



# IP Addressing Research

2011.2.21

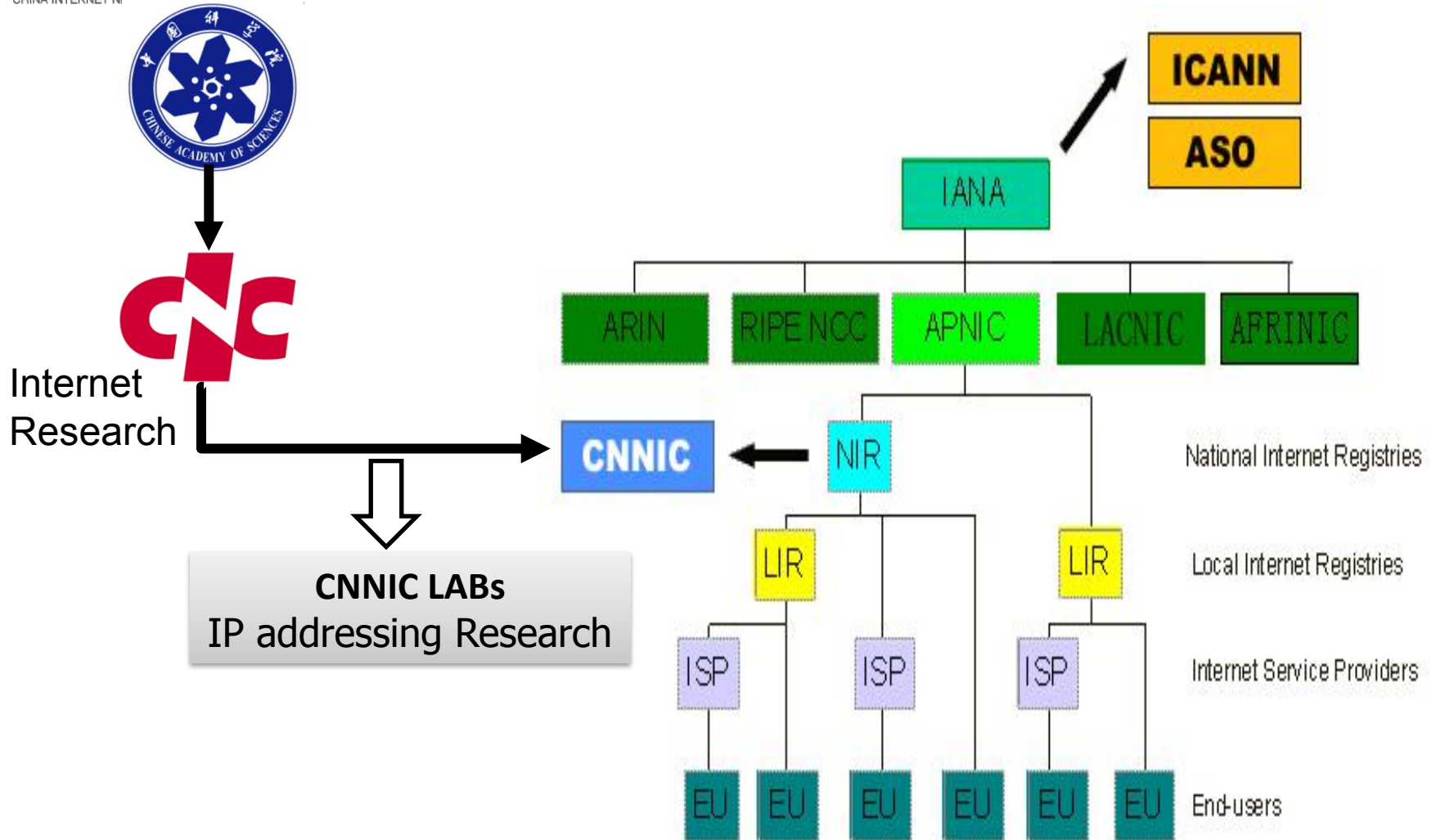
**CN****IC**  
中国互联网络信息中心  
