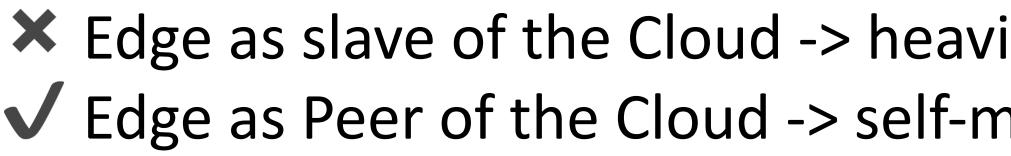
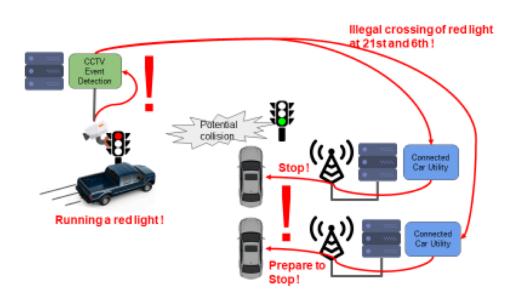
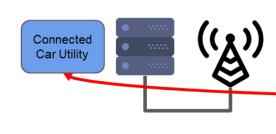
Elevating the Edge to be a Peer of the Cloud

Kishore Ramachandran Embedded Pervasive Lab, Georgia Tech



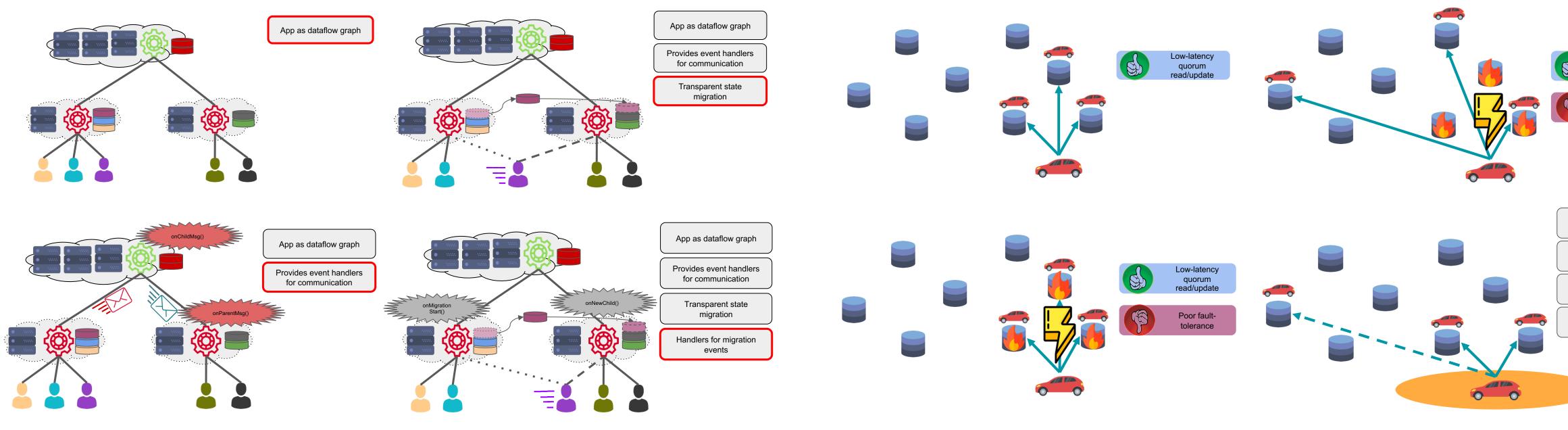
- Why 🔁 🗀 ? -> Horizontal interactions among edge nodes essential (connected vehicles)





- Challenges for making
- Need for powerful frameworks akin to the Cloud at the edge
- Geo-distributed data replication and consistency models

