



International Telecommunication Union

IP Addressing: The Next Frontier of Internet Governance Debate

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Workshop on IPv6
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Internet Addressing Institutions



- Why RIRs should be respected
 - Relatively transparent and open
 - Evolved organically from Internet's growth
 - Responsible and effective organizations
- Why RIRs should be critically examined
 - Have exclusive control of an essential resource
 - Policies affect structure of ISP industry
 - RIRs are basically ISP industry associations
 - Deal with surprisingly broad range of Internet governance issues

IPv6 Economic Features: Conservation



0 Definition

- Efforts to ration or limit allocations or assignments to preserve it

0 Relevant policies

- Size and duration of assignments
- Fees for addresses or memberships
- Resource recovery; incentives to return unused address blocks
- Incentives to minimize requests
- Registration

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Economic features: Aggregation



o Definition

- Efforts to manage supply of addresses to ISPs in ways that minimize size of the routing tables

o Relevant Policies

- Organizational eligibility for allocations
- Limits on transferability
- Elimination of portability of addresses
- No charge for adding routes to the tables



4 Models of Competition



- Model 1: What the RIRs do now
 - No alternatives
- Model 2: What the ITU wants
 - IANA-RIRs compete with IANA-200+ NIRs
- Model 3: What IGP proposed
 - IANA-RIRs competes with IANA-ITU
- Model 4: Free market
 - Make addresses transferable and introduce price signals into routing



Competition and policy diversity



o Conservation

- Variation in policy would be healthy
- Could improve conservation incentives



o Aggregation

- Indicates a need to avoid too many competing entities; One global alternative seems feasible
- Competing entity has incentive to ensure that its addresses are routable

The IGP Proposal



- o ITU becomes a global alternative source of IP addresses
- o Users (ISPs, others) have a choice of where to go for IPv6 addresses
 - RIRs
 - ITU
- o ICANN provides top-level allocations for both

What the proposal is not



- Not national distribution of IP addresses
 - Intended to be a global alternative
- Not intended to give national governments exclusive control over IPv6 address allocation/assignment for their citizens
 - Intended to foster global alternative
- Not intended as implied criticism of existing RIRs policies or conduct



What proposal is intended to do



- o Facilitate “user sovereignty” via competition
- o Encourage exploration of new, more optimized policies regarding conservation and aggregation tradeoffs
- o Facilitate permanent IETF-ITU coexistence
- o Provide developing countries a global governance forum in which they feel more comfortable

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The Debate so Far



False arguments, discarded alternatives

- National address registries
- A single addressing system under ITU control
- RIRs today can be blamed for past imbalances in IPv4 allocations
- Competition would eliminate all constraints supporting conservation

Issues for more discussion, analysis, research

- Effect of competition on route aggregation
- Possibility of charging for route advertisements
- Possibility of secondary markets in IPv6 address blocks
- Impact of hierarchy on competition, diversity of ISP industry

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