

# NOTES

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Members of the USENIX Association receive the following benefits:

**Free subscription** to *login*, the Association's quarterly magazine, featuring technical articles, system administration articles, tips and techniques, practical columns on such topics as security, Perl, networks and operating systems, and book reviews

**Access** to *login*: online from December 1997 to the current issue: [www.usenix.org/publications/login/](http://www.usenix.org/publications/login/)

**Discounts** on registration fees for all USENIX conferences

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**The right to vote** on matters affecting the Association, its bylaws, and election of its directors and officers

For more information regarding membership or benefits, please see [www.usenix.org/membership/or](http://www.usenix.org/membership/or) contact [office@usenix.org](mailto:office@usenix.org). Phone: 510-528-8649.

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## Why USENIX?

by Carolyn Rowland,  
*USENIX Board President*

My first LISA conference was in 1994 in Monterey, California. I was a lone sysadmin professionally, and I had never seen that many IT operations people under one roof. There were people who had authored the tools the rest of us used, and it seemed like a gathering of every kind of systems person you could imagine. I mostly kept to myself in the early days. Eventually several of us on my team attended LISA and it turned into a week of collecting ideas and then coming together to bond and talk about what we had heard. I changed jobs, but LISA continued to be a place to go to get exposure to interesting ideas and to hear people from across all industries discuss how they faced all kinds of challenges.

Eventually I realized there was also a great big community of people at the conference. The community was multi-faceted, so finding the groups that interested me meant frequenting Birds-of-a-Feather sessions (BoFs) and other social activities, such as board game night and the reception. I made a bunch of great professional contacts with whom I still talk today. That's when I realized that I didn't need to bring my own community to LISA; there was a whole community waiting for me. Somehow the "hallway track," or community interaction, was just as valuable as the formal conference content.

At some point I volunteered, and there I was, on a LISA program committee. I was reading draft LISA paper submissions with my industry perspective, and it was a tiny peek into the inner workings. I chaired LISA in 2012 and realized that it was rush-

ing by too quickly. I loved trying to create and nurture communities through shared interests, but chairing LISA was a firehose of project planning with no time to try to grok how it all worked before it was time to deliver the conference program to USENIX. I tried to leave behind some breadcrumbs for the chairs that came after me, but my real chance to make a difference came when a USENIX Board member approached me and asked me to consider running for a seat in the upcoming Board election. This would not only mean getting more involved in USENIX from a broader perspective, but it would also give me a chance to slow down and potentially have a bigger impact on LISA, my own community.

Upon joining the Board, I found that there were many communities under the USENIX umbrella and many of them had champions on the Board. This was fascinating as we talked about ways that each of us wanted to help our communities. David Blank-Edelman and I became the LISA co-champions on the Board. We talked to volunteers and attendees. We heard from people who wanted to update the conference. There were so many ideas, most of them excellent. How would we execute the plans? How could we improve on the LISA model in ways that would get the community more excited about training and talks? How could we address longstanding concerns about the complexity of the program or the sheer volume of information we were cramming into a week? How do people learn best and how can we enable people in our community to stay relevant when it seemed like technology was only moving faster all the time? Would we find a way?

The LISA of today looks a bit different from the LISA of 2012, and it feels good to see the USENIX staff, Board, and community working together to make it happen. But it's more than just LISA.

To me, USENIX is that small mom-and-pop shop you love to champion, where the service is tip-top and the community is supportive and accepting. In a world where negativity, bullying, misogyny, and other

threats to your being become more mainstream, this isn't a small achievement. USENIX is also a freedom fighter in the battle for open access to information. This is a hard battle to win. Behind the scenes, the staff are often burning the candle at both ends to organize, produce, promote, and publish talks, papers, journals, and ;login: in order for you to have access to that information as soon as possible as well as free-and-clear. Of course, nothing is free to produce. USENIX is continually looking for ways to ensure that we continue to support open access. USENIX isn't a huge corporation—we are a nonprofit organization—and there isn't a long line of companies championing at the bit to line the open access coffers. So why do it? We do it because it's the right thing to do. Research and knowledge should be available to all.

This means that our events tend toward strong content in talks, panels, tutorials, and workshops without much glitz and flash. It means the staff wear many hats as they work toward the goal. It means the goal keeps changing because the world keeps changing and there are so many thriving communities to serve.

Looking into the machinery, I am captivated by the strength and passion of the USENIX team. These attributes extend beyond the staff team to the Board of Directors, who volunteer their service, and the community members who act as steering committee, program, and organizing committee members; program chairs; speakers; instructors; and researchers, all who share a common goal.

