

Application Aspects of IPv6 Transition

draft-shin-v6ops-application-transition-02.txt

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Scope of this draft

- **Two inter-related topics are covered:**
 - **1. How different network transition techniques affect applications, and what are the strategies for applications to support IPv6 (and IPv4).**
 - **2. How to develop IPv6-capable or protocol-independent applications ("application porting guidelines").**

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Changes (01->02)

- **Technical**

- Scope is clearly clarified
 - general discussion on application aspect
 - application development guidelines
- Section 4.2 IPv6 (-only) applications running in a dual stack
 - IPv4-mapped IPv6 address handling
 - Implication new features of IPv6 : e.g, IPv6_V6ONLY socket option
- Section 6.2/6.3: real working examples
 - Overly simplistic TCP client/sever applications

- **Editorial**

- Textual enhancements to make it more readable
- Table of contents

Table of contents

- **1. Introduction**
- **2. Overview of IPv6 application transition**
- **3. Problems with IPv6 application transition**
 - 3.1 IPv6 support in the OS and applications are unrelated
 - 3.2 DNS does not indicate which the IP version will be used
 - 3.3 Supporting many versions of an application is difficult
- **4. Description of transition scenarios and guidelines**
 - 4.1 IPv4 applications in a dual-stack node
 - 4.2 IPv6 applications in a dual-stack node
 - 4.3 IPv4/IPv6 applications in a dual stack node
 - 4.4 IPv4/IPv6 applications in an IPv4-only node
- **5. Application porting considerations**
 - 5.1 Presentation format for an IP address
 - 5.2 Transport layer API
 - 5.3 Name and address resolution
 - 5.4 Specific IP dependencies
 - 5.4.1 IP address selection

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- 5.4.2 Application framing
- 5.4.3 Storage of IP addresses
- **6. Developing IP version-independent applications**
 - 6.1 IP version-independent structures
 - 6.2 IP version-independent APIs
 - 6.2.1 Example of overly simplistic TCP server application
 - 6.2.2 Example of overly simplistic TCP client application
 - 6.2.3 Binary/Presentation format conversion
 - 6.3 Iterated jobs for finding the working address
 - 6.3.1 Example of TCP server application
 - 6.3.2 Example of TCP client application
- **7. Transition mechanism considerations**
- **8. Security considerations**

- **Appendix A. Binary/Presentation Format Conversions**
 - A.1 Network Address to Presentation Format
 - A.2 Presentation Format to Network Address

Discussion and Next steps

- **General points**
 - Two-inter related topics in the draft
 - general discussion on application aspect
 - application development guidelines
- **Open issues**
 - Section 4.2 IPv6 (-only) applications running in a dual stack
 - Scope, behaviors, recommendations ...
 - Section 6.2/6.3 : modify examples as better ones
 - Section 7 Transition mechanism
 - Section 8 Security considerations
- **Adopt as WG document (informational)**
 - get feedback from app area folks (is it enough ?)
 - coordinate with GGF IPv6 WG ...