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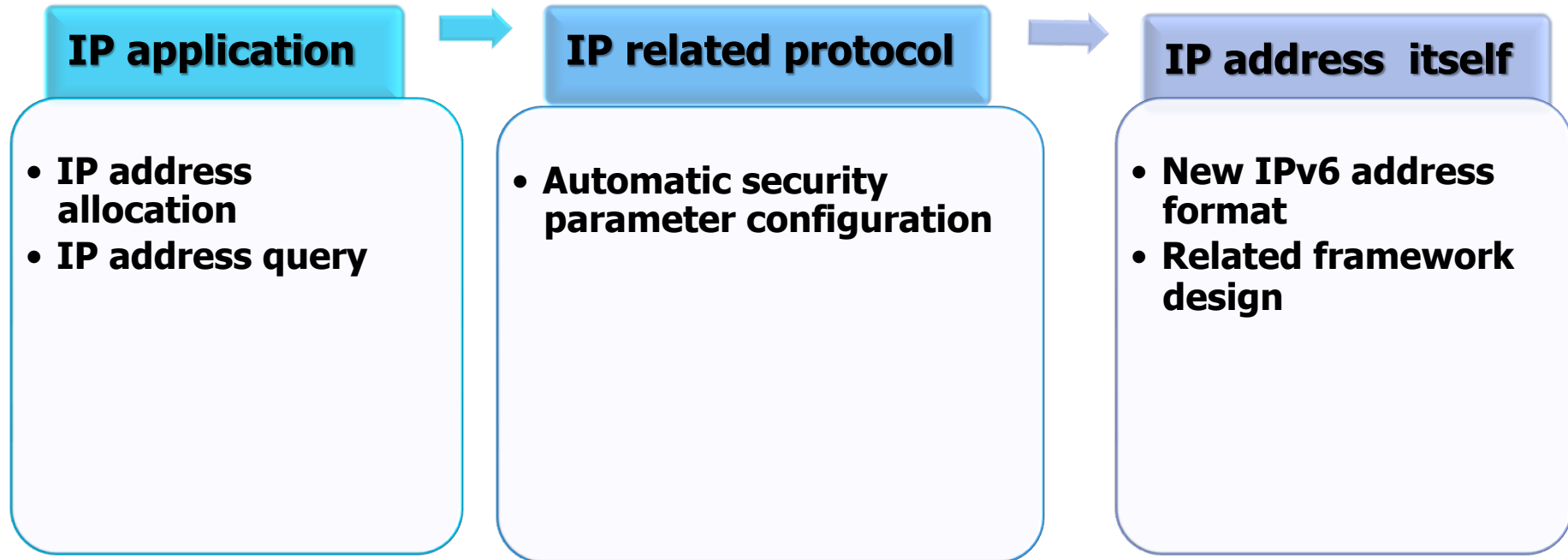
**Overview**

