



# FIRST SYMPOSIUM ON NETWORKED SYSTEMS DESIGN AND IMPLEMENTATION

SPONSORED BY USENIX, IN COOPERATION WITH ACM SIGCOMM AND ACM SIGOPS

MARCH 29-31, 2004,  
SAN FRANCISCO,  
CALIFORNIA

NSDI '04 is a new conference focused on the design principles of large-scale distributed and networked systems. NSDI will bring together researchers from across the systems community to foster a cross-disciplinary approach to addressing common research challenges.

The Symposium will include over 25 papers and a poster session on the following topics:

- Sensor Systems
- Networking
- Distributed Hash Tables
- Security and Bugs
- Resource Management
- DHT Applications
- Overlay Networks
- Reliability
- Storage Systems

**REGISTER BY  
MARCH 8, 2004,  
AND SAVE!**

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## HOTEL & REGISTRATION

### Hotel Information

*Hotel Reservation Discount Deadline: March 8, 2004*  
Grand Hyatt  
345 Stockton Street  
San Francisco, CA 94108  
Phone: 415.398.1234 / 1.800.633.7313  
Web site: <http://grandsanfrancisco.hyatt.com/>  
Rates: \$160 single/double, \$190 triple, \$215 quad  
All requests for reservations received after the deadline will be handled on a space-available basis.

### Technical Session Registration Fees

#### Online Early Bird Rates (Register online by March 8, 2004)

Member: \$645  
Nonmember: \$755  
Full-time Student Member: \$260  
Full-time Student Nonmember: \$300  
The Nonmember rates include a one-year USENIX membership.

#### Online Rates After March 8, 2004

Member: \$795  
Nonmember: \$905  
Full-time Student Member: \$260  
Full-time Student Nonmember: \$300  
The Nonmember rates include a one-year USENIX membership

### Register Online:

<http://www.usenix.org/nsdi04>

### Questions?

Telephone: + 1.510.528.8649  
Fax: + 1.510.548.5738  
Email: [conference@usenix.org](mailto:conference@usenix.org)

# NSDI '04 TECHNICAL SESSIONS

MONDAY, MARCH 29 – WEDNESDAY, MARCH 31

MONDAY, MARCH 29

8:45 a.m. – 9:00 a.m.

## OPENING REMARKS

9:00 a.m. – 10:00 a.m.

## KEYNOTE ADDRESS

### Running Massively Multiplayer Games as a Business

Richard Lawrence, *Director of Development Technology, Sony Online Entertainment*

10:00 a.m. – 10:30 a.m. Break

10:30 a.m. – 12:00 noon

## SENSOR SYSTEMS

Session Chair: Timothy Roscoe, *Intel Research*

### The Emergence of Networking Abstractions and Techniques in TinyOS

Philip Levis, *University of California, Berkeley*; Sam Madden, *Massachusetts Institute of Technology/Intel Research Berkeley*; David Gay, *Intel Research Berkeley*; Joseph Polastre, Robert Szewczyk, Alec Woo, Eric Brewer, and David Culler, *University of California, Berkeley*

### Trickle: A Self-Regulating Algorithm for Code Propagation and Maintenance in Wireless Sensor Networks

Philip Levis, *University of California, Berkeley/Intel Research Berkeley*; Neil Patel, *University of California, Berkeley*; David Culler, *University of California, Berkeley/Intel Research Berkeley*; Scott Shenker, *University of California, Berkeley/ICSI*

### Programming Sensor Networks Using Abstract Regions

Matt Welsh and Geoff Mainland, *Harvard University*

12:00 noon – 1:30 p.m. Lunch (on your own)

1:30 p.m. – 3:00 p.m.

## NETWORKING

Session Chair: Jennifer Rexford, *AT&T Research*

### Design, Implementation, and Evaluation of Duplicate Transfer Detection in HTTP

Jeffrey C. Mogul, Yee Man Chan, and Terence Kelly, *Hewlett-Packard Labs*

### OSPF Monitoring: Architecture, Design, and Deployment Experience

Aman Shaikh, *University of California, Santa Cruz*; Albert Greenberg, *AT&T Research*

### OverQoS: An Overlay Based Architecture for Enhancing Internet QoS

Lakshminarayanan Subramanian and Ion Stoica, *University of California, Berkeley*; Hari Balakrishnan, *Massachusetts Institute of Technology*; Randy Katz, *University of California, Berkeley*

3:00 p.m. – 3:30 p.m. Break

MONDAY, MARCH 29 (continued)

3:30 p.m. – 5:00 p.m.

