

Register by November 19

and **SAVE!**

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LISA'12

26th Large Installation System Administration Conference

Strategies, Tools, and Techniques

MISSION CRITICAL

Dec. 9-14, 2012
San Diego, CA

Keynote Address by Vint Cerf,
Chief Internet Evangelist, Google

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

- Virtualization with VMware
John Arrasjid, Ben Del Vento,
David Hill, Ben Lin, and Mahesh
Rajani, VMware
- Using and Migrating to IPv6
Shumon Huque, University of
Pennsylvania
- Puppet
Nan Liu, Puppet Labs

Plus 3-day
Technical Program:

- Invited Talks by industry leaders
such as Owen DeLong, Valerie
Detweiler, Matt Blaze, and Selena
Deckelmann
- Refereed Papers covering key
topics: storage and data, monitor-
ing, security and systems manage-
ment, and tools
- Workshops, Vendor Exhibition,
Posters, BoFs, "Hallway Track,"
and more!

Sponsored by:



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THE ADVANCED
COMPUTING SYSTEMS
ASSOCIATION

in cooperation with LOPSA



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.

New for 2012

Interested in **IPv6 and DNSSEC**, **Cloud Computing**, or honing your **Super Sysadmin** skills? Follow the icons throughout the brochure.

ATTEND NOW

ATTENTION MANAGERS: WHY YOU SHOULD SEND YOUR EMPLOYEES TO LISA '12

Help your employees become more effective! Geared towards system administrators at all career levels, LISA '12 will give them the knowledge to keep your organization current and secure, as well as limit downtime.

The training program at LISA '12 offers a cost-effective, one-stop shop for training new and established IT and development employees. With 47 full- and half-day tutorials, LISA '12 provides an unparalleled opportunity to gain access to, and learn from, the most respected leaders and researchers in the field. Tutorials cover a multitude of system administration topics, including cloud computing, Linux security and administration, IPv6, and DNSSEC.

Combining full days of training with days of technical sessions on the latest research, Practice and Experience Reports, and informative Invited Talks provides attendees with introductions to the newest tools to keep your company running efficiently. Additionally, the Wednesday poster session, Thursday evening reception, and Birds-of-a-Feather sessions provide your staff with a chance to network and collaborate with peers and industry leaders to gain that all-important "insider" IT knowledge. Keeping up with technology can be costly and time-consuming in this challenging economy: take full advantage of this opportunity to have your staff learn from the top researchers, practitioners, and authors.

Unlock the code behind effective system administration!

LISA '12 will bring together practitioners and researchers to present the most innovative strategies, tools, and techniques in system administration. Learn how to stay one step ahead of everyone else and on top of your mission-critical tasks. New for 2012, the program now offers themes covering **cloud computing**, **IPv6 and DNSSEC**, and **Super Sysadmin**. Be on the lookout for the icons indicating which sessions fit into each area of interest.

You'll have the opportunity to attend full- and half-day tutorials, workshops, invited talks, innovative research presentations, and Guru Is In sessions—as well as evening networking and social events—and pick up all sorts of Super Sysadmin tricks.

LISA '12 opens with in-person **training** from the industry's top instructors, such as Shumon Huque, Stuart Kendrick, and Ted Ts'o. Learn everything you need to know about VMware virtualization from John Arrasjid, Ben Lin, Mahesh Rajani, and Ben Del Vento. The **IPv6** classes feature tutorials taught by leaders like Stuart Kendrick on Root Cause Analysis. Nan Liu's session on Puppet is a core element of the **cloud computing** series. Take anywhere from 1 to 6 days of training and create the curriculum that meets your needs.

The **technical program** offers practical information on a variety of key topics, including Vint Cerf's Keynote Address on "The Internet of Things and Sensors and Actuators!," Selena Deckelmann's Plenary on "Education vs. Training," and the Closing Session, "15 Years of DevOps," by Geoff Halprin.

The latest **research** is showcased in the paper presentations, covering topics such as storage and data, tools you can use, and building and infrastructure. The **Practice and Experience Reports** give you real-life experiences on topics ranging from iOS configuration management to optimizing a news Web site. The **Guru Is In** sessions, led by experts such as Tom Limoncelli on time management and Owen DeLong on IPv6, 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.

LISA '12 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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NEW FOR 2012: CONFERENCE THEMES

In addition to the wide variety of topics covered in the LISA '12 program, the program committee has created three specific conference themes, or tracks, for those looking to focus on a key subject area. Whether you're hoping to hone your **Super Sysadmin** skills, want to dive deeper into **Cloud Computing**, or are looking for more info on **IPv6 and DNSSEC**, a complete path is laid out below. You can combine days of training with days of technical session content to build the conference that meets your needs. Pick and choose the sessions that best fit your interest—focus on just one topic or mix and match themes.

SUPER SYSADMIN

Training

- S3** Seven Habits of the Highly Effective System Administrator: Hints, Tricks, Techniques, and Tools of the Trade (*Damon and Ciavarella*)
- M5** Introduction to Time Management for System Administrators (*Limoncelli*)
- M10** Advanced Time Management: Team Efficiency (*Limoncelli*)
- T1** High-Availability Linux Clustering with ricci and luci (*Jensen*)
- T3** **NEW!** PowerShell Fundamentals (*Murawski*)
- T5** A Sysadmin's Guide to Navigating the Business World (*Burgess and Rowland*)
- W3** **NEW!** Root Cause Analysis (*Kendrick*)

Wednesday Technical Sessions

The Guru Is In: Datacenter Infrastructure (*Hughes*)

Thursday Technical Sessions

Refereed Papers: Tools You can Use

The Guru Is In: Time Management for System Administrators (*Limoncelli*)

Friday Technical Sessions

Invited Talk: Near-Disasters: A Tale in 4 Parts (*Hughes*)

Tuesday Workshop

State of the Profession: What are the Unresolved Issues in System Administration? (*Limoncelli and Begnum*)



Want to learn more about IPv6 and DNSSEC? Check out the co-located ION Conference

ION will provide hands-on training and high-level discussions related to IPv6 and DNSSEC to systems administrators, engineers, and network administrators from Web operations, DevOps, enterprise computing, educational computing, and research computing.

Tuesday, December 11, 2012
1:30 p.m–5:00 p.m.

VENDOR DAYS

LISA '12 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.

CLOUD COMPUTING

Training

- S2** Using Amazon Web Services (*LeFebvre and Staveley*)
- S4** **NEW!** VMware vCloud Concepts, Technology, and Operations (*Arrasjid and Lin*)
- S7** **NEW!** vCloud Architecture Design with vCAT (vCloud Architecture Toolkit) (*Arrasjid and Lin*)
- M3** **NEW!** vCloud Advanced Topics 1: Compliance, Security, and Networking with VMware Network and Security Technologies (*Rajani and Del Vento*)
- M6** **NEW!** Building a Massively Scalable, Geographically Disparate IaaS Cloud (*Nalley*)
- M8** **NEW!** vCloud Advanced Topics 2 - Availability, Business Continuity, and Disaster Recovery (*Hill and Rajani*)
- T6** **NEW!** Networking in the Cloud Age (*Nalley and Vittal*)
- T9** **NEW!** Ganeti: Your Private Virtualization Cloud "the Way Google Does It" (*Limoncelli and Trotter*)

Wednesday Technical Sessions

Invited Talk: OpenStack: Leading the Open Source Cloud Revolution (*Ishaya*)

Invited Talk: System Log Analysis using BigQuery (*Franco*)

Thursday Technical Sessions

Invited Talk: Dude, Where's My Data?—Replicating and Migrating Data Across Data Centers and Clouds (*Darcy*)

Refereed Papers: If You Can't Monitor It You Can't Manage It

Friday Technical Sessions

Refereed Papers: Content, Communication and Collecting

Monday Workshop

Virtual Infrastructures and Cloud Computing (*Begnum*)

IPv6 AND DNSSEC

Training

- M2** **UPDATED!** Using and Migrating to IPv6 (*Huque*)
- T2** **NEW!** DNS and DNSSEC (*Huque*)

Wednesday Technical Sessions

Keynote Address: The Internet of Things and Sensors and Actuators! (*Cerf*)

Invited Talk: IPv6—A guide to Address Planning (*DeLong*)

Thursday Technical Sessions

The Guru Is In: IPv6 (*DeLong*)

Friday Technical Sessions

Invited Talk: DNSSEC: What Every Sysadmin Should be Doing to Keep Things Working (*Van Rijswijk*)



The three-day technical program at LISA '12 offers in-depth information that both uncovers practical skills you can take back to work and provides a peek at what is coming next.

