

LISA '11: 25TH LARGE INSTALLATION SYSTEM ADMINISTRATION CONFERENCE



LISA



December 4-9, 2011
BOSTON, MA

PART **XXV**

The Past, Present, and Future of System Administration

DEVOPS: NEW CHALLENGES, PROVEN VALUES

Keynote Address: "The DevOps Transformation," by Ben Rockwood

Closing Session: "Tales from IBM's Watson—Jeopardy! Champion"

Join us for **6 days of practical training** on topics including:

- **Virtualization Series** by instructors such as John Arrasjid, Ben Lin, and Gerald Carter
- **Configuration Management** by Mark Burgess, Nan Liu, and more
- Series on **Linux** and Becoming a **SuperSysadmin**

Plus a **3-day Technical Program**:

- **Invited Talks** by industry leaders such as Michael Stonebraker, Bryan Cantrill, and Owen DeLong
- **Refereed Papers** covering key topics such as migration, clusters, and package deployment
- Workshops, Vendor Exhibition, Posters, BoFs, "Hallway Track," and more!

Register by November 14 and save • Additional discounts are available!

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LISA

PART XXV

WHY ATTEND LISA?

"Each day of LISA I learn something that makes me want to shout, 'That just paid for the entire conference!'"

—Thomas A. Limoncelli,
Author

TOP FIVE REASONS TO ATTEND LISA '11

1 - FACE TIME WITH INDUSTRY LEADERS

Network with peers and luminaries in the "Hallway Track" and evening activities.

2 - TOP-NOTCH TRAINING

Highly respected experts uncover new information and skills you can take back to work tomorrow.

3 - INVITED TALKS

Key members of the community discuss timely and important topics.

4 - YOU'LL HEAR IT HERE FIRST

Check out the latest research in the paper presentations, workshops, poster session, and Vendor Exhibition.

5 - GET ANSWERS

Bring your questions to the experts in the Guru sessions and Practice and Experience Reports and unravel your greatest technical mysteries.



ATTENTION MANAGERS: WHY YOU SHOULD SEND YOUR EMPLOYEES TO LISA '11

Can't hire more staff? Make the staff you have more effective! LISA helps you stay ahead of the game as technology evolves.

The training program at LISA '11 offers a cost-effective, one-stop shop for training current IT and development employees. Forty-six full- and half-day tutorials taught by the most respected leaders in the field provide an unparalleled opportunity to learn from the best. Tutorials cover a multitude of system administration topics, including virtualization, Linux security and administration, and configuration management.

Combining full days of training with days of technical sessions on the latest research, Practice and Experience Reports, and informative Invited Talks makes the LISA '11 experience even more valuable. Additionally, the Wednesday poster session, Thursday evening reception, and Birds-of-a-Feather sessions provide your staff with a chance to network with peers and industry leaders to gain that all-important "inside" IT knowledge that will keep your company current and running smoothly. Keeping up with technology can be costly and time-consuming in this unforgiving economy: take full advantage of this opportunity to have your staff learn from the top researchers, practitioners, and authors all in one place, at one time.

Get a sneak peek into the future of system administration. Learn from past experiences. Find practical information that you can use in the present.

The LISA '11 time machine will take you on a journey of system administration through the years via top-notch training, innovative research, Practice and Experience Reports, and that all-important face time with others confronting the same challenges you battle every day.

LISA '11 opens with in-person **training** from the industry's top instructors such as Mark Burgess and Jacob Farmer. John Arrasjid is among the experts teaching a **Virtualization Series**. The **SuperSysadmin Series** features classes by leaders like Tom Limoncelli on advanced time management. The **Linux Security and Administration Series** offers a look at key Linux topics such as Securing Linux Servers, taught by Rik Farrow. Take anywhere from 1 to 6 days of training and create the curriculum to meet your needs.

The **technical program** takes on this year's central theme of DevOps and builds on it with practical information on a variety of key topics, such as the Keynote Address on "The DevOps Transformation," by Ben Rockwood, and Susan Landau's invited talk on "Surveillance or Security? The Risks Posed by New Wiretapping Technologies." In the Closing Session, Michael P. Perrone of the IBM T.J. Watson Research Center will tell us "Tales from IBM's Watson—Jeopardy! Champion."

The latest **research** is showcased in the paper presentations and poster session. The **Practice and Experience Reports** give you real-life experiences on topics ranging from configuration management to implementing IPv6. The **Guru Is In** sessions, led by experts such as David Nalley on cloud computing and Aaron Peterson on Chef, allow you to pose your toughest questions and get answers.

The **Vendor Exhibition** provides insight into new products and services.

Finally, the "**hallway track**" offers ample opportunity to meet and mingle with colleagues and industry leaders during breaks, BoFs, and other social activities.

This year marks the 25th LISA. It continues to be the meeting place of choice for system, network, database, and other computer administrators and engineers from all over the globe. Don't miss the chance to be a part of this unique career-building journey.

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Register today at www.usenix.org/lisa2011





The 3-day technical program at LISA '11 offers in-depth information that both uncovers practical skills you can take back to work and provides a peek into the future.

From the informative invited talks and paper presentations, through expert-led Guru Is In sessions and Practice and Experience Reports, to that all-important “hallway track,” the LISA '11 technical program gives you the know-how to face the future with greater skills and information. The LISA '11 theme is “DevOps: New Challenges, Proven Values”; DevOps sessions are denoted by this icon:

WEDNESDAY: Keynote Address

9:00 a.m.–10:30 a.m.

The DevOps Transformation

Ben Rockwood, *Joyent*

DevOps may be a new term, but it's not a new idea. In this session we'll deconstruct it into its three transformation phases, look back at the often referenced but rarely explained history that influences it, and see how it is a catalyst that is changing the craft of system administration.

WEDNESDAY: Invited Talks

11:00 a.m.–12:30 p.m.

TRACK 1 SESSION: Databases

NewSQL vs. NoSQL for New OLTP

Michael Stonebraker, *MIT*

Enterprises once used RDBMs for online transaction processing (OLTP) applications, which we affectionately call OldSQL. New OLTP applications have greater performance requirements; in many modern applications—multiplayer games, gambling, social networks, etc.—OldSQL is cracking under the volume of interactions. I contrast two alternatives to OldSQL: NoSQL, where SQL and ACID are jettisoned for better performance; and NewSQL, where SQL and ACID are retained, and innovative architectures improve performance.

TRACK 2 SESSION: Newish Technologies

Issues and Trends in Reliably Sanitizing Solid State Disks

Michael Wei, *University of California, San Diego*

Reliably erasing data from storage media (sanitizing the media) is a critical component of secure data management. While sanitizing entire disks and individual files is well understood for hard drives, flash-based solid state disks have a very different internal architecture. Our lab has evaluated the effectiveness of state-of-the-art sanitization on solid state disks (SSDs) and determined that it is unreliable and could lead to a false sense of security. This talk focuses on the issues and trends today in solid state disk sanitization.

Apache Traffic Server: More Than Just a Proxy

Leif Hedstrom, *Akamai Technologies*

Apache Traffic Server is an Apache Software Foundation open project, implementing a fast, scalable, and feature-rich HTTP proxy caching server. This presentation will give a solid introduction to the software, its features and capabilities, and how to successfully deploy and use it in your applications. We will discuss several typical use cases, with example setup and configurations.

2:00 p.m.–3:30 p.m.

TRACK 1 SESSION: DevOps: Chef

Choose Your Own Adventure

Adam Jacob, *Opscode, LLC*

In this session, you guide the presentation, which will consist of 16 five-minute sections. You call out which topic you want to hear, ask questions, and heckle! Sample topics include: infrastructure automation; cloud computing; configuration management tools; NoSQL, CAP theorem, and scalable Web applications; monitoring and trending; building open source communities; sales and marketing for sysadmins.

Converting the Ad-Hoc Configuration of a Heterogenous Environment to a CFM, or, How I Learned to Stop Worrying and Love the Chef

Dimitri Aivaliotis, *EveryWare AG*

There are as many ways of managing the configuration of heterogeneous systems as there are engineers trying to solve this problem. This talk explores one way of converting an ad-hoc configuration management system into one codified in Chef. We will describe extensions to the FreeBSD and Solaris providers and explore cookbooks to detail how the configuration is modeled. But why would you actually use a CFM? Will it make your job easier? Can you own it? We will reveal these answers and more.

TRACK 2 SESSION: Panel

How University Programs Prepare the Next Generation of Sysadmins

Moderator: Carolyn Rowland, *National Institute of Standards and Technology (NIST)*

Panelists: Kyre Begnum, *Oslo and Akershus University College*; **Andrew Seely**, *University of Maryland University College*; **Steve VanDevender**, *University of Oregon*; **Guy Hembroff**, *Michigan Technological University*

A team of panelists with real-world experience as educators and sysadmins discuss the challenges and successes of university programs aimed at preparing students to be effective and sought-after system administrators. How do you teach strong analytical skills and what makes a student in demand right after graduation? Bring your questions and hear how different institutions address the challenge.

4:00 p.m.–5:30 p.m.

TRACK 1 SESSION: DevOps Case

The Operational Impact of Continuous Deployment

Avleen Vg, *Etsy, Inc.*

Continuous deployment has significant advantages for getting code changes into production with short turnaround times. We will go over the requirements of an operations group to support a continuous deployment environment. The impact of monitoring, escalations, capacity planning, and tools on the culture and workflow of operations teams will be discussed as we enter "The Continuous Deployment Zone."

DevOps: The past and future are here. It's just not evenly distributed (yet).

Kris Buytaert, *Inuits*

We've come a long way since introducing new ideas in server automation and deployment, and also in creating a culture of collaboration between the traditional silos in organizations. But how does this impact the traditional sysadmin world? Are we all a DevOps now? Does a DevOps person = sysadmin 2.0? Will DevOps put us out of a job? I will give a brief overview of how culture, workflow, and behavior have evolved. After evaluating the past and the present, I will talk about the future, identifying technical gaps in monitoring, packaging, and data collection and identifying emerging human, organizational evolutions.

TRACK 2 SESSION: Infrastructure Best Practices

3 Myths and 3 Challenges to Bring System Administration Out of the Dark Ages

Mark Burgess, *Cfengine*

Mark Burgess, a provocative thinker about system administration since the 1990s, recently wrote a controversial blog about three ideas that he believes are holding the field of system administration in the past. In this talk he outlines those and chooses three themes everyone should have in mind to accelerate the future of the field: business integration, knowledge management, and emergent design to handle complexity. These are a part of the DevOps movement, but have people really thought through the issues?

