

LISA'07

21ST LARGE INSTALLATION
SYSTEM ADMINISTRATION CONFERENCE

See what's
DEVELOPING in
SYSTEM ADMINISTRATION!



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LISA '07 offers the most in-depth, practical system administration training available!

6 DAYS OF TRAINING BY EXPERTS IN THEIR FIELDS, INCLUDING:

- Tom Limoncelli on Time Management for System Administrators
- Steve VanDevender on High-Capacity Email System Design
- Aileen Frisch on Administering Linux in Production Environments
- Faisal N. Jawdat on Introduction to Ruby, Rails, and Capistrano

3-DAY TECHNICAL PROGRAM, INCLUDING:

Keynote by John Strassner, *Motorola Fellow and Vice President, Autonomic Networking and Communications, Motorola Research Labs*, on *Autonomic Administration: HAL 9000 Meets Gene Roddenberry*

Invited Talks by industry leaders discuss important and timely topics, including:

- Bruce Moxon, *Network Appliance, Inc.*, "A Service-Oriented Data Grid: Beyond Storage Virtualization"
- Erik Nygren, *Akamai Technologies*, "Experiences with Scalable Network Operations at Akamai"
- Kenneth G. Brill, *Uptime Institute*, "The Economic Meltdown of Moore's Law"

Refereed Papers, Hit the Ground Running Track, Guru Is In Sessions, Vendor Exhibition, Workshops, BoFs, WiPs, and more!

NOVEMBER 11-16, 2007

DALLAS

CONFERENCE AT A GLANCE

Saturday, November 10

6:00 p.m. –8:00 p.m. Welcome Get-Together and Conference Orientation

Sunday, November 11

9:00 a.m. –5:00 p.m. Training Program
9:00 a.m. –5:00 p.m. Workshop: Fighting Spam: The State of the Art
9:00 a.m. –5:00 p.m. Workshop: Server Room Best Practices
9:00 a.m. –5:00 p.m. Workshop: MicroLISA

Monday, November 12

9:00 a.m. –5:00 p.m. Training Program
9:00 a.m. –5:00 p.m. Workshop: University Issues
9:00 a.m. –5:00 p.m. Workshop: Configuration: From Managing Nodes to Managing Architecture
7:00 p.m. –11:00 p.m. Birds-of-a-Feather Sessions

Tuesday, November 13

9:00 a.m. –5:00 p.m. Training Program
9:00 a.m. –5:00 p.m. Workshop: System Administration Education
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 14

8:45 a.m. –10:30 a.m. Opening Remarks, Awards, and Keynote
9:00 a.m. –5:00 p.m. Training Program
11:00 a.m. –5:30 p.m. Technical Sessions
Noon –7:00 p.m. Vendor Exhibition
5:30 p.m. –6:30 p.m. Exhibit Hall Happy Hour
7:00 p.m. –11:00 p.m. Birds-of-a-Feather Sessions

Thursday, November 15

9:00 a.m. –5:00 p.m. Training Program
9:00 a.m. –5:30 p.m. Technical Sessions
10:00 a.m. –2:00 p.m. Vendor Exhibition
6:30 p.m. –8:30 p.m. Reception
8:30 p.m. –11:30 p.m. Birds-of-a-Feather Sessions

Friday, November 16

9:00 a.m. –5:00 p.m. Training Program
9:00 a.m. –5:30 p.m. Technical Sessions
2:00 p.m. –3:30 p.m. Work-in-Progress Reports
4:00 p.m. –5:30 p.m. Closing Session

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FOCUS ON DEVELOPING YOUR SYSADMIN SKILLS.



REGISTER BY OCT. 19, 2007



WHY ATTEND LISA '07?

"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, Google NYC

Register today at www.usenix.org/lisa2007



[JOIN US!]

Dear Colleague,

On behalf of all of the LISA '07 organizers, I'd like to invite you to join us in Dallas, TX, for the 21st Large Installation System Administration Conference.

For the past 20 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 for your professional and technical development.

Take advantage of the popular 6 days of training. Select from over 50 tutorials taught by highly expert instructors, including:

- Tom Limoncelli on Time Management for System Administrators
- Steve VanDevender on High-Capacity Email System Design
- Aleen Frisch on Administering Linux in Production Environments
- Faisal N. Jawdat on Introduction to Ruby, Rails, and Capistrano
- And more . . .

In addition to the training, 3 days of technical sessions include top-notch refereed papers, informative invited talks, expert Guru Is In sessions, and the popular Hit the Ground Running track.

Our 20+ invited talks feature our most impressive slate of speakers to date. They include:

- Keynote: "Autonomic Administration: HAL 9000 Meets Gene Roddenberry," by John Strassner, Motorola Fellow and Vice President, Autonomic Networking and Communications, Motorola Research Labs
- "A Service-Oriented Data Grid: Beyond Storage Virtualization," by Bruce Moxon, Senior Director of Strategic Technology and Grid Guru, Network Appliance, Inc.
- "The LHC Computing Challenge," by Tony Cass, CERN
- "Scaling Production Repairs and QA Operations in a Live Environment," by Shane Knapp and Avleen Vig, Google, Inc.
- "Experiences with Scalable Network Operations at Akamai," by Erik Nygren, Chief Systems Architect, Akamai Technologies
- "The Economic Meltdown of Moore's Law," by Kenneth G. Brill, Executive Director, Uptime Institute

LISA is the premier forum for presenting new research in system administration. We selected papers from over 50 submissions, showcasing state-of-the-art work on topics including configuration management, managing grids and clusters, virtualization, security via firewalls, and more.

Get a head start on key technologies with 15-minute talks in the Hit the Ground Running track. Find out about the basic concepts, what acronyms you will encounter, and what Web sites and books are the best resources.

Bring your perplexing technical questions to experts at LISA's Guru Is In sessions.

Explore the latest commercial innovations at the Vendor Exhibition.

Benefit from new opportunities for peer interaction around the topics that mean the most to you.

Early registration discounts for LISA '07, taking place November 11–17, 2007, in Dallas, TX, are now available. Register by Friday, October 19, and save up to \$300!

We're pleased to bring LISA to Dallas, and we look forward to seeing you there.

Paul Anderson, University of Edinburgh
LISA '07 Program Chair



LISA '07 Organizers

Program Chair

Paul Anderson, *University of Edinburgh*

Program Committee

Charlie Catlett, *NSF Teragrid Project*

William Cheswick, *Consultant*,
cheswick.com

Alva Couch, *Tufts University*

Aleen Frisch, *Exponential Consulting*

Peter Baer Galvin, *Corporate Technologies, Inc.*

Andrew Hume, *AT&T Labs–Research*

William LeFebvre, *Independent Consultant*

Adam Moskowitz, *Menlo Computing*

Sanjai Narain, *Telcordia Technologies*

Melanie Rieback, *Vrije Universiteit Amsterdam*

Kent Skaar, *Bladelogic*

Chad Verbowski, *Microsoft Research*

Invited Talk Coordinators

Rudi van Drunen, *Competa IT/Xlexit*

Doug Hughes, *D.E. Shaw Research, LLC*

Workshops Coordinator

Lee Damon, *University of Washington*

Guru Is In Coordinators

Phillip Kizer, *Estacado Systems*

John "Rowan" Littell, *California College of the Arts*

Hit the Ground Running Track Coordinator

Adam Moskowitz, *Menlo Computing*

Work-in-Progress Reports and Posters Coordinator

Brent Hoon Kang, *University of North Carolina at Charlotte*

The USENIX Association Staff

LISA'07

TRAINING AT A GLANCE



SUNDAY, NOVEMBER 11

FULL DAY: 9:00 A.M.–5:00 P.M.

- S1** Simson L. Garfinkel **NEW!** Computer Forensics
- S2** John Arrasjid and Stephen Sorota Introduction to VMware Virtual Infrastructure 3
- S3** Geoff Halprin **NEW!** Effective Change Management: Making System Integrity Easy
- S4** Jim Reid Advanced Topics in DNS Administration
- S5** Marc Staveley System and Network Performance Tuning

HALF DAY MORNING: 9:00 A.M.–12:30 P.M.

- S6** Heison Chak **NEW!** VoIP Jumpstarting: Getting Over the Initial Hurdles
- S7** Tom Limoncelli Time Management for System Administrators
- S8** David Hankins **NEW!** Advanced DHCP (This Is Not Your Grandparents' DHCP)
- S9** Mark Burgess **NEW!** Integrating Cfengine into Organizational Service Management

HALF DAY AFTERNOON: 1:30 P.M.–5:00 P.M.

- S10** Heison Chak **NEW!** Deploying VoIP: How to Identify and Avoid Pitfalls
- S11** Chris Page **NEW!** Systems Topics in Oracle Database Administration
- S12** Michael W. Lucas **NEW!** Network Diagnosis and Improvement with Netflow
- S13** Mark Burgess **NEW!** Implementing Autonomic Principles Using Cfengine

MONDAY, NOVEMBER 12

FULL DAY: 9:00 A.M.–5:00 P.M.

- M1** Aileen Frisch Administering Linux in Production Environments
- M2** Stephen Sorota and Dan Anderson **NEW!** Advanced Topics in VMware Virtual Infrastructure 3
- M3** Lee Damon Issues in UNIX Infrastructure Design

MONDAY, NOVEMBER 12 (CONTINUED)

FULL DAY: 9:00 A.M.–5:00 P.M. (CONTINUED)

- M4** Steve VanDevender **NEW!** High-Capacity Email System Design
- M5** Peter Baer Galvin and Marc Staveley Solaris 10 Administration Workshop (Hands-on)

HALF DAY MORNING: 9:00 A.M.–12:30 P.M.

- M6** David N. Blank-Edelman Over the Edge System Administration, Volume 1
- M7** Tobias Oetiker **NEW!** RRDtool as a Communication Tool
- M8** Strata Rose Chalup Practical Project Management for Sysadmins and IT Professionals
- M9** Adam Moskowitz How to Interview a System Administrator

HALF DAY AFTERNOON: 1:30 P.M.–5:00 P.M.

- M10** David N. Blank-Edelman Over the Edge System Administration, Volume 2
- M11** Tobias Oetiker **NEW!** The Joy of Running Diskless Linux
- M12** Strata Rose Chalup Problem-Solving for IT Professionals
- M13** John Sellens **NEW!** Nagios in Depth

TUESDAY, NOVEMBER 13

FULL DAY: 9:00 A.M.–5:00 P.M.

- T1** Faisal N. Jawdat **NEW!** Introduction to Ruby, Rails, and Capistrano
- T2** Alan Robertson **NEW!** Configuring and Deploying Linux-HA
- T3** Marcus Ranum **NEW!** Thinking About Security (Because They Really Are Out to Get You)
- T4** Patrick Ben Koetter **NEW!** Postfix Configuration and Administration
- T5** Peter Baer Galvin Solaris 10 Security Features Workshop (Hands-on)



TUESDAY, NOVEMBER 13 (CONTINUED)

HALF DAY MORNING: 9:00 A.M.–12:30 P.M.

- T6** Mike Ciavarella Advanced Shell Programming
- T7** Geoff Halprin and Elizabeth Zwicky **NEW!** Management 101: Effective Communication Tools for SysAdmins
- T8** Aileen Frisch and Kyrre Begnum **NEW!** Virtualization: VMs! What Are They Good For?
- T9** Jacob Farmer Disk-to-Disk Backup and Eliminating Backup System Bottlenecks

HALF DAY AFTERNOON: 1:30 P.M.–5:00 P.M.

- T10** Mike Ciavarella Documentation Techniques for Sysadmins
- T11** Geoff Halprin and Elizabeth Zwicky **NEW!** Management 201: Effective Team Management of System Administrators
- T12** Gerald Carter So You Have Active Directory: Now What? A Guide to AD Integration for UNIX Sysadmins
- T13** Jacob Farmer Next-Generation Storage Networking

WEDNESDAY, NOVEMBER 14

FULL DAY: 9:00 A.M.–5:00 P.M.

- W1** Lee Damon and Mike Ciavarella Seven Habits of the Highly Effective System Administrator: Hints, Tricks, Techniques, & Tools of the Trade
- W2** James Mauro Solaris 10 Performance, Observability, & Debugging

HALF DAY MORNING: 9:00 A.M.–12:30 P.M.

- W3** Ralf Hildebrandt and Patrick Ben Koetter **NEW!** Postfix Anti-Spam Workshop
- W4** Tom Limoncelli **NEW!** Climb Out of the “Bad IT” Hole
- W5** Gerald Carter Wireshark (Ethereal) and the Art of Debugging Networks

WEDNESDAY, NOVEMBER 14 (CONTINUED)

HALF DAY AFTERNOON: 1:30 P.M.–5:00 P.M.

