



4th of August Memorial

Network Performance Evaluation (Aug 5, 2021)



ISO 39001:2012 for Road Traffic Safety Management

Executive Summary

Preparations

- **Radio capacity upgrades** on the main serving sites (ETFAA, ROSAIR, PORTNW and JEMAYZ) by deploying and tuning the 3rd LTE carrier (An additional 15Mhz carrier on the L1800 band) + Emergency license activation on all serving sites (3G and LTE).
- **Antenna and power tuning** on the serving and nearby cells to improve the radio conditions and reduce the interference. Noting that due to sea reflections, it is hard to limit the amount of overshooting cells, which makes from the internal interference a challenging factor that could limit the user throughput at very high load
- **Dedicating one LTE Carrier** on ETFAA2 (with TAC restriction on IMSI 16 series) to be used by MTV for live video streaming.
- **Transmission upgrades** on the main serving sites, as follow:
 - * JMAYZE-SOFIL: Link upgrade from 400Mbps to 944Mbps
 - * SOFIL-ROSAIR: Link upgrade from 400Mbps to 944Mbps
 - * ROSAIR-SAGESSE: Link upgrade from 400Mbps to 944Mbps
- **30 LTE sites** have been **re-homed** from Libatel MME to Adma MME, to relieve Libatel IGW.
- **IGW upgrade** of 1Gbps on Libatel, in cooperation with MOT and Ogero.
- Mobilizing emergency **generators** with a standby team on the field to secure power on the sites serving the port of Beirut and nearby areas.
- **Real time network performance + capacity tuning and optimization** was conducted by Alfa technical team on the 4th of August between 11AM and 10PM where more than 5 engineers coordinated in taking more than 100 actions that aimed to fine tune and maximize the offered radio capacity on our sites.

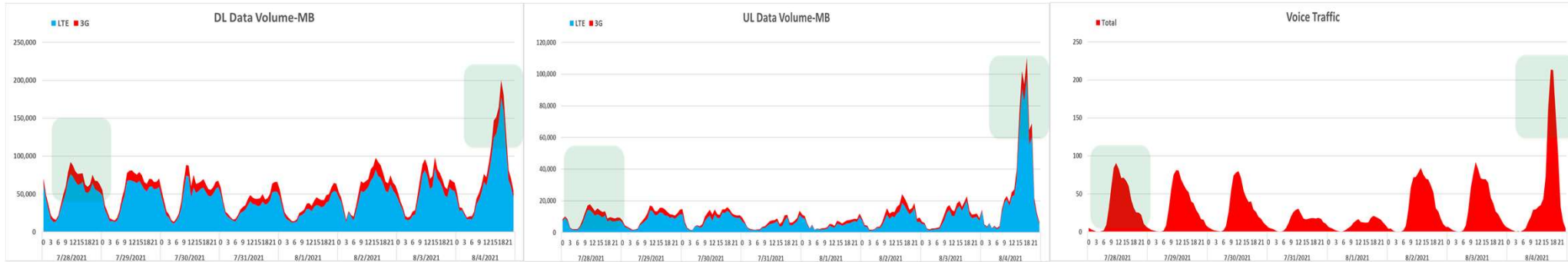
Results

- As a consequence of the above, **Network performance and user perception** on the field were very acceptable considering the short preparation time and the huge traffic generated by the massive crowd, in a short time frame and within a tight geographic area.
_ Noting that such events usually require months of preparations.



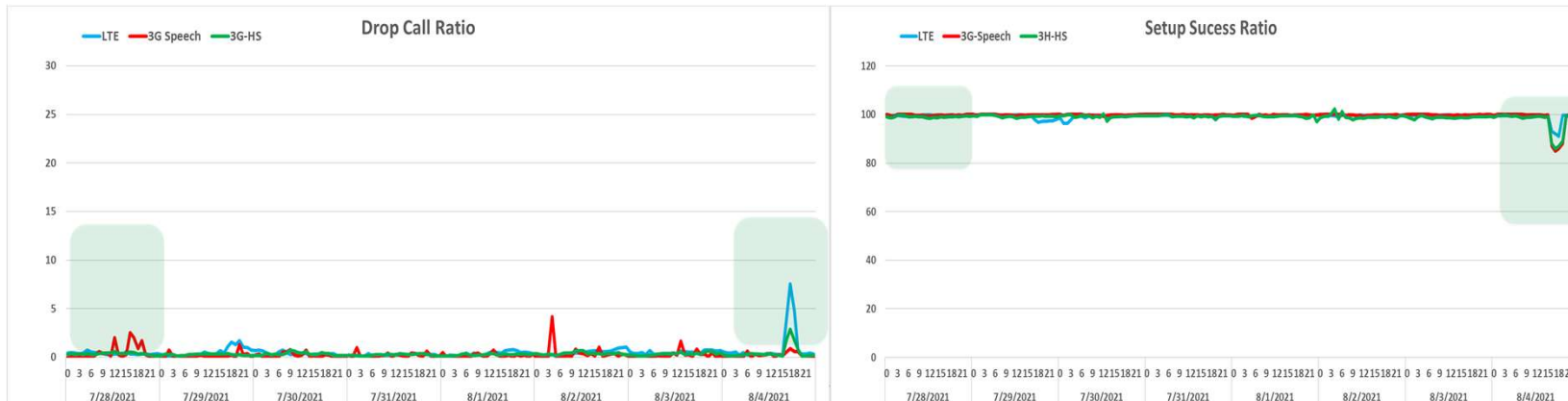
Traffic and KPI trends on the Port cluster