If there is one thing I would still like to do, it would be an expansion of good works. We have been focused on the fiscal health of USENIX and making sure the staff are not overworked as they produce the events that feed our current communities. I would love to look at the makeup of these communities and bring in more students and under-represented folks. As we begin to reach the point of financial sustainability, we can do more in this effort financially, but it's not too soon to start strategizing about it.

There's definitely more work to be done. I look forward to partnering with the USENIX staff, the rest of the Board, and members like you to nurture and grow our communities to be even more inclusive, supportive, and essential to advancing computing research and enhancing our professional lives.

# FAST '17: 15th USENIX Conference on File and Storage Technologies

February 27–March 2, 2017 • Santa Clara, CA



Sponsored by USENIX in cooperation with ACM SIGOPS

## Important Dates

- Paper submissions due: **Tuesday, September 27, 2016, 9:00 p.m. PDT**
- Tutorial submissions due: **Tuesday, September 27, 2016, 9:00 p.m. PDT**
- Notification to authors: **Monday, December 12, 2016**
- Final paper files due: **Tuesday, January 31, 2017**

## Conference Organizers

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Carl Waldspurger, *CloudPhysics*

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## Overview

The 15th USENIX Conference on File and Storage Technologies (FAST '17) brings together storage-system researchers and practitioners to explore new directions in the design, implementation, evaluation, and deployment of storage systems. The program committee will interpret “storage systems” broadly; everything from low-level storage devices to information management is of interest. The conference will consist of technical presentations including refereed papers, Work-in-Progress (WiP) reports, poster sessions, and tutorials.

FAST accepts both full-length and short papers. Both types of submissions are reviewed to the same standards and differ primarily in the scope of the ideas expressed. Short papers are limited to half the space of full-length papers. The program committee will not accept a full paper on the condition that it is cut down to fit in the short paper page limit, nor will it invite short papers to be extended to full length. Submissions will be considered only in the category in which they are submitted.

## Topics

Topics of interest include but are not limited to:

- Archival storage systems
- Auditing and provenance
- Caching, replication, and consistency
- Cloud storage
- Data deduplication
- Database storage
- Distributed storage (wide-area, grid, peer-to-peer)
- Empirical evaluation of storage systems
- Experience with deployed systems
- File system design
- High-performance file systems
- Key-value and NoSQL storage
- Memory-only storage systems
- Mobile, personal, and home storage
- Parallel I/O and storage systems
- Power-aware storage architectures
- RAID and erasure coding
- Reliability, availability, and disaster tolerance
- Search and data retrieval
- Solid state storage technologies and uses (e.g., flash, byte-addressable NVM)
- Storage management
- Storage networking

- Storage performance and QoS
- Storage security
- The challenges of big data and data sciences

### New in 2017! Deployed Systems

In addition to papers that describe original research, FAST '17 also solicits papers that describe large-scale, operational systems. Such papers should address experience with the practical design, implementation, analysis, or deployment of such systems. We encourage submission of papers that disprove or strengthen existing assumptions, deepen the understanding of existing problems, and validate known techniques at scales or in environments in which they were never before used or tested. Deployed-system papers need not present new ideas or results to be accepted, but should offer useful guidance to practitioners.

*Authors should indicate on the title page of the paper and in the submission form that they are submitting a deployed-system paper.*

### Submission Instructions

Please submit full and short paper submissions (no extended abstracts) by 9:00 p.m. PDT on September 27, 2016, in PDF format via the Web submission form on the FAST '17 Web site, [www.usenix.org/fast17/cfp](http://www.usenix.org/fast17/cfp). Do not email submissions.