- W6** Patrick Ben Koetter **NEW!** Cyrus SASL Authentication and Ralf Hildebrandt Workshop
- W7** Hunter Matthews **NEW!** Setting Up a Server Room or Data Center (or Data Closet)
- W8** Aileen Frisch **NEW!** What’s Up with Windows? Administering Vista and Beyond

THURSDAY, NOVEMBER 15

FULL DAY: 9:00 A.M.–5:00 P.M.

- R1** Jeff Victor **NEW!** Resource Management with Solaris Containers

HALF DAY MORNING: 9:00 A.M.–12:30 P.M.

- R2** Don Bailey **NEW!** RF Road Warrior: Secure Wireless Computing for Home, Work, and the Road
- R3** Rudi van Drunen **NEW!** Hardware for the (Software-Oriented) Sysadmin
- R4** John Sellens Databases: What You Need to Know

HALF DAY AFTERNOON: 1:30 P.M.–5:00 P.M.

- R5** Evan Marcus Disaster Preparedness (and Recovery): How to Keep Your Company (and Your Job) Alive
- R6** Aileen Frisch Beyond Shell Scripts: 21st-Century Automation Tools and Techniques
- R7** John Sellens **NEW!** Performance Tracking with Cacti

FRIDAY, NOVEMBER 16

FULL DAY: 9:00 A.M.–5:00 P.M.

- F1** Gerald Carter Implementing [Open]LDAP Directories
- F2** Don Bailey **NEW!** Wireless Networking, Security, Vulnerability Assessment, and Penetration Testing
- F3** Evan Marcus Achieving High Availability (in Your Lifetime)
- F4** David Beazley **NEW!** Python in Action

TRAINING PROGRAM

SUNDAY, NOVEMBER 11

FULL DAY: 9:00 A.M.–5:00 P.M.

S1 Computer Forensics **NEW!**

Simson L. Garfinkel, *Naval Postgraduate School*

Who should attend: Anyone interested in recovering lost or deleted data, hunting for clues, and tracking information.

Take back to work: An in-depth understanding of why forensic tools are possible, what they can do, their limits, and the legal environment that governs U.S. forensics.

Topics include:

- Memory forensics and file carving
- Forensics and policy
- Disk, network, document, and Web forensics
- Anti-forensics

S2 Introduction to VMware Virtual Infrastructure 3

John Arrasjid and Stephen Sorota, *VMware*

Who should attend: Sysadmins and architects who are interested in deploying a VMware Virtual Infrastructure, including ESX Server and VirtualCenter, in a production environment.

Take back to work: How to deploy a VMware virtual infrastructure effectively on your own site.

Topics include:

- ESX Server and VirtualCenter overview
- Installation and configuration
- Virtual machine creation and operation
- Migration technologies

S3 Effective Change Management: Making System Integrity Easy **NEW!**

Geoff Halprin, *Consultant*

Who should attend: Sysadmins who wish to learn how to better manage change and risk, those who are responsible for developing or managing their organization's change management process, and those who are hoping to improve their organization's process.

Take back to work: A grasp of the many aspects of effective change management and how you can improve the process.

Topics include:

- Building a change plan
- Regression planning and risk management strategies
- Change execution tools and techniques
- Emergency changes and downtime conferences

S4 Advanced Topics in DNS Administration

Jim Reid, *Nominum*

Who should attend: DNS administrators who wish to extend their understanding of how to configure and manage name servers running BIND 9.

Take back to work: An in-depth answer to the question, "I've set up master (primary) and slave (secondary) name servers. What else can I do with the name server?"

Topics include:

- The BIND 9 logging subsystem
- Managing the name server with rndc
- Securing the name server
- Dynamic DNS (DDNS)
- Secure DNS (DNSSEC)

S5 System and Network Performance Tuning

Marc Staveley, *Consultant*

Who should attend: Novice and advanced UNIX system and network administrators, and UNIX developers concerned about network performance impacts.

Take back to work: Procedures and techniques for tuning your systems, networks, and application code, along with guidelines for capacity planning and customized monitoring.

Topics include:

- Performance tuning strategies
- NFS performance tuning
- Network performance, design, and capacity planning
- Application tuning

HALF DAY: 9:00 A.M.–12:30 P.M.

S6 VoIP Jumpstarting: Getting Over the Initial Hurdles **NEW!**

Heison Chak, *CIBC*

Who should attend: Managers and sysadmins involved in the evaluation, design, or implementation of VoIP infrastructures.

Take back to work: A solid understanding of how to leverage VoIP to meet the requirements of your business.

Topics include:

- Dial-plan manipulation
- Traffic shaping
- Integration with legacy systems
- Conversation auditing

Want more info? Please see www.usenix.org/lisa07/training for comprehensive tutorial descriptions, including full topics lists and prerequisites.

Please see www.usenix.org/lisa07/training for full tutorial descriptions.

S7 Time Management for System Administrators

Tom Limoncelli, *Google NYC*

Who should attend: IT people, sysadmins, and other busy people who want to have more control over their time and better follow-through on assignments.

Take back to work: The skills you need to streamline your workflow to make your users—and you!—happy.

Topics include:

- Why typical “time management” books don’t work for sysadmins
- What makes “to-do” lists fail, and how to make them work
- How not to forget a user’s request ever again!

S8 Advanced DHCP (This Is Not Your Grandparents’ DHCP) **NEW!**

David Hankins, *ISC*

Who should attend: Anyone who is involved in administering a network and who still believes that DHCP is a simple protocol like ARP that you just turn on and forget.

Take back to work: How to use DHCP to keep your networks secure and reliable.

Topics include:

- How to have more flexible control over users
- Integrating DHCP with Dynamic DNS
- Configuring a DHCP server so that it can support VOIP phones
- Using the new RFC 3925 Vendor-Identifying Options

S9 Integrating Cfengine into Organizational Service Management **NEW!**

Mark Burgess, *Oslo University College*

Who should attend: Anyone with a basic knowledge of cfengine and an interest in organizational (including business) processes who would like an overview of the concepts surrounding configuration management for business, with implementation examples.

Take back to work: The information needed to evaluate the principles used in configuring hosts and devices, relate them to standards, and apply them to your own environments.

Topics include:

- Availability and capacity management
- Security management
- Supply chains and e-commerce models
- Inter-domain management configuration

HALF DAY: 1:30 P.M.–5:00 P.M.

S10 Deploying VoIP: How to Identify and Avoid Pitfalls **NEW!**

Heison Chak, *CIBC*

Who should attend: Managers and sysadmins involved in the evaluation, design, or implementation of VoIP infrastructures.

Take back to work: The do’s and don’ts of VoIP, along with well-honed troubleshooting skills.

Topics include:

- Testing and deployment strategies
- How to prevent users’ complaints and managers’ headaches
- Voice quality issues
- Challenges in maintaining system availability

S11 Systems Topics in Oracle Database Administration **NEW!**

Chris Page, *Corporate Technologies, Inc.*

Who should attend: Anyone interested in learning about the operating systems features that Oracle databases rely upon and about the new systems technology introduced by Oracle which is blurring the line between system and database administration.

Take back to work: An understanding of how the new Oracle technologies will change the sysadmin’s job and of the potential consequences when a DBA is attempting to deploy them.

Topics include:

- Oracle database architecture review
- The Oracle OS interface
- Oracle’s Volume Manager (ASM)
- Oracle Clusterware and RAC

S12 Network Diagnosis and Improvement with Netflow **NEW!**

Michael W. Lucas, *Author and Consultant*

Who should attend: Administrators who need more information about their networks.

Take back to work: The ability to work with Netflow the day you return home.

Topics include:

- Netflow architecture
- Implementing the sensor and the collector
- flowscan, flowdumper, flow-stat, and flow-print
- Filtering flows

S13 Implementing Autonomic Principles Using Cfengine **NEW!**

Mark Burgess, *Oslo University College*

Who should attend: Anyone who wants to make the most of a tool that deals with long- and short-term management.

Take back to work: A simple way to use cfengine to achieve the goals of autonomic management.

Topics include:

- Self-adaptation and self-healing
- Fixed-point rules
- Probabilistic management
- Intermittency and reliability measures



TRAINING PROGRAM

MONDAY, NOVEMBER 12

FULL DAY: 9:00 A.M.–5:00 P.M.

M1 Administering Linux in Production Environments

Eleen Frisch, *Exponential Consulting*

Who should attend: Both current Linux sysadmins and administrators from sites considering converting to Linux or adding Linux systems to their current computing resources.

Take back to work: The ability to select the appropriate facilities for use of Linux in your environment and to begin deploying them.

Topics include:

- High-performance I/O
- High availability Linux: fault-tolerance options
- Enterprise-wide authentication and other security features
- Automating installations and other mass operations

M2 Advanced Topics in VMware Virtual Infrastructure 3 **NEW!**

Stephen Sorota and Dan Anderson, *VMware*

Who should attend: People with Virtual Infrastructure 3 skills interested in learning more. This includes system administrators and architects who are interested in advanced topics on deploying a VMware Virtual Infrastructure.

Take back to work: Ways to make the most of your Virtual Infrastructure 3 environment.

Topics include:

- Server consolidation and containment methodology for Intel/AMD environments
- Disaster recovery technologies
- Performance optimization (VMware DRS)

M3 Issues in UNIX Infrastructure Design

Lee Damon, *University of Washington*

Who should attend: Anyone who is designing, implementing, or maintaining a UNIX environment with 2 to 20,000+ hosts; sysadmins, architects, and managers who need to maintain multiple hosts with few admins.

Take back to work: Questions you should ask (and the answers to them) while designing and implementing the mixed-architecture or single-architecture UNIX environment that will meet your needs.

Topics include:

- Administrative domains: Who is responsible for what, and what can users do for themselves?
- Security vs. sharing: Your users want access to everything. So do the crackers . . .
- Single system images: Can users see just one environment, no matter how many OSes there are?

M4 High-Capacity Email System Design **NEW!**

Steve VanDevender, *University of Oregon*

Who should attend: Anyone who needs to design a high-volume, secure email system or upgrade an existing one.

Take back to work: An understanding of available choices in email system software and methods, with their trade-offs and domains of applicability.

Topics include:

- Mail system architecture and components:
- Implementation concerns
- Scaling and reliability methods

M5 Solaris 10 Administration Workshop (Hands-on)

Peter Baer Galvin, *Corporate Technologies*; Marc Staveley, *Consultant*

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

Take back to work: All you need to consider in deploying, implementing, and managing Solaris 10.

Topics include:

- ZFS, the new endian-neutral file system that “will make you forget everything you thought you knew about file systems”
- Virtualization
- DTrace, Solaris 10’s system profiling and debugging tool
- Fault Management Architecture (FMA)

HALF DAY: 9:00 A.M.–12:30 P.M.

M6 Over the Edge System Administration, Volume 1

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.

Take back to work: New approaches to old problems, along with some ways to solve the insolubles.

Topics include:

- How to increase user satisfaction during downtimes with 6 lines of Perl
- How to improve your network services by throwing away data
- How to drive annoying Web-only applications without lifting a finger
- How to use ordinary objects, such as Silly Putty, to make your life easier

Want more info? Please see www.usenix.org/lisa07/training for comprehensive tutorial descriptions, including full topics lists and prerequisites.

Please see www.usenix.org/lisa07/training for full tutorial descriptions.

M7 **RRDtool as a Communication Tool** **NEW!**

Tobias Oetiker, *Consultant and author of RRDTool*

Who should attend: Scripters and programmers who would like to create a custom monitoring application with great presentation tools.

Take back to work: Ideas for building the monitoring application of your dreams.

Topics include:

- RRDtool overview
- Programming with RRDtool
- In-depth graphing
- Scaling RRDtool

M8 **Practical Project Management for Sysadmins and IT Professionals**

Strata Rose Chalup, *Project Management Consultant*

Who should attend: Sysadmins who want to stay hands-on as team leads or system architects and need a new set of skills with which to tackle bigger, more complex challenges.

Take back to work: A no-nonsense grounding in methods that work without adding significantly to one's workload. You will be able to reduce a daunting task to a plan of attack that will be realistic, will lend itself to tracking, and will have functional, documented goals. You will be able to give useful feedback to management on project viability and timelines and easily deliver regular progress reports.