Traffic



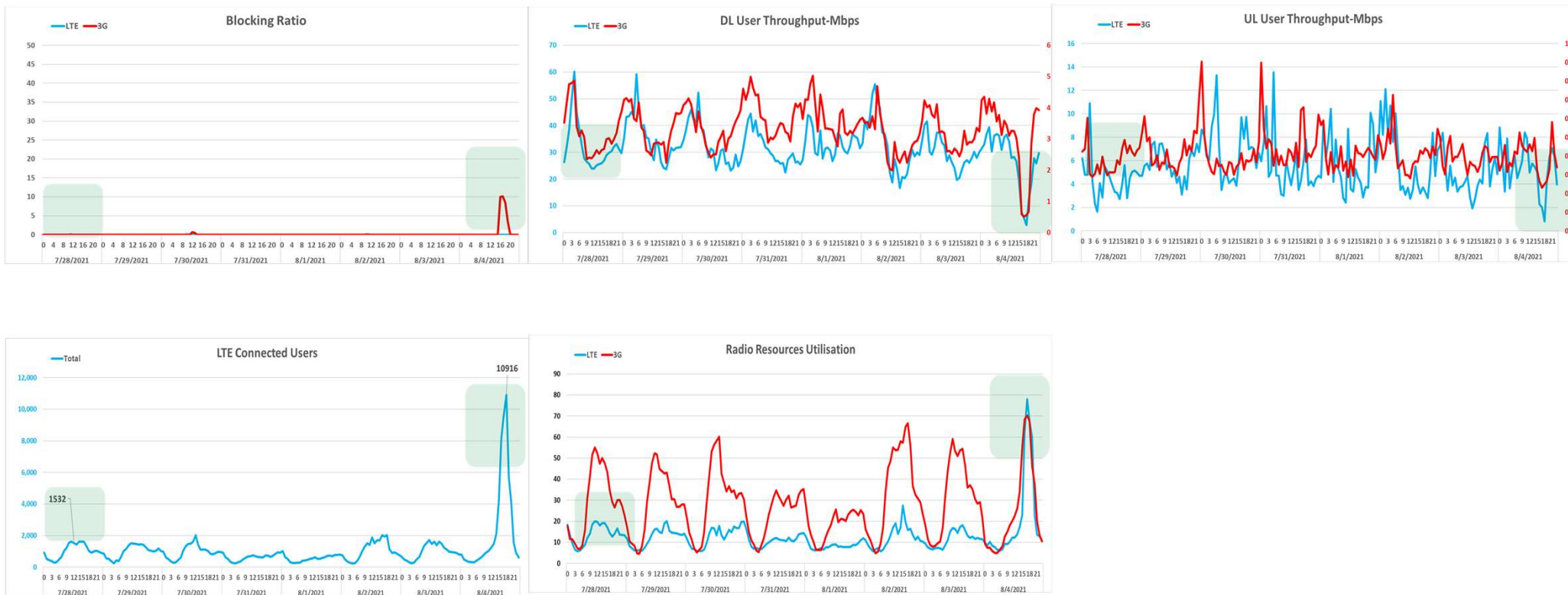
DL Data traffic has witnessed around **100% increase**, compared to previous normal days (Double).
 UL Data traffic has witnessed a huge **increase of around 600%** (6 times more than the usual traffic)
 Voice traffic has witnessed around **120%** increase.

Main KPIs



Acceptable degradations in the accessibility and retainability KPIs on 3G and 4G were observed.

Radio capacity and congestion figures



Very acceptable radio resource utilization on the peak hour with minor radio congestion on 3G. Huge increase in the number of connected users on LTE (600% compared to usual days)