Foglets: Geo-distributed programming model



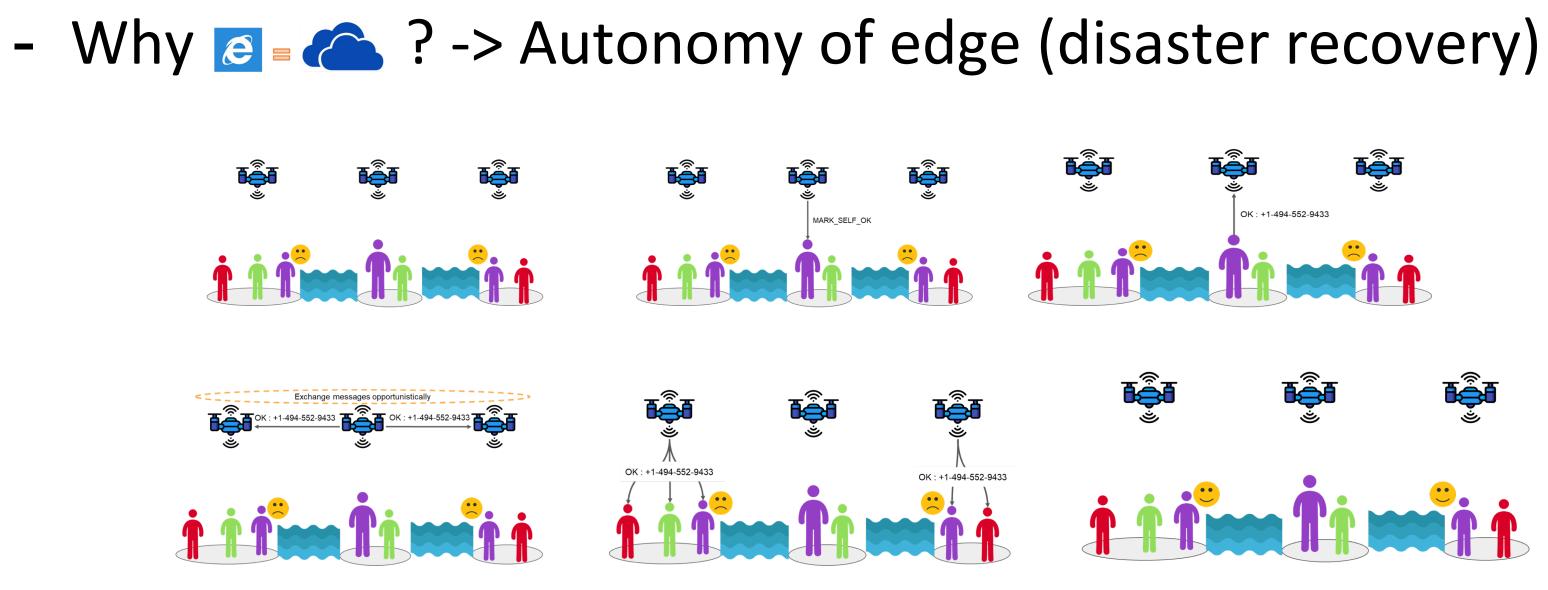


CPS: Breakthrough: Programming and Execution Environment for Geo-Distributed Latency-Sensitive Applications / Award# 1446801 / Award date 1/1/2015



X Edge as slave of the Cloud -> heavily dependent on cloud-based backends, I.e. data management. V Edge as Peer of the Cloud -> self-manageability, fault-tolerance and the illusion of infinite resources.





- Rapid deployment of application components, multi-tenancy, and elasticity at the edge

FogStore: Replication: Consistency/Latency tradeoff

Social sensing: Applications using Autonomous Edge Multi-componen applications Deployed across edge-cloud continuum tolerance **{@}** Utilize spatio-temporal Multi-component locality nature of queries applications Define Context of Interest (COI) region which Deployed across edge-cloud continuur arge-scale outages lead to connectivity loss Eventual consistency for (@} out of COI region for fault tolerance

Award ID#: NSF-CPS- 1446801

