Register Online at http://www.usenix.org/events/nt99/

Important Date to Remember:

Hotel and Early Registration Discount Deadline: *June 18, 1999*

"Again this year, I learned quality technical information—not marketing fluff—that will save my department many man-hours in the coming year."

—Todd Williams, *MacNeal-Schwendler Corporation*

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QUESTIONS?

Email: conference@usenix.org

Phone: 1.949.588.8649 Fax: 1.949.588.9706

Updates: *www.usenix.org/events/nt99/*

Program-at-a-Glance

3rd USENIX Windows NT Symposium — WIN-NT

Sunday, July 11, 1999

6:00 pm – 9:00 pm	On-Site Registration
6:00 pm – 9:00 pm	Welcome Reception

Monday, July 12, 1999

7:30 am – 5:00 pm	On-Site Registration
8:30 am – 9:45 am	Opening Remarks and Keynote
10:15 am – 4:30 pm	WIN-NT Technical Program
4:45 pm – 6:00 pm	Poster Session, Demos, and Reception
8:00 pm – 11:00 pm	Birds-of-a-Feather Sessions

Tuesday, July 13, 1999

7:30 am – 5:00 pm	On-Site Registration
8:30 am – 9:30 am	Keynote
10:00 am – 6:00 pm	WIN-NT Technical Program
11:30 am – 1:00 pm	Symposium Luncheon
7:00 pm – 10:00 pm	Reception at Jillian's Sponsored by Microsoft (Tutorial & LISA-NT attendees welcome too)

Combined Tutorials — WIN-NT & LISA-NT

Wednesday, July 14, 1999

7:30 am – 5:00 pm	On-Site Registration
9:00 am – 5:00 pm	Windows NT Tutorial Program
9:00 am – 5:00 pm	Advanced Research Workshop
12:30 pm – 1:30 pm	Tutorial Luncheon

Thursday, July 15, 1999

7:30 am – 5:00 pm	On-Site Registration
9:00 am – 5:30 pm	Windows NT Tutorial Program
12:30 pm – 1:30 pm	Tutorial Luncheon
7:00 pm – 10:00 pm	Birds-of-a-Feather Sessions

2nd Large Installation System Administration of Windows NT Conference — LISA-NT

Friday, July 16, 1999

7:30 am – 5:00 pm	On-Site Registration
9:00 am – 10:30 am	Opening Remarks and Keynote
11:00 am – 5:30 pm	LISA-NT Technical Program
12:00 noon – 7:00 pm	Windows NT '99 Exhibition
5:30 pm – 7:00 pm	Conference/Exhibition Reception
7:00 pm – 10:00 pm	Birds-of-a-Feather Sessions

Saturday, July 17, 1999

9:00 am – 5:30 pm	LISA-NT Technical Program
12:30 pm – 2:00 pm	Conference Luncheon

Windows NT '99 Exhibition

Friday, July 16 12:00 noon – 7:00 pm

EVERYONE WELCOME!

Six Days of Sharing Innovative NT Strategies and Solutions, Including Two Days of Tutorials

3rd USENIX Windows NT Symposium

July 12–15, 1999, Seattle, Washington

Sponsored by the USENIX Association

Dear Colleague,

Come and meet your peers. The 3rd USENIX Windows NT Symposium again brings together researchers who are engaged in product development, industrial research, and academic research using, or planning to use, Windows NT as a base. Other system professionals also find this Symposium a valuable source of information. This year, the particular focus is on issues such as performance, scalability and predictability—intended to take Windows NT to the Max!

Further your work by participating in the Symposium. Be informed of cutting-edge research from refereed technical papers. These are high-quality, original works that the research community can really build on. In the Futures session, you'll hear direct from the experts from Microsoft who are shaping the future of the Windows NT operating system. Two keynote speakers, Mendel Rosenblum, Co-Founder and Chief Scientist of VMware and Jim Cannavino, now CEO and Chairman of the Board of the CyberSafe Corporation, but formerly Senior Vice President of IBM, where he led IBM's battle against Microsoft, will share their insights. Demonstrations and a poster session offer you interactive, informal places to learn and exchange. There are receptions, symposium luncheons, Birds-of-a-Feather Sessions and other forums to talk over what you've learned.

Whether you are already engaged in research using Windows NT or are planning to move in that direction, this is an excellent opportunity for you. Last year's highly productive USENIX Windows NT Symposium allowed close to 400 researchers, developers and system professionals to share their experience and learn from each other.

For the 3rd USENIX Windows NT Symposium Program Committee,

Werner Vogels, *Cornell University*
Stephen Walli, *Softway Systems, Inc.*

Werner Vogels

Stephen Walli

LISA-NT—2nd Large Installation System Administration of Windows NT Conference

July 14–17, 1999, Seattle, Washington

Sponsored by USENIX and
Co-Sponsored by SAGE, the System Administrators Guild

Dear Colleague,

Each year, as systems and network administrators, we face new and interesting requirements from both the users and the operating systems we support. However, there is no need to go it alone, nor is there any need to continue to use solutions designed for yesterday's networks.

It is with this idea of sharing solutions and practical updates on the best tools and technologies for managing Windows NT that we have put together LISA-NT—The 2nd Large Installation System Administration of Windows NT Conference.

For 1999, the LISA-NT Conference has an outstanding program of refereed papers and invited talks, preceded by two days of outstanding tutorials. You'll hear direct from Microsoft project leaders what's coming next in NT. You'll find successful techniques for integrating NT and other high-performance systems, especially UNIX, and managing the issues of connectivity, large Windows NT deployments, and much more that you face. Security, of NT and of your network, is of especial concern, and we have scheduled a comprehensive series of expert presentations.

LISA-NT will bring together NT administrators with real-world solutions all in one place for your benefit. Perhaps more important is that you will have the opportunity to meet your peers who are in similar circumstances and learn from each other.

If you manage Windows NT, this is a conference that you need to attend. Regardless of the number of clients on your network or the complexity you face, we believe you will benefit from our collection of timely, practical information. You will most certainly take home ideas that will spark your own creativity and ingenuity.

We look forward to seeing you in Seattle.

For the Program Committee of the 2nd Large Installation System Administration of Windows NT Conference,

Gerald Carter, *Auburn University*
Ralph Loura, *Cisco Systems, Inc.*

Gerald Carter

Ralph Loura

P.S. *For focused and very practical instruction, attend the two days of USENIX tutorials which follow the Symposium and preceed the Conference. Tutorials offer some of the best instructors in the field, concentrating on essentials of Windows NT, its key technologies, and integration of NT with traditional high-performance systems like UNIX.*

P.P.S. *Attendance is limited by the size of the hotel, so please register early to ensure your seat. In particular, register quickly for tutorials.*

Windows NT Tutorial Program

Wednesday–Thursday, July 14–15, 1999

Stay on top of the latest technology. Register now for tutorials.