Topics include:

- Quick basics of project management
- Skill sets
- Problem areas
- Project management tools

M9 **How to Interview a System Administrator**

Adam Moskowitz, *Constant Contact*

Who should attend: Sysadmins of all levels of experience, as well as managers of sysadmins.

Take back to work: Increased confidence in your ability to weed out the posers and hire really great sysadmins.

Topics include: The course will focus on techniques for interviewers, but even sysadmins who are just starting out will learn some things to use as an interviewee. Managers of sysadmins will learn, among other things, how to interview someone who knows more than you do. Junior administrators will also learn how to respond when asked a bad question—in particular, how to turn it into a better question.

HALF DAY: 1:30 P.M.–5:00 P.M.

M10 **Over the Edge System Administration, Volume 2**

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.

Take back to work: Approaches to system administration you never dreamed of—but you wish you had!

Topics include:

- How to benefit from side effects
- Arts and crafts for sysadmins
- Web apps as sysadmin tools

M11 **The Joy of Running Diskless Linux** **NEW!**

Tobias Oetiker, *Consultant*

Who should attend: Linux/UNIX sysadmins who manage several networked UNIX workstations or cluster nodes.

Take back to work: The ability to slash your installation times and downtime.

Topics include:

- Installing Linux without a workstation
- Providing a homogeneous application environment
- How to make the automounter sit up and beg
- Managing mixed 32- and 64-bit environments

M12 **Problem-Solving for IT Professionals**

Strata Rose Chalup, *Project Management Consultant*

Who should attend: IT support people who would like to have a better grasp of problem-solving as a discipline.

Take back to work: A solid grounding in the process of solving problems.

Topics include:

- A framework on which to build specialized troubleshooting techniques that are specific to your environment
- How to trace out common patterns of interaction
- How to apply basic principles to isolate symptoms and interactions between subsystems

M13 **Nagios in Depth** **NEW!**

John Sellens, *SYONEX*

Who should attend: Network and system administrators ready to implement or extend their use of the Nagios system and network monitoring tool.

Take back to work: The information you need to immediately implement and use Nagios and related tools for monitoring systems and devices on your networks.

Topics include:

- Introduction: Functionality, features, use, and application
- Installation
- Theory of operation
- Plug-ins, extensions, and add-ons

TRAINING PROGRAM

TUESDAY, NOVEMBER 13

FULL DAY: 9:00 A.M.–5:00 P.M.

T1 Introduction to Ruby, Rails, and Capistrano **NEW!**

Faisal N. Jawdat, *Consultant*

Who should attend: Programmers, as well as sysadmins with programming experience, who want to understand Ruby on Rails.

Take back to work: The ability to write scripts using Ruby and create and deploy your own applications using Rails and Capistrano.

Topics include:

- Significant Ruby packages and technologies
- Ruby scripting for admins
- Building a Rails application
- Using Capistrano to deploy and manage distributed applications

T2 Configuring and Deploying Linux-HA **NEW!**

Alan Robertson, *IBM Linux Technology Center*

Who should attend: Sysadmins and IT architects who architect, evaluate, install, or manage critical computing systems.

Take back to work: Both the basic theory of high availability systems and practical knowledge of how to plan, install, and configure highly available systems using Linux-HA.

Topics include:

- General HA principles
- Compilation, installation, and configuration
- Commonly used resource agents
- Co-location and resource location constraints

T3 Thinking About Security (Because They Really Are Out to Get You) **NEW!**

Marcus Ranum, *Tenable Network Security, Inc.*

Who should attend: Developers and managers involved in the design, specification, deployment, or maintenance of computer-based applications.

Take back to work: Much better equipment for coping with security.

Topics include:

- The natural laws of security
- Whitelisting and blacklisting
- Security in the design process
- The insider threat and counter-intelligence problem

T4 Postfix Configuration and Administration

Patrick Ben Koetter, *state of mind*; Ralf Hildebrandt, *T-Systems*

Who should attend: Novice and advanced sysadmins and integrators interested in a crash course on Postfix.

Take back to work: In-depth instruction in the installation and configuration of Postfix and software commonly used in conjunction with Postfix, along with an understanding of the administrative issues that arise when you are running a Postfix SMTP server.

Topics include:

- System architecture
- Single domain, multi-domain, and relay domain configuration
- Relay control
- Controlling message flow

T5 Solaris 10 Security Features Workshop (Hands-on)

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 might not be using).

Take back to work: During this exploration of the important new features of Solaris 10, you'll not only learn what it does and how to get it done, but also best practices. Also covered is the status of each of these new features, how stable it is, whether it is ready for production use, and expected future enhancements.

Topics include:

- Privileges: A new Solaris facility based on the principle of least privilege
- The latest version of NFS (based on an industry standard), featuring stateful connection, more and better security, write locks, and faster performance
- BSM (the Basic Security Module), providing a security auditing system
- BART (Basic Audit Reporting Tool)

HALF DAY: 9:00 A.M.–12:30 P.M.

T6 Advanced Shell Programming

Mike Ciavarella, *University of Melbourne, Australia*

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

Take back to work: The information needed to immediately implement, extend, and manage popular monitoring tools on your systems and networks.

Topics include:

- Modular shell script programming
- Writing secure shell scripts
- Performance tuning
- Addressing portability at the design stage

T7 Management 101: Effective Communication Tools for Sysadmins **NEW!**

Geoff Halprin, *Consultant*; Elizabeth Zwicky, *Acutis, Inc.*

Who should attend: Sysadmins who wish to become more proactive in man-



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aging their duties and to learn tools and tips that will assist them to communicate more effectively with their managers, users, and other important constituents of their services.

Take back to work: Improved communication skills that will make you a more effective system administrator.

Topics include:

- Oral and written communication
- Understanding others
- Time, risk, and project management

T8 Virtualization: VMs! What Are They

Good For? **NEW!**

Aleen Frisch, Exponential Consulting; Kyrre Begnum, Oslo University College

Who should attend: Sysadmins who are curious about the benefits of virtualization or who need to deploy it in their environment.

Take back to work: The ability to begin deploying virtualization in your environment.

Topics include:

- What virtualization is and what it can and cannot do for you
- Software and management options
- Typical deployment scenarios and special-purpose solutions
- Administrative challenges

T9 Disk-to-Disk Backup and Eliminating Backup System Bottlenecks

Jacob Farmer, Cambridge Computer Services

Who should attend: Sysadmins 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.

Take back to work: Ideas for immediate, effective, inexpensive improvements to your backup systems.

Topics include:

- The various roles for inexpensive disk
- SAN-enabled backup
- The current state and future of tape drives
- iSCSI

HALF DAY: 1:30 P.M.–5:00 P.M.

T10 Documentation Techniques for Sysadmins

Mike Ciavarella, University of Melbourne, Australia

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

Take back to work: The ability to make immediate, practical use of the techniques presented in this tutorial in your day-to-day tasks.

Topics include:

- The document life cycle
- Targeting your audience
- An adaptable document framework
- Tools to assist in documentation

T11 Management 201: Effective Team Management of System Administrators **NEW!**

Geoff Halprin, Consultant; Elizabeth Zwicky, Acutis, Inc.

Who should attend: Sysadmins who have found themselves being given (or are hoping to be given, or are anticipating with apprehension) responsibilities for other people.

Take back to work: The techniques you need to be effective in your “organization-facing” duties.

Topics include:

- Sysadmin workflow
- Personal and workgroup productivity

- Progress reporting and journals
- Financial management

T12 So You Have Active Directory: Now What? A Guide to AD Integration for UNIX Sysadmins

Gerald Carter, Centeris/Samba Team

Who should attend: Sysadmins who are tasked with integrating authentication, Web, and file/print services provided by UNIX hosts into an Active Directory domain.

Take back to work: In-depth understanding of the best approaches to managing your system services with Active Directory.

Topics include:

- AD domain membership using Samba
- NTLM and Kerberos authentication for Apache
- Using PAM for NTLM and Kerberos authentication
- Searching Active Directory using LDAP clients

T13 Next-Generation Storage Networking

Jacob Farmer, Cambridge Computer Services

Who should attend: Sysadmins running day-to-day operations and those who set or enforce budgets.

Take back to work: An understanding of general architectures, various approaches to scaling in both performance and capacity, relative costs of different technologies, and strategies for achieving results on a limited budget.

Topics include:

- The latest storage interfaces
- Content-Addressable Storage (CAS)
- Information Life Cycle Management (ILM) and Hierarchical Storage Management (HSM)
- High-performance file sharing



TRAINING PROGRAM

WEDNESDAY, NOVEMBER 14

FULL DAY: 9:00 A.M.–5:00 P.M.

W1 Seven Habits of the Highly Effective System Administrator: Hints, Tricks, Techniques, & Tools of the Trade

Lee Damon, *University of Washington*; Mike Ciavarella, *University of Melbourne, Australia*

Who should attend: Junior sysadmins who want to “do it right the first time.”

Take back to work: Ideas about how to streamline your systems and your workload, and, just as important, where to look to find more answers.

Topics include:

- Why your computers should all agree on the time
- Why *not* to back up everything
- Budgeting
- Books that can help you and your users

W2 Solaris 10 Performance, Observability, and Debugging

James Mauro, *Sun Microsystems*

Who should attend: Anyone who supports or may support Solaris 10 machines.

Take back to work: How to resolve performance issues and pathological behavior, and to understand the system and workload better.

Topics include:

- Memory use and performance
- I/O flow and performance
- Network traffic and performance
- Application and kernel interaction

HALF DAY: 9:00 A.M.–12:30 P.M.

W3 Postfix Anti-Spam Workshop **NEW!**

Ralf Hildebrandt, *T-Systems*; Patrick Ben Koetter, *state of mind*

Who should attend: Sysadmins and integrators interested in using Postfix to stem the tide of spam.

Take back to work: The ability to become a hero to your users by decimating the amount of spam they receive.

Topics include:

- Available methods
- Solaris 10 tools and utilities
- The order in which restrictions are applied
- How to make exceptions

W4 Climb Out of the “Bad IT” Hole **NEW!**

Tom Limoncelli, *Google NYC*

Who should attend: IT and sysadmin managers who want to know how to solve some fundamental management problems.

Take back to work: Ideas about how to make your life and your team work smoothly and happily.

Topics include:

- Tricks to help stop “fire fighting”
- Handling user requests really well
- Eliminating “time sink”
- Documentation (no, really!)

W5 Wireshark (Ethereal) and the Art of Debugging Networks

Gerald Carter, *Centeris*

Who should attend: System and network administrators who are interested in learning how network traffic monitoring and analysis can be used as a debugging, auditing, and security tool.

Take back to work: How to use the Ethereal protocol analyzer as a debugging and auditing tool for TCP/IP networks.

Topics include:

- Wireshark for network tracing
- TCP/IP protocol basics
- Analysis of popular application protocols
- How some kinds of TCP/IP network attacks can be recognized

HALF DAY: 1:30 P.M.–5:00 P.M.

W6 Cyrus SASL Authentication Workshop **NEW!**

Patrick Ben Koetter, *state of mind*; Ralf Hildebrandt, *T-Systems*

Who should attend: System administrators and integrators who know that there’s no (usable) user manual.

Take back to work: How to install, configure, and test Cyrus SASL.

Topics include:

- What is Cyrus SASL made of?
- How to install Cyrus SASL
- Configuration
- Ways to verify and/or debug Cyrus SASL authentication

W7 Setting Up a Server Room or Data Center (or Data Closet) **NEW!**

Hunter Matthews, *Duke University*

Who should attend: Sysadmins who have either inherited a server “closet” or are trying to build a small server room.

Take back to work: How to plan the best ways to configure your server room space and spend your money.

Topics include:

- Layout
- Electrical power
- Cooling
- Budgeting

W8 What’s Up with Windows? Administering Vista and Beyond **NEW!**

Æleen Frisch, *Exponential Consulting*

Who should attend: Anyone who wants a jumpstart on Microsoft’s latest challenge for systems administrators.

Take back to work: How best to deal with the latest Microsoft systems.

Topics include:

- Active Directory (incl. interoperability)
- Networking enhancements
- Managing users
- Is the security really improved?

TRAINING PROGRAM

THURSDAY, NOVEMBER 15

FULL DAY: 9:00 A.M.–5:00 P.M.

R1 Resource Management with Solaris Containers **NEW!**

Jeff Victor, *Sun Microsystems*

Who should attend: Sysadmins who want to improve resource utilization of their Solaris systems.

Take back to work: A solid understanding of the facilities and commands available for your Solaris systems.

Topics include:

- What are resources and why would you want to manage them?
- How do you use Solaris features such as Dynamic Resource Pools, Resource Capping and Memory Sets, IPQoS, Schedulers, and Zones?

