

21st National Information Systems Security Conference

Papers

Assurance/Criteria/Testing

Track A

A Practical Approach to Sufficient INFOSEC

Dr. Rayford Vaughn, Jr., *Mississippi State University*

A Metric For Trusted Systems

Audun Jøsang, *Telenor R&D*

Practical Steps Toward Providing a Cost-Effective Security Architecture Based on the Common Criteria

Bernard Ramsey, Jr., *Federal Aviation Administration*

An Approach for Certifying Security in Software Components

Anup K. Ghosh, *Reliable Software Technologies*

Building a Case for Assurance from Process

Karen Ferraiolo, *Arca Systems, Inc.*

Internet

Track D

An Approach to UNIX Security Logging

Stefan Axelsson, *Chalmers University of Technology, Sweden*

Ulf Lindqvist, Ulf Gustafson, Erland Jonsson, *Chalmers University of Technology, Sweden*

A Layered Framework for Placement of Distributed Intrusion Detection Devices

Marcelo Medina, *George Washington University*

The Macro Virus and Virus Scanning Software: An Analysis of Their Interaction

LT William A. Macchione, *Naval Air Systems Command*

Daniel Warren, *Naval Postgraduate School*

The Remedy Dimension of Vulnerability Analysis

Ulf Lindqvist, Erland Jonsson, *Chalmers University of Technology, Sweden*

Per Kaijser, *Seimens AG, Germany*

A Forecasting Model for Internet Security Attacks

Alexander D. Korzyk, Sr., *Virginia Commonwealth University and J.G. Van Dyke & Associates*

An Analysis of Some Software Vulnerabilities

Mahesh Tripunitara, Ivan Krsul, Eugene Spafford, *COAST Lab Purdue University*

Conflict and the Computer: Information Warfare and Related Ethical Issues

Sam Nitzberg, *Telos Information Protection Solutions*

Common-Sense: An Alternative Approach to Web Security
Russell M. Shumway, *Global Integrity Corporation*

Management of Network Security Applications
Philip C. Hyland, Ravi Sandhu, *George Madison University*

The Cyber Battlefield – Is This the Setting for the Ultimate World War?
Sam Nitzberg, *Telos Information Protection Solutions*

Improving Computing Security During the Development of DOD Computerized Weapons Platform
Sam Nitzberg, Mike Carson, *Telos Information Protection Solutions*

Security Implications of Quantum Technologies
Jim Alves-Foss, *University of Idaho*

Security and e-business: Is There a Prescription?
Jim Whitmore, *IBM Corporation*

A Decision Making Model for Securely Conducting Electronic Commerce
Alexander D. Korzyk Sr., *Virginia Commonwealth University and J.G. Van Dyke & Associates*

Anonymous Internet Credit Cards
Vijay Varadharajan, Yi Mu, *University of Western Sydney, Nepean, Australia*

Policy/Administration/Management/Operations

Track E

Security Accreditation, Management and Monitoring – Getting the Balance Right!
Peter J. Fischer, *Government Communications Headquarters, UK*

The Benefits of Applying the DoD Information Technology Security Certification and Accreditation Process to Commercial Systems and Applications
Robert M. Jackson, Gerald L. Oar, *SphereCom Enterprises Inc.*

Conversion of a 300 User Unclassified Network to a Restricted High Network
Roger M. Griffin, *Civil Service College, Sunningdale, UK*
Peter J. Fischer, *Government Communications Headquarters, UK*

Considerations for Allocating Resources for Information Security
Marshal D. Abrams, Carolyn M. Johnson, Jay J. Kahn, Susan G. King, *The MITRE Corporation*

Risk Management
James W. Meritt, *Wang Government Systems*

An Open Framework for Risk Management

Rick Craft, Greg Wyss, Ruthe Vandewart, Don Funkhouser, *Sandia National Laboratories*

Research and Development

Track F

The Inevitability of Failure: The Flawed Assumption of Security in Modern Computing Environments

Peter A. Loscocco, Stephen D. Smalley, Patrick A. Muckelbauer, Ruth C. Taylor, S. Jeff Turner, John F. Farrell, *National Security Agency*