From the informative Keynote Address, Invited Talks, and Refereed Paper Presentations, through Plenaries, Practice and Experience Reports, and expert-led Guru Is In sessions, to that all-important "Hallway Track," the LISA '12 technical program gives you the know-how to face your day with greater skills and information. Sessions focusing on the LISA '12 themes—Super Sysadmin, Cloud Computing, and IPv6 and DNSSEC—are denoted by their respective icons.

WEDNESDAY: Keynote Address

9:00 a.m.–10:30 a.m.

The Internet of Things and Sensors and Actuators!

Vint Cerf, VP and Chief Internet Evangelist, Google

We'll look at the rapid influx of devices on the Internet and the increasing need for more address space. IPv6, here we come! Big opportunities await third parties willing to assist users to manage their office, home, personal, and automobile devices.

WEDNESDAY: Invited Talks

11:00 a.m.–12:30 p.m.

INVITED TALKS 1

The Evolution of Ethernet

John D'Ambrosia, *Ethernet Alliance and Dell*; Chauncey Schwartz II, *Ethernet Alliance and QLogic*

Ethernet is the dominant networking technology, driving an interwoven interconnected eco-system that includes cloud computing, data centers, enterprises, high-performance computing, and millions of servers and end users. While solutions range in speeds from 10 Megabit to 100 Gigabit, the reality is that there is more to Ethernet than feeds and speeds. Ethernet continues to evolve to meet the needs of the networking industry, and to grow into areas that wish to leverage networking and the benefits of Ethernet. For this session the Ethernet Alliance will bring together the expertise within its membership to provide an overview on the state of Ethernet standards, technology, and deployment.

IPv6: A Guide to Address Planning

Owen DeLong, *Hurricane Electric*

As more organizations begin to embark on their IPv6 journey, the question of how to properly plan an IPv6 network deployment comes up with increasing frequency. This talk goes over real-world address planning techniques based on operational experience with a wide variety of networks. It includes concise examples and simple exercise to get the audience involved.

INVITED TALKS 2

OpenStack: Leading the Open Source Cloud Revolution

Vish Ishaya, *Rackspace Cloud Builders*

The OpenStack project's mission is to produce the ubiquitous open source cloud computing platform that will meet the needs of public and private cloud providers regardless of size. In this talk, I will give a detailed technical overview of the OpenStack Compute software stack in terms of the three major resources provided by it: compute, block storage, and networking services. I will also provide details of the recent Folsom release, as well as provide a sneak peek at some of the features proposed for inclusion in our next release.

INVITED TALKS 3

Analysis of an Internet-wide Stealth Scan from a Botnet

KC Claffy and Alberto Dainotti, *Cooperative Association for Internet Data Analysis*

Botnets are the most common vehicle of cyber-criminal activity. They are used for spamming, phishing, denial of service attacks, brute-force cracking, stealing private information, and cyber warfare. We

present the measurement and analysis of a horizontal scan of the entire IPv4 address space conducted by the Sality botnet last year. This 12-day scan originated from approximately 3 million distinct IP addresses and tried to discover and compromise VoIP-related infrastructure. We observed this event through the UCSD Network Telescope. Sality is one of the largest botnets ever identified by researchers, representing ominous advances in the evolution of modern malware. This talk offers a detailed dissection of the botnet's scanning behavior, including general methods to correlate, visualize, and extrapolate botnet behavior across the global Internet.

WEDNESDAY: Invited Talks

2:00 p.m.–3:30 p.m.

INVITED TALKS 1

Database Server Safety Nets: Options for Predictive Server Analytics

Joe Conway, *credativ USA*; Jeff Hamann, *Forest Informatics, Inc.*

Server monitoring is usually reactive in nature. Some predefined threshold is exceeded, an alert is sent, and by the time you receive the alert, something bad has already happened. Wouldn't it be nice to be able to foresee trouble before it rears its ugly head? We present our initial investigation into using analytical tools available within the R statistical environment to easily monitor server activity, predict potential performance problems, and possibly prevent faults on PostgreSQL database servers.

INVITED TALKS 2

Ceph: Managing a Distributed Storage System at Scale

Speaker: Sage Weil, *Inktank*

As the size and performance requirements of storage systems have increased, file system designers have looked to new architectures to facilitate system scalability. Ceph is a fully open source distributed object store, network block device, and file system designed for reliability, performance, and scalability from terabytes to exabytes. Fault tolerance is a key challenge for both system design and operations. Ceph is designed to be both highly available and elastic. In large clusters, disk, host, and even network failures are the norm rather than the exception, hardware is heterogeneous and incrementally deployed or deprovisioned, and availability must be continuous. This talk will describe the Ceph architecture and the impact it has on system operations, including failure management, monitoring, and provisioning.

INVITED TALKS 3

System Log Analysis Using BigQuery

Gustavo Franco, *Google Inc.*

This talk presents System Log Analysis using an OLAP-based and in-the-cloud system, BigQuery, which is heavily optimized for reads. BigQuery is a Dremel-based SaaS that, when combined with a system logger such as syslog-ng, a tool to convert log entries to CSV, and an uploader, which will be discussed in detail in this talk, allows any DevOp to scale her log analysis needs in an elastic manner.

WEDNESDAY: LISA Game Show

4:30 p.m.–5:30 p.m.

Don't miss the LISA Game Show. Join us as we once again pit attendees against each other in a test of technical knowledge and cultural trivia. Host Rob Kolstad and sidekick Dan Klein will provide the questions and color commentary for this always memorable session.

THURSDAY: Plenary Session**9:00 a.m.–10:30 a.m.****Education vs. Training****Selena Deckelmann, PostgreSQL**

It's no secret that the field of system administration has struggled for respect among computer scientists. When I broke the news that I was taking a job as a system administrator directly out of college, a fellow graduate asked sarcastically, "Why would you want to be a janitor?"

System administration principles are typically not taught at universities, where "education" (concepts and frameworks) is valued over "training" (explicit instruction of tasks). It's true that system administration courses and a couple degree programs exist—but they are the exception rather than the rule. The state of related curriculum in K-12 education is even more dire.

The belief that education and training are separate is harmful. It's helped make computer science educators hostile to efforts to adopt system administration curriculum and a CS degree largely irrelevant when hiring web developers.

Changing education will take a long time and we need to do it. But we can start making the change we want today. Teaching basic system administration is something that we can all learn to do, and should all start doing, right now.

THURSDAY: Invited Talks**11:00 a.m.–12:30 p.m.****INVITED TALKS 1****Performance Analysis Methodology****Brendan Gregg, Joyent**

Performance analysis methodologies provide guidance, save time, and can find issues that are otherwise overlooked. Example issues include hardware bus saturation, lock contention, recoverable device errors, kernel scheduling issues, and unnecessary workloads. The talk will focus on the USE Method: a simple strategy for all staff for performing a complete check of system performance health, identifying common bottlenecks and errors. Other analysis methods discussed include workload characterization, drill-down analysis, and latency analysis, with example applications from enterprise and cloud computing. Don't just reach for tools—use a method!

INVITED TALKS 2**Dude, Where's My Data? Replicating and Migrating Data Across Data Centers and Clouds****Jeff Darcy, Red Hat**

Large enterprises have long needed to deal with the problem of copying or migrating data between sites. This problem becomes more acute when those enterprises try to move work to/from public clouds, to avoid having computation arrive in the cloud with no data on which to work. This talk will cover methods for managing data location, including various tradeoffs of efficiency, consistency, and user-friendliness.

INVITED TALKS 3**Rolling the D2O: Choosing an Open Source HTTP Proxy Server****Leif Hedstrom, Cisco Systems**

With Web performance and scalability becoming more and more important, choosing advanced HTTP intermediaries is a vital skill. This presentation will give the audience a thorough walkthrough of the most popular and advanced solutions available today. The audience will gain a solid background to help them be able to make the right choices when it comes to HTTP intermediaries and proxy caches.

Distributed Messaging: The Administrative Aspect**Martin Sustrik, 250bpm s.r.o.**

The talk introduces distributed messaging then explains what it is and how it allows us to build Internet-scale distributed systems. While focusing on challenges of managing such distributed systems, I will explain why most of today's messaging fabric is not really friendly to monitoring and management, as well

as why most of the tasks encountered are painful to accomplish at best and impossible to do at worst. Finally the talk shows how distributed messaging, by the virtue of being simply an additional layer in the network stack, can easily solve problems such as monitoring load and connectivity problems, resource provisioning based on business criteria, or even complex DevOps tasks such as distributed debugging.

