Demonstrating WiFi to WiMAX Handover using the NITOS testbed

Control Network
WiMAX Network
Uplink GRE tunnel
Downlink GRE tunnel
WiFi Network

Users

Internet

NITOS Server

wimaxrf Server

WiMAX BS

WiMAX to WiFi

WiMAX-enabled mobiles

ICARUS Node   ICARUS Node   ICARUS Node   ICARUS Node

Intel WiMAX 6250 interface

WiMAX Dongle

Recent NITOS WiMAX extensions

➢ WiMAX Base Station by Airspan Networks Inc.
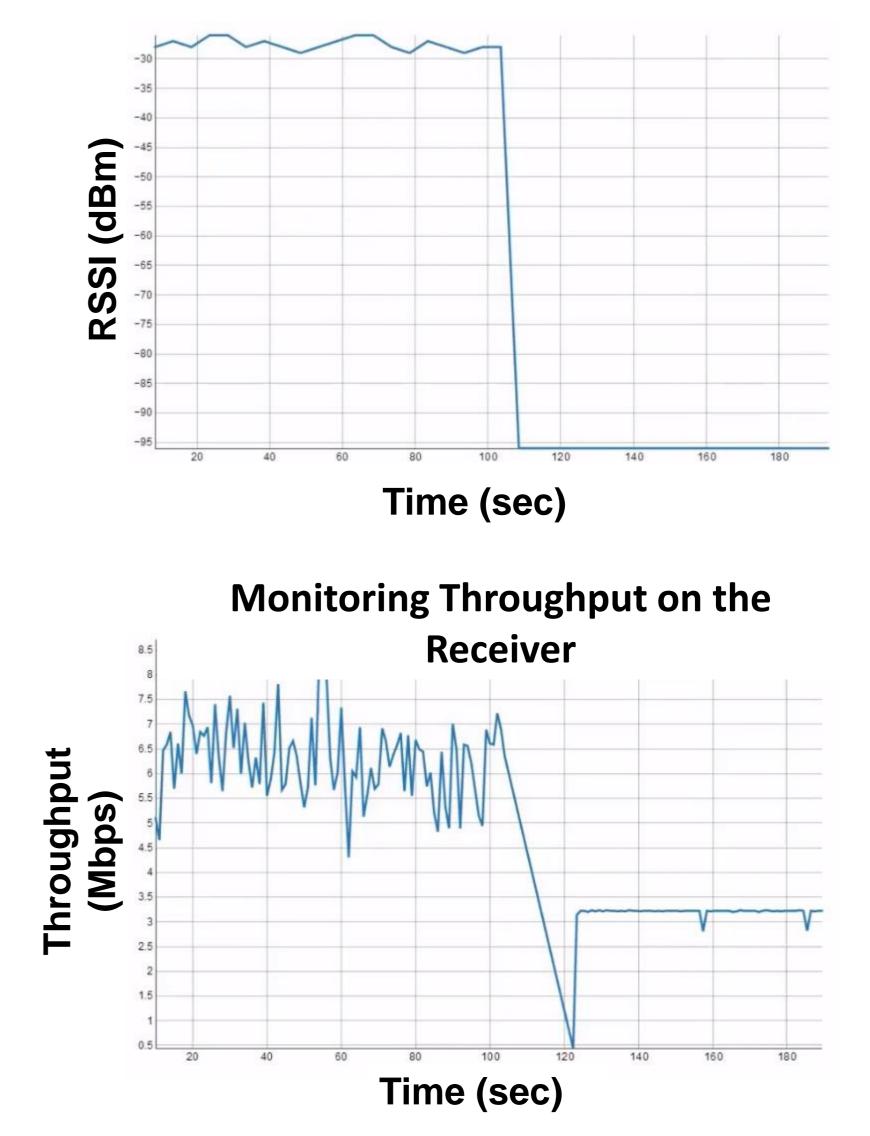 ✓ Operating at 2.53-2.63 GHz TDD
  ✓ Managed by OMF framework
➢ Integration of the Base Station to the NITOS Scheduler
  ✓ Currently being reserved by one slice
➢ Dedicated indoor testbed consisting of 10 RF-isolated testbed nodes WiMAX capable

➢ WiMAX enabled clients
  ✓ Intel 6250 WiMAX & WiFi cards
  ✓ Teltonika UM6225 USB dongles
    o Developed an OMF RC
  ✓ WiMAX to WiFi AP by GreenPacket
    o In the process of developing an OMF RC
  ✓ WiMAX enabled mobile phones (HTC EVO 4G)

Demo Setup

➢ Two Nodes equipped with Teltonika UM6225 USB dongles and WiFi connectivity operating as AP and STA
➢ Initially, traffic sent out from the STA is using the WiFi link
➢ In the case of quality degradation over the WiFi link, traffic is routed over the WiMAX link
➢ Experiment is using OMF events to handle the handover from WiFi to WiMAX
➢ We monitor the WiFi and WiMAX links and trigger the OMF event
➢ Demonstrated experiment is trying to sent out 10Mbps of UDP traffic

RSSI on WiFi link

RSSI (dBm)

Time (sec)

Monitoring Throughput on the Receiver

Throughput (Mbps)

Time (sec)

NITOS