Security Agent Based Distributed Authorization: An Approach

Vijay Varadharajan, Nikhir Kumar, Yi Mu, *University of West Sydney, Nepean, Australia*

A Visual Mathematical Model for Intrusion Detection

Greg Vert, Deborah A. Frincke, Jesse McConnell, *University of Idaho*

A Specification-Based Approach for Building Survivable Systems

R. Sekar, Yong Cai, , *Iowa State University*
Mark Segal, *Bellcore*

Planning, Petri Nets, and Intrusion Detection

Donald Tobin, Jr., Deborah Frincke, Yuan Ho, *University of Idaho*

A Framework for Cooperative Intrusion Detection

Jesse McConnell, Deborah Frincke, Don Tobin, Jamie Marconi, Dean Polla, *University of Idaho*

Analyzing Programs for Vulnerability to Buffer Overrun Attacks

Anup K. Ghosh, Tom O'Connor, *Reliable Software Technologies Corporation*

An Approach for Analyzing the Robustness of Windows NT Software

Anup K. Ghosh, Viren Shah, Matt Schmid, *Reliable Software Technologies Corporation*

Categorization of Software Errors That Led to Security Breaches

Wenliang Du, Aditya P. Mathur, *COAST Laboratories, Purdue University*

A Survey of Multicast Security Issues and Architectures

Peter S. Kruus, *Naval Research Laboratory*

High Assurance Multilevel Services for Off-The-Shelf Workstation Applications

Cynthia E. Irvine, Cpt. Jason Hackerson, USMC, *Naval Postgraduate School*
James P. Anderson, *James P. Anderson Company*
LT Dion Robb, USN, *SPAWARSYSCEN*

Building an FTP Guard

Paul D. Sands, *Sandia National Laboratories*

Artificial Neural Networks for Misuse Detection
James Cannady, *Nova Southeastern University*

Challenges and New Technologies for Addressing Security in High Performance Distributed Environments
Rossen Dimitrov, Matthew Gleeson, *Mississippi State University*

The Granular Protection Solution for Databases
Ulf T. Mattsson, Ulf G. Dahl, *Protegrity, Inc.*

Inheritance Properties of Role Hierachies
W.A. Jansen, *National Institute of Standards and Technology*

Decentralized Group Hierarchies in UNIX: An Experiment and Lessons Learned
Ravi Sandhu, Gail-Joon Ahn, *George Mason University*

Role-Based Access Control Features in Commercial Database Management Systems
Chandramouli Ramaswamy, *National Institute of Standards and Technology*
Ravi Sandhu, *George Mason University*

From a Formal Privacy Model to its Implementation
Simone Fischer-Hübner, Amon Ott, *University of Hamburg, Germany*

Wiemer-Murray Domain Security Policy Model for International Interoperability
Douglas J.M. Wiemer, *SAIC Canada*

A HOL Formalization of CAPSL Semantics
Stephen H. Brackin, *Arca Systems, Inc.*

Future Issues

Track G

Status of the Advanced Encryption Standard (AES) Development Effort
Jim Foti, *National Institute of Standards and Technology*

A Closer Look at Revocation and Key Compromise in Public Key Infrastructures
David A. Cooper, *National Institute of Standards and Technology*

Multi-Protocol Attacks and the Public Key Infrastructure
Jim Alves-Foss, *University of Idaho*

Security Policy Target, Content, and Links
Frank T. Bass, *τΩ Engineering, Incorporated*

Case Study of H.R. 695: The Security and Freedom Through Encryption (SAFE) Act
Catherine Miller Horiuchi, *Sacramento Municipal Utility District, University of Southern California*

Effective Information Security Documents
Michael E.J. Stubbings, *Communications-Electronics Security Group, UK*

Panels

Assurance/Criteria/Testing

Track A

Common Criteria Version 2.0 – Launching the International Standard

Co-Chair: Gene Troy, *National Institute of Standards and Technology*

Co-Chair: Murray Donaldson, *Communications-Electronics Security Group*

Panelists:

