

CSDS 500 and ECSE 500 Fall 2020 Colloquium

11:30AM to 12:30PM
Tuesday, October 27, 2020

Zoom Webinar ID: 862 815 806
Passcode: 914464

“Improving the Security of Internet Routing”

Internet Routing has not been designed for security, and while ad-hoc defenses exist, these are not systemic, and there are still large vulnerabilities - and numerous abuses. There is wide awareness of this, and for more than two decades, intensive efforts to upgrade Internet routing with systemic defenses. Unfortunately, there are significant challenges in deploying such effective systemic defenses.

We will review the essential aspects of Internet routing and explain its inherent vulnerabilities, and the main standardization efforts for defenses: Route Origin Validation (ROV) and BGPsec. ROV is a defense against prefix hijacking, and BGPsec is a defense against path manipulation - the two basic threats against Internet routing. Both are based on the Resource Public-Key Infrastructure (RPKI), so we will briefly explain that too.

We will also discuss some of our ongoing works toward improving security of Internet routing, mainly ROV++, an extension of ROV that significantly improves its defenses, and ezBGPsec, a protocol that achieves similar goals to BGPsec but with a fraction of its (prohibitive) computational costs, and with support for incremental adoption - two major problems of BGPsec. The presentation will provide the necessary background on Internet routing.



Amir Herzberg, University of Connecticut

Dr. Herzberg's is the Comcast professor for Cybersecurity Innovation in the department of Computer Science and Engineering, University of Connecticut. His research areas include: network security (esp. routing/DNS/transport, Denial-of-Service, Web), privacy and anonymity, applied cryptography, usable security, security for cyber-physical systems, and social, economic and legal aspects of security.

Dr. Herzberg earned his Ph.D. in Computer Science in 1991 from the Technion in Israel. From 1991 to 1995, he worked at the IBM T.J. Watson Research Center, where he was a research staff member and the manager of the Network Security research group. From 1996 to 2000, Dr. Herzberg was the Manager of E-Business and Security Technologies at the IBM Haifa Research Lab. From 2002 to 2017, he was a professor in Bar Ilan University (Israel). Since 2017, he is professor at University of Connecticut.

Dr. Herzberg is the author of many papers in different areas of cybersecurity as well as 24 patents, and is now writing a textbook on cybersecurity (draft available online). He has served in numerous program committees and delivered multiple keynote and plenary talks in conferences, and served as program chair for IEEE CNS'19, editor of PoPETS and ACM TISSEC/TOPS. Dr. Herzberg is recipient of the Internet Society's Applied Networking Research award, 2017.

This is to certify that _____ attended this seminar. Certified by _____.
Certificates of attendance and other evidence of CPD activity should be retained by the attendee for auditing purposes.



CASE SCHOOL
OF ENGINEERING

CASE WESTERN RESERVE
UNIVERSITY