Linux Systems Capacity Planning: Beyond RRD and top Rodrigo Campos

As infrastructure costs rise, there's an urgent need to squeeze more performance from the same hardware. After several years of measuring and managing the capacity of thousands of Linux servers, we have learned that most typical tools and metrics are not sufficient to predict performance bottlenecks, particularly during traffic spikes. By using queue theory formulas and instrumenting our applications we were able to find the limits of our systems, improve reliability, and maximize throughput and performance.



THURSDAY: Plenary Session

8:45 a.m.–10:15 a.m.

Where's Waldo? Software and Data Engineering for Drug Discovery

Andy Palmer, *Global Head of Software and Data Engineering, Novartis Institute for Biomedical Research*

THURSDAY: Invited Talks

10:45 a.m.–12:45 p.m.

TRACK 1 SESSION: DevOps: Core

Agile, Rails, and Cloud

Ian McFarland, *CTO, Digital Garage*

Agile development has gone from a fringe activity to a widely accepted set of best practices. Ruby on Rails has accelerated developer productivity, resulting in more applications being built more quickly. Cloud infrastructure has commoditized provisioning of hardware, while imposing new uniformity considerations. This talk discusses how these three discrete trends have converged into a major market force, delves into how Lean Startup puts it all into a new frame, and exposes the economics that are driving the pace of change.

Deployinator: Being Stupid to Be Smart

Erik Kastner and John Goulah, *Etsy, Inc.*

Developers deploy production code more than 30 times per day at Etsy. Small, rapid changes allow us to move fast, detect failure, and respond quickly. This works for a number of cultural and technical reasons. Learn about the tool we built, Deployinator, to automate this process and how we accomplish this effectively. We hope open sourcing the tool will give people an opportunity to make their deployment process more agile and efficient.

TRACK 2 SESSION

Fork Yeah! The Rise and Development of illumos

Bryan M. Cantrill, *Joyent*

In August 2010, illumos, a new OpenSolaris derivative, was born. While not at the time intended to be a fork, Oracle sealed the fate of illumos when it elected to close OpenSolaris: by choosing to cease its contributions, Oracle promoted illumos from a downstream repository to the open source repository of record for such revolutionary technologies as ZFS, DTrace, and Zones. This move accelerated the diaspora of kernel engineers from the former Sun Microsystems, many of whom have landed in the illumos community, where they continue to innovate. We will discuss the history of illumos but will focus on its promising future.

Perseus at IBM: GPFS Native RAID for 100,000-Disk Petascale Systems

Veera Deenadhayalan, *IBM*

GPFS (General Parallel File System) is widely used in HPC systems, and GPFS Native RAID (GNR) is a newly added, robust RAID layer tightly integrated into GPFS. GNR effectively utilizes the multiple CPU cores of modern IO servers to eliminate the hardware costs, firmware hassles, and maintenance associated with standalone RAID controllers. To effectively deal with a 100,000-disk petascale system that is expected to experience disk failures on a daily basis, GNR uses de-clustered RAID to lower the impact of RAID rebuild operations, 3-fault-tolerant redundancy codes, comprehensive asynchronous disk diagnostics, and end-to-end checksum protection to meet the cost, reliability, and integrity goals of the system.

2:00 p.m.–3:00 p.m.

TRACK 1 SESSION: DevOps: Puppet

Building IronMan, Not Programming

Luke Kanies, *Founder, Puppet and Puppet Labs*

There is a lot of discussion about DevOps being about operations and development becoming one, or operations becoming developers. This talk will instead argue that while the world of development is a source of

inspiration, DevOps is about improving operations and sysadmins. DevOps isn't about sysadmins becoming developers or going away entirely—it's about the best way for sysadmins to get better at their jobs and provide value in their roles. This talk will draw parallels to the world of agile development, which focuses on results and the people involved. We will cover reduction in process, the importance of new tool adoption, and collaboration between disparate groups, all of which are critical to DevOps making a difference.

TRACK 2 SESSION

TBA

3:30 p.m.–5:30 p.m.

TRACK 1 SESSION: DevOps Case: Scholastic



Fixing the Flying Plane: A Production DevOps Team

Calvin Domenico, Marie Hetrick, Elijah Aydnwylde, J. Brandon Arsenault, Patrick McAndrew, Alastair Firth, Jesse Campbell, and Amanda Boynton, *Scholastic, Inc.*

At Scholastic, Inc., the Web Hosting Department practices DevOps in action, leveraging both their development abilities and their sysadmin skills to improve and modify the behavior of software using ops and infrastructure tweaks. A diverse but very tight-knit group of ten, the group faces the challenges of delivering hosted SaaS (Software as a Service) to a growing customer base, using software that was originally designed for client-server local installations. Recently the group designed and implemented a new datacenter utilizing infrastructure, virtualization, and custom development to maximize the department's offerings.

TRACK 1 SESSION

Releasing 9/11 Data to Satisfy FOIA: It's Just a Simple Web Site, Right?

David Pullman and Carolyn Rowland, *NIST*

The National Institute of Standards and Technology (NIST) collected photos, videos, and other data from many sources to aid in an investigation of the collapse of the World Trade Center. Just prior to the tenth anniversary of 9/11, NIST released this data on a public Web server to meet FOIA requirements. A team of sysadmins took a winding path to hosting the data, using a combination of open source tools and the cloud. Technical and non-technical challenges threatened this project along the way.

TRACK 2 SESSION: Storage

My First Petabyte: Now What?

Jacob Farmer, *Cambridge Computer*

When we talk about a person's age, the chic expression is that 30 is the new 20. When we talk about data storage, it's tempting to say that the petabyte is the new terabyte. Many organizations now have a petabyte, large corporations have several petabytes, and content repositories have hundreds of petabytes. The reality is that the technologies for moving and managing data have not kept pace with ballooning capacities. The major problem areas include: navigating a name space with hundreds of millions of files; backup and restore; replication, fail-over, and fail-back; life cycle management; and migrations and hardware refreshes. This session explores these problem areas and describes various solutions.

TRACK 2 SESSION: Security

Can Vulnerability Disclosure Processes Be Responsible, Rational, and Effective?

Larissa Shapiro, *Internet Security Consortium*

ISC produces critical infrastructure software and services upon which the Internet and telecommunications industries depend. Through our Phased Vulnerability Disclosure process, we provide rational disclosure of vulnerabilities through a series of notifications, so industry can prepare without rushed actions, and critical infrastructure can be upgraded without "bad guys" knowing about the vulnerability. As an organization dedicated to open source software and open process, ISC is publishing the policies, processes, and tools involved. Please join us as we walk through a new model that vendors and operators can use to roll out security fixes without adding to operational risk.



FRIDAY: Invited Talks

9:00 a.m.-10:30 a.m.

TRACK 1 SESSION: Networking

Ethernet's Future Trajectory

John D'Ambrosia, *Force10 Networks*

In 2010, with the introduction of 40 gigabit Ethernet and 100 gigabit Ethernet, the release of IEEE Std 802.3ba™-2010 heralded the next step in Ethernet. These technologies, combined with the ongoing mass deployment of 10 gigabit Ethernet, are driving the evolution of the Ethernet ecosystem. This session will provide an overview of the state of Ethernet, as well as insight into current efforts and the future.

TRACK 2 SESSION: IPv6

IPv6: No Longer Optional

Owen DeLong, *Hurricane Electric Internet Services*

This is a talk about the need to move forward with IPv6 or become increasingly disconnected from the Internet. Topics covered will include: a brief history of IPv4 run-out; why IPv6?; how do I get started with IPv6?; an introduction to IPv6 on Linux; as an example of a POSIX-like system.

Implementing IPv6 on a Global Scale: Experiences at Akamai

Erik Nygren, *Akamai*

Akamai's global platform for application acceleration and content delivery consists of nearly 100,000 servers in over 1,000 networks and 74 countries. We now have IPv6 connectivity in over 45 countries, with hundreds of server locations. Our diverse global footprint across many network providers has given us perspective into the Internet's IPv6 connectivity and has posed interesting challenges. This talk will touch on observations of IPv6 network connectivity and client behavior, common misconceptions, approaches for migrating sites to dual-stacked IPv6, and experiences with how dual-stack deployments impact server operations.

11:00 a.m.-12:30 p.m.

TRACK 1 SESSION: Panel

What Will Be Hot Next Year?

Moderator: Narayan Desai, *Argonne National Lab*

Panelists include: Kris Buytaert, *Inuits*; **John D'Ambrosia**, *Force10 Networks*; **Jacob Farmer**, *Cambridge Computer*

TRACK 2 SESSION: Beyond Technology

Customer Service for Sysadmins

H. Wade Minter, *TeamSnap Inc.*

Everybody knows the stereotype of BOFHs, hiding behind the glow of their monitors, disregarding all human interaction that doesn't arrive via IRC. Some of us may even resemble that stereotype to a degree. But whether your customers are internal developers or external users, your personal and company success depends in large part on their perceptions, especially in this era of social media and worldwide feedback. A veteran sysadmin will talk about how his startup, TeamSnap, has built a passionate and devoted following by using simple, inexpensive tools and techniques for listening and responding to customers.

Playing the Certification Game (No Straitjacket Required), a.k.a How to Become Certified Without Becoming Certifiable

Dru Lavigne, *iXsystems, PC-BSD Project, FreeNAS Project, FreeBSD Foundation, BSD Certification Group*

This presentation provides a slightly tongue-in-cheek overview of the good, the bad, and the ugly of system administration certifications. Drawing upon her experience as a certificant, trainer, and chair of a certifying organization, the presenter will provide examples of how not to create a certification program, what to look for in a certification program in order to advance one's career, and how to spend one's training dollars wisely while possibly even learning some new skills along the way.

2:00 p.m.–3:30 p.m.

TRACK 1 SESSION: Security

Surveillance or Security? The Risks Posed by New Wiretapping Technologies

Susan Landau, *Visiting Scholar, Department of Computer Science, Harvard University*

The United States has moved large portions of business and commerce, including the control of critical infrastructure, onto IP-based networks. This reliance on information systems leaves the US highly exposed and vulnerable to cyberattack, yet US law enforcement remains focused on building wiretapping systems within communications infrastructure. By embedding eavesdropping mechanisms into communications technology itself, we build tools that could easily be turned against us. Indeed, such attacks have already occurred. In a world that has Al-Qaeda, nation-state economic espionage, and Hurricane Katrina, how do we get communications security right?

TRACK 2 SESSION: Sysadmin in/and the World

Copacetic.

