

PIA

Provider Independent Addressing

An IPv6 /48 network block for every 10^*10 metre piece of the earth's globe.

... actually a /44 ...

PIA IPv6 addresses

- Described at:

<http://www.tndh.net/~tony/ietf/draft-hain-ipv6-pi-addr-fmt-01.txt>

- Use latitude & longitude to mathematically derive an IPv6 address, and the size of the area to derive the network mask.
- Need to route through an aggregation point (an IPv6 internet exchange) – least impact on global routing table.

Calculating PIA IPv6 addresses

- Usage described at:

<http://www.tndh.net/~tony/ietf/draft-hain-ipv6-pi-addr-use-01.txt>

- Determine latitude/longitude in degrees and decimals, e.g. 22.3333 s, -33.12345 w
- Enter Lat/Long into PIA calculator to get PIA ipv6 address
- see Abilene PIA background and calculator at <http://loadrunner.uits.iu.edu/~neteng/ipv6/pi/pi.html>

PIA examples:

Some Australian Locations

Bits in 3rd nibble:

- Broome: 191b:4f44:fd5a::/48 0001
 - Alice Springs: 1935:5ad9:be57::/48 0011
 - Cairns: 1949:feeb:a8fb::/48 0100
 - Doomadgee: 194a:587f:2a6e::/48 0100
 - Bourke: 1963:772e:9f0a::/48 0110
 - Darwin: 191d:1a32:6e0f::/48 0001
- So they could be aggregated on the 9th bit

PIA Issues

- Must route through aggregation point (eg: AUSIX in Sydney for Australian locations).
- No method of arbitration on location and size.
- No method for requesting reverse delegation.
- Really just a hack to give people something that looks like provider independent addresses.

Provide Independent Addressing

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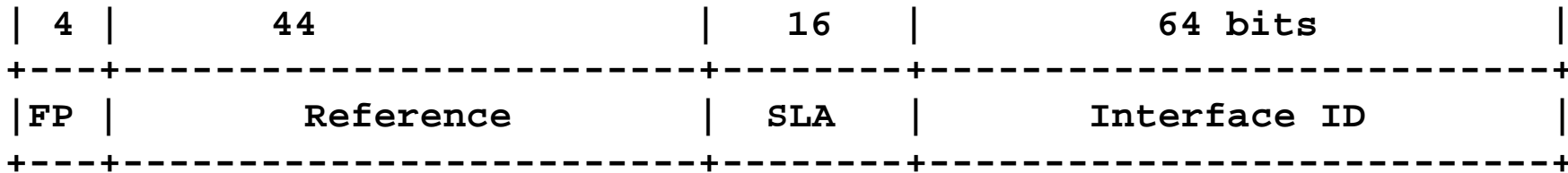
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Provider Independent Addressing



bits	degrees	nominal square scope	sites	
4	-> 90.00000	10000 km	octant	
8	-> 22.50000	2500 km	expanse	
12	-> 5.625000	600 km	zone	
16	-> 1.406250	150 km	region	
20	-> 0.3515625	40 km	metro	16777216
24	-> 0.087890625	10 km	city	1048576
28	-> 0.02197265625	2.5 km	locality	65536
32	-> 0.0054931640625	600 m	neighborhood	4096
36	-> 0.001373291015625	150 m	block	256
40	-> 0.00034332275390625	40 m	lot	16
44	-> 0.0000858306884765625	10 m	site	1

PIA Lab:

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