Uncertainty in Edge Computing

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#1 – When will it be available for real?

- Part of the infrastructure is on its way
  - AWS IoT Greengrass
  - AWS CloudFront Edge Servers
  - Edge nodes, e.g., Intel
  - Network Function Virtualization Servers
  - .....
- But much remains before Edge Computing exists for real
- Killer applications and Business Models needed

#2 – Edge Server Contention

- Edge data centers will be small
- All applications that want to execute there wont’t fit
- How should this and the associated automatic migration be handled.

#3 – Fog Placement

- Assuming that an fog infrastructures exists where applications can be placed anywhere from the edge datacenters to the remote datacenters
- Each application has requirements on latency, throughput, storage, etc
- The decision where to place the application is a NP-hard optimization problem
  - Sub-optimal solutions that minimize the number of migrations

#4 – Performance obtained

- Already using the ordinary cloud it is difficult to know what performance you can expect due to, e.g., co-location of applications
- In the fog this problem will become even more difficult to the increased heterogeneity

#5 – Application Development

- How do you write edge/fog-aware applications?
- Frameworks needed, e.g., Aaron's keynote