David N. Blank-Edelman, *Northeastern University College of Computer and Information Science*

During a hiring search, I talked to far too many sysadmins who wanted to use best practices at their workplace (configuration management, DevOps techniques, etc.) but felt personally disempowered to do anything but fight fires or perpetuate the current environment, as well as those who had lost the enjoyment of working in our field. Some of these unhappy souls were managers; some of them were managed. These interactions harshed my mellow so much that I became determined to find a way to extract them from both their internal and external mire. There's fabulous research being done on the nature of happiness, motivation, and reality hacking that is directly applicable to our field. Come to this talk to learn some surprising but practical ways to improve your happiness or the happiness of sysadmins/DevOps who work for you.

Training Sysadmins in the Middle of Nowhere

Jon "maddog" Hall, *Linux International and Project Cauã*

Project Cauã is an open source software and hardware project to create millions of new high-tech jobs in Brazil and millions more in the rest of Latin America. Project Cauã will also cut electricity usage, make computers easier to use, allow for the creation of gratis wireless support over large urban areas, and provide a low-cost or gratis super-computing grid. All of the work will be freely available, and parts of Project Cauã may be useful in high-density areas such as Manhattan, Chicago, Detroit, etc. World peace comes next year.

FRIDAY: Closing Session

4:00 p.m.–5:30 p.m.

Tales from IBM's Watson—Jeopardy! Champion

Michael P. Perrone, *Manager, Multicore Computing, IBM T.J. Watson Research Center*

POSTER SESSION

Posters are a good way to get feedback on research that may not be "ready for prime time." Student posters, practitioners sharing their experiences, and submitters from open source communities are particularly welcome. To submit your work, please email a 1-page abstract to lisa11posters@usenix.org by November 11, 2011. Completed posters will be required by the start of the conference.

VENDOR DAYS

LISA '11 will also feature Vendor Days focusing on key topics. LISA Data Storage Day, sponsored by Cambridge Computer, is back by popular demand. Other topics will follow. Check the Web site for more information.



WEDNESDAY: Papers and Reports

11:00 a.m.-12:30 p.m.

SESSION: Perspicacious Packaging

Staging Package Deployment with Repository Management

Chris St. Pierre and Matt Hermanson, *Oak Ridge National Laboratory*

CDE: A Lightweight Tool for Creating Portable Ad-hoc Software Packages

Philip J. Guo, *Stanford University*

Improving Virtual Appliance Management through Virtual Layered File Systems

Shaya Potter and Jason Nieh, *Columbia University*

2:00 p.m.-3:30 p.m.

SESSION: Clusters and Configuration Control



Sequencer: Smart Control of Hardware and Software Components in Clusters (and Beyond)

Pierre Vignéras, *Bull*

Automated Planning for Configuration Changes

Herry Herry, Paul Anderson, and Gerhard Wickler, *University of Edinburgh*

Fine-grained Access-control for the Puppet Configuration Language

Joris Peeraer, Bart Vanbrabant, and Wouter Joosen, *DistriNet, K.U. Leuven*

4:00 p.m.-5:30 p.m.

SESSION: Security 1

Tiqr: A Novel Take on Two-Factor Authentication

Roland van Rijswijk and Joost van Dijk, *SURFnet BV*

Building Useful Security for Free

Brad Lhotsky, *National Institutes of Health and National Institute on Aging*

Local System Security via SSHD Instrumentation

Scott Campbell, *National Energy Research Scientific Computing Center, Lawrence Berkeley National Lab*

THURSDAY: Papers and Reports

10:45 a.m.-12:45 p.m.

SESSION: From Small Migration to Big Iron

Adventures in (Small) Datacenter Migration

Jeff Anderson-Lee, Albert Goto, Jon Kuroda, and Scott McNally, *University of California, Berkeley*

Bringing up Cielo: Experiences with a Cray XE6 System, or, Getting Started with Your New 140k Processor System

Daryl Grunau, Timothy Harrington, Kathleen Kelly, Cory Lueninghoener, and Quellyn Snead, *Los Alamos National Laboratory*

SESSION: Backup Bonanza

Capacity Forecasting in a Backup Storage Environment

Mark Chamness, *EMC*

Content-aware Load Balancing for Distributed Backup

Fred Douglass and Deepti Bhardwaj, *EMC*; Hangwei Qian, *Case Western Reserve University*; Philip Shilane, *EMC*

2:00 p.m.-3:00 p.m.

SESSION: To the Cloud!

Getting to Elastic Computing at Advance Internet

Eric Shamow, *Advance Internet*

Scaling on EC2 in a Fast-Paced Environment

Nicolas Brousse, *Tubemogul, Inc.*

3:30 p.m.-5:30 p.m.

SESSION: Honey and Eggs: Keeping Out the Bad Guys with Food

DarkNOC: Dashboard for Honeypot Management

Bertrand Sobesto and Michel Cukier, *University of Maryland*; Matti Hiltunen, Dave Kormann, and Gregg Vesonder, *AT&T Labs—Research*; Robin Berthier, *University of Illinois*

A Cuckoo's Egg in the Malware Nest

Damiano Bolzoni and Christiaan Schade, *University of Twente*; Sandro Etalle, *University of Twente and Eindhoven Technical University*

SESSION: Seriously Snooping Packets

Auto-learning of SMTP TCP Transport-Layer Features to Combat SPAM

Georgios Kakavelakis, Robert Beverly, and Joel Young, *Naval Postgraduate School*

Using Active Intrusion Detection to Recover Network Trust

John F. Williamson and Sergey Bratus, *Dartmouth College*; Michael E. Locasto, *University of Calgary*; Sean W. Smith, *Dartmouth College*

FRIDAY: Papers and Reports

9:00 a.m.–10:30 a.m.

SESSION: Network Security

Community-based Analysis of Netflow for Early Detection of Security Incidents

Stefan Weigert, *TU Dresden*; Matti A. Hiltunen, *AT&T Labs—Research*; Christof Fetzer, *TU Dresden*

Hone: An Open-Source Tool for Correlating Packets to Processes

Daniel Best, Brandon Carpenter, Glenn A. Fink, Alexis J. Malozemoff, and Cody Tews, *Pacific Northwest National Laboratory*

WCIS: A Prototype for Detecting Zero-Day Attacks in Web Server Requests

Melissa Danforth, *California State University, Bakersfield*

11:00 a.m.–12:30 p.m.

SESSION: Networking 1

Automating Network and Service Configuration Using NETCONF and YAST

Stefan Wallin, *Luleå University of Technology*; Claes Wikström, *Tail-f Systems AB*

Deploying IPv6 in the Google Enterprise Network: Lessons Learned

Haythum Babiker, Kiran Kumar Chittimaneni, and Irena Nikolova, *Google*

Experiences with BOWL: Managing an Outdoor WIFI Network

T. Fischer, T. Hühn, R. Kuck, R. Merz, J. Schulz-Zander, and C. Sengul, *TU Berlin/Deutsche Telekom Laboratories*

2:00 p.m.–3:30 p.m.

SESSION: Migrations, Mental Maps, and Make Modernization

Why Do Migrations Fail and What Can We Do About It?

Gong Zhang and Ling Liu, *Georgia Institute of Technology*

Provenance for System Troubleshooting

Marc Chiarini, *Harvard University*

Debugging GNU Makefiles with Remake

Rocky Bernstein, *GNU*

WEDNESDAY: The Guru Is In

11:00 a.m.–12:30 p.m.

Security

Matt Disney, *Oak Ridge National Laboratory*

2:00 p.m.–3:30 p.m.

IPv6

Wen DeLong, *Hurricane Electric*

4:00 p.m.–5:30 p.m.

Panel: Women in Tech

Moderator: Lois Bennett

Panelists: Carolyn Rowland, *National Institute of Standards and Technology (NIST)*; **Deb Nicholson**, *MediaGoblin*; **Máirín Duffy**, *Red Hat, Inc.*

THURSDAY: The Guru Is In

10:45 a.m.–12:45 p.m.

Documentation

Janice Gelb, *Oracle Corporation*

Running PHP

Dimitri Aivaliotis, *EveryWare Ltd*

2:00 p.m.–3:00 p.m.

Time Management

Thomas A. Limoncelli, *Google NYC*

3:30 p.m.–5:30 p.m.

ITIL

Jeanne Schock

Chef

Aaron Peterson, *Opscode, Inc.*

FRIDAY: The Guru Is In

9:00 a.m.–10:30 a.m.

SELinux

Dan Walsh, *Red Hat, Inc.*

11:00 a.m.–12:30 p.m.

Cloud Computing and *aaS

David Nalley, *CloudStack*

2:00 p.m.–3:30 p.m.

TBA



CONFERENCE ORGANIZERS

Program Co-Chairs

Thomas A. Limoncelli, *Google, Inc.*
Doug Hughes, *D.E. Shaw Research, LLC.*

Program Committee

Narayan Desai, *Argonne National Lab*
Andrew Hume, *AT&T Labs—Research*
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Tim Nelson, *Worcester Polytechnic Institute*
Mario Obejas, *Raytheon*
Mark Roth, *Google, Inc.*
Carolyn Rowland, *National Institute of Standards and Technology (NIST)*
Federico D. Sacerdoti, *Aien Capital & Aien Technology*
Marc Stavely, *Consultant*
Nichole Forsgren Velasquez, *Pepperdine University*
Avleen Vig, *Etsy, Inc.*
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The USENIX Association Staff

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. Membership offers you a variety of sysadmin information, including focused content in each issue, as well as a sysadmin-dedicated issue of *login.*; the USENIX Magazine; the USENIX Jobs Board; and more. Also, USENIX is on the forefront of open access, having offered free online access to conference proceedings since 2008. **New!** All videos of technical session presentations are open to everyone. Join USENIX today to advance your career and help support open access to research and technical content.

[sage]

SAGE is the USENIX SIG for sysadmins.

Created by and

for sysadmins, SAGE focuses on evolving best practices and technology. Membership benefits include:

- Discount on registration for LISA
- A free Short Topics in System Administration book every year, discounts on all Short Topics books, and access to the Short Topics online library
- The option to join the sage-members mailing list for peer discussion and advice
- **Coming Soon!** Immediate access to the results of the latest SAGE Salary Survey
- Access to the SAGE Jobs Board, including the ability to post resumes

TRAINING SERIES ARE BACK AGAIN FOR 2011!

LISA is again offering a series of classes focusing on some of the most important topics you'll encounter. The Virtualization Series offers both new and repeat classes that provide the latest virtualization information. The Linux Security and Administration Series offers in-depth Linux training. Finally, the SuperSysadmin Series showcases techniques for time and project management, raising your visibility, and other key skills to take your career the next level. Save time by getting your specialized training in one place at one time! See pp. 14-26 for descriptions of the tutorials in each series, which are denoted by icons. Follow the icons and discover the series.