Tutorial fees include
- Admission to the tutorial(s) you select
- Printed and bound tutorial materials from your session(s)
- Lunch

Master the newest technology.

Technology is changing more rapidly than ever before. As a technical professional, you are expected to stay up to the minute on the latest technology and techniques, and do your job.

USENIX tutorials aim to provide the critical information you need. Delivered by experts with hands-on experience, tutorials are practical, intensive, and essential to your professional development.

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

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 USENIX 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.*

Register now to guarantee your first choice. Seating is limited.

Select From These Quality Tutorials

Please select a full day or one morning and one afternoon tutorial. Sorry no partial or split-day registrations. Lunch is included with your tutorial fees.

Wednesday, July 14, 1999

Full Day Tutorial Sessions (9:00 am – 5:00 pm):

W1 Windows NT/2000 Kernel Debugging & Crash Dump Analysis *NEW*
Steven McDowell, *NCR Corporation*

W2 Windows NT and UNIX Integration: Problems and Solutions *NEW*
Phil Cox, *Networking Technology Solutions*

Morning Tutorial Sessions (9:00 am – 12:30 pm)

W3AM DHCP/DNS
Greg Kulosa, *GNAC, Inc.*

W4AM The COM(+) Programming Model
Don Box, *DevelopMentor*

Afternoon Tutorial Sessions (1:30 pm – 5:00 pm)

W5PM Configuring and Administering Samba Servers *NEW*
Gerald Carter, *Auburn University*

W6PM DCOM for Systems Administrators *NEW*
Nicholas Schriber, *Collective Technologies Inc.*

Thursday, July 15, 1999

Full Day Tutorial Sessions (9:00 am – 5:00 pm):

T1 Windows NT Internals
Jamie Hanranhan, *Kernel Mode Systems*

T2 Windows NT Security: Advanced Topics *NEW*
Phil Cox, *Networking Technology Solutions*

T3 Learning Perl *NEW*
Daniel Klein, *Consultant*

T4 Windows NT Performance Monitoring, Benchmarking and Tuning *NEW*
Mark T. Edmead, *Windows NT Consultant*

Wednesday, July 14, 1999

Full Day Tutorial Sessions (9:00 am – 5:00 pm)

W1 Windows NT/2000 Kernel Debugging and Crash Dump Analysis *NEW*

Steven McDowell, *NCR Corporation*

Who should attend: This tutorial is aimed at both Windows NT developers and those who support the operating system. Participants should be familiar with the basic operation and concepts of Windows NT and software development. Though no specific programming knowledge is required, examples will be shown in C. Background will be provided before delving into architectural or hardware-specific areas.

This course emphasizes the power and extensibility of the Microsoft Windows NT and Windows 2000 kernel debugging and crash dump analysis tools. It explains how to use these indispensable utilities to solve real-world support and development problems. It focuses on the methods available to exploit the tools to quickly resolve and understand system failures. The Microsoft documentation is sparse, has holes, and only tells part of the story. This tutorial fills in those gaps and presents a coherent examination of exactly what is available, where to find it, and how to use it.

The topics examined in this tutorial include:

- Kernel debugging concepts
- Understanding the NT stop screen
- In-depth examination of the available debugging and analysis tools
- Using the kernel-mode extensions for basic and advanced debugging
- Debugging at the hardware level
- Remote debugging and analysis
- Understanding and working with the various crash dump tools
- Extending the debugger and dump analysis tools
- System configuration practices to ease failure analysis
- Tips for writing debug-friendly code
- What's new and different in debugging Windows 2000?
- Where does Microsoft hide the really good stuff?

Participants will walk away from this tutorial with a thorough understanding of the tools available for debugging kernel mode code and diagnosing system failures.

Steven McDowell is a Senior Engineer at NCR Corporation, where he focuses on Windows NT Internals and leads the development team working on remote clustering technologies. He has taught a number of classes on various technologies. Steven is a co-author of the best-selling *Universal Serial Bus Explained* from Prentice-Hall and has authored the upcoming O'Reilly book *Windows NT Kernel Debugging and Crash Dump Analysis*. He works daily in both NT kernel mode development and with the tools he describes in his tutorial.

W2 Windows NT and UNIX Integration: Problems and Solutions *NEW*

Phil Cox, *Networking Technology Solutions*

Who should attend: System administrators who are responsible for heterogeneous Windows NT and UNIX based systems. Attendees should have user-level knowledge of both UNIX and Windows NT, and it is recommended they have system administration–level experience in at least one of the operating systems.

Today's organizations choose computing solutions from a variety of vendors. Often, integrating the solutions in a seamless, manageable enterprise is an afterthought, left up to the system administrators. This course identifies the solutions to the problems encountered when administering a mixture of UNIX and Windows NT systems. It covers specific problem areas and discusses practical solutions for them. The focus of this course will be on available solutions to real-world administration problems in heterogeneous UNIX and Windows NT based networks which exist and can be applied today.

Topics covered:

- Overview of NT and UNIX
  - Basic homogeneous setups
  - Services offered and how they work
  - Where they are similar
  - Where they are different
  - Potential sticking points
- Areas of interest
  - Electronic mail
  - Web servers
  - User authentication
  - File serving
  - Printing
  - Faxes and modems
  - Host-to-host connectivity
  - Remote administration
  - Backup & restore
- Integration
  - Where can it happen?
  - Why should it happen?
  - How should it happen?
  - What about security?

Phil Cox is a consultant for Networking Technology Solutions and is a member of a government incident response team. Phil frequently writes and lectures on issues bridging the gap between UNIX and Windows NT. He is a featured columnist in the USENIX Association publication *;login:* and is on the LISA-NT program committee.

Morning Tutorial Sessions (9:00 am – 12:30 pm)

W3AM DHCP/DNS

Greg Kulosa, *GNAC, Inc.*

Who should attend: Anyone with two or more networked Windows clients, who wants to automatically distribute network information to those clients. Attendees should have a basic knowledge of TCP/IP, typical network set-up, and procedures for installing/working with their operating system.

This course will cover the DHCP & DNS protocols and how these protocols fit into a typical network. Both UNIX and Windows NT servers for DHCP & DNS will be covered. We will mostly focus on Windows 95 and Windows NT clients, although UNIX clients are similar.

DHCP can be used to distribute IP address, router, DNS, WINS and other information to network clients, without needing to visit each machine and manually configure it. DNS, the Domain Name Service, is the system by which Internet TCP/IP hosts lookup host addresses and network services.

The following topics will be included:

- DHCP & DNS protocol in-depth
- Which server platform should be used? UNIX or Windows NT?

