NOTES

USENIX Member Benefits

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/

Discounts on registration fees for all USENIX conferences

Special discounts on a variety of products, books, software, and periodicals: www.usenix.org/member-services/discount-instructions

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 contact office@usenix.org. Phone: 510-528-8649.

USENIX Board of Directors

Communicate directly with the USENIX Board of Directors by writing to board@usenix.org.

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USENIX: It's Not What You Might Think

Cat Allman, USENIX Board

When Casey Henderson, USENIX Executive Director, asked me to run for the board, I was surprised. (Wildly flattered because I think of board members as elite technologists, which I am not, but surprised.) I don't code. There—I said it. I don't write code. So what the heck am I doing here on the Board? Everyone knows that USENIX is an academic organization for CS professors and their students, right? Well, no.

I first got involved with USENIX back in the 1980s while setting up a computer service bureau for a design firm. I'd known about USENIX through my brother for some time and felt their resources for system administrators would be useful to me, both technically and for justifying my costs to my computer illiterate bosses. This last part turned out to be the most important reason for me. The most challenging part of building and running what turned into a decent-sized production IT department / profit center for management who thought "high-tech" was a style of interior design was getting them to understand the costs involved, managing their expectations, and getting them to pay me what I was worth. USENIX publications and community helped me with all that and gave me people to talk with who understood what I was doing.

After what seemed like a heck of a long time, I found myself working at Sendmail, Inc., sponsoring USENIX events to drive usage of Sendmail's products and services. USENIX events were the best source of high quality sales leads for us, plus the people were a pleasure. Booth duty—I actually enjoyed it at USENIX events, where the attendees are

smart and—wait for it—engineers. Honest, practical, problem-solving engineers.

Next step in my USENIX evolution was joining the staff. In 2002 I jumped to the other side of the desk and spent 4.5 years working 80% time in the Berkeley office marketing the org to potential commercial sponsors. Cold-calling is not my favorite thing, but you develop a taste for the hunt, you get to talk with some terrific people, and helping USENIX, the organization that had done so much for me, support itself was deeply satisfying.

But I couldn't say no to Google's Open Source Programs Office. My time with Sendmail had drawn me deeply into the world of free and open source software, and once you've found your tribe it's hard to stay away. USENIX had roots in open source but at the time was increasingly focused on academic publishing, a worthy thing, but not "my thing" and not what drew me to USENIX all along. The chance to work full time promoting open source was way too good to pass up. An added benefit was being back on the buyer's side of the desk where I could sponsor USENIX again. (Most recently, Google sponsored USENIX Open Access!)

Speaking of Open Access; this effort is hugely important to the spread of CS education and technical innovation, and I am deeply proud to be associated with USENIX around this issue in particular.

Fast forward to three years ago when Casey approached me about running for the Board. I was initially reluctant since, as I said, me and academic publishing—not so much—but as we talked I came to see that the USENIX community is in a great position to serve the latest generation of SRE/DevOps through our continuing blend of cutting edge research and advanced professional practice. Call it "embracing our roots" or simply recognizing our strengths; we have so much to offer, and I want to be a part of this effort.

So there you have it: a USENIX Board member who was never an academic, can't code, and has worked in or with "industry" for the 30+ years she's been involved with USENIX. I agreed to run for the Board (and thank you everyone who voted for me!) to give back to an organization that has done so much for me, and to encourage USENIX to more fully embrace creating content for and by working practitioners. The Enigma conference this past January was a great example of USENIX's proud history of surfacing research that furthers advanced practice. I'm looking forward to more of these kinds of conferences in the future and hope to see you all there!

Impressive Results for Team USA at 2016 International Olympiad in Informatics

Brian C. Dean, Director, USA Computing Olympiad

I am thrilled to be able to report to the USENIX community another highly successful year for the USA Computing Olympiad and its participation in the International Olympiad in Informatics!

Those who follow the "sport" of competitive programming know the International Olympiad in Informatics (IOI) as the most prestigious algorithmic computer science competition at the high school level. The IOI is held in a different country each year, and the 28th annual IOI took place in August 2016 in Kazan, one of the largest cities in Russia and the capital of its Tatarstan Republic. Delegations from 80 countries attended, each bringing a team of their top four high-school computing students. It is a phenomenal opportunity for the students not only to be able to compete at such a high level, but also to meet and interact with peers from around the world with similar interests and talent.

