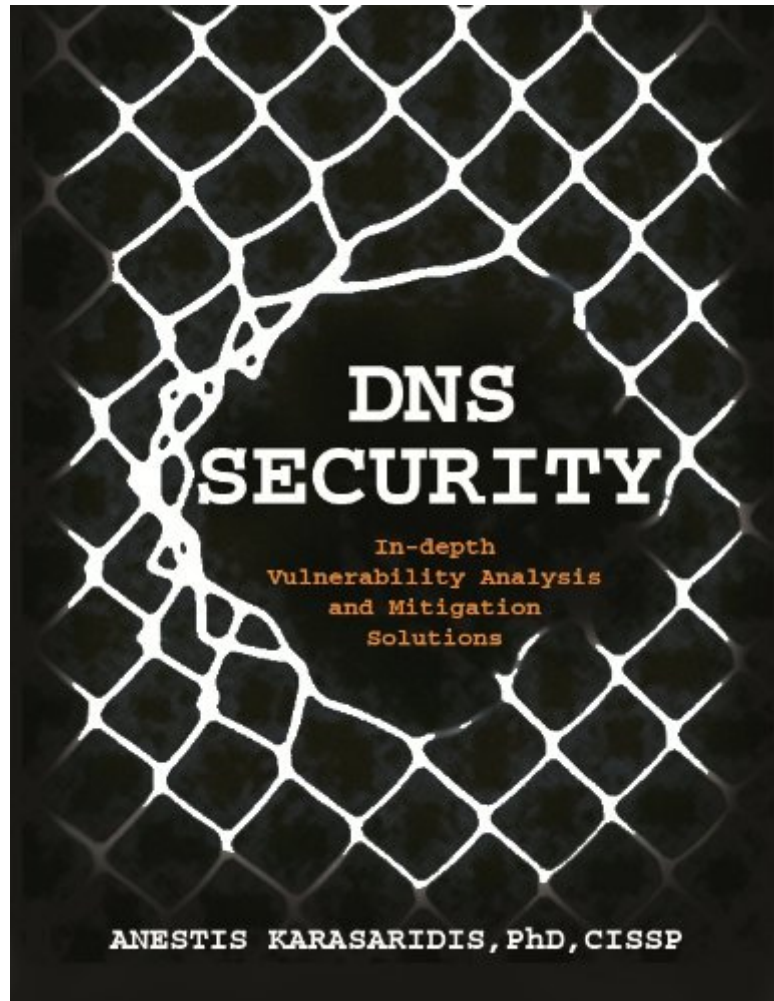# DNS Security: In-depth Vulnerability Analysis And Mitigation Solutions

Synopsis

The Domain Name System (DNS) is arguably one of the most important network infrastructure services. As the enabler of almost every web, email, instant messaging, and e-commerce transaction, it is the central nervous system of the Internet. DNS is also a critical component for new and emerging applications such as Voice over LTE (VoLTE) in cellular networks, Voice over IP (VoIP) Telephony, Radio Frequency IDs (RFID), and Content Distribution Networks (CDN). Now in IEEE ComSoc's Best Readings, this book gives the reader an in-depth understanding of how DNS works, its security vulnerabilities, how to monitor and detect security related events and how to prevent and mitigate attacks. After reading the book, the reader will be able to recognize and explain the major issues around DNS security, and know the best practices to setup, operate, and protect DNS service. This book provides a comprehensive coverage of DNS security and is mainly addressed to Information Systems security professionals such as network and system analysts and administrators, network and security operations personnel, network designers and architects, as well as the research community. Sections of the book can be used as assigned reading for undergraduate or graduate classes in network/application security. The book is organized in six chapters. Chapter 1 gives an introduction to the topic, illustrating the importance of DNS Security and providing the motivation for in-depth study of the topic. Chapter 2 gives a comprehensive overview of the protocol, common service architectures, and most common applications using DNS. In Chapter 3, we describe security vulnerabilities at the architectural, protocol, configuration and implementation levels. In Chapter 4, we review how to monitor DNS traffic in different environments and examine techniques to detect security related events. Chapter 5 examines how to prevent, protect against and mitigate attacks. Finally, in Chapter 6 we examine in detail the DNSSEC protocol and its implementation. We conclude examining DNSCurve, an alternative proposal for securing DNS transactions.Awarded IEEE Communication Society's best readings (Books category)

