

6lo WG

@IETF 112 - online

Native Short Addressing for LLN Expansion

draft-li-6lo-native-short-address-00

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Clarification of Scope and Revision of Title & Authors

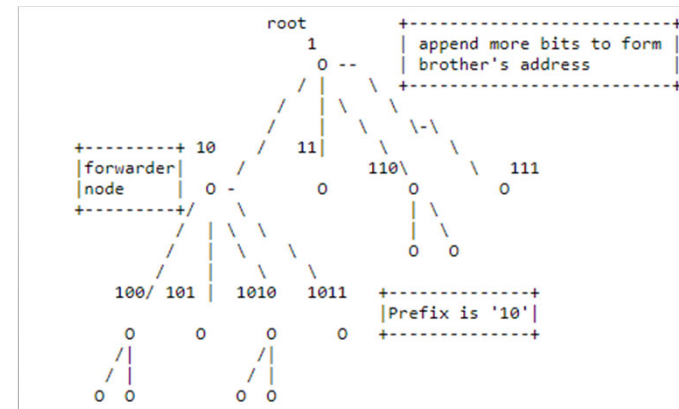
- Title update:
 - Native Short Address for ~~Internet~~ Expansion →
 - Native Short Addressing for Low power and Lossy Networks Expansion
- Scope of the document has been better detailed
 - Routing/Forwarding IP packets across a LLN (Low power and Lossy Network) where:
 - Nodes' geo-location is fixed
 - Logical topology changes due to unstable radio connectivity (not physical mobility)
- New co-authors:
 - Peng Liu from China Mobile
 - David Lou, Huawei Technologies
 - Luigi Iannone, Huawei Technologies (me)

Complete revision of Section *NSA Allocation*

- Better formalization of the Allocation Function

```
AF(role, f, l) = 'address of the node performing the function'  
               + (role == leaf? b(l++):b(f++))  
               + (role == leaf?'1':'0'),  
in which, f and l are the indexes of respectively the forwarders  
and the leaves at this layer (starting at 0).
```

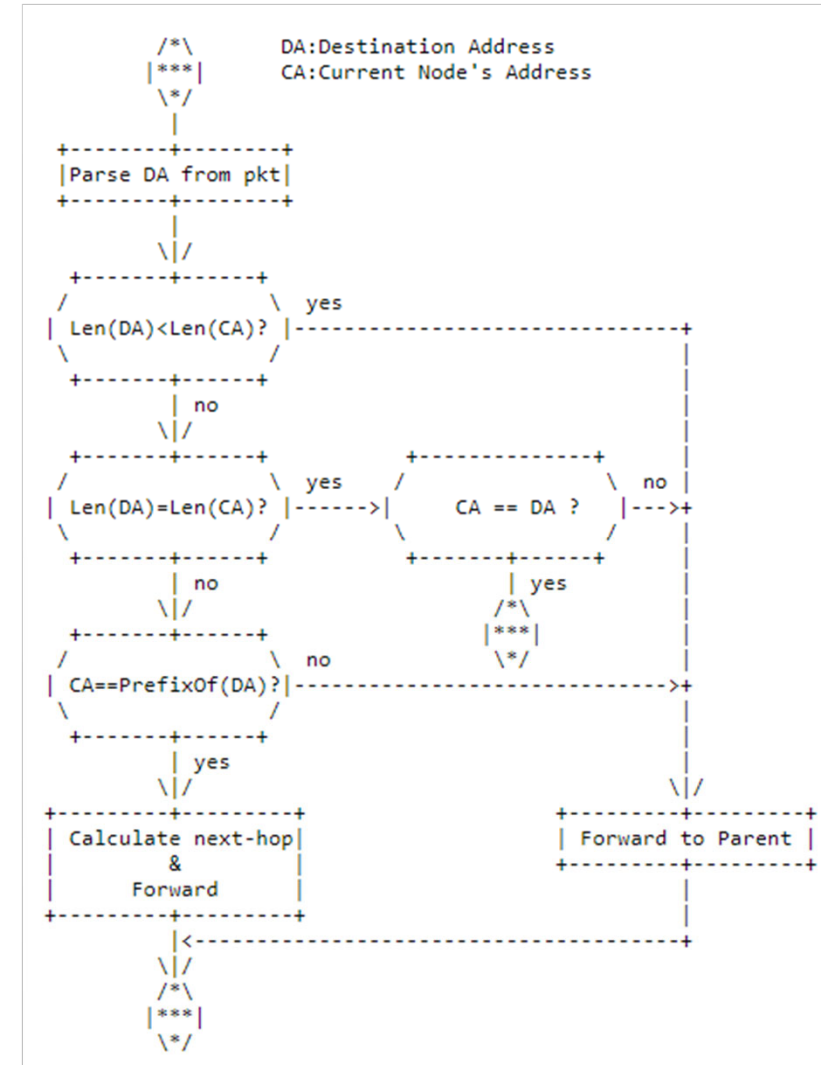
- Added step-by-step example of AF usage



