy use to the user
- Supports optimized device control based on time of use electric rates

**The minimum devices which must be included are:**

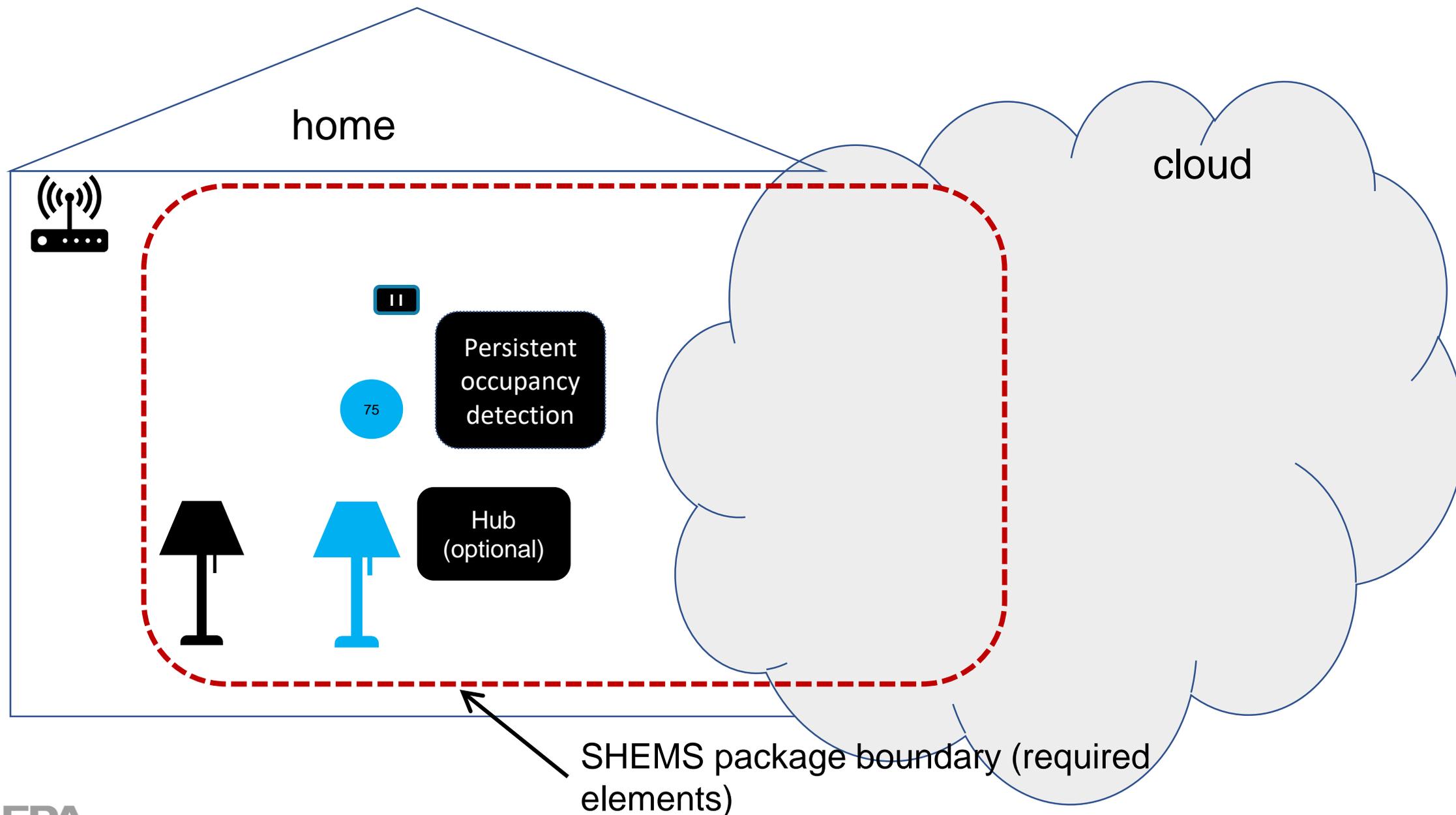
- One ENERGY STAR Connected Thermostat
- Two smart lighting devices (one of which must be an ENERGY STAR bulb or fixture)
- One plug load control or management device (smart plug, smart fuse box, home energy monitor)

