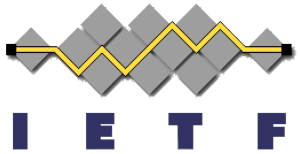
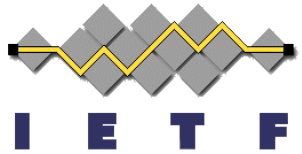
Homenet Routing
IETF 83, Paris

Acee Lindem, Ericsson

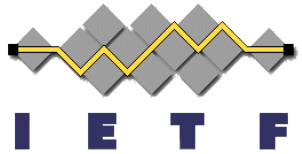


Homenet WG Introduction



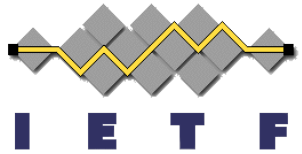
- This working group focuses on the evolving networking technology within and among relatively small "residential home" networks.
- Develop an architecture for IPv6 home networks:
  - Prefix configuration for routers
  - Managing routing
  - Name resolution
  - Service discovery
  - Network security
- Task of WG is to produce an architecture document that outlines how to construct home networks involving multiple routers and subnets.

Homenet Routing (1/3) Requirement (Arch Draft)



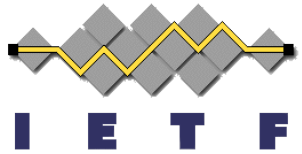
- RT1 - Deployed protocols demonstrated to be reliable and robust are preferred
- RT2 - “Lightweight” protocol preferred
- RT3 - Provides reachability between all nodes in the homenet.
- RT4 – LLN or other networks should be attach to homenet but this may be via a gateway
- RT5 - Multiple interface PHYs must be accounted for in the homenet routed topology. PHY layer bandwidth, loss, and latency in path computation should be considered for optimization.

Homenet Routing (2/3) Requirement (Arch Draft)



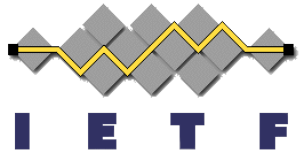
- RT6 - Minimizing convergence time should be a goal in any routed environment but a couple minutes maximum is the target
- RT7 - Desirable that the routing protocol has knowledge of the homenet topology, which implies a link-state protocol may be preferable
- RT8 – Requires a means for determining the boundaries of the homenet.
  - Upstream ISP
  - Gateway to SmartGrid or similar LLN
  - Devices must be able to find Internet
  - Boundary discovery may or may not be integrated into the routing protocol

Homenet Routing (3/3) Requirement (Arch Draft)



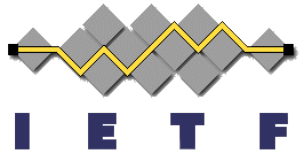
- RT9 - The routing environment should be self-configuring with the possible exception of a single “secret” or “key”.
- RT10 - The protocol should not require upstream ISP connectivity to be established to continue routing within the homenet.
- RT11 - Multiple upstream connections or multihoming.
- RT12 – For multihoming, routing protocol should make routing decisions based on source and destination addresses is desirable.
- RT13 - Load-balancing to multiple Internet providers is not a requirement, but failover is a requirement
- RT14 – Homenet router will not carry full routing.

Homenet – State of the Routing Domain (1/2)



- Recommended routing protocol not yet chosen
- Need to agree on routing requirements in draft-ietf-homenet-arch-02.txt (derived from draft-howard-homenet-routing-requirements-00.txt)
- OSPFv3 – Auto-Configuration - draft-acee-ospf-ospfv3-autoconfig-01
  - Prefix Assignment in a Home Network - draft-arkko-homenet-prefix-assignment-01 – Not routing requirement.
- Simple Routing in IPv6 DHCPv6-PD - draft-howard-up-pio-00
- RIPng – Have to consider given it is lightweight and the loose convergence requirement.

Homenet – State of the Routing Domain (2/2)



- ISIS – For completeness.
- OLSR – Suggested due to AD Hoc deployment success.
- RPL – Strong lobby from ROLL'ers. Would allow direct integration with a Low-Power Lousy Network (LLN)
- Babel Routing Protocol (RFC 6162) – Strong lobby from the developers from CeroWrt/OpenWrt open source project.
- Comparison draft: draft-howard-homenet-routing-comparison-00