- The complete submission must be no longer than 12 pages for full papers and 6 pages for short papers, excluding references. The program committee will value conciseness, so if an idea can be expressed in fewer pages than the limit, please do so. Supplemental material may be appended to the paper without limit; however the reviewers are not required to read such material or consider it in making their decision. Any material that should be considered to properly judge the paper for acceptance or rejection is not supplemental and will apply to the page limit. Papers should be typeset on U.S. letter-sized pages in two-column format in 10-point Times Roman type on 12-point leading (single-spaced), with the text block being no more than 6.5" wide by 9" deep. Labels, captions, and other text in figures, graphs, and tables must use reasonable font sizes that, as printed, do not require extra magnification to be legible. Because references do not count against the page limit, they should not be set in a smaller font. **Submissions that violate any of these restrictions will not be reviewed.** The limits will be interpreted strictly. No extensions will be given for reformatting.
- Templates and sample first pages (two-column format) for Microsoft Word and LaTeX are available on the USENIX templates page, [www.usenix.org/templates-conference-papers](http://www.usenix.org/templates-conference-papers).
- **Authors must not be identified in the submissions, either explicitly or by implication.** When it is necessary to cite your own work, cite it as if it were written by a third party. Do not say "reference removed for blind review." Any supplemental material must also be anonymized.
- Simultaneous submission of the same work to multiple venues, submission of previously published work, or plagiarism constitutes dishonesty or fraud. USENIX, like other scientific and technical conferences and journals, prohibits these practices and may take action against authors who have committed them. See the USENIX Conference Submissions Policy at [www.usenix.org/conferences/submissions-policy](http://www.usenix.org/conferences/submissions-policy) for details.
- If you are uncertain whether your submission meets USENIX's guidelines, please contact the program co-chairs, [fast17chairs@usenix.org](mailto:fast17chairs@usenix.org), or the USENIX office, [submissionspolicy@usenix.org](mailto:submissionspolicy@usenix.org).
- Papers accompanied by nondisclosure agreement forms will not be considered.

Short papers present a complete and evaluated idea that does not need 12 pages to be appreciated. Short papers are not workshop papers or work-in-progress papers. The idea in a short paper needs to be formulated concisely and evaluated, and conclusions need to be drawn from it, just like in a full-length paper.

The program committee and external reviewers will judge papers on technical merit, significance, relevance, and presentation. A good research paper will demonstrate that the authors:

- are attacking a significant problem,
- have devised an interesting, compelling solution,
- have demonstrated the practicality and benefits of the solution,
- have drawn appropriate conclusions using sound experimental methods,

- have clearly described what they have done, and
- have clearly articulated the advances beyond previous work.

A good deployed-system paper will demonstrate that the authors:

- are describing an operational system that is of wide interest,
- have addressed the practicality of the system in more than one real-world environment, especially at large scale,
- have clearly explained the implementation of the system,
- have discussed practical problems encountered in production, and
- have carefully evaluated the system with good statistical techniques.

Moreover, program committee members, USENIX, and the reading community generally value a paper more highly if it clearly defines and is accompanied by assets not previously available. These assets may include traces, original data, source code, or tools developed as part of the submitted work.

Blind reviewing of all papers will be done by the program committee, assisted by outside referees when necessary. Each accepted paper will be shepherded through an editorial review process by a member of the program committee.

Authors will be notified of paper acceptance or rejection no later than Monday, December 12, 2016. If your paper is accepted and you need an invitation letter to apply for a visa to attend the conference, please contact [conference@usenix.org](mailto:conference@usenix.org) as soon as possible. (Visa applications can take at least 30 working days to process.) Please identify yourself as a presenter and include your mailing address in your email.

All papers will be available online to registered attendees no earlier than Tuesday, January 31, 2017. If your accepted paper should not be published prior to the event, please notify [production@usenix.org](mailto:production@usenix.org). The papers will be available online to everyone beginning on the first day of the main conference, February 28, 2017. Accepted submissions will be treated as confidential prior to publication on the USENIX FAST '17 Web site; rejected submissions will be permanently treated as confidential.

By submitting a paper, you agree that at least one of the authors will attend the conference to present it. If the conference registration fee will pose a hardship for the presenter of the accepted paper, please contact [conference@usenix.org](mailto:conference@usenix.org).

If you need a bigger testbed for the work that you will submit to FAST '17, see PRObE at [www.nmc-probe.org](http://www.nmc-probe.org).

### Best Paper Awards

Awards will be given for the best paper(s) at the conference. A small, selected set of papers will be forwarded for publication in *ACM Transactions on Storage* (TOS) via a fast-path editorial process. Both full and short papers will be considered.

### Test of Time Award

We will award a FAST paper from a conference at least 10 years earlier with the "Test of Time" award in recognition of its lasting impact on the field.

### Work-in-Progress Reports and Poster Sessions

The FAST technical sessions will include a slot for short Work-in-Progress (WiP) reports presenting preliminary results and opinion statements. We are particularly interested in presentations of student work and topics that will provoke informative debate. While WiP proposals will be evaluated for appropriateness, they are not peer reviewed in the same sense that papers are. We will also hold poster sessions each evening. WiP submissions will automatically be considered for a poster slot, and authors of all accepted full papers will be asked to present a poster on their paper. Other poster submissions are very welcome. Please see the Call for Posters and WiPs, which will be available soon, for submission information.

