Authentication Extensions for the Dynamic Host Configuration Protocol

draft-pruss-dhcp-auth-dsl-03.txt

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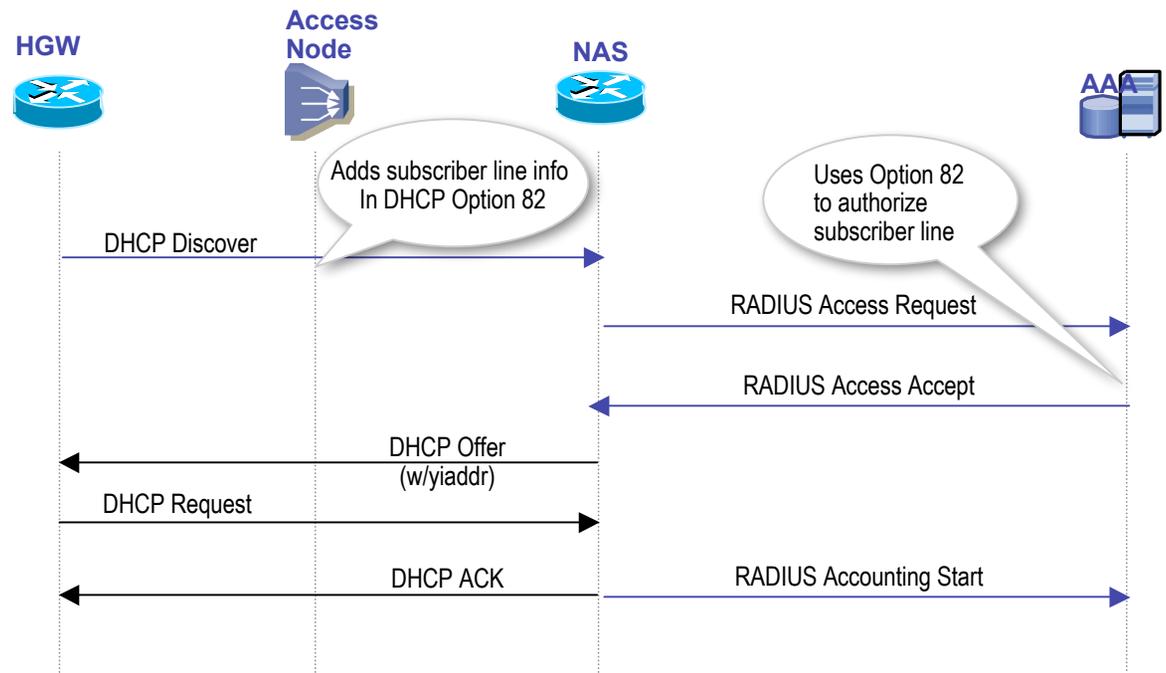
Quick reminder of "DHCP Proxy" to AAA*

