

# LISA'04

18<sup>th</sup> Large Installation System Administration Conference  
November 14–19, 2004

*Atlanta*

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THE ADVANCED COMPUTING  
SYSTEMS ASSOCIATION

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## *New Format!*

### **New for 2004: 6 Days of Training**

Take advantage of over 50 full- and half-day tutorials from renowned experts such as Marcus Ranum, Tom Christiansen, David Blank-Edelman, and Aileen Frisch.

- **KEYNOTE:** Howard Ginsberg on Going Digital at CNN
- 2nd Annual Spam Mini-Symposium
- 3 Days of Technical Sessions, including Refereed Papers, Invited Talks, and Guru Sessions
- Plenary Session by Bill Van Etten on Biology and Informatics for System Administrators

*The most in-depth, real-world system administration training available!*

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# LISA'04

18<sup>th</sup> Large Installation System Administration Conference

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## Conference at a Glance

### SATURDAY, NOVEMBER 13

5:00 p.m.–8:00 p.m.	On-Site Registration
6:00 p.m.–8:00 p.m.	Welcome Reception
8:00 p.m.–9:00 p.m.	Conference Orientation

### SUNDAY, NOVEMBER 14

7:30 a.m.–5:00 p.m.	On-Site Registration
9:00 a.m.–5:00 p.m.	Training Program
9:00 a.m.–5:00 p.m.	Workshop: Configuration Management

### MONDAY, NOVEMBER 15

7:30 a.m.–5:00 p.m.	On-Site Registration
9:00 a.m.–5:00 p.m.	Training Program
9:00 a.m.–5:00 p.m.	Workshop: SysAdmin Education
9:00 a.m.–5:00 p.m.	Workshop: AFS

### TUESDAY, NOVEMBER 16

7:30 a.m.–5:00 p.m.	On-Site Registration
9:00 a.m.–5:00 p.m.	Training Program
9:00 a.m.–5:00 p.m.	Workshop: Advanced Topics
7:00 p.m.–11:00 p.m.	Birds-of-a-Feather Sessions

### WEDNESDAY, NOVEMBER 17

7:30 a.m.–5:00 p.m.	On-Site Registration
8:45 a.m.–10:30 a.m.	Opening Remarks, Awards, Keynote
9:00 a.m.–5:00 p.m.	Training Program
11:00 a.m.–5:30 p.m.	Technical Program
12:00 p.m.–7:00 p.m.	Vendor Exhibition
5:30 p.m.–6:30 p.m.	Exhibition Beer & Gear Reception
7:00 p.m.–11:00 p.m.	Birds-of-a-Feather Sessions

### THURSDAY, NOVEMBER 18

7:30 a.m.–5:00 p.m.	On-Site Registration
9:00 a.m.–5:00 p.m.	Training Program
9:00 a.m.–5:30 p.m.	Technical Program
10:00 a.m.–4:00 p.m.	Vendor Exhibition
6:00 p.m.–8:00 p.m.	Conference Reception
8:00 p.m.–11:00 p.m.	Birds-of-a-Feather Sessions

### FRIDAY, NOVEMBER 19

8:00 a.m.–12:00 p.m.	On-Site Registration
9:00 a.m.–5:00 p.m.	Training Program
9:00 a.m.–3:30 p.m.	Technical Program
2:00 p.m.–3:30 p.m.	Work-in-Progress Reports (WIPs)
4:00 p.m.–5:30 p.m.	LISA Game Show

## WHY ATTEND LISA '04?

**“There is always one thing that I learn that makes me want to shout, ‘That just paid for the entire conference!’ Also there have been many times when I learned about a new sysadmin tool at LISA years before it was popular: that’s really helped me stay ahead of the pack.”**

**Tom Limoncelli, *Cibernet***

Want more reasons to come to LISA '04? See [www.usenix.org/lisa04/whyattend.html](http://www.usenix.org/lisa04/whyattend.html).

# Invitation from the LISA '04 Program Chair



## Dear Colleague,

I'm pleased to invite you to join me in Atlanta for the 18th Large Installation System Administration Conference (LISA '04): "System Administration Reality—Automation, Configuration, and Users."

For the past 17 years LISA has been the focal point for the global community of system and network administrators. This year LISA continues that tradition, featuring innovative tools and techniques essential to your professional and technical development.

**New for 2004:** 6 days of training. Select from over 50 tutorials taught by expert instructors, including:

- Æleen Frisch on Administering Linux in Production Environments
- Tom Christiansen and Mark-Jason Dominus on advanced topics in Perl programming
- Gerald Carter on LDAP and on Managing Samba
- David Blank-Edelman on Over the Edge System Administration
- Tom Limoncelli on Time Management for System Administrators
- Curtis Preston on Backup Techniques
- and more . . .

In addition to the training, 3 days of technical sessions include top-notch refereed papers, informative invited talks and panels, and expert Guru sessions.

Our Invited Talks track offers our most impressive slate of speakers to date. Speakers include:

- Keynote Speaker Howard Ginsberg, Senior Technology Implementation Manager for CNN Technology, on the challenges of replacing most of the videotape-based operations with server-based video storage
- Simson Garfinkel on what your used disk drives reveal to the world
- Keri Carpenter and Tom Limoncelli on tools used in Howard Dean's digital campaign

LISA is the premier forum for presenting new research in system administration. We selected papers from over 60 submissions, showcasing state-of-the-art work on topics including spam/email, intrusion and vulnerability detection, security, and system integrity.

**2nd Annual Spam Mini-Symposium:** Back by popular demand, the Spam Mini-Symposium will again focus on ways to fight spam. Leading spam experts will present the latest research findings and counter-spam techniques, with talks by:

- Joshua Goodman on How to Stop the Spam
- Doug Hughes on Lessons Learned Reimplementing an ISP Mail Service Infrastructure to Cope with Spam
- John Graham-Cumming on What Spammers Are Doing to Get Around Bayesian Filtering and What We Can Expect for the Future

And much more . . .

- Bring your perplexing technical questions to experts at LISA's unique "The Guru Is In" sessions
- Explore the latest commercial innovations at the Vendor Exhibition

**Early registration discounts** for LISA '04, taking place November 14–19, 2004, in Atlanta, GA, are available now! Register by Friday, October 22, and save up to \$300!

We're pleased to be bringing LISA to Atlanta and look forward to seeing you there.

Lee Damon, *University of Washington*  
LISA '04 Program Chair

## CONFERENCE ORGANIZERS

### PROGRAM CHAIR

Lee Damon, *University of Washington*

### PROGRAM COMMITTEE

David Blank-Edelman, *Northeastern University*

Rudi van Drunen, *Leiden Pathology and Cytology Labs, Leiden, The Netherlands*

Esther Filderman, *Pittsburgh Supercomputing Center*

Jon Finke, *RPI*

Æleen Frisch, *Exponential Consulting*

Michael Gilfix, *IBM*

David Hoffman, *Stanford University*

Brendan Murphy, *Microsoft Research*

Mario Obejas, *Raytheon*

John Sechrest, *Public Electronic Access to Knowledge*

Jeff Sheldon, *Louisiana State University*

Snoopy, *Infocopter Entertainment GmbH*

### INVITED TALKS

### COORDINATORS

Chair: Deeann Mikula, *Consultant*

Adam S. Moskowitz, *Menlo Computing*

Marcus Ranum, *Security Consultant*

### GURU IS IN COORDINATOR

Philip Kizer, *Texas A&M University*

### WORKSHOP COORDINATOR

Gretchen Phillips

# About USENIX & SAGE

## USENIX: THE ADVANCED COMPUTING SYSTEMS ASSOCIATION

Since 1975, USENIX has brought together a community of innovators, engineers, system administrators, scientists, and technicians working on the cutting edge of computing. Our mission is to support research and technical training for this dynamic community and our over 6,000 active members.

A complimentary USENIX membership is part of every non-USENIX-member technical sessions registration. The benefits of this membership include:

- Free subscription to *login:*, the magazine of USENIX, both in print and online
- Online access to all conference Proceedings from 1993 to the present
- The right to vote in USENIX Association elections
- Discounts on technical registration fees for all USENIX-sponsored and co-sponsored events
- Discounts on purchasing printed Proceedings, CD-ROMs, and other Association publications
- Discounts on industry-related publications such as *Sys Admin*, *Linux Journal*, and O'Reilly and No Starch Press books

## SAGE: THE PEOPLE WHO MAKE IT WORK

SAGE is a subgroup of the USENIX Association. It is organized to advance the status of computer system administration as a profession, establish standards of professional excellence and recognize those who attain them, develop guidelines for improving the technical and managerial capabilities of members of the profession, and promote activities that advance the state of the art or the community.

A complimentary SAGE membership is part of every non-SAGE-member technical sessions registration. The benefits of this membership include:

- Discount on registration for LISA, the annual Large Installation System Administration conference
- A print copy of the most recently published booklet in the SAGE Short Topics in System Administration series
- The option to join the highly responsive SAGE-members list, an electronic mailing list for peer discussions and advice
- A Code of Ethics for System Administrators
- Discounts on publications such as *Sys Admin*

## NEW THIS YEAR: SINGLE- AND MULTI-DAY REGISTRATION

*Come for one day or for several, or dive in for the whole 6 days of the conference—the more days you attend, the more money you save. Select from over 50 tutorials and 3 days of technical sessions to create the conference that meets your needs.*

### ATTENTION MANAGERS:

#### WHY YOU SHOULD SEND YOUR EMPLOYEES TO LISA '04

Hiring the best and the brightest is the ultimate goal for any employer. However, keeping current employees up to par is just as important. Technology continues to evolve: truly to stay ahead of the game, your employees must continue to enhance their skills.

The training program at LISA '04 offers a cost-effective, one-stop shop for training current IT and development employees. Over 50 full- and half-day tutorials taught by the most respected leaders in the field provide an unparalleled opportunity to learn from the best. Tutorials cover a multitude of system administration topics including open source technologies, security, and defeating spam.

Combining full days of training with days of technical sessions on groundbreaking research related to system and network administration makes the LISA '04 experience even more valuable. Additionally, the Wednesday and Thursday evening receptions and Birds-of-a-Feather sessions provide your staff with a chance to network with peers and industry leaders to gain that all-important "inside" IT knowledge that will keep your company current and running smoothly.

Keeping up with technology can be costly and time-consuming in this unforgiving economy: take full advantage of this opportunity to have your staff learn from the top researchers, practitioners, and authors all in one place, at one time.

### CONTINUING EDUCATION UNITS

USENIX provides Continuing Education Units for a small additional administrative fee. The CEU is a nationally recognized standard unit of measure for continuing education and training and is used by thousands of organizations.

Each full-day tutorial qualifies for 0.6 CEUs. You can request CEU credit by completing the CEU section on the registration form. USENIX provides a certificate for each attendee taking a tutorial for CEU credit and maintains transcripts for all CEU students. CEUs are not the same as college credits. Consult your employer or school to determine their applicability.

For complete program information and to register, visit  
[www.usenix.org/LISA2004](http://www.usenix.org/LISA2004)

## Training at a Glance

### SUNDAY, NOVEMBER 14

- S1** Rik Farrow **FULL DAY: 9:00 A.M.—5:00 P.M.**  
**NEW!** Hands-on Linux Security Class: Learn How to Defend Linux/UNIX Systems by Learning to Think Like a Hacker (*Day 1 of 2*)
- S2** John Sellens System and Network Monitoring
- S3** Mike Ciavarella and Lee Damon Seven Habits of the Highly Effective System Administrator
- S4** James Mauro and Richard McDougall **NEW!** Solaris Kernel Performance, Observability, and Debugging
- S5** Radia Perlman Bridges, Routers, Switches, and Internetworking Protocols
- S6** Trent Hein and Ned McClain **NEW!** Essential Topics in System Administration
- S7** Esther Filderman **NEW!** An Introduction to OpenAFS and Its Administration and Alf Wachsmann
- S8** Brad C. Johnson **NEW!** Network Security Profiles: Protocol Threats, Intrusion Classes, and How Hackers Find Exploits
- S9** Tom Christiansen **NEW!** Advanced Perl Programming

### MONDAY, NOVEMBER 15

- M1** Rik Farrow **FULL DAY: 9:00 A.M.—5:00 P.M.**  
**NEW!** Hands-on Linux Security Class: Learn How to Defend Linux/UNIX Systems by Learning to Think Like a Hacker (*Day 2 of 2*)
- M2** John Sellens System and Network Monitoring: Tools in Depth
- M3** Peter Baer Galvin **UPDATED!** Advanced Solaris System Administration Topics
- M4** Marcus Ranum **NEW!** System Log Aggregation, Statistics, and Analysis
- M5** Radia Perlman and Charlie Kaufman Network Security Protocols: Theory and Current Standards
- M6** Trent Hein and Ned McClain **NEW!** Six More Essential Topics in System Administration
- HALF DAY MORNING: 9:00 A.M.—12:30 P.M.**
- M7** Steve Acheson **NEW!** Designing, Implementing, and Using PKI to Provide Enterprise Security Services and Doug Dexter
- M8** Brad C. Johnson and Richard E. Mackey, Jr. **NEW!** Security Standards and Why You Need to Understand Them
- M9** Gerald Carter **NEW!** Kerberos 5—Revenge of the Three-Headed Dog
- HALF DAY AFTERNOON: 1:30 P.M.—5:00 P.M.**
- M10** David N. Blank-Edelman **NEW!** Over the Edge System Administration, Volume 1
- M11** Geoff Halprin **NEW!** Troubleshooting: A Basic Skill
- M12** Aileen Frisch Beyond Shell Scripts: 21st-Century Automation Tools and Techniques

