

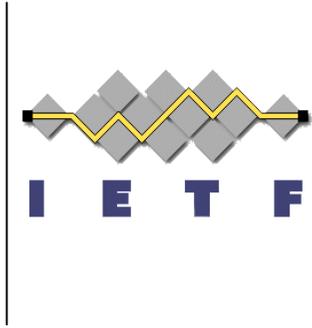
Things to think about when Renumbering an IPv6 network

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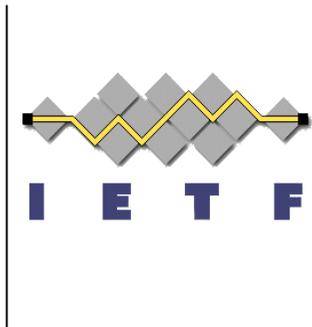


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Status



- The topic of IPv6 renumbering has been studied through collaboration in the 6NET project with Cisco, NRENs and universities
 - Led to comments towards RFC 4192
 - RFC 4192 experiments documented at <http://www.6net.org>
 - See D3.6.1 and D3.6.2
- General issues to ‘think about’ captured in this draft
- Need to consider how/if to progress this work further
 - Requirements, and scenario and trigger analysis
 - IPv6 features supporting renumbering
 - Recommendations to various audiences to ease pain



RFC 4192 and thinkabout

- RFC4192 describes a process for IPv6 renumbering without a flag day
 - Staged/phased process, using multi-addressing
 - (Successful) experiments documented by 6NET
 - With some caveats
- The 'thinkabout' draft discusses issues surrounding IPv6 renumbering
 - When and where it is needed or triggered
 - IPv6-specific features supporting renumbering
 - How the pain might be minimised



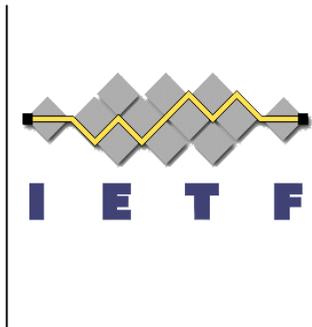
Draft contents (1)

- Renumbering event scenarios and triggers
 - Five categories identified
- Requirements capture
- IPv6 protocol feature discussion, including:
 - Multi-addressing, address selection (RFC 3484)
 - Mobile IPv6
 - Use of ULAs
 - DHCPv6 and prefix delegation
 - Router renumbering
 - Relevance of multihoming



Draft contents (2)

- Administrative considerations, including:
 - RA lifetimes
 - Border filtering
 - Frequency
- Impact of topology design
 - Has some overlap and feed into the addcon draft
- Application and service issues
 - Shims, socket bindings, APIs, ...
- The draft is written in a discussion style, rather than listing specific, targeted recommendations



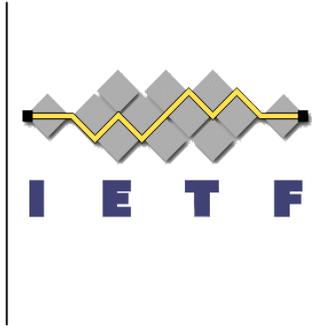
Draft non-contents

- We have identified recommendations to audiences
 - Network administrators
 - Network designers
 - ISPs
 - Application developers
 - Vendors (OS/stack)
 - Conformance test organisations
 - IETF
- Many implicit in the draft as it is
 - But the draft could enumerate these more explicitly
 - Also *some* recommendations in RFC 4192



Other topics

- No discussion (yet) of IPv6 PI space
 - Available from ARIN under new policy
 - But will it be available to all?
- No detailed discussion of shim6
 - Another potential ‘avoidance’ solution
 - But not an immediate solution



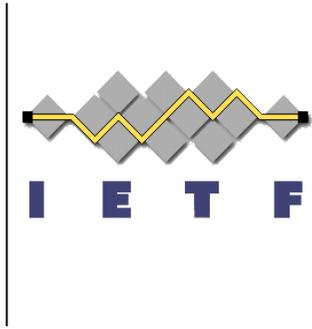
The recommendations?

- Many recommendations involve tradeoffs
 - e.g. there are 'costs' and these can be 'shifted'
- Ideally discuss tradeoffs with the specific audiences
 - Implies broader audience required than v6ops
 - Have created a mailing list for those interested
- Currently plan to produce an updated draft that includes initial version of the recommendations
 - To include the tradeoff notes
 - At least document tradeoffs, even if consensus not reached

Mailing list



- A mailing list to discuss IPv6 renumbering is available:
 - renumbering@ist-ring.org
 - To join, send a message to listserv@ist-ring.org with `subscribe renumbering@ist-ring.org` in the message body
- The list is made available for all issues regarding the renumbering topic
 - We'll also be able to measure community interest through it



Next steps?

- Can identify specific threads of the current draft:
 - Triggers and scenarios for IPv6 renumbering
 - IPv6 features supporting (or avoiding?) renumbering
 - Making specific recommendations to ease IPv6 renumbering
- One draft, or split to three(?) drafts? (cf. old PIER WG work)
 - When decided, can add initial recommendation text to draft(s)
- Is this deemed important work?
 - If community interest is there is a BoF possible @ IETF68?
 - Or is it just a v6ops issue? Need input from a broad audience
 - Also need to consider when/how to make RFC4192 into BCP
- Comments?