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)
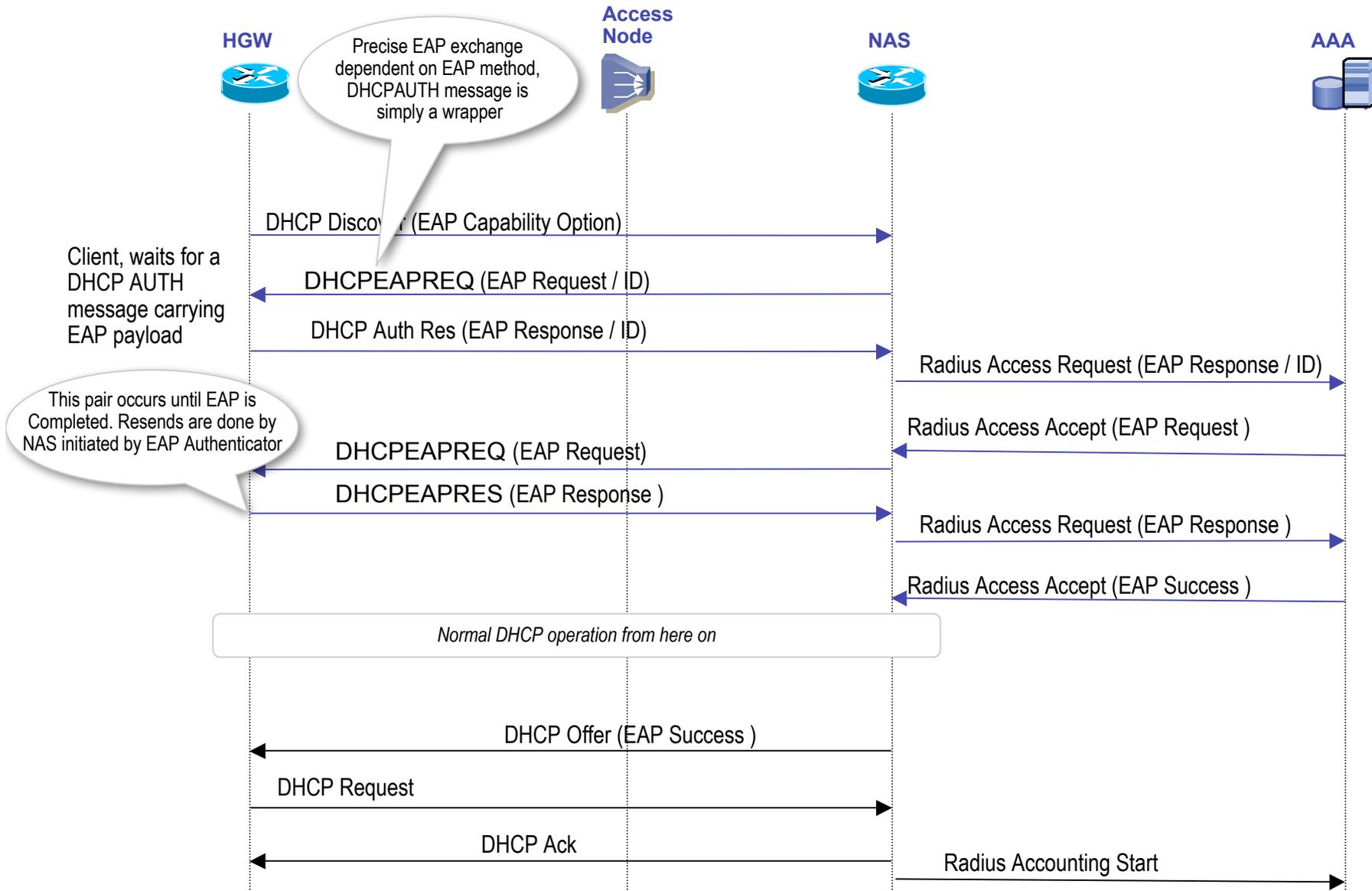
DHCP Request

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

Changes in this version

- Collapsed to the EAP option based on a strong statement on requirement for EAP in DSL Forum and customer feedback.

- First draft proposal for DHCPv6 messages for EAP in DHCP based deployments.

- Section on fragmentation to clarify the space for messages.

Authentication Extensions for DHCP: NAS acting as DHCP server

HGW — Access Node — NAS — AAA

Precise EAP exchange dependent on EAP method, DHCPAUTH message is simply a wrapper

Client, waits for a DHCP AUTH message carrying EAP payload

DHCP Discover (EAP Capability Option)

DHCPEAPREQ (EAP Request / ID)

DHCP Auth Res (EAP Response / ID)

Radius Access Request (EAP Response / ID)

This pair occurs until EAP is Completed. Resends are done by NAS initiated by EAP Authenticator

Radius Access Accept (EAP Request)

DHCPEAPREQ (EAP Request)

DHCPEAPRES (EAP Response)

Radius Access Request (EAP Response)

Radius Access Accept (EAP Success)

Normal DHCP operation from here on

DHCP Offer (EAP Success)

DHCP Request

DHCP Ack

Radius Accounting Start

Authentication Extensions for DHCP: central DHCP Server

HGW

Access Node

NAS

AAA

DHCP Server

Precise EAP exchange dependent on EAP method, DHCPAUTH message is simply a wrapper

DHCP Discover (EAP Capability Option)

DHCPEAPREQ (EAP Request / ID)

DHCPEAPRES(EAP Response / ID)

Radius Access Request (EAP Response / ID)

Radius Access Accept (EAP Request)

DHCPEAPREQ (EAP Request)

DHCPEAPRES (EAP Response)

Radius Access Request (EAP Response)

Radius Access Accept (EAP Success)

Normal DHCP operation from here on

DHCP Discover (+RADIUS Option)

DHCP Offer

DHCP Offer (EAP Success)

DHCP Request

DHCP Request

DHCP Ack

DHCP Ack