THURSDAY: Invited Talks**2:00 p.m.–3:30 p.m.****INVITED TALKS 1****Advancing Women in Computing (Panel)****Moderator: Rikki Endsley, USENIX**

Panelists: Jennifer Davis, *Yahoo, Inc.*; Elizabeth Krumbach, *Ubuntu*; Adele Shakal, *Metacloud, Inc.*; Nicole Forsgren Velasquez, *Utah State University*; Josephine Zhao, *Prosperb Media and AsianAmericanVoters.org*;

INVITED TALKS 2**Carat: Collaborative Energy Debugging****Adam J. Oliner, AMP Lab, University of California, Berkeley**

We aim to detect and diagnose code misbehavior that wastes energy, which we call energy bugs. I will describe a method and implementation, called Carat, for performing such diagnosis on mobile devices. Carat takes a collaborative, black-box approach. A non-invasive client app sends intermittent, coarse-grained measurements to a server, which identifies correlations between higher expected energy use and client properties like the running apps, the device model, and the operating system. Carat has been deployed on more than a quarter of a million devices and has detected thousands of app instances exhibiting energy bugs in the wild.

INVITED TALKS 3**OmniOS: Motivation and Design****Theo Schlossnagle, OmniIT**

In today's marketplace, operating systems are considered a commodity. What in the world would possess someone to roll a new distribution? In this talk, I'll walk through the constraints, the thought process, the plans, and the implementation of the open-source Illumos-based OmniOS operating system distribution. Beyond the motivation, I will talk about the hard numbers of what it cost and what we saved and share some subjective ideas about whether it was all worth it. OmniIT developed OmniOS after collecting 15 years of experience managing almost every production operating system available during its life for clients in vastly ranging industries.

THURSDAY: Plenary Session**4:00 p.m.–5:30 p.m.****NSA on the Cheap****Matt Blaze, University of Pennsylvania**

Last year, we discovered a number of protocol weaknesses in P25, a "secure" two-way radio system used by, among others, the federal government to manage surveillance and other sensitive law enforcement and intelligence operations. Although some of the problems are quite serious (efficient jamming, cryptographic failures, vulnerability to active tracking of idle radios, etc.), many of these vulnerabilities require an active attacker who is able and willing to risk transmitting. So we also examined passive attacks, where all the attacker needs to do is listen, exploiting usability and key management errors when they occur. And then we built a multi-city networked P25 interception infrastructure to see how badly the P25 security protocols do in practice (spoiler: badly).

This talk will describe the P25 protocols and how they failed, but will focus on the architecture and implementation of our interception network. We used off-the-shelf receivers (with some custom software) deployed around various US cities, capturing virtually every sensitive, but unintentionally clear, transmission (and associated metadata) sent by federal agents in those cities. And by systematically analyzing the captured data, we often found that the whole was much more revealing than the sum of the parts.

FRIDAY: Invited Talks

8:45 a.m.–10:30 a.m.

INVITED TALKS 1

Surviving the Thundering Hordes: Keeping Engadget Alive During Apple Product Announcements
Valerie Detweiler and Chris Stolfi, *AOL*

When Apple product announcements occur, consumers of the world pay rapt attention and one of the premier technology sites they rely upon for live event updates is Engadget. The Engadget infrastructure must seamlessly sustain incredible traffic spikes during these Apple events. How do we get there?

- Keep it simple: LAMP
- Cache, cache, cache: CDN, load balancer, memcache
- Manage the complexities: Sometimes you don't want GSLB to automatically failover
- Make no assumptions: Validate, re-validate, and then do it some more
- Work well with others: Respect, trust, and communication are key

Vitess: Scaling MySQL at YouTube Using Go
Sugu Sougoumarane and Mike Solomon, *YouTube*

Vitess is an open source project that packages many of the ad-hoc processes and conventions that grew out of managing and scaling MySQL at YouTube. It is now at the core of our MySQL serving infrastructure, and is primarily written in Go. In this session, we'll cover our vision of where the project is headed as well as what we've achieved so far. We'll go over some of the challenges and wins due to using Go as the language of choice. We'll also share tips on how to write scalable servers using Go.

INVITED TALKS 2

Data Integrity: You Might Not Have It
Bill Moore, *President & CEO, DSSD, Inc.*

Data integrity is a concept that most sysadmins take for granted. What very few realize, however, is just how prevalent data corruption is, especially the silent variety. In this talk, the causes of data corruption and how they are typically detected (or not!) will be discussed. Along with this, we'll cover questions to ask your storage vendor, plus some simple tests that can be run on any system to ensure that your data is not falling victim to undetected corruption.

INVITED TALKS 3

DNSSEC: What Every Sysadmin Should be Doing to Keep Things Working
Roland Van Rijswijk, *SURFnet bv*

Unless you've been sipping cold lemon daiquiris on a beach for the past five years, you will know that there's this thing called DNSSEC out there. But did you know that you may be using it without being aware of it? And that the firewall nobody dares touch on your network may be messing with DNSSEC and causing you problems? This talk will focus on what every sysadmin should know about DNSSEC and should be aware of when setting up a DNS server and a firewall based on real world problems and experiences.

DNSSEC Deployment in .gov: Progress and Lessons Learned
Scott Rose, *National Institute of Standards and Technology (NIST)*

In 2008, the US Federal government mandated that all Federal-owned DNS zones must deploy DNSSEC. Initial deployments lagged and were often error prone. This prompted the creation of a Tiger Team to assist agencies in deployment as well as a continuous monitoring program. These steps increased the number of signed zones in the .gov TLD and improved the response time in responding to errors and mistakes in deployment. This talk will cover the progress of DNSSEC in the Federal government in addition to lessons learned in setting up a system to monitor and maintain compliance across multiple administrative boundaries.

FRIDAY: Invited Talks

11:00 a.m.–12:30 p.m.

INVITED TALKS 1: DISRUPTIVE TECH PANEL

Moderator: Narayan Desai

Panelists: Vish Ishaya, *RackSpace*; Jeff Darcy, *Red Hat*; Adam Oliner, *University of California, Berkeley*; Theo Schlossnagle, *OmniIT*

This panel will look into the changing landscape of system administration caused by disruptive innovations in emerging software, hardware, standards, and protocols. The panel will consist of experts working on the cutting edge of computing hardware, software stacks, and management approaches.

INVITED TALKS 2

TTL of a Penetration

Branson Matheson, *NASA*

In the world of information security, it's not a matter of how anymore...it's a matter of when. With the advent of penetration tools such as Metasploit, AutoPwn, etc.—plus the day-to-day use of insecure operating systems, applications, and Web sites—reactive systems have become more important than proactive systems. Discovery of penetration by out-of-band processes and being able to determine the when and how to then mitigate the particular attack has become a stronger requirement than active defense. I will discuss the basic precepts of this idea and expand with various types of tools that help resolve the issue. Attendees should be able to walk away from this discussion and apply the knowledge immediately within their environment.

INVITED TALKS 3

Near-Disasters: A Tale in 4 Parts

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

Occasionally one is the victim of a series of misadventures and failures so wrenching, potentially devastating, and yet completely unrelated that one is compelled to try to extract lessons from the fractured dust of mayhem. This is that tale. Where correlation is impossible, at least we can try to learn something. Murphy was an optimist.

FRIDAY: Closing Plenary Session

2:00 p.m.–3:30 p.m.

15 Years of DevOps

Geoff Halprin, *The SysAdmin Group*

There has been a lot of hullabaloo over the past few years around a concept called "DevOps." The idea is that we need to break down the barriers between development and operations teams, and treat infrastructure as code, in order to move towards better software, more reliable and scalable systems, and continuous deployment.

For some of us who have been around a while, this is just a new label for something we've always done.

They say those that don't learn from history are destined to repeat it. In this talk, we will look back at how the DevOps movement evolved, what it advocates, what it doesn't address, and what you should take away from the movement that will help you in your professional life. We will also use this opportunity to look back over the past decade or two of system administration, and see how our challenges have changed, and how they have remained the same.

FRIDAY: Ice Cream Social

4:00 p.m.–5:30 p.m.

Wind down from a week of intense training and networking with your fellow attendees and indulge in some ice cream!

WEDNESDAY: Papers and Reports

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

SESSION: Storage and Data

A Simple File Storage System for Web Applications

Daniel Pollack, AOL Inc.