### TUESDAY, NOVEMBER 16

- T1** David Rhoades **FULL DAY: 9:00 A.M.—5:00 P.M.**  
**NEW!** Network Security Assessments Workshop—Hands-on (*Day 1 of 2*)
- T2** Gerald Carter Implementing LDAP Directories
- T3** Aileen Frisch Administering Linux in Production Environments
- T4** Eric Allman **NEW!** Advanced Technology in Sendmail
- T5** Heison Chak **NEW!** VoIP Principles and Implementation with Asterisk
- T6** Marc Staveley System and Network Performance Tuning
- HALF DAY MORNING: 9:00 A.M.—12:30 P.M.**
- T7** Mike Ciavarella Advanced Shell Programming
- T8** Jacob Farmer **NEW!** Eliminating Backup System Bottlenecks Using Disk-to-Disk and Other Methods
- T9** David Skoll Combating Spam Using Sendmail, MIMEDefang, and Perl

### TUESDAY, NOVEMBER 16 (continued)

- HALF DAY AFTERNOON: 1:30 P.M.—5:00 P.M.**
- T10** Mike Ciavarella Documentation Techniques for SysAdmins
- T11** Peter Baer Galvin **NEW!** Solaris 10 Security Features
- T12** W. Curtis Preston Administering NetBackup

### WEDNESDAY, NOVEMBER 17

- FULL DAY: 9:00 A.M.—5:00 P.M.**
- W1** David Rhoades **NEW!** Network Security Assessments Workshop—Hands-on (*Day 2 of 2*)
- W2** Marcus Ranum **NEW!** Defeating Junk/Spam Email
- HALF DAY MORNING: 9:00 A.M.—12:30 P.M.**
- W3** Mark-Jason Dominus Regular Expression Mastery
- W4** Steve Acheson and Laura Kuiper **NEW!** Cisco Device Configuration Basics, Part 1
- W5** W. Curtis Preston Oracle Backup and Recovery
- HALF DAY AFTERNOON: 1:30 P.M.—5:00 P.M.**
- W6** Mark-Jason Dominus Perl Program Repair Shop and Red Flags
- W7** Steve Acheson and Laura Kuiper **NEW!** Cisco Device Configuration Basics, Part 2
- W8** Mark Burgess Introduction to Host Configuration and Maintenance with Cfengine

### THURSDAY, NOVEMBER 18

- FULL DAY: 9:00 A.M.—5:00 P.M.**
- R1** David Rhoades **NEW!** Hacking & Securing Web-based Applications—Hands-on (*Day 1 of 2*)
- R2** Gerald Carter Managing Samba 2.2 & 3.0
- HALF DAY MORNING: 9:00 A.M.—12:30 P.M.**
- R3** David N. Blank-Edelman **NEW!** Perl for System Administration
- R4** Peter Baer Galvin **NEW!** Next-Generation Security Tools
- R5** William LeFebvre Introduction to Domain Name System Administration
- HALF DAY AFTERNOON: 1:30 P.M.—5:00 P.M.**
- R6** David N. Blank-Edelman **NEW!** Perl Saves the Day: Writing Small Perl Programs to Get You Out of Big Sysadmin Pinches
- R7** Theodore Ts'o **NEW!** Recovering from Linux Hard Drive Disasters
- R8** Tom Limoncelli Introduction to Massive Upgrades and Changes

### FRIDAY, NOVEMBER 19

- FULL DAY: 9:00 A.M.—5:00 P.M.**
- F1** David Rhoades **NEW!** Hacking & Securing Web-based Applications—Hands-on (*Day 2 of 2*)
- F2** Steve Acheson and Laura Kuiper **NEW!** Cisco Security Features
- HALF DAY MORNING: 9:00 A.M.—12:30 P.M.**
- F3** Tom Limoncelli Time Management for System Administrators: Getting It All Done and Not Going (More) Crazy!
- F4** Mark Burgess **NEW!** Advanced Topics in Host Configuration and Maintenance with Cfengine
- F5** William LeFebvre Intermediate Topics in Domain Name System Administration

## FULL DAYS

### **S1 HANDS-ON LINUX SECURITY CLASS: LEARN HOW TO DEFEND LINUX/UNIX SYSTEMS BY LEARNING TO THINK LIKE A HACKER (DAY 1 OF 2) NEW!**

*Rik Farrow, Security Consultant*

**Who should attend:** System administrators of Linux and other UNIX systems; anyone who runs a public UNIX server.

**Please note:** Class exercises will require that you have an x86-based laptop computer that can be booted from a KNOPPIX CD. Macintosh owners interested in taking this class should contact the instructor, as a bootable KNOPPIX CD for the PPC may be provided as well if there is sufficient interest.

#### **Exercises include (for Day 1):**

- Finding hidden files and evidence of intrusion
- TCP/IP and its abuses
- hping2 probes while using ethereal
- nmap while watching with ethereal or tcpdump
- Working with buffer-overflow exploit examples
- Apache servers and finding bugs in scripts

### **S2 SYSTEM AND NETWORK MONITORING**

*John Sellens, SYONEX*

**Who should attend:** Network and system administrators interested in real-life, practical, host- and network-based monitoring of their systems and networks. Participants should have an understanding of the fundamentals of networking, basic familiarity with computing and network components, and some familiarity with UNIX and scripting languages.

#### **Topics include:**

- Monitoring: goals, techniques, reporting
- SNMP: the protocol, reference materials, relevant RFCs
- Introduction to SNMP MIBs (Management Information Bases)
- SNMP tools and libraries
- Other (non-SNMP) tools
- Security concerns
- Monitoring applications
- Special situations
- Monitoring implementation roadmap

### **S3 SEVEN HABITS OF THE HIGHLY EFFECTIVE SYSTEM ADMINISTRATOR**

*Mike Ciavarella, University of Melbourne, and Lee Damon, University of Washington*

**Who should attend:** Junior system administrators with anywhere from little to 3+ years of experience in computer system administration. We will focus on enabling the junior system administrator to do it right the first time. Some topics will use UNIX-specific tools as examples, but the class is applicable to any sysadmin and any OS. Most of the material covered is “the other 90%” of system administration—things every sysadmin needs to do and to know, but which aren’t details of specific technical implementation.

#### **Topics include:**

- Best practices
- Tools to use, tools to avoid
- A basic security approach
- Ethical issues
- Growth and success as a solo sysadmin as well as in small, medium, and large teams
- Training
- Site planning
- Budgeting

### **S4 SOLARIS KERNEL PERFORMANCE, OBSERVABILITY, AND DEBUGGING NEW!**

*James Mauro and Richard McDougall, Sun Microsystems*

**Who should attend:** System/database administrators and performance analysts wanting to obtain a deeper understanding of the key Solaris subsystems, as well as the tools and facilities that can be used to observe, trace, debug, and optimize performance. Attendees should have some basic understanding of operating system principles and application performance analysis.

#### **Topics include:**

- Kernel debugging/monitoring tools
- Performance monitoring and tuning
- Process management and scheduling
- File systems
- Memory
- Workload consolidation and resource management

### **S5 BRIDGES, ROUTERS, SWITCHES, AND INTERNETWORKING PROTOCOLS**

*Radia Perlman, Sun Microsystems*

**Who should attend:** Anyone who might need to design a protocol, implement a protocol, write network-based applications, or plan or manage a network. Anyone who is just curious about what is really going on under the covers in a network, and how things got the way they are. Anyone with the courage to see things from different angles, and not just parrot orthodoxy. Paradoxically, this tutorial is good as an introduction to people who are incredibly confused by all the terms and don’t know where to start, as well as people who have been using this stuff for years, assumed they understood it, and want to see how all the pieces fit.

#### **Topics include:**

- Layer 2 (MAC) addresses
- Bridges
- What are switches? “switched Ethernet”
- Connection-oriented networks: ATM, MPLS
- Connectionless protocols: IPv4, IPv6, and comparison with others
- Routing (distance vector vs. link state, interdomain vs. intradomain)
- IP Multicast
- NAT

### **S6 ESSENTIAL TOPICS IN SYSTEM ADMINISTRATION NEW!**

*Trent Hein and Ned McClain, Applied Trust Engineering*

**Who should attend:** System and network administrators who are interested in picking up several new technologies quickly.

#### **Topics include:**

- BIND9 tips and tricks: A better DNS
- Rapid Linux disaster recovery
- Linux kernel tuning
- Practical integration of UNIX and Active Directory
- Performance crises case studies
- Custom open source performance monitoring

## FULL DAYS

### **S7** AN INTRODUCTION TO OPENAFS AND ITS ADMINISTRATION *NEW!*

*Esther Filderman, Pittsburgh Supercomputing Center, and Alf Wachsmann, Stanford Linear Accelerator Center*

**Who should attend:** Anyone looking to learn more about OpenAFS and how to set up and administer an OpenAFS cell.

AFS is a global distributed file system which works on many different operating systems (UNIX, Windows, Mac OS), now available through an open source license. It is ideal for sharing data and software in a heterogeneous distributed computing environment. Although the use of AFS is simple, setting up your own AFS servers can be a rather daunting task.

**Topics include:**

- Overview of AFS concepts and semantics
- Setting up and managing the AFS client (even without your own servers)
- A working outline of the AFS server processes and how they play together
- How to set up a new AFS cell: design decisions, initial setup, planning for the future
- Authentication issues: Native KAS vs. Kerberos5
- Backups: How and what to choose to use
- AFS tools to make everything from maintenance to monitoring easier

### **S8** NETWORK SECURITY PROFILES: PROTOCOL THREATS, INTRUSION CLASSES, AND HOW HACKERS FIND EXPLOITS *NEW!*

*Brad C. Johnson, SystemExperts Corporation*

**Who should attend:** Administrators, managers, auditors, those being audited, those responsible for responding to intrusions or responsible for network resources that might be targets for crackers, hackers, or determined intruders. Participants should understand the basics of TCP/IP networking. Examples will use actual tools and will include small amounts of HTML, JavaScript, and Tcl code and show command-line arguments and GUI-based applications.

**Topics include:**

- Profiling your network and system
- Intrusions
- Discovery/profiling tools
- Protocol profiling threats

### **S9** ADVANCED PERL PROGRAMMING *NEW!*

*Tom Christiansen, Consultant*

**Who should attend:** Anyone with a journeyman-level knowledge of Perl programming who wants to hone Perl skills. This class will cover a wide variety of advanced topics in Perl, including many insights and tricks for using these features effectively. After completing this class, attendees will have a much richer understanding of Perl and will be better able to make it part of their daily routine.

**Topics include:**

- Symbol tables and typeglobs
- Modules
- References
- Fancy object-oriented programming
- Managing exceptions and warnings
- Regular expressions
- Programming with multiple processes or threads
- Unicode and I/O layers
- What's new in Perl lately

## HANDS-ON TRAINING AT LISA '04

*In addition to our excellent slate of lecture and seminar-based tutorials, LISA '04 also offers you the chance to get up close and personal with the code through hands-on tutorials.*

Tutorials presented in this format include:

- **S1, M1:** Hands-on Linux Security Class: Learn How to Defend Linux/UNIX Systems by Learning to Think Like a Hacker
- **T1, W1:** Network Security Assessments Workshop—Hands-on
- **R1, F1:** Hacking & Securing Web-based Applications—Hands-on

These sessions require you to bring your own laptop—please see the detailed course descriptions online at [www.usenix.org/lisa04/training](http://www.usenix.org/lisa04/training) for complete information on system requirements and alternatives.

**Need more information? See [www.usenix.org/lisa04/training](http://www.usenix.org/lisa04/training) for full tutorial descriptions**

## FULL DAYS

### **M1 HANDS-ON LINUX SECURITY CLASS: LEARN HOW TO DEFEND LINUX/UNIX SYSTEMS BY LEARNING TO THINK LIKE A HACKER (DAY 2 OF 2) NEW!**

*Rik Farrow, Security Consultant*

See S1, page 6, for the description of the first day of this tutorial.

**Please note:** Class exercises will require that you have an x86-based laptop computer that can be booted from a KNOPPIX CD. Macintosh owners interested in taking this class should contact the instructor, as a bootable KNOPPIX CD for the PPC may be provided as well if there is sufficient interest.

#### **Exercises include:**

- John the Ripper, password cracking
- Using and modifying KNOPPIX Linux boot CD
- Elevation of privilege and suid shells
- Rootkits, and finding rootkits (chkrootkit)
- Sleuth Kit (looking at intrusion timelines)
- iptables and netfilter
- cfengine configuration

### **M2 SYSTEM AND NETWORK MONITORING: TOOLS IN DEPTH**

*John Sellens, SYONEX*

**Who should attend:** Network and system administrators ready to implement comprehensive monitoring of their systems and networks using the best of the freely available tools. Participants should have a basic understanding of networking, computing and network components, UNIX system administration, and UNIX programming and scripting languages.

#### **Topics include, for each of Nagios, Cricket, MRTG, and Orca:**

- Installation—Basic steps, prerequisites, common problems, and solutions
- Configuration, setup options, and how to manage larger and non-trivial configurations
- Reporting and notifications—proactive and reactive
- Special cases
- Extending the tools through scripts
- Dealing effectively with network boundaries and remote sites
- Security concerns and access control
- Ongoing operation

### **M3 ADVANCED SOLARIS SYSTEM ADMINISTRATION TOPICS UPDATED!**

*Peter Baer Galvin, Corporate Technologies, Inc.*

**Who should attend:** UNIX administrators who need more knowledge of Solaris administration.

We will discuss the major new features of recent Solaris releases, including which to use (and how) and which to avoid. This in-depth course will provide the information you need to run a Solaris installation effectively. This tutorial has been updated to include Solaris 10 features and functions.

#### **Topics include:**

- Installing and upgrading
- Advanced features of Solaris 2
- Networking and the kernel
- Enhancing Solaris

### **M4 SYSTEM LOG AGGREGATION, STATISTICS, AND ANALYSIS NEW!**

*Marcus Ranum, Trusecure Corp.*

**Who should attend:** System and network administrators who are interested in learning what's going on in their firewalls, servers, network, and systems; anyone responsible for security and audit or forensic analysis.

