Book Reviews

Voilà, Your Network is IPv6 Enabled!

Rita Pužmanová

Deploying IPv6 Networks
Ciprian P. Popoviciu, Eric Levy-Abegnoli, and Patrick Grossetete
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Most people in the networking and Internet world have heard about next-generation Internet protocol IPv6, which will replace the highly successful IPv4, the base of the Internet as we know it. IPv6 solves various IPv4 challenges, so the transition to IPv6 seems quite natural, but it won't be easy. The networking world remains quite complacent with IPv4 because numerous interim solutions to its problems have been developed (primarily NAT, Network Address Translation, to overcome the shortage of globally unique IP addresses). And network administrators have many fears of replacing the old with not just a single protocol (including complete network renumbering) but also related protocols (such as routing ones), hardware, and software supporting IPv6.

However, the time will come when the transition will be imminent. The wise network administrators have already started; they run their corporate or academic networks on the basis of dual-protocol stacks (IPv4 and IPv6). For the rest, the time to prepare and learn the deployment details is now.

Deploying IPv6 networks

Numerous books discuss IPv6's technical aspects. In Deploying IPv6 Networks, Ciprian P. Popoviciu, Eric Levy-Abegnoli, and Patrick Grossetete go beyond that, both showing how to deploy IPv6 and covering related aspects to help readers fully exploit it. The text applies the theory (technical side of IPv6) to production networks, considering not only practical configurations (in Cisco IOS terms) but also a complex design for various networking purposes. Three fictional deployment case studies, each preceded by generic planning guidelines, accompany the practical guide to implementing IPv6 services. In the end, with all the information in this volume (and some effort on their part), administrators will be able to say, as the book's two French authors might, "Voilà, my network is now IPv6 enabled!"

Popoviciu, Levy-Abegnoli, and Grossetete discuss the protocol's technical strengths without any marketing lingo. I would recommend that anyone who must deal with IP networks read at least the first chapter: "The Case for IPv6—An Updated Perspective." Briefly and concisely, it shows IPv6 as it is and objectively compares it to IPv4, which still serves well. IPv6 is a better solution for many upcoming applications (mobile and multimedia), yet some issues are still being worked on. Overall, however, IPv6 is mature and ready for deployment.

For IP-savvy readers

Deploying IPv6 Networks is clear and readable, using technically precise language with many figures, configuration scripts, and examples. The text is descriptive, covers all necessary technological details, and is practical for professionals responsible for Cisco-based networks.
Popoviciu, Levy-Abegnoli, and Grossetete provide technical background on IPv6 but wisely title it a "refresher." For best results in deploying IPv6 networks, you should have a good practical knowledge of IPv4 networking and Cisco IOS and a reasonable understanding of IPv6 basics.

The book discusses in detail unicast and multicast IPv6 services, quality-of-service issues, mobility services, security, and management aspects. Very enlightening is the overview of network performance considerations for IPv4 and IPv6's coexistence. The authors describe MPLS (multiprotocol label switching) and VPNs (virtual private networks) at length, comparing their deployment for IPv4 and IPv6.

The book fulfills the promise on the back cover: that after completing it, you will

- understand the current state of IPv6 technologies and services,
- understand IPv6 features as they're applied in service deployments,
- be prepared to ready your organization for migration to IPv6,
- know how to design and implement an IPv6 production-level network using the book's templates and examples,
- be able to configure and troubleshoot IPv6 networks, and
- know where IPv6 developments will go in the future.

The authors respect that some aspects of IPv6 remain works in progress, and they refer to Internet drafts or "I-Ds" (as with all other references only by name; they don't provide URLs). Readers should keep in mind that I-Ds expire in six months unless updated. Because the text is from last year, readers will have to look around for up-to-date information on new solutions.

**Minor shortcomings**

This guidebook is largely self-contained, but it can't explain all related technicalities in detail, so the authors refer to other authoritative volumes. Unfortunately, these references appear throughout the text, and the authors don't provide a complete appendix of further sources. I also would have liked a simple list of the abbreviations used throughout because they're numerous and sometimes ambiguous.

The authors (three Cisco senior professionals, including one Cisco Certified Internetwork Expert) and the technical reviewers all have strong IP backgrounds, which is reassuring as to the book's technical accuracy. I encountered only one problem (political rather than technical): the maps of Europe in one case study are about 14 years obsolete, showing the former Czechoslovakia instead of the Czech Republic and Slovakia.

I would recommend this volume to anyone who has to deal with the unavoidable transition from IPv4 to IPv6. The technical details and practical advice it provides will help smooth the otherwise cumbersome process.

**Rita Pužmanováis** an independent networking specialist, technology writer, and trainer. Contact her at rita@ieee.org rita@ieee.org.

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- "The Transition to IPv6, Part II: The Softwire Mesh Framework Solution," *IEEE Internet Computing* (http://doi.ieeecomputersociety.org/10.1109/MIC.2006.113)
• "Proactive DAD: A Fast Address-Acquisition Strategy for Mobile IPv6 Networks," IEEE Internet Computing (http://doi.ieeecomputersociety.org/ 10.1109/MIC.2006.131)

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