IDO: Intelligent Data Outsourcing with Improved RAID Reconstruction Performance in Large-Scale Data Centers

Suzhen Wu, *Xiamen University*; Hong Jiang and Bo Mao, *University of Nebraska-Lincoln*

Theia: Visual Signatures for Problem Diagnosis in Large Hadoop Clusters

Soila P. Kavulya, *Carnegie Mellon University*; Jiaqi Tan, *DSO National Laboratories, Singapore*; Rajeev Gandhi and Priya Narasimhan, *Carnegie Mellon University*

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

SESSION: Security and Systems Management

Lessons in iOS Device Configuration Management

Tim Bell, *Trinity College, University of Melbourne*

A Declarative Approach to Automated Configuration

John A. Hewson, *University of Edinburgh*; Paul Anderson, *University of Edinburgh*; Andrew D. Gordon, *Microsoft Research and University of Edinburgh*

Preventing the Revealing of Online Passwords to Non-relevant Websites with LoginInspector

Jeff Hinson and Chuan Yue, *University of Colorado at Colorado Springs*

THURSDAY: Papers and Reports

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

SESSION: Tools You Can Use

xutools: UNIX Commands for Processing Next-Generation Structured Text

Gabriel A. Weaver and Sean W. Smith, *Dartmouth College*

Managing User Requests With the Grand Unified Task System (GUTS)

Andrew Stromme, *Swarthmore College*; Dougal J. Sutherland, *Carnegie Mellon University*; Nicholas Felt, Alex Burka, Ben Lipton, Rebecca Roelofs, Daniel-Elia Feist-Alexandrov, Steve Dini, and Allen Welkie, *Swarthmore College*

Baylocator: A Proactive System to Predict Server Utilisation and Dynamically Allocate Memory Resources Using Bayesian Networks and Ballooning

Vangelis Tasoulas, and Hårek Haugerud, *Oslo and Akershus University College*; Kyrre Begnum, *Norwegian System Architects*

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

SESSION: Community and Teaching

A Sustainable Model for ICT Capacity Building in Developing Countries

Rudy Gaevart, *Ghent University, Belgium*

Teaching System Administration

Steve VanDevender, *University of Oregon*

Training and Professional Development in an IT Community

George William Herbert, *Taos Mountain Software, Inc.*

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

SESSION: If You Can't Monitor it You Can't Manage It

Extensible Monitoring with Nagios and Messaging Middleware

Jonathan Reams, *CUIT Systems Engineering, Columbia University*

Efficient Multidimensional Aggregation for Large Scale Monitoring

Lautaro Dolberg, Jerome Francois, and Thomas Engel, *University of Luxembourg SnT—Interdisciplinary Centre for Security, Reliability and Trust*

On the Accurate Identification of Network Service Dependencies in Distributed Systems

Barry Peddycord III and Peng Ning, *North Carolina State University*; Sushil Jajodia, *George Mason University*

FRIDAY: Papers and Reports

8:45 a.m.-10:30 a.m.

SESSION: Content, Communication, and Collecting

What Your CDN Won't Tell You: Optimizing a News Website for Speed and Cost

Julian Dunn and Blake Crosby, *Canadian Broadcasting Corporation*

Building a 100K log/sec Logging Infrastructure

David Lang, *Intuit*

Building a Protocol Validator for Business to Business Communications

Rudi van Drunen, *Competa IT B.V.*; Rix Groenboom, *Parasoft Netherlands*

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

SESSION: If You Build It They Will Come

Building the Network Infrastructure for the International Mathematics Olympiad

Rudi van Drunen, *Competa IT B.V.*; Karst Koymans, *University of Amsterdam*

Lessons Learned When Building a Greenfield High Performance Computing Ecosystem

Andrew Keen, *Michigan State University*

Building a Wireless Network for a High Density of Users

David Lang, *Intuit*

WEDNESDAY: The Guru Is In

The Guru Is In sessions are informal question-and-answer gatherings that give you a chance to bring your quandaries to experts in the field.

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

Datacenter Infrastructure

Doug Hughes, *D. E. Shaw Research*

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

Documentation

Janice Gelb, *Oracle Corporation*

THURSDAY: The Guru Is In

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

Time Management for System Administrators

Tom Limoncelli, *Google NYC*

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

Lightning Talks

Organizer: Lee Damon, *University of Washington*
Find out how to submit to the session below.

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

IPv6

Owen DeLong, *Hurricane Electric*

FRIDAY: The Guru Is In

8:45 a.m.-10:30 a.m.

Cfengine

Diego Zamboni, *CFEngine AS*

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

PostgreSQL

Joe Conway, *credativ USA*; Josh Berkus, *PostgreSQL Experts Inc.*; Selena Deckelmann, *PostgreSQL*

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 lisa12posters@usenix.org by October 29, 2012.

Posters will be on display all day on Wednesday, with authors available to discuss them before the first session and during the morning break.

LIGHTNING TALKS

Lightning talks are fast paced and high energy. These are back-to-back 5-minute presentations on just about anything. Talk about a recent success, energize people about a pressing issue, ask a question, start a conversation!

Lightning talks are an opportunity to get up and talk about what's on your mind. You can give several lightning talks if you have more than one topic.

Online registration will open just before the start of the conference.

SUNDAY, DECEMBER 9

Full Day: 9:00 a.m.–5:00 p.m.

- S1** Securing Linux Servers (*Farrow*)
- S2** Using Amazon Web Services (*LeFebvre and Staveley*)
- S3** Seven Habits of the Highly Effective System Administrator: Hints, Tricks, Techniques, and Tools of the Trade (*Damon and Ciavarella*) ●

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

- S4** **NEW!** VMware vCloud Concepts, Technology, and Operations (*Arrasjid and Lin*) ●
- S5** RPM Packaging for Sysadmins (*Nalley*)
- S6** Agile Software Development: Getting It Out the Door Successfully (*Halprin*)

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

- S7** **NEW!** vCloud Architecture Design with vCAT (vCloud Architecture Toolkit) (*Lin and Hill*) ●
- S8** **NEW!** MongoDB: NoSQL Operations Hands On (*Fiedler*)
- S9** **NEW!** Introduction to Provisioning (*Halprin*)

MONDAY, DECEMBER 10

Full Day: 9:00 a.m.–5:00 p.m.

- M1** **NEW!** SELinux (Security-Enhanced Linux) (*Farrow*)
- M2** **UPDATED!** Using and Migrating to IPv6 (*Huque*) ●

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

- M3** **NEW!** vCloud Advanced Topics 1: Compliance, Security, and Networking with VMware Network and Security Technologies (*Rajani and Del Vento*) ●
- M4** **NEW!** Core Skills: Scripting for Automation (*Ciavarella*)
- M5** Introduction to Time Management for System Administrators (*Limoncelli*) ●
- M6** **NEW!** Building a Massively Scalable, Geographically Disparate IaaS Cloud (*Nalley*) ●

MONDAY, DECEMBER 10 (continued)

- M7** **NEW!** Linux Network Service Administration (*Jensen*)

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

- M8** **NEW!** vCloud Advanced Topics 2: Availability, Business Continuity, and Disaster Recovery (*Hill and Rajani*) ●
- M9** Advanced Shell Programming (*Ciavarella*)
- M10** Advanced Time Management: Team Efficiency (*Limoncelli*) ●
- M11** Monitoring Servers, Networks, and Lunchrooms with Zenoss (*Nalley*)
- M12** **NEW!** The First Hundred Days (*Halprin*) ●

TUESDAY, DECEMBER 11

Full Day: 9:00 a.m.–5:00 p.m.

- T1** High-Availability Linux Clustering with ricci and luci (*Jensen*) ●

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

- T2** **NEW!** DNS and DNSSEC (*Huque*) ●
- T3** **NEW!** PowerShell Fundamentals (*Murawski*) ●
- T4** **FULLY REVISED FOR 2012!** Next-Generation Storage Networking: Beyond Conventional SAN and NAS (*Farmer*)
- T5** A Sysadmin's Guide to Navigating the Business World (*Burgess and Rowland*) ●
- T6** **NEW!** Networking in the Cloud Age (*Nalley and Vittal*) ●
- T7** **UPDATED!** Real-World Insights on How to Secure and Route Your Linux Network (*Faulkner*)

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

- T8** Documentation Techniques for Sysadmins (*Ciavarella*)
- T9** **NEW!** Ganeti: Your Private Virtualization Cloud "The Way Google Does It" (*Limoncelli and Trotter*) ●
- T10** Backups, Archiving, and Life Cycle Management: Riding the Wave of Data Proliferation (*Farmer*)

TUESDAY, DECEMBER 11 (continued)

- T11** **NEW!** Implementing WordPress for SysAdmins (*Blank-Edelman*)
- T12** Recovering from Linux Hard Drive Disasters (*Ts'o*)

WEDNESDAY, DECEMBER 12

Full Day: 9:00 a.m.–5:00 p.m.

- W1** Pacemaker and Linux-HA: World-Class High Availability Software (*Robertson*)
- W2** The Python Programming Language (*Hancock*)
- W3** **NEW!** Root Cause Analysis (*Kendrick*) ●

THURSDAY, DECEMBER 13

Full Day: 9:00 a.m.–5:00 p.m.

- R1** Linux Performance Tuning (*Ts'o*)
- R2** A Day Over the Edge in System Administration (*Blank-Edelman*)

FRIDAY, DECEMBER 14

Full Day: 9:00 a.m.–5:00 p.m.