The IOI takes place over an entire week, offering competitors a chance to experience local culture, food, and customs. Excursions from our home base at Kazan Federal University included a trip to the Kazan Kremlin, a tour of the picturesque island of Sviyazhsk, and a visit to Innopolis, an entire futuristic tech-centric city created from the ground up in just the past four years. I am told that incriminating video footage even exists of the USA delegation taking part in an exercise to learn traditional Russian styles of dance.

However, the main event is the competition. Two five-hour contests held on separate days each feature three challenging problems which the students, working individually, have to solve, most of them using C++. The problems are algorithmic in nature, so the key to getting high scores is to implement algorithms that are fast enough to solve the largest test cases within a certain time limit. Top students at the IOI are given gold, silver, and bronze medals.

Out of 308 contestants at the event, only 26 received the highly coveted gold medals. Team USA struggled on the first competition day but turned in stellar results on the second day to complete a dramatic comeback, yielding the following results:

- Daniel Chiu (gold medal), Catlin Gabel School, OR
- Lawrence Li (gold medal), The Harker School, CA
- Dhruv Rohatgi (gold medal), The Davidson Academy of Nevada, NV
- Calvin Lee (silver medal), Homeschooled, NY

Accompanying these students to Kazan were team leader Brian Dean (a computer science professor at Clemson University who has trained the USA IOI team now for 20 years) and deputy leader Travis Hance, a recent MIT graduate now working at Dropbox, who competed for team USA in 2009.

No team at IOI 2016 earned four gold medals, and the only others earning three gold medals were Russia and China, tying the USA for top country by medal count. Of the 25 years the USA has now competed in this event, it has only won three or more golds seven times, six of these happening in the past seven years, demonstrating how we have now reached a level of consistent excellence as one of the top competitors at the IOI.

High-school computing education in the USA is not known for its support of advanced programming and problem-solving

concepts, so how has team USA reached this impressive level of performance? Fortunately, advanced students can find the resources they need to excel through the USA Computing Olympiad, a national nonprofit program that provides free online training and programming contests for students at all levels. Our contests were recently extended to four divisions—ranging from a bronze division that is accessible to students just learning to program, up to a platinum division that challenges the best students in the world—with problems that are IOI-level or even harder. Tens of thousands of students have participated in our online training site, and thousands compete in our online contests each year. This year we again set new records for participation, roughly double where we were five years ago.

Top students across the USA from the online USACO contests—roughly two dozen—are invited to a rigorous summer training camp in early June, where they learn advanced algorithmic techniques from our dedicated volunteer staff (many of them former IOI team members themselves). At the end of training camp, the top four students are named to the USA team to attend the IOI.

The USACO plays a vital role in computing education in the USA, helping to ensure a steady stream of highly talented computational problem-solvers moving through the pipeline from high school to university. The program has now been around long enough to see the amazing impact of our alums, from becoming superstar professors in academia to innovators in the tech startup arena. Many wonderful programs exist for helping with computing education and outreach, but very few address the needs of our most advanced students or the increasingly important topic of algorithmic problem solving. The USACO fills a vital niche in this respect, and I am constantly thanked by students from many countries at the IOI for the free resources we have made available for all to use (many other countries utilize these resources, and our contests routinely have participation from 70+ countries).

Our program would not exist if it were not for USENIX and our other dedicated sponsors, and high-school computing owes all of these generous organizations a debt of gratitude for their wide-reaching contributions. USENIX, in particular, has contributed hundreds of thousands of dollars over a span of 16 years! Directing the USACO has been one of the most fulfilling activities of my professional career, and I look forward with great enthusiasm to continuing our momentum into next season as we train for IOI 2017 in Tehran, Iran.

If you are interested in more information on USACO or wish to participate in any of our activities (they are free and open to all), please visit our Web site, usaco.org.

Thanks to Our Volunteers

by Casey Henderson, USENIX Executive Director

As many of our members know, USENIX's success is attributable to a large number of volunteers who lend their expertise and support for our conferences, publications, good works, and member services. They work closely with our staff in bringing you the best in the fields of systems research and system administration. Many of you have participated on program committees, steering committees, and subcommittees, as well as contributing to this magazine. The entire USENIX staff and I are most grateful to you all. Below, I would like to make special mention of some people who made particularly significant contributions in 2016.