#### **Topics include:**

- Estimating log quantities and log system requirements
- Syslog: mediocre but pervasive logging protocol
- Back-hauling your logs
- Building a central loghost
- Dealing with Windows logs
- Logging on Windows loghosts
- Parsing and normalizing
- Finding needles in haystacks: searching logs
- I'm dumb, but it works: artificial ignorance
- Bayesian spam filters for logging
- Storage and rotation
- Databases and logs
- Leveraging the human eyeball: graphing log data
- Alerting
- Legalities of logs as evidence

### **M5 NETWORK SECURITY PROTOCOLS: THEORY AND CURRENT STANDARDS**

*Radia Perlman, Sun Microsystems, and Charlie Kaufman, Microsoft*

**Who should attend:** Anyone who wants to understand the theory behind network security protocol design, with an overview of the alphabet soup of standards and cryptography. This tutorial is especially useful for anyone who needs to design or implement a network security solution, but it is also useful to anyone who needs to understand existing offerings in order to deploy and manage them. Although the tutorial is technically deep, no background other than intellectual curiosity and a good night's sleep in the recent past is required.

#### **Topics include:**

- What problems are we trying to solve?
- Cryptography
- Key distribution
- Handshake issues
- PKI standards
- Real-time protocols
- Secure email
- Web security

### **M6 SIX MORE ESSENTIAL TOPICS IN SYSTEM ADMINISTRATION NEW!**

*Trent Hein and Ned McClain, Applied Trust Engineering*

**Who should attend:** System and network administrators who are interested in picking up several new technologies quickly.

#### **Topics include:**

- Practical network intrusion detection
- Deploying secure Linux systems
- Effective log analysis with SEC
- Stateful firewalls
- Security incident handling
- Security crisis case studies

**For more information, please visit [www.usenix.org/lisa04/training](http://www.usenix.org/lisa04/training)**



## HALF DAYS

### M7 (AM) DESIGNING, IMPLEMENTING, AND USING PKI TO PROVIDE ENTERPRISE SECURITY SERVICES *NEW!*

*Steve Acheson* and *Doug Dexter*, Cisco Systems

**Who should attend:** Developers, technical implementers, and managers considering or already involved with providing a security service based on digital certificates.

This tutorial provides concrete examples of working PKI solutions that solve critical business issues relating to code-signing, device identification, application identity, and VPN and wireless credential management.

#### Topics include:

- Public/private key pairs
- Certificates
- Other tools used to provide security services via a public key infrastructure
- PKI trust models
- PKI standards
- Enterprise services a PKI can provide

### M8 (AM) SECURITY STANDARDS AND WHY YOU NEED TO UNDERSTAND THEM *NEW!*

*Brad C. Johnson* and *Richard E. Mackey, Jr.*, SystemExperts Corporation

**Who should attend:** Administrators, technicians, and managers at any level who need to understand the gist of the key security standards and the laws and industry trends that are making these standards critical to doing business. This tutorial is designed to help you understand the motivation for security standards, what problems these standards address, and the value they provide.

#### Topics include:

- Why: The motivations—laws, partnerships, internal audits
- What: The standards organizations use to measure themselves—ISO 17799, SAS
- Key distribution
- How: The mechanisms organizations use to measure and document the effectiveness of their policies and practices—ISO 17799 reviews and certifications, security audits and assessments, information criticality assessment, penetration and application testing

### M9 (AM) KERBEROS 5—REVENGE OF THE THREE-HEADED DOG *NEW!*

*Gerald Carter*, Samba Team/Hewlett-Packard

**Who should attend:** Administrators who want to understand Kerberos 5 implementations on both UNIX/Linux and Windows clients and servers.

#### Topics include:

- Key concepts of the Kerberos 5 protocol
- Specific related authentication interfaces such as SASL and GSSAPI
- The specifics of implementing of Krb5 realms
- Implementations of Krb5 cross-realm trusts
- Integration of Windows and UNIX/Linux clients into Krb5 realms
- Possible pitfalls of using popular Krb5 implementations such as MIT, Heimdal, and Windows 200x

### M10 (PM) OVER THE EDGE SYSTEM ADMINISTRATION, VOLUME 1 *NEW!*

*David N. Blank-Edelman*, Northeastern University

**Who should attend:** Old-timers who think they've already seen it all, and those who want to develop inventive thinking early in their career. Join us and be prepared to be delighted, disgusted, and amazed. Most of all, be ready to enrich your network and system administration by learning to be different.

#### Topics include:

- How to (ab)use perfectly good network transports by using them for purposes never dreamed of by their authors
- How to increase user satisfaction during downtimes with 6 lines of Perl
- How to improve your network services by intentionally throwing away data
- How to drive annoying Web-only applications that don't have a command line interface—without lifting a finger
- How to use ordinary objects you have lying around the house, such as Silly Putty, to make your life easier (seriously!)

### M11 (PM) TROUBLESHOOTING: A BASIC SKILL *NEW!*

*Geoff Halprin*, The SysAdmin Group

**Who should attend:** System administrators wishing to hone their ability to troubleshoot a problem under pressure, on a system of which their knowledge may be limited.

One of the most basic skills a system administrator must be able to call upon is that of problem diagnosis and resolution, that is, troubleshooting. It doesn't matter what else you do; if the system is broken, your priority is to fix it.

#### Topics include:

- A general process for troubleshooting
- Specific techniques that will help you get to the root of the problem
- Ways to identify candidate solutions with confidence

### M12 (PM) BEYOND SHELL SCRIPTS: 21ST-CENTURY AUTOMATION TOOLS AND TECHNIQUES

*Aleen Frisch*, Exponential Consulting

**Who should attend:** System administrators who want to explore new ways of automating administrative tasks. Shell scripts are appropriate for many jobs, but more complex operations will often benefit from sophisticated tools.

#### Topics include:

- Vendor-supplied tools to automate installations
- Alternative approaches to automation
- State-of-the-art package control
- Heterogeneous environments
- Expect: Automating interactive processes
- Amanda, an enterprise backup management facility
- STEM, a new package for automating network operations
- Nagios: Monitoring network and device performance
- RRDTool: Examining retrospective system data

## FULL DAYS

### **T1 NETWORK SECURITY ASSESSMENTS WORKSHOP—HANDS-ON (DAY 1 OF 2)** **NEW!**

*David Rhoades, Maven Security Consulting, Inc.*

**Who should attend:** Anyone who needs to understand how to perform an effective and safe network assessment.

**Please note:** Class exercises will require that students have an x86-based laptop computer that can be booted from a KNOPPIX CD, along with a 10/100 Ethernet network card. Wireless access will not be supported during class.

#### **Day 1 topics include:**

- Lab setup and preparation
- Security assessment overview
- Assessment preparation
- Assessment safety
- Documentation and audit trail
- Automated scanning
- Assessment phase 1: network inventory

### **T2 IMPLEMENTING LDAP DIRECTORIES**

*Gerald Carter, Samba Team/Hewlett-Packard*

**Who should attend:** Both LDAP directory administrators and architects. The focus is on integrating standard network services with LDAP directories. The examples are based on UNIX hosts and the OpenLDAP directory server and will include actual working demonstrations throughout the course.

#### **Topics include:**

- Replacing NIS domains
- Integrating Samba user accounts
- Authenticating RADIUS clients
- Integrating MTAs such as Sendmail, Qmail, or Postfix
- Creating address books for mail clients
- Managing user access to HTTP and FTP services
- Storing DNS zone information
- Managing printer information

### **T3 ADMINISTERING LINUX IN PRODUCTION ENVIRONMENTS**

*Aileen Frisch, Exponential Consulting*

**Who should attend:** Both current Linux system administrators and administrators from sites considering converting to Linux or adding Linux systems to their current computing resources. We will be focusing on the administrative issues that arise when Linux systems are deployed to address a variety of real-world tasks and problems arising from both commercial and research and development contexts.

#### **Topics include:**

- Recent kernel developments
- High-performance I/O
- Advanced compute-server environments
- High availability Linux: fault tolerance options
- Enterprise-wide authentication
- Fixing the security problems you didn't know you had
- Automating installations and other mass operations
- Linux in the office environment

### **T4 ADVANCED TECHNOLOGY IN SENDMAIL** **NEW!**

*Eric Allman, Sendmail, Inc.*

**Who should attend:** System administrators who want to learn more about the Sendmail program, particularly details of configuration and operational issues. This tutorial assumes that you are already familiar with Sendmail, including installation, configuration, and operation.

#### **Topics include:**

- SMTP authentication
- TLS encryption
- The Milter (mail filter interface)
- Many of the newer policy control interfaces

### **T5 VOIP PRINCIPLES AND IMPLEMENTATION WITH ASTERISK** **NEW!**

*Heison Chak, SOMA Networks*

**Who should attend:** Managers and system administrators involved in the evaluation, design, implementation, and deployment of VoIP infrastructures. Participants do not need prior exposure to VoIP but should understand the principles of networking. Attendees will come away from this tutorial with strategies for cost-saving improvements to their existing infrastructures and practical information on deploying VoIP in a variety of environments. The Asterisk open source PBX will be presented to demonstrate VoIP principles and applications.

#### **Topics include:**

- PSTN overview
- VoIP basics—codecs, protocols, performance metrics
- VoIP networks (FWD, IAXtel, etc.)
- Implementation examples with Asterisk—hardware, IVR, Dialplan, TTS applications

### **T6 SYSTEM AND NETWORK PERFORMANCE TUNING**

*Marc Staveley, Soma Networks*

**Who should attend:** Novice and advanced UNIX system and network administrators, and UNIX developers concerned about network performance impacts. A basic understanding of UNIX system facilities and network environments is assumed.

#### **Topics include:**

- Performance tuning strategies
- Server tuning—filesystem and disk, memory, resource monitoring, NFS issues
- Network performance, design, and capacity planning
- Application tuning

**Don't miss the deadline!**

**Register by October 22 and save up to \$300**

## HALF DAYS

### T7 (AM) ADVANCED SHELL PROGRAMMING

*Mike Ciavarella, University of Melbourne*

**Who should attend:** Junior or intermediate system administrators or anyone with a basic knowledge of programming, preferably with some experience in Bourne/Korn shells (or their derivatives).

**Topics include:**

- Common mistakes and unsafe practices
- Modular shell script programming
- Building blocks: awk, sed, etc.
- Writing secure shell scripts
- Performance tuning
- Choosing the right utilities for the job
- Addressing portability at the design stage
- When *not* to use shell scripts

### T8 (AM) ELIMINATING BACKUP SYSTEM BOTTLENECKS USING DISK-TO-DISK AND OTHER METHODS **NEW!**

*Jacob Farmer, Cambridge Computer Corp.*

**Who should attend:** System administrators involved in the design and management of backup systems and policymakers responsible for protecting their organization's data. A general familiarity with server and storage hardware is assumed. The class focuses on architectures and core technologies and is relevant regardless of what backup hardware and software you currently use. Students will leave this lecture with immediate ideas for effective, inexpensive improvements to their backup systems.

**Topics include:**

- Identifying and eliminating backup system bottlenecks
- Conventional disk staging
- Virtual tape libraries
- Incremental forever and synthetic full backup strategies
- Information life cycle management and nearline archiving
- Data replication
- Continuous backup
- Snapshots
- The current and future tape drives
- Zero duplication file systems
- iSCSI

### T9 (AM) COMBATING SPAM USING SENDMAIL, MIMEDFANG, AND PERL

*David Skoll, Roaring Penguin Software*

**Who should attend:** System administrators, network administrators, and email administrators tackling the problem of spam in the enterprise. Participants should be familiar with Sendmail and Perl. Use of or familiarity with MIMEDfang will be helpful but not necessary to get the most out of this practical session.

**Topics include:**

- Introduction to mail filtering
- Introduction to Milter
- MIMEDfang architecture
- Writing MIMEDfang filters
- SpamAssassin integration
- Virus scanner integration
- Checking address existence at the periphery
- Streaming mail for different recipients
- Greylisting
- Sendmail's SOCKETMAP feature and MIMEDfang
- Performance tuning
- Gathering statistics
- MIMEDfang's notification facility

### T10 (PM) DOCUMENTATION TECHNIQUES FOR SYSADMINS

*Mike Ciavarella, University of Melbourne*

**Who should attend:** System administrators who need to produce documentation for the systems they manage or who want to improve their documentation skills.

**Topics include:**

- Why system administrators need to document
- The document life cycle
- Targeting your audience
- An adaptable document framework
- Common mistakes
- Tools to assist the documentation process

### T11 (PM) SOLARIS 10 SECURITY FEATURES **NEW!**

*Peter Baer Galvin, Corporate Technologies*

**Who should attend:** Solaris systems managers and administrators interested in the new security features in Solaris 10 (and features in previous Solaris releases that they may not be using).

**Topics include:**

- Solaris cryptographic framework
- NFS V4
- Solaris privileges
- Solaris Flash archives and live upgrade
- Moving from NIS to LDAP
- Dtrace
- WBEM
- Smartcard interfaces and APIs
- Kerberos enhancements
- FTP client and server enhancements
- PAM enhancements
- Auditing enhancements
- Password history checking

### T12 (PM) ADMINISTERING NETBACKUP

*W. Curtis Preston, Glasshouse Technologies*

**Who should attend:** Administrators and operators of medium to large NetBackup systems.

**Topics include:**

- NetBackup architecture
- Command line interface, including some undocumented commands and options
- Designing a NetBackup system, including sizing the server, system architecture considerations, and integrating disk into the mix

Looking for more information?

See [www.usenix.org/lisa04/training](http://www.usenix.org/lisa04/training) for full descriptions

## FULL DAYS

### W1 NETWORK SECURITY ASSESSMENTS WORKSHOP—HANDS-ON (DAY 2 OF 2) **NEW!**

*David Rhoades, Maven Security Consulting, Inc.*

See T1, page 10, for the description of the first day of this tutorial.