HALF DAY: 9:00 A.M.–12:30 P.M.

R2 RF Road Warrior: Secure Wireless Computing for Home, Work, and the Road **NEW!**

Don Bailey, *Consultant*

Who should attend: Security and IT professionals interested in using 802.11 wireless networks while avoiding security pitfalls.

Take back to work: The knowledge of what wireless threats you may face and how to be secure at home and on the road.

Topics include:

- Setting up a truly secure wireless network at work or at home
- Detecting and avoiding rogue access points and nearby hackers
- Secure Web surfing and credit card payments at hotspots and airports

R3 Hardware for the (Software-Oriented) Sysadmin **NEW!**

Rudi van Drunen, *Consultant*

Who should attend: Anyone who wants to understand why hardware issues occur and to avoid common mistakes.

Take back to work: A more thorough understanding of electronics, with the ability to attack hardware-related problems at a fundamental level.

Topics include:

- Signals
- Power
- Circuit boards
- How to fix your hardware or keep it running until on-site support arrives

R4 Databases: What You Need to Know

John Sellens, *SYONEX*

Who should attend: System and application administrators who need to support databases and database-backed applications.

Take back to work: A better understanding of databases and how to deploy and support common database software and database-backed applications.

Topics include:

- MySQL, PostgreSQL, Berkeley DB
- Security, user management, and access controls
- Ad hoc queries with standard interfaces
- Database access from other tools (Perl, PHP, sqsh, etc.)

HALF DAY: 1:30 P.M.–5:00 P.M.

R5 Disaster Preparedness (and Recovery): How to Keep Your Company (and Your Job) Alive

Evan Marcus, *QD Technology*

Who should attend: Data center managers, IT directors, and anyone who needs to avoid extended downtime after an outage.

Take back to work: The ability to put together a plan that fits your company.

Topics include:

- What a DR plan should contain, how much it costs, and how to test it
- Building and staffing DR teams
- Senior management's role

R6 Beyond Shell Scripts: 21st-Century Automation Tools and Techniques

Aleen Frisch, *Exponential Consulting*

Who should attend: Sysadmins who want to explore new ways of automating administrative tasks.

Take back to work: How to profit from the efficiency, reliability, and thoroughness of these tools.

Topics include:

- Expect: automating interactive processes
- Bacula, an enterprise backup management facility
- Network and system monitoring tools

R7 Performance Tracking with Cacti **NEW!**

John Sellens, *SYONEX*

Who should attend: Network and system administrators ready to implement an integrated, Web-based performance and activity monitoring tool.

Take back to work: The information needed to immediately implement and use Cacti to monitor systems and devices on your networks.

Topics include:

- Installation
- Configuration
- User management, security concerns, and access control
- Ongoing operations

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TRAINING PROGRAM

FRIDAY, NOVEMBER 16

FULL DAY: 9:00 A.M.–5:00 P.M.

F1 Implementing [Open]LDAP Directories

Gerald Carter, *Centeris/Samba Team*

Who should attend: Both LDAP directory administrators and architects. The focus is on integrating standard network services with LDAP directories.

Take back to work: Comfort with LDAP terms and concepts and an understanding of how to integrate future applications using LDAP into your network.

Topics include:

- Integrating Samba domain file and print servers
- Integrating MTAs
- Creating customized LDAP schema items
- Examining scripting solutions for developing your own directory administration tools

F2 Wireless Networking, Security, Vulnerability Assessment, and Penetration Testing **NEW!**

Don Bailey, *Consultant*

Who should attend: Security and IT professionals interested in the security assessment of 802.11 wireless networks or the practical threats wireless networks are faced with.

Take back to work: A strong awareness of the threats against 802.11 wireless networks, as well as what practical tools and techniques are needed to properly assess the security of those networks.

Topics include:

- The 802.11 protocol and how to capture and analyze Wi-Fi traffic
- Wireless network security architectures, technology, and products
- The range and impact of 802.11 wireless network threats, vulnerabilities, and exploits
- Successful design and implementation of secure 802.11 wireless networks

F3 Achieving High Availability (in Your Lifetime)

Evan Marcus, *QD Technology*

Who should attend: Sysadmins and data center managers, developers and their managers, and IT managers.

Take back to work: Simple and practical tools you can use right away to persuade the bean counters in your organization of the value of putting high availability techniques and practices into place.

Topics include, in reference to high availability:

- Backups and restores
- Security
- Networking
- WANs and replication

F4 Python in Action **NEW!**

David Beazley, *Consultant*

Who should attend: Software developers and sysadmins who want to know the inside story of why Python programmers are able to be so productive while still having time to enjoy life, go on vacation, and play in bands.

Take back to work: An eagerness and ability to apply Python to some of your most common and your most annoying tasks.

Topics include:

- A tour of the Python language
- A look at major library modules
- Practical programming examples

Want more info? Please see www.usenix.org/lisa07/training for comprehensive tutorial descriptions, including full topics lists and prerequisites.

Attention Managers: Why You Should Send Your Employees to LISA '07

Technology continues to evolve. To stay ahead of the game, your employees must continue to enhance their skills.

The LISA '07 training program offers a cost-effective, one-stop shop for training current IT and development employees. 55+ 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.

Combining tutorials with days of technical sessions on groundbreaking research related to system and network administration makes the LISA '07 experience even more valuable. Additionally, the 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 "insider" 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 advantage of this opportunity to have your staff learn from the top researchers, practitioners, and authors all in one place, at one time.

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If you're not happy, we're not happy. If you feel a tutorial does not meet the high standards you have come to expect from USENIX, let us know by the first break and we will change you to any other available tutorial immediately.

TRAINING INSTRUCTORS



John Arrasjid

S2

John Arrasjid has 20 years of experience in the computer science field. His experience includes work with companies such as

AT&T, Amdahl, 3Dfx Interactive, Kubota Graphics, Roxio, and his own company, WebNexus Communications, where he developed consulting practices and built a cross-platform IT team. John is currently a senior member of the VMware Professional Services Organization as a Consulting Architect. John has developed a number of PSO engagements, including Performance, Security, and Disaster Recovery and Backup.



Don Bailey

R2, F2

Don Bailey is a D.C.-area computer security engineer with nearly six years of professional experience in the computer security

industry. He has performed numerous vulnerability assessments and penetration tests, as well as exploit and virus evaluation, and has developed secure laboratory technologies and architectures to support computer network attack-related experimentation and training. In recent years, he has tested and evaluated a wide range of commercial and consumer wireless technologies. His war-driving setup and wireless adventures have been covered by NBC, NPR, the *Washington Times*, and the *Baltimore Sun*. Commonly referred to as “Beetle,” Mr. Bailey has presented on the topic of wireless security at a variety of security/hacker conferences, including Black Hat, DefCon, ToorCon, LayerOne, and DallasCon.



David Beazley

F4

David Beazley is the author of the *Python Essential Reference* and has been an active member of the Python commu-

nity since 1996. He is most widely known for creating several Python-related open source packages, including SWIG (a tool for building C/C++ extension modules to Python) and PLY (a Python version of the lex/yacc parsing tools). In the 1990s, while working at Los Alamos National Laboratory, he helped pioneer the use of Python on massively parallel supercomputers. From 1998 through 2005, he was an assistant professor at the University of Chicago. Dave is currently a freelance software developer, Python trainer, and jazz musician living in Chicago.

Kyrre Begnum

T8

Kyrre Begnum is currently completing his Ph.D. in Network and System Administration at Oslo University College in Norway. Part of his research focuses on managing virtual infrastructures, and he is the author of the Manage Large Networks (MLN) VM administrative tool.



David N. Blank-Edelman

M6, M10

David N. Blank-Edelman is the Director of Technology at the Northeastern University College of Comput-

er and Information Science and the author of the O'Reilly book *Perl for System Administration*. He has spent the past 20+ years as a system/network administrator in large multi-platform environments, including Brandeis University, Cambridge Technology Group, and the MIT Media Laboratory. He was the program chair of LISA '05 and was one of the LISA '06 Invited Talks co-chairs.



Mark Burgess

S9, S13

Mark Burgess is Professor of Network and System Administration at Oslo University College, Norway (a member of the

EMANICS Network of Excellence). He is the author of the configuration management system cfengine and of several books and many papers on the topic.



Gerald Carter

T12, W5, F1

Gerald Carter has been a member of the Samba Development Team since 1998. He has been developing, writing about, and

teaching on open source since the late 1990s. Currently employed by Centeris as a Samba and open source developer, Gerald has written books for SAMS Publishing and for O'Reilly Publishing.



Heison Chak

S6, S10

Heison Chak is currently employed at CIBC as a Senior Infrastructure Engineer focusing on the Solaris platform. Heison

has long been an active member of the Asterisk community and a frequent speaker on VoIP topics. His VoIP column in *login*: is well received.



Strata Rose Chalup

M8, M12

Strata Rose Chalup has been leading and managing complex IT projects for many years. She has written a number of articles

and has volunteered for BayLISA and SAGE. Strata has built a successful consulting practice around being an avid early adopter of new tools. Another MIT dropout, Strata founded VirtualNet Consulting in 1993.

TRAINING INSTRUCTORS



Mike Ciavarella

T6, T10, W1

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. Mike has an Honours Degree in Science from the University of Melbourne. 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, providing expert testimony in computer security matters, and trying to complete a doctorate. In his ever-diminishing spare time, Mike is a caffeine addict and photographer.



Lee Damon

M3, W1

Lee Damon has a B.S. in Speech Communication from Oregon State University. He 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. Among other professional activities, he is a charter member of LOPSA and SAGE and past chair of the SAGE Ethics and Policies working groups, and he was the chair of LISA '04.



Jacob Farmer

T9, T13

Jacob Farmer is a well-known figure in the data storage industry. He has written numerous papers and articles and is a regu-

lar speaker at trade shows and conferences. In addition to his regular expert advice column in the "Reader I/O" section of *InfoStor Magazine*, the leading trade magazine of the data storage industry, Jacob also serves as the publication's senior technical advisor. Jacob has over 18 years of experience with storage technologies and is the CTO of Cambridge Computer Services, a national integrator of data storage and data protection solutions.



Aileen Frisch

M1, T8, W8, R6

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). Aileen was the program committee chair for LISA '03 and is a frequent presenter at USENIX and SAGE events, as well as presenting classes for universities and corporations worldwide.



Peter Baer Galvin

M5, T5

Peter Baer Galvin is the Chief Technologist for Corporate Technologies, Inc., a systems integrator and VAR. He has written

articles for *Byte* and other magazines. He wrote the "Pete's Wicked World" and "Pete's Super Systems" columns at *SunWorld*. He was contributing editor for *Sys Admin*, where he managed the Solaris Corner. Peter is co-author of the *Operating Systems Concepts* and *Applied Operating Systems Concepts* textbooks.



Simson L. Garfinkel

S1

Simson L. Garfinkel is an Associate Professor at the Naval Postgraduate School in Monterey, CA, and a fellow at the Center

for Research on Computation and Society at Harvard University. He is also the founder of Sandstorm Enterprises, a computer security firm that develops advanced computer forensic tools used by businesses and governments to audit their systems. Garfinkel has research interests in computer forensics, the emerging field of usability and security, information policy, and terrorism. He has actively researched and published in these areas for more than two decades. He writes a monthly column for *CSO Magazine*, for which he has been awarded four national journalism awards, and is the author or co-author of fourteen books on computing. He is perhaps best known for *Database Nation: The Death of Privacy in the 21st Century* and for *Practical UNIX and Internet Security*.



Geoff Halprin

S3, T7, T11

Geoff Halprin has spent over 30 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 is the author of the System Administration Body of Knowledge (SA-BOK) and the SAGE booklet *A System Administrator's Guide to Auditing*, and was the recipient of the 2002 SAGE-AU award for outstanding contribution to the system administration profession. Geoff has served on the boards of SAGE, SAGE-AU, USENIX, and LOPSA. He has spoken at conferences in Australia, New Zealand, Canada, Europe, and the U.S.



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David Hankins
S8

David Hankins (S8) is a software engineer at ISC who has in the past worked in the trenches as a sysadmin and a network

administrator. He is the engineering lead on the ISC DHCP project and knows more about it than anyone.

Ralf Hildebrandt
T4, W3, W6

Ralf Hildebrandt has studied computer science at the University of Braunschweig. He is now working for T-Systems Business Services GmbH as a Manager Technik at the Charite hospital in Berlin. Co-author of *The Book of Postfix*, he is also author of *Postfix: Einrichtung, Betrieb und Wartung* and various magazine articles.