Program Chairs

Enigma 2016
David Brumley and Parisa Tabriz

14th USENIX Conference on File and Storage Technologies (FAST '16)
Angela Demke Brown and Florentina Popovici

2016 USENIX Research in Linux File and Storage Technologies Summit (Linux FAST Summit '16)
Christoph Hellwig and Ric Wheeler

13th USENIX Symposium on Networked Systems Design and Implementation (NSDI '16)
Katerina Argyraki and Rebecca Isaacs

2016 USENIX Workshop on Cool Topics in Sustainable Data Centers (CoolDC '16)
Weisong Shi and Thomas F. Wenisch

SREcon16
Liz Fong-Jones, Melita Mihaljevic, and Coburn Watson

2016 USENIX Annual Technical Conference (USENIX ATC '16)
Ajay Gulati and Hakim Weatherspoon

Twelfth Symposium on Usable Privacy and Security (SOUPS 2016)
Sunny Consolvo and Matthew Smith

8th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '16)
Nitin Agrawal and Sam H. Noh

8th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud '16)
Austin Clements and Tyson Condie

SREcon16 Europe
Narayan Desai and John Looney

25th USENIX Security Symposium (USENIX Security '16)
Thorsten Holz and Stefan Savage

2016 USENIX Summit on Hot Topics in Security (HotSec '16)
Damon McCoy and Franziska Roesner

2016 USENIX Workshop on Advances in Security Education (ASE '16)
Mark Gondree and Zachary N J Peterson

6th USENIX Workshop on Free and Open Communications on the Internet (FOCI '16)
Amir Houmansadr and Prateek Mittal

9th USENIX Workshop on Cyber Security Experimentation and Test (CSET '16)
Eric Eide and Mathias Payer

10th USENIX Workshop on Offensive Technologies (WOOT '16)
Natalie Silvanovich and Patrick Traynor

12th USENIX Symposium on Operating Systems Design and Implementation (OSDI '16)
Kimberly Keeton and Timothy Roscoe

4th Workshop on Interactions of NVM/Flash with Operating Systems and Workloads (INFLOW '16)
Peter Desnoyers and Kaoutar El Maghraoui

30th Large Installation System Administration Conference (LISA16)
John Arrasjid and Matt Simmons

2016 Summit for Educators in Systems Administration (SESA '16)
Kyrre Begnum and Charles Border

Other Chairs and Major Contributors

FAST '16
Work-in-Progress/Posters Co-Chairs: Haryadi Gunawi and Daniel Peek
Tutorial Coordinator: John Strunk

NSDI '16
Poster Session Co-Chairs: Aruna Balasubramanian and Laurent Vanbever

SOUPS 2016
General Chair: Mary Ellen Zurko
Invited Talks Chair: Yang Wang
Lightning Talks and Demos Chair: Elizabeth Stobert
Panels Chair: Tim McKay
Posters Co-Chairs: Michelle Mazurek and Florian Schaub
Tutorials and Workshops Co-Chairs: Adam Aviv and Mohammad Khan
Publicity Chair: Patrick Gage Kelley

USENIX Security '16
Invited Talks Chair: Adrienne Porter Felt
Invited Talks Committee: Tyrone Grandison, Alex Halderman, Franziska Roesner, and Elaine Shi
Poster Session Chair: Raluca Popa
Poster Session Committee Members: Nikita Borisov and Mathias Payer
Work-in-Progress Reports (WiPs) Coordinator: Patrick Traynor

FOCI '16
Publicity Chair: Sandy Ordonez

OSDI '16
Poster Session Co-Chairs: George Porter and Chris Rossbach
Luncheon on Supporting Diversity in Systems Research Organizer: Dilma Da Silva

LISA16
Invited Talks Co-Chairs: Pat Cable and Ben Cotton
Tutorial Co-Chairs: Mike Ciavarella and Chris St. Pierre
Workshops Chair: Lee Damon
LISA Lab Coordinators: Christopher DeMarco and Andrew Mundy
LISA Build Coordinators: Branson Matheson and Brett Thorson