**Who should attend:** Anyone who needs to understand how to perform an effective and safe network assessment.

**Please note:** Class exercises will require that students have an x86-based laptop computer that can be booted from a KNOPPIX CD, along with a 10/100 Ethernet network card. Wireless access will not be supported during class.

#### Day 2 topics include:

- Assessment phase 2: target analysis
- Assessment phase 3: exploitation and confirmation
- Special consideration testing
- Vulnerability scanning tools
- Nessus
- Automated scanning

### W2 DEFEATING JUNK/SPAM EMAIL **NEW!**

*Marcus Ranum, Trusecure Corp.*

**Who should attend:** Network and system administrators responsible for email systems; people who are annoyed by junk email; mail server administrators; senior managers who want to understand the technologies for blocking junk email. Some familiarity with Internet email systems is recommended. Familiarity with UNIX system administration is a must.

#### Topics include:

- Junk email: you know what it is when you get it
- Whitelisting, blacklisting, and blackholing
- Setting up a centralized junk email blocking system
- Integrating junk email blocking into various mail clients
- Integrating junk email blocking into various servers
- Legalities and legal initiatives

## HALF DAYS

### W3 (AM) REGULAR EXPRESSION MASTERY

*Mark-Jason Dominus, Consultant and Author*

**Who should attend:** System administrators and users who use Perl, grep, sed, awk, procmail, vi, or emacs.

#### Topics include:

- Inside the regex engine, including backtracking, NFA vs. DFA, POSIX and Perl, quantifiers, greed and anti-greed, anchors and assertions, and backreferences
- Disasters and optimizations, including examples, tokenizing, and matching strings with balanced parentheses

### W4 (AM) CISCO DEVICE CONFIGURATION BASICS, PART 1 **NEW!**

*Steve Acheson and Laura Kuiper, Cisco Systems*

**Who should attend:** Anyone who bought a Cisco router or switch on eBay and wants to know how to configure it.

- Introduction to IOS and its naming
- Cabling your device(s)
- Loading a new image
- Configuration basics
- Router and switch specifics
- Security
- Troubleshooting

### W5 (AM) ORACLE BACKUP AND RECOVERY

*W. Curtis Preston, Glasshouse Technologies*

**Who should attend:** System administrators with Oracle in their environment.

#### Topics include:

- Oracle architecture
- Data files
- Tablespaces
- Redo logs
- Control files
- Rollback segment
- Physical backups with and without a storage manager
- Managing the archived redo logs
- Recovering Oracle
- Logical backups

### W6 (PM) PERL PROGRAM REPAIR SHOP AND RED FLAGS

*Mark-Jason Dominus, Consultant and Author*

**Who should attend:** Anyone who writes Perl programs regularly. Participants should have at least three months' experience programming in Perl.

We will examine real code examples in detail and see how to improve them. We'll focus on techniques that require little complex thought or ingenuity.

Participants are encouraged to submit their own code for anonymous review in the class. (Send it to [mjd-lisa-2003+@plover.com](mailto:mjd-lisa-2003+@plover.com).)

### W7 (PM) CISCO DEVICE CONFIGURATION BASICS, PART 2 **NEW!**

*Steve Acheson and Laura Kuiper, Cisco Systems*

**Who should attend:** Anyone who bought a Cisco router or switch on eBay and wants to know how to configure it.

#### Topics include:

- IOS capabilities and image features
- Setting up SNMP monitoring
- SSH (secure access)
- More router and switch specifics
- More security
- Secure email
- Additional capabilities your router offers

### W8 (PM) INTRODUCTION TO HOST CONFIGURATION AND MAINTENANCE WITH CFENGINE

*Mark Burgess, Oslo University College*

**Who should attend:** System administrators (UNIX, Windows 2000 and above) with a minimal knowledge of a scripting language who wish to start using cfengine to automate the maintenance and security of their systems.

#### Topics include:

- cfengine components and their use
- Getting started
- How to develop a suitable policy
- Security
- Examples
- Customizing cfengine for special tasks

## FULL DAYS

### R1 HACKING & SECURING WEB-BASED APPLICATIONS—HANDS-ON (DAY 1 OF 2) **NEW!**

*David Rhoades, Maven Security Consulting, Inc.*

**Who should attend:** People who are auditing Web application security, developing Web applications, or managing the development of a Web application.

#### Day 1 topics include:

- Introduction
- Foundational security
- Web server and Web application output
- Authentication
- Sign-on, including user name and password harvesting, brute-force password guessing, and resource exhaustion

### R2 MANAGING SAMBA 2.2 & 3.0

*Gerald Carter, Samba Team/Hewlett-Packard*

**Who should attend:** System administrators who are currently managing Samba servers or are planning to deploy new servers this year. This course will outline the new features of Samba 3.0, including working demonstrations throughout the course session.

#### Topics include:

- Providing basic file and print services
- Upgrading a Samba server from version 2.2 to 3.0
- Integrating with Windows NT 4.0 and Active Directory authentication services
- Centrally managing printer drivers for Windows clients
- Managing NetBIOS network browsing
- Implementing a Samba primary domain controller along with Samba backup domain controllers
- Migrating from a Windows NT 4.0 domain to a Samba domain
- Utilizing account storage alternatives to smbpasswd such as LDAP
- Making use of Samba VFS modules for features such as virus scanning and a network recycle bin

## HALF DAYS

### R3 (AM) PERL FOR SYSTEM ADMINISTRATION **NEW!**

*David N. Blank-Edelman, Northeastern University*

**Who should attend:** System and network administrators with at least advanced-beginner to intermediate Perl skills.

- Secure Perl scripting
- Dealing with files and filesystems
- SQL databases—DBI and ODBC
- Email as a sysadmin tool
- Network directory services: NIS, DNS, LDAP, ADSI
- Network management: SNMP and WBEM

### R4 (AM) NEXT-GENERATION SECURITY TOOLS **NEW!**

*Peter Baer Galvin, Corporate Technologies*

**Who should attend:** Systems managers and security managers interested in current security problems and the new generation of tools designed to solve those problems.

#### Topics include:

- A security methodology
- Firewalls: Why don't they work?
- Protecting Web servers
- Reducing spam
- Patch management and avoiding patching
- Network snooping
- Gaining status knowledge of your facility
- Content filtering and antivirus software
- Weak and strong authentication
- Spyware and peer-to-peer networks

### R5 (AM) INTRODUCTION TO DOMAIN NAME SYSTEM ADMINISTRATION

*William Lefebvre, CNN Internet Technologies*

**Who should attend:** System or network administrators who have used but not administered DNS.

#### Topics include:

- DNS and BIND
- The DNS name hierarchy
- The four components of DNS
- Iterative vs. recursive querying
- Essential resource records: SOA, A, PTR, CNAME, NS
- Zone transfers and secondaries
- Vendor-specific differences

### R6 (PM) PERL SAVES THE DAY: WRITING SMALL PERL PROGRAMS TO GET YOU OUT OF BIG SYSADMIN PINCHES **NEW!**

*David N. Blank-Edelman, Northeastern University*

**Who should attend:** System administrators with at least advanced-beginner to intermediate Perl skills.

Centering on battle stories and the Perl source code used to deal with them, we'll discuss approaches to sysadmin crises using Perl. The code presented in this class will be mostly UNIX-related, with a sprinkling of Windows NT/2000 examples, but the approaches we'll talk about will not be operating-system specific. Bring your own problems for class discussion.

### R7 (PM) RECOVERING FROM LINUX HARD DRIVE DISASTERS **NEW!**

*Theodore Ts'o, IBM Linux Technology Center*

**Who should attend:** Linux system administrators and users.

#### Topics include:

- Low-level techniques to recover data when backups aren't available
- Recovering from a corrupted partition table
- Using e2image to back up critical ext2/3 filesystem metadata
- Using e2fsck and debugfs
- Measures to avoid needing heroic measures

### R8 (PM) INTRODUCTION TO MASSIVE UPGRADES AND CHANGES

*Tom Limoncelli, Cibernet*

**Who should attend:** Sysadmins from environments where upgrading a single large server, or hundreds of individual hosts, is common.

#### Topics include:

- A sample "change management" policy
- The network life cycle
- Moving your data center
- Surviving weekend-long maintenance windows with no major problems
- The secret to successful server upgrades
- Service conversions
- Case studies of real events

## FULL DAYS

### F1 HACKING & SECURING WEB-BASED APPLICATIONS—HANDS-ON (DAY 2 OF 2)

**NEW!**

*David Rhoades, Maven Security Consulting, Inc.*

See R1, page 13, for the description of the first day of this tutorial.

**Who should attend:** People who are auditing Web application security, developing Web applications, or managing the development of a Web application.

#### Day 2 topics include:

- Session issues: tracking mechanisms, session ID best practices, session cloning
- Transaction issues, including malicious user input, hidden form elements, GET vs. POST, JavaScript filters, improper application logic, and cross-site scripting
- Third-party products
- Testing procedures
- Methodology and safety

### F2 CISCO SECURITY FEATURES **NEW!**

*Steve Acheson and Laura Kuiper, Cisco Systems*

**Who should attend:** Network and system engineers looking to improve their familiarity with Cisco's security capabilities; security professionals interested in the technical details of securing enterprise-class networks.

#### Topics include:

- Infrastructure
- NFS V4
- Access control: ACLs, firewalls, NAC
- IP telephony
- Wireless LANs
- 802.1x
- Intrusion prevention
- VPNs
- Monitoring

## HALF DAYS

### F3 (AM) TIME MANAGEMENT FOR SYSTEM ADMINISTRATORS: GETTING IT ALL DONE AND NOT GOING (MORE) CRAZY!

*Tom Limoncelli, Cibernet*

**Who should attend:** Sysadmins who want to have more control over their time and better follow-through on assignments.

#### Topics include:

- Why typical “time management” books don't work for sysadmins
- How to delegate tasks effectively
- How to use RT and other request tracking tools
- A way to keep from ever forgetting a user's request
- Why “to do” lists fail and how to make them work
- Managing your boss
- Managing email more effectively with proc-mail
- Prioritizing tasks so that users think you're a genius
- Getting more out of your Palm Pilot
- Having more time for fun (for people with a social life)
- Tips on automating sysadmin processes
- Efficient phone calls: how to avoid major time wasters
- Tips on automating sysadmin processes

### F4 (AM) ADVANCED TOPICS IN HOST CONFIGURATION AND MAINTENANCE WITH CFENGINE **NEW!**

*Mark Burgess, Oslo University College*

**Who should attend:** System administrators with a working knowledge of cfengine (or who have attended the introductory course) who wish to extend their understanding of cfengine with examples and usage patterns.

#### Topics include:

- Review of some basics
- Automating deployment of software throughout your infrastructure
- Structure and organization of config
- Special functions and variables
- Searching, matching, and wildcards
- How does cfagent evaluate things?
- Services and security
- Host monitoring
- Future developments and discussion

### F5 (AM) INTERMEDIATE TOPICS IN DOMAIN NAME SYSTEM ADMINISTRATION

*William LeFebvre, CNN Internet Technologies*

**Who should attend:** Network administrators with a basic understanding of DNS and its configuration who need to learn how to create and delegate subdomains, and administrators planning to install BIND8. Attendees are expected either to have prior experience with DNS, including an understanding of basic operation and zone transfers, or to have attended the “Introduction to Domain Name System Administration” tutorial.

#### Topics include:

- Subdomains and delegation
- Resource records: NS, RP, MX, TXT, AAAA
- Migration to BIND8
- DNS management tools
- DNS design
- Zone transfers and secondaries
- DNS and firewalls

**“The tutorials had great instructors with an astounding command of their subject and good teaching skills. Also a very good set of training subjects—it was hard to choose amongst them.”**

LISA '03 Attendee

**Looking for more information?  
For full descriptions, see  
[www.usenix.org/lisa04/training](http://www.usenix.org/lisa04/training)**



**STEVE ACHESON**  
M7, W4, W7, F2

Steve Acheson is currently an Information Security Architect at Cisco Systems, Inc., where he is a senior member of the Corporate Information Security Department, responsible for network and system security, including designing internal security architecture and external/firewall access. Before working for Cisco, Steve managed security for NASA's Numerical Aerospace Simulations facility at Ames Research Center. He has worked in the field for over 15 years as a system administrator, network engineer, and security analyst.



**ERIC ALLMAN**  
T4

Eric Allman is the original author of Sendmail, co-founder and CTO of Sendmail, Inc., and co-author of *Sendmail*, published by O'Reilly. At U.C. Berkeley, he was the chief programmer on the INGRES database management project, leader of the Mammoth project, and an early contributor to BSD, authoring syslog, tset, the -me troff macros, and trek. Eric designed database user and application interfaces at Britton Lee (later Sharebase) and contributed to the Ring Array Processor project for neural-network-based speech recognition at the International Computer Science Institute.



**DAVID N. BLANK-  
EDELMAN**  
M10, R3, R6

David N. Blank-Edelman is the Director of Technology at the Northeastern University College of Computer and Information Science and the author of the O'Reilly book *Perl for System Administration*. He has spent the last 19 years as a system/network administrator in large multi-platform environments, including Brandeis University, Cambridge Technology Group, and the MIT Media Laboratory. He has given several successful invited talks off the beaten path at LISA.



**MARK BURGESS**  
W8, F4

Mark Burgess is a professor at Oslo University College and is the author of cfengine. He has been researching the principles of network and system administration for over ten years and is the author of *Principles of Network and System Administration*. He is frequently invited to speak at conferences.



**GERALD CARTER**  
M9, T2, R2

Gerald Carter has been a member of the Samba Development Team since 1998. He has published articles with various Web-based magazines, and he teaches courses as a consultant for several companies. Currently employed by Hewlett-Packard as a Samba developer, Gerald has written books for SAMS Publishing and is the author of the recent *LDAP System Administration* for O'Reilly Publishing.



