

IPv6 vs EPC

DANIEL W. ENGELS, PH.D.
ASSOCIATE DIRECTOR
AUTO-ID CENTER

Confidential - for Auto-ID Center Sponsors only



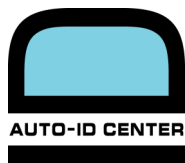
OVERVIEW

- Problem
- IPv6 addresses
- EPC identifiers
- Conclusions



WHY A NEW NUMBERING SCHEME?

- Can we use IPv6 addresses to replace EPCs?
- Numbering schemes must be amenable to
 - ...allocation
 - ...application



IPv6 ADDRESS

Network **Subnetwork** **Host**

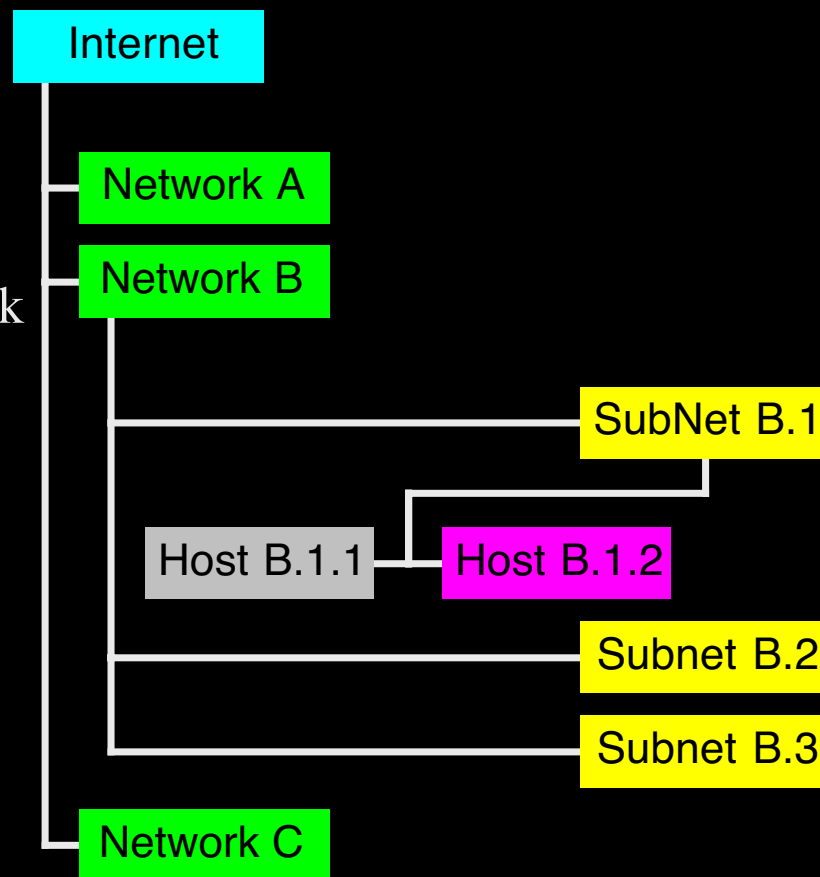
IPv6 Address: **B.1.2**

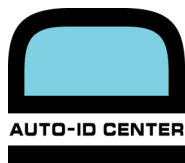
Allocation: Network Managers

- Assign only when host enters network

Application: Routing Address

- Must reflect current address