Faisal N. Jawdat
T1

Faisal N. Jawdat has been developing in Ruby and Rails since before the release of Rails 1.0. In past life he has been a

sysadmin, engineer, and product manager, working on projects from an early B2B exchange to the first carrier-scale 3g phone/Internet gateway. He has contributed to multiple books on programming for the Internet and maintains the FAQ for the Rails mailing list.

Patrick Ben Koetter
T4, W3, W6

Patrick Ben Koetter is the Chief Technologist for state of mind, Partnerschaft Koetter, Schmidt, & Schosser, a systems integrator, and was Information Architect at the Ludwig-Maximilians Universität in Munich, Germany. He has written articles for Germany's *c't* magazine, *Linuxmagazin*, and other magazines. Patrick is co-author of *The Book of Postfix*. As a consultant and trainer, Patrick regularly teaches classes on email, anti-virus, and spam measurements and application-level Web interfaces. He has given talks at many conferences on these and similar topics.



Tom Limoncelli
S7, W4

Tom Limoncelli author of O'Reilly's *The Art of Time Management for System Administrators* and co-author of *The Practice of*

System and Network Administration from Addison-Wesley (second edition to be premiered at this conference), is a system administrator at Google in NYC. He received the SAGE 2005 Outstanding Achievement award. A sysadmin and network wonk since 1987, he has worked at Cibernet, Dean for America, Lumeta, Bell Labs/Lucent, AT&T, Mentor Graphics, and Drew University. He is a frequent presenter at LISA conferences.



Michael W. Lucas
S12

Michael W. Lucas

(<http://www.blackhelicopters.org/~mwluca>) is a network engineer whose UNIX experience is old enough to drink. He's worked on networks that span the planet, networks with three people on them, and just about everything in between. Lucas's latest book is *Absolute FreeBSD*, joining several other books by him on UNIX, networking, and cryptography. He has a slew of certifications for assorted security vendor products, as well as a CISSP. Lucas has spent the past few years eliminating the guesswork from network management and replacing it with fact-based troubleshooting.



Evan Marcus
R5, F3

Evan Marcus joined QD Technology in 2006 as the Director of Technical Sales. QD Technology is a premier provider of next-

generation database technology that compresses databases by 90%, puts them on a desktop or laptop, and speeds up their access by 10 times or more. Evan has nearly 20 years of experience in UNIX systems. Before joining QD, he spent 8 years at VERITAS Software as a systems engineer, speaker, and author. He also spent 5 years at Sun Microsystems and 2+ years at Fusion Systems, where he worked to bring the first high availability software applications for SunOS and Solaris to market. He also spent two years as a system administrator on the equities trading floor of a multinational trading institution. He is the co-author of *Blueprints for High Availability* (2nd edition, John Wiley & Sons, 2003) and co-author and co-editor of *The Resilient Enterprise* (VERITAS Publications, 2002). He is a well-regarded and popular speaker on the design of highly

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TRAINING INSTRUCTORS

available and disaster-resilient systems, and on fixed-content storage archives.

Hunter Matthews

W7

Hunter Matthews is the senior UNIX system administrator at the Duke University Department of Biology, where he is responsible for two small server rooms and one small data-center, having built two of them. He consults with other departments across the university on server room planning and operation. He has been involved in UNIX system administration for 15 years, including acting as lead system administrator for an FAA project.



James Mauro

W2

James Mauro is a Senior Staff Engineer in the Performance and Availability Engineering group at Sun Microsystems. Jim's current interests and activities are centered on benchmarking Solaris 10 performance, workload analysis, and tool development. This work includes Sun's new Opteron-based systems and multicore performance on Sun's Chip Multithreading (CMT) Niagara processor. Jim resides in Green Brook, New Jersey, with his wife and two sons. He spent most of his spare time in the past year working on the second edition of *Solaris Internals*. Jim co-authored the first edition of *Solaris Internals* with Richard McDougall and has been writing about Solaris in various forums for the past eight years.



Adam Moskowitz

M9

Adam Moskowitz in his roles as IT manager and senior system administrator, and on behalf of several of his consulting

clients, has interviewed more candidates for system administration positions than he can remember. By virtue of having worked for a lot of companies that are no longer in busi-

ness, he has been a candidate for almost that many system administration positions. Over the years he's been asked good questions, bad questions, and horrible questions, and has seen candidates become flummoxed when asked what seemed like rather simple questions. All this plus his almost 30 years of experience in the field (not to mention a darned good ratio of interviews to job offers) has given Adam considerable field experience to draw on for this tutorial.

When he's not in an interview, Adam works as a system administrator—but only to support his hobby of judging barbecue contests and to keep food in his puppy's bowl.



Tobias Oetiker

M7, M11

Tobias Oetiker is an electrical engineer by education and a system administrator by vocation. For ten years he has been

working for the Swiss Federal Institute of Technology in Zurich, providing students and staff with a deluxe UNIX workstation environment. Last year he started his own company, OETIKER+PARTNER AG, running UNIX servers for industry customers, improving his pet open source projects MRTG, RRDtool, and SmokePing, and applying these tools to solve the customers' problems.

Chris Page

S11

Chris Page is a Principal Engineer at Corporate Technologies, Inc., where he is also the technical lead for Oracle database-related technologies. He was previously IT Director at Millennium Pharmaceuticals, where he was responsible for global UNIX system, database, and network management.



Marcus Ranum

T3

Marcus Ranum has been building and designing security and security systems since 1989. He is the author of several

books on security, and has been, variously, network manager, C programmer, development team leader, VP of engineering, CSO, CEO, and consultant. He is currently the CSO of Tenable Network Security.



Jim Reid

S4

Jim Reid started using a PDP11/45 running V7 UNIX over 25 years ago and has been working with UNIX systems ever

since. He worked for three years at Origin on behalf of Philips Electronics, where he wrote a DNS management system and designed, built, and ran the DNS infrastructure for the corporate network, one of the biggest in the world. He has over a decade's experience in writing and teaching training courses ranging from kernel internals, through system administration and network security, to DNS administration. He's a frequent speaker at conferences and workshops in Europe and the U.S. Jim is co-chair of the DNS Working Group at RIPE and founded its ENUM Working Group. He has co-authored or contributed to a number of Internet standards documents, including ENUM (RFC3761) and Secure DNS (RFCs 4033, 4034 & 4035).



Alan Robertson

T2

Alan Robertson founded the High Availability Linux (Linux-HA) project in 1998 and has been project leader for it since then. He

worked for SuSE for a year, then in March 2001 joined IBM's Linux Technology Center,



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where he works on it full time. Before joining SuSE, he was a Distinguished Member of Technical Staff at Bell Labs. He worked for Bell Labs for 21 years in a variety of roles. These included providing leading-edge computing support, writing software tools, and developing voicemail systems. Alan is a frequent speaker at international open source and Linux conferences.



John Sellens
 M13, R4, R7

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, and is currently a member of the systems team at Magna International. 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.



Stephen Sorota
 S2, M2

Steve Sorota has over ten years of experience architecting solutions while working for several service providers and ISVs. He is

currently a senior member of the VMware Professional Services Organization, where he is responsible for delivering a variety of custom engagements and workshops, including virtualization-based disaster recovery, VMware SDK development, and charge-back.



Marc Staveley
 S5, M5

Marc Staveley now 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.



Steve VanDevender
 M4

Steve VanDevender, by once not knowing to be afraid of Sendmail, has ended up specializing in email system administration

for much of his system administration career. At efn.org between 1994 and 2002, he ended up managing a mail system that grew to 10,000 users; at the University of Oregon since 1996, he has helped manage a mail system that has grown from 20,000 to 30,000 users and, more important, has grown even more in message volume and user activity, with many corresponding changes to cope with that growth. Since 2000, he has taught a popular course in system administration for the University of Oregon's Department of Computer and Information Science.



Rudi van Drunen
 R3

Rudi van Drunen studied electronics engineering and met the UNIX OS and friends about 25 years ago on a DEC VAX at the

University of Groningen (NL). Apparently the two got along pretty well, as nowadays he is

employed as CTO and senior UNIX infrastructure consultant at Competa IT in the Netherlands. Before that, he was head of IT for a medical lab, where he did a.o. UNIX system administration and applied research in image analysis and neural networks. He is one of the tech gurus and a founding board member of Wireless Leiden, the leading wireless community in the Netherlands. Rudi has his own small open source and hardware design company, Xlexit. He has taught a number of classes and given invited talks on wireless and other topics at events such as LISA and SANE and to the Dutch UNIX community.



Jeff Victor
 R1

Jeff Victor has been using UNIX systems since 1984. His two-decade career has included software design and development,

network and telecomm administration, and ten years as a Systems Engineer at Sun Microsystems. Jeff wrote the Sun BluePrint "Solaris Containers Technology Architecture Guide" and the "How to Move a Container" guide, both available at www.sun.com. He also maintains the Solaris Zones and Containers FAQ at opensolaris.org.



Elizabeth Zwicky
 T7, T11

Elizabeth Zwicky has been managing system administrators off and on since her first job. Recently, she's been hanging out

with educational theorists and testing ways of teaching problem solving to system administrators, high-school graduates who may or may not have any interest in system administration but are being paid to listen, and a three-year-old.

TECHNICAL SESSIONS

WEDNESDAY, NOVEMBER 14

8:45 A.M.–10:30 A.M.

[OPENING REMARKS, AWARDS, AND KEYNOTE]



Keynote Address

Autonomic Administration: HAL 9000 Meets Gene Roddenberry

John Strassner, *Motorola Fellow and Vice President, Autonomic Networking and Communications, Motorola Research Labs*

How will we enhance network management so that the promise of future technologies and services can be realized? This talk will first provide an introduction to the problems that make network management difficult from the point of view of the practitioner. Then it will examine some exciting new technologies that, when combined, offer a holistic solution that could be used for system administration as well. The talk will conclude with examples from autonomic networking research being done in Motorola Labs that can be used in network and system administration.

John Strassner is a Motorola Fellow and Vice President, directing autonomic networking and communications at Motorola Research Labs. He is also responsible for directing policy management and knowledge engineering. Previously, John was the Chief Strategy Officer for Intelliden and a Cisco Fellow. John invented DEN (Directory Enabled Networks) and DEN-ng as a new paradigm for managing and provisioning networks and networked applications. Currently, he is the Chairman of the Autonomic Communications Forum. He also has authored two books, *Directory Enabled Networks* and *Policy Based Network Management*, has contributed chapters for three other books, and has over 160 refereed conference and journal publications. John is a TMF Distinguished Fellow, a member of the TMF Advisory Board, and a member of the Industry Advisory Board of the University of California, Davis. He is also an associate professor for the Waterford Institute of Technology, Waterford, Ireland.

Please see
www.usenix.org/lisa07/tech
for complete technical program info.

11:00 A.M.–12:30 P.M.

[REFEREED PAPERS]

Security via Firewalls

PolicyVis: Firewall Security Policy Visualization and Inspection

Tung Tran, *University of Waterloo*; Ehab Al-Shaer, *University of Waterloo and DePaul University*; Raouf Boutaba, *University of Waterloo*

Inferring Higher Level Policies from Firewall Rules

Alok Tongaonkar, Niranjan Inamdar, and R.C. Sekar, *Stony Brook University*

Assisted Firewall Policy Repair Using Examples and History

Robert Marmorstein and Phil Kearns, *College of William and Mary*

[INVITED TALKS 1]

The Biggest Game of Clue® You Have Ever Played

Don Scelza, *Director, CDS Outdoor School, Inc.*

It's 3:30 in the morning and your pager is going off. There's a new mystery to be solved and you're the one who's been picked to solve it. That mystery may be a server down or a lost hiker. While the problem spaces are different, the problem-solving techniques are similar. This talk will look at the methodology used in lost person search management: preplanning, event notification and mobilization, team dynamics, objectives, strategy, tactics, investigation, statistical analysis, paperwork, and demobilization. These are all puzzle pieces regardless of the problem space. Can you figure it out?

[INVITED TALKS 2]

Deploying Nagios in a Large Enterprise Environment

Carson Gaspar, *Goldman Sachs*

This talk will cover scalability issues, security issues, our design and how it has evolved, user acceptance issues, integrating monitoring of proprietary applications, monitoring "closed" devices, high availability/disaster recovery, and lessons learned.

[THE GURU IS IN]

Virtualization/VMware

Mike DiPetrillo and Dan Anderson, *VMware*

Bring your most perplexing questions on this topic to our gurus. See www.usenix.org/lisa07/tech for more information.