**HEISON CHAK**  
T5

Heison Chak works for SOMA Networks as a network engineer, focusing on network management and performance analysis as well as the implementation of data and voice networks. He has undertaken to design a VoIP platform and to migrate SOMA Networks to it from an existing legacy PBX system. Chak is an active member of the Asterisk community.



**TOM CHRISTIANSEN**  
S9

Tom Christiansen has been involved with Perl since day zero of its initial public release in 1987. Author of several books on Perl, including *The Perl Cookbook* and *Programming Perl* from O'Reilly, Tom is also a major contributor to Perl's online documentation. He holds undergraduate degrees in computer science and Spanish and a Master's in computer science. He now lives in Boulder, Colorado.



**MIKE CIAVARELLA**  
S3, T7, T10

Mike Ciavarella has been producing and editing technical documentation since he naively agreed to write application manuals for his first employer in the early 1980s. He has been a technical editor for MacMillan Press and has been teaching system administrators about documentation for the past eight years. After a number of years working as Senior Partner and head of the Security Practice for Cybersource Pty Ltd, Mike returned to his alma mater, the University of Melbourne. He now divides his time between teaching software engineering and providing expert testimony in computer security matters.



**LEE DAMON**  
S3

Lee Damon has been a UNIX system administrator since 1985 and has been active in SAGE since its inception. He assisted in developing a mixed AIX/SunOS environment at IBM Watson Research and has developed mixed environments for Gulfstream Aerospace, and QUALCOMM. He is currently leading the development effort for the Nikola project at the University of Washington Electrical Engineering department. He chaired the SAGE Ethics Working Group and coordinated authorship of the initial draft of the current document.



**DOUG DEXTER**  
M7

Doug Dexter has been an Information Security Architect with Cisco Systems Corporate Information Security Department for six years. He and

Steve Acheson are the architects for Cisco's internal PKI deployment, which provides certificates and signs the production code for IP phones, call managers, and cable modems. Doug is a Major in an Army Reserve Information Warfare unit. He holds an M.B.A. from the University of Texas at Austin with a concentration in Information Systems, Controls, and Assurance, and is a CISSP and an MCSE.



**MARK-JASON DOMINUS**  
W3, W6

Mark-Jason Dominus has been programming in Perl since 1992. He is a moderator of the comp.lang.perl.moderated newsgroup, the author of the Text::Template, Tie::File, and Memoize modules, a contributor to the Perl core, and author of the perlrefut man page. His work on the Rx regular expression debugger won the 2001 Larry Wall Award for Practical Utility.



**JACOB FARMER**  
T8

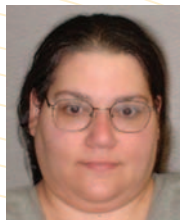
Jacob Farmer is the CTO of Cambridge Computer Services, a specialized integrator of backup systems and storage networks. He has over 15 years' experience with storage technologies and writes an expert advice column for *InfoStor* magazine. He is currently writing a book on storage networking.



**RIK FARROW**  
S1, M1

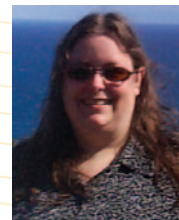
Rik Farrow provides UNIX and Internet security consulting and training. He has been working with UNIX system security since 1984 and with

TCP/IP networks since 1988. He has taught at the IRS, Department of Justice, NSA, NASA, US West, Canadian RCMP, Swedish Navy, and for many US and European user groups. He is the author of *UNIX System Security* and *System Administrator's Guide to System V*. Farrow writes a column for *login* and a network security column for *Network* magazine.



**ESTHER FILDERMAN**  
S7

Esther Filderman has been working with AFS since its infancy at CMU, before it was called AFS, and she is currently Senior Operations Specialist and AFS administrator for the Pittsburgh Supercomputing Center. She has been working to bring AFS content to LISA conferences since 1999. She is also coordinating documentation efforts for the OpenAFS project.



**AILEEN FRISCH**  
M12, T3

Aileen Frisch has been a system administrator for over 20 years. She currently looks after a pathologically heterogeneous network of UNIX and Windows systems. She is the author of several books, including *Essential System Administration* (now in its 3rd edition).



**PETER BAER GALVIN**  
M3, T11, R4

Peter Baer Galvin is the Chief Technologist for Corporate Technologies, Inc., a systems integrator and VAR, and was the Systems Manager for

Brown University's Computer Science Department. He has written articles for *Byte* and other magazines. Peter is co-author of the *Operating Systems Concepts* and *Applied Operating Systems Concepts* textbooks. Peter has taught tutorials on security and system administration and has given talks at many conferences and institutions on such topics as Web services, performance tuning, and high availability.



**GEOFF HALPRIN**  
M11

Geoff Halprin has spent over 25 years as a software developer, system administrator, consultant, and troubleshooter. He has written software

from system management tools to mission-critical billing systems, has built and run networks for enterprises of all sizes, and has been called upon to diagnose problems in every aspect of computing infrastructure and software. He has spent more years troubleshooting other people's programs than he cares to remember. Geoff was on the board of the System Administrators Guild (SAGE) and is now a member of the USENIX board of directors.



**TRENT HEIN**  
S6, M6

Trent Hein is co-founder of Applied Trust Engineering, a leader in holistic infrastructure and security. Trent worked on the 4.4 BSD port to the MIPS architecture at Berkeley, is co-author of both the *UNIX Systems Administration Handbook* and the *Linux Administration Handbook*, and holds a B.S. in Computer Science from the University of Colorado.





**BRAD C. JOHNSON**  
S8, M8

Brad C. Johnson is vice president of SystemExperts Corporation. He has participated in seminal industry initiatives such as the Open Software Foundation, X/Open, and the IETF, and has been published in such journals as *Digital Technical Journal*, *IEEE Computer Society Press*, *Information Security Magazine*, *Boston Business Journal*, *Mass High Tech Journal*, *ISSA Password Magazine*, and *Wall Street & Technology*. Brad is a regular tutorial instructor and conference speaker on topics related to practical network security, penetration analysis, middleware, and distributed systems. He holds a B.A. in computer science from Rutgers University and an M.S. in applied management from Lesley University.



**CHARLIE KAUFMAN**  
M5

Charlie Kaufman is Security Architect for the Common Language Runtime group at Microsoft. He is editor of the new Internet Key Exchange (IKEv2) protocol for the IPsec working group of IETF. He has contributed to a number of IETF standards efforts, including chairing the Web Transaction Security WG and serving as a member of the Internet Architecture Board (IAB). He served on the National Academy of Sciences expert panel that wrote the book *Trust in Cyberspace*. He was previously a Distinguished Engineer at IBM, where he was Chief Security Architect for Lotus Notes and Domino, and before that Network Security Architect for Digital. He holds over 25 patents in the fields of computer security and computer networking. He is coauthor of *Network Security: Private Communication in a Public World* (Prentice Hall, 2002).



**LAURA KUIPER**  
W4, W7, F2

Laura Kuiper is currently a Computer Security Architect at Cisco Systems, Inc., where she is a senior member of the Computer Information Security Department, responsible for network and system security, including designing internal security architecture and external/firewall access. Before working for Cisco, Laura managed the network at SAIC. She has worked in the field as a network engineer and security analyst for over 9 years.



**WILLIAM LEFEBVRE**  
R5, F5

William LeFebvre is an author, a programmer, a teacher, and a sysadmin expert, who has been using UNIX and Internet technologies since 1983. He writes a monthly column for *UNIX Review* and has taught since 1989 for such organizations as USENIX, the Sun User Group (SUG), MIS Training Institute, IT Forum, and Great Circle Associates. He has contributed to several widely used UNIX packages, including Wietse Venema's logdaemon package. He is also the primary programmer for the popular UNIX utility top. William is currently a technology fellow at CNN Internet Technologies, exploring the applicability of new technology to one of the busiest Web farms on the Internet. He received his bachelor's degree in 1983 and his master of science degree in 1988, both from Rice University.



**TOM LIMONCELLI**  
R8, F3

Tom Limoncelli, co-author of *The Practice of System and Network Administration*, is Director of IT Services at Cibernet Corp. A sysadmin and network wonk since 1987, he has worked at Dean for America, Lumeta, Bell Labs/Lucent, Mentor Graphics, and Drew University. He is a frequent presenter at LISA conferences.



**RICHARD E. MACKAY, JR.**  
M8

Richard E. Mackey, Jr., is principal of SystemExperts Corporation. Before joining SystemExperts, he worked in leading technical and director positions at The Open Group, The Open Software Foundation (DCE), and BBN Corporation (Cronus Distributed Computing Environment). He has been published often in security magazines such as *ISSA Password*, *.NET*, *Information Security*, and *SC Secure Computing*, and he is a regular speaker on computer security topics at various industry conferences. Dick has a B.S. and an M.S. in Electrical and Computer Engineering from the University of Massachusetts at Amherst.

For more information, please visit [www.usenix.org/lisa04/training](http://www.usenix.org/lisa04/training)



**JAMES MAURO**  
S4

James Mauro is a Senior Staff Engineer in the Performance and Availability Engineering group at Sun Microsystems. Jim's current projects are focused on quantifying and improving enterprise platform availability, including minimizing recovery times for data services and Solaris. Jim co-developed a framework for system availability measurement and benchmarking and is working on implementing this framework within Sun.



**NED MCCLAIN**  
S6, M6

Ned McClain is co-founder and CTO of Applied Trust Engineering. He lectures around the globe on applying cutting-edge technology in production computing environments. Ned holds a B.S. in Computer Science from Cornell University and is a contributing author of both the *UNIX Systems Administration Handbook* and the *Linux Administration Handbook*.



**RICHARD MCDUGALL**  
S4

Richard McDougall is a Sun Microsystems Distinguished Engineer who specializes in operating systems technology and system performance. He is based at the Menlo Park Performance and Availability Engineering group, where he drives development of performance and behavior enhancements to the Solaris operating system and Sun's hardware architectures. He has led the development of resource management principles, has contributed to the development of virtual memory and file systems within the Solaris operating system, and has architected many tools for analysis, monitoring, and capacity planning. He is the lead author of *Resource Management* (Prentice Hall). He has written numerous articles and papers on measurement, monitoring, and capacity planning of Solaris systems and frequently speaks at industry and customer technical conferences on the topics of system performance and resource management.



**RADIA PERLMAN**  
S5, M5

Radia Perlman is a Distinguished Engineer at Sun Microsystems. She is known for her contributions to bridging (spanning tree algorithm) and routing (link state routing), as well as security (sabotage-proof networks). She is the author of *Interconnections: Bridges, Routers, Switches, and Internetworking Protocols* and co-author of *Network Security: Private Communication in a Public World*, two of the top ten networking reference books, according to *Network Magazine*. She is one of the twenty-five people whose work has most influenced the networking industry, according to *Data Communications Magazine*. She has about fifty issued patents, an S.B. and S.M. in mathematics and a Ph.D. in computer science from MIT, and an honorary doctorate from KTH, the Royal Institute of Technology in Sweden.



**W. CURTIS PRESTON**  
T12, W5

W. Curtis Preston is Vice President of Service Development for Glasshouse Technologies, the global leader in independent storage services. Curtis has ten years' experience designing storage systems for many environments, both large and small. As a recognized expert in the field, Curtis has advised the major product vendors regarding product features and implementation methods. Curtis is the administrator of the NetBackup and NetWorker FAQs and answers the "Ask The Experts" backup forum on SearchStorage.com. He is also the author of O'Reilly's *UNIX Backup & Recovery* and *Using SANs & NAS*, as well as a monthly column in *Storage Magazine*.



**MARCUS RANUM**  
M4, W2

Marcus Ranum is senior scientist at Trusecure Corp. and a world-renowned expert on security system design and implementation. He is recognized as the inventor of the proxy firewall and the implementer of the first commercial firewall product. Since the late 1980s, he has designed a number of groundbreaking security products, including the DEC SEAL, the TIS firewall toolkit, the Gauntlet firewall, and NFR's Network Flight Recorder intrusion detection system. He has been involved in every level of operations of a security product business, from developer, to founder and CEO of NFR. Marcus has served as a consultant to many FORTUNE 500 firms and national governments, as well as serving as a guest lecturer and instructor at numerous high-tech conferences. In 2001, he was awarded the TISC Clue award for service to the security community, and he holds the ISSA lifetime achievement award.



**DAVID RHOADES**  
T1, W1, R1, F1

David Rhoades is a principal consultant with Maven Security Consulting, Inc. Since 1996, David has provided information protection services for various FORTUNE 500 customers. His work has taken him across the U.S., Europe, and Asia, where he has lectured and consulted in various areas of information security. David has a B.S. in computer engineering from the Pennsylvania State University and has taught for the SANS Institute, the MIS Training Institute, and ISACA.



**JOHN SELLENS**  
S2, M2

John Sellens has been involved in system and network administration since 1986 and is the author of several related USENIX papers, a number of *login*: articles, and the SAGE Short Topics in System Administration booklet #7, *System and Network Administration for Higher Reliability*. He holds an M.Math. in computer science from the University of Waterloo and is a chartered accountant. He is the proprietor of SYONEX, a systems and networks consultancy. From 1999 to 2004, he was the General Manager for Certainty Solutions in Toronto. Prior to joining Certainty, John was the Director of Network Engineering at UUNET Canada and was a staff member in computing and information technology at the University of Waterloo for 11 years.



**DAVID SKOLL**  
T9

David Skoll is founder and president of Roaring Penguin Software, Inc., a firm specializing in email filtering. Skoll is the developer of MIMEDefang, the acclaimed open-source email inspection software, and the primary developer of CanIt and CanIt-PRO, commercial anti-spam systems based on MIMEDefang. He is author of Caldera's *OpenLinux Unleashed* and frequently writes and presents for the Linux and open source communities. More information can be found at <http://www.roaringpenguin.com>.



