5. RELATED WORK

Our work is motivated by, and related to, industry trends towards more distributed mobile network architectures [9] and the use of network function virtualization (NFV) and software defined networking (SDN) [2]. MobiScud borrows from our own earlier work on the SMORE architecture [4]. Architecturally, however, MobiScud takes a much more extreme position in assuming a highly distributed cloud platform close to (or co-located) with the RAN footprint, to enable very low latency applications.

From a service perspective, MobiScud's personal VM approach was motivated by the Cloudlet work [10] and also more recent work that used personal VMs in the context of online-social-networks to store user personal data [11]. However, unlike our work in MobiScud, these previous efforts did not address the networking aspects of such an approach, effectively treating the network as a black box.

Our use of live VM migration is related to a fairly well explored space [6, 12], and indeed we use this component unmodified in MobiScud. However, to our knowledge, MobiScud is the first attempt to apply this technology in the context of mobile networks.

Our work is also related to various cloud offloading efforts [5, 8]. These efforts largely focused on how and when to perform offloading, and again largely treated the network as a black box.

6. CONCLUSION

We presented the MobiScud architecture. To ensure that low latency between the mobile device and the cloud platform is maintained as users move around, MobiScud makes use of live virtual machine migration to move a personal VM associated with each user in concert with mobile network handovers associated with the user. We prototyped and evaluated the MobiScud architecture in an LTE/EPC testbed. As part of our future work we plan to explore the appropriate "distributedness" and scalability tradeoffs of cloud platforms in mobile networks.

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7. REFERENCES

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