

COMPUTER SCIENCE RESEARCH SEMINAR

A Case for Web Service Bandwidth Reduction on Mobile Devices with Edge-hosted Personal Services.

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Friday, April 13th at noon in room EB R15, Engineering Building

Abstract: In this talk, we show that many existing popular mobile services suffer from excessive network bandwidth consumption. The root cause is that the existing mobile/cloud communication interfaces are designed and optimized for service providers rather than end user devices. Solving the problem is challenging, because of the conflicted interests of service providers and mobile devices. We propose Edge-hosted Personal Service (EPS), with which device-oriented solutions can be easily deployed without affecting service providers. EPS also enjoys other notable advantages, including enabling new mobile services, reducing loads on the cloud, and benefiting delay-sensitive applications. We demonstrate the usefulness of EPS by designing ETA (Edge-based web Traffic Adaptation), an effective solution for the excessive bandwidth consumption problem, and deploy ETA with a prototype EPS system. By exploring lightweight virtualization techniques, our EPS prototype system is highly scalable in terms of concurrent EPS instances, and secure in terms of resource isolation. The real-world evaluation shows that our ETA EPS can effectively reduce bandwidth for mobile devices with small overheads.

Bio: Yongshu Bai is a PH.D. candidate advised by Dr. Yifan Zhang in the Department of Computer Science at SUNY Binghamton. His research interests are mainly in the system aspects of mobile computing and networking. He had worked on mobile cloud storage previously and have two papers published in ACM ApSys 2016 and IEEE ICDCS 2017.

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Refreshments will be provided!