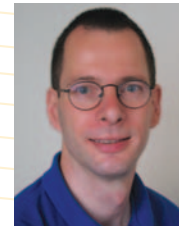
**MARC STAVELEY**  
T6

Marc Staveley works with Soma Networks, where he is applying his many years of experience with UNIX development and administration in leading their IT group. Previously Marc had been an independent consultant and also held positions at Sun Microsystems, NCR, Princeton University, and the University of Waterloo. He is a frequent speaker on the topics of standards-based development, multi-threaded programming, system administration, and performance tuning.



**THEODORE TS'O**  
R7

Theodore Ts'o has been a Linux kernel developer since almost the very beginnings of Linux—he implemented POSIX job control in the 0.10 Linux kernel. He is the maintainer and author for the Linux COM serial port driver and the Comtrol Rocketport driver, and he architected and implemented Linux's tty layer. Outside of the kernel, he is the maintainer of the e2fsck filesystem consistency checker. Ted is currently employed by IBM Linux Technology Center.



**ALF WACHSMANN**  
S7

Alf Wachsmann works at the Stanford Linear Accelerator Center (SLAC) in the Computing Services' High-Performance Computing Group, where he is an infrastructure designer and automation specialist. He has a doctor's degree in natural sciences obtained in computer science at the University of Paderborn (Germany). He worked as a post-doc in the computing center of DESY Zeuthen (Germany) before he came to SLAC in 1999.

**“What I liked best about LISA '03 was hearing from so many people who have worked in such a wide range of environments. The experience is incredible.”**

**Nathan Medbery**  
*State of Wisconsin—DHFS*

**For more information, please visit [www.usenix.org/lisa04/training](http://www.usenix.org/lisa04/training)**



Photo by Matthew Dillon

8:45 A.M.—10:30 A.M.

## OPENING REMARKS, AWARDS, AND KEYNOTE

### Keynote Address: *Going Digital at CNN*

Howard Ginsberg, *CNN Technology*

CNN has long utilized digital non-linear editing of video on a large scale in post-production. In the late 90's, as part of a technology plan for the new century, the decision was made to bring the advantages of digital video to the production process by replacing most of the videotape-based operations with server-based video storage.

In advance of new technologies that would enhance news gathering and transmission to CNN Center in Atlanta, the technology plan included server-based recording, editing, and playback. File-based, faster-than-realtime video transfer significantly reduces time-to-air for CNN's newsgathering operations around the world and substantially improves access to archived footage.

CNN is currently deploying large-scale systems in Atlanta and New York that will support its very large recording and editing operations. Ultimately, these will replace most of the videotape-based operations in both cities. There are some significant technical challenges these systems must meet, especially in the areas of capacity, bandwidth, and reliability.

In Atlanta, CNN is installing a fully redundant 2 x 20TB system to host approximately 2,000 hours of MPEG-2 broadcast-quality video & audio and MPEG-1 proxy/desktop-quality video & audio.

The New York bureau has just begun using a fully redundant 2 x 14TB system to host approximately 1,500 hours of MPEG-2 broadcast-quality video & audio and MPEG-1 proxy/desktop-quality video & audio.

The Atlanta video archive currently consists of a huge collection of videotapes, some of which have deteriorated so badly that they can only be played one more time. The digital successor for this archive will consist of a large hierarchical storage installation. It needs to be capable of ingesting 200 hours of video per day and transferring an estimated 280 gigabytes of data every hour. Storage requirements for this archive are in excess of a petabyte.

This presentation will discuss the new digital installation and the task of migrating from existing systems.

11:00 A.M.—12:30 P.M.

## REFEREED PAPERS

### SPAM/Email

**Session Chair:** Rudi Van Drunen, *Leiden Pathology and Cytology Labs, Leiden, The Netherlands*

**Scalable Centralized Bayesian Spam Mitigation with Bogofilter**  
Jeremy Blosser and David Josephsen, *VHA Inc.*

**DIGIMIMIR: A Tool for Rapid Situation Analysis of Helpdesk and Support Email**

Baard H. Rehn Johansen, Nils Einar Eide, Andreas N. Blaaflydt, and Frode Eika Sandnes, *Oslo University College*

**Gatekeeper: Monitoring Autostart Extensibility Points for Spyware Management**

Yi-Min Wang, Roussi Roussev, Chad Verbowski, and Aaron Johnson, *Microsoft Research*

## INVITED TALKS

### What Is This Thing Called System Configuration?

Paul Anderson, *University of Edinburgh*

This talk will show how an understanding of some basic principles of system configuration can help to insure the best possible practices and utilization of current technologies and will indicate how some current research areas may influence the next generation of tools.

### Anomaly Detection: Whatever Happened to Computer Immunology?

Mark Burgess, *Oslo University College*

In this talk Mark explains some of the state of the art principles of anomaly detection—how events can be observed and patterned for machine analysis. Should we centralize anomaly detection? Can we define a language for anomalies (and is it just grep)?

## NETWORK/SECURITY/PROFESSIONAL

### Information Security Laws

John Nicholson, *Shaw Pittman*

Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

## GURU IS IN SESSION

### SAMBA

Gerald Carter, *Samba Team/Hewlett-Packard*

Gerald Carter has been a member of the SAMBA Development Team since 1998 and is now helping to coordinate the project's release process. Currently employed by Hewlett-Packard as a Samba developer, Gerald has published articles with various Web-based magazines and written books for both SAMS and O'Reilly Publishing.

2:00 P.M.–3:30 P.M.

## REFEREED PAPERS

### Intrusion and Vulnerability Detection

Session Chair: Yi-Min Wang, *Microsoft Research*

### A Machine-Oriented Vulnerability Database for Automated Vulnerability Detection and Processing

Sufatrio, Roland Yap, and Liming Zhong, *National University of Singapore*

### DigSig: Runtime Authentication of Binaries at the Kernel Level

Axelle Apvrille, David Gordon, Makan Pourzandi, and Vincent Roy, *Ericsson Research*; Serge Hallyn, *IBM*

### I3FS: In-Kernel Integrity Checker and Intrusion Detection File System

Swapnil Patil, Anand Kashyap, and Erez Zadok, *Stony Brook University*

4:00 P.M.–5:30 P.M.

## REFEREED PAPERS

### Configuration Management

Session Chair: Mike Gilfix, *IBM*

### Nix: A Safe and Policy-Free System for Software Deployment

Eelco Dolstra, Eelco Visser, and Merijn de Jonge, *Utrecht University*

### Autoconfiguration by File Construction: Configuration Management with newfig

Bill LeFebvre and David Snyder, *CNN Internet Technologies*

### AIS—Fast, Disk-efficient System Installation for Heterogeneous Environments: How to Improve on Imaging and Kickstart

Sergei Mikhailov and Jonathan Stanton, *George Washington University*

## INVITED TALKS

### LiveJournal's Backend and memcached: Past, Present, and Future

Lisa Phillips and Brad Fitzpatrick

Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

## INVITED TALKS

### R (and W) TFM: The Documentation Habit

Mark C. Langston, *SETI Institute*

We'll explore the dark recesses of sysadmin documentation habits (bring your own grue) while coming to grips with what it means to document and how documenting can make your life easier.

## NETWORK/SECURITY/PROFESSIONAL

### NFSv4

Brian Pawlowski, *Network Appliance*

Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

## NETWORK/SECURITY/PROFESSIONAL

### The Security Role of Linguistic Content Analysis

Jim Nisbit, *President & CEO, Tablus, Inc.*

Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

## GURU IS IN SESSION

### Mac OS X

Leon Towns-von Stauber, *Consultant*; Eric Zelenka, *Apple*

Leon Towns-von Stauber started using UNIX systems in 1990 and has been administering them professionally for the last nine years in service provider, corporate, and educational environments. The purchase of a NeXT workstation in 1991 introduced him to the operating system lineage that he would follow from NeXTStep through to Mac OS X today. Currently he is working on books for O'Reilly & Associates on Mac OS X security and system administration.

Eric Zelenka is the Senior Product Line Manager for Server and Software in Apple's Worldwide Product Marketing Team. Zelenka is responsible for managing and defining Apple's worldwide operating system strategy for server and storage software, directory services, network authentication, and desktop management. He participated in the launch of Apple's next-generation operating system, Mac OS X, and managed the roll-out of Mac OS X Server and related technologies, including Open Directory.

## GURU IS IN SESSION

### Linux

Bdale Garbee, *HP Linux CTO/Debian*

Bdale, a former Debian Project Leader, currently works at HP helping to make sure Linux will work well on future HP systems. His background includes many years on both UNIX internals and embedded systems. He helped jump-start ports of Debian GNU/Linux to 5 architectures other than i386.

9:00 A.M.—10:30 A.M.

## REFEREED PAPERS

### Networking

Session Chair: Jon Finke, *RPI*

**autoMAC: A Tool for Automating Network Moves, Adds, and Changes**  
Christopher Teng, James Roberts, Joe Crouthamel, Chris Miller, and Chris Sanchez, *Princeton University*

**Maintain: Developing an Open Source Web Application to Manage DNS/DHCP for a Large and Diverse User Base**  
Karl Vollmer, *Oregon State University*

**More Netflow Tools for Performance and Security**  
Mark Thomas, Andrew Kompanek, Michael Collins, Michael Duggan, and Carrie Gates, *CERT Analysis Center*

## INVITED TALKS — 2ND ANNUAL SPAM MINI-SYMPOSIUM

**Filtering, Stamping, Blocking, Anti-Spoofing: How to Stop the Spam**  
Joshua Goodman, *Microsoft Research*

We can stop spam, and here are some of the techniques we'll use to do it: machine learning filters, stamping, blackhole lists, and anti-spoofing techniques such as Sender-ID. Stamping includes Turing Tests, computational puzzles, and real money. I'll also tell you where all that spam comes from, what it's selling, and why laws won't work.

## NETWORK/SECURITY/PROFESSIONAL

**Grid Computing: Just What Is It and Why Should I Care?**  
Esther Filderman and Ken McInnis, *Pittsburgh Supercomputing Center*

The Grid can be a frightening and nebulous concept to system administrators tasked to provide "it" to their users. The challenges of supporting the distributed, multi-site Grid environment entail new architectural, political, and administrative responsibilities. We'll talk about the differences from "traditional" computing environments and from clustering, new security models and procedures, and implementation considerations; we'll present some Grid scenarios; and we'll teach you to keep your head above water when you start using Grid technologies.

## GURU IS IN SESSION

**Backups**  
W. Curtis Preston, *Glasshouse Technologies*

W. Curtis Preston, President/CEO of The Storage Group, wrote *Using SANs and NAS* and *UNIX Backup and Recovery*, the seminal O'Reilly book on backup. He has been designing and implementing storage systems for over 10 years.

11:00 A.M.—12:30 P.M.

## EXPERIENCE TALK & REFEREED PAPERS

**Monitoring and Troubleshooting**  
Session Chair: Mike Gilfix, *IBM*

**Experience Talk: FDR: A Flight Data Recorder Using Black-Box Analysis of Persistent State Changes for Managing Change and Configuration**  
Chad Verbowski, John Dunagan, Brad Daniels, and Yi-Min Wang, *Microsoft Research*

**Refereed Papers:**  
**Real-time Log File Analysis Using the Simple Event Correlator (SEC)**  
John P. Rouillard

**Combine High Level Symptom and Low Level State Information for Configuration Fault Diagnosis**  
Ni Lao, *Tsinghua University*; Ji-Rong Wen and Wei-Ying Ma, *Microsoft Research Asia*; Yi-Min Wang, *Microsoft Research*

## INVITED TALKS — 2ND ANNUAL SPAM MINI-SYMPOSIUM

**Lessons Learned Reimplementing an ISP Mail Service Infrastructure to Cope with Spam**  
Doug Hughes, *Global Crossing*

Spam is a problem for all organizations, large and small. Global Crossing's ISP platform found spam volume doubling every 2 months. You could see it in CPU processing, in disk I/O, in DNS lookups—even the compressed log files were growing visibly by the week. This talk discusses some of the techniques we used to identify spam, lessons learned, tools applied, and interesting statistics gathered along the way. Graphs of various metrics, black lists, DNSBLs, white lists, automated handling, SPF, and Bayesian filters are all approached from a practical standpoint.

## NETWORK/SECURITY/PROFESSIONAL

**A New Approach to Scripting**  
Trey Harris, *Amazon.com*  
Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

## GURU IS IN SESSION

**AFS**  
Esther Filderman, *Pittsburgh Supercomputing Center*

Having worked for Carnegie Mellon University since 1988, Esther "Moose" Filderman has been working with AFS since its toddlerhood, before it was called AFS. She is currently Senior Systems Mangler and AFS administrator for the Pittsburgh Supercomputing Center. Esther Filderman has been working to bring AFS content to LISA conferences since 1999 and is also coordinating documentation efforts for the OpenAFS project.

2:00 P.M.—3:30 P.M.

## REFEREED PAPERS

### System Integrity

**Session Chair:** John Sechrest, *Public Electronic Access to Knowledge*

### Lifeboat: An Autonomic Backup and Restore Solution

Ted Bonkenburg, Dejan Diklic, Benjamin Reed, Mark Smith, Michael Vanover, Steve Welch, and Roger Williams, *IBM Almaden Research Labs*

### PatchMaker: A Physical Network Patch Manager Tool

John Crouthamel, James Roberts, Chris Sanchez, and Chris Tengi, *Princeton University*

### Who Moved My Data? A Backup Tracking System for a Dynamic Workstation Environment

Greg Pluta and Larry Brumbaugh, *NCSA*; Joe Tucek, *University of Illinois*



Photo by Matthew Dillon

## INVITED TALKS — 2ND ANNUAL SPAM MINI-SYMPOSIUM

### What Spammers Are Doing to Get Around Bayesian Filtering & What We Can Expect for the Future

John Graham-Cumming, *Electric Cloud*

Spammers keep on spamming, and they keep innovating to get through spam filters. In this talk you'll hear about the latest spammer tricks, the latest bugs in Internet Explorer that they're using :-), and what to expect from spammers in 2005. The talk will also cover ten tough questions to ask your spam filter vendor to make sure that you get the best product available.

