

Foreword

The role of cyber infrastructure in the global economy is becoming increasingly dominant as this infrastructure has enabled global business and social interaction across cultural and societal boundaries. However, the benefits of this infrastructure can be significantly overshadowed by widespread cyber security incidents as adversarial activities are increasingly international in scope. Online marketplaces for stolen IDs and financial data could be run by criminals maintaining servers across international boundaries and impacting financial enterprises all over the globe. The denial of service (DoS) attack in Estonia is a sobering revelation of how an attack on the cyber infrastructure can severely affect the functioning of an entire nation. With the growing capability of spreading worms over the Internet, the deployment of heterogeneous operating systems, growing number of software patches, sporadic usage of client software (e.g., growing usage of VoIP services with vulnerabilities), and networking technologies (e.g., the on-going aggressive migration towards IPv6) are some of the leading examples diversely impacting the security of the global cyber infrastructure.

The phenomenal adaptation of social networking in the cyberspace is also providing opportunities for attackers. In addition, diverse perspectives and policies adopted by various segments of the cyber infrastructure exacerbate security risks, and further hamper our understanding of security/privacy concerns and the choice of technological and policy measures. To build a secure cyber infrastructure, we need to understand how to design various components of this infrastructure securely. Over the years, we have learned that cyber security needs to be viewed in terms of security of all its components and best practices and standards need to be adopted globally. This understanding has several facets and a holistic approach is required to address security challenges from all the dimensions.

Cyber security has a long way to go, and covering the complete spectrum of this topic is a daunting task. We need not only to learn how to achieve it but also need to realize that it is essential to pursue it. Addressing this need, this book provides a balanced and comprehensive treatment to this vast topic. We expect the readers will greatly benefit from this book and practice the knowledge provided in it.

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