**IP addressing research activities at CNNIC**

**Future Work**



# IP Addressing Research Work



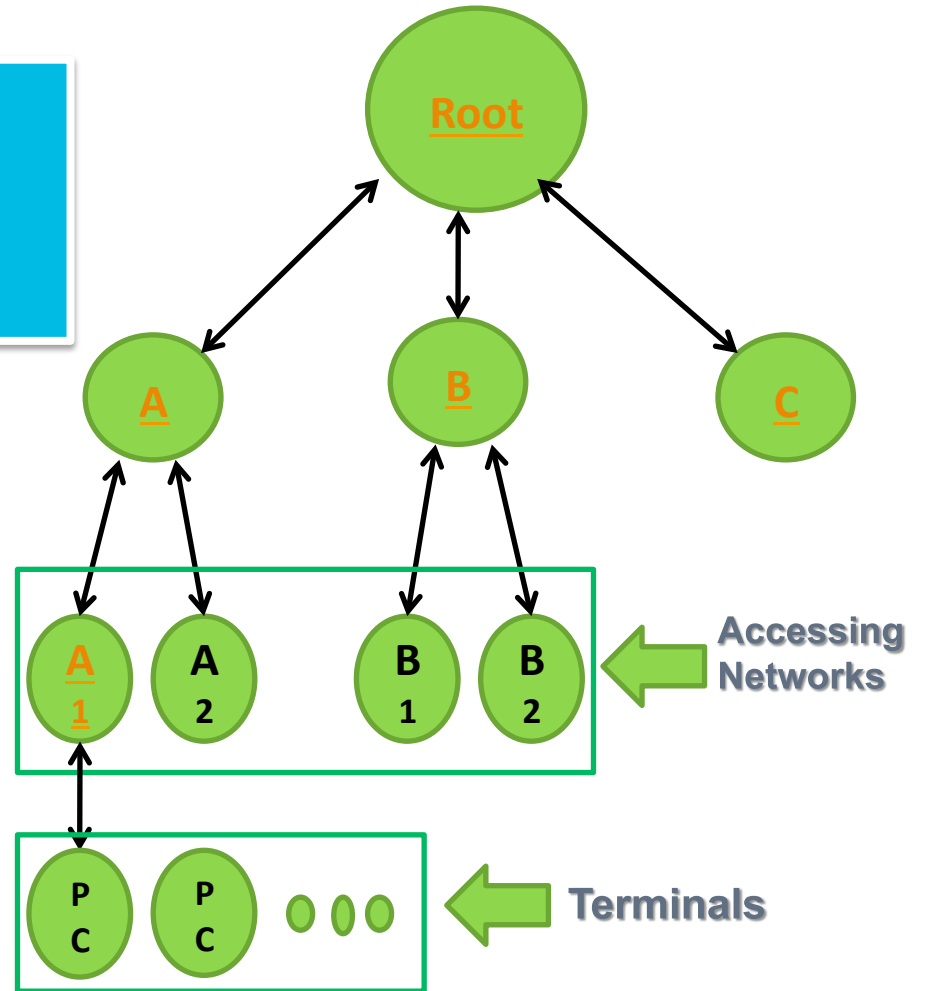


**Overview**

**IP addressing research