VIRTUALIZATION

- S1 NEW!** VMware vCloud Overview and Design Considerations
(*Arrasjid and Lin*)
- M6 NEW!** Prerequisites for the Cloud (*Nalley*)
- M9 NEW!** Building Appliances for Fun and Profit (*Sellens*)
- M11 NEW!** VMware vShield and Networking Deep Dive
(*Camacho and Rajani*)
- T5 NEW!** Introduction to Cloud Storage (*Carter*)
- W1** Using Amazon Web Services (*LeFebvre and Staveley*)



Virtualization

LINUX SECURITY AND ADMINISTRATION

- M2** Securing Linux Servers (*Farrow*)
- T1 NEW!** SELinux (Security-Enhanced Linux) (*Farrow*)
- T4 NEW!** Real-World Insights on How to Secure and Route
Your Linux Network (*Faulkner*)
- T12** Recovering From Linux Hard Drive Disasters (*Ts'o*)
- W3** Pacemaker and Linux-HA (*Robertson*)
- R1** Administering Linux in Production Environments (*Frisch*)
- R3 NEW!** High-Availability Linux Clustering with ricci and luci (*Jensen*)
- F1** Linux Performance Tuning (*Ts'o*)



SUPERSYSADMIN

- S6 UPDATED!** Time Management for System Administrators
(*Limoncelli*)
- S11 UPDATED!** Advanced Time Management: Team Efficiency
(*Limoncelli*)
- M3 NEW!** Workplace Presentations 101 for System
Administrators (*Moskowitz*)
- M7 NEW!** The Limoncelli Test (*Limoncelli*)
- T7** A Sysadmin's Guide to Navigating the Business World
(*Burgess and Rowland*)
- T8** Documentation Techniques for Sysadmins (*Ciavarella*)





SUNDAY, DECEMBER 4

Full Day: 9:00 a.m.–5:00 p.m.

- S1** **NEW!** VMware vCloud Overview and Design Considerations (*Arrasjid and Lin*) ●

Half Day Morning: 9:00 a.m.–12:30 p.m.

- S2** **NEW!** DNS: A High-Speed Introduction (*Clegg*)
- S3** **NEW!** OpenVPN: Your Next VPN Solution (*van Druenen*)
- S4** Databases: What You Need to Know (*Sellens*)
- S5** RRDtool First Steps (*Oetiker*)
- S6** Time Management for System Administrators (*Limoncelli*) ●

Half Day Afternoon: 1:30 p.m.–5:00 p.m.

- S7** **NEW!** DNSSEC Implementation Overview (*Clegg*)
- S8** **NEW!** Sensors and Sensor Networks: An Introduction (*van Druenen*)
- S9** **NEW!** RPM Packaging for Sysadmins (*Nalley*)
- S10** RRDtool Advanced Topics (*Oetiker*)
- S11** Advanced Time Management: Team Efficiency (*Limoncelli*) ●

MONDAY, DECEMBER 5

Full Day: 9:00 a.m.–5:00 p.m.

- M1** Configuration Management Solutions with Cfengine 3 (*Burgess*)
- M2** Securing Linux Servers (*Farrow*) ●

Half Day Morning: 9:00 a.m.–12:30 p.m.

- M3** **NEW!** Workplace Presentations 101 for System Administrators (*Moskowitz*) ●
- M4** Nagios: Advanced Topics (*Sellens*)
- M5** **NEW!** Perl 5 Update (*Oetiker*)
- M6** **NEW!** Prerequisites for the Cloud (*Nalley*) ●
- M7** **NEW!** The Limoncelli Test (*Limoncelli*) ●

MONDAY, DECEMBER 5 (continued)

Half Day Afternoon: 1:30 p.m.–5:00 p.m.

- M8** **NEW!** Getting Started with the Roundup Issue Tracker (*Ciavarella and Rouillard*)
- M9** **NEW!** Building Appliances for Fun and Profit (*Sellens*) ●
- M10** **NEW!** Perl 6 for Perl Users and Sysadmins (*Oetiker*)
- M11** **NEW!** VMware vShield and Networking Deep Dive (*Camacho and Rajani*) ●
- M12** Monitoring Servers, Networks, and Lunchrooms with Zenoss (*Nalley*)

TUESDAY, DECEMBER 6

Full Day: 9:00 a.m.–5:00 p.m.

- T1** SELinux (Security-Enhanced Linux) (*Farrow*) ●

Half Day Morning: 9:00 a.m.–12:30 p.m.

- T2** Advanced Shell Programming (*Ciavarella*)
- T3** Backups, Archiving, and Life Cycle Management (*Farmer*)
- T4** Real-World Insights on How to Secure and Route Your Linux Network (*Faulkner*) ●
- T5** **NEW!** Introduction to Cloud Storage (*Carter*) ●
- T6** **NEW!** Exploring Rsyslog (*Disney*)
- T7** A Sysadmin's Guide to Navigating the Business World (*Burgess and Rowland*) ●



TUESDAY, DECEMBER 6 (continued)

Half Day Afternoon: 1:30 p.m.-5:00 p.m.

- T8** Documentation Techniques for Sysadmins (*Ciavarella*) ●
- T9** **FULLY REVISED FOR 2011!** Next-Generation Storage Networking (*Farmer*)
- T10** **NEW!** Techniques for Managing Huge Amounts of Data (*Elling*)
- T11** Wireshark and the Art of Debugging Networks (*Carter*)
- T12** Recovering from Linux Hard Drive Disasters (*Ts'o*) ●
- T13** **NEW!** Using and Migrating to IPv6 (*Huque*)

WEDNESDAY, DECEMBER 7

Full Day: 9:00 a.m.-5:00 p.m.

- W1** Using Amazon Web Services (*LeFebvre and Staveley*) ●
- W2** ZFS: A Filesystem for Modern Hardware (*Elling*)
- W3** Pacemaker and Linux-HA (*Robertson*) ●
- W4** Solaris Dynamic Tracing (DTrace) (*Mauro*)

THURSDAY, DECEMBER 8

Full Day: 9:00 a.m.-5:00 p.m.

- R1** Administering Linux in Production Environments (*Frisch*) ●
- R2** **NEW!** A Day Over the Edge in System Administration (*Blank-Edelman*)
- R3** **NEW!** High-Availability Linux Clustering with ricci and luci (*Jensen*) ●

FRIDAY, DECEMBER 9

Full Day: 9:00 a.m.-5:00 p.m.

- F1** Linux Performance Tuning (*Ts'o*) ●
- F2** **NEW!** The Python Programming Language (*Beazley*)
- F3** **NEW!** Puppet (*Liu*)

TRAINING PROGRAM REGISTRATION INCLUDES:

- Admission to the tutorials you select
- Lunch on the days of your tutorials
- Training program materials and Conference Proceedings loaded on a 4GB USB drive
- 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 the conference session area

OUR GUARANTEE

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 immediately change you to any other available tutorial.

WANT MORE INFO?

Please see www.usenix.org/lisa2011 for comprehensive tutorial descriptions, including full topics lists, prerequisites, and laptop/system requirements.

BACK FOR 2011! SERIES ON VIRTUALIZATION, LINUX, AND SOLARIS

LISA is again offering series of classes focusing on three of the most important topics you'll encounter. Follow the icons and complete the series.



Virtualization

Linux

SuperSysadmin



S1 VMware vCloud Overview and Design Considerations **NEW!**

John Arrasjid and Ben Lin,
VMware

Who Should Attend

● Full Day

System administrators and architects who are interested in deploying a VMware vCloud. Experience with VMware vSphere, VMware Chargeback, and Distributed Virtual Switches is preferred.

Take Back to Work

The knowledge needed to deploy a VMware Cloud for use as an enterprise private cloud.

Topics Include

- VMware vCloud core concepts and features
- vCloud architecture design considerations
- vCloud architecture design patterns and best practices
- Demonstration of vCloud features

S2 DNS: A High-Speed Introduction **NEW!**

Alan Clegg, ISC

Who Should Attend

● Half Day AM

Sysadmins and network engineers who are tasked with providing DNS services.

Take Back to Work

What you need to know to maintain or upgrade your site's DNS configuration; how to set up DNS from scratch for a new domain or network.

Topics Include

- Zone file contents
- What makes a good zone (including "Do you really need PTR records?")
- Server configuration "gotchas"
- Debugging the beast
- Special topic: Oh yeah, IPv6!

S3 OpenVPN: Your Next VPN Solution **NEW!**

Rudi van Drunen, Competa IT

Who Should Attend

● Half Day AM

System administrators involved in designing or managing networks using VPNs.

Take Back to Work

Ideas and ready-to-use recipes for immediate, effective deployment of OpenVPN in your network; how to explain to management why to choose OpenVPN and to demonstrate its ease of use and integration.

Topics Include

- VPN technologies overview
- The OpenVPN architecture
- Setting up OpenVPN
- Authentication and authorization
- IP vs. Ethernet operation
- Integration with OSes and GUI clients
- Common errors and how to avoid them

S4 Databases: What You Need to Know

John Sellens, SYONEX

Who Should Attend

● Half Day AM

System and application administrators who need to support databases and database-backed applications.

Take Back to Work

A better understanding of databases and their use and of how to deploy and support common database software and database-backed applications.

Topics Include

- Common applications of databases
- Security, user management, access controls
- Ad hoc queries with standard interfaces
- ODBC and other access methods



- Berkeley DB and its applications
- MySQL and PostgreSQL installation, configuration, and management

S5 RRDtool First Steps

Tobias Oetiker, *Consultant and author of RRDTool*

Who Should Attend

🕒 Half Day AM

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
- Latest developments

S6 Time Management for System Administrators

Thomas A. Limoncelli, *Google*

Who Should Attend

🕒 Half Day AM

Sysadmins and developers who need more time in their day, who have problems getting projects done because of constant interruptions, or who want more control over their time and the ability to schedule work instead of working at the whim of their users.

Take Back to Work

The skills you need to get more done in less time.

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 to eliminate “I forgot” from your vocabulary

- Batching, sharding, and multitasking
- Handling the most difficult days

S7 DNSSEC Implementation Overview **NEW!**

Alan Clegg, *ISC*

Who Should Attend

🕒 Half Day PM

System administrators and network engineers who are knowledgeable about DNS and have been asked by their managers to deploy DNSSEC.