4:00 P.M.—5:30 P.M.

## PLENARY SESSION

### BIOLOGY AND INFORMATICS FOR SYSTEM ADMINISTRATORS

Bill Van Etten, *The BioTeam*

Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

## NETWORK/SECURITY/PROFESSIONAL

### Flying Linux

Dan Klein, *USENIX*

How good is Linux, really? When your life is at stake, your attitudes change considerably. This talk will look at what it takes to make software truly mission critical and man-rated. At the end of this talk, what you thought might be an easy answer will be seen to be not so easy.

## HOST YOUR OWN BIRDS-OF-A-FEATHER (BOF) SESSION

Looking for another opportunity to meet people with interests similar to yours? Want to share your knowledge and enthusiasm with your peers? Organize your own Birds-of-a-Feather Session. BoFs are casual, 1–3 hour sessions that take place in the evening so they don't conflict with daytime sessions. BoFs can be about anything: Open Source projects, specific platforms or tools, professional topics, etc. They can also be purely social activities. However, commercial BoFs, such as product demos or discussions of proprietary technologies by companies, will be charged a sponsorship fee.

## GURU IS IN SESSION

### VoIP and IETF Standards

Robert Sparks, *Dynamicsoft*

Robert Sparks is a co-author of the core SIP specification and several of its extensions. Robert co-chairs the IETF's SIMPLE working group and coordinates the SIPit and SIMPLEt interoperability events. Robert is currently on the board of directors of the SIP Forum and is an active contributor to the reSIProcate project.

BoFs may be scheduled during the conference at the registration desk or in advance by contacting [bofs@usenix.org](mailto:bofs@usenix.org). Interested in sponsoring a commercial BoF? Email [sales@usenix.org](mailto:sales@usenix.org).

Make the most of your LISA experience by pursuing your interests—set up a BoF at LISA '04.

9:00 A.M.—10:30 A.M.

## REFEREED PAPERS

### Security

**Session Chair:** David Hoffman, *Stanford University*

#### Making a Game of Network Security

Marc Dougherty, *Northeastern University*

#### Securing the PlanetLab Distributed Testbed: How to Manage Security in an Environment with No Firewalls, with All Users Having Root, and No Direct Physical Control of Any System

Paul Brett, Mic Bowman, Jeff Sedayao, Robert Adams, and Rob Knauerhause, *Intel Corp.*

#### Secure Automation: Achieving Least Privilege with SSH, Sudo, and Suid

Robert A. Napier, *Cisco Systems*

## INVITED TALKS

### ENUM: Mapping Telephone Numbers into the DNS\*

Jim Reid, *DNS-MODA*

ENUM is a protocol for mapping E.164 telephone numbers into domain names, enabling convergence between the worlds of telephony and the Internet. This presentation will explain the jargon and technology of ENUM and the major players: governments, ISPs, regulators, registries, registrars, telcos, and standards organizations. This diversity of organizations has led to some interesting culture clashes and unusual relationships, and the national and international politics of ENUM are fascinating. Topics include sovereignty, competition law, privacy, data protection, regulatory concerns, what has been happening in national ENUM trials, the moves toward commercial deployment, and the potential impact these are likely to have.

## NETWORK/SECURITY/PROFESSIONAL

### System Administration and Sex Therapy: The Gentle Art of Debugging

David Blank-Edelman, *Northeastern University*

Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

## GURU IS IN SESSION

### RAID/HA/SAN (with a Heavy Dose of Veritas)

Doug Hughes, *Global Crossing*; Darren Dunham, *TAOS*

Doug Hughes and Darren Dunham have 13+ years of Veritas between them. They have years of experience working on Volume Manager, Veritas File System, Database Edition, Volume Replicator, Cluster Server, and NetBackup. Whether you have a SAN or direct attach storage, a database or a filesystem, a single system or a cluster, or a perplexing backup or disaster recovery issue, this session will cover it all.

11:00 A.M.—12:30 P.M.

## REFEREED PAPERS

### Theory

**Session Chair:** John Sechrest, *Public Electronic Access to Knowledge*

#### Implementing a Web Service Closure

Steven Schwartzberg, *BBN*; Alva Couch, *Tufts University*

#### Meta Change Queue: Tracking Changes to People, Places, and Things

Jon Finke, *RPI*

#### Solaris Zones: Operating System Support for Consolodating Commercial Workloads

Daniel Price and Andrew Tucker, *Sun Microsystems*

## INVITED TALKS

### The Administrator, Then and Now

Peter H. Salus, *UNIX Historian*

50 years ago, enormous, isolated machines were tended by priests in white coats called operators; 20 years ago, “workstations” and “personal computers” had come into being. As storage and connectivity waxed, the role of the operator transformed into that of the system administrator. This talk will trace that transformation.

## NETWORK/SECURITY/PROFESSIONAL

### Used Disk Drives

Simson Garfinkel, *MIT Computer Science and Artificial Intelligence Laboratory*

Simson Garfinkel purchased 200 used hard drives on eBay. Analyzing these hard drives with a simple UNIX-based system, he found a treasure trove of information he never should have seen. In this talk, Garfinkel will discuss the information he found, why it was findable, and what tools you can use to perform forensic analysis and properly sanitize media. Finally, he'll show how the results of this research are applicable to digital cameras, flash memory, MP3 players, Palm Pilots, and a wide variety of other systems.

## GURU IS IN SESSION

### Professional Growth

David Parter, *University of Wisconsin*

David has been a system administrator at the University of Wisconsin Computer Science Department since 1991, serving as Associate Director of the Computer Systems Lab since 1995, guiding a staff of 8 full-time sysadmins and supervising up to 12 student sysadmins at a time. His experiences in this capacity include working with other groups on campus; providing technical leadership to the group; managing the budget; dealing with vendors; dealing with faculty; and training students.



2:00 P.M.–3:30 P.M.

### WORK-IN-PROGRESS REPORTS (WIPS)

**Session Chair:** Snoopy, *Infocopter Entertainment GmbH*

Short, pithy, and fun, Work-in-Progress reports introduce interesting new or ongoing work. If you have work you would like to share or a cool idea that's not quite ready for publication, send a one- or two-paragraph summary to [lisa04wips@usenix.org](mailto:lisa04wips@usenix.org). We are particularly interested in presenting students' work. A schedule of presentations will be posted at the conference, and the speakers will be notified in advance. Work-in-Progress reports are five-minute presentations; the time limit will be strictly enforced.

### INVITED TALKS

#### **Lessons Learned from Howard Dean's Digital Campaign**

Keri Carpenter, *UC Irvine*; Tom Limoncelli, *Consultant*

Howard Dean's campaign use of Web technology has had a lasting effect on politics. The talk will describe tools, including the Web site, the blog, fundraising tools, and online meetup tools, which offer important lessons on how the Internet can be used by any political party to organize distributed masses of people to collaborate in the democratic process.

### NETWORK/SECURITY/PROFESSIONAL

#### **Storage Security**

W. Curtis Preston, *Glasshouse Technologies*

Please see [www.usenix.org/lisa04/tech](http://www.usenix.org/lisa04/tech) for updates.

### GURU IS IN SESSION

#### **Configuration Management**

Gene Kim, *Tripwire, Inc.*

So you need to build a change management process. How are you identifying the gaps and bootstrapping the necessary controls, with each step having a beginning and a clearly defined goal? Join our Guru session to discuss and explore how you build auditable change and configuration management processes not only to achieve sustainable security and auditable processes, but also to build a high-performing IT ops team with the best service levels (MTTR, MTBF, low amounts of unplanned work) and efficiencies (improved server to system administrator ratios).



4:00 P.M.–5:30 P.M.

### LISA GAME SHOW

Closing this year's conference, the LISA Game Show will once again pit attendees against each other in a test of technical knowledge and cultural trivia. Host Rob Kolstad and sidekick Dan Klein will provide the questions and color commentary for this always memorable event.

Save the Date for  
**LISA '05**

**19th Large Installation  
System Administration  
Conference**

**December 4–9, 2005  
San Diego, CA**

## SUNDAY, NOVEMBER 14

### WORKSHOP 1

#### CONFIGURATION MANAGEMENT

Paul Anderson, *University of Edinburgh*

Specifying the required configurations for large numbers of interconnected machines, and automatically installing those configurations to produce reliable “fabrics,” have been important topics since the very early LISA conferences.

This workshop will cover the fundamental problems of current technologies and look at the theory and approaches that might lead to a new generation of configuration languages and tools. A summary of last year’s workshop, an archive of the mailing list, and pointers to some relevant papers can be found at <http://homepages.informatics.ed.ac.uk/group/lssconf>.

To apply, please send a short email to [lisa04confwshop@usenix.org](mailto:lisa04confwshop@usenix.org), including a brief description of your areas of interest/experience. If the workshop is oversubscribed, then preference will be given to those who are active in the development of configuration tools or theory. Applicants will be notified by September 30.

## MONDAY, NOVEMBER 15

### WORKSHOP 2

#### SYSADMIN EDUCATION

Curt Freeland, *University of Notre Dame*; John Sechrest, *PEAK Internet Services*

Curt Freeland and John Sechrest have run the SysAdmin Education Workshop at LISA for 5 years. This workshop is focused on bringing together people who teach system administration in a university setting. This year, the focus is on curriculum and curriculum development.

How do system administration courses work together with other courses? How do those courses fit into degree programs? How do networking and system administration classes connect?

Part of the goal of the workshop will be to list existing courses and programs and to try to expand this list to include system administration education resources.

To register for the workshop, please send an outline of your experience and interest in sysadmin education to [lisa04eduwshop@usenix.org](mailto:lisa04eduwshop@usenix.org).

## MONDAY, NOVEMBER 15

### WORKSHOP 3

#### AFS

Esther Filderman, *The OpenAFS Project*; Derrick Brashear, *Carnegie Mellon University*

This workshop for experienced AFS administrators will be a mix of papers presented by willing participants and active discussion about work currently being done, issues in AFS administration, and issues relating to IBM-AFS, OpenAFS, and Arla. Writing or presenting a paper is not required, but a willingness to participate actively in the workshop is essential. For information about the workshop and how to apply to participate, please see the AFS Workshop page, <http://grand.central.org/workshop>.

## TUESDAY, NOVEMBER 16

### WORKSHOP 4

#### ADVANCED TOPICS

Adam S. Moskowitz, *Menlo Computing*

This one-day workshop, intended for very senior administrators, provides an informal roundtable discussion of the problems facing system administrators today. Attendance is limited and based on acceptance of a position paper (plain ASCII, three paragraphs maximum); a typical paper covers what the author thinks is the most difficult or important issue facing system administrators today, why this is a problem, and why this problem is important. Please send position papers to [lisa04atwshop@usenix.org](mailto:lisa04atwshop@usenix.org).

### JOIN YOUR PEERS FOR THREE DAYS OF FOCUSED DISCUSSION

- Senior system administrators will want to participate in one or more of these all-day workshops. Attendance is limited to 30 participants for each workshop, which ensures a seminar-like atmosphere. To attend a workshop, you must be a registered conference attendee.
- Please note that these workshops are full-day sessions. Attending a workshop precludes attending any training sessions on that day. See the individual descriptions for information on how to register for a workshop. Accepted registrations will be confirmed by the workshop coordinator.

## LISA '04 Sponsorship & Exhibiting Opportunities

"This was the best conference we exhibited at all year!"

**Jacob Farmer, CTO**  
*Cambridge Computer Services*

LISA's exceptional attendees are drawn by an equally exceptional conference program. Technical tutorials for beginners through experienced attendees cover all aspects of network and system administration, from basic administrative procedures to application of cutting-edge technologies. Refereed technical sessions explore the latest developments in both theory and practice. Invited talks explore timely topics in depth and look ahead to next year's innovations. LISA fosters personal exchanges with the presenters, other technology leaders, and leading vendors, exploring the latest technology, tools, and techniques to find solutions to their current problems.

- Get system administrators talking about your products and services.
- Sell your products and services.
- Conduct market research and enlist beta testers.
- Recruit among highly experienced, highly educated system administrators.
- Enhance your visibility among recognized leaders of the system, network, and security administration communities.

There will be a Vendor Exhibition at LISA, as well as a variety of other sponsorship options. Visit <http://www.usenix.org/events/lisa04/sponsors.html> for details or contact Cat Allman, USENIX Sales & Marketing Director, for more information: (510) 528-8649 x32 or [sales@usenix.org](mailto:sales@usenix.org).

Save the Date for

**LISA '05**

**19th Large Installation System Administration Conference**

**December 4–9, 2005  
San Diego, CA**

# Thanks to Our Supporting Members & Sponsors

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DoCoMo Communications Laboratories USA, Inc.      OSDL  
Electronic Frontier Foundation      Perfect Order, Inc.  
Hewlett-Packard      Portlock Software  
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## LISA '04 STUDENT STIPEND SPONSOR

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## LISA '04 MEDIA SPONSORS

ACM *Queue*      ITtoolbox  
Addison Wesley/Prentice Hall PTR      *Linux Journal*  
*Bityard Magazine*      No Starch Press  
*C/C++ Users Journal*      OSTG  
*COTS Journal*      StorageNetworking.org  
Daemon News/BSD Mail      Sybex  
*Homeland Defense Journal*      *Sys Admin Magazine*  
*IEEE Security and Privacy Magazine*      UserFriendly.org



Photo by Matthew Dillon

**Make knowledgeable decisions  
on products and services for your business needs.  
Exhibitor demonstrations save you hours of research  
and let you quickly compare solutions.**

### **VENDOR EXHIBITION**

- Learn about the most up-to-date products from the most knowledgeable people in their fields.
- See demonstrations of innovative products and services that can put you ahead of your systems, network, and Internet management tasks.
- Get in-depth answers from well-informed company representatives.
- Buy books from No Starch Press, Addison-Wesley/Prentice Hall PTR, and other leading publishers at discounted prices and have them signed by the authors.

