



Contribution ID: 42

Type: **not specified**

Experiencing a new Internet Architecture

Tuesday, 25 January 2022 09:00 (45 minutes)

Imagining a new Internet architecture enables us to explore new networking concepts without the constraints imposed by the current infrastructure. What are the benefits of a multi-path inter-domain routing protocol that finds dozens of paths? What about a data plane without inter-domain forwarding tables on border routers? What secure systems can we build if a router can derive a symmetric key for any host on the Internet within nanoseconds?

In this presentation, we invite you to join us on our 12-year long expedition of creating the SCION next-generation secure Internet architecture. SCION has already been deployed at several ISPs and domains, and has been in production use since 2017. On our journey, we have found that path-aware networking and multi-path communication not only provide security benefits, but also enable higher efficiency for communication, increase network capacity, and even reduce power utilization.

Born 1972, Perrig is a Swiss computer science researcher specialising in the areas of security, networking, and applied cryptography. He received his BSc degree in Computer Engineering from EPFL in 1997, MS and PhD degrees from Carnegie Mellon University in 1998 and 2001, respectively. He spent three years during his PhD working with his advisor Doug Tygar at the University of California, Berkeley. From 2002 to 2012, he was a Professor of Electrical and Computer Engineering, Engineering and Public Policy, and Computer Science (courtesy) at Carnegie Mellon University, becoming Full Professor in 2009. From 2007 to 2012, he served as the technical director for Carnegie Mellon's Cybersecurity Laboratory (CyLab). During this time he built a research project called SCI-FI (Secure Communications Infrastructure for a Future Internet). A research project aimed at building a next-generation secure internet architecture. The project later got renamed into SCION (Scalability, Control, and Isolation On Next-generation networks). Since 2013, he is Professor at ETH Zurich, leading the Network Security Group, whose research “revolves around building secure and robust network systems—with a particular focus on the design, development, and deployment of the SCION Internet architecture.

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Session Classification: Keynote

Track Classification: Keynotes