Take Back to Work

A thorough understanding of what you need to know and do to deploy DNSSEC in your organization.

Topics Include

- Determination of needs
- Hardware overview
- Deployment considerations
- Evaluating signing requirements
- Testing the system

S8 Sensors and Sensor Networks: An Introduction **NEW!**

Rudi van Drunen, *Competa IT*

Who Should Attend

🕒 Half Day PM

Administrators who want to monitor their machine rooms and are interested in designing a sensor network.

Take Back to Work

Knowledge of the innards of sensor networks and a recipe for integrating sensor nodes into your monitoring environment.

Topics Include

- Measuring physical parameters
- Some basic electronics
- Software and networking
- Power considerations
- What to do with the data

S9 RPM Packaging for Sysadmins **NEW!**

David Nalley, *Cloud.com*

Who Should Attend 1 Half Day PM

System administrators with a modicum of experience who have an interest in further automating their environments and advanced sysadmins who have little or no experience with packaging.

Take Back to Work

An understanding of the benefits of packaging and the ability to use the techniques learned to begin packaging immediately.

Topics Include

- Why package software?
- Packaging's serendipitous benefits
- How to package software
- Tools to make packaging less painful

S10 RRDtool Advanced Topics

Tobias Oetiker, *Consultant and author of RRDTool*

Who Should Attend 1 Half Day PM

Sysadmins who may only have accessed RRDtool through some front-end application such as Cacti or Cricket and would like to get a look under the hood.

Take Back to Work

How to use RRDtool directly to handle time-series data in the networking area.

Topics Include

- The RRD database format
- How to set up an RRD performance test
- RRD graphing
- Putting it together: Scripting interface and the graphv, updatev, and info interfaces

S11 Advanced Time Management: Team Efficiency

Thomas A. Limoncelli, *Google*

Who Should Attend 1 Half Day PM

All sysadmins who want to collaborate efficiently within their team and with others (even solo sysadmins will benefit!).

Take Back to Work

Techniques to help your IT team work better, faster, and more transparently.

Topics Include

- Managing meetings
- Making email help instead of hinder
- How to get your co-workers to go along with your awesome ideas
- Working better together using collaborative documents





M1 Configuration Management Solutions with Cfengine 3

Mark Burgess, *Cfengine, Inc.*

Who Should Attend ● Full Day

Anyone with a basic knowledge of configuration management who is interested in learning the next-generation tool.

Take Back to Work

An understanding of the new features of the completely rewritten Cfengine 3, including its new syntax and benefits.

Topics Include

- Moving from ad hoc scripts to automation
- The Promise model
- Quickstart configuration
- Creating configuration libraries
- Example configurations and demos
- Cfengine on Windows and the Registry
- Monitoring and self-healing



M2 Securing Linux Servers

Rik Farrow, *Security Consultant*

Who Should Attend ● Full Day

Linux system administrators and security managers familiar with Linux system administration, whether you manage a handful or clusters of Linux systems.

Take Back to Work

Techniques for securing and maintaining Linux servers.

Topics Include

- Minimizing risk with appropriate restrictions
- Managing and tracking application vulnerabilities
- Sandboxing to prevent attacks
- Monitoring logfiles
- Updates and configuration management

M3 Workplace Presentations 101 for System Administrators **NEW!**

Adam Moskowitz

Who Should Attend ● Half Day AM

All sysadmins and IT professionals.

Take Back to Work

An introduction to basic speaking techniques, an overview of presentation tools and how best to use them, and a solid understanding of the most common mistakes presenters make.

Topics Include

- Analyzing the requirements for your presentation
- Preparing your materials
- Practicing your talk
- Giving your talk

M4 Nagios: Advanced Topics

John Sellens, *SYONEX*

Who Should Attend ● Half Day AM

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 the advanced features of Nagios and related tools for monitoring systems and devices on your networks.

Topics Include

- Theory of operation
- Configuration for more complex environments
- Plug-ins: Their creation, use, and abuse
- Extensions: NRPE, NSCA, NDOutils
- Add-ons: Graphing, integration with other tools
- Abuse: Unexpected uses and abuses of Nagios

M5 Perl 5 Update **NEW!**

Tobias Oetiker, *Consultant and author of RRDTOol*

Who Should Attend

 Half Day AM

People who would like to update their knowledge of Perl to include all the goodies that have been added over the past few years.

Take Back to Work

The ability to use new Perl 5 features for implementation efficiency and hacking fun.

Topics Include

- How to install Perl 5.14 without breaking things
- Perl 6 features already available in Perl 5
- Object-oriented Perl programming with Moose and Mouse
- Writing Web applications with Mojolicious



M6 Prerequisites for the Cloud **NEW!**

David Nalley, *Cloud.com*

Who Should Attend

 Half Day AM

Sysadmins who don't have a plan for the cloud but expect to need one.

Take Back to Work

How to deploy the cloud without undue pain and which additional tools to use to reduce your work.

Topics Include

- What is the cloud?
- Benefits of cloud computing
- Tools you'll need before you start
- Where your clouds reside

M7 The Limoncelli Test **NEW!**

Thomas A. Limoncelli, *Google*

Who Should Attend

 Half Day AM

Sysadmins working on teams or solo; junior sysadmins aiming to be senior sysadmins or team leaders.

Take Back to Work

How to identify and fix your biggest problems, cross-train your team, strengthen your systems—and more!

Topics Include

- Improving sysadmin-user interaction
- Best practices for working together as a team
- Best practices for Service Operations
- Sustainable Enterprise fleet (desktop/laptop) management

M8 Getting Started with the Roundup Issue Tracker **NEW!**

Mike Ciavarella, *Coffee Bean Software Pty Ltd*; **John Rouillard**, *Consultant*

Who Should Attend

 Half Day PM

Sysadmins who work alone or in a group where tasks get lost, or who want to be able to identify patterns in problems to use their time effectively.

Take Back to Work

An understanding of the Roundup architecture and how to modify and extend Roundup.

Topics Include

- Setting up and installing Roundup
- Actions in Roundup: Auditors and reactors
- Templates
- Roles, permissions, and workflows



M9 Building Appliances for Fun and Profit *NEW!*

John Sellens, *SYONEX*

Who Should Attend  Half Day PM

System administrators and architects who are interested in building and deploying self-contained appliance-style systems, using virtualization or dedicated hardware.

Take Back to Work

The knowledge needed to design, implement, and maintain appliance systems for your applications.

Topics Include

- Advantages of appliance-style computing
- Virtual platforms
- Hardware platforms
- Tools
- Configuring for light weight and resiliency

M10 Perl 6 for Perl Users and Sysadmins *NEW!*

Tobias Oetiker, *Consultant and author of RRRTool*

Who Should Attend  Half Day PM

People who work with Perl and would like to try their hand at working with a real implementation of Perl 6.

Take Back to Work

The ability to harness Perl 6 to solve problems with less effort and more fun than ever before.

Topics Include

- Getting Rakudo up and running
- Perl 6 basic concepts
- Perl 5 to Perl 6 feature match
- Object-oriented programming in Perl 6
- Perl 6 one-liners
- Cool Perl 6 features you can use to impress your friends and frighten your enemies

M11 VMware vShield and Networking Deep Dive *NEW!*

Carlos Camacho and Mahesh Rajani, *VMware*

Who Should Attend  Half Day PM

System administrators and architects who are interested in digging into VMware networking technologies, with a specific focus on the VMware vShield suite.

Take Back to Work

The ability to design, install, and configure vShield products to address real-world issues.

Topics Include

- VMware vSphere and vCloud networking
- vShield products
- Architecture design considerations and tradeoffs
- Demonstration of the technologies

M12 Monitoring Servers, Networks, and Lunchrooms with Zenoss

David Nalley, *Cloud.com*

Who Should Attend  Half Day PM

Sysadmins and managers evaluating Zenoss as a monitoring platform or nascent in their exploration of systems/network monitoring.

Take Back to Work

A good grasp of the basics of Zenoss and monitoring theory and the ability to put this information to use immediately, along with a rudimentary understanding of some of the more esoteric features Zenoss offers.

Topics Include

- Monitoring theory
- Zenoss capabilities
- Installing Zenoss
- Ways to jumpstart monitoring
- Deep inspection of monitoring capabilities
- Dealing with the information/alerts



T1 SELinux (Security-Enhanced Linux)

Rik Farrow, *Security Consultant*

Who Should Attend

● Full Day

Linux system administrators and security managers who want or are required to use SELinux.

Take Back to Work

The ability to run Linux servers and desktops with SELinux enabled and to modify policy to handle configurations not supported by the default policy.

Topics Include

- SELinux uncloned
- Using the audit file
- Adjusting file/directory context
- Using Booleans to adjust policy
- Extending policy

T2 Advanced Shell Programming

Mike Ciavarella, *Coffee Bean Software Pty Ltd*

Who Should Attend

● Half Day AM

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

Take Back to Work

An understanding of how to use the “lowly” shell to achieve lofty goals.

Topics Include

- Common mistakes and unsafe practices
- Modular shell script programming
- Writing secure shell scripts
- Performance tuning
- When not to use shell scripts

T3 Backups, Archiving, and Life Cycle Management

Jacob Farmer, *Cambridge Computer Services*

Who Should Attend

● Half Day AM

System administrators involved in the design and management of backup systems and policymakers responsible for protecting their organization’s data.

Take Back to Work

Ideas for immediate, effective, inexpensive improvements to your backup systems and a vision for how you might deploy a lifecycle management system that fits your organization.

Topics Include

- Formulating strategies
- Identifying and addressing bottlenecks
- Deduplication: hype and reality
- Object-based storage models
- Self-healing and self-protecting systems
- Leveraging the cloud



T4 Real-World Insights on How to Secure and Route Your Linux Network

Jay Faulkner, *Rackspace*

Who Should Attend

● Half Day AM

Anyone who wants to understand the ins and outs of networking on Linux.

Take Back to Work

Ways to expertly secure and route your Linux servers on an IP network.

Topics Include

- Basic network configuration
- Network troubleshooting tools
- Firewalls
- IPv6 tunnelling
- Multiple ISPs



T5 Introduction to Cloud Storage **NEW!**

Gerald Carter, *Likewise Software*

Who Should Attend

🕒 Half Day AM

Administrators and developers looking for answers about cloud storage providers, APIs, and end-user devices.

Take Back to Work

An understanding of what cloud storage is and is not, as well as ways to leverage both private and public storage offerings in your network.