# A SHEMS is a Package of Devices and Services



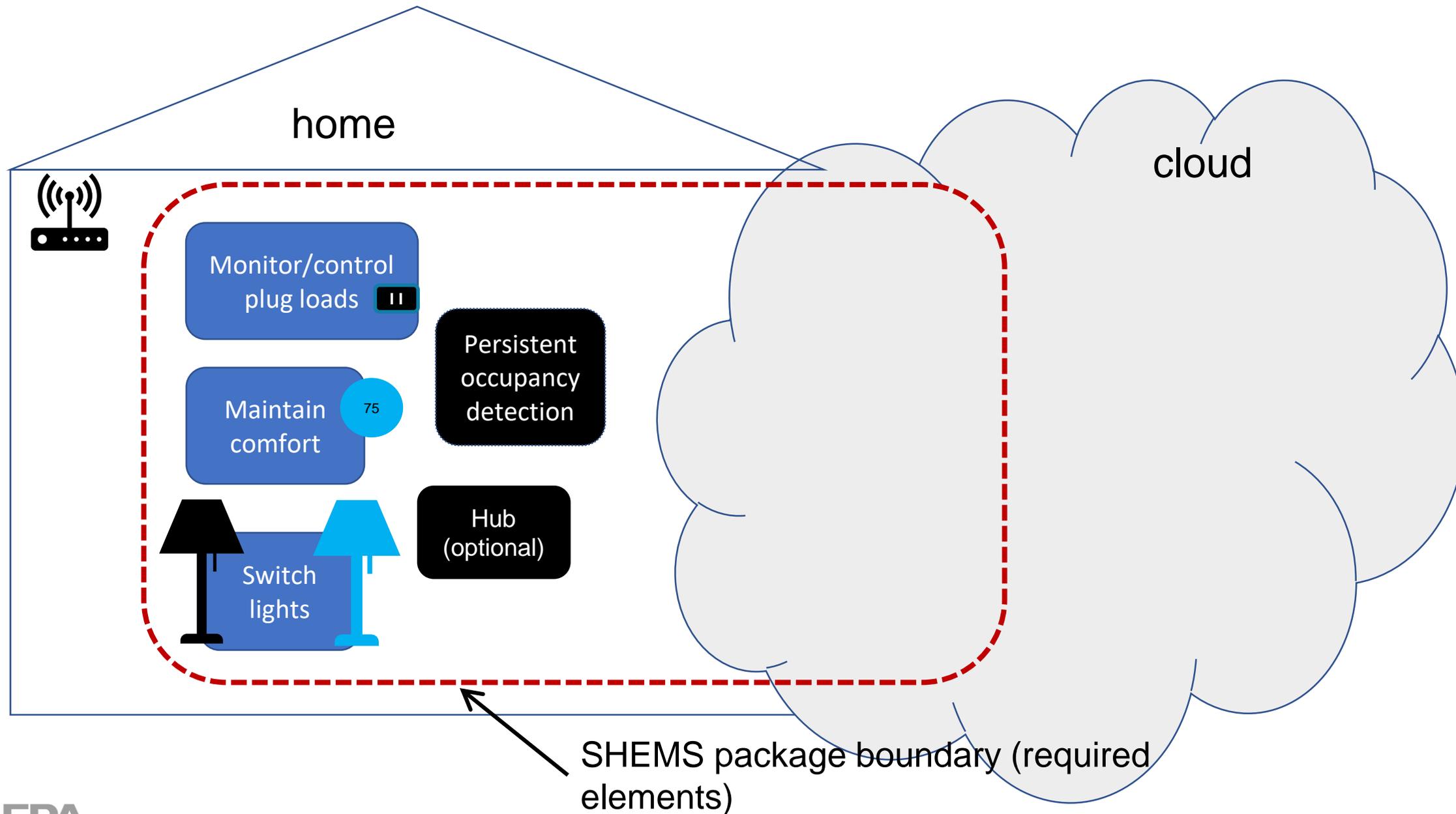
$$\begin{aligned} &\text{Hardware} \\ &+ \\ &\text{Occupancy Info} \\ &+ \\ &\text{Automated Services} \\ &= \\ &\text{Energy Savings} \end{aligned}$$

# A SHEMS is a Package of Devices and Services



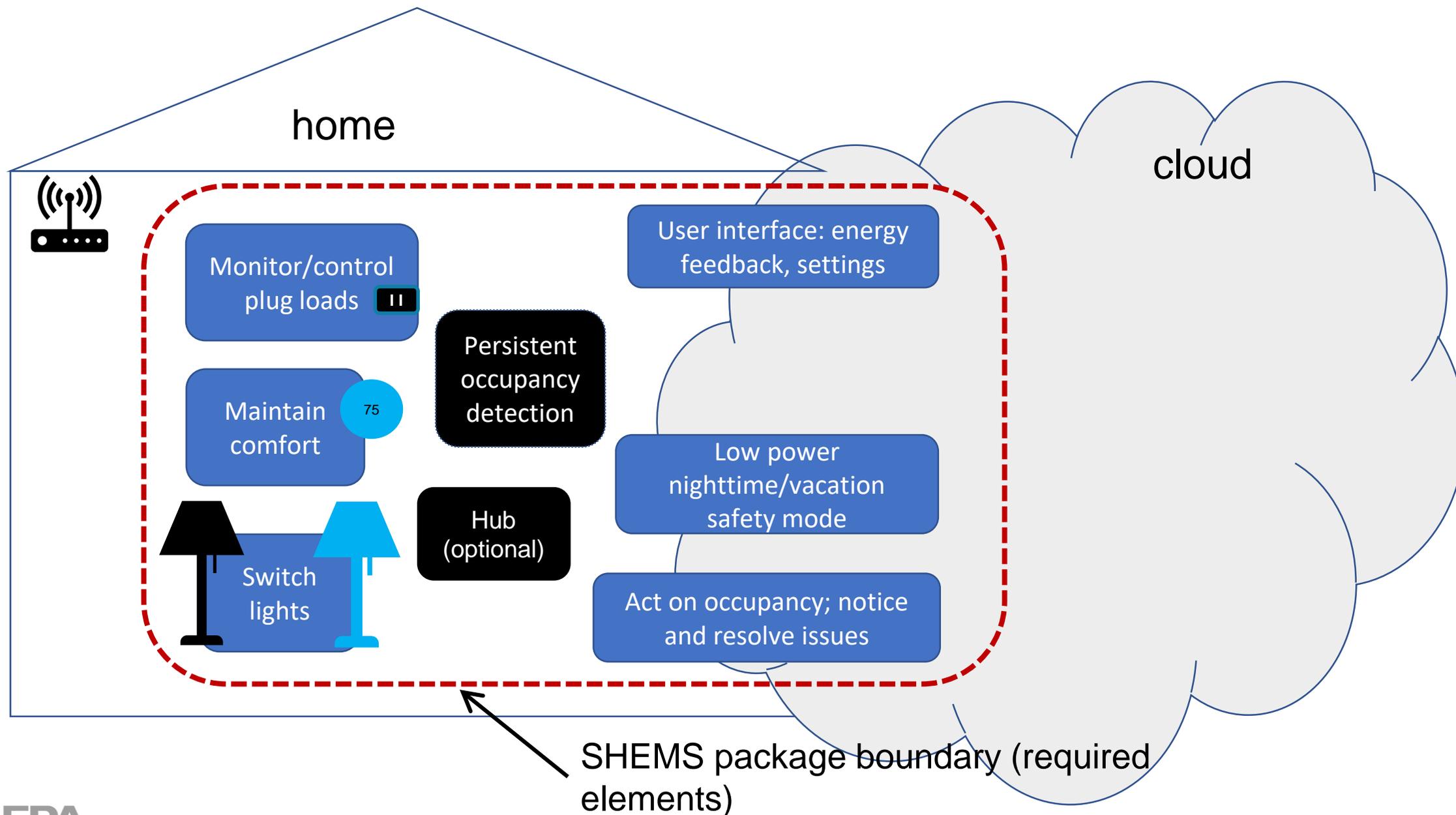
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# A SHERMS is a Package of Devices and Services



