Using GPU based Edge Computing for Federated Machine Learning

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Abstract:

A Today availability of data for machine learning model training is challenging due to data sovereignty restrictions. There are added issues like scaling, cost, latency, etc. when transferring data from the filed or remote regions to core cloud regions for processing and training purposes. This paper focuses on the role of GPU shapes at the edge of the cloud for federated machine learning (ML) training. Federated ML training is recommended to address customer requirement around data sovereignty and other restrictions surrounding streaming or real time data transfer back to a central cloud region. Customers like to use centralized cloud regions to address impacts due to increased latency and associated link costs and lack of data diversity. This paper proposes a solution to implement federated machine learning at the Cloud's edge point of presences using GPU based computing nodes. In addition depending on industry segments or regional requirements, the inference can also place at the edge. The training data or the inference data are aggregated at the core regions. We will discuss some new developments targeted at this space.

Biography:

Sanjay has over 26 years of industry experience in information technology, globally. Sanjay is an HPC, artificial intelligence and machine learning focused Cloud Computing / IaaS architect with experience in designing and launching Private / Public Cloud initiatives since 2007 at Dell. He spent few years in EMC2 building the private cloud accelerator offering as the CTO for their managed hybrid cloud services. Previous to Oracle, he was the Principal Executive Consultant at AWS professional services organization. His interests include Blockchain, distributed computation, quantum computing and post quantum encryption. He is working with Machine Learning and Data Sciences for the last 9 years. Currently he leads Oracle's GPU based AI/ML services team.

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