Two-weekly report

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Q. What have I accomplished since the last Daily Standup?

Firstly, I started by reading types of factory automation applications like Collaborative robotics, which requires safe and reliable operation with hard real-time deadlines. Augmented reality where end-to-end latencies must be less than 16ms(application specific SLA levels exists). I also read the challenges of Edge Computing for such applications. EC has special system requirements (low latency & data generation), decentralized infrastructure, and has to manage running applications too. I have studied some optimization techniques of basic live migration schemes like achieving near zero downtime with **Redundancy Migration** that does not execute stop-and-copy.

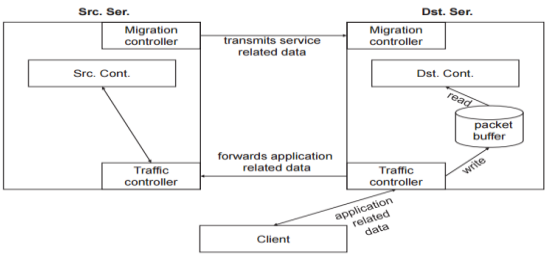

Fig 1. Redundancy Migration flow

QoS parameters for network are Throughput, delay, jitter, loss, reliability, availability, security. QoS can be optimized with mechanism of Path Selection with Handovers or with service migration.

iCanCloud, CloudNet, myIFogSim are some simulation tools for migration. Decision Making oriented solutions for service migration like distance based MDP(Markov Decision Problem) it formulates policies to find balance between User experience and migration costs, MDP doesnot take into account network and server state. INDICES & PRIMAL are some other approaches, still reading on it.

Q. What will I accomplish until the next Daily Standup?

Perform an in-depth analysis of which tools and methodology are we going to choose. This includes, the simulation tools, design and configure the migration scenarios within the simulation environment. Use a monitoring tool to monitor factors like CPU Utilization, memory, storage capacity, and find ways to log user experience, cost, etc. Study how to simulate migration for soft real-time application/ low workload applications. Gather application-level (service specific) data and analyse it. Gain understanding of how factors are impacted in different application areas. Finally, we want a methodology for working on our conceptual framework.

Q. Do I anticipate any obstacles and can the team help me with them?

Yes, there is too much information on different types of migration, different workload applications, several factors that impact QoS and different studies have several things to say for a QoS aware migration, it is difficult to stay relevant and not deviate from the topic. Maybe, deviation helps us too, in exploring what are the important aspects we should focus on. But some kind of direction is required. The team helps to widen the knowledge on aspects they have covered and keep me focused on the relevant topic.

Question to prof: Should we try to minimize the delay by adding QoS-awareness to the migration decision mechanism or focus instead on the migration mechanism itself, trying to reduce the time needed to migrate the whole service.