Catapult:
A Reconfigurable Fabric for Petaflop Computing in the Cloud

Doug Burger
Microsoft Research

I will describe the Catapult architecture, being deployed into production in Microsoft's datacenters. Catapult is a disruptive architecture that augments datacenter infrastructure with a fabric of reconfigurable logic.

We deploy FPGAs at scale, and connect them directly so they can run multi-FPGA services with no software in the middle.

Bing is using the platform for web search ranking, and others are moving to production as well. I will describe how this fabric can also support HPC workloads quite efficiently, and may augment existing CPU and GPU-based deployments in the cloud, especially given growing FPGA vendor support for high-performance floating point operations on their next-generation FPGAs.

Speaker Bio: Doug Burger directs a multi-disciplinary team in Microsoft Research's NExT division. Some current areas of his group's activities are disruptive datacenter architecture, mobile silicon accelerators, novel wearable devices, and software architectures for new mobile experiences. He also currently co-leads the Catapult project within Microsoft. Prior to joining Microsoft in 2008, he was a Professor of Computer Sciences at the University of Texas at Austin for nine years.