Topics Include

- Object storage
- Differences among cloud storage providers
- Software development interfaces
- Cloud storage gateways
- Security concerns

T6 Exploring Rsyslog **NEW!**

Matt Disney, *Oak Ridge National Laboratory*

Who Should Attend

🕒 Half Day AM

Administrators wanting to learn more about rsyslog or facing the challenge of reliable logging and event management in UNIX/Linux environments.

Take Back to Work

An understanding of the capabilities of rsyslog and related analysis tools, along with examples to assist implementation.

Topics Include

- Reliability features
- Encryption
- Logging to databases
- Log/data management
- Tools for event correlation, analysis, and notification



T7 A Sysadmin's Guide to Navigating the Business World

Mark Burgess, *Cfengine*;
Carolyn Rowland, *NIST*

Who Should Attend

🕒 Half Day AM

IT people and sysadmins interested in taking their career to the next level, improving their relationship with senior management, and increasing their value and marketability.

Take Back to Work

Skills to help you develop a productive relationship with your management.

Topics Include

- Empowering management to make good IT decisions
- How to show management the value of your work
- How to convince management of the importance of time for R&D
- How to develop a collaborative relationship with your management



T8 Documentation Techniques for Sysadmins

Mike Ciavarella, *Coffee Bean Software Pty Ltd*

Who Should Attend

🕒 Half Day PM

System administrators who need to produce documentation for the systems they manage.

Take Back to Work

The ability to make immediate, practical use of these documentation techniques.

Topics Include

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

T9 Next-Generation Storage Networking **FULLY REVISED FOR 2011!**

Jacob Farmer, *Cambridge Computer Services*

Who Should Attend  Half Day PM

Sysadmins running day-to-day operations and those who set or enforce budgets.

Take Back to Work

An understanding of modern storage architectures, various approaches to scaling both performance and capacity, and a framework for comparing and contrasting various types of storage solutions.

Topics Include

- The storage I/O path
- Shortcomings of conventional SAN and NAS architectures
- Content-addressable storage
- Leveraging the cloud for primary storage
- Application acceleration with SSDs

T10 Techniques for Managing Huge Amounts of Data **NEW!**

Richard Elling, *Nexenta Systems*

Who Should Attend  Half Day PM

Storage administrators and systems architects faced with ever-increasing mountains of data to store.

Take Back to Work

Tips, tricks, and traps involved in implementing and managing huge amounts of data.

Topics Include

- Introduction to storage technologies
- When good data goes bad
- Replication technologies
- Capacity planning and performance
- Tips for managing user expectations

T11 Wireshark and the Art of Debugging Networks

Gerald Carter, *Likewise Software*

Who Should Attend  Half Day PM

System and network administrators who are interested in learning more about the TCP/IP protocol and how network traffic monitoring and analysis can be used as a debugging, auditing, and security tool.

Take Back to Work

How to use Wireshark to determine and correct network application issues.

Topics Include

- Introduction to Wireshark/Ethereal for local and remote network tracing
- TCP/IP protocol basics
- Analysis of popular application protocols
- Some TCP/IP network attacks and how to recognize them



T12 Recovering From Linux Hard Drive Disasters

Theodore Ts'o, *Google*

Who Should Attend  Half Day PM

Linux system administrators and users.

Take Back to Work

How to recover from storage disasters caused by failures somewhere in the hardware or software stack.

Topics Include

- Recovering from a corrupted partition table and from failed software RAID systems
- How to recover data when backups aren't available
- Using e2fsck and debugfs to sift through a corrupted filesystem
- Preventive measures to avoid needing to use heroic measures



T13 Using and Migrating to IPv6 **NEW!**

Shumon Huque, *University of Pennsylvania*

Who Should Attend

🕒 Half Day PM

System administrators, network administrators, and application developers who need to prepare for migration to IPv6 and anyone who wants a general introduction to IPv6 and what is involved in deploying it.

Take Back to Work

An understanding of IPv6 and the basic knowledge to begin designing and deploying IPv6 networks, systems, and applications.

Topics Include

- IPv6 addressing
- Protocol details
- Neighbor discovery
- DHCPv6
- DNS
- Tunnelling protocols
- Survey of transition mechanisms.

DON'T FORGET YOUR LAPTOP!

Training materials will be provided to you on a 4GB USB drive. If you'd like to access them during your class, please remember to bring a laptop. There will be several print stations in the Laptop Lounge, should you prefer to print your materials prior to your class.





W1 Using Amazon Web Services

William LeFebvre and Marc Staveley, *Consultants*

Who Should Attend

● Full Day

System administrators who currently use or are considering the use of Amazon Web Services (AWS), as well as individuals who are tasked with supporting AWS for production services.

Take Back to Work

Knowledge of the techniques, pitfalls, commands, and programs that will help you make effective use of the Amazon cloud.

Topics Include

- Introduction to AWS
- Elastic Compute Cloud (EC2)
- Elastic Block Store (EBS)
- Simple Storage Service (S3)
- Elastic Load Balancing (ELB)
- Relational Database Service (RDS)

W2 ZFS: A Filesystem for Modern Hardware

Richard Elling, *Enterprise Systems Consultant*

Who Should Attend

● Full Day

Systems engineers, integrators, and administrators who are interested in deploying ZFS on Solaris, Mac OS X, or FreeBSD.

Take Back to Work

A solid understanding of the concepts behind ZFS and how to make the best decisions when implementing storage at your site.

Topics Include

- Evolution of hardware and file systems
- Storage pools
- Data sets
- Practical considerations and best practices



W3 Pacemaker and Linux-HA

Alan Robertson, *IBM Linux Technology Center*

Who Should Attend

● Full Day

System administrators 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 and Pacemaker.

Topics Include

- General HA principles
- Installation and configuration
- Commonly used resource agents
- Managing services supplied with init(8) scripts
- Creating co-location constraints
- Causing failovers on user-defined conditions

W4 Solaris Dynamic Tracing (DTrace)

James Mauro, *Oracle Corporation*

Who Should Attend

● Full Day

Sysadmins and other production support staff that need to figure out what systems are doing or why they're running slowly.

Take Back to Work

How to use DTrace to understand the behavior of your systems and the workloads they run, whether you're chasing a performance problem or pathological behavior or you simply wish to better understand how applications are using the underlying system.

Topics Include

- Introduction to DTrace
- DTrace components
- DTrace in open source software
- DTrace advanced topics



R1 Administering Linux in Production Environments

Aleen Frisch, *Exponential Consulting*

Who Should Attend

● Full Day

Both current Linux system administrators and administrators from sites considering converting to Linux or adding Linux systems to their current computing resources.

Take Back to Work

The knowledge necessary to add reliability and availability to your systems and to assess and implement tools needed for production-quality Linux systems.

Topics Include

- Recent kernel developments
- High-performance I/O
- Enterprise-wide security features, including centralized authentication
- Automation techniques and facilities
- Linux performance tuning

R2 A Day Over the Edge in System Administration **NEW!**

David N. Blank-Edelman, *Northeastern University*

Who Should Attend

● Full Day

Old-timers who think they've already seen it all and those who want to develop inventive thinking early in their career.

Take Back to Work

New approaches to old problems, along with some ways to solve the insolubles.

Topics Include

- How to (ab)use perfectly good network transports by using them for purposes never dreamed of by their authors
- How to improve your network services by intentionally throwing away data
- How Powerpoint karaoke can make you a better sysadmin



R3 High-Availability Linux Clustering with ricci and luci **NEW!**

Joshua Jensen, *Cisco Systems*

Who Should Attend

● Full Day

Linux administrators who are planning on implementing a multi-service fail-over cluster implementation in a production environment.

Take Back to Work

The knowledge and ability to create and administer highly available services and filesystems on a Linux cluster.

Topics Include

- Linux HA Cluster technology: Corosync, OpenAIS, rgmanager, Conga
- Data management with shared disk implementations
- Node fencing with STONITH
- Clustered logical volume management.
- Service management with failover domains
- Virtual machines as a cluster service
- Working with cluster-unaware services





F1 Linux Performance Tuning

Theodore Ts'o, *Google*

Who Should Attend

● Full Day

Intermediate and advanced Linux system administrators who want to understand their systems better and get the most out of them.

Take Back to Work

The ability to hone your Linux systems for the specific tasks they need to perform.

Topics Include

- Strategies for performance tuning
- Memory usage tuning
- Filesystem and storage tuning
- NFS performance tuning
- Network tuning
- Profiling
- Memory cache and TLB tuning
- Application tuning strategies

F2 The Python Programming Language **NEW!**

David Beazley, *Dabeaz LLC*

Who Should Attend

● Full Day

Programmers who want to know what Python is all about and how it can be applied to a variety of practical problems.

Take Back to Work

A better understanding of what makes Python tick and how it can be successfully applied to real-world problems.

Topics Include

- Basic components of Python
- Object-oriented programming
- Major library modules
- Practical Programming Examples

F3 Puppet **NEW!**

Nan Liu, *Puppet Labs*

Who Should Attend

● Full Day

System administrators who are interested in deploying Puppet to subdue the chaos in their infrastructure.

Take Back to Work

A thorough understanding of what you need to know and do to deploy Puppet in your organization.

Topics Include

- Describing system state via Puppet Resource
- Organizing resources in Puppet modules with classes and defines
- Writing custom facts and functions
- Deploying Puppet master and Dashboard

CONTINUING EDUCATION UNITS

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

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



John Y. Arrasjid
S1

John Y. Arrasjid is a Principal Architect at VMware, specializing in cloud computing, virtualization, business continuity, and disaster recovery. John wrote *Cloud Computing with VMware vCloud Director*, *Foundation for Cloud Computing with VMware vSphere 4*, and *Deploying the VMware Infrastructure*, all published by the USENIX Association, where he is a Board of Directors member at large. John is a VMware Certified Professional (VCP) and one of the first VMware Certified Design Experts (VCDX 001).



David Beazley
F2

David Beazley is the author of *Python Essential Reference* and has been an active member of the Python community since 1996. He is most widely known for creating several Python-related open-source packages, including SWIG and PLY. In the 1990s, he helped pioneer the use of Python on massively parallel supercomputers. Dave is currently the owner of Dabeaz LLC, a company specializing in Python software development and training courses.



David N. Blank-Edelman
R2

David N. Blank-Edelman is the director of technology at the Northeastern University College of Computer and Information Science and the author of *Automating System Administration with Perl*. He has spent the past 25+ years as a system/network administrator in large multi-platform environments. He was the program chair of the LISA '05 conference. David is honored to have been the recipient of the 2009 SAGE Outstanding Achievement Award and to serve on the USENIX Board of Directors.