2:00 P.M.–3:30 P.M.

[REFEREED PAPERS]

Performance

NetADHICT: A Tool for Understanding Network Traffic

Hajime Inoue, Dana Jansens, Abdulrahman Hijazi, and Anil Somayaji, *Carleton University*

CAMP: A Common API for Measuring Performance

Michael Haungs and Mark Gabel, *California Polytechnic State University*

Application Buffer-Cache Management for Performance: Running the World's Largest MRTG

David Plonka, Archit Gupta, and Dale Carder, *University of Wisconsin—Madison*

[INVITED TALKS 1]

Scaling Production Repairs and QA Operations in a Live Environment

Shane Knapp and Avleen Vig, *Google, Inc.*

Google has seen explosive growth over the years, and this has evidenced itself in the increase in size of the production fleet. As the fleet increases, so do the number of machines both being released and repaired. This talk will cover how, operationally and in many different locations, the methods in which data center work, and the systems that support it, were developed.

[INVITED TALKS 2]

A Service-Oriented Data Grid: Beyond Storage Virtualization

Bruce Moxon, *Senior Director of Strategic Technology and Grid Guru, Network Appliance, Inc.*

The storage industry talks about “virtualization” in static and device-specific contexts, while enterprise IT organizations are under pressure to deliver a range of data “services” to their customers, with a tiered pricing model and verifiable service levels. These disparate producer- and consumer-oriented views of storage leave an implementation gap that must be filled in order to realize the “virtual everything” vision of enterprise grid computing. We will identify key storage and data management trends that are evolving to deliver this service-oriented view of data.

[HIT THE GROUND RUNNING TRACK]

Find out from the experts everything you need to know to get started on hot topics. See p. 22 for more information and www.usenix.org/lisa07/htg for the complete schedule.

4:00 P.M.–5:40 P.M.

[REFEREED PAPERS]

Virtualization

Stork: Package Management for Distributed VM Environments

Justin Cappos, Scott Baker, Jeremy Plichta, Duy Nyugen, Jason Hardies, Matt Borgard, Jeffrey Johnston, and John H. Hartman, *University of Arizona*

Decision Support for Virtual Machine Re-Provisioning in Production Environments

Kyrre Begnum and Matthew Disney, *Oslo University College*; Aileen Frisch, *Exponential Consulting*; Ingard Mevåg, *Oslo University College*

OS Circular: Internet Client for Reference

Kuniyasu Suzuki, Toshiki Yagi, Kengo Iijima, and Nguyen Anh Quynh, *National Institute of Advanced Industrial Science and Technology (AIST)*

Secure Isolation of Untrusted Legacy Applications

Shaya Potter and Jason Nieh, *Columbia University*

[INVITED TALKS 1]

Who's the Boss? Autonomics and New-Fangled Security Gizmos with Minds of Their Own

Glenn Fink, *Pacific Northwest National Laboratory*

How do humans stay in the loop when autonomics seems to be pushing them out? What do you do with a system designed to have a mind of its own? Who's responsible when it makes agreements with other systems that may cost your company money? This talk will incorporate the results of interviews with sysadmins working with autonomic systems. I'll share their reflections and my own on the potential impacts of future autonomic systems.

[INVITED TALKS 2]

No Terabyte Left Behind

Andrew Hume, *AT&T Labs—Research*

Yes, disk is marvelous, getting inexorably cheaper and bigger. But here's the dark side: How do you attach, configure, and mount tens of TB on a PC? How do you manage the files and back up that data? Worst of all, vast amounts of cheap disk allow users to dream of projects requiring petabytes of disk and ask you to make it happen. This talk will identify most of the serious issues and will describe solutions.

[THE GURU IS IN]

Time Management for System Administrators

Tom Limoncelli, *Google NYC*

Bring your most perplexing questions on this topic to our guru. See www.usenix.org/lisa07/tech for more information.

TECHNICAL SESSIONS

THURSDAY, NOVEMBER 15

9:00 A.M.–10:30 A.M.

[PLENARY SESSION]

The LHC Computing Challenge

Tony Cass, *CERN*

CERN's Large Hadron Collider turns on next year, providing high-energy particle collisions for four experiments that, between them, are expected to generate up to 15PB of data per year. After giving a brief introduction to the accelerator and experiments, this talk will outline the associated computing challenges—in particular, cluster management, data storage and distribution, and grid computing—and describe how CERN and the worldwide particle physics community have been preparing to meet them.

[THE GURU IS IN]

UNIX and Microsoft Interoperability

Joseph Radin, *Ricoh Company*

Bring your most perplexing questions on this topic to our guru. See www.usenix.org/lisa07/tech for more information.

TRAINING AND TECHNICAL SESSIONS: THE PERFECT COMBINATION

LISA '07 is designed to give you the optimum learning experience. To get the most out of LISA '07, we encourage you to take part in both training and technical sessions. Please note that you cannot take a full day of training and a full day of tech sessions on the same day. Do not despair, though; all is not lost. Take advantage of Registration Package G, Wednesday/Thursday Half-and-Half Tech and Training: Attend any combination of two half-days of training and two half-days of technical sessions on Wednesday and Thursday. To help you make your decisions, the complete training program schedule can be found on pp. 4–12, and pp. 18–23 have the entire technical sessions schedule laid out for you. Finally, learn more about Package G and our other discount registration packages on p. 29.



Please see
www.usenix.org/lisa07/tech
for complete technical program info.

11:00 A.M.–12:30 P.M.

[REFEREED PAPERS]

Topics in System Administration

Policy-Driven Management of Data Sets

Jim Holl, Kostadis Roussos, and Jim Voll, *Network Appliance, Inc.*

ATLANTIDES: An Architecture for Alert Verification in Network Intrusion Detection Systems

Damiano Bolzoni, *University of Twente, The Netherlands*; Bruno Crispo, *University of Trento, Italy*, and *Vrije Universiteit, Amsterdam, The Netherlands*; Sandro Etalle, *University of Twente, The Netherlands*

PDA: A Tool for Automated Problem Determination

Yaoping Ruan, Hai Huang, Raymond Jennings, Ramendra Sahoo, Sambit Sahu, and Anees Shaikh, *IBM T.J. Watson Research Center*

[INVITED TALKS 1]

Experiences with Scalable Network Operations at Akamai

Erik Nygren, *Chief Systems Architect, Akamai Technologies*

Akamai's platform for content delivery and application acceleration consists of over 20,000 servers in over 2,800 locations in 72 countries and over 1000 networks. Providing high levels of performance and reliability without requiring a large network operations team necessitates significant automation. Further challenges are introduced by the highly distributed nature of the Akamai system. We'll discuss some methodologies and systems we have developed for operating the Akamai network.

[INVITED TALKS 2]

Ganeti: An Open Source Multi-Node HA Cluster Based on Xen

Guido Trotter, *Google*

Ganeti is a cluster management tool we built at Google that leverages the power of Xen and other open source software in order to provide a seamless environment in which to manage highly available virtual instances. The talk will focus on what Ganeti provides, what audience it is targeted to, and what the plans for its future are.

[THE GURU IS IN]

AFS 11:00 a.m.–11:45 a.m.

Esther Filderman, *The OpenAFS Project*

Data Center Design 11:45 a.m.–12:30 p.m.

Doug Hughes, *D.E. Shaw Research, LLC*

Bring your most perplexing questions on these topics to our gurus. See www.usenix.org/lisa07/tech for more information.



Please see www.usenix.org/lisa07/tech for complete technical program info.

2:00 P.M.–3:30 P.M.

[REFEREED PAPERS]

Managing Grids and Clusters

Usher: An Extensible Framework for Managing Clusters of Virtual Machines

Marvin McNett, Diwaker Gupta, Amin Vahdat, and Geoffrey M. Voelker, *University of California, San Diego*

Remote Control: Distributed Application Configuration, Management, and Visualization with Plush

Jeannie Albrecht, Ryan Braud, Darren Dao, Nikolay Topilski, Christopher Tuttle, Alex C. Snoeren, and Amin Vahdat, *University of California, San Diego*

Everlab: A Production Platform for Research in Network Experimentation and Computation

Elliot Jaffe, Danny Bickson, and Scott Kirkpatrick, *Hebrew University of Jerusalem*

[INVITED TALKS 1]

Using Throttling and Traffic Shaping to Combat Botnet Spam

Ken Simpson, *Founder and CEO, MailChannels*

In this talk, Ken Simpson describes his research into spammer behavior and explains how spammers' impatience can be used for spam suppression. During this talk, you will learn about spammer economics and spammer behavior, get an introduction to connection management, and hear how we have used connection management in some real-world scenarios to reduce spam traffic.

[INVITED TALKS 2]

Hardening Your Systems Against Litigation

Alexander Muentz, *OnSite E-Discovery*

Recent amendments to the Federal Rules of Civil Procedure require parties in litigation to make electronically stored information available to the opposing side. Unfortunately, legal and IT departments still don't communicate well with one another. The presentation will include an overview of the parts of the Federal Rules that are relevant to IT professionals and how IT staff should approach their legal department. Some examples of how not to handle a litigation hold will be given, as well as how to prepare one's systems for potential or pending litigation.

[HIT THE GROUND RUNNING TRACK]

Find out from the experts everything you need to know to get started on hot topics. See p. 22 for more information and www.usenix.org/lisa07/htg for the complete schedule.

4:00 P.M.–5:30 P.M.

[REFEREED PAPERS]

Masters Operations Score

Master Education Programmes in Network and System Administration

Mark Burgess, *Oslo University College*; Karst Koymans, *University of Amsterdam*

Operations Friendly Applications

James Hamilton, *Microsoft Windows Live Core*

RepuScore: Collaborative Reputation Management Framework for Email Infrastructure

Gautam Singaraju and Brent ByungHoon Kang, *University of North Carolina at Charlotte*

[INVITED TALKS 1]

The State of Spam Plus BGP Hijacking

David Josephsen, *Senior Systems Engineer, DBG, Inc.*

The talk begins with an overview of the spam war. The war is broken down into two types of attacks: delivery countermeasures and content filtering. I provide an overview of most of the attacks and defenses on each front thus far. Next I define short-lived BGP prefix hijacking, how it works, and why you might want to use it. Then I discuss the published evidence that it is occurring in the wild and the potential for abuse in the context of unallocated IPv4 address space. I conclude with how difficult it is to pull off.

[INVITED TALKS 2]

Beyond NAC: What's Your Next Step?

Mark "Simple Nomad" Loveless, *Security Architect, Vernier Networks, Inc.*

Now that you have adopted Network Access Control, what is your next step? With the NAC market maturing at a rapid rate, most companies have either already implemented NAC or are evaluating it for future deployment. However, there is still much confusion about what is and what isn't NAC. This presentation will clearly outline how NAC is an important security enhancement, and why it is not an end-all security solution. Attendees of this presentation will learn the technology that is required in today's world to ensure network security and effectively mitigate threats.

[THE GURU IS IN]

ZFS

Bill Moore, *Distinguished Engineer, Sun Microsystems*

Bring your most perplexing questions on this topic to our guru. See www.usenix.org/lisa07/tech for more information.

TECHNICAL SESSIONS

FRIDAY, NOVEMBER 16

9:00 A.M.–10:30 A.M.

[PLENARY SESSION]

The Economic Meltdown of Moore's Law

Kenneth G. Brill, *Executive Director, Uptime Institute*

The net economic productivity of IT is threatened because server power consumption improvement is occurring at a slower rate than the increase in computer performance. As a result, the enterprise TCO per unit of computing has not been falling nearly as rapidly as senior executives might think. The one-time benefit of killing dead servers and virtualization will defer this new economic reality, but CFOs, CTOs, and CIOs need to change their economic decision models now or risk investing in new applications that can't pay back their real costs.

[THE GURU IS IN]

NTP 9:00 a.m.–9:45 a.m.

Brad Knowles, *Consultant and Author*

Legal Issues/Forensics 9:45 a.m.–10:30 a.m.

Jason Park, *MD5Group*

Bring your most perplexing questions on these topics to our gurus. See www.usenix.org/lisa07/tech for more information.

BACK BY POPULAR DEMAND: THE HIT THE GROUND RUNNING TRACK

Once again technical sessions attendees have the opportunity to get a head start on key technologies with 15-minute talks in the Hit the Ground Running track. Imagine someone coming up to you and saying, "OK, here are the top 5 things you have to know to get started with topic *x*. Here are the acronyms you'll encounter, here are the two basic concepts, and here are some good Web sites and books you'll want to look at to get deeper into this topic." You'll get that and more from this popular track.

