
# Draft Policy 2013-2

## 3GPP Network IP Resource Policy

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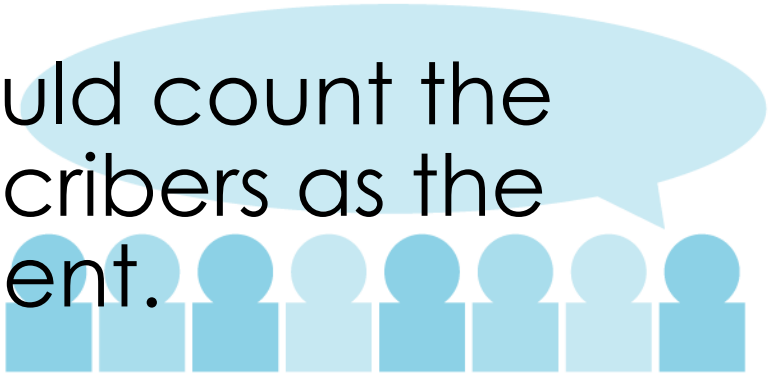
# 2013-2 – Original Proposal Summary

- The purpose of this policy proposal is to change the way ARIN counts utilization for mobile network operators.
  - For example, instead of 80% utilization, one option would count a block as utilized if 50% is in use by customers.
  - A second option would count the total number of subscribers as the utilization measurement.



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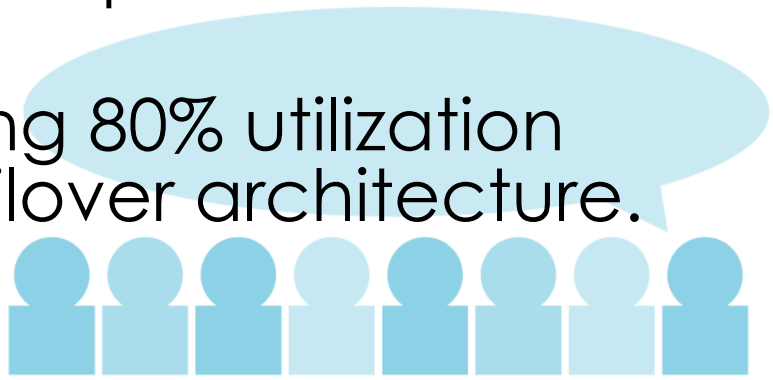
# 2013-2 – Problem Statement

- Some mobile networks are using non-RIR-assigned space internally to meet customer demand. However, there is insufficient RFC1918 & RFC6598 space available for internal use, so other unassigned space is currently being used.
- As this unassigned space is brought into service via reclamation, returns, and transfers, it is no longer possible to use it internally, so globally unique space must be used instead.
- Current ARIN policy requiring 80% utilization conflicts with operator's failover architecture.



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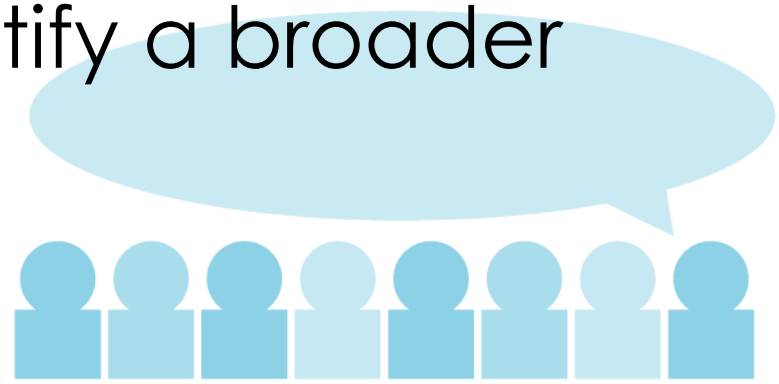
# 2013-2 – ARIN 31 Discussion

- Many felt this problem was specific to the architectural needs of a single company
- Many felt that more information would be required to show that this is a real problem
- Some felt that this was a broader problem that might justify a broader fix



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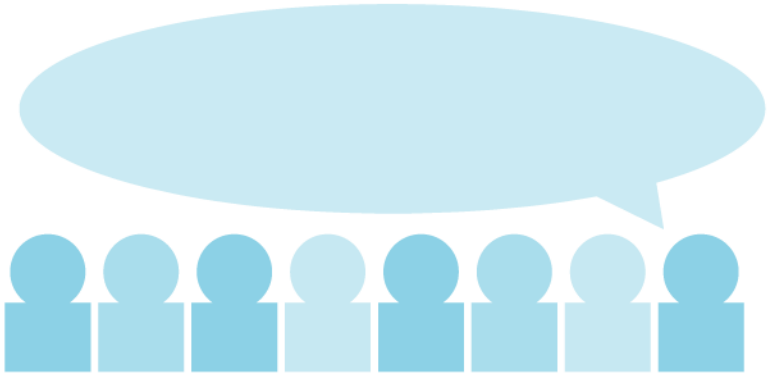
# 2013-2 – Benefits of solving this