activities at CNNIC**

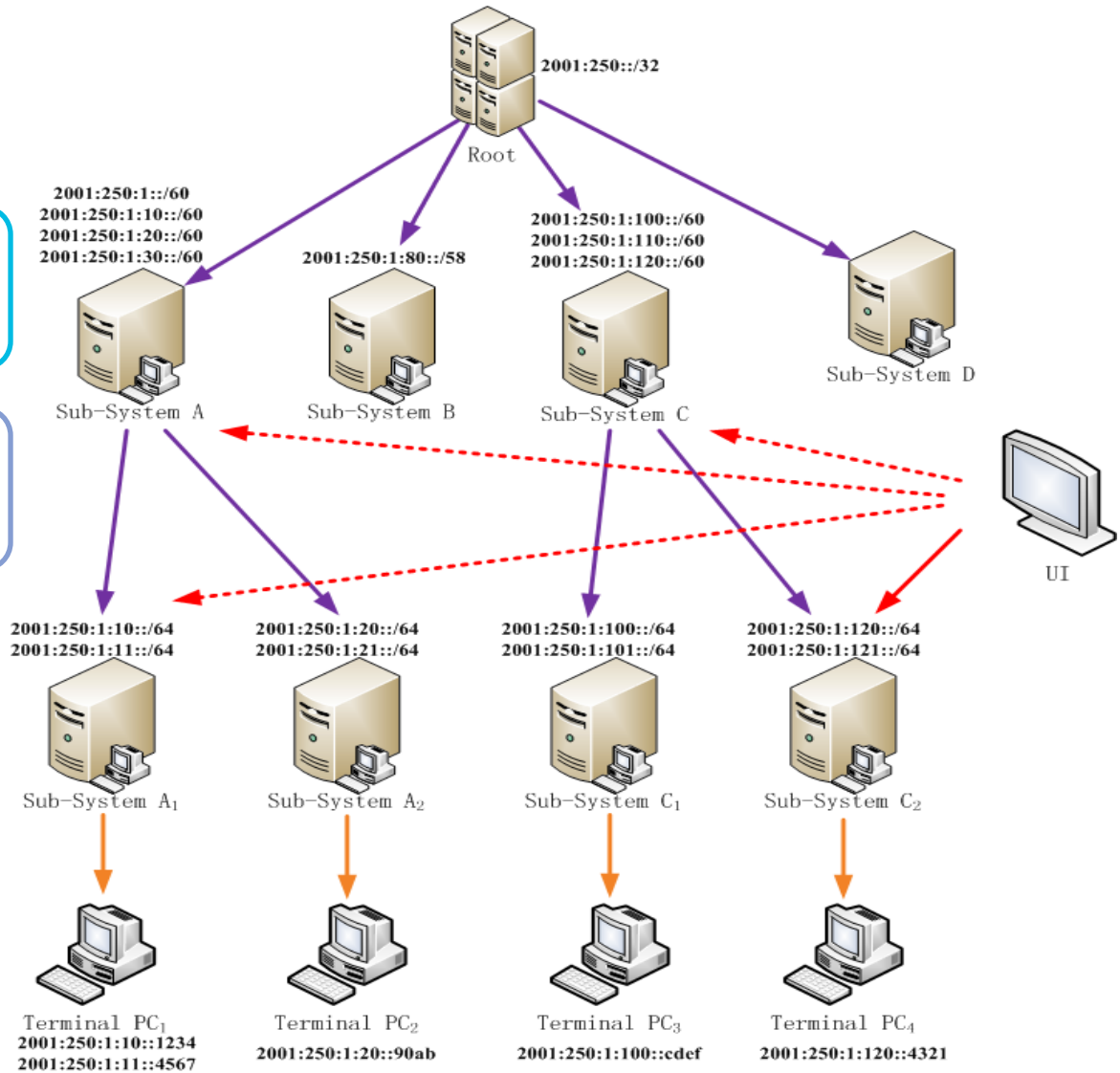
**Future Work**

- 1. Automatic IP address Allocation
- 2. Recursive IP address information query
- 3. IP address renumbering



