EAP Authentication Extensions for the Dynamic Host Configuration Protocol for Broadband

draft-pruss-dhcp-auth-dsl-06

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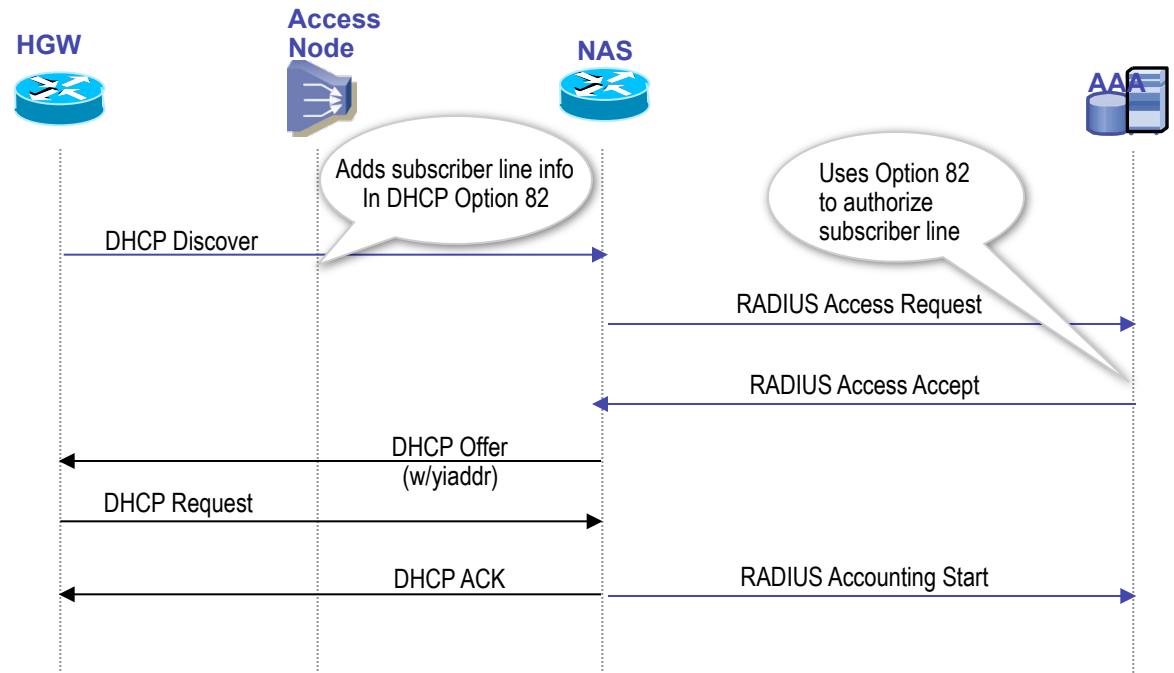
Quick reminder of "DHCP Proxy" to AAA*

Host configuration provided by centralized AAA systems

RADIUS subscriber attributes are mapped to DHCP Options

Driven by the need to protect massive investments in custom AAA systems and back-end infrastructure