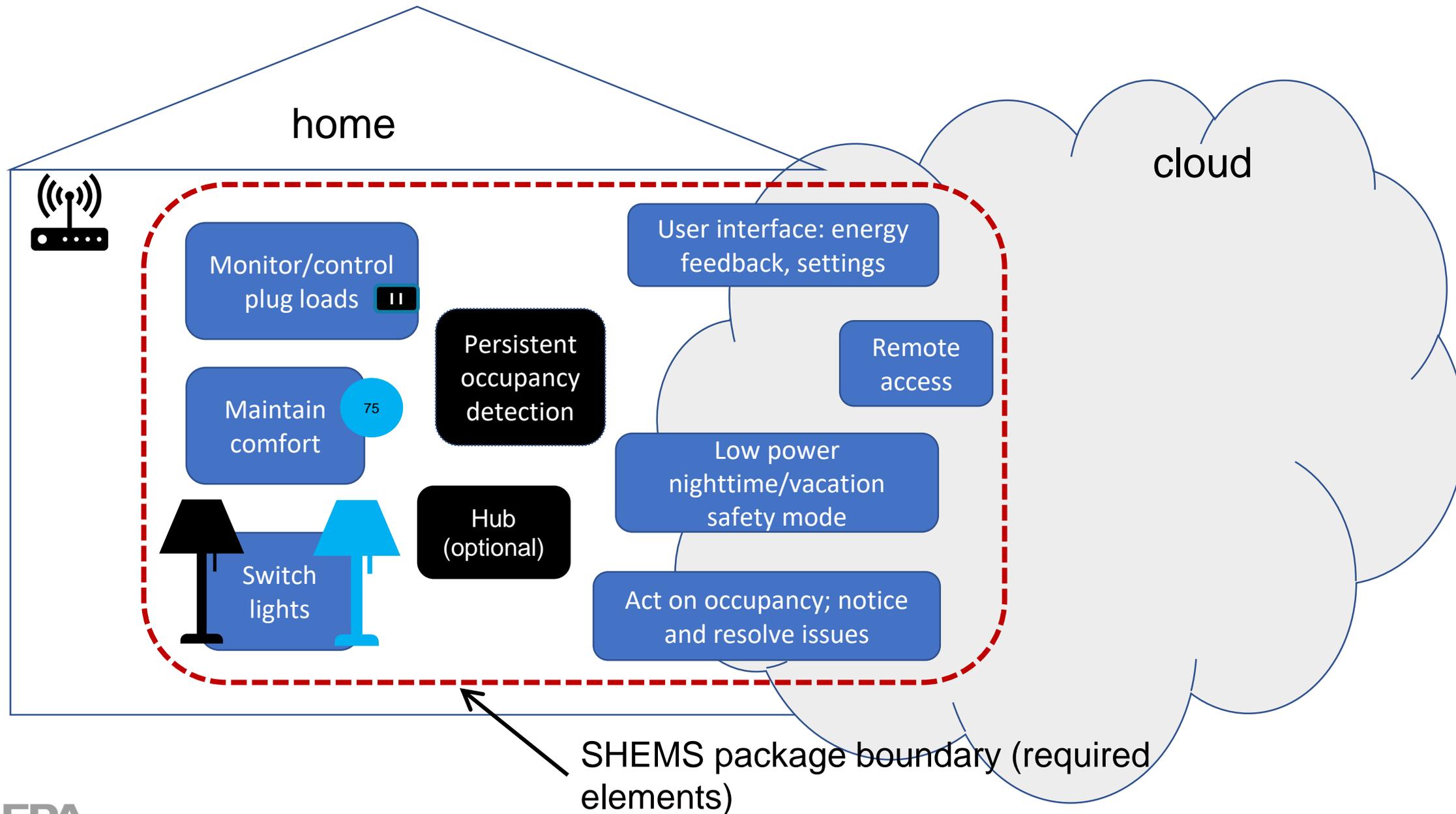
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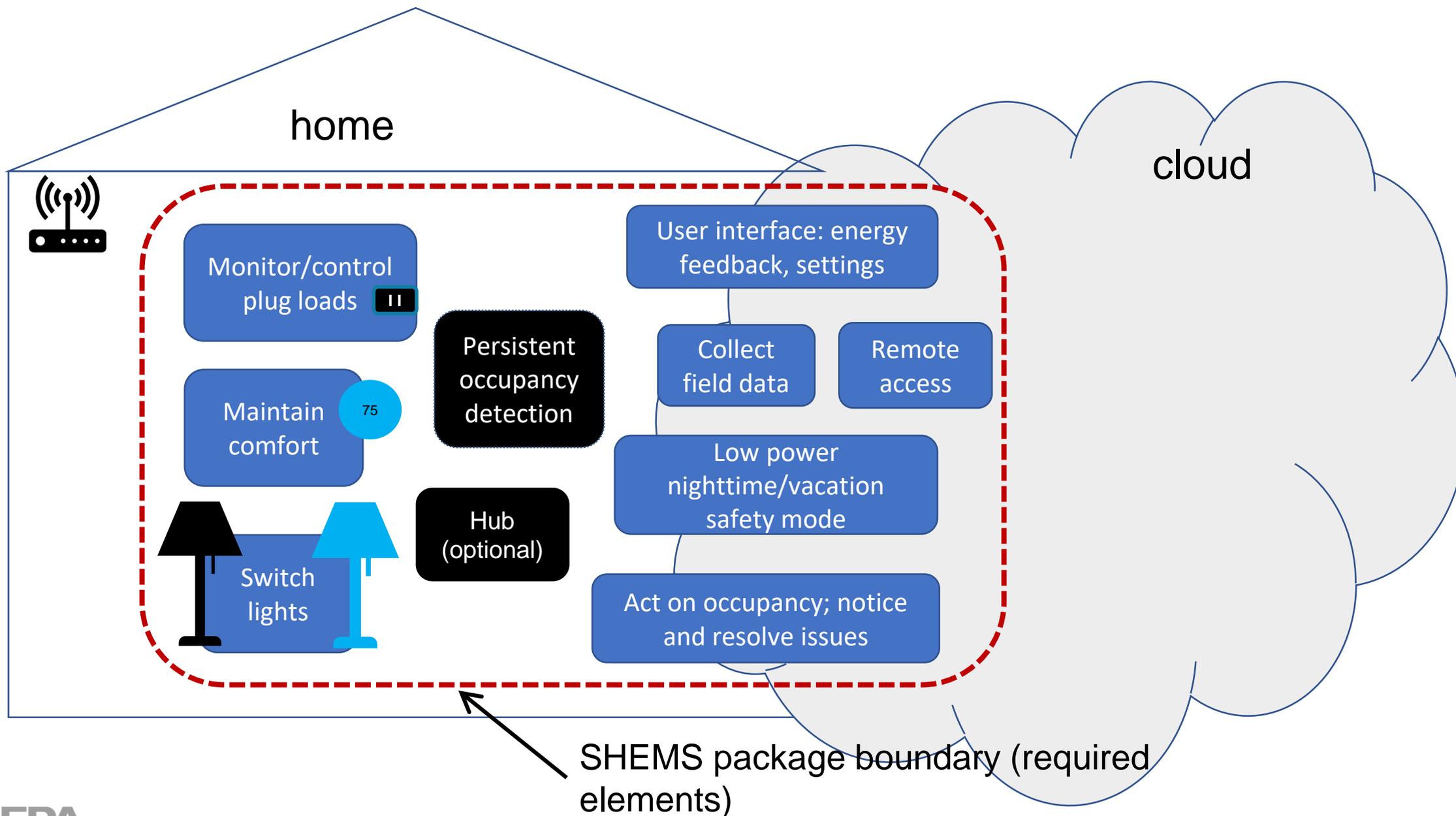
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