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

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Stefan Savage, University of California, San Diego

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Robert Morris, MIT
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Amin Vahdat, Duke University

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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**

<table>
<thead>
<tr>
<th>Category</th>
<th>Member</th>
<th>Nonmember</th>
<th>Full-time Student Member</th>
<th>Full-time Student Nonmember</th>
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</thead>
<tbody>
<tr>
<td>Online Early Bird Rates</td>
<td>$645</td>
<td>$755</td>
<td>$260</td>
<td>$300</td>
</tr>
<tr>
<td>Online Rates After March 8, 2004</td>
<td>$795</td>
<td>$905</td>
<td>$260</td>
<td>$300</td>
</tr>
</tbody>
</table>

The Nonmember rates include a one-year USENIX membership.

**Register Online:**
http://www.usenix.org/nsdi04

**Questions?**
Telephone: + 1.510.528.8649
Fax: + 1.510.548.5736
Email: conference@usenix.org

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http://www.usenix.org/nsdi04
### NSDI '04 TECHNICAL SESSIONS
**MONDAY, MARCH 29 – WEDNESDAY, MARCH 31**

#### MONDAY, MARCH 29

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45 a.m. – 9:00 a.m.</td>
<td>OPENING REMARKS</td>
</tr>
<tr>
<td>9:00 a.m. – 10:00 a.m.</td>
<td>KEYNOTE ADDRESS</td>
</tr>
<tr>
<td>Running Massively Multiplayer Games as a Business</td>
<td>Richard Lawrence, <em>Director of Development Technology, Sony Online Entertainment</em></td>
</tr>
<tr>
<td>10:00 a.m. – 10:30 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>10:30 a.m. – 12:00 noon</td>
<td>SENSOR SYSTEMS</td>
</tr>
<tr>
<td>Session Chair: Timothy Roscoe, <em>Intel Research</em></td>
<td></td>
</tr>
<tr>
<td>The Emergence of Networking Abstractions and Techniques in TinyOS</td>
<td>Philip Levis, <em>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</em></td>
</tr>
<tr>
<td>Programming Sensor Networks Using Abstract Regions</td>
<td>Matt Welsh and Geoff Mainland, <em>Harvard University</em></td>
</tr>
<tr>
<td>12:00 noon – 1:30 p.m.</td>
<td>Lunch (on your own)</td>
</tr>
<tr>
<td>1:30 p.m. – 3:00 p.m.</td>
<td>NETWORKING</td>
</tr>
<tr>
<td>Session Chair: Jennifer Rexford, <em>AT&amp;T Research</em></td>
<td></td>
</tr>
<tr>
<td>Design, Implementation, and Evaluation of Duplicate Transfer Detection in HTTP</td>
<td>Jeffrey C. Mogul, Yee Man Chan, and Terence Kelly, <em>Hewlett-Packard Labs</em></td>
</tr>
<tr>
<td>OSPF Monitoring: Architecture, Design, and Deployment Experience</td>
<td>Aman Shaikh, <em>University of California, Santa Cruz; Albert Greenberg, AT&amp;T Research</em></td>
</tr>
<tr>
<td>OverQoS: An Overlay Based Architecture for Enhancing Internet QoS</td>
<td>Lakshminarayan Subramanian and Ion Stoica, <em>University of California, Berkeley; Hari Balakrishnan, Massachusetts Institute of Technology; Randy Katz, University of California, Berkeley</em></td>
</tr>
<tr>
<td>3:00 p.m. – 3:30 p.m.</td>
<td>Break</td>
</tr>
</tbody>
</table>

