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11:15 am–12:15 pm
Keller Hall 3-125

Improving Mobile Application Performance: Challenges, Solutions and Best Practices

Abstract:
Along with the spread of higher speed cellular technologies like 4G/LTE, the past few years have witnessed an explosive growth in mobile Internet data traffic. A recent industry report forecasts global mobile data traffic to increase 7x between 2016 and 2021. However the performance and energy bottlenecks of mobile applications are little understood due to a lack of visibility into the resource-constrained mobile execution environment and its potentially complex interaction with the application behavior.

Consider the popular activity of mobile web browsing. Today’s web page download process is ill-suited to cellular networks resulting in high page load times and radio energy usage. In this talk, I shall first overview some of the issues involved in supporting web browsing over cellular. I shall then present a solution approach called PARCEL that judiciously refactors browsing functionality between a proxy middlebox and a client. The proxy conducts redundant execution of browsing functionality to identify and proactively push objects for a client, thereby providing significant latency savings compared to traditional HTTP/1.1 and SPDY.

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Dr. Subhabrata (Shubho) Sen is a Lead Scientist at AT&T Labs Research. His research interests include IP network management, application and network performance, cross-layer interactions and optimizations in cellular networks, video streaming, configuration management, network measurements, and traffic analysis. He has published 96 peer-reviewed research articles, and holds over 60 awarded patents. He is a recipient of the AT&T Science and Technology Medal, the AT&T Labs President Excellence award, and the AT&T CTO Innovation Award.

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