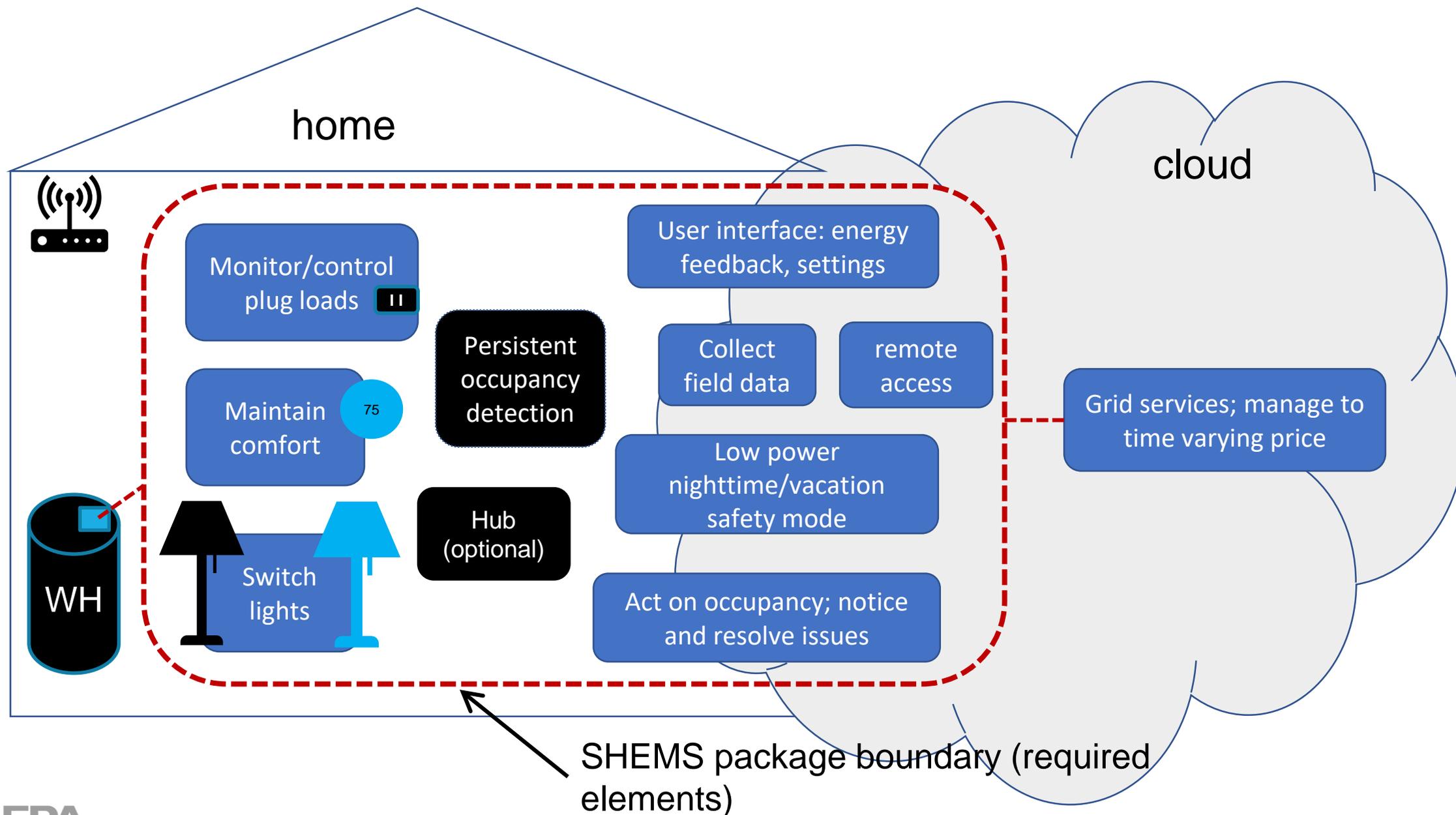
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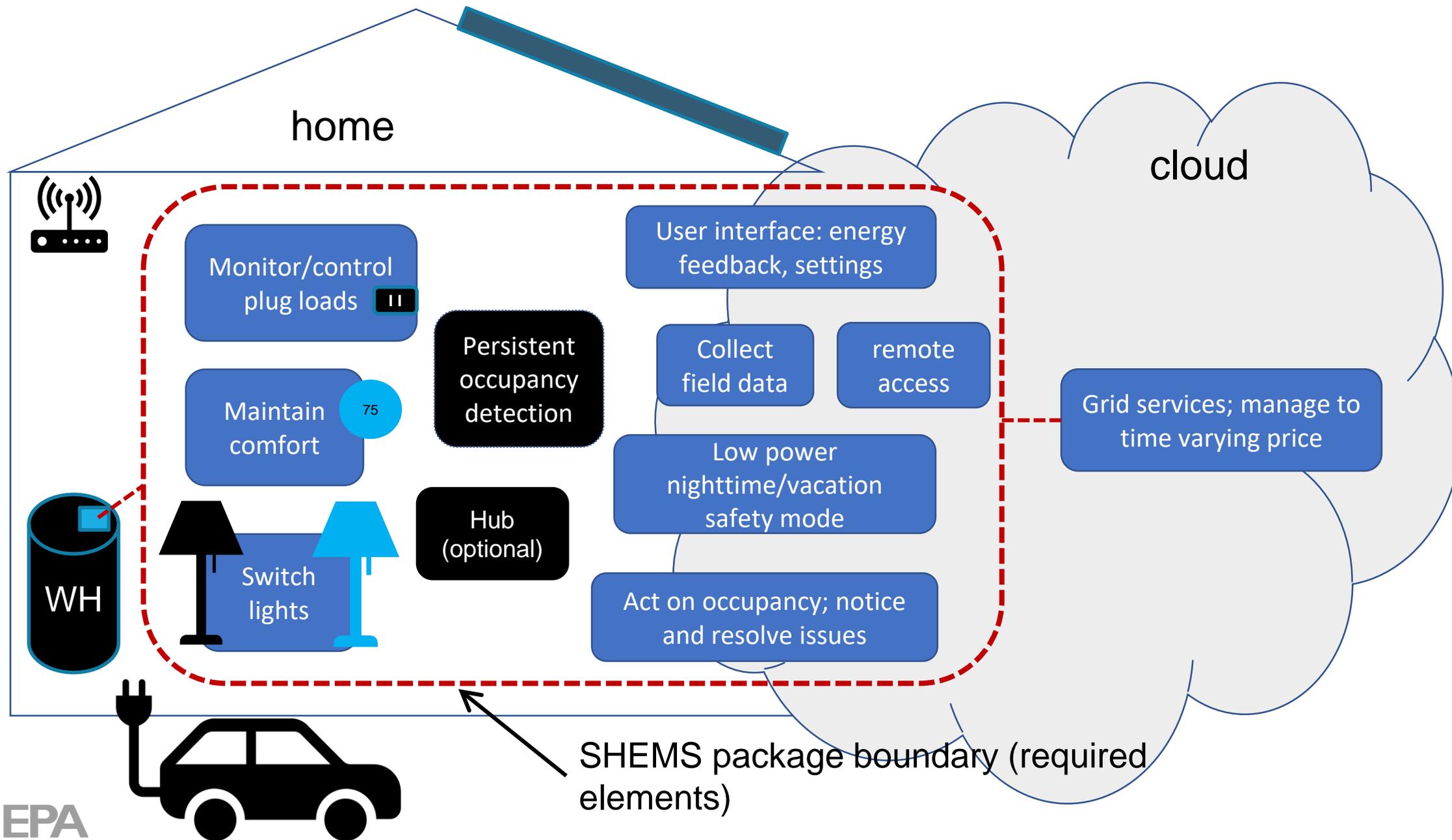