- Specification now include possibility to revise/modify the allocation function
- Further clarifications about NSA addresses, IPv6 addresses, and width of the routing tree

Refine Description of Routing Mechanisms

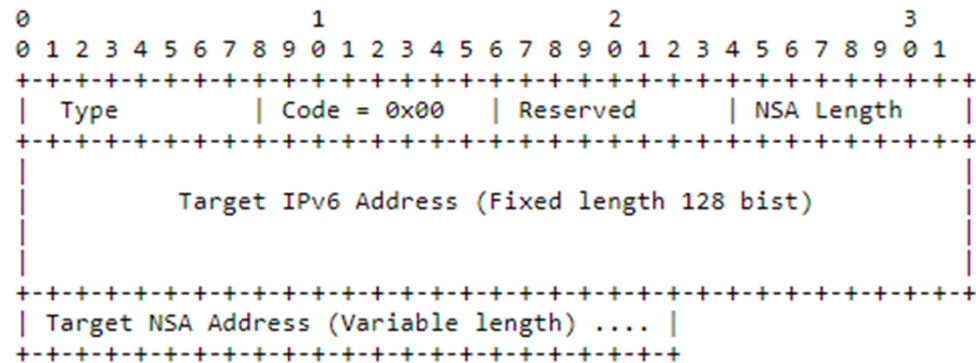
- Revised text explaining forwarding operation
- Added flow-chart for further clarification of the procedure



Revised communication with external nodes (beyond NSA domain)

- Revised text about routing toward/from a destination outside the NSA domain
 - Internet IPv6 domain
- Defined new ICMPv6 message to accommodate communication toward external node
 - Root node to provide back mapping between external IPv6 address and an NSA address

NSA Mapped Address Advertisement



Other updates

- Text polishing
- Figure polishing/simplification
- Better highlight NSA format benefits
- IANA Section been revised

Bit Pattern	Page	Header Type	Reference
0101TTNH	10	LOWPAN NSA IP(LOWPAN_NIP)	[This Document]

Dispatch Type Field allocation request

Code	Description	Reference
0x00	NSA Mapped Address for External IPv6 Address	[This Document]

ICMPv6 Type request and Code allocation

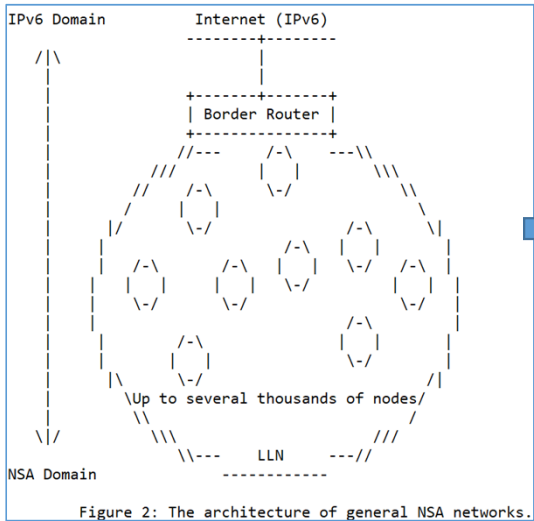


Figure 2: The architecture of general NSA networks.