- Which DHCP/DNS server to run? Should you use a commercial solution or will freeware do the job?
- Daily maintenance of DHCP & DNS servers
- How to integrate DHCP information into DNS (and do you really need to?)
- Debugging problems when they occur
- Useful reference materials

Greg Kulosa has been a UNIX Systems Administrator for over 7 years. He is currently a senior consultant, solving a myriad of host and networking problems. He has rolled out DHCP to networks of from 2 to 1500 machines (Windows NT/95, Linux, Solaris 2.6 client machines) as well as done more DNS BIND installs and written more zone files than he cares to remember.

W4AM The COM(+) Programming Model

Don Box, *DevelopMentor*

Who should attend: Developers and architects involved in the design and implementation of component-based applications. An understanding of either Java or C++ is expected in order to grasp the code fragments, but read-only language skills should be adequate. This tutorial is geared at presenting the core semantics of the programming model and providing attendees with a view into the current state of COM(+).

This tutorial focuses on the semantics of COM(+) and covers the core abstractions used to design and implement COM(+) applications.

Topics covered include:

- Interface-based programming, COM-style
- COM(+) class loading and component configuration
- Context and interception
- Remoting architecture
- Transactional programming
- Asynchronous programming

Sifting through the mounds of detail involved in actual COM(+) development can be daunting. This tutorial is intended to be a roadmap to help attendees focus on the core abstractions that will most influence their designs.

Don Box is a cofounder of DevelopMentor, an education firm that focuses on distributed object technology. He is the author of *Essential COM* and a co-author of *Effective COM*, both from Addison Wesley. He is also a contributing editor to *Microsoft Interactive Developer* as well as *Microsoft Systems Journal*, where he writes the bi-monthly COM column.

Afternoon Tutorial Sessions (1:30 pm – 5:00 pm)

W5PM Configuring and Administering Samba Servers *NEW*

Gerald Carter, *Auburn University*

Who should attend: This tutorial is intended for systems and network administrators who wish to integrate Samba running on a UNIX based machine with Microsoft Windows clients. The attendees need not be UNIX experts as long as they are comfortable with editing systems configuration files and common tasks such as using the *ps* and *kill* commands.

Samba is a freely available suite of programs that allows UNIX based machines to provide file and print services to Microsoft Windows PCs without installing any third-party software on the clients. This allows users to access necessary resources from both PC and UNIX workstations. As Samba makes its way into more and more network shops all over the world, it is common to see "configuring Samba servers" listed as a desired skill on many job descriptions for network administrators.

This tutorial will use real-world examples taken from daily administration tasks to show you how to:

- Install Samba from the ground up
- Configure a UNIX box to provide remote access to local files and printers from Microsoft Windows clients
- Configure Samba as a member of a Windows NT domain in order to utilize the domain's PDC for user authentication
- Use Samba as a domain controller
- Configure Samba to participate in network browsing
- Automate the daily tasks of managing Samba

Gerald Carter has been a member of the SAMBA Team since 1998. However, he has been maintaining Samba servers for the past four years. Currently employed as a network manager by the College of Engineering at Auburn University, Auburn, AL, Gerald daily maintains approximately 600 PCs running a melting pot of Microsoft operating systems and 30 Solaris 2.x servers running Samba. He recently was the lead author of *Teach Yourself Samba in 24 Hours* from Sams Publishing and writes a monthly column for the Web based magazine *LinuxWorld* on Linux and Windows NT integration.

W6PM DCOM for Systems Administrators *NEW*

Nicholas Schriber, *Collective Technologies Inc.*

Who should attend: Systems administrators or project managers who want the information to address "their side" of the DCOM equation, and software developers who are new to the COM/DCOM world who desire an overview. This course will be of particular importance to support personnel working in a development environment who would like to better understand their own role in making client-server work. No programming experience is assumed; all examples will be conceptual, with no code involved.

Object-oriented programming is ubiquitous, but specifications such as Microsoft's Component Object Model and Distributed COM are essential for it to fulfill its potential. Client-server computing needs a robust communication infrastructure so that middleware can make a heterogeneous environment appear as a single system. What does a systems administrator need to know about COM and DCOM to coordinate with software developers in making this happen optimally? This course lays the groundwork and provides real techniques for addressing this question.

This presentation includes:

- A brief history of technologies leading up to DCOM (such as RPC, OLE, etc.) with technical details (and limitations) of each
- Where DCOM fits in relation to CORBA, and where each is appropriate
- An overview of essential structured programming concepts which COM and DCOM address

- A drill-down into the DCOM architecture
- DCOM security and management tools

This course will also include live demos of some of the COM management tools, as well as working inside the registry. We will also examine some of the COM-oriented security and interoperability tools. We will examine Microsoft-supplied and public-domain tools, as well as touching upon third-party tools where appropriate.

Nicholas Schriber is a senior consultant at Collective Technologies, Inc., which is a Microsoft strategic partner and a national source of client-server support solutions. He has worked for 13 years in PC networking, of which ten were in direct support of software developers. His certifications include MCSE, 3Wizard, and Project Management Professional (PMI). He collaborates on the monthly Q&A column "Ask the Answerdesk" in *NT Systems Magazine.*

Thursday, July 15, 1999

Full Day Tutorial Sessions (9:00 am – 5:00 pm)

T1 Windows NT Internals

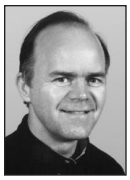
Jamie Hanrahan, *Kernel Mode Systems*

Who should attend: This tutorial is aimed at operating system developers, applications programmers, and system administrators who need to understand the internal behavior and architecture of Windows NT. (Note: The information presented is valid for both NT Versions 4 and 5.)

Windows NT is built on a new operating system code base, similar in many ways to well-established OSes such as UNIX and VMS, and very different from Microsoft's DOS, Win16, and Windows 9*x* platforms. This course will describe the behavior of Windows NT from system architecture point of view. Using a variety of tools, we will explore internal interfaces and the behavior of the system, show how NT implements fundamental operating system functions such as scheduling and memory management, and show how NT's architecture affects some of its functionality.

Topics covered include:

- General system architecture
- Providing operating system functions to user mode
- Thread scheduling
- Memory management internals
- Using and interpreting performance measurement tools



Jamie Hanrahan provides Windows NT driver development, consulting, and training services to leading companies. He is co-writing a book on Windows NT device drivers, to be published by O'Reilly and Associates. He also has an extensive background in VMS device drivers and internals. He is co-author of *VMS Advanced Driver Techniques* and received the Instructor of the Year award for teaching VMS device drivers and internals courses for Digital Equipment Corporation.

