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Asia Pacific Network Information Centre



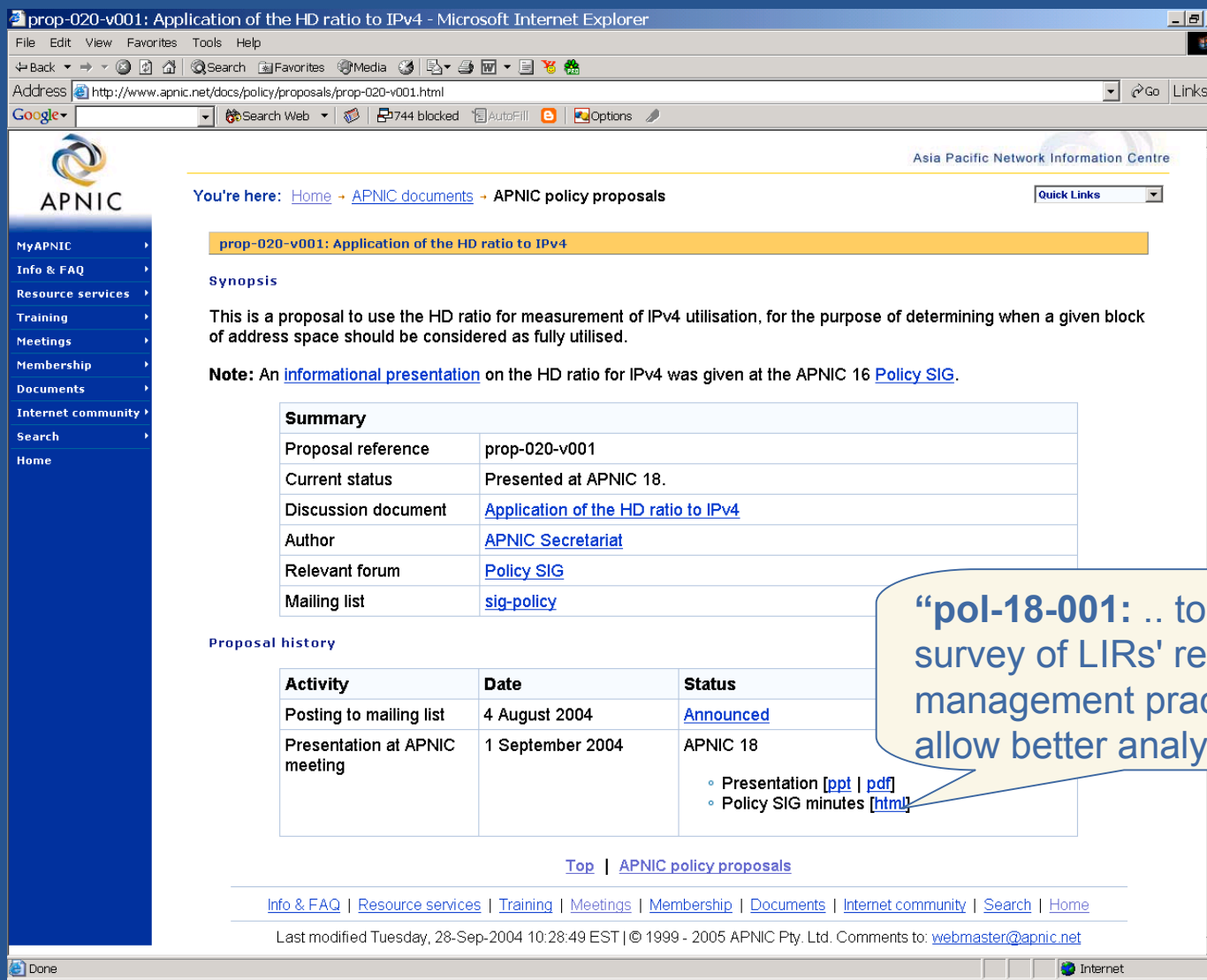
“Current practices in managing IPv4 address space” Survey Update

Policy SIG

Feb 24 2005

APNIC19, Kyoto, Japan

Background – the HD ratio



prop-020-v001: Application of the HD ratio to IPv4 - Microsoft Internet Explorer

Address: <http://www.apnic.net/docs/policy/proposals/prop-020-v001.html>

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prop-020-v001: Application of the HD ratio to IPv4

Synopsis

This is a proposal to use the HD ratio for measurement of IPv4 utilisation, for the purpose of determining when a given block of address space should be considered as fully utilised.

Note: An [informational presentation](#) on the HD ratio for IPv4 was given at the APNIC 16 [Policy SIG](#).

Summary	
Proposal reference	prop-020-v001
Current status	Presented at APNIC 18.
Discussion document	Application of the HD ratio to IPv4
Author	APNIC Secretariat
Relevant forum	Policy SIG
Mailing list	sig-policy

Proposal history

Activity	Date	Status
Posting to mailing list	4 August 2004	Announced
Presentation at APNIC meeting	1 September 2004	APNIC 18 <ul style="list-style-type: none"> • Presentation [ppt pdf] • Policy SIG minutes [html]

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“pol-18-001: .. to conduct a survey of LIRs' resource management practices, to allow better analysis of issues”

<http://www.apnic.net/docs/policy/proposals/prop-020-v001.html>

Recap - what is the problem?