# IP Address Information Query

- 1 • Allocation history query
- 2 • IP using history query using specific time



## **IPSec is widely used to build secure channels**

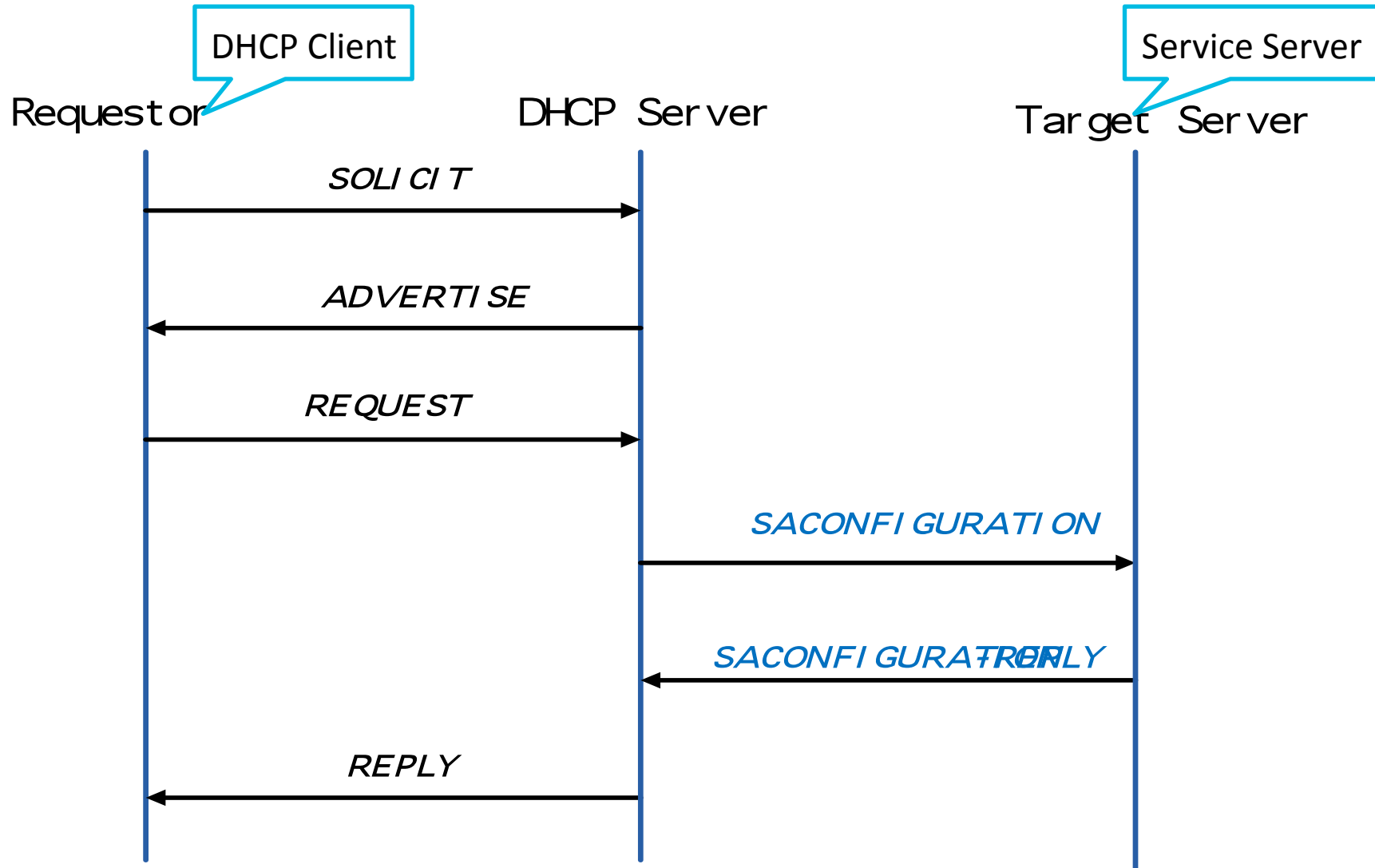
- DNS recursive name server
- SIP server

## **SA parameters need to be configured**

- Separated from IP address configuration process
- DHCPv6 is to piggyback the parameters needed for IPSec



# Operation Process



## Motivations

- IP address abusive activities is severe(spam, IP spoofing)
- IPv6 is a big challenge for the IP management work
- Wide variety of things will be connected to the internet at the age of internet of things

## Our work

- propose an accountable type of IPv6 address
- Easy for roaming devices to access network managed by different ISPs
- Supporting different security demands for different services