- F1** **NEW!** Apache Hadoop for Operations Staff (*Wheeler*)
- F2** Puppet (*Liu*)
- F3** Configuration Management Solutions with CFEngine 3 (*Burgess*)

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 an 8GB 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/lisa12 for comprehensive tutorial descriptions, including full topics lists, prerequisites, and laptop/system requirements.



S1 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

S2 Using Amazon Web Services

William LeFebvre and Marc Staveley,
Consultants

Who should attend:

Full Day

Sysadmins 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, especially if they are unfamiliar with the command-line tools and the Web-based interfaces supplied by Amazon.

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)



S3 Seven Habits of the Highly Effective System Administrator: Hints, Tricks, Techniques, and Tools of the Trade

Lee Damon, *University of Washington*; Mike Ciavarella,
Coffee Bean Software Pty Ltd

Who should attend:

Full Day

Junior system administrators with anywhere from little to 3+ years of experience in computer system administration.

Take back to work:

Ideas about how to improve and to streamline your systems and your workload, and, just as important, where to look to find more answers.

Topics include:

- Why your computers should all agree on what time it is
- Why backing up every file system on every computer is not always a good idea
- Training, mentoring, and personal growth planning
- Site planning and roadmaps



S4 VMware vCloud Concepts, Technology, and Operations **NEW!**

John Arrasjid and Ben Lin,
VMware

Who should attend:

Half Day AM

Consumers, system administrators, cloud operators, and cloud architects who are interested in learning about the VMware vCloud solution, which is based on NIST guidelines.

Take back to work:

The basics of developing a cloud solution with VMware and an understanding of the concepts and technology used in a vCloud-based cloud computing infrastructure

Topics include:

- VMware vCloud core concepts and features
- The VMware suite of technologies used to stand up cloud computing environments, including public/private/hybrid and on/off premises
- VMware vCloud mechanisms for multi-tenancy, resource elasticity, segmentation of resources, and provisioning mechanisms



S5 RPM Packaging for Sysadmins

David Nalley, *Apache CloudStack/Fedora*

Who should attend:

Half Day AM

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 begin packaging immediately.

Topics include:

- Automation
- Consistency
- Packaging's serendipitous benefits
- How to package software
- Tools to make packaging easier

S6 Agile Software Development: Getting It Out the Door Successfully

Geoff Halprin, *The SysAdmin Group*

Who should attend:

Half Day AM

Programmers who wish to learn a better way to deliver software; programmers who have heard of agile, but don't understand what the fuss is all about; sysadmins who wish to learn a simple set of techniques to help them maintain their scripting and infrastructure automation.

Take back to work:

An understanding of all of the key concepts for agile software development; an immediate ability to apply these concepts and improve your delivery.

Topics include:

- The history of agile development
- Key concepts: iterations, stories, planning, showcases, retrospectives, Kanban, and visible workflow
- How they all come together into a cohesive, radically simpler way to develop software



S7 vCloud Architecture Design with vCAT (vCloud Architecture Toolkit) **NEW!**

Ben Lin and David Hill, VMware

Half Day PM

Who should attend:

Cloud architects and cloud operators who are interested in deploying a VMware vCloud.

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
- Architecture design considerations
- vCloud architecture design patterns and best practices
- Demonstration of features

S8 MongoDB: NoSQL Operations Hands On **NEW!**

Michael Fiedler, 10gen

Half Day PM

Who should attend:

Anyone interested in learning about operating a MongoDB deployment.

Take back to work:

What you need to know to successfully deploy and maintain a MongoDB database, diagnose performance issues, import and export data from MongoDB, and establish the proper backup and restore routines.

Topics include:

- Setting up replica sets
- Migrating servers to different hosts
- Repairing a deployment after hardware failure
- Scaling out with auto-sharding

S9 Introduction to Provisioning **NEW!**

Geoff Halprin, The SysAdmin Group

Half Day PM

Who should attend:

Sysadmins, IT/IS managers, and any other folks responsible for new systems (real or virtual), installations, and integrations; sysadmins looking towards the cloud, infrastructure automation, and more maintainable systems.

Take back to work:

A deep understanding of the provisioning process and its context in the wider infrastructure lifecycle; processes and best practices for efficient and timely roll-out and integration of systems.

Topics covered:

- The infrastructure lifecycle
- The three parts to provisioning: planning, pre-provisioning, and provisioning
- Automation
- The MUST haves (Mandatory Ubiquitous Service Transport)
- Management traffic: in-band, out-of-band, and image distribution
- The build (physical and virtual)
- Software licensing and other topics you probably didn't think of

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 print stations in the registration area, should you prefer to print your materials prior to your class.

FIND OUT MORE ON THE WEB

Please see www.usenix.org/lisa12 for comprehensive tutorial descriptions, including full topics lists, prerequisites, and laptop/system requirements.

M1 SELinux (Security-Enhanced Linux)

Rik Farrow, Security Consultant

Full Day

Who should attend:

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 unclocked
- Using the audit file
- Using setroubleshoot
- Fixing common access problems
- Restricting users
- SELinux rule syntax
- Understanding and using macros

M2 Using and Migrating to IPv6 **UPDATED!**

Shumon Huque, University of Pennsylvania

Full Day

Who should attend:

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, with the basic knowledge to begin designing and deploying IPv6 networks, systems, and applications.

Topics include:

- IPv6 addresses and protocol details
- DHCPv6
- DNS
- Tunneling
- Configuring hosts and application services
- IPv6-related security topics

M3 vCloud Advanced Topics 1: Compliance, Security, and Networking with VMware Network and Security Technologies **NEW!**

Maresh Rajani and Ben Del Vento, VMware

Half Day AM

Who should attend:

Cloud architects and cloud operators who are interested in the networking and security components tied to design and operation of a vCloud infrastructure.

Take back to work:

Best practices and guidelines from vCAT to support business requirements for compliance and connectivity.

Topics include:

- vCloud networking
- vCloud security considerations for design and operations
- Demonstration of features

M4 Core Skills: Scripting for Automation **NEW!**

Mike Ciavarella, Coffee Bean Software Pty Ltd

Half Day AM

Who should attend:

Junior and intermediate sysadmins who are new to scripting or would like to create scripts to reliably automate sysadmin tasks.

Take back to work:

An understanding of how to apply standard utilities in your scripts, along with recipes for automating typical administration tasks.

Topics include:

- Controlling programs and processes
- Script building blocks
- Searching
- Working with data

M5 Introduction to Time Management for System Administrators

Thomas A. Limoncelli, *Google, Inc.*

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

M6 Building a Massively Scalable, Geographically Disparate IaaS Cloud **NEW!**

David Nalley, *Apache CloudStack/Fedora*

Who should attend:

Half Day AM

Intermediate to advanced sysadmins or enterprise architects wanting to deploy a production Infrastructure as a Service cloud.

Take back to work:

What you need to deploy an IaaS cloud, based on Apache CloudStack, in an enterprise environment.

Topics include:

- Deploying Apache CloudStack
- Next-generation network topologies, including SDN

- Scaling storage without becoming indentured to SAN vendors
- Making CloudStack scale to tens of thousands of physical nodes
- Maintaining availability in a “failure is assured” environment

M7 Linux Network Service Administration **NEW!**

Joshua Jensen, *Cisco Systems*

Who should attend:

Half Day AM

System administrators who are implementing network services and are looking for a background in the configuration of those services as well as basics of the protocols.

Take back to work:

Confidence in the ability to set up and maintain secure network services.

Topics include:

- SSH: Secure shell with OpenSSH
- FTP: Explore vsftpd
- HTTP: Apache and Tux and Squid
- SMTP: Postfix MTA
- NFS: Network File Systems
- LDAP: Global authentication with OpenLDAP
- DHCP: DHCPD and PXE
- DNS: ISC’s BIND

M8 vCloud Advanced Topics 2: Availability, Business Continuity, and Disaster Recovery **NEW!**

David Hill and Mahesh Rajani, *VMware*

Who should attend:

Half Day PM

Cloud architects and cloud operators who are interested in availability, business continuity, and disaster recovery for both the vCloud infrastructure and the deployed workloads.

Take back to work:

Best practices and guidelines from the VMware vCloud Architecture Toolkit (vCAT) to support business requirements for compliance and connectivity.

Topics include:

- Backup and recovery of vCloud infrastructure and workloads
- Site failover considerations and options for vCloud infrastructure and workloads
- Use of VMware HA, DRS, FT, and other technologies

M9 Advanced Shell Programming

Mike Ciavarella, *Coffee Bean Software Pty Ltd*

Who should attend:

Half Day PM

Intermediate system administrators or anyone with a solid knowledge of programming and 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

M10 Advanced Time Management: Team Efficiency

Thomas A. Limoncelli, *Google, Inc.*

Who should attend:

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:

- Efficient meetings
- Stopping incoming email overload
- Working better together using collaborative documents
- Doing surveys
- Quick and easy way to document

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.