Storage Pavilion and Data Storage Day at LISA16
Organizer: Jacob Farmer of Cambridge Computer

2016 *USENIX Journal of Education in System Administration (JESA)*
Editors-in-Chief: Kyrre Begnum and Charles Border

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Cat Allman, John Arrasjid, Michael Bailey, David Blank-Edelman, Angela Demke Brown, Daniel V. Klein, Brian Noble, Kurt Opsahl, Carolyn Rowland, and Hakim Weatherspoon

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Eric Allman, John Arrasjid, and Niels Provos

HotCRP Submissions and Reviewing System
Eddie Kohler

USA Computing Olympiad (co-sponsored by USENIX)
Team Leader: Brian Dean
Deputy Team Leader: Travis Hance

USENIX ASSOCIATION FINANCIAL STATEMENTS FOR 2015

The following information is provided as the annual report of the USENIX Association's finances. The accompanying statements have been reviewed by Michelle Suski, CPA, in accordance with Statements on Standards for Accounting and Review Services issued by the American Institute of Certified Public Accountants. The 2015 financial statements were also audited by Bong, Hillberg Lewis Fischesser LLP, CPAs. Accompanying the statements are charts that illustrate the breakdown of the following: operating expenses, program expenses, and general and administrative expenses. The operating expenses for the Association consist of the following: program expenses, management and general expenses, and fundraising expenses, as illustrated in Chart 1. The operating expenses include the general and administrative expenses allocated across the Association's activities. Chart 2 shows the breakdown of USENIX's general and administrative expenses. The program expenses, which are a subset of the operating expenses, consist of conferences and workshops; membership (including *;login:* magazine); projects, programs, and good works projects; their individual portions are illustrated in Chart 3. The Association's complete financial statements for the fiscal year ended December 31, 2015, are available on request.

Casey Henderson, Executive Director

USENIX ASSOCIATION

Statements of Financial Position
December 31, 2015 and 2014

	2015	2014
ASSETS		
Current assets		
Cash and equivalents	$ 431,293	$ 252,948
Accounts receivable, net	355,919	83,740
Prepaid expenses	130,826	91,704
Investments	5,416,766	5,096,241
Total current assets	6,334,804	5,524,633
Property and equipment, net	234,343	362,930
Total assets	$ 6,569,147	$ 5,887,563
LIABILITIES AND NET ASSETS		
Current liabilities		
Accounts payable and accrued expenses	$ 77,703	$ 44,473
Accrued compensation	62,459	56,222
Deferred revenue	516,600	91,080
Total current liabilities	656,762	191,775
Deferred revenue, net of current portion	487,500	-
Total liabilities	1,144,262	191,775
Net assets - unrestricted		
Undesignated	8,119	599,548
Board designated	5,416,766	5,096,240
Total net assets	5,424,885	5,695,788
Total liabilities and net assets	$ 6,569,147	$ 5,887,563

USENIX ASSOCIATION

Statements of Activities
Years Ended December 31, 2015 and 2014

	2015	2014
REVENUES		
Conference & workshop revenue	$ 3,679,420	$ 3,598,142
Membership dues	262,877	281,847
Event services & projects	618,774	111,088
Product sales	6,215	7,361
LISA SIG dues & other	40,482	44,046
General sponsorship	90,000	85,500
Total revenues	4,697,768	4,127,984
EXPENSES		
Conferences and workshops	3,366,015	3,268,065
Projects, programs and membership	763,900	448,589
LISA SIG	3,889	3,586
Total program services	4,133,804	3,720,240
Management and general	595,237	420,976
Fundraising	188,236	97,276
Total expenses	4,917,277	4,238,492
CHANGE IN NET ASSETS FROM OPERATIONS	(219,509)	(110,508)
OTHER INCOME (EXPENSES)		
Donations	26,754	23,197
Investment income (loss)	(30,042)	164,316
Investment fees	(49,532)	(59,895)
Other income	1,426	332
Total other income (expenses)	(51,394)	127,950
Change in net assets	(270,903)	17,442
NET ASSETS - unrestricted		
Beginning of year	5,695,788	5,678,346
End of year	$ 5,424,885	$ 5,695,788