T2 Windows NT Security: Advanced Topics *NEW*

Phil Cox, *Networking Technology Solutions*

Who should attend: Programmers, network and systems administrators, and individuals who want a better understanding of securing Windows NT, and anyone interested in Windows NT network protocols, details on what registry settings actually do, and other advanced topics. An intermediate knowledge of Windows NT security will be assumed. Experience in securing Windows NT and in dealing with network security is a prerequisite for this course.

Many security-related issues of Windows NT require more than a basic understanding of Windows NT security exposures and potential control measures. This course is designed for system and network administrators and system programmers who are already technically proficient with Windows NT security and want to learn more about advanced features.

Topics include:

- Details of Windows NT related to security and their security implications
  - The internal functionality of Windows NT
  - Windows networking: SMB and NetBIOS
- Tradeoffs in designing and implementing suitable solutions to NT's flaws
- Practical exercises in defending NT with a firewall
- Dealing with Windows NT authentication
  - Passthrough authentication
  - Derivation and protection of password hashes
- Securing the Windows registry
  - Advanced techniques
  - Tradeoffs and pitfalls in each registry change
- The Security Configuration Manager
  - Default configurations
  - Defining specialized templates

Phil Cox

Phil Cox is a consultant for Networking Technology Solutions and is a member of a government incident response team. Phil frequently writes and lectures on issues bridging the gap between UNIX and Windows NT. He is a featured columnist in the USENIX Association publication *;login:* and is on the LISA-NT program committee.

T3 Learning Perl *NEW*

Daniel Klein, *Consultant*

Who should attend: Programmers with previous experience either in a structured programming language, like C, C++, Pascal, Python, or Java, or else in a scripting language like the Bourne shell, Javascript, or Tcl. While some previous exposure to Perl is beneficial, it's not essential.

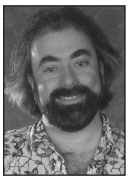
Designed to be programmer-friendly and platform-neutral, Perl is a high-level, general-purpose programming language that makes easy things easy and hard things possible. Now moving into its second decade, Perl has become the language of choice across all platforms for programmers engaged in rapid prototyping, system utilities, software tools, system management tasks, database access, and graphical and Web programming. Perl programming is an essential skill for any system administrator or Web programmer, and an important one for nearly everyone else.

Because Perl incorporates aspects of more than a dozen well-known tools, experienced UNIX programmers and administrators can come up to speed on Perl very rapidly. However, because Perl is portable to all major platforms (including Windows), programmers and administrators everywhere will benefit from this high-powered tool.

Topics in this full-day class include:

- Getting started with Perl, command-line switches
- Debugging, common beginner "gotchas"
- Control flow structures, such as loops and conditionals
- Strings and numbers
- Detailed description of basic data types (scalar, array, and hash variables)

- Working with files and directories
- Binary I/O, formatted data, records
- Nested and multidimensional data structures
- References
- Detailed work on Perl regular expressions for pattern matching and substitution
- Writing user-defined functions
- Scoping issues
- Signal handling
- A light overview of packages, libraries, modules, and object-oriented programming in Perl



Daniel Klein has been programming exclusively in Perl for the past 4 years. He has been scripting, teaching, and doing a large volume of Web-based consulting, all in Perl. His experience covers a broad range of disciplines, including real-time process control, compilers and interpreters, medical diagnostic systems, system security and administration, Web-related systems and servers, graphical user interface management systems, the internals of almost every UNIX kernel released in the past 22 years, and a racetrack betting system.

T4 Windows NT Performance Monitoring, Benchmarking and Tuning *NEW*

Mark T. Edmead, *Windows NT Consultant*

Who should attend: Users and administrators who want detailed information about how to get the best performance out of their Windows NT workstation and server.

This course begins by providing an overview of the NT system from an internals point of view. Differences between the workstation and the server product will be covered and there will be further discussion of performance. The computer will be divided into various resource components and each one of these will be covered in detail to gain a clear understanding of their interrelationship.

Course topics will cover:

- Performance monitoring and data gathering tools
  - Windows NT performance: automatically gathering system resource data for further analysis
- System components
- Solving performance problems
  - Why they occur
  - How to fix them
- System settings
  - Optimal workstation or server performance
  - Registry settings
  - Performance tradeoffs
- System resources (CPU, memory, disk, and network)
  - Analyzing performance
  - Solving bottleneck problems

Mark Edmead has over 20 years of experience in software product development, system design, and project management. Mark has been involved in the planning, training, and installation of Windows NT servers and workstations. This includes domain planning, Network security, capacity planning, and DHCP, WINS, and RAS configurations, as well as delivery of custom in-house training seminars on topics including Windows NT administration and optimization, and NT security. Mark is the co-author of *Windows NT: Performance, Monitoring and Tuning,* published by MacMillan.

Windows NT Symposium Advanced Research Workshop

Wednesday, July 14, 1999

Co-Chairs: Todd Needham, *Microsoft Research, Microsoft Corporation* & Werner Vogels, *Cornell University*

Following the symposium, a one-day workshop will be held to bring together researchers in intensive sessions to share research results, examine cutting-edge performance achievements, discuss problems and new research directions, all specific to Windows NT. To ensure effective interaction, the workshop is limited to 30–40 participants and attendance will be by invitation only.

How to Participate

Researchers interested in participating are requested to submit an extended abstract describing the work they would like to present at the workshop. The abstract should be no longer than 1200 words and be submitted to *usenix-nt-workshop@usenix.org*. The deadline for submission is June 14, 1999.

For additional details, please see *http://www.usenix.org /events/usenix-nt99/advanced.html*

3rd USENIX Windows NT Symposium Technical Sessions

Monday–Tuesday, July 12–13, 1999

Monday, July 12, 1999

8:30 am – 8:45 am **Welcome**

8:45 am – 9:45 am **Keynote Address**

Jim Cannavino, CEO/Chairman, *CyberSafe Corporation*

Business Computing: The Evolution of Opportunity

Technology in the business process has evolved significantly in the last 30 years: the 1960's-70's automated the back office, the 1980's-90's automated the front office. Now the Internet is automating the last inefficient piece of the business process: the consumer. Against this backdrop, Jim will look at today's Web-centric communication and its impact on security, as well as the advent of e-business and what it means for the future.