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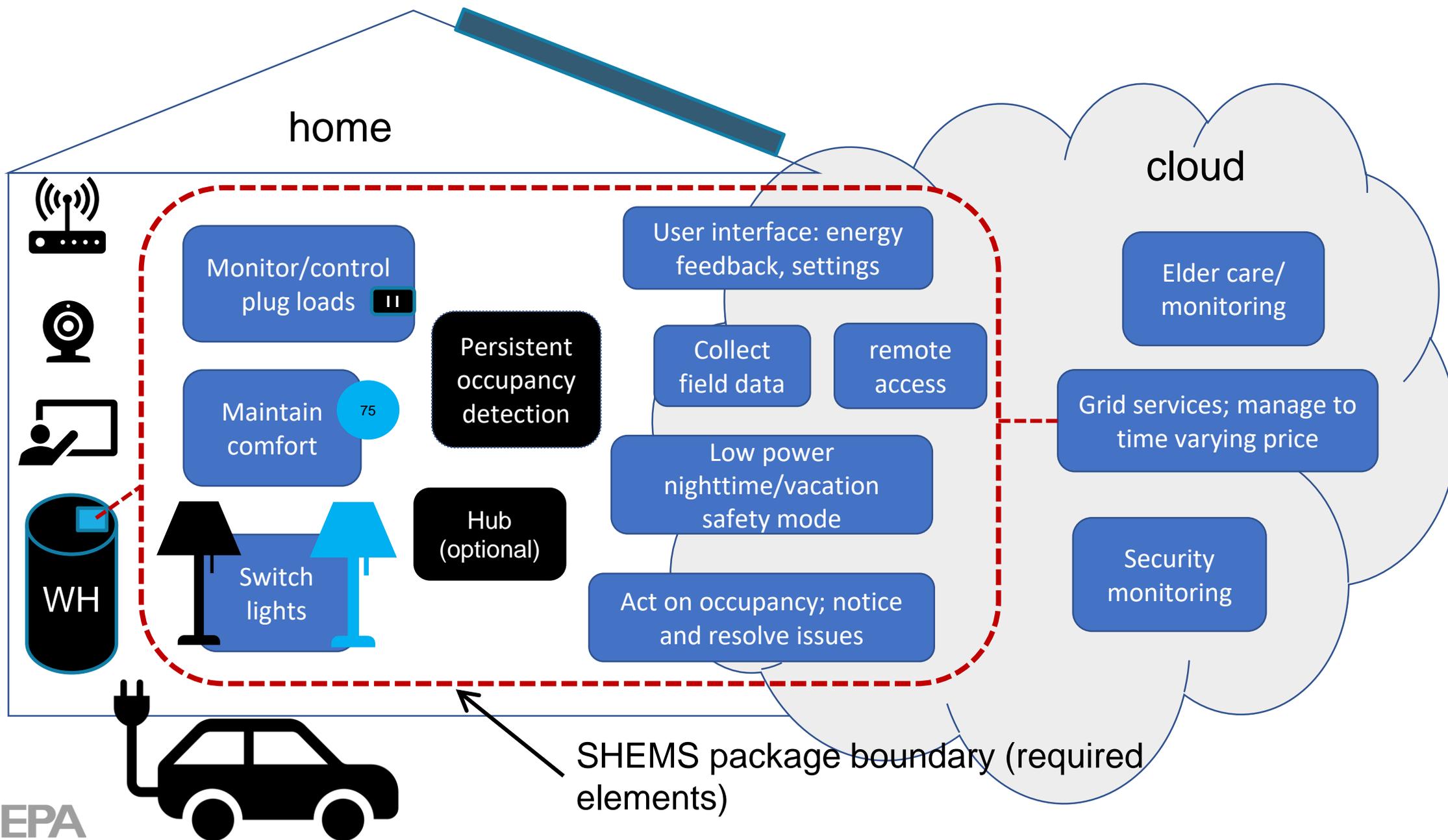
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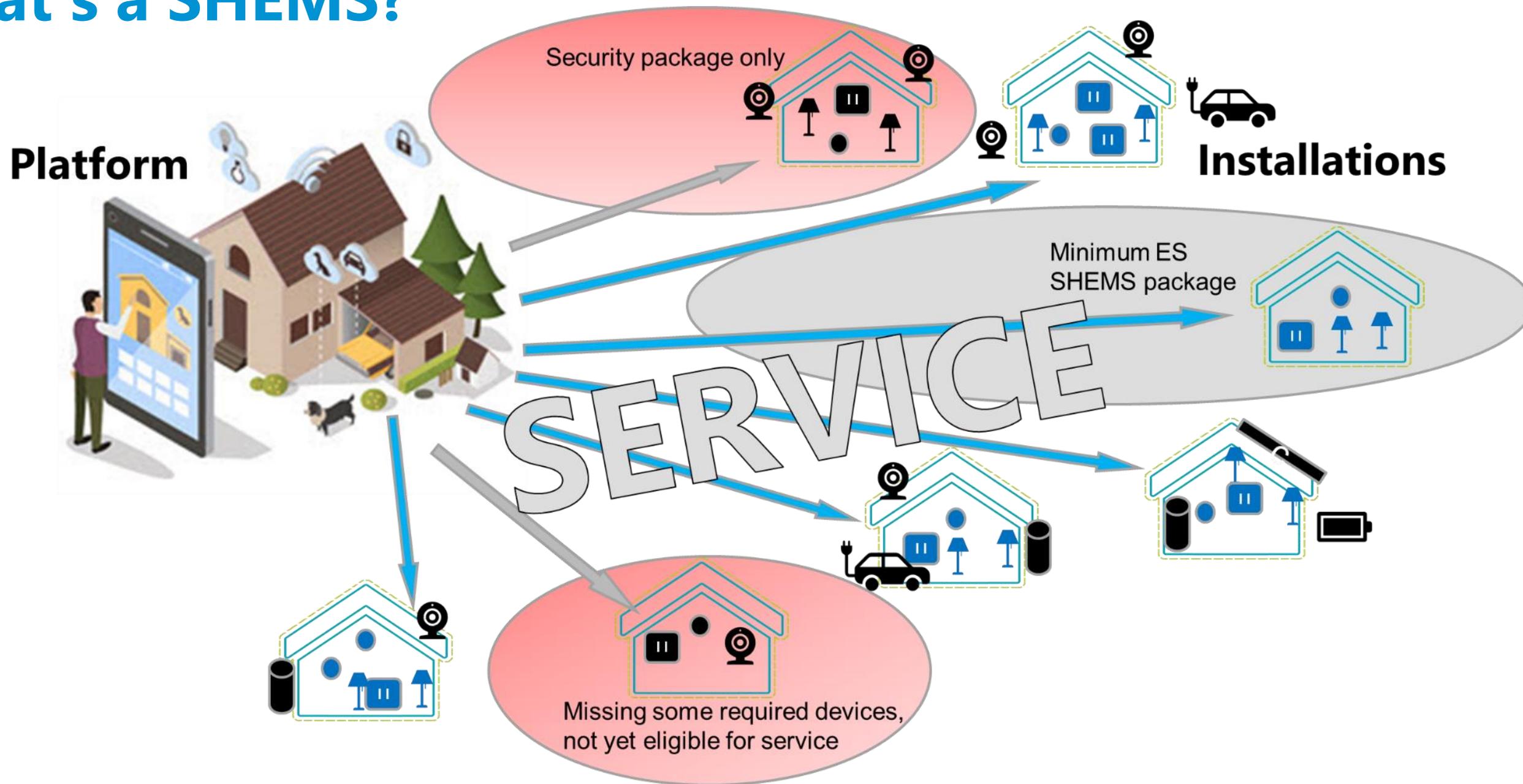