With three different sessions covering multiple topics, the Hit the Ground Running track provides ample opportunities to get a jump-start on must-know topics. Presentations may include:

- Marcus Ranum on logging
- Bill Cheswick on program containment
- Andrew Hume on Ruby
- Paul Anderson on system configuration
- Doug Hughes on high-performance computing

See www.usenix.org/lisa07/htg for the complete schedule.

11:00 A.M.–12:30 P.M.

[REFEREED PAPERS]

Configuration Management

Moobi: A Thin Server Management System Using Bittorrent

Chris McEniry, *Sony Computer Entertainment America*

PoDIM: A Notation for High-Level Configuration Management

Thomas Delaet and Wouter Joosen, *K.U. Leuven*

Using Patterns in Cfengine for Robustly Scaling Network Administration

Mark Burgess and Matt Disney, *Oslo University College*; Rold Stadler, *Royal Institute of Technology*

[INVITED TALKS 1]

The Microsoft Windows Live (WL) and MSN Infrastructure

Deepak Patil, *Microsoft*

The Microsoft Windows Live (WL) and MSN infrastructure is huge and the services are growing globally at a phenomenal pace. The environment consists of hundreds of thousands of servers, petabytes of data storage, and dozens of globally deployed data centers. Listen to the challenges associated with designing, building, operating, and optimizing these services. Microsoft is redefining the traditional roles of IT to respond to these scale and growth issues, using our technologies to efficiently deliver the best customer experience to our users.

[INVITED TALKS 2]

Data Center Growing Pains

Lou Marchant, *Sun Microsystems*

Data centers can't be built fast enough to take care of the increases in power consumption and lack of available floor space for numerous companies. Companies are concerned over new environmental legislation being considered and how it will impact their business. If you aren't seeing these issues in your data centers now, you could in the next five years. Hear about what we at Sun have done in our own data centers and how we are trying to approach the problems with a fresh new perspective.

[THE GURU IS IN]

SIP/VoIP 11:00 a.m.–11:45 a.m.

Robert Sparks, *Estacado Systems*

LDAP 11:45 a.m.–12:30 p.m.

Howard Chu, *Chief Architect, Symas Corp.*

Bring your most perplexing questions on these topics to our gurus. See www.usenix.org/lisa07/tech for more information.



Register by October 19 and SAVE!
www.usenix.org/lisa2007



2:00 P.M.–3:30 P.M.

[REFEREED PAPERS]

Work-in-Progress Reports (WiPs)

A Work-in-Progress report (WiP) is a very short presentation about current work. It is a great way to poll the LISA audience for feedback and interest. We are particularly interested in presentations of student work. To schedule a short presentation, send email to lisa07wips@usenix.org or sign up at LISA '07.

[INVITED TALKS 1]

Prince Caspian on Location: Commodity Hardware and Gaffer Tape

Trey Darley, *Technical Consultant*

The as yet unreleased Walden/Disney production *Prince Caspian* was shot on location throughout Europe and New Zealand. While you might expect that a big-budget Hollywood production replete with thousands of SFX shots would have a tightly organized, well-financed, top-notch IT department, the truth might surprise you. Trey Darley saw it all first-hand and will talk about how the *Prince Caspian* IT department pulled it off using mainly commodity hardware, their wits, and lots of gaffer tape.

[INVITED TALKS 2]

The Security Butterfly Effect

Cat Okita, *Earthworks*

The butterfly effect is traditionally described as the almost imperceptible flap of a butterfly's wings causing changes that result in a tornado being formed (or not!). In information security, a change that seems simple may result in serious vulnerabilities—and as the complexity and interdependence of the environments we manage increase, predicting the effects of apparently innocent actions will become infinitely more challenging. This talk will discuss some notable examples of the butterfly effect in security, as well as giving a brief overview of future hot points to look toward.

[HIT THE GROUND RUNNING TRACK]

Find out from the experts everything you need to know to get started on hot topics. See p. 22 for more information and www.usenix.org/lisa07/htg for the complete schedule.

Please see
www.usenix.org/lisa07/tech
 for complete technical program info.

4:00 P.M.–5:30 P.M.

[CLOSING SESSION]

Cookin' at the Keyboard

David N. Blank-Edelman, *Northeastern University CCIS*;
 Lee Damon, *University of Washington*

There's a field in which people routinely:

- Work well under pressure—improvising and showing great creativity even in the worst of situations
- Create (repeatable!) multi-step procedures that integrate different components into cohesive systems
- Document these procedures so that even total neophytes can understand them
- Train other people to do the same

Nope, not system administration. Sysadmins only wish we could consistently do these things.

All of this stuff is taken for granted in the world of cooking. How the heck do they do it?

David and his lovely assistant Lee Damon will not only tell you how they do it, but will also show you some of how it is done. We'll take a highly entertaining romp through the cooking world to find the tools, techniques, and processes that can be applied to system administration. You'll never look at your food or your field in the same way again.

FRIDAY, 1:00 P.M.–1:45 P.M.

[LUNCHTIME TALK]

Should the Root Prompt Require a Road Test?

Alva L. Couch, *Associate Professor of Computer Science, Tufts University*

A lot of attention and energy have been put into certification programs, but exactly what do they certify? Written tests are no substitute for direct observation of an administrator performing a task. I explore the concept of a "road test" for system administrators, what it might entail, and what we can learn from experts about evaluating knowledge by observing behavior. I conjecture that current written tests only help us evaluate system administrators who already possess a set of core skills that no written test could measure. If a certification is like an endorsement on a driver's license, then what should obtaining the license itself entail?

WORKSHOP SERIES

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 for each workshop, which ensures a seminar-like atmosphere.
- **Workshops are full-day sessions.** Attending a workshop precludes attending any training sessions on that day.
- **To attend a workshop, you must be a registered technical sessions attendee as well as an accepted workshop participant.** See each workshop's description for its registration details. Workshop registration is free of charge.
- **The complete schedule of workshops and their descriptions are available at www.usenix.org/lisa07/workshops.**

WORKSHOP 1

Sunday, November 11, 9:00 a.m.–5:00 p.m.

Fighting Spam: The State of the Art

Chris St. Pierre, *Nebraska Wesleyan University*

Keeping up with the latest techniques to fight spam can itself be a full-time job. The goal of this workshop is for every participant to come away with an updated arsenal for fighting spam, whether it's a tool that makes their existing setup quicker or easier; a concept they can develop into another arrow in their quiver; or an entirely new layer to fight the latest spamming techniques. Contact lisa07ws-spam@usenix.org to participate.

WORKSHOP 2

Sunday, November 11, 9:00 a.m.–5:00 p.m.

Server Room Best Practices

Hunter Matthews, *Duke University*

This workshop, designed for mid-level and advanced sysadmins, is intended to share best practices between sites and to try to predict changes that will affect those best practices. Attendance is limited to those with some experience in this area and who need to specify and build data centers. To attend, send email to lisa07ws-serverm@usenix.org with a brief description of your areas of interest/experience, and indicate if you would be prepared to make a short presentation.

WORKSHOP 3

Sunday, November 11, 9:00 a.m.–5:00 p.m.

MicroLISA

Robert Au

Sysadmins at very small sites face unique challenges: teams generally assign broader responsibilities to each member; users and management have more exposure to front-line workers, and vice versa; and the organizational environment often limits budget and manpower stringently. This workshop will provide both full-time admins and consultants with a forum to discuss and explore solutions to those challenges. To participate, contact lisa07ws-microlisa@usenix.org.

WORKSHOP 4

Monday, November 12, 9:00 a.m.–5:00 p.m.

University Issues

John "Rowan" Littell, *California College of the Arts*

The focus of this workshop is on issues peculiar to university and college computing shops. To attend the workshop, please send email to lisa07ws-univissues@usenix.org with a short paragraph describing your institution, the biggest issue you face today, or something about your institution that works particularly well or that others might want to consider for their own school. You can also include topics you would like to see on the workshop agenda.

WORKSHOP 5

Monday, November 12, 9:00 a.m.–5:00 p.m.

Configuration: From Managing Nodes to Managing Architecture

Mark Burgess, *Oslo University College*; Sanjai Narain, *Telcordia Technologies, Inc.*

Today, the gap between end-to-end infrastructure requirements and detailed component configurations is manually bridged, leading to downtime, security vulnerabilities, and high deployment costs. We face two questions: Is my infrastructure compliant with end-to-end requirements? How do I safely remove configuration errors? This workshop seeks representation from networking, datacenters, and enterprise resource planning. Contact lisa07ws-cm@usenix.org to participate.

WORKSHOP 6

Tuesday, November 13, 9:00 a.m.–5:00 p.m.

System Administration Education

Brent Hoon Kang, *University of North Carolina at Charlotte*; Alva Couch, *Tufts University*; Mark Burgess, *Oslo University College*

This workshop is an opportunity for those teaching system administration in a university setting or training sysadmins through short courses and tutorials to share ideas and experiences. To register for the workshop, please send an outline of your experience and interest in sysadmin education to lisa07ws-saedu@usenix.org.

WORKSHOP 7

Tuesday, November 13, 9:00 a.m.–5:00 p.m.

Advanced Topics

Adam Moskowitz, *Menlo Computing*

This workshop, intended for senior admins, provides an informal discussion of the problems facing sysadmins today. Attendance is limited and based on acceptance of a position paper (plain ASCII, three paragraphs max); a typical paper covers what the author thinks is the most difficult or important issue facing sysadmins today, why this is a problem, and why it is important. Position papers should be sent to lisa07ws-atw@usenix.org. Attendees are required to bring a laptop.

VENDOR EXHIBITION



SEE WHAT'S NEW AT THE LISA '07 VENDOR EXHIBITION

Wednesday, November 14,
noon–7:00 p.m.

Thursday, November 15,
10:00 a.m.–2:00 p.m.

DON'T MISS THIS ONE-STOP SHOP

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

Learn about the latest and greatest technologies and tools from industry leaders, provocative startups, and open source projects.

See demonstrations of innovative products and services that can optimize your systems, network, and Internet management—and simplify your life.

Get in-depth answers from well-informed company representatives. (LISA exhibitors know to send technical people to this event!)

Buy books at discounted prices, and get them signed by the authors.

EVERYONE IS WELCOME!

The exhibition is open to the public. Register for a free pass at www.usenix.org/lisa07/exhibition.

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

a LISA attendee

[EXHIBITORS AS OF AUG. 6, 2007]

PREMIUM EXHIBITORS

Cambridge Computer Services, Inc.

Google

Groundwork Open Source Solutions, Inc.

ISC (Internet Systems Consortium)

Logicube

MRV Communications

Splunk

Zenoss, Inc.

EXHIBITORS

Advanced Computer & Network Corporation

Akamai

Avocent

Berkeley Communications

Centrify

Lantronix

No Starch Press

Penton Media/TechX World

Server Technology, Inc.

Silicon Mechanics

SNIA

StillSecure

The Written Word

EXHIBIT HALL HAPPY HOUR

Join us at the Vendor Exhibition from 5:30 p.m. to 6:30 p.m. on Wednesday for snacks and drinks, and take the opportunity to learn about the latest products and technologies.

SYSADMIN OF THE YEAR

Don't miss Splunk's Sysadmin of the Year award presentation at the Exhibit Hall Happy Hour!

Is your sysadmin a rock star? Cast your vote at www.sysadminoftheyear.com.

LISA '07 SPONSORSHIP & EXHIBITING OPPORTUNITIES

- Get system administrators talking about your products and services.
- Sell your solutions to a qualified audience.
- 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.

See www.usenix.org/lisa07/sponsors for details or contact Camille Mulligan, Exhibits Manager, (510) 528-8649 ext. 17 or exhibits@usenix.org.

ABOUT USENIX & SAGE

USENIX: The Advanced Computing Systems Association

Since 1975, USENIX has brought together the community of system administrators, innovators, engineers, 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 5,000 active members. USENIX created the LISA conference over 20 years ago, and it has become the forum for real-world, in-depth system administration training. A USENIX membership offers you all you need to stay ahead of the game in the ever-changing world of IT, including plenty of sysadmin content and a sysadmin-dedicated issue of *;/login:*, the bi-monthly USENIX magazine; the sysadmin-focused training and practical information found at LISA, at the USENIX Annual Technical Conference, and at the USENIX Security Symposium; and the USENIX Jobs Board.

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

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

SAGE: A USENIX Special Interest Group for Sysadmins

SAGE is the USENIX SIG for sysadmins. Created by and for sysadmins, SAGE focuses on evolving best practices and technology. We're proud to offer our members access to information on the latest tools, trends, and training in the field.

