

# Network Architecture Protection

(<http://www.ietf.org/internet-drafts/draft-vandeverde-v6ops-nap-00.txt>)

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

## 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”

# IPv6 Mapping of the Market Perceived Benefits

<i>Function</i>	<i>IPv4/NAT</i>	<i>IPv6</i>
Simple Gateway	DHCP – single address upstream DHCP – limited pool of individual devices downstream	DHCP-PD – customer prefix upstream SLAAC via RA downstream
Simple Security	Filtering due to lack of translation state	Context Based Access Control (Reflexive ACL)
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

# IPv6 Gap Analysis

- Completion of work on ULAs
- How to completely hide subnet topology
- Minimal traceability of privacy addresses
- Renumbering procedure
- Site multihoming
- Untraceable addresses