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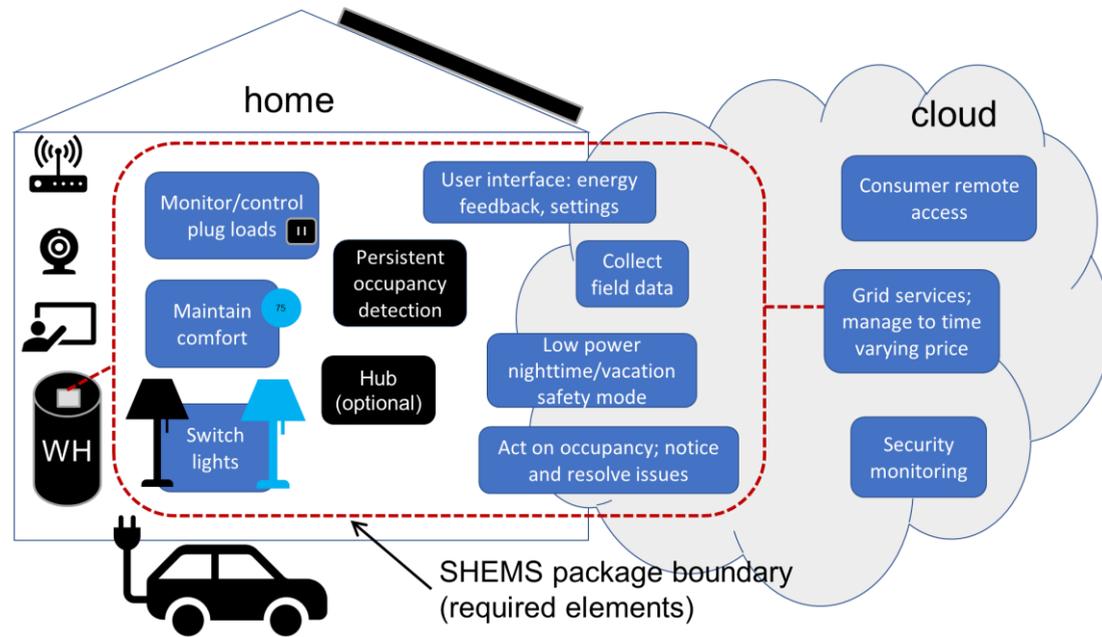
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# What's a SHEMS?