## DISTRIBUTED HASH TABLES

Session Chair: Peter Druschel, *Rice University*

### Designing a DHT for Low Latency and High Throughput

Frank Dabek, M. Frans Kaashoek, Jinyang Li, Robert Morris, James Robertson, and Emil Sit, *Massachusetts Institute of Technology*

### Beehive: Exploiting Power Law Query Distributions for O(1) Lookup Performance in Peer to Peer Overlays

Venugopalan Ramasubramanian and Emin Gun Sirer, *Cornell University*

### Efficient Routing for Peer-to-Peer Overlays

Anjali Gupta, Barbara Liskov, and Rodrigo Rodrigues, *Massachusetts Institute of Technology*

5:30 p.m. – 7:00 p.m.

## RECEPTION AND POSTER SESSION

Session Chair: Timothy Roscoe, *Intel Research*

Do you have interesting work you would like to share, or a cool idea that is not ready to be published? Poster sessions are for you! Poster sessions introduce new or ongoing work. The NSDI audience provides valuable discussion and feedback. We are particularly interested in presentations of student work. To submit a poster, please send a proposal, one page or less, by February 15, 2003, to the poster session coordinator at nsdi04posters@usenix.org. We will send back decisions by February 25th.

TUESDAY, MARCH 30

9:00 a.m. – 10:30 a.m.

## SECURITY AND BUGS

Session Chair: Vern Paxson, *ICIR and LBL*

### Listen and Whisper: Security Mechanisms for BGP

Lakshminarayanan Subramanian, *University of California, Berkeley*; Volker Roth, *ICSI*; Ion Stoica, *University of California, Berkeley*; Scott Shenker, *University of California, Berkeley/ICSI*; Randy Katz, *University of California, Berkeley*

### Measurement and Analysis of Spyware Infections in a University Environment

Stefan Saroiu, Steven D. Gribble, and Henry M. Levy, *University of Washington*

### A Framework for Model Checking Network Protocols

Madanlal Musuvathi, David L. Dill, and Dawson R. Engler, *Stanford University*

10:30 a.m. – 11:00 a.m. Break

<http://www.usenix.org/nsdi04>

# NSDI '04 TECHNICAL SESSIONS

MONDAY, MARCH 29 – WEDNESDAY, MARCH 31

## TUESDAY, MARCH 30 (CONTINUED)

11:00 a.m. – 12:30 p.m.

### RESOURCE MANAGEMENT

Session Chair: Brian Bershad, *University of Washington*

#### Constructing Services with Interposable Virtual Hardware

Andrew Whitaker, Richard S. Cox, Marianne Shaw, and Steven D. Gribble, *University of Washington*

#### SWAP: A Scheduler With Automatic Process Dependency Detection

Haoqiang Zheng and Jason Nieh, *Columbia University*

#### Contract-Based Load Management in Federated Distributed Systems

Magdalena Balazinska, Hari Balakrishnan, and Mike Stonebraker, *Massachusetts Institute of Technology*

12:30 p.m. – 2:00 p.m. Lunch (provided)

2:00 p.m. – 3:30 p.m.

### DHT APPLICATIONS

Session Chair: Ion Stoica, *University of California, Berkeley*

#### Peer-to-Peer Information Retrieval in Distributed Hashtable Systems

Chunqiang Tang and Sandhya Dwarkadas, *University of Rochester*

#### Untangling the Web from DNS Using Distributed Hash Tables

Michael Walfish and Hari Balakrishnan, *Massachusetts Institute of Technology*; Scott Shenker, *University of California, Berkeley/ICSI*

#### Democratizing Content Publication with Coral

Michael Freedman, Eric Freudenthal, and David Mazieres, *New York University*

3:30 p.m. – 4:00 p.m. Break

4:00 p.m. – 5:00 p.m.

### OVERLAY NETWORKS

Session Chair: Bill Weihl, *Akamai*

#### Operating Systems Support for Planetary-Scale Network Services

Andy Bavier, Larry Peterson, Mike Wawrzoniak, Scott Karlin, and Tammo Spalink, *Princeton University*; Timothy Roscoe, *Intel Research*; David Culler, *Intel Research/University of California, Berkeley*; Brent Chun and Mic Bowman, *Intel Corporation*

#### MACEDON: Methodology for Automatically Creating, Evaluating, and Designing Overlay Networks

Adolfo Rodriguez and Charles Killian, *Duke University*; Sooraj Bhat, *Georgia Institute of Technology*; Dejan Kostic, *Duke University*; Amin Vahdat, *University of California, San Diego*

#### Structure Management for Scalable Overlay Service Construction

Kai Shen, *University of Rochester*

## WEDNESDAY, MARCH 31

9:00 a.m. – 10:30 p.m.