Continued on page 94

USENIX ASSOCIATION FINANCIAL STATEMENTS FOR 2015

Chart 1: USENIX 2015 Operating Expenses

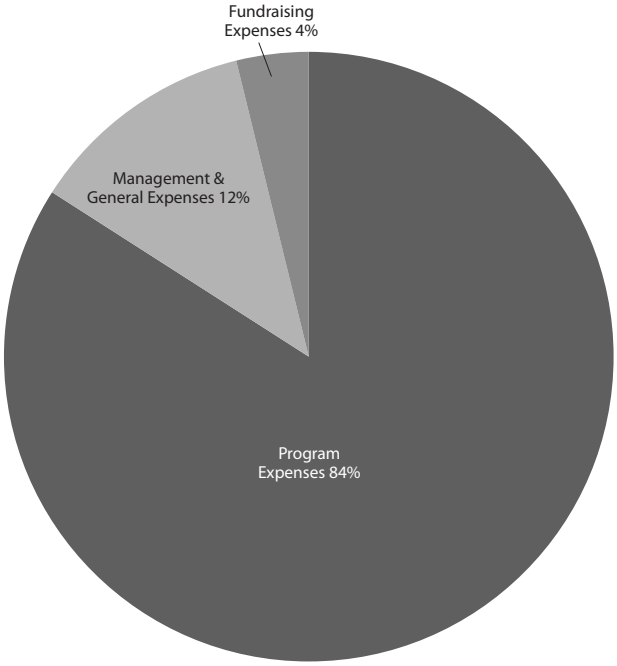


Chart 2: USENIX 2015 General & Administrative Expenses

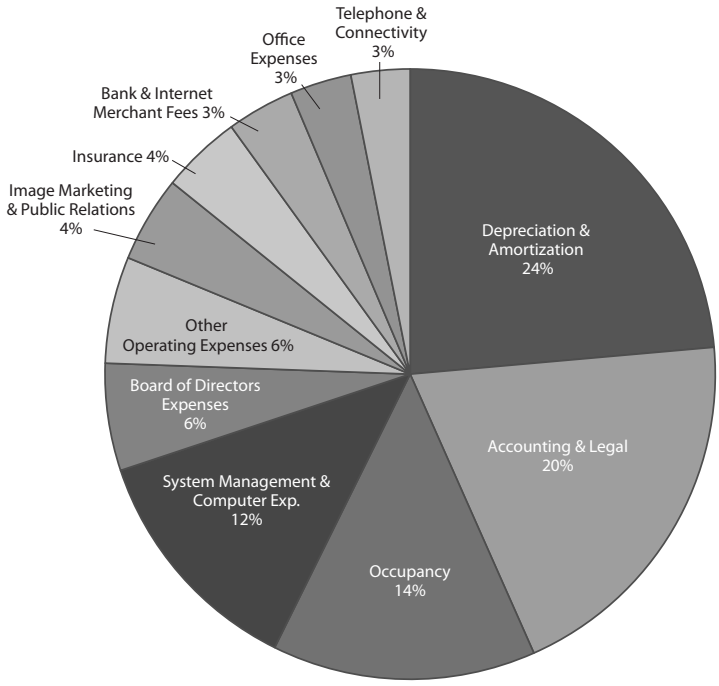
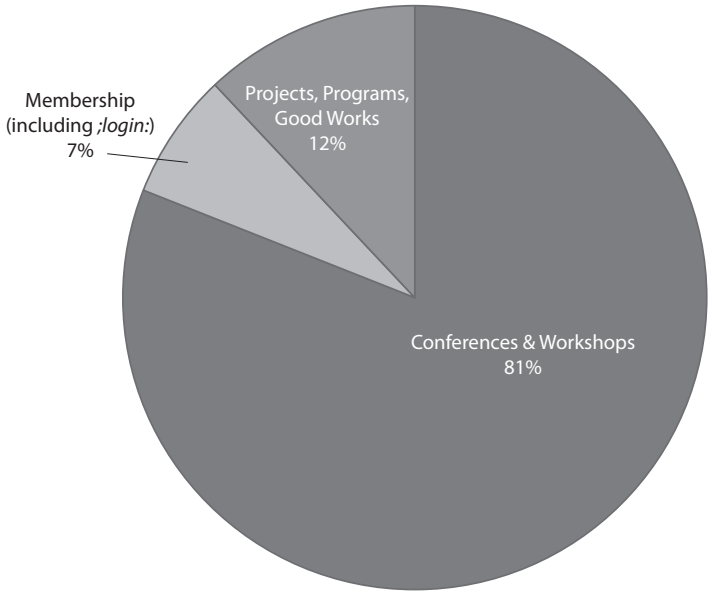