Shukri Wakid, *National Institute of Standards and Technology, US*

Michael Jacobs, *National Security Agency, US*

Jean-Louis Desvignes, *Central Information Systems Security Service, France*

Dirk Henze, *German Information Security Agency, Germany*

Gary O’Bright, *Communications Security Establishment, Canada*

Nick Plasier, *Netherlands National Communications-Electronics Security Agency, Netherlands*

Andrew W. Saunders, *Communications-Electronics Security Group, United Kingdom*

The National Information Assurance Partnership: One Year Later

Chair: Kris Britton, *National Security Agency*

Panelists:

Linda Gilmore, *SPARTA, Inc.*

Bernard Ramsey, *Federal Aviation Administration*

Marshall Abrams, *MITRE Corporation*

The NIAP Common Criteria Evaluation and Validation Scheme – The Future of Commercial Security Testing and Evaluation

Chair: Ron Ross, *National Institute of Standards and Technology*

Panelists:

Robin Medlock, *Mitretek Systems*

Jeffrey Horlick, *National Institute of Standards and Technology*

The Trust Technology Assessment Program: “Transition to Commercial Evaluations”

Chair: Thomas E. Anderson, *National Security Agency*

Panelists:

Douglas J. Landoll, *Arca Systems, Incorporated*

Peter Sergeant, *CoAct, Incorporated*

Kimberly Kaplan, *Computer Sciences Corporation*

James Reynolds, *Cygnacom Solutions, Incorporated*

Edward McLaughlin, *National Software Testing Laboratories*

Robert Williamson, *Science Application International Corporation*

Trust Technology Assessment Program (TTAP) Evaluations: A Worked Example

Chair: Douglas J. Landoll, *Arca Systems, Inc.*

Panelists:

Tom Anderson, *National Security Agency*

Dinesh Vakharia, *IBM Corporation*

Paul Bicknell, *The Mitre Corporation*

Common Criteria Protection – Addressing Diverse Constituencies

Chair: Gary Stoneburner, *National Institute of Standards and Technology*

Viewpoints:

Firewalls PPs

Wayne Jansen, *National Institute of Standards and Technology*

DBMS PPs

Jeff DeMello, *Oracle*

RBAC PPs

R. Chandramouli, *National Institute of Standards and Technology*

PKI STs

Marc Laroche, *Entrust Technologies*

Security Assurance: Does Anybody Care?

Chair: Stu Katzke, *National Institute of Standards and Technology*

Viewpoints:

S. Chokhani, *Cygnacom Solutions*

J. Schindler, *Hewlett Packard*

D. Webb, *SRI*

Trusted Product Evaluation Program: “End of an Era”

Chair: Keith Brewster, *National Security Agency*

Panelists:

Tom Anderson, *National Security Agency*

Howard Holm, *National Security Agency*

Janine Pederson, *National Security Agency*

Alternative Assurances

Chair: Mary D. Schanken, *National Security Agency*

Panelists:

Christina R. Cheetham, *National Security Agency*

LT Renell D. Edwards, *National Security Agency*

Charles G. Menk,III, *National Security Agency*

Todd D. Schucker, *National Security Agency*

Education

Track B

An Architecture for Managing Security in Large Complex Enterprises

Chair: Barry W. Keyes, *Unisys Corporation*

Security Concepts for Distributed Component Systems

Chair: Walt Smith, *Tekna, Inc.*

Practical Cryptography: Privacy for Business and E-commerce

Chair: Frederick M. Avolio, *Independent Security Consultant*

Key Recovery

Chair: Dr. Sarbari Gupta, *Cygnacom Solutions, Inc.*

Systems Security Engineering Capability Maturity Model

Chair: Karen Ferraiolo, *Arca Systems, Inc.*

INFOSEC UPDATE: A Review of the Year's Key Developments

Co-Chair: Michel E. Kabay, *CISSP, ICSA, Inc.*

Co-Chair: David M. Kennedy, *CISSP, ICSA, Inc.*

Electronic Commerce

Track C

The Electronic Commerce Landscape

Chair: Anish Bhimani, *Global Integrity Corporation*

Panelist:

Art Goldberg, *Entegrity Solutions, Inc.*

Building "Industrial Strength" (High Assurance) Dynamic Commerce Systems – A Multi-Disciplinary View from the Financial Services Industry Perspective