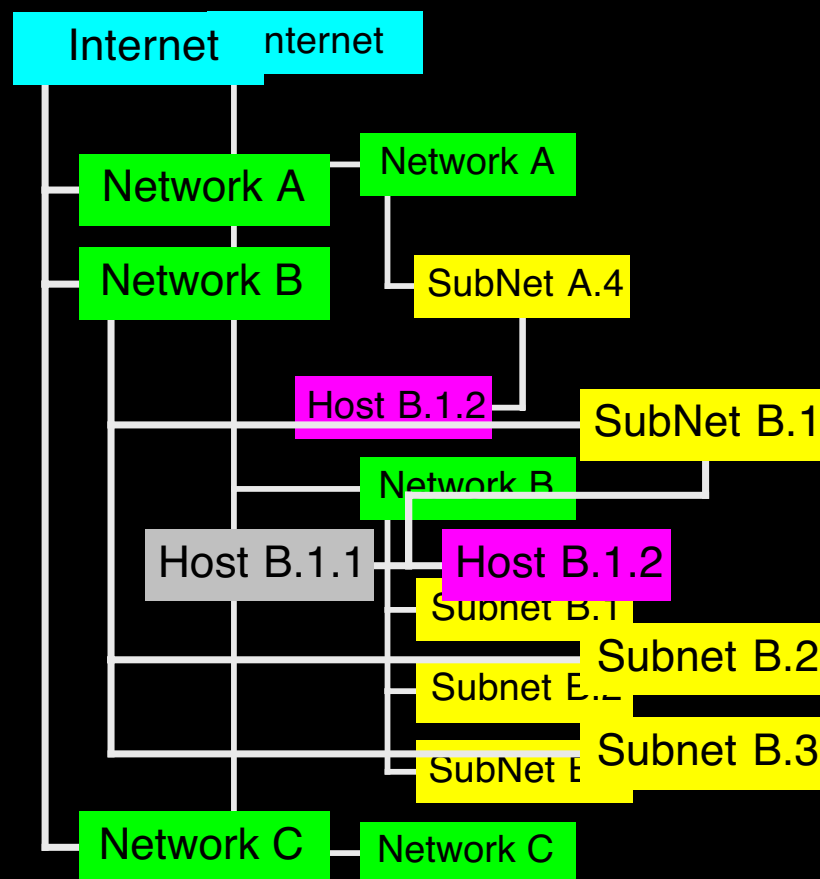
IPv6 ADDRESS

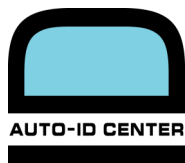
Network Subnetwork Host

IPv6 Address: B.1.2

Difficulty: Mobile Hosts

- Must change IP address





EPC IDENTIFIER

H Manufacturer Product Serial Number

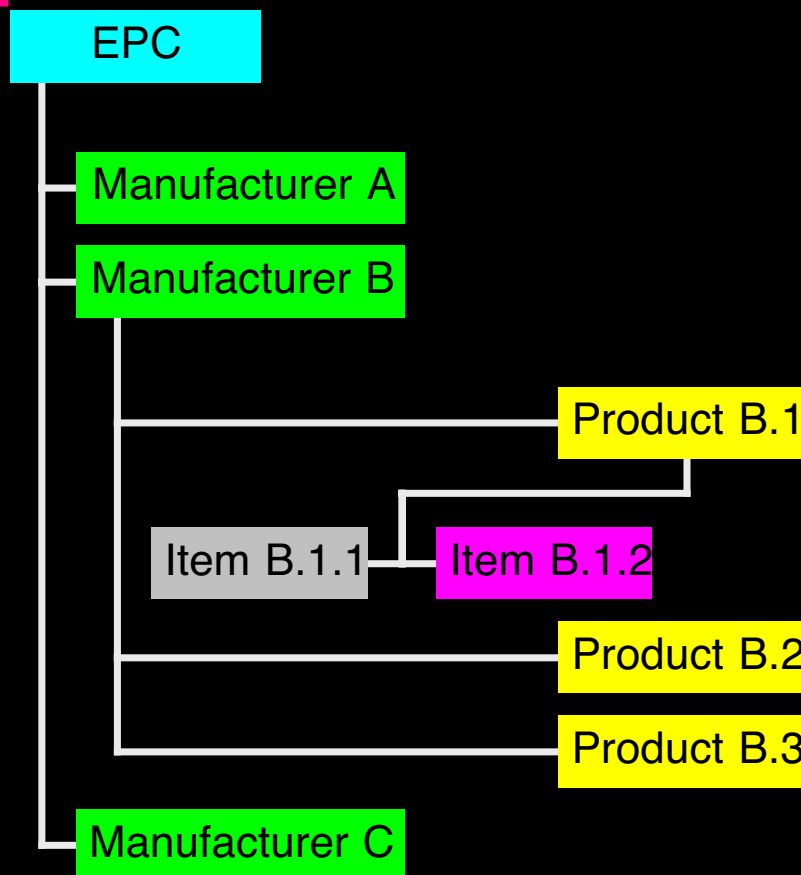
EPC Identifier: B.1.2

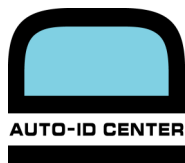
Allocation: Product Manufacturer

- Assign when manufactured

Application: Information Pointer

- Can never be changed





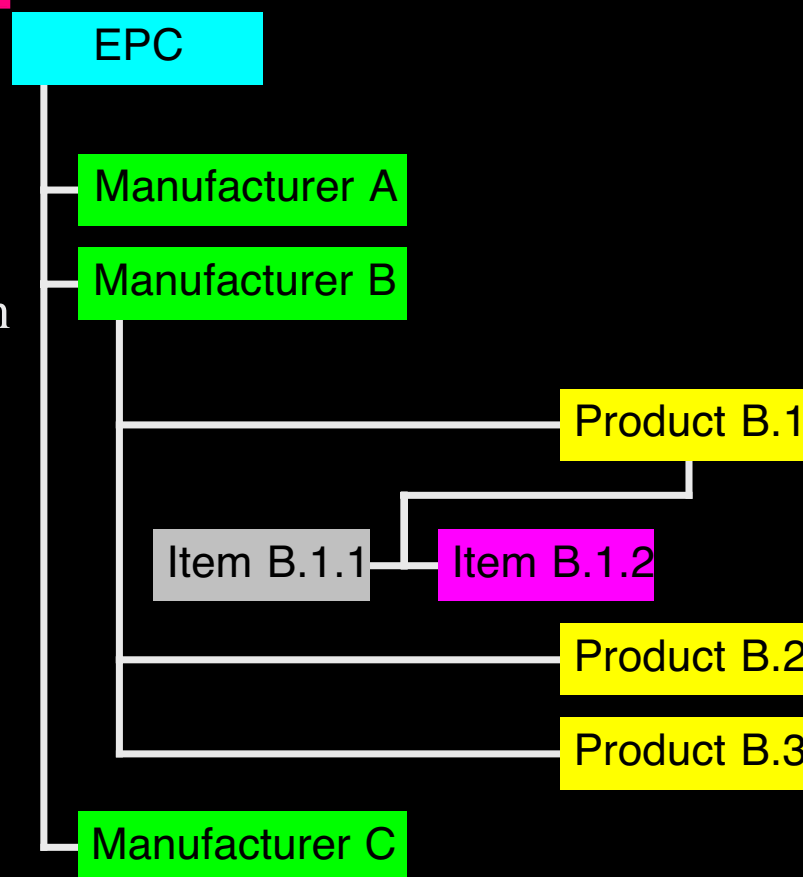
EPC IDENTIFIER

H Manufacturer Product Serial Number

EPC Identifier: B.1.2

Difficulty: Location

- EPC contains no location information





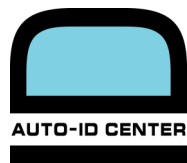
IPv6 VS EPC

IPv6 Address

- Unique network address
- Provides address to network interface
- Network Manager allocates addresses
- Logically stationary objects
- An object's IP address may change

EPC Identifier

- Unique item identifier
- Provides pointer(s) to item information
- Item Manufacturer allocates identifiers
- Logically and physically mobile objects
- An objects EPC may not change



CONCLUSIONS

- IPv6 addresses cannot be used as both unique item identifiers and routing addresses
- EPCs cannot be used as both routing addresses and unique item identifiers
- Need both EPC and IP address for item level identification and communication