### Birds-of-a-Feather Sessions

Birds-of-a-Feather sessions (BoFs) are informal gatherings held in the evenings and organized by attendees interested in a particular topic. BoFs may be scheduled in advance by emailing the Conference Department at [bofs@usenix.org](mailto:bofs@usenix.org). BoFs may also be scheduled at the conference.

### Tutorial Sessions

Tutorial sessions will be held on February 27, 2017. Please submit tutorial proposals to [fasttutorials@usenix.org](mailto:fasttutorials@usenix.org) by 9:00 p.m. PDT on September 27, 2016.

### Registration Materials

Complete program and registration information will be available in December 2016 on the conference Web site.

# NSDI '17: 14th USENIX Symposium on Networked Systems Design and Implementation

March 27–29, 2017 • Boston, MA



Sponsored by USENIX, the Advanced Computing Systems Association

## Important Dates

- Paper titles and abstracts due: **Wednesday, September 14, 2016, 3:00 p.m. US PDT**
- Full paper submissions due: **Wednesday, September 21, 2016, 3:00 p.m. US PDT**
- Notification to authors: **Monday, December 5, 2016**
- Final paper files due: **Thursday, February 23, 2017**

## Symposium Organizers

### Program Co-Chairs

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## Overview

NSDI focuses on the design principles, implementation, and practical evaluation of networked and distributed systems. Our goal is to bring together researchers from across the networking and systems community to foster a broad approach to addressing overlapping research challenges.

NSDI provides a high-quality, single-track forum for presenting results and discussing ideas that further the knowledge and understanding of the networked systems community as a whole, continue a significant research dialog, or push the architectural boundaries of network services.

### Topics

We solicit papers describing original and previously unpublished research. Specific topics of interest include but are not limited to:

- Highly available and reliable networked systems
- Security and privacy of networked systems
- Distributed storage, caching, and query processing
- Energy-efficient computing in networked systems
- Cloud/multi-tenant systems
- Mobile and embedded/sensor applications and systems
- Wireless networked systems
- Network measurements, workload, and topology characterization systems
- Self-organizing, autonomous, and federated networked systems
- Managing, debugging, and diagnosing problems in networked systems
- Virtualization and resource management for networked systems and clusters
- Systems aspects of networking hardware
- Experience with deployed/operational networked systems



- Communication and computing over big data on a networked system
- Practical aspects of network economics
- An innovative solution for a significant problem involving networked systems

## Operational Systems Track

In addition to papers that describe original research, NSDI '17 also solicits papers that describe the design, implementation, analysis, and experience with large-scale, operational systems and networks. We encourage submission of papers that disprove or strengthen existing assumptions, deepen the understanding of existing problems, and validate known techniques at scales or environments in which they were never used or tested before. Such operational papers need not present new ideas or results to be accepted.

Authors should indicate on the title page of the paper and in the submission form that they are submitting to this track.

## What to Submit

NSDI '17 is **double-blind**, meaning that authors should make a good-faith effort to anonymize papers. This is new for NSDI in 2017. As an author, you should not identify yourself in the paper either explicitly or by implication (e.g., through the references or acknowledgments). However, only non-destructive anonymization is required. For example, system names may be left un-anonymized, if the system name is important for a reviewer to be able to evaluate the work. For example, a paper on experiences with the design of .NET should not be re-written to be about "an anonymous but widely used commercial distributed systems platform."

Additionally, please take the following steps when preparing your submission:

- Remove authors' names and affiliations from the title page.
- Remove acknowledgment of identifying names and funding sources.
- Use care in naming your files. Source file names, e.g., Joe.Smith.dvi, are often embedded in the final output as readily accessible comments.
- Use care in referring to related work, particularly your own. Do not omit references to provide anonymity, as this leaves the reviewer unable to grasp the context. Instead, a good solution is to reference your past work in the third person, just as you would any other piece of related work.
- If you need to reference another submission at NSDI '17 on a related topic, reference it as follows: "A related paper describes the design and implementation of our compiler [Anonymous 2017]." with the corresponding citation: "[Anonymous 2017] Under submission. Details omitted for double-blind reviewing."
- Work that extends an author's previous workshop paper is welcome, but authors should (a) acknowledge their own previous workshop publications with an anonymous citation and (b) explain the differences between the NSDI submission and the prior workshop paper.
- If you cite anonymous work, you must also send the deanonymized reference(s) to the PC chair in a separate email.
- Blinding is intended to not be a great burden. If blinding your paper seems too burdensome, please contact the program co-chairs and discuss your specific situation.