Chart 3: USENIX 2015 Program Expenses



2017 USENIX Annual Technical Conference

July 12–14, 2017 • Santa Clara, CA, USA

Sponsored by USENIX, the Advanced Computing Systems Association

Important Dates

- Paper submissions due: **Tuesday, February 7, 2017, 11:59 p.m. GMT**
- Notification to authors: **Monday, April 24, 2017**
- Final papers due: **Wednesday, May 31, 2017**

Conference Organizers

Program Co-Chairs

Dilma Da Silva, *Texas A&M University*
Bryan Ford, *École Polytechnique Fédérale de Lausanne (EPFL)*

Program Committee

To be announced

Overview

Authors are invited to submit original and innovative papers to the Refereed Papers Track of the 2017 USENIX Annual Technical Conference. We seek high-quality submissions that further the knowledge and understanding of modern computing systems with an emphasis on implementations and experimental results. We encourage papers that break new ground, present insightful results based on practical experience with computer systems, or are important, independent reproductions/refutations of the experimental results of prior work. USENIX ATC '17 has a broad scope, and specific topics of interest include (but are not limited to):

- Architectural interaction
- Big data infrastructure
- Cloud computing
- Datacenter networking
- Deployment experience
- Distributed and parallel systems
- Embedded systems
- Energy/power management
- File and storage systems
- Mobile and wireless
- Networking and network services
- Operating systems
- Reliability, availability, and scalability
- Security, privacy, and trust
- System and network management and troubleshooting
- Usage studies and workload characterization
- Virtualization

USENIX ATC '17 is especially interested in papers broadly focusing on practical techniques for building better software systems: ideas or approaches that provide practical solutions to significant issues facing practitioners. This includes all aspects of system development: techniques for developing systems software; analyzing programs and finding bugs; making systems more efficient, secure, and reliable; and deploying systems and auditing their security.

Experience reports and operations-oriented studies, as well as other work that studies software artifacts, introduces new data sets of practical interest, or impacts the implementation of software components in areas of active interest to the community are well-suited for the conference.

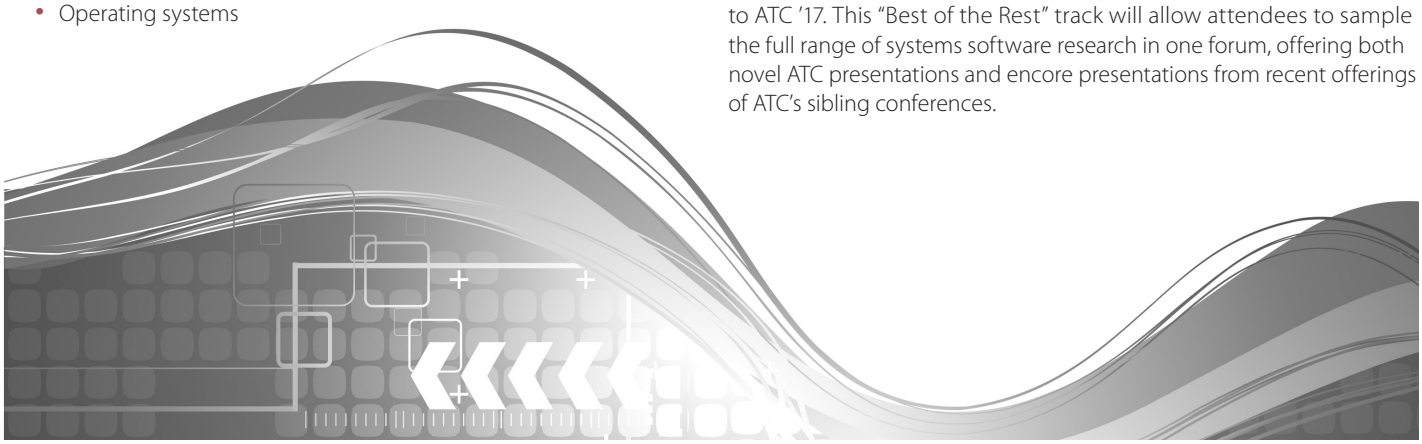
The conference seeks both long-format papers consisting of 11 pages and short-format papers of 5 pages, including footnotes, appendices, figures, and tables, but not including references. Short papers will be included in the proceedings and will be presented as normal but in sessions with slightly shorter time limits. For industrial practitioners, if you are interested in the Practitioner Talks Track, which accepts proposals for 20-minute or 40-minute talks, please refer to the USENIX ATC '17 Call for Talks Web page, which will be available soon.