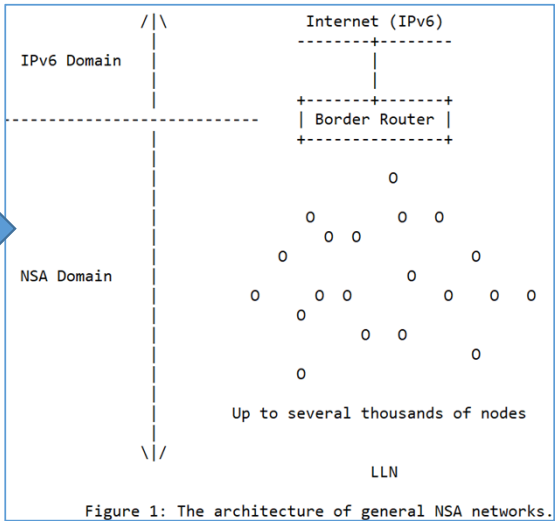


Figure 1: The architecture of general NSA networks.

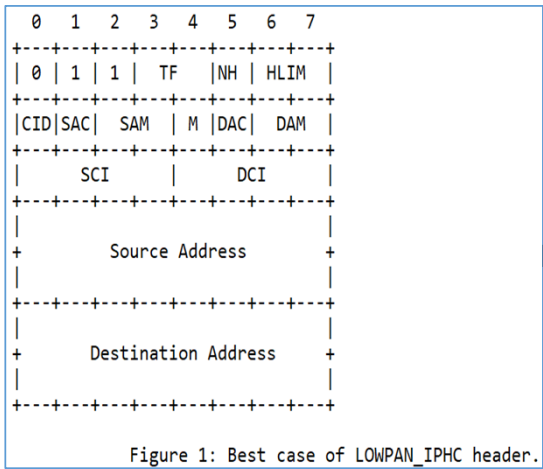


Figure 1: Best case of LOWPAN_IPHC header.

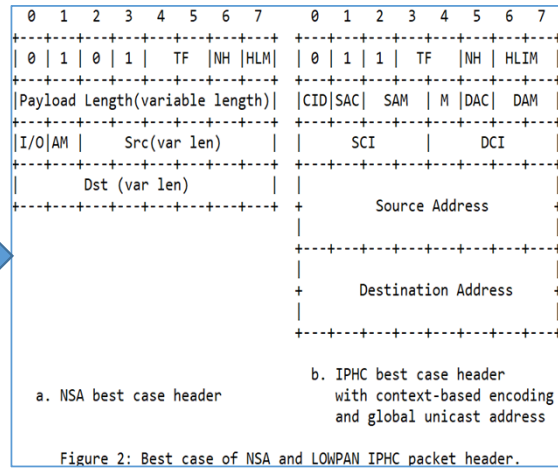


Figure 2: Best case of NSA and LOWPAN_IPHC packet header.

Thanks to those who helped improve the document

- Thanks Pascal for providing background papers and for the discussion on issues like
 - limit of children nodes
 - renumbering
- Thanks Dominique and Matthew contributing to the discussion
- Thanks Carles for pointing out the issues about scope of NSA
- Thanks Adnan Rashid for pointing out formatting problems of document
- Thanks Michael for comments in the mailing list
- Thanks Chairs of 6lo for providing time slot for NSA

- Welcome any further feedback ...
 - ... joining the effort 😊

Next Steps:

- Authors consider to have addressed all issues and ask the WG to consider to adopt this work as a WG item!

THANKS!