Submissions must be no longer than 12 pages, including footnotes, figures, and tables. Submissions may include as many additional pages as needed for references and for supplementary material in appendices. The paper should stand alone without the supplementary material, but authors may use this space for content that may be of interest to some readers but is peripheral to the main technical contributions of the

paper. Note that members of the program committee are free to not read this material when reviewing the paper.

Submissions must be in two-column format, using 10-point type on 12-point (single-spaced) leading, with a maximum text block of 6.5" wide x 9" deep, with .25" inter-column space, formatted for 8.5" x 11" paper. Papers not meeting these criteria will be rejected without review, and no deadline extensions will be granted for reformatting. Pages should be numbered, and figures and tables should be legible when printed without requiring magnification. Authors may use color in their figures, but the figures should be readable when printed in black and white. All papers must be submitted via the Web submission form linked from the Call for Papers Web site, [www.usenix.org/nsdi17/cfp](http://www.usenix.org/nsdi17/cfp).

Submissions will be judged on originality, significance, interest, clarity, relevance, and correctness.

## Policies

Simultaneous submission of the same work to multiple venues, submission of previously published work, or plagiarism constitutes dishonesty or fraud. USENIX, like other scientific and technical conferences and journals, prohibits these practices and may take action against authors who have committed them. See the USENIX Conference Submissions Policy at [www.usenix.org/conferences/submissions-policy](http://www.usenix.org/conferences/submissions-policy) for details.

Previous publication at a workshop is acceptable as long as the NSDI submission includes substantial new material. See remarks above about how to cite and contrast with a workshop paper.

Authors uncertain whether their submission meets USENIX's guidelines should contact the Program Co-Chairs, [nsdi17chairs@usenix.org](mailto:nsdi17chairs@usenix.org).

Papers accompanied by nondisclosure agreement forms will not be considered. All submissions will be treated as confidential prior to publication on the USENIX NSDI '17 Web site; rejected submissions will be permanently treated as confidential.

## Ethical Considerations

Papers describing experiments with users or user data (e.g., network traffic, passwords, social network information) should follow the basic principles of ethical research, e.g., beneficence (maximizing the benefits to an individual or to society while minimizing harm to the individual), minimal risk (appropriateness of the risk versus benefit ratio), voluntary consent, respect for privacy, and limited deception. When appropriate, authors are encouraged to include a subsection describing these issues. Authors may want to consult the Menlo Report at [www.caida.org/publications/papers/2012/menlo\\_report\\_actual\\_formatted/](http://www.caida.org/publications/papers/2012/menlo_report_actual_formatted/) for further information on ethical principles, or the Allman/Paxson IMC '07 paper at [conferences.sigcomm.org/imc/2007/papers/imc76.pdf](http://conferences.sigcomm.org/imc/2007/papers/imc76.pdf) for guidance on ethical data sharing.

Authors must, as part of the submission process, attest that their work complies with all applicable ethical standards of their home institution(s), including, but not limited to privacy policies and policies on experiments involving humans. Note that submitting research for approval by one's institution's ethics review body is necessary, but not sufficient—in cases where the PC has concerns about the ethics of the work in a submission, the PC will have its own discussion of the ethics of that work. The PC's review process may examine the ethical soundness of the paper just as it examines the technical soundness.

## Processes for Accepted Papers

If your paper is accepted and you need an invitation letter to apply for a visa to attend the conference, please contact [conference@usenix.org](mailto:conference@usenix.org) as soon as possible. (Visa applications can take at least 30 working days to process.) Please identify yourself as a presenter and include your mailing address in your email.

Accepted papers may be shepherded through an editorial review process by a member of the Program Committee. Based on initial feedback from the Program Committee, authors of shepherded papers

will submit an editorial revision of their paper to their Program Committee shepherd. The shepherd will review the paper and give the author additional comments. All authors, shepherded or not, will upload their final file to the submissions system by the camera ready date for the conference Proceedings.

All papers will be available online to registered attendees before the conference. If your accepted paper should not be published prior to the event, please notify [production@usenix.org](mailto:production@usenix.org). The papers will be available online to everyone beginning on the first day of the conference.

### **Best Paper Awards**

Awards will be given for the best paper(s) at the conference.

### **Community Award**

To encourage broader code and data sharing within the NSDI community, the conference will also present a "Community Award" for the best paper whose code and/or data set is made publicly available by the final papers deadline, February 23, 2017. Authors who would like their paper to be considered for this award will have the opportunity to tag their paper during the submission process.



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