#### MONDAY, MARCH 29 (continued)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 p.m. – 5:00 p.m.</td>
<td>DISTRIBUTED HASH TABLES</td>
</tr>
<tr>
<td>Session Chair: Peter Druschel, <em>Rice University</em></td>
<td></td>
</tr>
<tr>
<td>Designing a DHT for Low Latency and High Throughput</td>
<td>Frank Dabek, M. Frans Kaashoek, Jinyang Li, Robert Morris, James Robertson, and Emil Sit, <em>Massachusetts Institute of Technology</em></td>
</tr>
<tr>
<td>Beehive: Exploiting Power Law Query Distributions for O(1) Lookup Performance in Peer to Peer Overlays</td>
<td>Venugopalan Ramasubramanian and Emin Gun Sirer, <em>Cornell University</em></td>
</tr>
<tr>
<td>Efficient Routing for Peer-to-Peer Overlays</td>
<td>Anjali Gupta, Barbara Liskov, and Rodrigo Rodrigues, <em>Massachusetts Institute of Technology</em></td>
</tr>
<tr>
<td>5:30 p.m. – 7:00 p.m.</td>
<td>RECEPTION AND POSTER SESSION</td>
</tr>
<tr>
<td>Session Chair: Timothy Roscoe, <em>Intel Research</em></td>
<td></td>
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</tbody>
</table>
| 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m. – 10:30 a.m.</td>
<td>SECURITY AND BUGS</td>
</tr>
<tr>
<td>Session Chair: Vern Paxson, <em>ICIR andLBL</em></td>
<td></td>
</tr>
<tr>
<td>Listen and Whisper: Security Mechanisms for BGP</td>
<td>Lakshminarayan Subramanian, <em>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</em></td>
</tr>
<tr>
<td>Measurement and Analysis of Spyware Infections in a University Environment</td>
<td>Stefan Saroiu, Steven D. Gribble, and Henry M. Levy, <em>University of Washington</em></td>
</tr>
<tr>
<td>10:30 a.m. – 11:00 a.m.</td>
<td>Break</td>
</tr>
</tbody>
</table>

http://www.usenix.org/nsdi04
### TUESDAY, MARCH 30 (CONTINUED)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 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)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 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 Hashable 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*; Scott Shenker, *University of California, Berkeley*; Scott Shenker, *University of California, Berkeley*  
**Democratizing Content Publication with Coral**  
Michael Freedman, Eric Freudenthal, and David Mazieres, *New York University* |

3:30 p.m. – 4:00 p.m. Break

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
</table>
| 4:00 p.m. – 5:00 p.m. | **OVERLAY NETWORKS**  
Session Chair: Bill Weihl, *Akamai*  
**Operating Systems Support for Planetary-Scale Network Services**  
**MACEDON: Methodology for Automatically Creating, Evaluating, and Designing Overlay Networks**  
**Structure Management for Scalable Overlay Service Construction**  
Kai Shen, *University of Rochester* |

### WEDNESDAY, MARCH 31

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 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* |

http://www.usenix.org/nsdi04
Registration Form

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

Company/Institution

Mail Stop Mail Address

City State Zip Country

Telephone No. Fax

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

How did you first hear about this meeting (check one):
1. Email from USENIX 2. Conference brochure 3. Colleague
4. Newsgroup 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

Account No. Exp. Date

Print Cardholder’s Name

Cardholder’s Signature

CANCELATION DATE: Monday, March 22, 2004
All refund requests must be emailed to 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/.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Current Member Fee</td>
<td>$645</td>
<td>$795</td>
</tr>
<tr>
<td>For current members of USENIX, EurOpen.SE, ACM SIGOPS, and ACM SIGCOMM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Member Fee for FAST ’04 Registrants</td>
<td>$545</td>
<td>$695</td>
</tr>
<tr>
<td>For current members of USENIX, EurOpen.SE, ACM SIGOPS, and ACM SIGCOMM who have already registered for FAST ’04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Member Fee</td>
<td>$755</td>
<td>$905</td>
</tr>
<tr>
<td>Includes complimentary one-year USENIX membership: Accept Decline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time Student Member Registration *</td>
<td>$260</td>
<td>$260</td>
</tr>
<tr>
<td>For current members of USENIX, EurOpen.SE, ACM SIGOPS, and ACM SIGCOMM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
* Must attach a photocopy of current student I.D. |
| Full-time Student Non-Member Registration *            | $300                | $300         |
| Includes complimentary one-year USENIX membership: Accept Decline |
* Must attach a photocopy of current student I.D. |

<table>
<thead>
<tr>
<th>Membership Fees</th>
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<tbody>
<tr>
<td>One Year USENIX Membership</td>
<td>$110</td>
</tr>
<tr>
<td>One Year USENIX Membership, Student Rate</td>
<td>$40</td>
</tr>
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Total Registration Fees $_______
Total Membership Fees $_______

TOTAL DUE $_______