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# SHEMS Package



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**Device Bundle**

**Services**

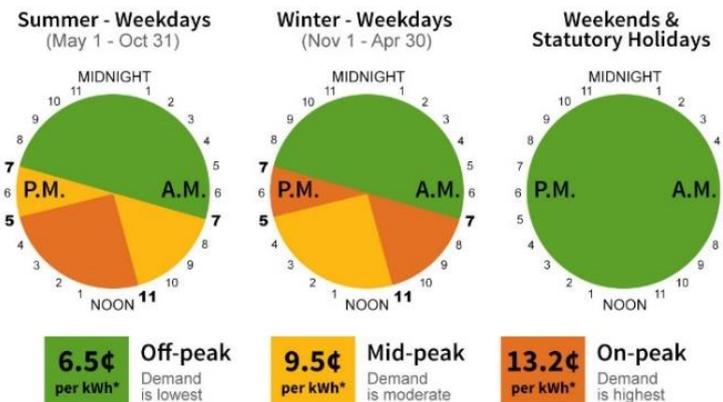
**ENERGY STAR  
Certified Product**

# What is required of an ENERGY STAR SHEMS?

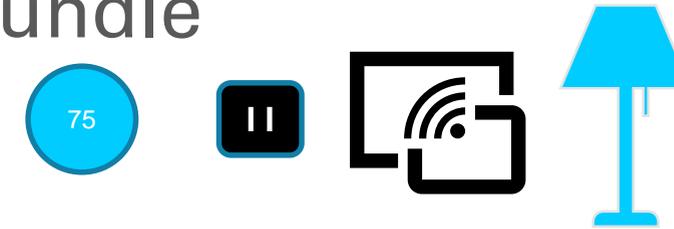
## 4.1 Service Capabilities



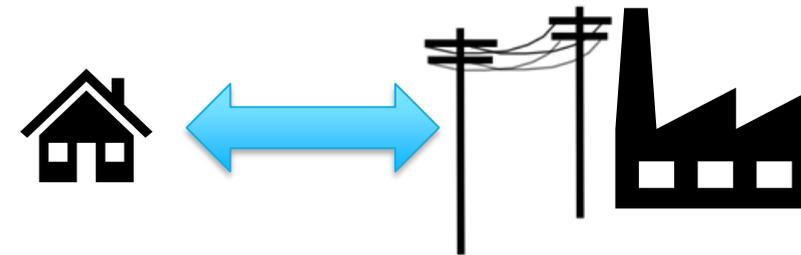
## 4.2 Additional Required Platform Capabilities



