



SECURING COMMUNICATION PATHS IN MOBILE AD HOC NETWORKS: MONITORING AND SURVEILLANCE OF ROUTING ALGORITHMS

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Securing Communication Paths in Mobile Ad Hoc Networks: Monitoring and Surveillance of Routing Algorithms

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PREFACE

In recent years, the rapid proliferation of mobile devices has led to the widespread adoption of Mobile Ad Hoc Networks (MANETs). These networks, which operate without the need for a fixed infrastructure, offer significant advantages in terms of flexibility, scalability, and ease of deployment. They have found applications in various fields, including disaster response, military operations, vehicular communications, and IoT deployments, among others.

However, the very nature of MANETs, characterized by their dynamic topology and decentralized control, also makes them vulnerable to a wide range of security threats. As communication paths are formed on-the-fly based on the connectivity of the participating nodes, malicious actors can exploit these characteristics to launch attacks, disrupt communication, or compromise the network's integrity and confidentiality.

Routing algorithms play a crucial role in enabling efficient communication within MANETs. These algorithms determine the most optimal paths for data transmission between nodes. Hence, securing the communication paths is paramount in ensuring the overall security of the network.

This book, "Securing Communication Paths in Mobile Ad Hoc Networks: Monitoring and Surveillance of Routing Algorithms," aims to address the complex challenges and vulnerabilities present in MANETs. Its primary focus lies in exploring innovative monitoring and surveillance techniques that can be employed to safeguard the routing algorithms and, by extension, enhance the security of communication paths.

Throughout the chapters, we delve into the intricacies of various MANET routing protocols, analyzing their strengths and weaknesses from a security standpoint. We then present cutting-edge monitoring and surveillance strategies to detect and thwart potential threats, ensuring that communication remains protected even in the face of adversaries.

Additionally, this book aims to serve as a valuable resource for researchers, practitioners, and students who seek to understand the security landscape of mobile ad hoc networks better. We provide practical insights and case studies to illustrate the real-world implications of security breaches in MANETs, fostering a deeper comprehension of the subject matter.

It is essential to note that the field of mobile ad hoc network security is continuously evolving, as new attack vectors emerge and novel solutions are proposed. Therefore, we encourage readers to supplement this knowledge by staying up-to-date with the latest research and advancements in the domain.

We extend our gratitude to the contributors and researchers in the field, whose tireless efforts have shaped the body of knowledge on MANET security. Without their dedication, this work would not have been possible.

Let us embark on this journey together, striving to secure communication paths in mobile ad hoc networks, fortifying the foundations of a safer and more resilient interconnected world.

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