

# Progress Report May 2018

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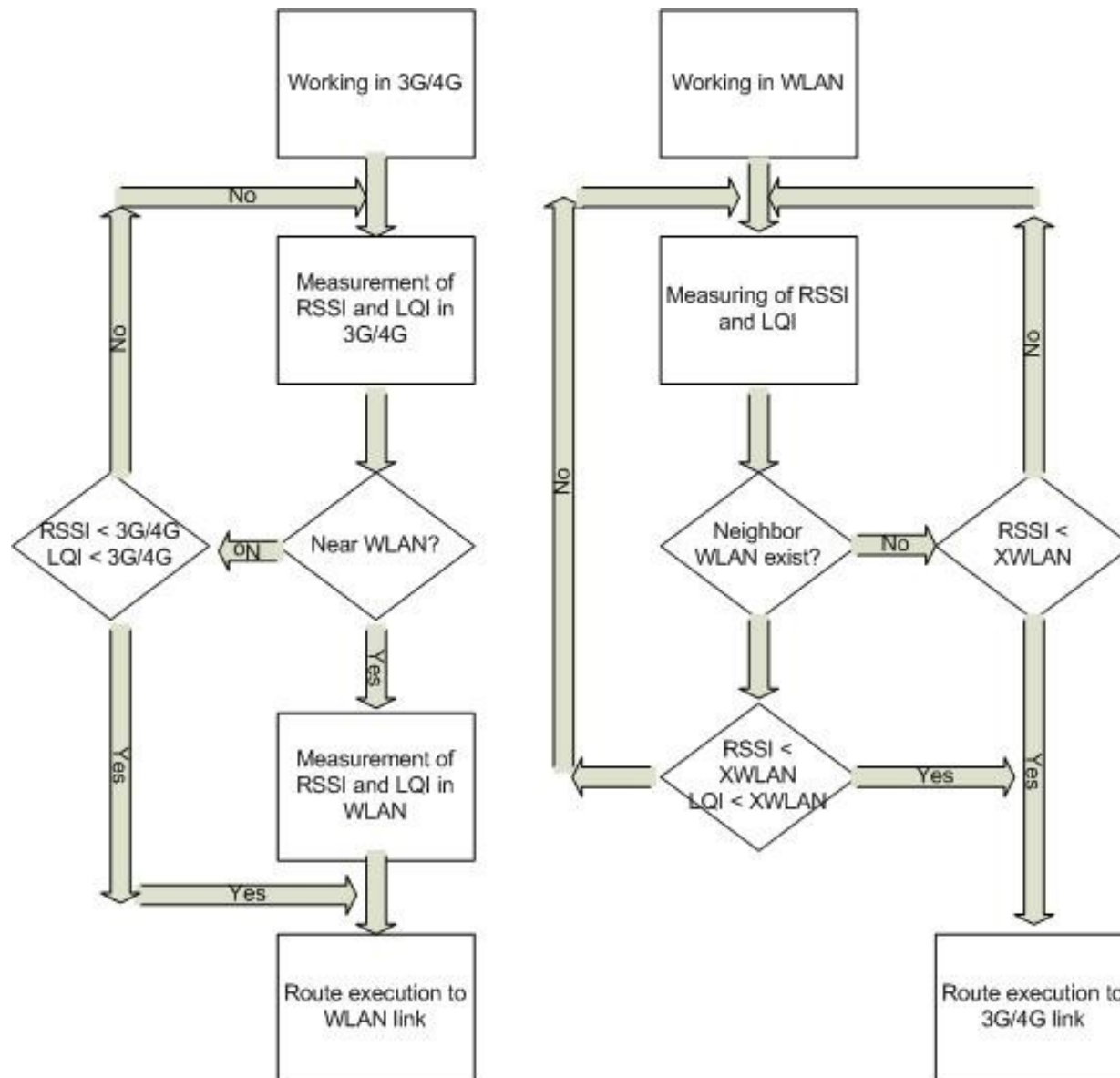
# Objective

- To implement and deploy a robust uplink protocol that can make advantages of alternative up-link(s).
  - To investigate the communication pathways from existing AWS networks and analyze their challenges.
  - To explore alternative up-link(s) and protocols that can be used to design a more robust AWS network.
  - To implement and deploy a robust up-link protocol that can make advantage of alternative up-link(s) for improved reliability.
  - To evaluate to what extent up-link reliability is improved.

# Current Work

- To implement a robust protocol that can classify metrics thresholds for supporting a decision whether up-link(s) are intermittent or not.
  - To setup a mesh network using OLSR
  - To setup sink node with alternative radio links
  - To explore RSSI/LQI thresholds, in relation to PDR, and classify whether a link is intermittent or not.
  - Refine a report that partly will be developed into a research paper.
  - Write a draft chapter

# Classification Scheme – Flow Chart



# To be cont'd

- The following observations were considered:
  - Good quality of link can vary considerably over time, while bad links vary more below a certain threshold.
  - Radio signals which are received at the base station with low power are drown out by strong signals from other links (limited quantization resolution).
  - The variations of RSSI and LQI are more stable when a) above -90dBm on 3G/4G b) above -72dBm on WLAN, in which PDR does not change much (> 90%).

# Achievements and Future Plans

- An academic papers:
  - “*Status of Existing Weather Observation Station Network in Tanzania and the Possibility to Automate and Densify*”. AFRICON2015
  - “*Benchmarking the Robustness of Cellular Up-links in AWS Networks*”. Journal of Communications and Network (CN)
  - “*On Exploring Classification Scheme in RSSI-LQI Metrics Thresholds in WLAN-3G/4G Integrated Networks*” - to the next ACM conference 2018
- The following future plans involve activities and associated milestones:
  - To secure full registration letter and tuition fee
  - To explore radio classification scheme in relation to PDR.

Thank You