
Research Interests	Content caching, green computing, content delivery networks (CDNs), Internet-scale distributed systems
Education	<p>University of Massachusetts Amherst, Ph.D. Computer Science, 2018 (anticipated) Thesis: Cache provisioning and management for content delivery Advisor: Dr. Ramesh K. Sitaraman</p> <p>University of Arizona, M.S. Electrical and Computer Engineering, 2013 Thesis: Fast rerouting from single link and single node failures for IP multicast Advisor: Dr. Srinivasan Ramasubramanian</p> <p>SSN College of Engineering, Anna University, B.E. Electronics and Communication Engineering, 2010 Thesis: Effective routing protocol for MPEG-4 video transmission in multi-hop MANETs Advisor: Dr. M. Ramakrishnan</p>
Research	<p>Cache optimization for content delivery, 2016 - present Designing optimization models and algorithms to jointly maximize cache hit rates and optimize load balancing in CDNs.</p> <p>TTL-based caching, 2016 - present Designing adaptive TTL-based caching algorithms to guarantee cache performance in the presence of non-stationary and bursty traffic.</p> <p>Sustainable cache deployment in CDNs, 2015 - 2016 Optimized deployment of hybrid (SSD + spinning disk) servers to maximize server utilization while minimizing deployment cost to deliver heterogeneous content.</p> <p>Disk shutdown to reduce energy consumption in CDNs, 2014 - 2016 Developed energy-efficient cache management algorithms that minimize energy consumption using disk shutdown while maximizing end-user performance.</p> <p>Fast rerouting from single link and single node failures for IP multicast, 2011 - 2013 Developed a fast rerouting algorithm using Steiner trees to recover from node failures immediately. Integrated the above proposal with existing unicast link rerouting mechanisms to provide protocol independent single link and single node fast rerouting.</p> <p>Energy efficient routing protocol for MPEG-4 video transmission in multi-hop mobile ad hoc networks, 2009 - 2010 Analyzed the performance of existing routing protocols to transmit video traffic over MANETs using real video traces. Identified the most efficient protocol to transmit video, and proposed extensions to improve throughput.</p>

Work Experience	<p>Akamai Technologies, Performance Engineering Intern, Summer 2017 Developed optimization models for footprint-based load balancing in CDNs.</p>
	<p>Akamai Technologies, Performance Engineering Intern, Summer 2016 Analyzed and tested new Anycast-based mapping approaches for content delivery in CDNs.</p>
	<p>Akamai Technologies, Systems Software Engineering Intern, Summer 2015 Developed and evaluated caching algorithms that optimize the use of SSDs and spinning disks in hybrid servers deployed across the edge network.</p>
	<p>Akamai Technologies, Systems Software Engineering Intern, Summer 2014 Developed and evaluated disk shutdown algorithms that maximize cache hit rate while minimizing energy consumption of the CDN.</p>
Publications	<p>Soumya Basu, Aditya Sundarrajan, Javad Ghaderi, Sanjay Shakkottai and Ramesh K. Sitaraman, “Adaptive TTL-based caching for content delivery”, IEEE/ACM Transactions on Networking, 2018</p>
	<p>Aditya Sundarrajan, Mingdong Feng, Mangesh Kasbekar and Ramesh K. Sitaraman, “Footprint descriptors: Theory and practice of cache provisioning in a global CDN”, ACM CoNEXT 2017</p>
	<p>Aditya Sundarrajan, Mangesh Kasbekar and Ramesh K. Sitaraman, “Energy-efficient disk caching for content delivery”, ACM e-Energy 2016</p>
	<p>Aditya Sundarrajan and Srinivasan Ramasubramanian, “Fast reroute from single link and single node failures for IP multicast”, Computer Networks: The International Journal of Computer and Telecommunications Networking, Volume 82 Issue C, May 2015</p>
	<p>Aditya Sundarrajan and Srinivasan Ramasubramanian, “Fast rerouting for IP multicast under single node failures”, IEEE GLOBECOM 2013</p>