- Feedback to Secretariat
 - Larger LIRs have difficulty in meeting 80% utilisation which is required for a subsequent allocation in IPv4
 - Unlike IPv6, no allowance for impact of hierarchical networks when managing IPv4 address space
 - “One size fits all” approach is unfair in the context of improving services to APNIC members

What is the HD ratio?

- HD ratio
 - Models the relationship b/w size & number of levels of structure & address utilisation efficiency
- Observation
 - Large IP networks create internal administrative & routing structures to assist in managing and scaling their networks eg. POPs -> Cities -> Regions -> Core
 - The larger the network the greater the no. of levels of internal structure
 - Overall utilisation depends on the no. of levels of internal structure
- HD ratio proposal
 - Proposes to use variable % measure of utilisation

Questions about the HD ratio?

- Is the observation about structure, size and levels correct?
- What is the relationship b/w network size and number of levels of hierarchy?
- APNIC tasked to conduct a survey of LIRs to allow a better understanding

Aims of survey

- Title
 - “Current practices in managing IPv4 address space”
- Objective
 - To gather information about how LIRs manage their address space
 - Examine if larger LIRs have more difficulty than smaller ones in achieving 80% utilisation
 - To ask some questions about use and extent of private address space

Survey – project timelines

- 1st phase
 - Questionnaire design
 - With assistance from the NIRs (TWNIC has conducted an initial survey), Secretariat and others..
 - Test survey design
 - Gather feedback on ‘questions’ at the APNIC19 meeting from volunteers
 - Assistance from NIRs
 - Incorporate feedback
 - Circulate on sig-policy/apops mailing list for further feedback



Survey – project timelines

- 2nd phase
 - Finalise survey design
 - Carry out survey
 - With assistance from NIRs
 - Evaluate feedback
 - Present results at APNIC20
 - Share with other RIRs
 - Active policy proposal in RIPE and in the ARIN regions



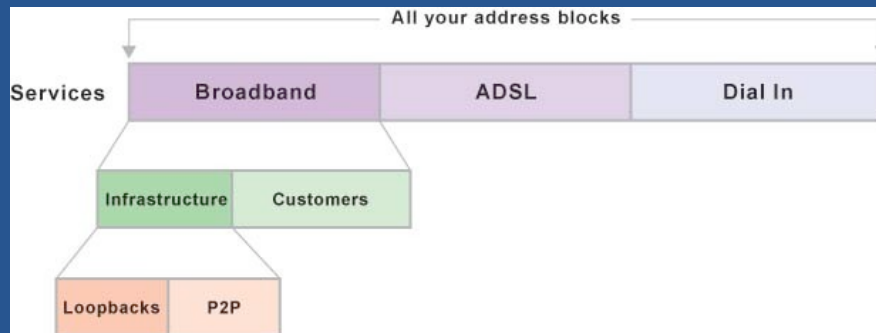
Survey design

- Quantitative
 - TWNIC survey of LIR members
 - Obtained valuable supporting information
 - Will assist in design of qualitative interviews
- Qualitative
 - One on one interviews with volunteer LIR members
 - One page of questions
 - Asked to draw diagram of how they manage their address space to 'complement' questions

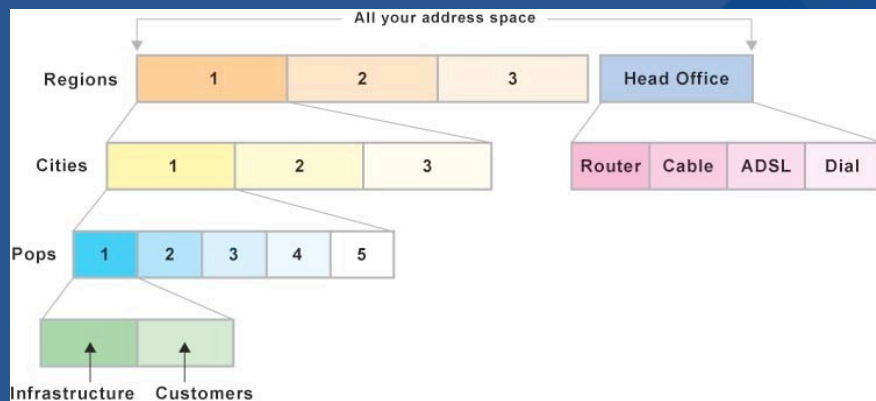


Example question

- Sketch out how you manage your address space, giving as much detail as possible at each level of hierarchy. Use the example diagrams provided below as a guide



Network divided by services



Network divided by regions and services



Network divided by POPs and customers



Questions?

- Volunteers needed to provide feedback for draft survey
- If interested to participate
 - Send email to anne@apnic.net
- Thank you