### RELIABILITY

Session Chair: Miguel Castro, *Microsoft Research*

#### Session State: Beyond Soft State

Benjamin C. Ling, Emre Kiciman, and Armando Fox, *Stanford University*

#### Path-based Failure and Evolution Management

Mike Chen, *University of California, Berkeley*; Anthony Accardi, *Tellme*; Emre Kiciman, *Stanford University*; Dave Patterson, *University of California, Berkeley*; Armando Fox, *Stanford University*; Eric Brewer, *University of California, Berkeley*

#### Consistent and Automatic Service Regeneration

Haifeng Yu, *Intel Research Pittsburgh*; Amin Vahdat, *University of California, San Diego*

10:30 a.m. – 11:00 a.m. Break

11:00 a.m. – 12:30 p.m.

### STORAGE SYSTEMS

Session Chair: Jeff Chase, *Duke University*

#### Total Recall: System Support for Automated Availability Management

Ranjita Bhagwan, Kiran Tati, Yuchung Cheng, Stefan Savage, and Geoff Voelker, *University of California, San Diego*

#### TimeLine: A High Performance Archive for a Distributed Object Store

Chuang-Hue Moh and Barbara Liskov, *Massachusetts Institute of Technology*

#### Explicit Control in the Batch-Aware Distributed File System

John Bent, Douglas Thain, Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau, and Miron Livny, *University of Wisconsin, Madison*

# Registration Form

# NSDI '04

March 29–31, 2004

This address will be used for all USENIX mailings unless you notify us in writing.

First Name	Last Name	First Name for Badge
Job Title		Member Number
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Email Address (one only, please)		Priority Code

## Attendee Profile

Would you like to receive email about USENIX activities?  Yes  No  
 Would you like us to provide your name to carefully selected partners? USENIX does not sell its mailing lists.  Yes  No  
 Would you like to be included on the Attendee List? (does not include address or email)  Yes  No  
 Do you have special meal needs?  Vegan  Vegetarian  Kosher

### What is your affiliation (check one):

1.  academic 2.  commercial 3.  gov't 4.  consultant

### What is your role in the purchase decision (check one):

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 9.  Webmaster 10.  Other

### How did you first hear about this meeting (check one):

1.  Email from USENIX 2.  Conference brochure 3.  Colleague  
 4.  Newsgroup 5.  Local user group 6.  Web site

What publications or Web sites do you read related to the topics of this conference? \_\_\_\_\_

Do you plan to take advantage of the free registration for Wednesday's FAST sessions?  Yes  No

## Payment Must Accompany This Form

Payment (U.S. dollars only) must accompany this form. Purchase orders, vouchers, email, or telephone registrations cannot be accepted.

Payment enclosed. Make check payable to **USENIX Conference**.

Charge to my:  VISA  MasterCard  American Express  Discover

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### CANCELLATION DATE: Monday, March 22, 2004

All refund requests must be emailed to [conference@usenix.org](mailto:conference@usenix.org) by March 22  
 You may substitute another in your place.

## Register for both NSDI and FAST and SAVE!

Take advantage of two great programs. Register for NSDI and receive \$100 off your registration fees for FAST '04, also located at the Grand Hyatt in San Francisco, March 31–April 2. For more information about NSDI '04, see <http://www.usenix.org/fast04/>.

Technical Program Fees (Monday–Wednesday, March 29–31)	On or before 3/8/04	After 3/8/04
<b>Current Member Fee</b> For current members of USENIX, EurOpen.SE, ACM SIGOPS, and ACM SIGCOMM	\$645	\$795
<b>Current Member Fee for FAST '04 Registrants</b> For current members of USENIX, EurOpen.SE, ACM SIGOPS, and ACM SIGCOMM who have already registered for FAST '04	\$545	\$695
<b>Non-Member Fee</b> Includes complimentary one-year USENIX membership: <input type="checkbox"/> Accept <input type="checkbox"/> Decline	\$755	\$905
<b>Full-time Student Member Registration *</b> For current members of USENIX, EurOpen.SE, ACM SIGOPS, and ACM SIGCOMM * Must attach a photocopy of current student I.D.	\$260	\$260
<b>Full-time Student Non-Member Registration *</b> Includes complimentary one-year USENIX student membership: <input type="checkbox"/> Accept <input type="checkbox"/> Decline * Must attach a photocopy of current student I.D.	\$300	\$300

## Membership Fees

<b>One Year USENIX Membership</b>	\$110
<b>One Year USENIX Membership, Student Rate</b> (you must include a photocopy of current student I.D.)	\$40

**Total Registration Fees** \$ \_\_\_\_\_

**Total Membership Fees** \$ \_\_\_\_\_

**TOTAL DUE** \$ \_\_\_\_\_

PLEASE COMPLETE THIS FORM AND RETURN IT, ALONG WITH FULL PAYMENT, TO:

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