M11 Monitoring Servers, Networks, and Lunchrooms with Zenoss

David Nalley, *Apache CloudStack/Fedora*

Who should attend:

Half Day PM

Sysadmins and managers who are planning to use or are evaluating Zenoss as a monitoring platform, and those who are 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
- Methods to jumpstart monitoring
- Deep inspection of monitoring capabilities
- Dealing with the information/alerts

M12 The First Hundred Days **NEW!**

Geoff Halprin, *The SysAdmin Group*

Who should attend:

Half Day PM

Anyone starting or contemplating a new position, including making an in-house move that enables you to start over; anyone with a new boss who wants to understand and help that boss; anyone about to apply for a senior position who wants to take control of the interview process.

Take back to work:

A set of tools and perspectives that will help you evaluate an environment, from company structure and pain points to IT systems and team skills, and help you engage a team in improvements to the department.

Topics include:

- Organizational awareness: The boss, the company
- The team: Assessing the team; first repairs
- Building the work pipeline; second repairs
- Systems and processes
- A temporal view: From the first day through the first hundred days

T1 High-Availability Linux Clustering with ricci and luci

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: SAN, iSCSI, AoE, FCoE
- Node fencing with STONITH
- Clustered logical volume management
- Service management with failover domains
- Working with cluster-unaware services

T2 DNS and DNSSEC **NEW!**

Shumon Huque, *University of Pennsylvania*

Who should attend:

Half Day AM

Sysadmins and network engineers who are tasked with providing DNS services, as well as anyone interested in knowing more about how the DNS works.

Take back to work:

An understanding of DNS and DNSSEC, with the basic knowledge necessary to design and deploy DNS services.

Topics include:

- The DNS protocol and how it works
- DNS master zone file format
- Server configurations and recommendations
- DNSSEC and how to deploy it
- Many examples of DNS query and debugging using the "dig" tool
- DNS and IPv6

T3 PowerShell Fundamentals **NEW!**

Steven Murawski, *Edgenet*

Who should attend:

Half Day AM

System administrators and anyone else who wants to be more productive on the Microsoft Windows platform.

Take back to work:

Usable commands and patterns to make attendees more effective in working with the Windows platform, along with familiarity with the discovery patterns in PowerShell, so that they can continue to develop their skills.

Topics include:

- Finding the commands you need
- What's in the help files
- Navigating the file system, registry, and more
- Working with objects
- Discovering WMI

T4 Next-Generation Storage Networking: Beyond Conventional SAN and NAS—Fully Revised for 2012!

Jacob Farmer, *Cambridge Computer Services*

Who should attend:

Half Day AM

System administrators running day-to-day operations, enterprise architects, storage administrators.

Take back to work:

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


Topics include:

- The storage I/O path and the fundamentals of storage virtualization
- Application acceleration with solid state storage devices (SSDs)
- Automated tiered storage and information life cycle management (ILM)
- Deduplication of primary storage
- Object storage models and content-addressable storage
- Leveraging the cloud for primary storage



T5 A Sysadmin's Guide to Navigating the Business World

Mark Burgess, *CFEngine, Inc.*;
Carolyn Rowland, *National Institute of Standards and Technology*

 Half Day AM

Who should attend:

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
- Demonstrating the value of your work in a way that management will understand
- Convincing management of the importance of time to innovate (R&D)
- Cost avoidance and efficiencies
- Risk management
- Knowledge and information management
- How to develop a collaborative relationship with your management

T6 Networking in the Cloud Age **NEW!**

David Nalley, *Apache CloudStack/Fedora*

 Half Day AM

Who should attend:

Advanced system or network admins with a deep understanding of L2/L3 networking who want to learn about new networking technologies that are enabling scaling networks.

Take back to work:


Knowledge of emerging networking standards and where they are best used.

Topics include:

- How massive public and private clouds build their networks to ensure scalability
- How software defined networks work
- Technologies worth looking at: VXLAN, NVGRE, GRE

T7 Real-World Insights on How to Secure and Route Your Linux Network **UPDATED**

Jason Faulkner, *Rackspace*

 Half Day AM

Who should attend:

Novice and intermediate Linux system and network administrators, or 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 tunneling
- Balancing among multiple ISPs

T8 Documentation Techniques for Sysadmins

Mike Ciavarella, *Coffee Bean Software Pty Ltd*

 Half Day PM

Who should attend:

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 in documenting
- Tools to assist the documentation process

T9 Ganeti: Your Private Virtualization Cloud "The Way Google Does It" **NEW!**

Thomas A. Limoncelli and Guido Trotter, *Google, Inc.*

 Half Day PM

Who should attend:

System engineers interested in using virtualization and cloud technologies efficiently to consolidate systems and decouple physical hardware resources from virtual systems.

Take back to work:

The knowledge needed to create and maintain your own Ganeti cluster, to provide an IaaS cloud or virtualized services.

Topics include:

- Setting up and managing a Ganeti cluster
- Ganeti internals: how to make changes
- Monitoring your cluster and dealing with failure
- Ganeti as a back end
- Typical and atypical use cases

T10 Backups, Archiving, and Life Cycle Management: Riding the Wave of Data Proliferation

Jacob Farmer, *Cambridge Computer Services*

 Half Day PM

Who should attend:

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 vs. reality
- Object-based storage models for backup and archiving
- Self-healing and self-protecting systems
- Leveraging the cloud

T11 Implementing WordPress for SysAdmins **NEW!**

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

 Half Day PM

Who should attend:

Anyone who has recently been asked to spin up a new Web site or manage an existing WordPress site.

Take back to work:

A sysadmin's understanding of WordPress and the confidence to implement it the right way.

Topics include:

- How to choose the best way to host and develop your WordPress site
- The five plug-ins you won't want to be without
- Ways to extend WordPress to make it sing and dance the way you want it to
- How to keep your WordPress installation as safe as possible

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
- Techniques 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

W1 Pacemaker and Linux-HA: World-Class High Availability Software

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

W2 The Python Programming Language

Bob Hancock, Sirgvey-Hancock, Ltd.

Who should attend:

Full Day

Programmers who want to use the Python programming language and understand how it can be applied to practical problems in data analysis, system administration, systems programming, and networking.

Take back to work:

An understanding of the Python language and how it can be used to solve your problems on a daily basis.

Topics include:

- Basic syntax
- Core datatypes
- Control flow and exception handling
- Functions, generators, and co-routines
- Modules and classes
- Major library modules
- Text processing
- Operating system calls
- Text parsing
- Data analysis
- Performance considerations
- Interacting with the operating system
- Network programming
- Threads, futures, and co-routines

W3 Root Cause Analysis **NEW!**

Stuart Kendrick, Fred Hutchinson Cancer Research Center

Who should attend:

Full Day

System administrators and network engineers tasked with troubleshooting multidisciplinary problems.

Take back to work:

Practice in employing a structured approach to analyzing problems that span multiple technology spaces.

Topics include:

Case studies, e.g.:

- Hourly Data Transfer Fails—Every hour, an application wakes up, contacts its partner at a central location, and exchanges data, thus keeping the databases synchronized. Several times a day, this process fails, alerting the database administrator that "A Network Error has occurred."
- Many Applications Crash—The office automation applications servicing ~1500 users intermittently report a range of error messages.
- Slow Downloads—Intermittently, both internal and external users see slow downloads from the public Web site.

R1 Linux Performance Tuning

Theodore Ts'o, Google, Inc.

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

R2 A Day Over the Edge in System Administration

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

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
- And much, much more!

OPPORTUNITIES FOR COMMUNITY-BUILDING AND STAYING INFORMED

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- Stay informed at the USENIX Blog. You'll find the latest in conference announcements, submissions deadlines, available proceedings, new multimedia, and much more: www.usenix.org/blog



F1 Apache Hadoop for Operations Staff **NEW!**

Tom Wheeler, *Cloudera*

Who should attend:

Full Day

System administrators and network operations staff; architects and IT management who have a technical background; developers who are interested in a semi-technical introduction to Hadoop.

Take back to work:

What you need to get started with Hadoop.

Topics include:

- Why the world needs Hadoop
- What Hadoop is and what it can do
- Overview of the Hadoop ecosystem
- The Architecture behind Hadoop
- Hadoop cluster planning
- The Hadoop cluster operation

F2 Puppet

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
- Automating configuration of network services
- Deploying Puppet Master and Dashboard

F3 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



John Arrasjidi S4

John is a Principal Architect at VMware, specializing in Enterprise Private Cloud (vCloud), business continuity, disaster recovery, and virtual datacenter architecture design, and is the lead architect for the vCloud Architecture Design Toolkit (vCAT). John serves as Vice President on the USENIX Board of Directors and wrote *Cloud Computing with VMware vCloud Director*, *Foundation for Cloud Computing with VMware vSphere 4*, and *Deploying the VMware Infrastructure*, all published by USENIX.



