Transmission of IPv6 packets over ITU-T G.9959 Networks

draft-ietf-6lo-lowpanz-03

Anders Brandt
Sigma Designs

Draft History

- Adopted as WG document on Nov 21, 2013
  - draft-brandt-6man-lowpanz-02 renamed to draft-ietf-6lo-lowpanz-00

- -00 entered Last Call on Dec 21, 2013
  - Ending Jan 15, 2014

- -01 submitted on Jan 21, 2014
  - Additional comments received

- -02 submitted on Feb 3, 2014
  - Assigned reviewer after Last Call

- -03 submitted on Mar 4, 2014
  - Updated during IETF-89

```
draft-ietf-6lo-lowpanz-03
```

Fixed during last call

01: Clarified: DOES work over mesh-under
- – actual routing protocols are out of scope

01: Restructured: Prefix & CID management section
- – split into three smaller sections

Fixed during last call

02: Changed SHOULD → MUST:

– Construct Link-local address as per RFC6282

– Use header compression as per RFC6282

– ABR MUST return up-to-date RA in response to expired CID

02: Changed SHOULD NOT → MUST NOT:

– Use addr registration as per RFC6775

– Use DAD as per RFC6775

– Reuse CID immediately

draft-ietf-6lo-lowpanz-03

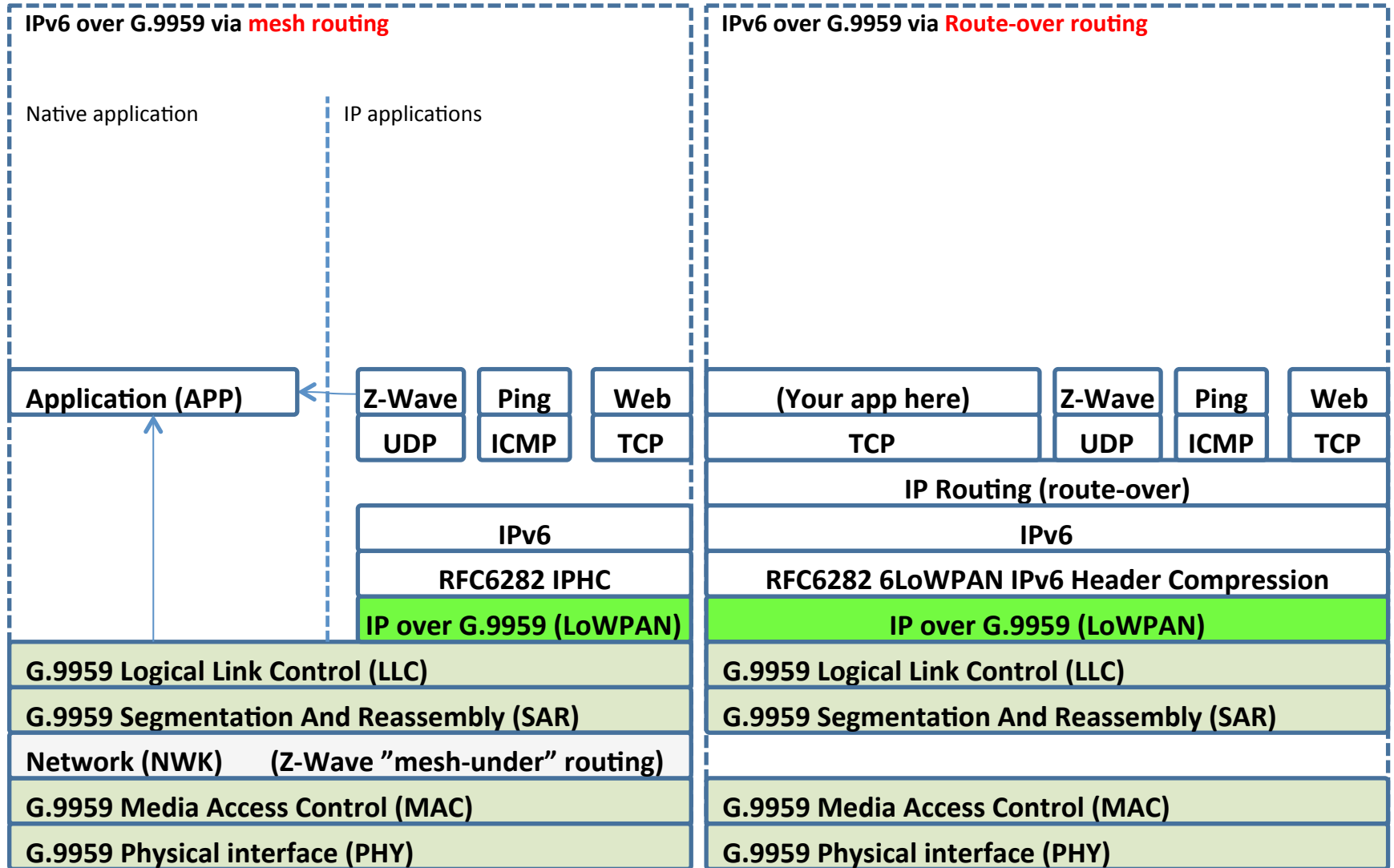# Fixed after last call

03: New option: Support DHCPv6 assignment
- Enabled via Router Advertisement M flag
- Allows for managed address assignment
- May provide Internet privacy with proper lease timing

`draft-ietf-6lo-lowpanz-03`

BACKUP

Short overview

- Yet another IP-over-foo in the 6LoWPAN family

- IP packets may be forwarded via mesh routing or via route-over routing.
  - <u>6LoWPAN is agnostic to the forwarding mode</u>

- ITU-T G.9959 is the PHY & MAC of Z-Wave™
  - SAR and LLC adaptation layers can be found in G.9959 Amendment 1 (10/13)

`draft-ietf-6lo-lowpanz-03`

IPv6 over G.9959 – the stack(s)

IPv6 over G.9959 via mesh routing

Native application | IP applications

Application (APP)		Z-Wave	Ping	Web
		UDP	ICMP	TCP

IPv6
RFC6282 IPHC
IP over G.9959 (LoWPAN)

G.9959 Logical Link Control (LLC)
G.9959 Segmentation And Reassembly (SAR)
Network (NWK)   (Z-Wave "mesh-under" routing)
G.9959 Media Access Control (MAC)
G.9959 Physical interface (PHY)

IPv6 over G.9959 via Route-over routing

(Your app here)	Z-Wave	Ping	Web
TCP	UDP	ICMP	TCP

IP Routing (route-over)
IPv6
RFC6282 6LoWPAN IPv6 Header Compression
IP over G.9959 (LoWPAN)

G.9959 Logical Link Control (LLC)
G.9959 Segmentation And Reassembly (SAR)
G.9959 Media Access Control (MAC)
G.9959 Physical interface (PHY)

`draft-ietf-6lo-lowpanz-03`

Just another 6LoWPAN?

- Reused
  - 98%

- Not reused
  - Mesh routing
  - Fragmentation
    (already provided by G.9959)

- Changed
  - 8bit NodeID instead of 16bit Short Address

`draft-ietf-6lo-lowpanz-03`