## □ IPv6 Address Format(NP+EI)



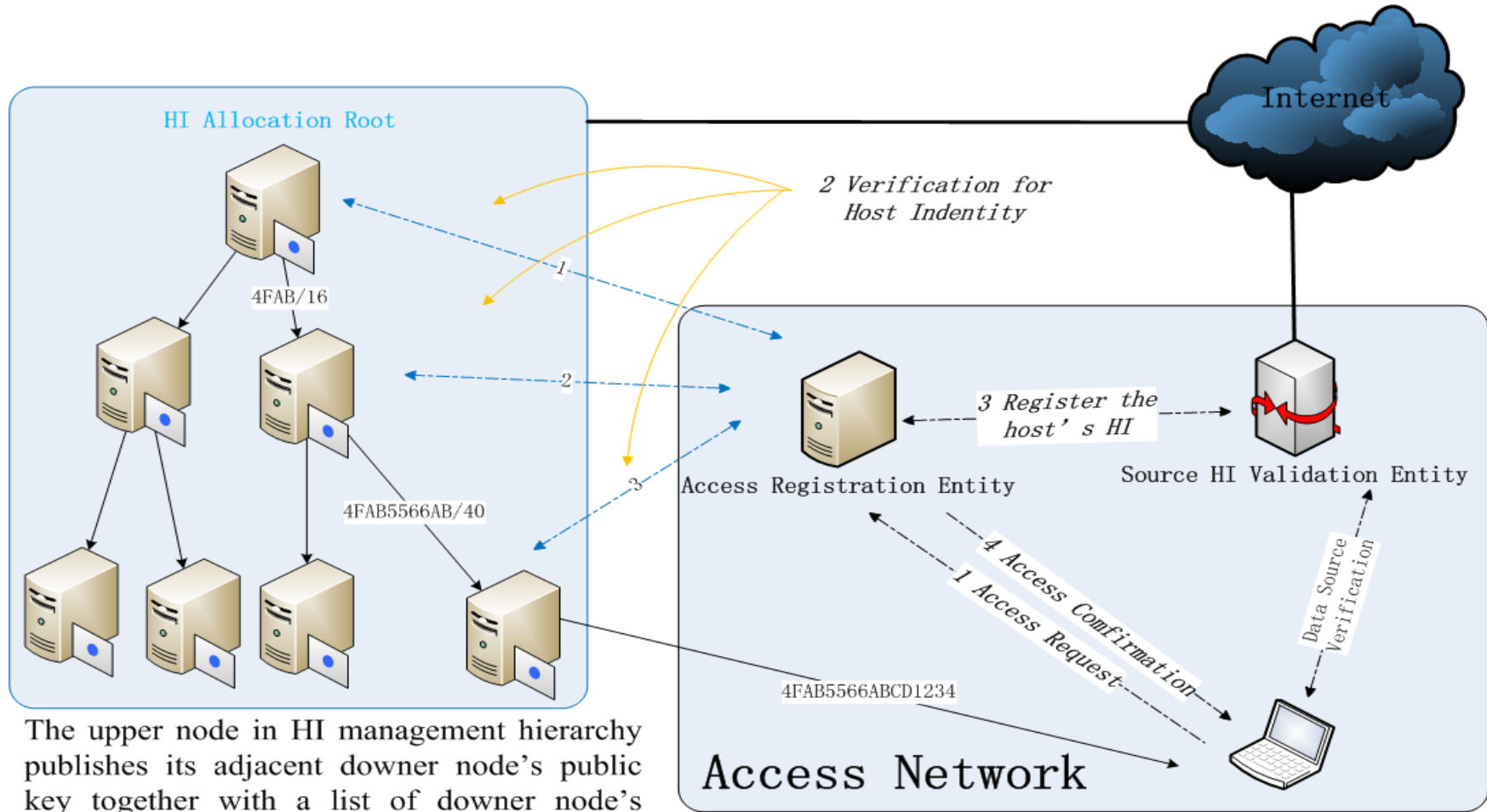
## □ EI Attributes

- ◆ Unique
- ◆ Position independent

## □ Indicator

- ◆ 0xFFFE(compatible with IEEE-EUI-64)
- ◆ Host
- ◆ Things
- ◆ Other

# Source IP Address Accountability



The upper node in HI management hierarchy publishes its adjacent downer node's public key together with a list of downer node's current holdings of HI resources in a resource certificate and attests that the public key in the certificate belongs to the downer node

**HI goes with the host everywhere!**



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## **Future improve our work**

- **Detailed protocol and framework design**

## **Put our research results into practice**

- **Promote our research results among IP alliance members**
- **Build IPv6 tested for Internet of things**

## **Expand Cooperation**

- **ISPs**
- **Device providers**
- **Academic institutions**

# Thank you!

The logo for CNNIC, consisting of the letters 'CNNIC' in a bold, blue, sans-serif font. The 'C's are stylized with a slight gap between them.

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CHINA INTERNET NETWORK INFORMATION CENTER

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