Chair: Kawika Daguio, *American Bankers Association*

Smart Cards: Tools for Security and Convenience

Chair: Karen Silberman, *Smart Card Forum*

Panelists:

Thomas Gregg, *3-G International*

Gilles Lisimaque, *Gemplus Corporation*

The Emerging Public Key Infrastructure: Standards and Trends

Chair: Anish Bhimani, *Global Integrity Corporation*

Panelist:

David Solo, *Citicorp*

Charles Blauner, *J.P. Morgan*

Securing the Extended Enterprise in an Electronic World

Chair: Joe Pato, *Hewlett Packard*

Panelists:

Karen F. Worstell, *Stanford Research Institute Consulting*

Taher Elgamal, *VeriGuard*

April T. Brake, *Hewlett Packard*

Internet

Track D

Anti-Virus Strategies – Preventing an Epidemic

Chair: Christine M. Orshesky, *Telos Corporation*

Panelists:

Jimmy Kuo, *Network Associates*

Mark Jesmer, *Federal Bureau of Investigation*

Donald Phipps, *Kaiser Permanente*

Erika Langerman, *The Joint Staff, Pentagon*

Do Attack/Defend Exercises Belong in the Classroom?

Chair: Deborah A. Frincke, *University of Idaho*

Panelists:

Matt Bishop, *University of California at Davis*

Cynthia Irvine, *Naval Postgraduate School*

Ira Winkler, *Information Security Advisors Group*

Derek Simmel, *CERT*

Jim Davis, *Iowa State University*

Willis Marti, *Texas A&M University*

Public Networks for Private Access

Chair: Tina Bird, *Secure Network Systems*

Panelists:

Fred Chase, *MITRE*

Tom Gilbert, *Blue Ridge Networks*

Stacey Lum, *InfoExpress*

Roy Pereira, *TimeStep*

Issues and Challenges in Implementing Ipsec

Chair: Steve Kent, *GTE Internetworking*

Panelists:

Cheryl Madson, *Cisco Systems, Inc.*

Naganand Dormaswamthy, *Bay Networks*

Roy Periera, *TimeStep Corporation*

Policy/Administration/Management/Operations

Track E

International Information Security Solutions: Successes, Failures, and Solutions

Chair: Jim Litchko, *Integrated Management Services, Inc.*

Panelists:

Howard E. Glavin, Jr., *CSX Technologies*

Tim Maulehue, *Carib F/X, Ltd.*

Loreto Remorca, Jr., *Telos International Systems, ASIA*

Certification and Accreditation – A Worldwide View

Chair: Penny Klein, *DISA*

Viewpoints:

Lessons Learned from Application of the DITSCAP with U.S. Federal Agencies

Barry C. Stauffer, *CORBETT Technologies, Inc.*

A View of the DoD Intelligence Community Accreditation Support Team (DICAST) C&A Support and Its Role with the DITSCAP

Jack Torak, *CIA*

The National Security Telecommunications and Information Systems Security Committee (NSTISSC) Work on a National C&A Standard

LtCol. Mark Loepker, *National Security Agency*

An Overview and Status of the NATO Approach to a C&A Process

David Murphy, *NATO Headquarters*

Information Assurance, C&A and INFOSEC Awareness Tools

Jack Eller, *DISA*

FIPS 140-1 Encryption Requirements: Cryptographic Module Validation Program

Chair: Annabelle Lee, *National Institute of Standards and Technology*

Panelists:

Laurie Mack, *Communications Security Establishment, Canada*

Ray Snouffer, *National Institute of Standards and Technology*

Access Certificates for Electronic Services

Chair: Judith A. Spencer, *General Services Administration*

Panelists:

Stanley J. Choffrey, *General Services Administration*

George Datesman, *Mitretek Systems*

David Temoshok, *General Services Administration*

Lessons Learned in Establishing a Virtual Computer Incident Response Capability

Chair: Marianne Swanson, *National Institute of Standards and Technology*

Viewpoints:

Lessons Learned – Communication, Coordination, and Cooperation

Kathy Fithen, *CERT/CC, Carnegie Mellon University*

Lessons Learned in Establishing and Incident Handling Capability

Marianne Swanson, *National Institute of Standards and Technology*

Federal Computer Incident Response Capability (FedCIRC)

David Adler, *General Services Administration*

Critical Security Issues – How to Meet the Challenges

Chair: Anne F. Thomson Reed, *Department of Agriculture*

Panelists:

Mark A. Boster, *Department of Justice*

Daryl W. White, *Department of Interior*

Dr. David Nelson, *NASA*

DoD Information Security Projections: The Service PM Perspective

Chair: Jim Litchko, *Integrated Management Services, Inc.*

Panelists:

Colonel Mike Brown, *U.S. Army*

Captain Dan Galik, *U.S. Navy*

Lt. Colonel Don Solano, *U.S. Air Force*

Research and Development

Track F

Improving Networked Information System Trustworthiness: A Research Agenda

Chair: Fred B. Schneider, *Professor, Cornell University*

Viewpoints:

Introduction to “Trust in Cyberspace”

Fred B. Schneider, *Professor, Cornell University*

Networked Trustworthiness: The Public Telephone Network and the Internet

Steven M. Bellovin, *AT&T Laboratories*

Software and Architecture Issues

John C. Knight, *University of Virginia*

Networked Information Systems and Security

Stephen T. Kent, *BBN Corporation*

Economic and Public Policy Context for Trustworthiness

Fred B. Schneider, *Professor, Cornell University*

Biomimicry to Protect the Global Information Infrastructure

Chair: Hilary Hosmer, *Data Security, Inc.*

Panelists:

Abigail Hafer, *Curry College*

Ruth Nelson, *Information System Security*

The Future of Multi-Level Secure (MLS) Information Systems

Chair: John Campbell, *National Security Agency*

Panelists:

Jim Williams, *Booz-Allen & Hamilton Inc.*

Viewpoints:

New Direction for Multilevel Secure Information Systems

Tim Ehram, *Oracle Corporation*

The Future of MLS Information Systems

Mario Tinto, *The Aerospace Corporation*

Future Issues

Track G

Practical Experiences Implementing a Scheme for Digital Signature

Chair: Klaus J. Keus, *GISA/BSI, Germany*

Viewpoints:

The German Digital Signature Bill: Practical and Technical Implications

Dr. O.E. Liebetrau, *Bundesamt für Sicherheit in der Informationstechnik, Germany*

A Certification Authority's Position and Statement

P. Mertes, *Deutsche Telekom AG, Germany*

Evaluation and Confirmation of Products and Security Concepts: Requirements, Problems and

Solutions: Evaluation and Confirmation of Smart Cards for Digital Signatures – Special

Facets in the Debis Spectrum of SigG/V-Specific Services

Dr. H.R. Baader, *debis IT-Security Services, Germany*

Examination and Confirmation Bodies in the German Digital Signature Act

Dr. Ernst-Herman Gruschwitz, *TUEV Information Technology GmbH, Germany*

Encryption Key Recovery: Off the Launch Pad

Chair: Elaine Barker, *National Institute of Standards and Technology*

Panelists:

Robert Frith, *Motorola, Key Recovery Alliance*

Richard Guida, *Key Recovery Demonstration Project*

Dr. Stephen T. Kent, *BBN*

A View From the Trenches: Leveraging Security Technology in the Networked Client/Server Environment

Chair: G. Mark Hardy, *AXENT Technologies, Inc.*

Commercial Network Intrusion Detection & Auditing Products: Installation, Integration, & Use from the Security Professional's Prospective

Chair: Jim Codespote, *National Security Agency*

The Secret and Below Interoperability (SABI) Process – Assessing Community Risk

Chair: LtCol Mark Loepker, *National Security Agency*

Panelists:

Curtis Dukes, *National Security Agency*

Charles Schreiner, *National Security Agency*

Willard Ukenholz, *National Security Agency*

Dallas Pearson, *National Security Agency*

Jack Eller, *Defense Information Systems Agency*

Report of the 1998 Annual Meeting of the National Colloquium for Information Systems Security Education (NCISSE)

Chair: Charles Reynolds, *James Madison University*