* This function is available from a number of NAS vendors today

HGW **Access Node** **NAS** **AAA**

Adds subscriber line info In DHCP Option 82

Uses Option 82 to authorize subscriber line

DHCP Discover

RADIUS Access Request

RADIUS Access Accept

DHCP Offer (w/yiaddr)
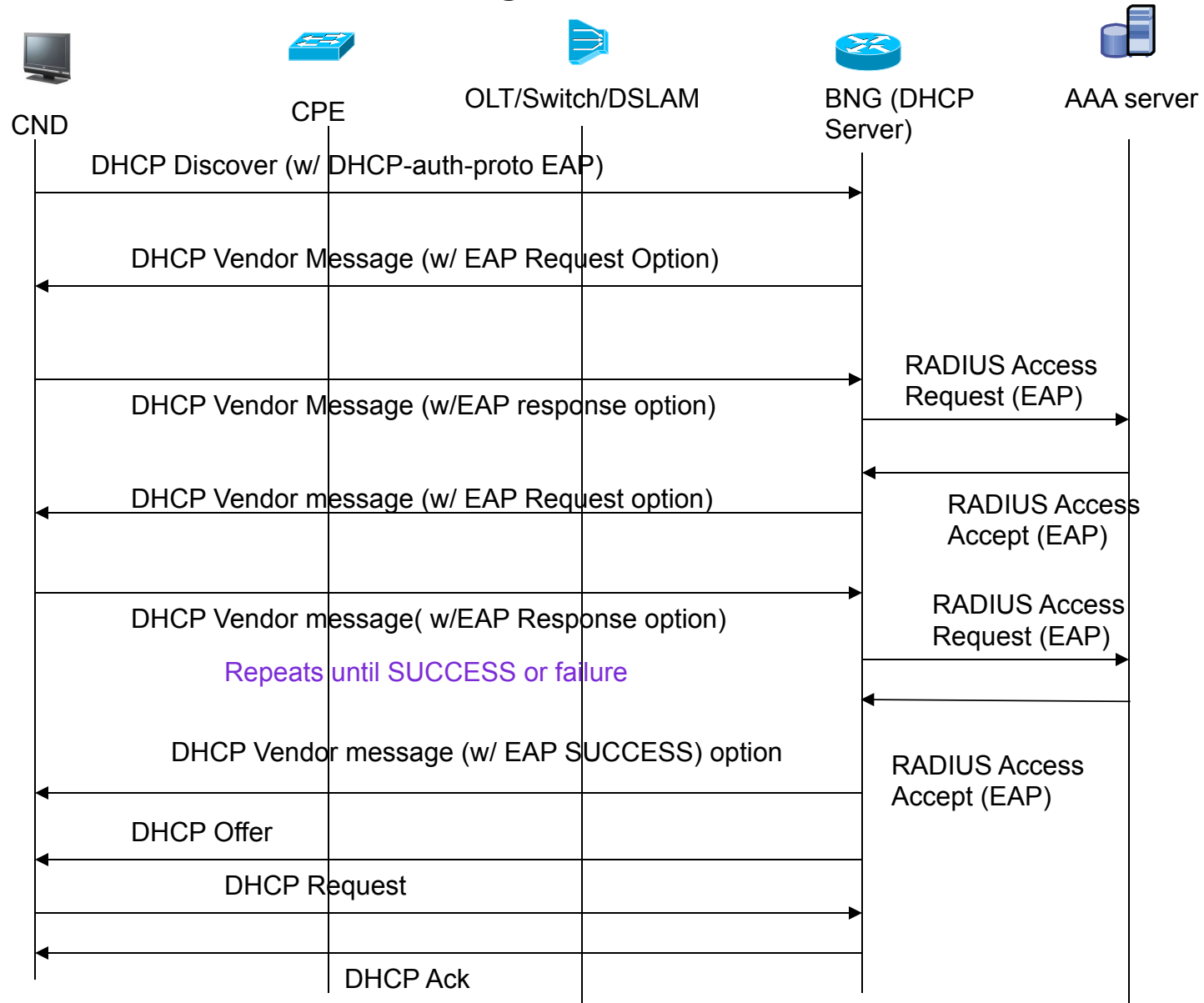
DHCP Request

DHCP ACK

RADIUS Accounting Start

Relying on option 82 marking may not be sufficient in some cases:

