



PANA in DSL networks

draft-morand-pana-panaoverdsl-02.txt

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Summary

- Provides guidelines for PANA deployment over DSL access networks
- Focus on DSL networks migrating from:
 - a traditional PPP access model
 - Where PPP is used to carry authentication parameters (PAP/CHAP or EAP methods)
 - to a pure IP-based access environment
 - No built-in explicit access authentication
 - Today: Use of DHCP option 82 for line-based authentication
 - Need for a subscriber access authentication mechanism
 - Proposal about DHCP evolution for supporting EAP
 - PANA should also be considered a possible solution



Draft History

- IETF 66:
 - PANA use case for DSL removed from PANA Framework
- IETF 67:
 - First presentation of the "PANA over DSL" draft (v00)
- From IETF 67 to IETF 71:
 - Draft frozen during finalization of PANA protocol
 - DSL Liaison on access authentication requirements
- IETF 71:
 - Updated version of the "PANA over DSL" draft (v01)
 - Based on final version of the PANA base protocol and comments received and outputs of DSLF liaison discussions
- IETF 72:
 - Updated version (v02)
 - description of specific use of "unspecified IPv4 address"

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From v01 to v02

- Addition of the possible use of unspecified IP address as PRPA
 - Besides link-local address, private address, etc.
- Addition of a new specific example
 - Describing the use of unspecified IP address in IPv4 context
- Simplification of the PAA discovery
 - Along with the use of unspecified address as PRPA
 - Using broadcasted of PCI (instead of DHCP-based discovery mechanism)



Use of (0.0.0.0) as PRPA

- Use of IPv4 addresses before access authentication still seen as an issue in the IP Session model for DSL Forum
- Proposed alternative:
 - Use of Unspecified IPv4 address as PRPA
 - Described in draft-xia-pana-simplified-00.txt
 - PAC uses (0.0.0.0) as source address of PANA messages
 - After PANA authentication, an IP address is allocated using DHCP



PANA and Unspecified IP address

- Not really a new thing for PANA!
- The use of unspecified IP address in PANA was allowed at an early stage of the PANA spec
 - As for DHCPv4 and MIPv4
- But no clear use/advantage was found and this was removed from the spec at this stage
 - See: proceedings of IETF58
 - <http://www.ietf.org/proceedings/03nov/index.html>
 - <http://www.ietf.org/proceedings/03nov/slides/pana-5/index.html>



Broadcasted PCI

- Usually, the PaC needs to discover the PAA IP address to unicast messages to PAA
 - A PAA discovery mechanism is needed e.g. use of DHCP option.
- Proposal for simplification in DSL context:
 - Send the PCI to (255.255.255.255).
 - PAA responds with a PAR message with:
 - source IPv4 address set to the PAA's IP address,
 - destination IPv4 address set either:
 - to (255.255.255.255) if the PRPA is an unspecified address
 - to the source IP address of the received PCI otherwise
 - PaC discovers the PAA's IPv4 address from the source IP address of the received PAR message and additional PANA messages will be unicast to the PAA.



