Evolution of Rack-Scale Systems  
(July/August 2018)

Final submissions due: 13 October 2017

Please email the guest editors a brief description of the article you plan to submit by 15 September 2017. 
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Internet computing encompasses everything from the mice (Internet of Things) to the elephants (rack-scale systems consisting of multiple tightly-coupled computer systems). This issue focuses on the elephants in the room.

In just the past few years, advances in software and hardware technology have enabled new computing paradigms and new applications making use of rack-scale computing environments. These include super-fast interconnects, new memory devices and architectures, and ever-changing software models. For instance, we recently witnessed a strong shift from virtual machines to containers as the model for deploying software in shared environments.

In this issue, we investigate what has changed for rack-scale systems in the past (at most, 3–5 years) and what’s expected to change in the coming years. What are the new applications to make use of these systems? What are the changes to the system software stack? How are the underlying technologies being used to advance Internet applications and services? What changes are necessary going forward?

This special issue will include papers from both industry and academia that encompass the recent evolution of rack-scale systems, in the context of Internet computing. Topics include (but are not limited to) the following:

Applications and use cases
- data-intensive analytics and graph processing
- financial, medical, and transportation scenarios

Systems software stack
- operating systems
- virtual machines (VMs), containers, unikernels and microservices
- persistency libraries and inter-process communication (IPC) stacks

Architecture
- memory/storage architectures
- switches, routers, and software-defined networking
- accelerators

Technologies
- nonvolatile memory
- photonic interconnects
- system on a chip

Characteristics
- security
- reliability (such as erasure coding)
- scale and performance

All submissions must be original manuscripts of fewer than 5,000 words, focused on Internet technologies and implementations. Please note that each figure counts as 250 words, as part of the word count. All manuscripts are subject to peer review on both technical merit and relevance to IC’s international readership – primarily practicing engineers and academics who are looking for material that introduces new technology and broadens familiarity with current topics. We do not accept white papers, and we discourage strictly theoretical or mathematical papers. To submit a manuscript, please log on to ScholarOne (https://mc.manuscriptcentral.com:443/ic-cs) to create or access an account, which you can use to log on to IC’s Author Center and upload your submission.