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

- Discount on registration for LISA, the annual Large Installation System Administration Conference
- A free Short Topics in System Administration booklet every year, discounts on all Short Topics booklets, and access to the Short Topics online library—15 volumes and growing!
- The option to join sage-members, an electronic mailing list for peer discussion and advice, and access to the sage-members list archives
- Immediate access to the results of the SAGE Salary Survey
- Access to job postings, including real-time email notification of new jobs posted and the ability to post resumes
- Discounts on industry-related publications

THANKS TO USENIX & SAGE CORPORATE SUPPORTERS AND LISA '07 SPONSORS

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	Tellme Networks
	Zenoss

[LISA '07 SPONSORS AS OF AUGUST 6, 2007]

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[LISA '07 MEDIA SPONSORS]

<i>ACM Queue</i>	<i>Linux Journal</i>
Addison-Wesley Professional/Prentice Hall Professional	<i>Linux Pro Magazine</i>
<i>Free Software Magazine</i>	No Starch Press
<i>GRIDtoday</i>	OSTG
<i>HPCwire</i>	Penton/TechX World
IDG World Expo	SNIA
<i>IEEE Security and Privacy</i>	StorageNetworking.org
ITtoolbox	UserFriendly.org

ACTIVITIES/SERVICES/INFO FOR STUDENTS

[ACTIVITIES]

To enhance your LISA conference experience, attendee events are planned throughout the week. Attend the very popular Birds-of-a-Feather sessions (BoFs). Mingle with your peers and with technological luminaries during the receptions.

See the LISA '07 Web site, www.usenix.org/lisa2007, for the latest additions to the activities schedule.

Welcome Get-Together and Conference Orientation

Saturday, November 10, 6:00 p.m.–8:00 p.m.

Whether this is your first time at LISA or your twentieth, stop by the Welcome Get-Together and Conference Orientation to learn how to get the most out of the conference. The orientation includes an overview of Dallas, TX, an introduction to LISA, and an opportunity to meet your peers. Refreshments and snacks provided.

Exhibit Hall Happy Hour

Wednesday, November 14, 5:30 p.m.–6:30 p.m.

Join us at the Vendor Exhibition for snacks and drinks, and take the opportunity to learn about the latest products and technologies.

Conference Reception

Thursday, November 15, 6:30 p.m.–8:30 p.m.

Join us at the Conference Reception for beer, wine, snacks, and an added opportunity to network with your colleagues, get your questions answered, and chat about the conference.

Birds-of-a-Feather Sessions (BoFs)

Monday, November 12, 7:00 p.m.–11:00 p.m.

Tuesday, November 13, 7:00 p.m.–11:00 p.m.

Wednesday, November 14, 7:00 p.m.–11:00 p.m.

Thursday, November 15, 8:30 p.m.–11:30 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 always popular evening Birds-of-a-Feather sessions are very informal gatherings of persons interested in a particular topic. BoFs may be scheduled during the conference at the registration desk or in advance by sending email to bofs@usenix.org.

Want to demonstrate a new product or discuss your company's latest technologies with LISA attendees? Host a Vendor BoF! Email sponsorship@usenix.org for more information.

Work-in-Progress Reports (WiPs)

Friday, November 16, 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 lisa07wips@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.

[SPECIAL CONFERENCE SERVICES]

Bring Your Laptop!

USENIX is pleased to offer Internet connectivity at LISA '07 via an 802.11b/g WiFi network. Those not wishing to use wireless can plug in and charge up in the Laptop Lounge. No laptop? No problem. The Laptop Lounge will offer a few *NIX terminals with a Web browser and your favorite shell. There is also a laser printer available in the Laptop Lounge. Questions? Send email to tony@usenix.org.

The wired and wireless networks provided by USENIX at this conference are for the use of conference attendees only, subject to the following conditions:

- USENIX may monitor these networks.
- Any illicit or intrusive use of the network, including packet sniffing, is expressly forbidden.
- The wireless network is open and insecure. USENIX strongly recommends that all users encrypt their transmissions. Users are solely responsible for the security of their passwords and data.

If you have any questions or concerns about the use of these networks, please contact any USENIX staff or Board member immediately.

Conference Proceedings

Those registered for the technical sessions will receive a complimentary copy of the Proceedings, either in print or on CD-ROM. Additional copies of the Proceedings and the CD-ROM will be available for purchase at the conference.

[STUDENT DISCOUNTS & GRANTS]

Training

A limited number of tutorial seats are reserved for full-time students at the very special rate of \$200 for one full-day tutorial (if you plan to take half-day tutorials, you must take both half-days to qualify for the student rate). You must send email to lisa07_reg@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 copy of your current student I.D. card, within 14 days of the date you make your reservation, or your reservation will be canceled. This special fee is nontransferable.

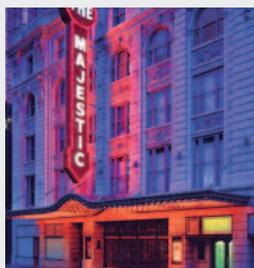
Technical Sessions

Full-time students may attend technical sessions for only \$110 per day. You must fax a copy of your current student I.D. card to the USENIX Conference Dept. when you register. This special fee is not transferable.

Student Grants for Conference Attendance

A limited number of student grants are available to pay for travel, accommodations, and registration fees to enable full-time students to attend the conference. To apply for a grant, see www.usenix.org/students/grant.html. Sorry, faxes will not be accepted for student grant applications.

HOTEL & TRAVEL



HOTEL

Hyatt Regency Dallas
300 Reunion Boulevard
Dallas, TX 75207
Tel: (214) 651-1234
Fax: (214) 742-8126

Hotel Reservation Discount Deadline: Friday, October 19, 2007

USENIX has negotiated special room rates for conference attendees at the Hyatt Regency Dallas. Please make your reservation as soon as possible by contacting the hotel directly. You must mention USENIX to get the special group rate.

Special Attendee Room Rate

\$198 single/double plus 15% tax

Why should you stay in the headquarters hotel?

We encourage you to stay in the conference hotel and when making your reservation to identify yourself as a USENIX conference attendee.

It is by contracting rooms for our attendees that we can significantly reduce hotel charges for meeting room rental. When the sleeping rooms are not utilized, we face significant financial penalties. As a result, these penalties ultimately force us to raise registration fees.

We recognize, however, that not everyone can afford to stay in the conference hotel, so we always try to book venues that have some low-cost alternatives available near the conference.

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

Questions?

USENIX Conference Department
2560 Ninth Street, Suite 215
Berkeley, CA 94710 USA
Phone: (510) 528-8649
Fax: (510) 548-5738
Email: lisa07_reg@usenix.org

TRAVEL

Airports & Ground Transportation

The hotel is located near two major airports: Dallas/Fort Worth International Airport (DFW) is 20 miles away and Dallas Love Field Airport (DAL) is 7 miles away. DFW offers Super Shuttle service for \$17 one-way and taxi service for \$40–45 one-way. Trinity Railway Express (TRE) service from DFW to Union Station, which is less than half a mile from the hotel, is also available (see www.trinityrailwayexpress.org). DAL offers taxi service for \$20–30 one-way. Self-parking is available at the hotel for \$10 for up to 3 hours, \$14 for 3–6 hours, or \$18 daily, plus tax. Overnight valet parking also costs \$18 plus tax. See www.usenix.org/lisa07/hotel for more information and for additional transportation and nearby self-parking options.

DART Light Rail Service: Attendees can access light rail from Union Station. The cost is \$2.50 for an all-day premium pass and \$1 for a day pass within the immediate downtown area. The hours of operation are 5:30 a.m.–12:30 a.m. For more information, please see www.dart.org.

Traveling to LISA '07 from Outside the U.S.A.?

See detailed advice from the National Academies about visiting the United States at www7.nationalacademies.org/visas/Traveling_to_US.html.

About Dallas

USENIX and SAGE are pleased to bring LISA to Dallas, TX, and the Hyatt Regency Dallas. Dallas offers a lively and historical cultural environment, a thriving culinary scene, and myriad shopping opportunities. The many attractions of interest include the Dallas County Historical Plaza, the Dallas World Aquarium, the Dallas Museum of Art, and more. More information is available from the Dallas Convention & Visitors Bureau, www.dallascvb.com.

REGISTRATION INFORMATION & FEES

Register or make a reservation on the Web today at

<http://www.usenix.org/lisa07/registration>.

Pay today with a credit card, or make a reservation online and then pay 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: Friday, October 19, 2007

TRAINING PROGRAM REGISTRATION

Every LISA '07 training program registration includes:

- Admission to the tutorials you select
- Lunch on the day of your tutorials
- Training program CD-ROM, including all available tutorial presentations and materials
- Printed tutorial materials for your courses
- Admission to the Vendor Exhibition
- Admission to the Conference Reception
- Admission to the evening activities on the days for which you're registered
- Conference t-shirt
- Wireless connectivity in conference session area

TECHNICAL SESSIONS REGISTRATION

Every LISA '07 technical sessions registration includes:

- Admission to all technical sessions on the days of your choice
- Copy of the Conference Proceedings (in print or on CD-ROM)
- Admission to the Vendor Exhibition
- Admission to the Conference Reception
- Admission to the evening activities on the days for which you're registered
- Conference t-shirt
- Wireless connectivity in conference session area

Multiple Employee Discount

We offer discounts for organizations sending 5 or more employees to LISA '07. Please email lisa07_reg@usenix.org for more details.

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

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. If you are paying by check or phone, submit a copy of this summary along with your payment or have it with you when you call. Tutorial bookings cannot be confirmed until payment has been received. Purchase orders, vouchers, and telephone reservations cannot be accepted.

REGISTRATION FEES

USENIX and SAGE are pleased to offer Early Bird Registration Discounts of up to \$300 to those who register for LISA '07 by October 19, 2007. After October 19, registration fees increase.

Daily Rates	Before Oct. 19	After Oct. 19
1 day of technical sessions	\$270	\$320
1 day of training	\$635	\$685
1 half-day of training; second half-day only \$300	\$335	\$385

SAVE! Choose One of Our Special Discount Packages	Before Oct. 19	After Oct. 19
A. 3 Days of Technical Sessions Save \$100!	\$710	\$860
B. 2 Days of Training Save \$50!	\$1220	\$1320
C. 3 Days of Training Save \$100!	\$1805	\$1955
D. 4 Days of Training Save \$200!	\$2340	\$2540
E. 5 Days of Training Save \$300!	\$2875	\$3125
F. 6 Days of Training Save \$600!	\$3210	\$3510
G. Wednesday/Thursday Half-and-Half Tech and Training*	\$905	\$1005

*Attend any combination of two half-days of training and two half-days of technical sessions on Wednesday and Thursday.

For maximum savings, combine Package A with Package B or C.

If you are a member of USENIX but *not* of SAGE, \$45 will be added to your registration fees.

If you are a member of SAGE but *not* of USENIX, \$120 will be added to your registration fees.

If you are *not* a member of USENIX, SAGE, EurOpen.SE, or NUUG, \$165 will be added to your registration fees.

Optional Costs

Continuing Education Units (CEUs): \$15 per training day

Registration Fees for Full-Time Students

USENIX and SAGE offer full-time students special low registration fees for LISA '07 that are available at any time. See p. 27 for details.

Daily Rates for Full-Time Students	
1 day of technical sessions	\$110
1 day of training A limited number of tutorial seats are reserved for full-time students at this very special rate. Students must reserve their tutorial seats before registering. If you plan to take half-day tutorials, you must take both half-days to qualify for the student rate.	\$200

Students who are *not* members of USENIX, \$45 will be added to your registration fees.

Students who are *not* members of SAGE, \$30 will be added to your registration fees.

Refund/cancellation date: Monday, November 5, 2007

All refund requests must be emailed to lisa07_reg@usenix.org by Monday, November 5, 2007. You may substitute another in your place.

THANKS TO OUR SPONSORS

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Microsoft Research

LISA '07 offers the most in-depth, practical
system administration training available!

THANKS TO OUR MEDIA SPONSORS

ACM Queue

*Addision-Wesley Professional/
Prentice Hall Professional*

Free Software Magazine

GRIDtoday

HPCwire

IDG World Expo

IEEE Security and Privacy

ITtoolbox

Linux Journal

Linux Pro Magazine

No Starch Press

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Penton/TechX World

SNIA

StorageNetworking.org

UserFriendly.org

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Register by October 19 and SAVE!

www.usenix.org/lisa2007