***Jim Cannavino** is CEO at CyberSafe, Inc. A former executive at both Perot Systems and IBM, he leads the company that develops leading security products for critical enterprise applications. In two years at Perot Systems, he grew the company from $300 million to $800 million. He held many positions during his 32-year tenure at IBM, retiring from the company as senior vice president for strategy and development. Prior to that, he led the company's restructuring of the PC business to form the IBM PC Company. Additionally, he forged IBM's alliance with Apple Computer and Motorola that led to the Power PC chip.*

9:45 am – 10:15 am **Break**

10:15 am – 11:45 am **Cluster Computing**

Session Chair: Werner Vogels, *Cornell University*

Efficient User-Level Thread Migration and Checkpointing on Windows NT Clusters
Hazim Abdel-Shafi, Evan Speight, and John K. Bennett, *Rice University*

High-End Workstation Compute Farms Using Windows NT
Srinivas Nimmagadda, Joshua LeVasseur, and Rumi Zahir, *Intel Corporation*

High-Performance Distributed Objects over System Area Networks
Alessandro Forin, Galen Hunt, *Microsoft Research, Microsoft Corporation;* Li Li, *Cornell University;* and Yi-Min Wang, *Microsoft Research, Microsoft Corporation*

11:45 am – 1:00 pm **Lunch (on your own)**

1:00 pm – 2:30 pm **Porting**

Session Chair: Stephen Walli, *Softway Systems, Inc.*

MTEX - A Bridge for Migrating CAD Design Environment from UNIX to NT
Ty Tang, Vipul Lal, and Shesha Krishnapura, *Intel Corporation*

Porting Legacy Engineering Applications onto Distributed NT Systems
Nick Allsopp, Tim Cooper, P. Ftakas, *Parallel Applications Center;* and Patrick Macey, *SER Systems, Ltd.*

Porting a User-Level Communication Architecture to NT: Experiences and Performance
Yuqun Chen, Stefanos N. Damianakis, Sanjeev Kumar, Xiang Yu, and Kai Li, *Princeton University*

2:30 pm – 3:00 pm **Break**

3:00 pm – 4:30 pm **High-Performance Systems**

Session Chair: Jim Gray, *Microsoft Research, Microsoft Corporation*

Windows NT in a ccNUMA System
Bishop Brock, Gary Carpenter, Eli Chiprout, Mark Dean, Elmootazbellah Elnozahy, David Glasco, James Peterson, Ramakrishnan Rajamony, Freeman Rawson, Ron Rockhold, and Andrew Zimmerman, *IBM, Austin Research Lab*

The Record-Breaking Terabyte Sort on a 72-node Compaq Cluster
Pankaj Mehra and Samuel A. Fineberg, *Compaq Computer Corporation—Tandem Labs*

Millennium Sort: A Cluster-Based Application for Windows NT Using DCOM, River Primitives and the Virtual Interface Architecture
Philip Buonadonna, Joshua Coates, Spencer Low, and David E. Culler, University of California, Berkeley

4:30 pm – 4:45 pm **Break**

4:45 pm – 6:00 pm **Poster Session, Demonstrations, and Reception**

Session Chair: Richard Oehler, *IBM T.J. Watson Research Center*

Poster and demo sessions will provide an open forum for symposium participants to describe their work in an informal setting. Anyone interested in setting up a poster or demo should send email to *usenix-nt-posters@usenix.org*.

Tuesday, July 13, 1999

8:30 am – 9:30 am **Keynote Address**

Mendel Rosenblum, *VMware, Inc.*

VMware Virtual Platform Technology

VMware Virtual Platform is a software system that allows multiple operating system environments to run concurrently on a standard x86-based PC. By adapting some new twists to virtual machine monitor technology originally employed in the 1960's, the Virtual Platform provides virtualization of the non-virtualizable Intel x86 processor. VMware Virtual Platform also handles the large diversity of hardware available for the PC. The resulting system features both high performance and high portability, as well as ease of installation.

This talk will cover some of the major challenges of implementing in software a virtual machine monitor for a commodity, x86-based PC. The talk will also describe the solutions to these problems as implemented in VMware Virtual Platform.

Mendel Rosenblum, *Ph.D., is Co-founder and Chief Scientist of VMware, Inc. He is a 1992 recipient of the National Science Foundation's National Young Investigator award and a 1994 recipient of an Alfred P. Sloan Foundation Research Fellowship. He was a co-winner of the 1992 ACM Doctoral Dissertation Award for his work on log-structured file systems. Dr. Rosenblum is an Associate Professor of Computer Science at Stanford University, where he leads the operating systems research group of the FLASH project. Together with his students, he developed the Hive scalable operating system, the SimOS complete machine simulator environment and the Disco scalable virtual machine monitor.*

9:30 am – 10:00 am **Break**

10:00 am – 11:30 am **Real Time and Not**

Session Chair: Susan Owicki, *InterTrust Technologies Corporation*

CPU Reservations and Time Constraints: Implementation Experience on Windows NT
Michael B. Jones, *Microsoft Research, Microsoft Corporation;* and John Regehr, *University of Virginia*

Hard Real-time with RTX on Windows NT
Mike Cherepov and Chris Jones, *VentureCom, Inc.*

Higher-Order Concurrent Win32 Programming
Riccardo Pucella, *Bell Laboratories, Lucent Technologies*

11:30 am – 1:00 pm **Symposium Luncheon**

1:00 pm – 2:30 pm **Indirection**

Session Chair: Michael B. Jones, *Microsoft Research, Microsoft Corporation*

FIFS: A Framework for Implementing User-Mode File Systems in Windows NT
Danilo Almeida, *Massachusetts Institute of Technology*

Detours: Binary Interception of Win32 Functions
Galen Hunt and Doug Brubacher, *Microsoft Research, Microsoft Corporation*

Evaluating Windows NT TSE Performance
Alexander Ya-li Wong and Margo Seltzer, *Harvard University*

2:30 pm – 3:00 pm **Break**

3:00 pm – 4:30 pm **Internet**

Session Chair: Karin Petersen, *Xerox Palo Alto Research Center*

A Case for a New CIFS Benchmark
Swami Ramany, *Network Appliance, Inc.*

HACC: An Architecture for Cluster-Based Web Servers
Xiaolan Zhang, Michael Barrientos, J. Bradley Chen, and Margo Seltzer, *Harvard University*

A Technique for Reducing Startup Latency in Mobile and Desktop Applications
Dennis Lee, Jean-Loup Baer, Brian Bershad, and Tom Anderson, *University of Washington*

4:30 pm – 6:00 pm **NT Futures**

George Spix, Chief Architect, Consumer Platforms Division, *Microsoft Corporation,* and Filipe Cabrera, Windows 2000 Storage Architect, *Microsoft Corporation*

In this session two of the most influential architects of Windows 2000 will talk about issues such as 64-bit, SMP, and cluster scaleup issues, the improved manageability of the data center product, and other interesting future developments. The session has a very informal nature with lots of room for discussion with the symposium participants.

