Network Architecture Protection
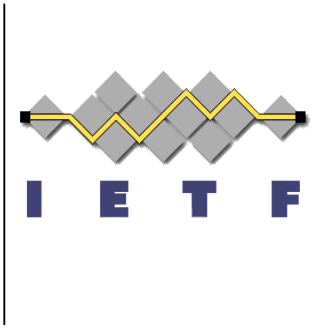## (draft-ietf-v6ops-nap-01.txt)

Status Update - 1 August 2005

Brian Carpenter, Ralph Droms, Tony Hain,
Eric L Klein, Gunter Van de Velde

I E T F

Network Architecture Protection:

"A set of IPv6 techniques that may be combined on an IPv6 site to simplify and protect the integrity of its network architecture, without the need for Address Translation"

Market Perceived Benefits of NAT & the IPv6 alternatives

I E T F

Function	IPv4/NAT	IPv6
Simple Gateway as default router and address pool manager	**DHCP – single address upstream** **DHCP – limited number of individual devices downstream**	**DHCP-PD – arbitrary length customer prefix upstream, SLAAC via RA downstream**
Simple Security	**Filtering due to lack of translation state**	**Context Based Access Control**
Local usage tracking	**NAT state table**	**Address uniqueness**
End system privacy	**NAT transforms device ID bits in the address**	**Temporary use privacy addresses**
Topology hiding	**NAT transforms subnet bits in the address**	**Untraceable addresses using IGP host routes /or MIPv6 tunnels for stationary devices**
Addressing Autonomy	**RFC 1918**	**RFC 3177 & ULA**
Global Address Pool Conservation	**RFC 1918**	340,282,366,920,938,463,463,374,607,431,768,211,456 **addresses**
Renumbering and Multi-homing	**Address translation at border**	**Preferred lifetime per prefix & Multiple addresses per interface**
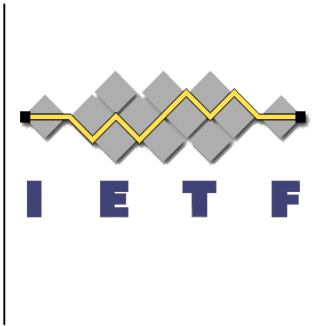
WG Last-Call: Status Update

- ## Summary

  Some textual enhancements were suggested

  External review from NAT communities is desired

  Section 6: IPv6 Gap Analysis needs some extra attention to correct the current standard status

  /128 address suggestion on physical interface needs review

  Suggestion that text should place NAT in more NAT friendly way at most places

 Text is almost ready for IESG

WG Last-Call: Status Update

- ## Section2.2: (Simple Security)

    Better not to use the word -evil- in the text

- ## Section2.6: (Address Pool Conservation)

   Mention that private address-space is not limitless

WG Last-Call: Status Update

- ## Section 4.2 (IPv6 and Simple Security):

  The text introduces PING sweep and explains in more details what the operation is? Should the operation be explained or should just the terminology be introduced?

- ## Section4.4: (Privacy and Topology Hiding)

  Mobile IP is suggested in the text, however any kind of tunneling should do the trick
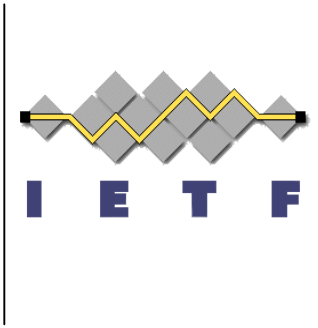
WG Last-Call: Status Update

- Section 5.4: (Case study: ISP networks)

  ULA usage for ISP/Carrier-grade networks is mentioned in the draft, while it was suggested that for these NW the PI addresses are already very stable and they should be qualified for setting up proper filtering -> suggestion to remove ULA from this section
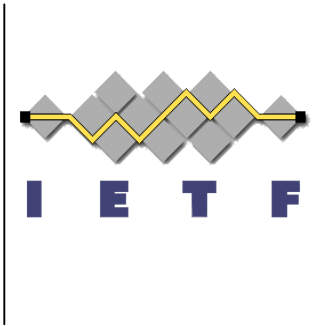
WG Last-Call: Status Update

- ## Section 6.1: (Completion of work on ULAs)
  Text revision to reflect current state of ULA or remove the chapter?

- ## Section 6.2: (Topology Masking)
  /128 addresses on an interface? Can we suggest this in the draft? (/32 is allowed with IPv4).

- ## Section 6.3: (Minimal Traceability)
  Better to say "topology masking **_may be_** required" instead of **"is required"**, because whether this is needed or not is a value judgment

- ## Section 6.4: (Renumbering Procedure)
  Renumbering procedure is in RFC queue. The section should either be removed or corrected in the current state?