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## **Cloud 2020: The Emergence of Micro Datacenters for Mobile Computing**

### **Abstract**

Resource poverty severely limits the types of applications that can run on our smartphones and wearables. This fundamental constraint is not just a temporary limitation of current technology but is intrinsic to mobility. In this talk, I will put forth a vision of the cloud that breaks free of this fundamental constraint. In this vision, mobile users seamlessly utilize nearby micro datacenters to obtain the resource benefits of cloud computing without incurring WAN delays and jitter. Crisp interactive response for immersive applications that augment human cognition are then easier to achieve. While much engineering and research remains, the concepts and ideas introduced open the door to a new world of disaggregated clouds in which seamless cognitive assistance for users can be delivered anyplace, anytime using the latest and greatest computer science technologies known to us.

### **Biographical Sketch**

Victor Bahl is a Principal Researcher and the Director of the Mobility & Networking Research (MNR) group in Microsoft Research. MNR's mission is to invent & research technologies that make Microsoft's networks, services, and devices indispensable to the world. In addition to shepherding brilliant researchers, Victor helps shape Microsoft's long-term vision related to networking technologies by advising the CEO and the senior executive team, and by executing on this vision through research, technology transfers, and associated policy engagements with governments and industries around the world. He and his group have had far-reaching impact on the research community, government policy, and Microsoft products through numerous significant publications and technology transfers. His personal research spans a variety of topics in mobile & cloud computing, wireless systems & services, and datacenter & enterprise networking. Over his career he has built many highly cited seminal systems, published prolifically in top conferences and journals, received 115 patents, given over three dozen keynote talks, won several prestigious awards and honors including ACM SIGMOBILE's Lifetime Achievement Award and IEEE Outstanding Leadership and Professional Service Award. Victor received his PhD from the University of Massachusetts Amherst in 1997. He is a Fellow of the ACM, IEEE, and AAAS.