2010 IEEE Symposium on Security and Privacy (IEEE S&P)

Table of Contents

Message from the General Chair	
Organizing Committee	
Program Committee Members	
Additional Reviewers	
Special 30th Anniversary Invited Papers	
Reflections on the 30th Anniversary of the IEEE Symposium on Security and Privacy	3
History of US Government Investments in Cybersecurity Research: A Personal Perspective	14
Crossing the "Valley of Death": Transitioning Research into Commercial Products: A Personal Perspective	21
Session 1: Malware Analysis	
Inspector Gadget: Automated Extraction of Proprietary Gadgets from Malware Binaries	29
Synthesizing Near-Optimal Malware Specifications from Suspicious Behaviors	45
Identifying Dormant Functionality in Malware Programs	61
Paolo Milani Comparetti, Guido Salvaneschi, Engin Kirda, Clemens Kolbitsch, Christopher Kruegel, and Stefano Zanero	01
Session 2: Information Flow	
Reconciling Belief and Vulnerability in Information Flow	79
Towards Static Flow-Based Declassification for Legacy and Untrusted Programs	93
Noninterference through Secure Multi-execution Dominique Devriese and Frank Piessens	109
Object Capabilities and Isolation of Untrusted Web Applications	125

Session 3: Root of Trust

TrustVisor: Efficient TCB Reduction and Attestation	143
Jonathan M. McCune, Yanlin Li, Ning Qu, Zongwei Zhou, Anupam Datta, Virgil Gligor, and Adrian Perrig	
Overcoming an Untrusted Computing Base: Detecting and Removing Malicious Hardware Automatically	159
Matthew Hicks, Murph Finnicum, Samuel T. King, Milo M. K. Martin, and Jonathan M. Smith	
Tamper Evident Microprocessors Adam Waksman and Simha Sethumadhavan	173
Session 4: Information Abuse	
Side-Channel Leaks in Web Applications: A Reality Today, a Challenge Tomorrow	191
Investigation of Triangular Spamming: A Stealthy and Efficient Spamming Technique	207
A Practical Attack to De-anonymize Social Network Users	223
SCiFI - A System for Secure Face Identification	239
Session 5: Network Security	
Round-Efficient Broadcast Authentication Protocols for Fixed Topology Classes	257
Revocation Systems with Very Small Private Keys	273
Authenticating Primary Users' Signals in Cognitive Radio Networks via Integrated Cryptographic and Wireless Link Signatures	286
Session 6: Systematization of Knowledge I	
Outside the Closed World: On Using Machine Learning for Network Intrusion Detection	305
All You Ever Wanted to Know about Dynamic Taint Analysis and Forward Symbolic Execution (but Might Have Been Afraid to Ask)	317
State of the Art: Automated Black-Box Web Application Vulnerability Testing	332

Session 7: Secure Systems

A Proof-Carrying File System	349
Deepak Garg and Frank Pfenning	
Scalable Parametric Verification of Secure Systems: How to Verify Reference Monitors without Worrying about Data Structure Size	365
Jason Franklin, Sagar Chaki, Anupam Datta, and Arvind Seshadri	
HyperSafe: A Lightweight Approach to Provide Lifetime Hypervisor Control-Flow Integrity	380
Session 8: Systematization of Knowledge II	
How Good Are Humans at Solving CAPTCHAs? A Large Scale Evaluation	399
Bootstrapping Trust in Commodity Computers	414
Session 9: Analyzing Deployed Systems	
Chip and PIN is Broken	433
Experimental Security Analysis of a Modern Automobile	447
On the Incoherencies in Web Browser Access Control Policies	463
Session 10: Language-Based Security	
CONSCRIPT: Specifying and Enforcing Fine-Grained Security Policies for JavaScript in the Browser	481
TaintScope: A Checksum-Aware Directed Fuzzing Tool for Automatic Software Vulnerability Detection	497
A Symbolic Execution Framework for JavaScript	513
Author Index	529