7:00 pm – 10:00 pm **Reception at Jillian's Sponsored by Microsoft**

(Tutorial & LISA-NT attendees welcome too)

LISA-NT—2nd Large Installation System Administration of Windows NT Conference

Friday–Saturday, July 16–17, 1999

Friday, July 16, 1999

9:00 am – 10:30 am **Opening Remarks, Awards, and Keynote Address**

More Than the Sum of the Parts: Combining Windows NT and Legacy Platforms
David P. Rodgers, Vice President, NT Program Office, *Compaq Computer Corporation*

Rather than replace legacy platforms with Windows NT, organizations should combine the two platforms. Windows NT can supply flexibility, distributed computing, and Web capabilities, while legacy systems can compensate for NT's weaknesses in areas such as scalability, availability, and manageability.

David Rodgers *currently oversees Compaq's effort to accelerate the adoption of Windows NT on Compaq hardware for mission-critical distributed transaction processing applications. Previously Vice President of Corporate Architecture at Sequent, he was also responsible for developing their Balance and Symmetry multiprocessor systems and the Dynix OS. During his ten-year stay at Digital Equipment Corporation, Rodgers headed the CPU development team on the VAX-11/780 super-minicomputer at Digital and was one of the architects of the Digital VAX computer family.*

10:30 am – 11:00 am **Break**

11:00 am – 12:30 pm **Large Installation Management**
Session Chair: Aeleen Frisch, *Exponential Consulting*

Scalable, Remote Administration of Windows NT
Michail Gomberg, Craig Stacey, and Janet Sayrem, *Argonne National Laboratory*

A Network Machine Management System
Dave Roth, *Roth Consulting*

State-Driven Software Installation for Windows NT
Martin Sjolin, *Warburg Dillon Read*

12:30 pm – 2:00 pm **Lunch (on your own)**

2:00 pm – 3:30 pm **Tales from the Front—A Report from the Windows 2000 Beta Team**
William Gloyeske, *Team Manager for the Windows 2000 Beta Team, Microsoft Research, Microsoft Corporation*

Session Chair: Matthew Olguin, *SEMATECH*

3:30 pm – 4:00 pm **Break**

4:00 pm – 5:30 pm **Non-Traditional Solutions**
Session Chair: Ian Alderman, *Cornell University*

NFS and SMB Data Sharing Within a Heterogeneous Environment: A Real World Study
Alan Epps, Dr. Glenn Bailey, and Douglas Glatz, *Tektronix, Inc.*

Administering a Windows NT Domain Using a Non–Windows NT Primary Domain Controller
Gerald Carter, *Auburn University*

Radio Dial-in Connectivity to NT Networks
Kenneth May, *IBM Global Services*

5:30 pm – 7:00 pm **Conference/Exhibition Reception**
Anyone Welcome to Attend

Saturday, July 17, 1999

9:00 am – 10:30 am **Inside the Microsoft Network (MSN)**

Chris Pinto, Director of Information Technology Group for MSN, *Microsoft Corporation*

Session Chair: Ralph Loura, *Cisco Systems, Inc.*

10:30 am – 11:00 am **Break**

11:00 am – 12:30 pm **Windows NT Management Scenarios**

Session Chair: John Holmwood, *TransCanada Pipeline Ltd.*

NT Security in an Open Academic Environment
Matthew Campbell, Andrea Chan, Robert Cowles, Gregg Daly, Ernest Denys, Patrick Hancox, William Johnson, David Leung, and Jeff Lwin, *Stanford Linear Accelerator Center*

Deployment of Microsoft Windows NT in a Design Engineering Environment
Jason Sampson, Elwood Coslett, Bob Paauwe, Russ Craft, Gary Washington, and Kevin Wheeler, *Intel Corporation*

NT Security Monitoring Using SNMP
Richard Reybok, *Lehman Brothers, Inc.*

12:30 pm – 2:00 pm **Conference Luncheon**

2:00 pm – 3:30 pm **Invited Talks: Securing Windows NT Network Services**

Session Chair: Phil Cox, *Computer Incident Advisory Capability*

Securing Windows NT Services

David LeBlanc, *Microsoft Corporation*

Windows NT installs certain services by default, and others can be added either manually or as part of an application. The question then becomes "What happens when I turn a particular service off?" and "How does a particular service affect the network security of my machine?" This talk will help you to:

- Understand the services running on your machine
- Learn the security implications of each service.
- Understand how to write a secure service.
- Learn information on how to judge the security of a service from a vendor.

NT in the Firewall Environment

Elizabeth Zwicky, *Great Circle Associates*

As NT becomes a more and more important server platform, an increasing number of people need to run it in a firewall environment; people have NT bastion hosts, firewalls between cooperating NT machines, and NT firewalls. Unfortunately, solid information about NT in this environment is hard to come by, with both pro- and anti-NT camps producing more emotion than data about services, port numbers, and risks. This talk will attempt to provide some actual information about NT and firewalls.

3:30 pm – 4:00 pm **Break**

4:00 pm – 5:30 pm **Works-in-Progress**

Session Chair: Paul Anderson, *University of Edinburgh*

Do you have interesting work you would like to share, or a cool idea that is not yet ready to be published? The USENIX audience provides valuable discussion and feedback. Short, pithy, and fun, Works-in-Progress Reports (WIPs) introduce interesting new or ongoing work. We are particularly interested in presentation of student work. Prospective speakers should send a short one- or two-paragraph report to *lisant99wips @usenix.org.*

Windows NT '99 Exhibition

Friday, July 16, 1999

Friday, July 16 12:00 noon – 7:00 pm

- **UNIX to Windows NT migration & interoperability software**
- **UNIX and NT performance management and capacity planning software**
- **Web management systems**
- **Connectivity and networking products**
- **Enterprise management tools**

Questions?
More information?
Contact Dana Geffner
Phone: 1.831.457.8649
Email: *dana@usenix.org*

Try out for yourself systems management products and services. Get your questions answered by knowledgeable company representatives in this informal and pleasant environment. Save yourself hours of time researching products you need to get your job done.

Participants (as of March 23, 1999)

Alteon Networks Inc.
http://www.alteon.com/

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http://www.boostsystems.com/

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Incognito Software
http://www.incognito.com/

Ki NETWORKS, Inc. *http://www.ki.com/*

MKS *http://www.datafocus.com/*

Network Appliance, Inc.
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Open: Friday, July 16, 12:00 noon – 7:00 pm
Location: The Westin Hotel
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Mail to: USENIX Conference Office,
22672 Lambert Street, Suite 613,
Lake Forest, CA 92630
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OR BRING PASS WITH YOU TO THE EXHIBIT.