### **DON'T MISS THE BEER & GEAR RECEPTION**

Exhibition Hall  
Wednesday, November 17  
5:30–6:30 p.m.

# See What's New at the LISA '04 Vendor Exhibition

**WEDNESDAY, NOVEMBER 17, 12:00 NOON–7:00 P.M.**  
**THURSDAY, NOVEMBER 18, 10:00 A.M.–4:00 P.M.**

### **EVERYONE WELCOME!**

The exhibition is open to the public. Register for a free pass at <http://www.usenix.org/lisa04/exhibition.html>

### **EXHIBITORS AS OF AUGUST 17, 2004**

Advanced Computer &  
Network Corporation  
AdventNet, Inc.  
Aptitude Corporation  
BSD Mall  
Cambridge Computer  
Services, Inc.  
CVE/OVAL-MITRE Corporation  
Cyclades Corporation  
EAGLE Software Inc.  
Free Software Foundation  
IBRIX, Inc.  
Logical Solutions  
Open Gear  
Raritan Computer, Inc.  
Sophos, Inc.  
Symark Software  
Tablus, Inc.  
The Written Word

### **THANKS TO OUR PREMIUM EXHIBITORS**

Aduva, Inc.  
Open Systems  
Management Inc.  
Perfect Order, Inc.  
Roaring Penguin Software, Inc.

**"I got lots of great  
information and  
learned about some  
great solutions."**

**A LISA '03 Attendee**

**Have questions?  
Interested in  
exhibiting?**

**Please contact  
Cat Allman,  
USENIX Sales &  
Marketing Director**

**(510) 528-8649 x32  
sales@usenix.org**

## Conference Activities

*To enhance your LISA conference experience, attendee events are planned throughout the week. Attend panels on hot topics, vendor sessions on the latest products, and the very popular Birds-of-a-Feather sessions (BoFs). Mingle with your peers and technological luminaries during the Exhibition Beer & Gear Reception and the Conference Reception. Be sure not to miss the opportunity to vie for bragging rights—and prizes—at the Game Show. For the latest additions to the activities schedule, check out [www.usenix.org/LISA2004](http://www.usenix.org/LISA2004).*

### WELCOME RECEPTION

**Saturday, Nov. 13, 6:00 p.m.–8:00 p.m.**

Join fellow attendees at the opening night Welcome Reception. Refreshments and snacks provided.

### CONFERENCE ORIENTATION

**Saturday, Nov. 13, 8:00 p.m.–9:00 p.m.**

Whether this is your first time at LISA or your tenth, stop by the Conference Orientation to learn how to get the most out of the conference in its new, expanded format. The orientation includes an overview of Atlanta, an introduction to USENIX, and an added opportunity to meet your peers.

### EXHIBITION BEER & GEAR RECEPTION

**Wednesday, Nov. 17, 5:30 p.m.–6:30 p.m.**

Join us at the Vendor Exhibition for pizza and soda or beer, and take the opportunity to learn about the latest products and technologies.

### CONFERENCE RECEPTION

**Thursday, Nov. 16, 6:00 p.m.–8:00 p.m.**

Stop by the Conference Reception, yet another opportunity to mingle with colleagues and enjoy warm food and cold drinks.

### LISA GAME SHOW

**Friday, Nov. 19, 4:00 p.m.–5:30 p.m.**

Closing out this year's conference, the LISA Game Show will once again pit attendees against each other in a test of technical knowledge and cultural trivia. Host Rob Kolstad and sidekick Dan Klein will provide the questions and color commentary for this always memorable event.

### WORK-IN-PROGRESS REPORTS (WIPS)

**Friday, Nov. 19, 2:00 p.m.–3:30 p.m.**

Short, pithy, and fun, Work-in-Progress reports introduce interesting new or ongoing work. If you have work you would like to share or a cool idea that's not quite ready for publication, send a one- or two-paragraph summary to [lisa04wips@usenix.org](mailto:lisa04wips@usenix.org). We are particularly interested in presenting students' work. Work-in-Progress reports are five-minute presentations; the time limit will be strictly enforced.

### BIRDS-OF-A-FEATHER SESSIONS (BOFS)

**Tuesday, Nov. 16, and Wednesday, Nov. 17, 7:00 p.m.–11:00 p.m.**

**Thursday, Nov. 18, 8:00 p.m.–11:00 p.m.**

Lead or attend a BoF! Meet with your peers! Present new work! Don't miss these special activities designed to maximize the value of your time at the conference. The evening BoFs are very informal gatherings of persons interested in a particular topic. BoFs may be scheduled by contacting [bofs@usenix.org](mailto:bofs@usenix.org). BoFs are open to all attendees.

# Special Conference Features

## CONFERENCE SERVICES

### Bring Your Laptop!

USENIX is pleased to offer Internet connectivity at LISA '04 via an open, unsecured 802.11b WiFi network. A limited number of wireless cards will be available at the registration desk. The network issues NAT'd addresses via DHCP or static assignment. If you have questions, please send email to [wireless@usenix.org](mailto:wireless@usenix.org). A laptop drop room will be available.

### Conference Proceedings

Those registered for the technical sessions will receive a complimentary copy of the printed Proceedings. Additional copies of the Proceedings and the CD-ROM, which includes both the Proceedings and tutorial presentations, will be available for purchase at the conference. To order copies after the conference, see <http://www.usenix.org/publications/ordering>.

## STUDENT DISCOUNTS AND STIPENDS

### Training

A number of tutorial seats are reserved for full-time students at the very special rate of \$150.00 per day, for one full-day tutorial, two half-day tutorials, or one half-day tutorial plus the remaining half-day's technical sessions. You must email the Conference Department, [conference@usenix.org](mailto:conference@usenix.org), to confirm availability and make a reservation. In your email, please specify which tutorials you wish to attend. You will be given a code number to use when you register. The Conference Department must receive your registration form, with the code number, full payment, and a photocopy of your current student I.D. card, within 14 days from the date you make your reservation, or your reservation will be canceled. This special fee is nontransferable.

### Technical Sessions

LISA '04 offers full-time students a special discount rate for technical sessions. See p. 31 for fee information. You must include a copy of your current student I.D. card with your registration. This special fee is not transferable. Register online and then fax a copy of your student I.D. card to (510) 548-5738.

### Student Stipends for Conference Attendance

A limited number of student stipends are available to pay for registration and assist with travel and accommodation expenses to enable full-time students to attend the conference. To apply for a stipend, see <http://www.usenix.org/students/stipend.html>. Please note that if you intend to apply for a student stipend, you should **not** register for the conference until you hear whether or not you have been awarded a stipend. Sorry, faxes will not be accepted for student stipend applications.

# Hotel and Travel Information

## Atlanta Marriott Marquis

265 Peachtree Center Avenue, Atlanta, GA 30303

Phone: (404) 521-0000

USENIX has negotiated special rates for conference attendees at the Atlanta Marriott Marquis. Please make your reservation as soon as possible by contacting the hotel directly and mentioning USENIX or LISA to get the special group rate.

### HOTEL DISCOUNT DEADLINE

Friday, October 22, 2004

### ROOM RATES

Single: \$139

Double: \$149

Triple: \$159

Quadruple: \$169

### ONLINE RESERVATIONS

Visit <http://www.usenix.org/events/lisa04/hotel.html> for details about how to book online.

### WHY SHOULD YOU STAY IN THE HEADQUARTERS HOTEL?

By contracting rooms for our attendees, we significantly reduce hotel charges for meeting room rental. When those sleeping rooms are not occupied, we face significant financial penalties. Those penalties ultimately force us to raise registration fees.

With costs going higher and higher, we are working hard to negotiate the very best hotel rates for you and to keep other conference expenses down, in order to keep registration fees as low as possible. We appreciate your help in this endeavor.

### TRANSPORTATION

If you're traveling light, the best and least expensive option for transportation from Hartsfield-Jackson Atlanta International Airport to the Atlanta Marriott Marquis is the Atlanta metro rail system, MARTA. The cost is only \$1.75 each way, and you can get to the trains from Delta Airlines Ticketing at the airport. Disembark at the Peachtree Mall stop and follow the signs to the Atlanta Marriott Marquis.

A one-way taxi ride from the airport costs between \$25 and \$30. The airport shuttle, the Atlanta Link, (404) 524-3400, costs \$16 one-way or \$28 round-trip. Hotel valet parking costs \$20 per day.

Note about the Atlanta airport: Security checkpoint lines at the Atlanta airport are often long. Please allow extra time when planning your departure from the airport. Visit <http://www.atlanta-airport.com> to check current security checkpoint wait times.



### ABOUT ATLANTA

USENIX and SAGE are pleased to bring LISA to Atlanta and the Atlanta Marriott Marquis. Atlanta offers a wealth of activities for the entire family, a wide array of restaurants to suit every taste and budget, and warm Southern hospitality. There are many attractions that will be of interest to LISA attendees. Here are just a few:

- Take a look at CNN from the other side of the camera in a behind-the-scenes Studio Tour.
- Explore the Life of the Brain, the Science of Ice Hockey, and more at SciTrek, Atlanta's hands-on science and technology museum.
- Get beneath the city's surface at Underground Atlanta, home to over 100 shops and 12 restaurants.
- Immerse yourself in your favorite carbonated beverage at the World of Coca-Cola.
- Pandas, gorillas, and elephants, oh my! See them all at Zoo Atlanta.
- Don't miss Atlanta's international art collection at the High Museum of Art, including a special exhibition, Van Gogh to Mondrian, on display during LISA.

# Registration Information & Fees

**REGISTER OR MAKE A RESERVATION ON THE WEB TODAY AT [HTTP://WWW.USENIX.ORG/LISA2004](http://www.usenix.org/lisa2004)**

**New this year:** Pay today with a credit card, or make a reservation online and then pay either by check, phone, or fax. Have the best of both worlds: the convenience of online registration without the hassle of hand-written forms, and the ability to pay as you want, when you want!

**EARLY BIRD REGISTRATION DEADLINE: OCTOBER 22, 2004**

## Training Program Fees Include:

- Admission to the tutorials you select
- Lunch on the day of your tutorial
- Tutorial CD-ROM
- Printed tutorial materials for your course
- Admission to the Conference Reception
- Admission to the Vendor Exhibition
- Conference T-shirt

## Technical Sessions Fees Include:

- Admission to all technical sessions on the days you choose
- Copy of Conference Proceedings
- Admission to the Conference Reception
- Admission to the Vendor Exhibition
- Conference T-shirt

## Multiple Employee Discount

We offer discounts for organizations sending 5 or more employees to LISA '04. Please email [lisa04\\_reg@usenix.org](mailto:lisa04_reg@usenix.org) for more details.

The group discount cannot be used in conjunction with any other discounts and cannot be applied retroactively—that is, refunds will not be issued to those meeting the discount requirement after they have already registered.

## Sys Admin Subscription

LISA '04 conference registration includes a one-year subscription to *Sys Admin* (a \$39 value) for training or technical session registrants. Offer open only to domestic non-subscribers of *Sys Admin*. This is not an additional expense, and subtraction from conference prices listed is not permissible.

**Refund/Cancellation Date:** Monday, November 1, 2004

All refund requests must be emailed to [conference@usenix.org](mailto:conference@usenix.org) by Monday, November 1, 2004. You may substitute another in your place.

**Questions?** Email [lisa04\\_reg@usenix.org](mailto:lisa04_reg@usenix.org)

## EARLY REGISTRATION FEES FOR THE TRAINING PROGRAM

(Sunday–Friday, November 14–19)

### Members' and Nonmembers' Cost per Unit

One unit represents a half-day tutorial; two units, a full-day tutorial.

**After October 22, add \$150 to your training fee.**

Units	1	2	3	4	5	6	7	8	9	10	11	12
\$	300	600	900	1100	1400	1500	1700	1900	2100	2300	2500	2700

### Full-time Students' Cost per Unit

See page 29 for information about how to register for tutorials at the student rate.

Note: Students are not charged a late fee.

Units	1	2	3	4	5	6	7	8	9	10	11	12
\$	150	150	300	300	450	450	600	600	750	750	1000	1000

### CEU Costs (optional Continuing Education Units)

Units	1	2	3	4	5	6	7	8	9	10	11	12
\$	15	15	23	30	38	45	53	60	68	75	83	90

## SPECIAL: HALF-DAY TUTORIAL PLUS HALF-DAY TECHNICAL SESSIONS

To pay the student rate, you must supply a copy of your current student I.D.

	1 day	2 days	3 days
Members and Nonmembers	\$400	\$800	\$1200
Full-Time Students	\$150	\$300	\$450

## EARLY REGISTRATION FEES FOR THE TECHNICAL SESSIONS

(Wednesday–Friday, November 17–19)

### Members and Nonmembers

**After October 22, add \$150 to your technical sessions fee.**

	1 day	2 days	3 days
USENIX + SAGE Member	\$250	\$490	\$645
USENIX-only Member	\$290	\$530	\$685
SAGE-only Member	\$360	\$600	\$755
USENIX Affiliate Member*	\$250	\$490	\$645
Nonmember	\$400	\$700	\$795

\* Members of EurOpen.SE, NUUG, or SAGE-AU

### Full-time Students

To pay the student rate, you must supply a copy of your current student I.D.

Note: Students are not charged a late fee.

	1 day	2 days	3 days
USENIX + SAGE Member	\$75	\$125	\$150
USENIX-only Member	\$100	\$150	\$175
SAGE-only Member	\$115	\$165	\$190
Nonmember	\$140	\$190	\$215

**PLEASE READ:** This is **not** a registration form. Please use our online form to register or make a reservation. If you choose to make a reservation and pay later by check or credit card, you will receive a printable summary of your session selections, the cost breakdown, and the total amount due. Please submit a copy of this summary along with your payment. Tutorial bookings cannot be confirmed until payment has been received. Purchase orders, vouchers, and telephone reservations cannot be accepted.