- Address a real problem for at least some operators
- Allow those operators to reduce use of NAT
- Avoid address conflicts as previously unused space as it gets transferred and routed



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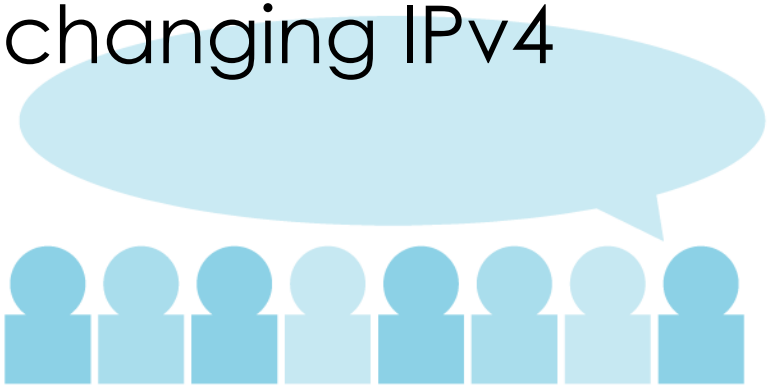
# 2013-2 – Potential Drawbacks

- Would likely accelerate IPv4 depletion, if adopted in time
- Unclear how broadly the same problem statement applies to other operators
- Outstanding technical questions?
- Could this be solved with technology instead of policy?
- Perhaps we should stop changing IPv4 policy



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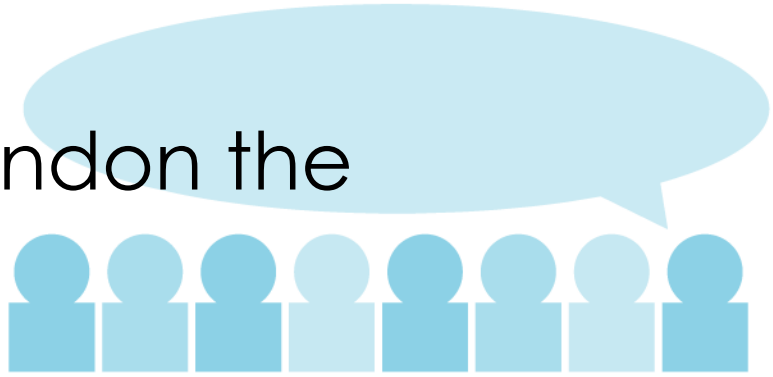
# 2013-2 – Discussion points

- Is this an important problem to try to solve?
- If so, how would you prefer we approach solving it?
  - 50% of simultaneously attached users?
  - 80-90% of total subscribers?
  - Broaden NRPM 4.2.3.7.3.1. Residential Market Area to cover "existing devices" as well as "homes"?
  - Some other approach?
- If not, should the AC abandon the proposal?



# 2013-2 Appendix – Existing NRPM text

**4.2.3.7.3.1. Residential Market Area**

- In most cases, ISPs that have residential subscribers assign address space to their access infrastructure to which their customers connect rather than to individual subscribers. This assignment information regarding each market area holding an address block should be entered via SWIP (or by using RWhois) with the network name used to identify each market area. Initial allocations are based on total number of homes that could purchase the service in a given market area.
- Using SWIP or RWhois, residential access ISPs must show that they have reassigned at least 80% of their current address space, with a 50 to 80% utilization rate, in order to request additional addresses.

# 2013-2 Appendix – Possible NRPM text

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# 2013-2 Appendix – Technical background

- Current 3GPP architectures consist of hierarchical aggregation, from cell site up to anchor nodes, approximately one per NFL city. Anchor nodes are the point where IP addresses are assigned and topologically positioned in the network. Generally an anchor node must be provisioned with enough addresses to handle all simultaneously attached users, plus enough headroom to handle failover from an adjacent anchor node in the event of an outage.
- Capacity planning generally ensures that all anchor nodes have approximately the same number of attached users at steady state. Moving addresses between anchor nodes would require significant renumbering effort and substantial increases in operational complexity, so cannot be performed during an outage. Generally addresses are not renumbered between anchor nodes: instead, aggregation nodes can be rehomed as needed to balance steady state capacity levels.
- Because of the 3GPP architecture's failover and capacity planning requirements, all cellular networks target approximately 50% simultaneous usage of each anchor node's IP addresses. However, even at 50% usage, the total number of subscribers generally exceeds the number of addresses needed.

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# Discussion