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What is your affiliation (check one):
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1. ❑ final **2.** ❑ specify **3.** ❑ recommend **4.** ❑ influence **5.** ❑ no role

What is your primary job function (check one):
1. ❑ system/network administrator **2.** ❑ consultant **3.** ❑ academic/researcher
4. ❑ developer/programmer/architect **5.** ❑ system engineer
6. ❑ technical manager **7.** ❑ student **8.** ❑ security

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USENIX & SAGE Membership Information and Events

About USENIX

Since 1975, the USENIX Association has brought together the community of engineers, system administrators, scientists, and technicians working on the cutting edge of computing. USENIX and its members are engaged in problem solving, in innovation, and in research that works.

USENIX conferences are the essential meeting grounds for the presentation and discussion of the newest information on the technical developments in computing.

USENIX and its members are dedicated to:

- Problem-solving with a practical bias
- Fostering innovation that works
- Communicating rapidly the results of both research and innovation
- Providing a neutral forum for the exercise of critical thought and the airing of technical issues

USENIX Website: *www.usenix.org/*

About SAGE

SAGE, the System Administrators Guild, is the largest membership society for system managers and is dedicated to the advancement and recognition of system administration as a profession. SAGE is a special technical group within USENIX. To join SAGE, you must be a member of USENIX.

SAGE Website: *www.usenix.org/sage/*

The USENIX Association
2560 Ninth Street, Suite 215
Berkeley, CA 94710
Phone: 1.510.528.8649
Fax: 1.510.548.5738
Email: *office@usenix.org*
Web: *http://www.usenix.org/*

Upcoming USENIX Events

USENIX Annual Technical Conference
June 6–11, 1999, Monterey, CA
http://www.usenix.org/events/usenix99/

3rd USENIX Windows NT Symposium
July 12–15, 1999, Seattle, WA
http://www.usenix.org/events/usenix-nt99/

LISA-NT—2nd Large Installation System Administration of Windows NT Conference
Sponsored by USENIX, Co-sponsored by SAGE
July 14–17, 1999, Seattle, WA
http://www.usenix.org/events/lisa-nt99/

8th USENIX Security Symposium
Sponsored by USENIX in cooperation with The CERT Coordination Center
August 23–26, 1999, Washington, D.C.
http://www.usenix.org/events/sec99/

2nd Conference on Domain-Specific Languages
Sponsored by USENIX in cooperation with ACM SIGPLAN and SIGSOFT
October 3–6, 1999, Austin, TX
http://www.usenix.org/events/dsl99/

2nd USENIX Symposium on Internet Technologies and Systems (USITS)
Sponsored by USENIX, Co-Sponsored by IEEE Computer Society Task Force on Internetworking
October 11–14, 1999, Boulder, CO
http://www.usenix.org/events/usits99/

3rd Annual Atlanta Linux Showcase
In cooperation with USENIX and Linux International
October 12–16, 1999, Atlanta, GA
http://www.linuxshowcase.org/

13th Systems Administration Conference (LISA '99)
Sponsored by USENIX and SAGE
November 7–12, 1999, Seattle, WA
Paper submissions due: May 25, 1999
http://www.usenix.org/events/lisa99/

Tcl/2k: 7th Tcl/Tk Conference
February 14–18, 2000, Austin, TX
http://www.usenix.org/events/tcl2k/

USENIX Annual Technical Conference
June 19–23, 2000, San Diego, CA

9th USENIX Security Symposium
August 14-17, 2000, Denver, CO

4th Symposium on Operating Systems Design & Implementation
October 23–25, 2000, San Diego, CA
http://www.usenix.org/events/osdi00/

14th Systems Administration Conference (LISA '00)
December 3–8, 2000, New Orleans, LA

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Thank You

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3rd USENIX Windows NT Symposium

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Activities & Services

Conference Proceedings

One copy of the proceedings is included with your Technical Sessions registration fee. To order additional copies, contact the USENIX Association at 1.510.528.8649, or send email to *office@usenix.org*

Birds-of-a-Feather Sessions (BoFs)

Monday, Thursday, and Friday evenings

Do you have a topic that you'd like to discuss with others? Our Birds-of-a-Feather sessions may be perfect for you. BoFs are very interactive and informal gatherings for attendees interested in a particular topic. Schedule your BoF in advance by telephoning the USENIX Conference Office at 1.949.588.8649, or email to *conference@usenix.org*

BoFs may also be scheduled on-site and will be announced at the conference.

Social Activities

Meet the speakers and connect with your peers in the community.

3rd USENIX Windows NT Symposium

Sunday, July 11, 1999
6:00 pm – 9:00 pm Welcome Reception

Monday, July 12, 1999
4:45 pm – 6:00 pm Poster Session, Demos, and Reception *(see p. 10)*
8:00 pm – 11:00 pm Birds-of-a-Feather Sessions

Tuesday, July 13, 1999
11:30 am – 1:00 pm Symposium Luncheon
7:00 pm – 10:00 pm Reception at Jillian's Sponsored by Microsoft

Thursday, July 15, 1999
7:00 pm – 10:00 pm Birds-of-a-Feather Sessions

Friday, July 16, 1999
12:00 noon – 7:00 pm Windows NT '99 Exhibition
5:30 pm – 7:00 pm Conference/Exhibition Reception

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7:00 pm – 10:00 pm Birds-of-a-Feather Sessions

Saturday, July 17, 1999
12:30 pm – 2:00 pm Conference Luncheon

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Office hours: 8:30 am – 5:00 pm Pacific Time

Hotel Discount Reservation Deadline:
June 18, 1999

USENIX has negotiated special rates for conference attendees at the Westin Seattle Hotel. Contact the hotel directly to make your reservation. Please mention USENIX to get our special group rate. A one-night's room deposit must be guaranteed on a major credit card. To cancel your reservation, you must notify the hotel at least 24 hours before your planned arrival date.

The Westin Seattle Hotel
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Single/Double Occupancy $165.00
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Parking

Valet parking is $18 and self-parking is $15 at the Westin Seattle.

Discount Airfares

Special airline discounts will be available for USENIX attendees. Please call for details:

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The Westin Seattle Hotel is approximately 30 minutes from the Seattle-Tacoma (Sea-Tac) International Airport.

Airport Shuttle

Gray Line Services provides daily shuttle service every 30 minutes from 6:00 am until 11:30 pm to The Westin Hotel and other downtown hotels. Tickets can be purchased for $7.50 one way, $13.00 round trip, at the Gray Line Service Desk located near the baggage claim area. Reservations are not required.

Taxi

Cost averages about $35 one way and takes approximately 20–30 minutes.

Registration Information and Fees

Early Registration & Hotel Discount Deadline:

June 18, 1999

NON-MEMBERS

If attending both Technical Sessions, pay the non-member fee for the Windows-NT Symposium and check the membership box on the registration form. Then pay member fee for the LISA-NT Conference. You save on the second registration and become an USENIX member.

Pay an additional $30 to join SAGE.