Best Paper Awards

Cash prizes will be awarded to the best papers at the conference. Please see the USENIX proceedings library for Best Paper winners from previous years.

Best of the Rest Track

The USENIX Annual Technical Conference is the senior USENIX forum covering the full range of technical research in systems software. Over the past two decades, USENIX has added a range of more specialized conferences. ATC is proud of the content being published by its sibling USENIX conferences and will be bringing a track of encore presentations to ATC '17. This "Best of the Rest" track will allow attendees to sample the full range of systems software research in one forum, offering both novel ATC presentations and encore presentations from recent offerings of ATC's sibling conferences.



What to Submit

Authors are required to submit full papers by the paper submission deadline. *It is a hard deadline; no extensions will be given.* All submissions for USENIX ATC '17 will be electronic, in PDF format, via the Web submission form on the Call for Papers Web site, www.usenix.org/atc17/cfp.

USENIX ATC '17 will accept two types of papers:

Full papers: Submitted papers must be no longer than 11 single-spaced 8.5" x 11" pages, including figures and tables, but not including references. You may include any number of pages for references. Papers should be formatted in 2 columns, using 10-point type on 12-point leading, in a 6.5" x 9" text block. Figures and tables must be large enough to be legible when printed on 8.5" x 11" paper. Color may be used, but the paper should remain readable when printed in monochrome. The first page of the paper should include the paper title and author name(s); reviewing is single blind. Papers longer than 11 pages including appendices, *but excluding references,* or violating formatting specifications will not be reviewed. In a good paper, the authors will have:

- Addressed a significant problem
- Devised an interesting and practical solution or provided an important, independent, and experimental reproduction/refutation of prior solutions
- Clearly described what they have and have not implemented
- Demonstrated the benefits of their solution
- Articulated the advances beyond previous work
- Drawn appropriate conclusions

Short papers: Authors with a contribution for which a full paper is not appropriate may submit short papers of at most 5 pages, not including references, with the same formatting guidelines as full papers. You may include any number of pages for references. Examples of short paper contributions include:

- Original or unconventional ideas at a preliminary stage of development
- The presentation of interesting results that do not require a full-length paper, such as negative results or experimental validation
- Advocacy of a controversial position or fresh approach

For more details on the submission process and for templates to use with LaTeX and Word, authors should consult the detailed submission requirements linked from the Call for Papers Web site, www.usenix.org/atc17/cfp. Specific questions about submissions may be sent to atc17chairs@usenix.org.

By default, all papers will be made 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. In any case, the papers will be available online to everyone beginning on the first day of the conference, July 12, 2017.

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

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 for details.

Note that the above does not preclude the submission of a regular full paper that overlaps with a previous short paper or workshop paper. However, any submission that derives from an earlier paper must provide a significant new contribution (for example, by providing a more complete evaluation), and must explicitly mention the contributions of the submission over the earlier paper. If you have questions, contact your program co-chairs, atc17chairs@usenix.org, or the USENIX office, submissionspolicy@usenix.org.

Authors will be notified of paper acceptance or rejection by April 24, 2017. Acceptance will typically be conditional, subject to shepherding by a program committee member.

Poster Session

The poster session is an excellent forum to discuss ideas and get useful feedback from the community. Posters and demos for the poster session will be selected from all the full paper and short paper submissions by the poster session chair. If you do not want your submissions to be considered for the poster session, please specify on the submission Web site.

Program and Registration Information

Complete program and registration information will be available in April 2017 on the conference Web site.

Rev. 10/27/16