David Blank-Edelman T11, R2

David N. Blank-Edelman is the Director of Technology at the Northeastern University College of Computer and Information Science and the author of the O'Reilly book *Automating System Administration with Perl*. He has spent the past 25+ years as a system/network admin in large multi-platform environments. He was the program chair of LISA '05 and was one of the LISA '06 Invited Talks co-chairs. He 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 T5, F3

Mark Burgess is the founder, chairman, CTO, and principal author of CFEngine. In 2011 he resigned as Professor of Network and System Administration at Oslo University College, where for twenty years he led the way in theory and practice of automation and policy-based management. He is the author of numerous books including the USENIX Short Topics books *A System Engineer's Guide to Host Configuration and Maintenance Using Cfengine*, co-authored with Aileen Frisch, and *A Sysadmin's Guide to Navigating the Business World*, co-authored with Carolyn Rowland.



Mike Ciavarella S3, M4, M9, 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 on software engineering at the University of Melbourne (his alma mater), and has provided expert testimony in a number of computer security cases.



Lee Damon S3

Lee Damon has a B.S. in Speech Communication from Oregon State University. He has been a UNIX system administrator since 1985 and has been active in SAGE (US) & LOPSA since their inception. He is currently leading the development effort for the Nikola project at the University of Washington Electrical Engineering department. Among other professional activities, he is a charter member of LOPSA and SAGE and past chair of the SAGE Ethics and Policies working groups. He chaired LISA '04, co-chaired CasITconf '11, and is co-chairing CasITconf '13.

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Ben Del Vento
M3

As a solutions architect, IT management consultant, and engineer, Ben Del Vento brings over 18 years of results into organizations seeking a return on investment from information technology. At Akamai, he designed the infrastructure for its customer portal to support 50,000 users in its cloud and content delivery solutions. At Dell, he built one of the first hybrid cloud solutions for a large national healthcare provider. He is highly knowledgeable of environments comprising cloud and virtualization, Linux/UNIX OSes, security solutions, enterprise storage, and network devices.



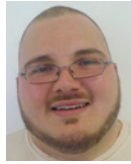
Jacob Farmer
T4, T10

Jacob Farmer has authored numerous papers and is a regular speaker at major industry events. Jacob's nonsense, fast-paced presentation style has won him many accolades. Jacob is a regular lecturer at many of the nation's leading colleges and universities. Inside the data storage industry, Jacob is best known for having authored best practices for designing and optimizing enterprise backup systems and for his expertise in the marketplace for emerging storage networking technologies. Follow him on Twitter @JacobAFarmer.



Rik Farrow
S1, M1

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 two books, one on UNIX security and the other on system administration. He wrote the "Network Defense" column for *Network Magazine* for over six years and is currently the editor of */login*; the USENIX magazine.



Jason Faulkner
T7

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 current member of LOPSA and an active contributor to the keepalived project. Outside of his daily responsibilities, he has also maintained the computer history Web site oldos.org since 2003.



Michael Fiedler
S8

Michael Fiedler is a systems engineer at 10gen. He has worked on a variety of systems, on almost every level of the stack, and has come to realize that the term "DevOps" might be here to stay. He lived and worked in Israel for ~20 years and then moved to NYC to learn about the rest of the world. Since then, he's been constantly learning more. In his free time he volunteers as a Certified Flat Track Roller Derby referee, performs improv comedy, and is a licensed skydiver.



Geoff Halprin
S6, S9, M12

Geoff Halprin has spent over 30 years as a software developer, system administrator, consultant, and troubleshooter. He has written software from system management tools to billing systems, has built and run networks for enterprises of all sizes, and has been called upon to diagnose problems in all aspects of computing infrastructure and software. He is the author of the System Administration Body of Knowledge (SA-BOK) and the USENIX Short Topics book *A System Administrator's Guide to Auditing* and was the recipient of the 2002 SAGE-AU award for outstanding contribution to the system administration profession. Geoff has served on the boards of SAGE, SAGE-AU, USENIX, and LOPSA.

Bob Hancock
W2

Bob Hancock is a principal in Sirguy-Hancock, Ltd., a consulting company in New York City. He has spoken throughout the US and Europe on using parallelism and concurrency to build scalable and fast applications in Python. He is the manager of the Google Developer Group—New York and a co-organizer of NYC Python. You can follow his writings at bobhancock.org and the Open Source project of the implementation of the xmeans algorithm for clustering unstructured data at <https://github.com/bobhancock/goxmeans>.



David Hill
S7, M8

David Hill is a Senior Solutions Architect working at VMware, specializing in cloud computing, disaster recovery, and virtualization. He is a VMware Certified Advanced Professional (VCAP) and a VMware Certified Professional (VCP). David is a lead architect for the vCloud Architecture Toolkit. Before joining VMware, he was a self-employed IT consultant and architect for about 15 years, working on projects for large consultancies and financial institutions.



Shumon Huque
M2, T2

Shumon Huque is the Director of Engineering, Research, and Development for the University of Pennsylvania's Networking and 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. In addition to his day job, Shumon teaches a lab course on advanced network protocols at Penn's Engineering School. Shumon is the principal IPv6 architect at Penn and has been running production IPv6 networks and services for almost a decade.



Joshua Jensen
M7, T1

Joshua Jensen was until recently Cisco Systems' Lead Linux IT Engineer, but is now a one-man IT shop for an autonomous project within Cisco focused on world domination. He has worked as an IBM consultant and was Red Hat's first instructor, examiner, and RHCE. Working with Linux for the past 15 years and for Red Hat for 4.5 years, he wrote and maintained large parts of the Red Hat curriculum and the Red Hat Certified Engineer course and exam.



Stuart Kendrick
W3

Stuart Kendrick is an IT Architect at the Fred Hutchinson Cancer Research Center, specializing in troubleshooting, device monitoring, and transport. He started his career in 1984, writing in FORTRAN on Crays for Science Applications International Corporation; he worked in help desk, desktop support, system administration, and network support for Cornell University in Ithaca and later Manhattan. He has been in his multi-disciplinary role at FHCRC in Seattle since 1993, where he functions as ITIL problem manager/problem analyst and leads root cause analysis efforts.



William LeFebvre
S2

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
M5, M10, T9

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



Ben Lin
S4, S7

Ben Lin is a vCloud Solutions Specialist for the VMware Global Accounts team. He has been closely involved with vCloud solutions, having performed some of the first designs and deployments worldwide. Ben holds VCDX3/4 certification and is an author of *Cloud Computing with VMware vCloud Director*. Ben was a document lead for vCAT and helped create the vCloud Accelerator service kit used by field and partners worldwide. He has presented at the VMworld, VMworld Europe, Partner Exchange, HotCloud, and LISA conferences.



Nan Liu
F2

Nan Liu is a professional service engineer at Puppet Labs. He travels globally to train users on Puppet and provide implementation and architectural consulting for some of the top IT companies in the world that deploy Puppet to manage their infrastructures.

Steven Murawski
T3

Steven is the Senior Windows System Engineer for Edgenet, a data services company, and a Microsoft MVP in PowerShell. In this role, he supports a dynamic infrastructure that pushes the boundaries of the Windows platform. Steven blogs at UsePowerShell.

com. He also leads two local user groups, the Greater Milwaukee IT Pro User Community and the Greater Milwaukee Script Club. He speaks regularly to local user groups and can be found at various conferences.



David Nalley
S5, M6, M11, T6

David Nalley is a recovering systems administrator of 10 years and acted as a consultant for an additional 3 years. David is a committer on the Apache CloudStack project. In the Fedora Project, David is the maintainer of a few dozen software packages, is a sponsor for new packagers in Fedora, and is currently serving on the Fedora Project Board. David is a frequent author for development, sysadmin, and Linux magazines and speaks at IT and F/LOSS conferences.



Mahesh Rajani
M3, M8

Mahesh Rajani is a Consulting Architect in the CoE group at VMware. He has been in the IT industry for over fifteen years, serving in various roles from developer through system administrator to cloud architect. Mahesh is a lead architect for the vCloud Architecture Design Toolkit. He has a Master's degree in electrical engineering from Texas A&M. He is also a VMware Certified Design Expert (VCDX-34).



Alan Robertson
W1

Alan Robertson founded the High-Availability Linux (Linux-HA) project in 1998 and led the project for ten years; it has since become the Pacemaker project. He worked for SuSE, then in IBM's Linux Technology Center for five years. He continues to work on Linux and UNIX systems for IBM. His most recent open source project is the extremely scalable, discovery-driven Assimilation Monitoring Project.