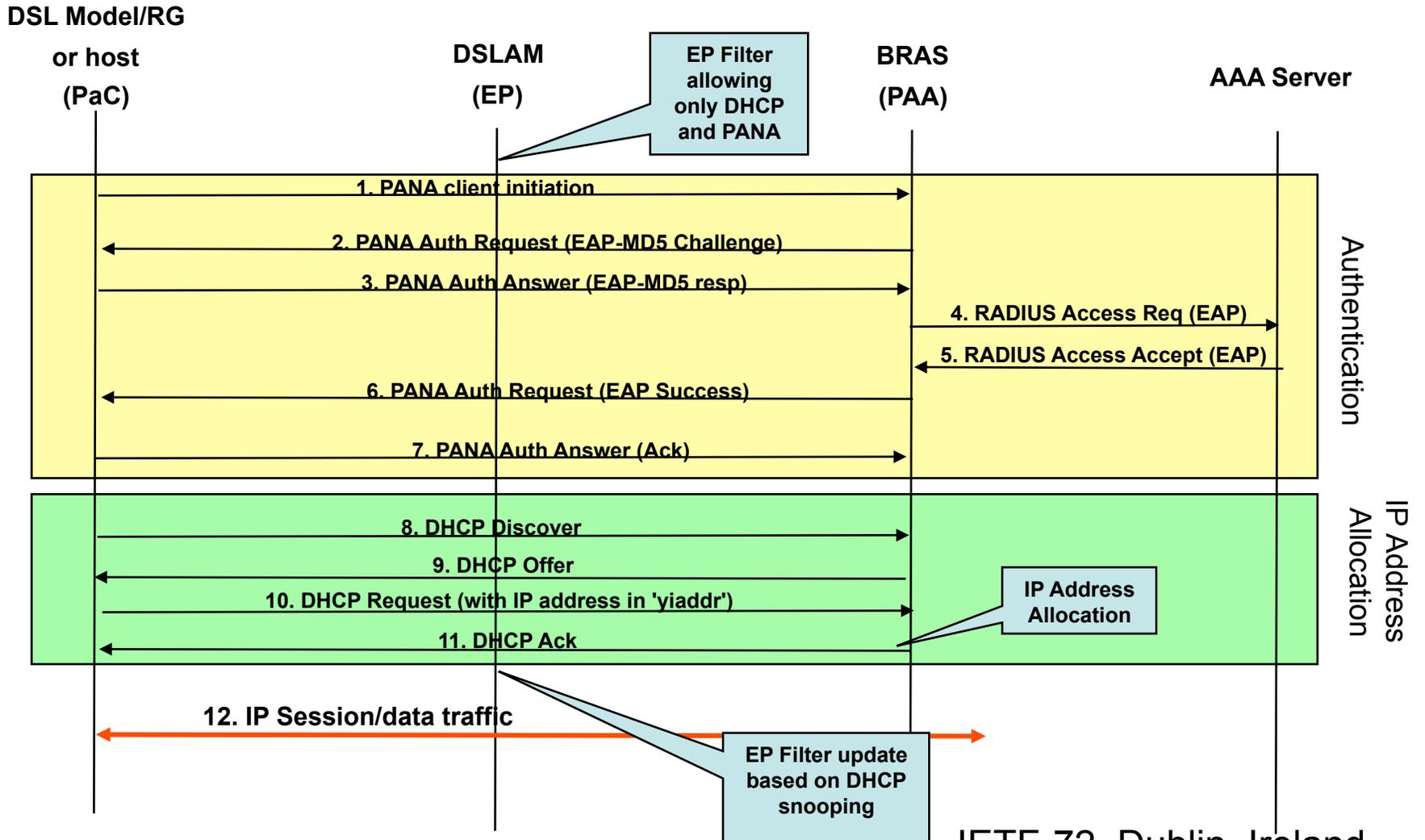
Additional Scenario

- Deployment scenario in which:
 - DSL Network configuration with:
 - PaC in the DSL modem/RG
 - Main use case considered by DSL Forum
 - BRAS hosting PAA, DHCP Server/Relay, and AAA client
 - DSLAM acting as EP
 - Unspecified IPv4 address as PRPA
 - PAA discovery based on broadcasted PCI
 - EAP-MD5 Authentication method
 - POPA configured using DHCPv4
 - EP is triggered by DHCPACK whose 'yiaddr' field is filled



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Specific Message flows



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Next Step

- Provide more details on:
 - The use of link-local IP@:
 - Mechanism to avoid/resolve possible address conflict/collision
 - PANA impacts on DSL network:
 - Host, DSL Modem, DSLAM, BRAS, DHCP server
 - DSLAM acting as EP:
 - And the use of DHCP as EP triggering mechanism
 - IP@/Identity binding management:
 - Tight/loose coupling between DHCP/PANA/AAA
- Investigate/clarify the case of hosts behind a NAT/Router in IPv4
 - Does PANA support NAT traversal?



Thank You

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