## 4.3 Minimum Compatible Device Bundle



## 4.4 Grid Services



## 4.5 Field Data Reporting



## 4.1 Service Capabilities

- Occupancy detection
- Scheduling and automatic device control based on occupancy
- Remote user access



## 4.2 Additional Required Platform Capabilities

- Ability to **connect** to a smart WH or WH controller
  - Connection enables occupancy-based control using occupancy information from the SHERMS
- Ability to optimize system for time of use electricity prices





## 4.3 Minimum Compatible Device Bundle

Device	Examples	Capabilities/Requirements
Connected Thermostat (1)		<ul style="list-style-type: none"> <li>Automated based on occupancy detection</li> </ul>
Connected lighting (2)		<ul style="list-style-type: none"> <li>Report lighting energy/power</li> <li>Automated based on occupancy detection</li> <li>Vacation safety mode</li> </ul>
Connected Plug Load Device		<ul style="list-style-type: none"> <li>Disaggregate whole-home energy usage to individual circuits OR measure and control a single plug/power strip</li> <li>Energy data communicated to central service</li> <li>Plugs/outlets only: automated based on occupancy detection</li> </ul>
Hub (optional)		<ul style="list-style-type: none"> <li>May be necessary to provide connectivity to other devices</li> </ul>

May be compatible with:



Connects to:

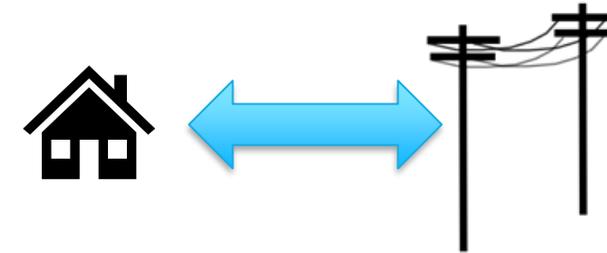


Minimum device bundle:



## 4.4 Grid Services

- Capability to implement a demand response event to at least one device
- User override available; duration 72 hours or less



## 4.5 Field Data Reporting (to EPA)

- Unlike typical ENERGY STAR products, SHERMS save energy by affecting how people use *other* products
- Only statistical data from real users shows effect of complex behavioral interactions with tech, evens out variation
- Partner must submit aggregated statistical data every 6 months, covering a 6-month period, to EPA contractor



## How can home builders participate?

1. Specify an ENERGY STAR SHERMS or offer it as an option
2. Work with utilities running smart home pilots to incorporate ENERGY STAR
3. Express interest in procuring an ENERGY STAR SHERMS with product suppliers



## What are advantages for consumers?

An ENERGY STAR SHERMS:

- Provides likely energy savings along with the features consumers are looking for in smart homes – enhanced convenience, user experience, peace of mind.
- Can act as a single point of control and visibility for many smart home devices.
- Makes it easier for a consumer enrolled in time of use electric rates to control costs on their electric bills

## What companies are likely to be SHERMS service providers?

- Smart home security providers – Alarm.com
- Broadband providers – Xfinity Home
- Smart home solution providers – Vivint, Resideo
- Smart thermostat service providers – Google Nest

## How might SHEMS be sold and installed?

### Option 1: Home builder install

- The home builder manages the procurement and installation of certain devices (e.g. smart fuse box)
- Once the home is occupied, an installation professional may follow up to install additional devices or establish connectivity
- Similar to a professional install in an existing home



Installation contractor is generally **not** the ENERGY STAR Partner

## How might SHEMS be sold and installed?

### Option 2: Package self-install

- Package of devices is offered through a retailer, service provider's online store, or utility's online marketplace
- Homeowner follows instructions to install and connect devices themselves
- SHEMS is complete when homeowner enrolls for service



## How might SHEMS be sold and installed?

### Option 3: Piecewise self-install

- The homeowner purchases different devices at different times, not necessarily from a single marketplace
- The homeowner chooses a service provider (and may need to acquire additional equipment such as a hub) to establish the ENERGY STAR SHEMS service





## EPA Matchmaking Service

- EPA expects that most services providers will need to develop additional capabilities in order to certify their SHEMS
  - Certified SHEMS packages will likely start appearing in Q2 2020
- To facilitate getting the program off the ground, EPA will be hosting a matchmaking service to share contact information between mutually interested parties looking to establish business partnerships
  - Follow this link to participate in the service:  
<https://forms.gle/jW7vnVz8QvWMNXoi6>  
(will be posted after the presentation is over)



## Contact Information

Specification Questions:

[SmartHomeSystems@energystar.gov](mailto:SmartHomeSystems@energystar.gov)

Homes Questions:

[energystarhomes@energystar.gov](mailto:energystarhomes@energystar.gov)

Abigail Daken, U.S. EPA

[Daken.Abigail@epa.gov](mailto:Daken.Abigail@epa.gov)

Taylor Jantz-Sell, U.S. EPA (starting in January)

[Jantz-Sell.Taylor@epa.gov](mailto:Jantz-Sell.Taylor@epa.gov)



## Next Steps

View recordings and [slides](#) from past webinars:

- **October 16, 2019:** [Making Sense of SHERMS for Service Providers and Device Manufacturers](#)
- **October 30, 2019:** [Making Sense of SHERMS for Retailers](#)
- **November 13, 2019:** [Working Toward Smart Efficiency: an Overview of the SHERMS Specification for Energy Efficiency Program Sponsors](#)

Sign up for the matchmaking service: <https://forms.gle/jW7vnVz8QvWMNXoi6>



# Questions and Discussion