First USENIX Workshop on Sustainable Information Technology (SustainIT '10)

Sponsored by USENIX, the Advanced Computing Systems Association

http://www.usenix.org/sustainit10

February 22, 2010   San Jose, CA

SustainIT '10 will be co-located with the 8th USENIX Conference on File and Storage Technologies (FAST '10), which will take place February 23–26, 2010.

Important Dates

Submissions due: *November 16, 2009, 11:59 p.m. PST*
Deadline Extended!
Notification to authors: *December 14, 2009*
Final papers due: *January 11, 2010*

Workshop Organizers

Program Co-Chairs

Ethan L. Miller, *University of California, Santa Cruz*
Erez Zadok, *Stony Brook University*

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Overview

Increasingly, designers of computer systems ranging from small mobile devices to massive datacenters are concerned with sustainable design, including both power and life-cycle costs; these costs should include manufacturing, operation, and disposal of IT systems. Energy costs are growing rapidly, as are the costs of producing, managing, and disposing of the material from which computing systems are built; worse, the long-term environmental impacts of this entire IT life-cycle are poorly understood. Whereas understanding the power that runs computer systems is important, it is not the only factor: the resources needed to manufacture a computer system can be comparable to and even exceed what it consumes in its useful lifetime. The research community and industry do not understand these issues sufficiently well, much less the trade-offs between energy used in various stages of a computer system's life and its interactions with performance, cost, reliability, usability, security, and more.

This workshop brings together researchers as well as industry practitioners in a forum that presents the latest research and practices. We seek papers that evaluate energy-related issues and their aforementioned trade-offs, present novel new ideas, challenge and/or debunk past and present practices, and more. We especially encourage papers that discuss not just energy issues but also how they interact with other dimensions in a sustainable manner. The scope of this workshop is broad, covering research, theory, hardware, software, applications, techniques, etc.—all related to making computing systems greener.

This workshop is co-located with FAST '10 in order to encourage researchers from the two events to interact with each other.

Topics

Topics of interest related to energy-sustainable computing include but are not limited to:

- Energy vs. performance, cost, reliability, usability, security, etc.
- Evaluations of long-term total costs of ownership (TCOs, e-waste, growth rates, recycling, etc.)
- Total Impact of Ownership (TIO) in the long run (even decades-long)
- Workload reduction techniques (e.g., compression, dedup)
- Application of virtualization, cloud computing, clustering, and workload management
- Hardware-based techniques (e.g., new electronics, clock-gating, disaggregation)
- Firmware-based techniques (e.g., APM, ACPI)
- Right-sizing techniques (e.g., DVFS, DRPM)
- Use of FLASH and other novel storage media
- Impact of storage hardware and software stacks
- Application-optimization techniques (e.g., compiler-based)
- Theory, algorithms, and simulated results
- Energy and energy-related metrics (e.g., $$$, Energy-Delay, PUE)
- IT services and techniques to manage energy and reduce costs
- Sustainability and life-cycle analysis
- Practical energy technologies for the developing world
- Datacenter techniques (e.g., blade servers, low-power CPUs)
- Software-based techniques at all levels, from OS/kernel to applications
- Evaluation and modification of business processes to reduce the environmental impact
- Economics of energy-efficienct software and hardware design
- New datacenter cooling and energy-management issues and designs, including use of renewable energy sources
- Thermal and computational fluid dynamics (CFD) models for software and hardware co-design

Submissions

Submissions must be no longer than eight 8.5" x 11" pages and should be typeset in two-column format in 10 point type on 12 point (single-spaced) leading, with the text block being no more than 6.5" wide by 9" deep. Submissions are not anonymous; author information should be included on the first page.

Papers must be in PDF and must be submitted via the Web submission form on the SustainIT '10 Call for Papers Web site, http://www.usenix.org/sustainit10/cfp. The deadline for submissions is November 16, 2009, 11:59 p.m. PST.

All papers will be available online to registered attendees before the workshop. If your accepted paper should not be published prior to the event, please notify production@usenix.org. The papers will be available online to everyone beginning on the day of the workshop, February 22, 2010.

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 http://www.usenix.org/submissionspolicy. Questions? Contact your program co-chairs, sustainit10chairs@usenix.org, or the USENIX office, submissionspolicy@usenix.org.

Papers accompanied by nondisclosure agreement forms will not be considered. Accepted submissions will be treated as confidential prior to publication on the USENIX SustainIT '10 Web site; rejected submissions will be permanently treated as confidential.