Canadian Radio-television and Telecommunications Commission
Conseil de la radiodiffusion et des télécommunications canadiennes

Telecom Decision CRTC 2012-96

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Ottawa, 14 February 2012

CISC Network Working Group – Provision of static Internet protocol for third-party Internet access services

File number: 8638-C12-201015207

In this decision, the Commission approves the recommendation made by the CRTC Interconnection Steering Committee's Network Working Group to adopt two solutions for static Internet protocol address allocation for third-party Internet access services.

Introduction

1. In *Static IP address allocation for third-party Internet access services*, Telecom Regulatory Policy CRTC 2011-330, 17 May 2011 (the Policy), the Commission requested that the CRTC Interconnection Steering Committee (CISC) develop a solution for static Internet protocol (IP) address[1] allocation for third-party Internet access (TPIA) services and file a report for Commission approval within 120 days of the date of issuing the Policy.

2. On 10 October 2011, CISC submitted the following non-consensus report (the Report) for Commission approval:

    - *Static IP on TPIA Non-Consensus Report*, 12 September 2011 (NTRE049)

3. The Report can be found under "Reports" on the CISC Network Working Group (NTWG) web page, which is available on the Commission's website at www.crtc.gc.ca.

Consensus items

4. After considering a wide range of options proposed by NTWG participants and other interested persons, the NTWG recommended the adoption of the Managed Router and Layer 2 Tunnelling solutions, as set out in the Report. Both solutions were recommended so that Internet service providers that use TPIA services (collectively, the ISPs) could select the use of one or both according to their business objectives.

[1] A static IP address is a number that is assigned to a device, such as a computer, to be its permanent address on the Internet. Internet service providers assign these addresses when they provide Internet access service to end-users.

Commission's analysis and determinations

5. The Commission notes that all interested persons agreed that the two recommended solutions should be adopted. The Commission also notes that both solutions will enable ISPs to provide a static IP service to their customers. The Commission considers that the Managed Router solution would enable ISPs to provide the same static IP service that cable carriers use for their customers. The Commission also considers that the Layer 2 Tunnelling solution would enable ISPs to provide a static IP service that does not require additional network access or services from cable carriers.

6. The Commission therefore finds that the two recommended solutions set out in the Report satisfy its request to develop a solution for static IP address allocation for TPIA services. The Commission finds that adoption of the two solutions will provide ISPs with the flexibility to choose the most appropriate solution according to their business objectives.

7. In light of the above, the Commission **approves** the NTWG's recommendation to adopt the Managed Router and Layer 2 Tunnelling solutions for static IP address allocation for TPIA services, as set out in the Report.

Non-consensus items

8. The NTWG did not reach consensus on the following two items:

    i) mitigation of the exhaustion of Internet protocol version 4 (IPv4) addresses; and

    ii) the use of Internet protocol version 6 (IPv6) addresses to support static IP service within cable carriers' existing IPv4 networks.

9. TekSavvy Solutions Inc. (TekSavvy) and the Canadian Network Operators Consortium Inc. (CNOC), on behalf of its members, noted that the two recommended solutions mentioned above require the use of additional public IPv4 addresses. They submitted that this is a burden and a barrier to ISPs providing a static IP service due to the scarcity of these addresses.[2] TekSavvy and CNOC stated that they must carefully ration their public IPv4 address space until IPv6 becomes more widely deployed.

10. TekSavvy and CNOC argued that to mitigate the exhaustion of their own public IPv4 addresses when providing a static IP service, the cable carriers should submit plans to provide the ISPs with the cable carriers' public or private IPv4 addresses. TekSavvy and CNOC submitted that the other possible approach is for cable carriers to enable the use of public IPv6 addresses within cable carriers' existing IPv4 networks.

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[2] New assignments of IPv4 address blocks are being rationed when provided to ISPs since this numbering resource is near exhaustion. When ISPs exhaust their current pools of IPv4 addresses, they will have to start using IPv6 addresses. This will require ISPs to modify their networks and related systems.

11. Rogers Communications Inc., Cogeco Cable Inc., Videotron Ltd., and Shaw Communications Inc. (collectively, the Cable carriers) argued that the non-consensus items are outside the scope of the Commission's request to CISC in the Policy.

12. The Cable carriers noted that IPv4 address exhaustion is a challenge faced by the entire industry that cannot be resolved through static IP address assignment. They acknowledged that IPv4 addresses are scarce and noted that this is why they provide retail static IP service to their customers as a premium commercial service with limited deployment.

13. The Cable carriers submitted that definitive plans for IPv6 rollout are not yet available and that they anticipate that IPv6 could dramatically change the concept of static IP addresses. They therefore submitted that any discussion of the use of IPv6 addresses is premature at this time and out of scope.

Commission's analysis and determinations

14. Regarding the issue of mitigating the exhaustion of ISPs' IPv4 addresses, the Commission notes that when a cable carrier provides TPIA service to an ISP, it is the ISP's responsibility to provide the cable carrier with the IP addresses it uses to provide its customers with Internet service.

15. The Commission also notes that, as stated in international agreements, ISPs are responsible for obtaining allocations of IP addresses from the Internet Registry that provides IP addresses in their country or region.[3] As a result, the Commission considers that each ISP is responsible for making business decisions regarding how it acquires, uses, and conserves its own IPv4 addresses.

16. Therefore, the Commission determines that the issue of IPv4 address exhaustion and the request to provide ISPs with cable carriers' public or private IPv4 addresses are outside the scope of its request to CISC.

17. Regarding the issue of cable carriers assigning IPv6 addresses, the Report states that the Layer 2 Tunnelling solution enables the ISPs and cable carriers to move to IPv6 without interdependence, and that the Managed Router solution will require upgrades to cable carriers' network equipment when a cable carrier decides to support IPv6.

18. The Commission finds that since cable carriers have not yet made definitive plans for IPv6 rollout, the assignment of public IPv6 addresses within cable carriers' existing IPv4 networks is outside the scope of the Commission's request to CISC.

19. The Commission notes that as cable carriers roll out IPv6, the requirement to provide static IP address allocation capability for their TPIA services will continue to apply.

Secretary General

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[3] The American Registry for Internet Numbers (ARIN) is the Internet Registry for North America.