Payment

Payment by check or credit card MUST accompany the registration form. Purchase orders, vouchers, and telephone reservations cannot be accepted.

3rd USENIX Windows NT Symposium

Technical Sessions Fees (July 12–13, 1999)

Technical Sessions registration fee includes:

- Admission to the WIN-NT Technical Sessions
- Copy of Symposium Proceedings
- Admission to WIN-NT Symposium activities (p. 16)
- Admission to the Exhibition

Early registration fee (until June 18, 1999)

Member*	$360
Non-member or Renewing Member**	$440
Full-time student	$ 75
(Must provide copy of current student I.D. Card)	

After June 18, add $50 to the Technical Sessions fee.

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WIN-NT Symposium Usage Abstract

All registrants are required to provide a usage abstract (400 words maximum) briefly describing their involvement with research on Windows NT. The usage abstracts will be made available to all attendees so that like-minded researchers can find each other. We will also use this feedback to help our invited speakers fine-tune their talks to address current and popular issues. To submit an abstract, fill out the abstracts Web form. *http://www.usenix.org/events/usenix-nt/registration/abstract.html*

REFUND/CANCELLATION POLICY

If you must cancel, all refund requests must be in writing and postmarked no later than July 2, 1999. Telephone/ email cancellations cannot be accepted. You may substitute another in your place. Contact the Conference Office for details.

Windows NT Tutorial Program

Tutorial Fees (July 14–15, 1999)

Tutorial registration fees include:

- Admission to the tutorial (s) you select
- Printed and bound tutorial materials for selected session(s)
- Lunch
- Admission to the Exhibition

Early registration fee (until June 18, 1999)

Tutorial Program for one day	$395
CEU credit (optional)	$ 15
Tutorial Program for two days	$690
CEU credit (optional)	$ 30

After June 18, add $50 to the tutorial fee.

LISA-NT—2nd Large Installation System Administration of Windows NT Conference

Technical Sessions Fees (July 16–17, 1999)

Technical Sessions registration fee includes:

- Admission to the LISA-NT Technical Sessions
- Copy of Conference Proceedings
- Admission to LISA-NT Conference activities (p. 16)
- Admission to the Exhibition

Early registration fee (until June 18, 1999)

Member*	$360
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Full-time student	$ 75
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Technical Sessions: USENIX offers a special discount rate of $75 for its technical sessions for full-time students. You must include a copy of your current student I.D. card with your registration. This special fee is not transferable. Separate fees should be requested for Windows-NT and LISA-NT.

Student Stipends: A limited number of student stipends are available to pay for travel, living expenses, and registration fees to enable full-time students to attend the conference. To apply for a stipend, read ***comp.org.usenix*** 6 to 8 weeks before the conference, visit our Web site, ***www.usenix.org/students/***, or email ***students@usenix.org*** for more information.

Copy this form as needed. Type or print clearly.

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Help us to meet your needs by answering the following. Information is confidential.

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4. ❑ WWW **5.** ❑ from a colleague **6.** ❑ magazine

What publications or newsgroups do you read related to Windows NT?

_____

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❑ Payment enclosed. Make check payable to USENIX Conference.

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You may FAX your registration form to 1.949.588.9706 if paying by credit card. To avoid duplicate billing, please DO NOT mail an additional copy.

Tutorial Program

Wednesday, July 14, 1999 Select a full-day tutorial or one AM and one PM tutorial per day. Sorry, no partial or split-day registration allowed.

Full Day Session (9:00 am – 5:00 pm)
❑ W1 Windows NT/2000 Kernel Debugging & Crash Dump Analysis
❑ W2 Windows NT and UNIX Integration: Problems and Solutions

Morning Session (9:00 am – 12:30 pm)
❑ W3am DHCP/DNS
❑ W4am The COM(+) Programming Model

Afternoon Session (1:30 pm – 5:00 pm)
❑ W5pm Configuring & Administering Samba Services
❑ W6pm DCOM for Systems Administrators

Thursday, July 15, 1999 Select one full-day tutorial.

Full Day Session (9:00 am – 5:00 pm)
❑ T1 Windows NT Internals
❑ T2 Windows NT Security: Advanced Topics
❑ T3 Learning Perl
❑ T4 Windows NT Performance Monitoring, Benchmarking and Tuning

REFUND/CANCELLATION POLICY If you must cancel, all refund requests must be in writing with your signature, and postmarked no later than July 2, 1999. Telephone cancellations cannot be accepted. You may substitute another in your place. Call the conference office for details: 1.949.588.8649.

3rd USENIX Windows NT Symposium

July 12–13, 1999 (Monday & Tuesday) Technical Sessions Fees

Current member fee ..... $360.00 $ _____
(Applies to individual members of USENIX, EurOpen national groups, JUS, and AUUG)

Non-member or renewing member fee* ..... $440.00 $ _____
**Join or renew your USENIX membership, for no additional fee, AND attend the conference.* Check here: ❑

Late fee applies if postmarked after *Friday, June 18, 1999* ..... Add $50.00 $ _____

Full-time student** fee, pre-registered or on-site ..... $75.00 $ _____

Full-time student** fee including USENIX membership fee ..... $100.00 $ _____

***Students: attach a photocopy of current student I.D.*

Tutorial Program

July 14–15, 1999 (Wednesday & Thursday) Tutorial Program Fees

One day tutorial fee ..... $395.00 $ _____
CEU credit (optional) ..... $15.00 $ _____
Two day tutorial fee ..... $690.00 $ _____
CEU credit (optional) ..... $30.00 $ _____
Late fee applies if postmarked after Friday, June 18, 1999 ..... Add $50.00 $ _____

LISA-NT—2nd Large Installation System Administration of Windows NT Conference

July 16–17, 1999 (Friday & Saturday) Technical Sessions Fees

Current member fee ..... $360.00 $ _____
(Applies to individual members of USENIX, EurOpen national groups, JUS, AUUG, and SAGE-AU)

Non-member or renewing member fee* ..... $440.00 $ _____
**Join or renew your USENIX membership, for no additional fee, AND attend the conference.* Check here: ❑

NOTE: If attending both Technical Sessions, pay the non-member fee (and check the membership box) for the Windows NT Symposium. Then pay the member fee for LISA-NT.

Join or renew your SAGE membership (you must be a current member of USENIX) ..... Add $30.00 $ _____

Late fee applies if postmarked after *Friday, June 18, 1999* ..... Add $50.00 $ _____

Full-time student** fee, pre-registered or on-site ..... $75.00 $ _____

Full-time student** fee including USENIX membership fee ..... $100.00 $ _____

Join or renew your Student SAGE membership (you must be a current member of USENIX) ..... Add $15.00 $ _____

***Students: attach a photocopy of current student I.D.*

TOTAL DUE $ _____