Before joining SuSE, he was a Distinguished Member of Technical Staff at Bell Labs.



Carolyn Rowland
T5

Carolyn Rowland began working with UNIX in 1986; her professional career as a UNIX system administrator took off in 1991. She currently leads a team of sysadmins at the National Institute of Standards and Technology (NIST). She is also Secretary of the USENIX Board of Directors and the LISA '12 Program Chair. In 2011-2012 she began to focus on the community of women in computing, including co-chairing the first-ever USENIX Women in Advanced Computing (WiAC) Summit. She will continue as co-chair of WiAC in 2013.



Marc Staveley
S2

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



Guido Trotter
T9

Guido, a Senior Systems Engineer at Google, has worked as a core Ganeti developer and designer since 2007. He is also a regular conference speaker, having presented at LISA, Fosdem, LinuxCon, Debconf, and other open source and community gatherings. He mostly speaks about Ganeti, virtualization in the open source world, and Linux networking features for virtualized environments.



Theodore Ts'o
T12, R1

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.



Chiradeep Vittal
T6

Chiradeep Vittal is Principal Architect in the Cloud Platforms Group at Citrix Systems. He is a maintainer in the Apache CloudStack project where he contributes to networking and storage parts of the Infrastructure-as-a-Service (IAAS) management system. He was a founding engineer at Cloud.com whose product CloudStack is now incubating at the Apache Software Foundation. CloudStack is deployed in more than 100 clouds, some of which are the largest in the world.



Tom Wheeler
F1

Tom Wheeler's career spans more than 15 years in the communications, biotech, financial, healthcare, aerospace, and defense industries. Before joining Cloudera, he developed engineering software at Boeing, helped to design and implement a high-volume data processing system for WebMD, and served as senior programmer/analyst for a brokerage firm. He now works as a Curriculum Developer at Cloudera, a company that helps organizations derive value from their data through products, consulting, training, certification, and support for Apache Hadoop.

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 Workshop 10, you must be an accepted workshop attendee; see its description for more information.

SUNDAY, DECEMBER 9

Workshop 1: Real World Configuration Management Full Day

Narayan Desai, *Argonne National Laboratories*; **Cory Lueninghoener**, *Los Alamos National Laboratory*; **Kent Skaar**, *VMware, Inc.* This workshop covers 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, which will be widely applicable, regardless of the configuration tool used. 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: Security Full Day

Piotr Zbiegiel, *Argonne 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.

MONDAY, DECEMBER 10

Workshop 3: HPC Compute Cluster Full Day

Clay England, *Oak Ridge National Laboratory* Administering a compute cluster in a production environment is a niche area of system administration. Challenges include cluster management, customer usage, and

specialized software. The topics will be based on the attendees' interest but may include OS deployment, software deployment, disk-less compute nodes, management tools, schedulers and resource managers, and customer issues. Attendees should be admins of a compute cluster or interested in adminning this type of cluster. They should come prepared to discuss openly their admin experiences, problems and successes with this class of machine, and the pros and cons of their existing cluster management tools.

Workshop 4: Government and Military Computer System Administration

Andy 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, uniformed members, government civilians, vendors and suppliers, and anyone who has a direct hands-on technical support role in the government sector. 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.

Workshop 5: Virtual Infrastructures and Cloud Computing Full Day

Kyrre Begnum, *Norwegian System Architects* Virtualization and cloud computing have become household technologies for data centers and large infrastructures as well as small shops and startups. This tool-agnostic workshop is for practitioners who want to share their experiences and challenges with others. The workshop is mostly intended for people who are managing virtual infrastructures and clouds. We will have discussions on a wide range of topics, from educating users, through deployment strategies, to storage and networking issues. Everyone who cares about cloud technologies is welcome to attend. Participants who want to contribute content such as experience reports or short intros on specific topics that

interest them are invited to send a short description to lisa12ws-cloud@usenix.org.

TUESDAY, DECEMBER 11

Workshop 6: Teaching Sysadmins Full Day

David Byers, *Linköping University*; **Ismail Hassan**, *Oslo and Akershus University College of Applied Sciences* This workshop is for educators and practitioners who are interested in influencing the ways we can better teach students to become well-rounded sysadmins. This year's topic is: "Cultivating an employable sysadmin through education programs." We will focus on what makes a strong sysadmin education program. What is the foundation of a solid system administrator? How has education changed in the past decade and how will it change in the next decade? Everyone interested in the education of the next generation of sysadmins is welcome to join our discussion.

Workshop 7: State of the Profession: What are the Unresolved Issues in System Administration? Half Day AM

Tom Limoncelli, *Author and Sysadmin at Google, Inc.*; **Kyrre Begnum**, *Norwegian System Architects* System administrators are responsible for keeping key components of our society up and running. With the globalization and rise of the big Internet services over the last decade, our role has become more important than ever. This workshop will be a half-day mini-conference where professional practitioners come together to discuss the challenges of being a good system administrator today. What are the unsolved problems in systems administration? How can we improve our own practice? Everyone with a passion for our profession is welcome to attend. **Presenters:** Send topic statement or draft slides to lisa12ws-state@usenix.org prior to the event for scheduling. Time limits will be strictly enforced; please rehearse fastidiously.

Workshop 8: Knowledge Management Half Day PM

Mark Burgess, *Cfengine Inc.* Knowledge management is probably

the single greatest challenge for system administrators today, but one of the least represented in terms of resources and tools. Knowledge management includes a variety of issues, including the understanding of specification of systems, relationships between system dependencies, version control on system changes, strategies for streamlining information from logs and monitoring feeds, and more. This workshop will discuss the scope and techniques for knowledge management in system administration. We aim to have an open discussion.

Workshop 9: Monitoring Process and Implementation Solutions Full Day

Scott Koch, *Oak Ridge 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 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. Tool developers interested in hearing the needs of their users and/or offering suggestions are also welcome.

Workshop 10: 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 is available at atw.menlo.com. Position papers should be sent to lisa12ws-atw@usenix.org. Attendees are required to bring a laptop.

Program Chair

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

Program Committee

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Brent Chapman, *Google, Inc.*
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Cory Lueninghoener, *Los Alamos National Laboratory*
Kent Skaar, *VMware, Inc.*

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December 12, 2012, noon–7:00 p.m.

December 13, 2012, 10:00 a.m.–2:00 p.m.

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Learn about cutting-edge technologies and tools from industry leaders, provocative startups, and open source projects.

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

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

See www.usenix.org/lisa12 for details or contact Camille Mulligan, Exhibits Manager, exhibits@usenix.org.



For over 35 years, the USENIX Association has been the leading community for engineers, system administrators, and scientists working on the cutting edge of the computing world. USENIX conferences are the essential meeting ground for discussion of technical advances in all aspects of computing systems. LISA, our SIG for sysadmins, provides unique content designed to further the state of the industry. Our conferences focus on topics such as system administration, file and storage systems, security, and more.



LISA is a Special Interest Group of the USENIX Association. Member 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
- Access to the LISA Jobs Board
- The option to join lisa-members, an electronic mailing list for peer discussion and advice
- Discounts on industry-related publications
- Immediate access to the extensively tabulated results of the LISA Salary Survey

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Electronic Freedom Foundation
FreeBSD
Free Software Foundation
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iX Systems
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PostgreSQL
SCALE
Skybot Software
Stack Exchange

Early Bird Registration Deadline:

Monday, November 19, 2012

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 8GB 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 8GB 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

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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 8GB 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 '12 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, December 3, 2012

Substitutions are always welcome. If you must cancel, please do so by Monday, December 3, to receive a full refund.

Discounts Available!

In order to facilitate your ability to attend LISA '12, 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/lisa12 for more information.

Membership Discounts

USENIX and LISA SIG members receive a \$170 discount; see www.usenix.org/member-services/discounts 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 '12, 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 '12 by November 19, 2012. After November 19, registration fees increase. All member rates are valid for members of USENIX, the LISA SIG, 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 '12, 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.

Hotel Reservation Discount Deadline:

Monday, November 19, 2012

Headquarters Hotel: Sheraton San Diego Hotel & Marina

1380 Harbor Island Drive
San Diego, CA 92101
Phone: (619) 291-2900

Special Attendee Room Rate

\$179 single, \$199 double plus tax

Mention USENIX or LISA to get the special rate, or book online via www.usenix.org/lisa12.

Travel Discounts

USENIX has partnered with American Airlines to provide a 5% discount on your flight to San Diego and with Avis to provide discounted car rentals. Find out more at www.usenix.org/lisa12.

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Register with the discount code on your mailing label to receive a \$25 discount!