- Migration existing Username/Password systems
- End user controlled retail ISP selection (@domain)
- Subscriber nomadicity
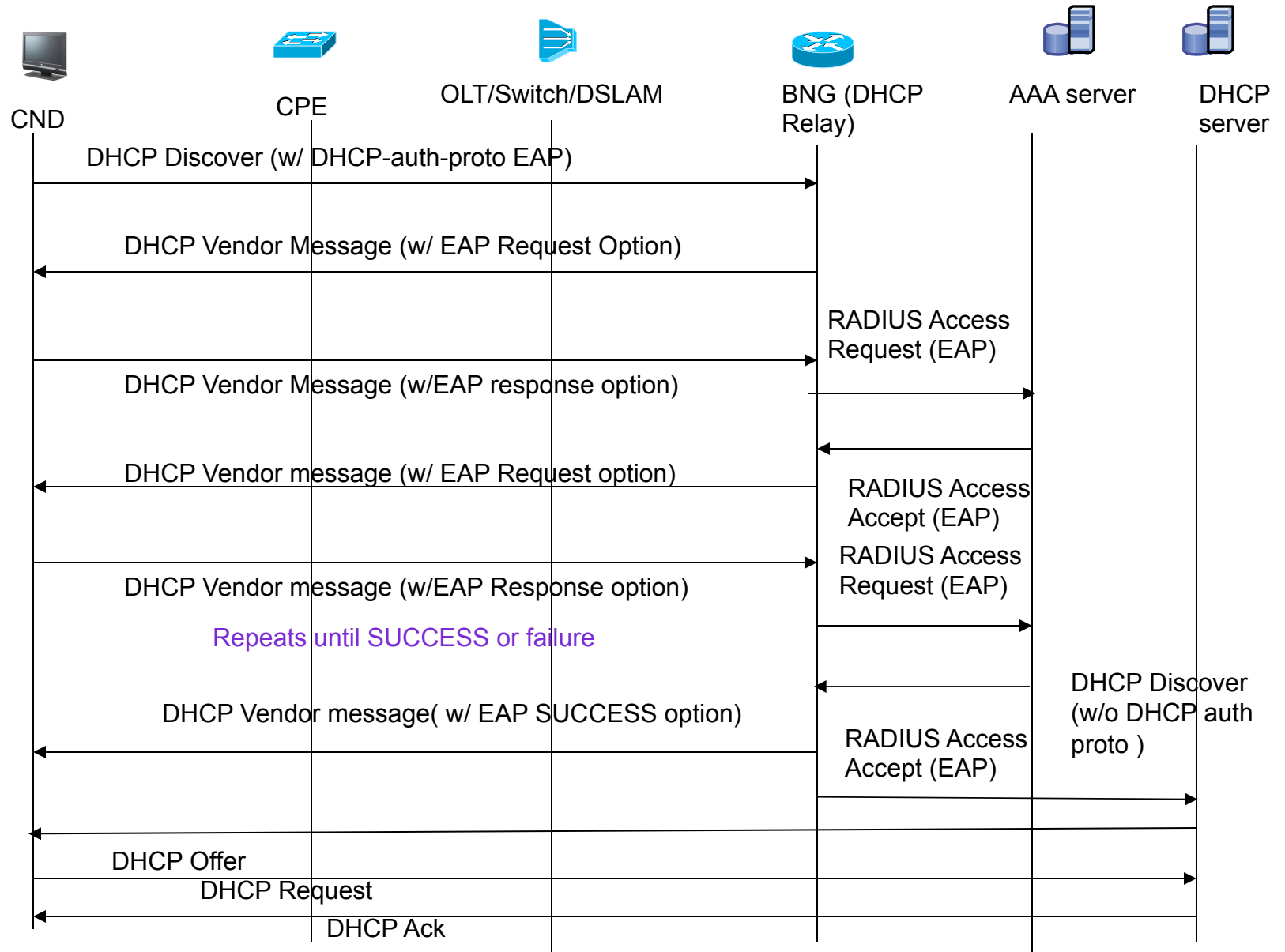- Line information at the Access Node may not always be reliable

Message Flows

- DHCP v4 message flow with BNG acting as server
- DHCP v4 message flow with BNG acting as relay

BNG Acting as DHCPv4 Server

CND	CPE	OLT/Switch/DSLAM	BNG (DHCP Server)	AAA server

DHCP Discover (w/ DHCP-auth-proto EAP)

DHCP Vendor Message (w/ EAP Request Option)

RADIUS Access Request (EAP)

DHCP Vendor Message (w/EAP response option)

RADIUS Access Accept (EAP)

DHCP Vendor message (w/ EAP Request option)

RADIUS Access Request (EAP)

DHCP Vendor message(w/EAP Response option)

Repeats until SUCCESS or failure

RADIUS Access Accept (EAP)

DHCP Vendor message (w/ EAP SUCCESS) option

DHCP Offer

DHCP Request

DHCP Ack

BNG acting as DHCPv4 Relay

CND | CPE | OLT/Switch/DSLAM | BNG (DHCP Relay) | AAA server | DHCP server

DHCP Discover (w/ DHCP-auth-proto EAP)

DHCP Vendor Message (w/ EAP Request Option)

RADIUS Access Request (EAP)

DHCP Vendor Message (w/EAP response option)

DHCP Vendor message (w/ EAP Request option)

RADIUS Access Accept (EAP)

RADIUS Access Request (EAP)

DHCP Vendor message (w/EAP Response option)

Repeats until SUCCESS or failure

DHCP Vendor message(w/ EAP SUCCESS option)

DHCP Discover (w/o DHCP auth proto)

RADIUS Access Accept (EAP)

DHCP Offer

DHCP Request

DHCP Ack

Implementations

- Server and relay - IOS
- Client – Linux - Linksys

Q&A