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Customer Reviews

DNS security is an issue that often get overlooked until there is a major service outage. Running DNS is almost maintenance free until getting attacked. While most of small fish may be able to stay hidden, DNS for ISPs, content providers, or large corporate networks have to stay vigilant to prepare for worst case otherwise their business may suffer the consequence.This book covers many DNS security topics of running a large scale DNS service. The author, a network security researcher, have been working with AT&T operations on DNS security issues for many years. The book is written with a perceptive from a security researcher's yet it is clear and concise manner with ample illustrated examples such that people familiar with DNS can follow. People not comfortable with math may find detection algorithms bit hard to follow in some sections but that they can still benefit from many insights through out the book. This book is about taking DNS service to the next level.Unlike most of DNS books out there, this is the very first book that examines topics DNS security issues holistically instead as yet another book chapter. The book contains many gems. Chapter 4 includes many basic algorithms already used in AT&T network to monitor and detect DNS attacks and anomalies in traffic. Chapter 6 has the best presentation of DNSSEC protocol with insights behind the implementation.

DNS infrastructure , security and design is a very unglamorous and underated field of expertise. Yet the growth and use of cloud technologies , mobile device usage and an every more complex app ecosystem all assume a working & secure foundation of DNS services underpinning all critical transactions & services. At $11 dollars this book is a steal, buy it :)

I could read this book over and over to glean more information around attack vectors and threats for DNS. One to keep close by if you deal with DNS security

Great read! Used it for class. But wished that there is a hardcover/softcover book in print, not just the kindle version. Concepts explained well enough.

DNS Security: In-depth Vulnerability Analysis and Mitigation Solutions DNS in Action: A detailed and practical guide to DNS implementation, configuration, and administration Home Security: Top 10 Home Security Strategies to Protect Your House and Family Against Criminals and Break-ins (home security monitor, home security system diy, secure home network) Android Security Internals: An In-Depth Guide to Android's Security Architecture Federal Suitability and Security Clearances: Issue Mitigation Handbook DNS Security: Defending the Domain Name System An Approach to Vulnerability Assessment for Navy Supervisory Control and Data Acquisition (SCADA) Systems Social Vulnerability to Disasters Seeds of Disaster, Roots of Response: How Private Action Can Reduce Public Vulnerability Social Security: Time for a Life of Leisure - The Guide of Secrets to Maximising Social Security Retirement Benefits and Planning Your Retirement (social ... disability, social security made simple) My Child Won't Sleep Through the Night: 5 No-Cry Solutions to Solve Your Child's Sleep Issues (Baby Sleep Solutions, Toddler Sleep Problems, Child Sleep Solutions, No-Cry Sleep Solution) HIV/AIDS And Human Development In Sub-Saharan Africa: Impact Mitigation Through Agricultural Interventions: An Overview and Annotated Bibliography ... Leaders in Agriculture and the Environment) Enterprise Mobility with App Management, Office 365, and Threat Mitigation: Beyond BYOD Compact Heat Exchangers for Energy Transfer Intensification: Low Grade Heat and Fouling Mitigation Six-Minute Solutions for Civil PE Water Resources and Environmental Depth Exam Problems Mitigation of Hydrodynamic Resistance: Methods to Reduce Hydrodynamic Drag Hazard Mitigation in Emergency Management LES and DNS of Ignition Process and Complex Structure Flames with Local Extinction (AIP Conference Proceedings / Mathematical and Statistical Physics) Red Hat Enterprise Linux (RHEL) 7 Server Installation and Administration: Training Manual: Covering CentOS-7 Server, Cloud computing, Bind9 DNS Server and Fedora 23 Server DNS and BIND (5th Edition)