Mark Burgess
M1, T7

Mark Burgess is Professor of Network and System Administration at Oslo University College, Norway and CTO of Cfengine AS. He is the author of the configuration management system Cfengine and of several books and many papers on the topic, including the USENIX Short Topics in System Administration booklet *A System Engineer's Guide to Host Configuration and Maintenance Using Cfengine*, co-authored with Aileen Frisch.



Carlos Camacho
M11

Carlos Camacho is Senior Member of Technical Staff at VMware in the Networking & Security Solutions group. His current focus is on implementation, design, and testing of networking and security technologies to develop innovative virtualization solutions for customers. He has been in the IT and Telecommunications industry for over 13 years. Carlos is also the point of contact for providing engineering-level escalation support for VMware vShield products.



Gerald Carter
T5, T11

Gerald Carter is CTO for Likewise Software. He is heavily involved in Likewise's open source initiative to simplify integration into Microsoft-dominated networks. He has been developing, writing about, and teaching on Open Source since the late 1990s. He was a member of the Samba core development team from 1998 to 2009 and has authored both *LDAP System Administration* and the third edition of *Using Samba*. He has served on the Usenix Association's Board of Directors.



Mike Ciavarella
M8, T2, T8

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. Since 1991, Mike has made a point of actively promoting documentation and security as fundamental aspects of system administration. He has been a technical editor for MacMillan Press, has lectured in software engineering at the University of Melbourne (his alma mater), and has provided expert testimony in a number of computer security cases.



Alan Clegg
S2, S7

Alan Clegg has provided support for and management of Internet-facing systems for over 20 years and has provided tailored learning experiences to corporations and at conventions and meetings (BSDcon, InfraGard, HTCIA) around the globe. Since joining the Internet Systems Consortium staff in 2007, Alan has been creating and providing workshops and training for ISC customers and users. These trainings include a 5-day DNS and BIND class, a 3-day DNSSEC workshop and a 2-day ISC DHCP course.



Matt Disney
T6

Matt Disney is the team lead for cyber security administration in the National Center for Computational Sciences at Oak Ridge National Laboratory. He approaches security with the background of a system administrator and specializes in deployment automation, configuration management, workflow processes, and intrusion detection. Matt serves on the LOPSA Board of Directors.



Rudi van Drunen
S3, S8

Rudi van Drunen studied electronics engineering and met the UNIX OS and friends about 25 years ago on a DEC VAX. Nowadays he is CTO and senior UNIX infrastructure consultant at Competa IT in the Netherlands. 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.



Richard Elling
T10, W2

Richard Elling has been designing and building dependable, networked computer systems to solve complex problems for more than 25 years. He was an early adopter of ZFS and has developed benchmarks and analysis techniques for evaluation of data protection schemes and performability of systems. He wrote *Designing Enterprise Solutions with Sun Cluster 3.0* and many papers on dependable systems and performability. He contributes to the ZFS community and is the Director of Solution Engineering for Nexenta Systems.



Jacob Farmer
T3, T9

Jacob Farmer has authored numerous papers and articles and is a regular 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 serves as the publication's senior technical advisor. He has over 18 years of experience with storage technologies and is the CTO of Cambridge Computer Services.



Rik Farrow
M2, T1

Rik Farrow began working with UNIX system security in 1984. He taught his first security class in 1987. He has been a consultant since 1980 and has advised both firewall and intrusion detection companies in the design of their products. Rik has published books, one on UNIX security and the other on system administration. He wrote the "Network Defense" column for *Network Magazine* and is the Editor of *;login*.



Jason Faulkner
T4

Jason Faulkner, a network engineer for the email and applications division of Rackspace, is responsible for maintaining Linux firewalls and load balancers for millions of business email users. He is a member of LOPSA and an active contributor to the keepalived project. Outside of his daily responsibilities, he has maintained the computer history Web site oldos.org since 2003.



Aileen Frisch
R1

Aileen Frisch has been working as 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*. Aileen was the program committee chair for USENIX's 2003 Large Installation System Administration conference and is a frequent presenter at both USENIX and LISA events, as well as presenting classes for universities and corporations worldwide.



Shumon Huque
T13

Shumon Huque is the Director of Engineering, Research, and Development for the University of Pennsylvania's Networking & Telecommunications division and also serves as the Lead Engineer for the MAGPI GigaPoP. He is involved in network engineering, systems engineering, and the design and operation of key infrastructure services at Penn. Shumon has been running production IPv6 networks and services for almost a decade.



Joshua Jensen
R3

Joshua Jensen, until recently Cisco Systems' Lead Linux IT Engineer, is now a one-man IT shop for an autonomous project within Cisco focused on world domination. He has been Red Hat's first instructor, examiner, and RHCE. Working with Linux for the past 15 years and with Red Hat for 4 1/2 years, he wrote and maintained large parts of the Red Hat curriculum: Networking Services and Security, System Administration, Apache and Secure Web Server Administration, and the Red Hat Certified Engineer course.



William LeFebvre
W1

William LeFebvre is the Vice President of Technology and a partner in the consulting firm Digital Valence. For over four years William was a Technology Fellow at Turner Broadcasting; during that time he led planning and deployment of Web server infrastructure for high traffic events. William's column, "Daemons & Dragons," appeared in *UNIX Review's Performance Computing*, and he has served as Editor of the USENIX Short Topics in System Administration series. He was the program chair for LISA '06.



Thomas A. Limoncelli
S6, S11, M7

Thomas A. Limoncelli is an internationally recognized author, speaker, and system administrator. His best-known books include *Time Management for System Administrators* and *The Practice of System and Network Administration*. He received the 2005 SAGE Outstanding Achievement Award. He works at Google in NYC.



Adam Moskowitz
M3

Adam Moskowitz has been teaching since 1977, including classes in C and UNIX programming and UNIX system administration, as well as training the trainer. He has given tutorials at LISA, well as presenting talks at LISA and elsewhere. He has made presentations to his peers, to the executive management team, and to the whole company.



Ben Lin
S1

Ben Lin is a Senior Consultant in the VMware Cloud Services Group. He is a co-author of the Short Topics Series book *Cloud Computing with VMware vCloud Director*. He has been a developer and active participant in VMworld sessions and labs. He is a VMware Certified Professional (VCP) and a VMware Certified Design Expert (VCDX).



David Nalley
S9, M6, M12

David Nalley was a system administrator for 10 years and a consultant for 3 years. He is the community manager for the Cloud.com open source CloudStack project. In the Fedora Project, he is the maintainer of many software packages, a sponsor for new packagers, and on the Board. David writes on development, sysadmin, and Linux.



Nan Liu
F3

Nan Liu is a professional service engineer at Puppet Labs. He travels internationally to train users of Puppet and provide implementation and architectural consulting for some of the world's top IT companies which deploy Puppet to manage their infrastructure.



Tobias Oetiker
S5, S10, M5, M10

Tobias Oetiker is a system administrator and software developer. He writes most of his code in Perl and JavaScript. Tobi works for the Swiss Federal Institute of Technology. In his company, OETIKER+PARTNER AG, he applies open source projects to customer problems. Tobias received the 2006 SAGE Outstanding Achievement Award.



James Mauro
W4

James Mauro is a Principal Software Engineer for Oracle Corporation, where he works closely with Oracle customers on real performance issues, as well as on internal performance-related engineering projects. Jim co-authored *Solaris Internals* and *Solaris Performance and Tools*.



Mahesh Rajani
M11

Mahesh Rajani is a Consulting Architect at VMware. He has been in the IT industry over 15 years as developer, system administrator, and cloud architect. He is a VMware Certified Design Expert (VCDX-4).



Alan Robertson
W3

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 joined IBM's Linux Technology Center, where he works on Linux-HA full time. Before joining SuSE, he was a Distinguished Member of Technical Staff at Bell Labs. Alan is a frequent speaker at a variety of international open source and Linux conferences.



John Sellens
S4, M4, M9

John Sellens is the author of several USENIX papers, *login*: articles, and the Short Topics in System Administration book *System and Network Administration for Higher Reliability*. He is the proprietor of SYONEX and a member of the systems team at Magna International. Before that, he was the General Manager for Certainty Solutions, the Director of Network Engineering at UUNET Canada, and a staff member in computing and information technology at the University of Waterloo.



John Rouillard
M8

John Rouillard has been working in system administration since the early 1990s. His involvement with SEC started at version 1 in the early 2000s. His comments and needs drove a number of the features in the modern SEC. He presented a paper on using SEC at LISA '04 that has been referenced by people developing commercial correlation software. He continues to use SEC as a supplemental correlation engine for Nagios and is an active member of the SEC mailing list.



Marc Staveley
W1

Marc Staveley is now an independent consultant, applying his years of experience with UNIX development and administration to help clients with server consolidation and application migration projects. Previously Marc held positions at SOMA Networks, Sun Microsystems, NCR, and Princeton University. He is a frequent speaker on the topics of standards-based development, multi-threaded programming, system administration, and performance tuning.



Carolyn Rowland
T7

Carolyn Rowland currently leads a team of sysadmins at the National Institute of Standards and Technology (NIST). She focuses on raising the visibility of IT by aligning technology with business needs. She finds strength in service delivery, standardization, automation and cost control. Her team has distinguished itself as a leader in the development of new technology solutions that solve business and research problems across the NIST campus.



Theodore Ts'o
T12, F1

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

Join Your Peers for Three Days of Focused Discussion

Senior sysadmins will want to participate in one or more of these full- and half-day workshops. Attendance is limited for each workshop, which ensures a seminar-like atmosphere. To attend Workshops 3 and 6, you must be an accepted workshop attendee; see their descriptions for information about how to participate.

SUNDAY, DECEMBER 4

Workshop 1: Real World Configuration Management ● Full Day

Kent Skaar, *VMware*; **Narayan Desai**, *Argonne National Laboratory*

This workshop will cover configuration management processes in real-world settings. The focus will be on practical tactics that attendees can apply directly. Attendees will discuss the issues they face in their deployments and will compare their experiences and tactics with other attendees'. This workshop is a tool-agnostic discussion of practical issues; the discussion will be widely applicable, regardless of the configuration tool used. The focus will be on practical tactics that attendees can apply directly. Attendees should be sysadmins with a deployed configuration management system in place who want to talk with and learn from others on the subject.

Workshop 2: Monitoring Process and Implementation Solutions ● Full Day

Cindy Martin, *Los Alamos National Laboratory*

The area of cluster and network health monitoring provides ample opportunity for creative and diverse process and tool implementations. Attendees in this workshop will discuss the issues they face in their deployments and will compare their experiences and tactics with others. This workshop is a tool-agnostic discussion of practical issues; the discussion will be widely applicable. The focus will be on practical tactics that attendees can apply directly. Attendees should

be sysadmins with a deployed monitoring system in place who want to talk with and learn from others on the subject.

MONDAY, DECEMBER 5

Workshop 3: Aligning the Research Interests of System Administrators and CHIMIT Researchers ● Full Day

Nicole F. Velasquez, *Pepperdine University*; **Adam Moskowitz**

This workshop will be held in conjunction with the ACM Computer-Human Interaction for Management of Information Technology symposium. CHIMIT is the leading forum for discussing research on IT management with a focus on people, business, and technology. This workshop will provide an opportunity for discussions between CHIMIT researchers and experienced sysadmins. The expected outcomes include the identification of areas of future research, action plans, and future joint conference submissions for CHIMIT and/or LISA. Interested sysadmins should describe their interest in research and identify 2-3 key issues they would be interested in investigating in cooperation with researchers. Position papers should be sent to workshop@chimit.acm.org.

Workshop 4: HPC Compute Cluster

● Half Day AM

Clay England, *Oak Ridge National Laboratory*
Administering a compute cluster is a niche area. Challenges related to cluster management, customer usage, and specialized software present themselves. The topics will be based on the attendees' interest but may include OS deployment, software deployment, management tools, schedulers and resource managers, and customer issues. Attendees should be admins of a compute cluster or interested in administering this type of cluster. They should come prepared to discuss their admin experiences with this class of machine and the pros and cons of their existing cluster management tools.

Workshop 5: Security ● Full Day

Matt Disney, *Oak Ridge National Laboratory*

Information security is important to many system administrators, yet it is challenging to make security a high priority or to stay updated on this very wide and fluid topic. This workshop offers a personal and flexible venue for systems, security, and network administrators to discuss security challenges and experiences with other interested admins and experts. Discussion topics and potential presentations will depend on the interests of the attendees.

TUESDAY, DECEMBER 6

Workshop 6: Advanced Topics

● Full Day

Adam Moskowitz

This workshop, intended for very senior administrators, provides an informal round-table discussion of the problems facing system administrators today. Attendance is limited and based on acceptance of a position paper (plain ASCII, three paragraphs maximum); a typical paper covers what the author thinks is the most difficult or important issue facing system administrators today, why this is a problem, and why this problem is important. A more complete description of the workshop and information about position papers are available at <http://atw.menlo.com>. Position papers should be sent to lisa11ws-atw@usenix.org. Attendees are required to bring a laptop computer.

Workshop 7: Documentation for System Administrators ● Full Day

Janice Gelb, *Oracle Corporation*

This workshop is for sysadmins who would like to learn about producing documentation for their systems and processes or who would like to improve the documentation they produce. It will provide practical advice and encourage interactive discussion in the following areas: why organized and up-to-date system administration documentation will help make your job easier, how to

develop a documentation strategy, guidelines for writing documentation, common errors and how to avoid them, and group review of submitted documentation and suggestions for improvement.

Workshop 8: Teaching System Administration ● Full Day

Kyrre Begnum, *Oslo University College*

This workshop is for educators and practitioners who are interested in influencing the way we can better teach students to become good sysadmins. This year's topic is: "Skills from curriculum—How do we shape the next sysadmins?" We will focus on how standard engineering and computer science tracks can be modified in order to better facilitate the skills we expect in future sysadmins. What topics are important and what aren't? What should optional modules focus on? Our goal is to establish a set of recommendations for schools and teachers who want to offer system administration as a specialization to their students.

Workshop 9: Government and Military Computer System Administration

● Full Day

Andrew Seely, *Science Applications International Corporation*

This workshop is for sysadmins who have primary responsibility for computing systems owned by government or military agencies and for sysadmins who work in secure environments, deal with classified data, provide GOTS support, or deploy to military hot spots. This includes contractors, government civilians, vendors and suppliers, uniformed members, and anyone who has a direct hands-on support role in the government sector. The general focus will be US government and military systems, but interested non-US personnel are welcome to attend. Specific goals and topics will be solicited in advance from registered attendees in order to ensure a relevant and useful workshop. All discussions will be strictly unclassified.

December 7, 2011, noon–7:00 p.m.
December 8, 2011, 10:00 a.m.–2:00 p.m.

Don't Miss This Opportunity

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

Learn about cutting-edge 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!)

Looking for work? Many exhibitors come to LISA in search of new talent. Stop by the show floor and find out who's hiring.



Everyone Is Welcome!

The exhibition is open to the public. Register for a free pass at www.usenix.org/lisa2011.

Exhibit Hall Happy Hour

Sponsored by Oracle

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

LISA '11 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.
- Expand your visibility among recognized leaders of the system, network, and security administration communities.

See www.usenix.org/lisa2011 for details or contact Camille Mulligan, Exhibits Manager, exhibits@usenix.org.

EXHIBITORS AS OF AUGUST 17, 2011

Premium Exhibitors

Advanced Computer & Network Corp.
ArcSight
Cambridge Computer
EMC
Facebook
Google
Hitachi ID Systems
Isilon
Opscode
Oracle
Sony
Teradactyl
VMware

Exhibitors

Electronic Frontier Foundation
FreeBSD
Free Software Foundation
iX Systems
No Starch Press
Opengear
SCALE
Skybot
SNIA
Spectralogic

**Hotel Reservation Discount Deadline:
Monday, November 14, 2011**

Headquarters Hotel: Sheraton Boston Hotel

39 Dalton Street
Boston, MA 02199
Tel: (617) 236-2000

Special Attendee Room Rate

\$210 single, \$230 double

Mention USENIX or LISA to get the special rate, or book online via www.usenix.org/lisa2011.

Travel Discounts

USENIX has partnered with American Airlines to provide a 5% discount on your flight to Boston and with Avis to provide discounted car rentals. Find out more at www.usenix.org/lisa2011.



Opportunities for Community-Building and Staying Informed

Stay Connected: USENIX has many opportunities to stay informed while chatting with the members of our community.

- Follow us on **Twitter** and help us spread the word through re-tweets: <http://twitter.com/usenix> and <http://twitter.com/LISAConference>
- Like the USENIX **Facebook** page: <http://www.usenix.org/facebook>
- Watch the USENIX **YouTube** channel for the latest conference videos and greatest hits: <http://www.youtube.com/USENIXAssociation>
- Join the USENIX and SAGE groups on **LinkedIn**: <http://www.usenix.org/linkedin> and <http://www.sage.org/linkedin>
- Stay informed: Check out the **USENIX Update Blog**. You'll find the latest in conference announcements, submissions deadlines, available proceedings, new multimedia, and much more: <http://blogs.usenix.org/>



Connect with other attendees and keep up to date on the latest USENIX news!

Early Bird Registration Deadline: **Monday, November 14, 2011**

Training Program Registration Includes:

- Admission to the tutorials you select
- Lunch and refreshment breaks on the days of your tutorials
- Training program materials and Conference Proceedings loaded on a 4GB USB drive
- 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 Includes:

- Admission to all technical sessions on the days of your choice
- Refreshment breaks on the days of your technical sessions
- Conference Proceedings loaded on a 4GB USB drive
- 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

Workshop Registration Includes:

- Admission to the workshops of your choice
- Lunch and refreshment breaks on the days of your workshops

NEW! GOLDEN PASSPORT REGISTRATION

Do you want to take advantage of absolutely everything LISA has to offer? Then the new Golden Passport registration is for you. Go to any session you like on any day—the possibilities are endless! Plus, get

additional exclusive benefits to make your LISA experience the best yet.

Golden Passport Registration Includes:

- Admission to all sessions, Sunday-Friday: tutorials, technical sessions, and workshops
- Lunch and refreshment breaks, Sunday-Friday
- Training program materials and Conference Proceedings loaded on a 4GB USB drive
- Reserved front-row seating with guaranteed outlet for your laptop at the Keynote Address
- Early admission to the Welcome Get-Together and the Conference Reception
- Complimentary CEUs for any complete tutorials you attend
- Deluxe LISA '11 Golden Passport pouch
- Admission to the Vendor Exhibition
- Admission to all evening activities throughout the week
- Conference t-shirt
- Wireless connectivity in conference session area

Cancellation Deadline: **Monday, November 28, 2011**

Substitutions are always welcome. If you must cancel, please do so by Monday, November 28, to receive a full refund.

Discounts Available!

In order to facilitate your ability to attend LISA '11, we will be offering additional conference discounts and multi-day packages. (Please note: In order to receive the discounts, you must use discount codes.) From government and non-profit employees to groups of 5 or more, USENIX has ways for you to save. See www.usenix.org/lisa2011 for more information.

Membership Discounts

USENIX and SAGE members receive a \$170 discount; see <http://www.usenix.org/membership/specialdisc.html> for your discount code. LOPSA members receive a \$45 discount; please contact LOPSA for more information.

USENIX is committed to helping you create the conference that meets your needs. If you are unemployed or need financial assistance to attend LISA '11, please email conference@usenix.org. Please describe your hardship situation and list the sessions for which you'd like to register.

REGISTRATION FEES

USENIX is pleased to offer Early Bird Registration Discounts of up to \$300 to those who register for LISA '11 by November 14, 2011. After November 14, registration fees increase. All member rates are valid for members of USENIX, SAGE, or both.

Early Bird Daily Rates	Member	Non-member
1 day of technical sessions	\$355	\$525
1 day of training	\$660	\$830

Early Bird Discount Packages	Member	Non-member
A. 3 Days of Technical Sessions	\$815 <i>Save \$420!</i>	\$985 <i>Save \$250!</i>
B. 2 Days of Training	\$1295 <i>Save \$195!</i>	\$1465 <i>Save \$25!</i>
C. 3 Days of Training	\$1905 <i>Save \$245!</i>	\$2075 <i>Save \$75!</i>
D. 4 Days of Training	\$2490 <i>Save \$320!</i>	\$2660 <i>Save \$150!</i>
E. 5 Days of Training	\$3050 <i>Save \$420!</i>	\$3220 <i>Save \$250!</i>
F. 6 Days of Training	\$3610 <i>Save \$520!</i>	\$3780 <i>Save \$350!</i>
G. Golden Passport	\$3775	\$4120

For maximum savings, combine Package A with Package C.

Workshop Fees

1 half-day workshop	\$90
1 full-day workshop	\$180

Optional Costs

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

Registration Fees for Full-Time Students

USENIX offers full-time students special low registration fees for LISA '11, which are available at any time.

1 day of technical sessions	\$150
1 day of training*	\$200

* 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.



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