

[www.anite.com/nemo](http://www.anite.com/nemo)

**Anite**

**Mobile Networks.**

**Testing and  
automation**

**SHAUN DESMOND**

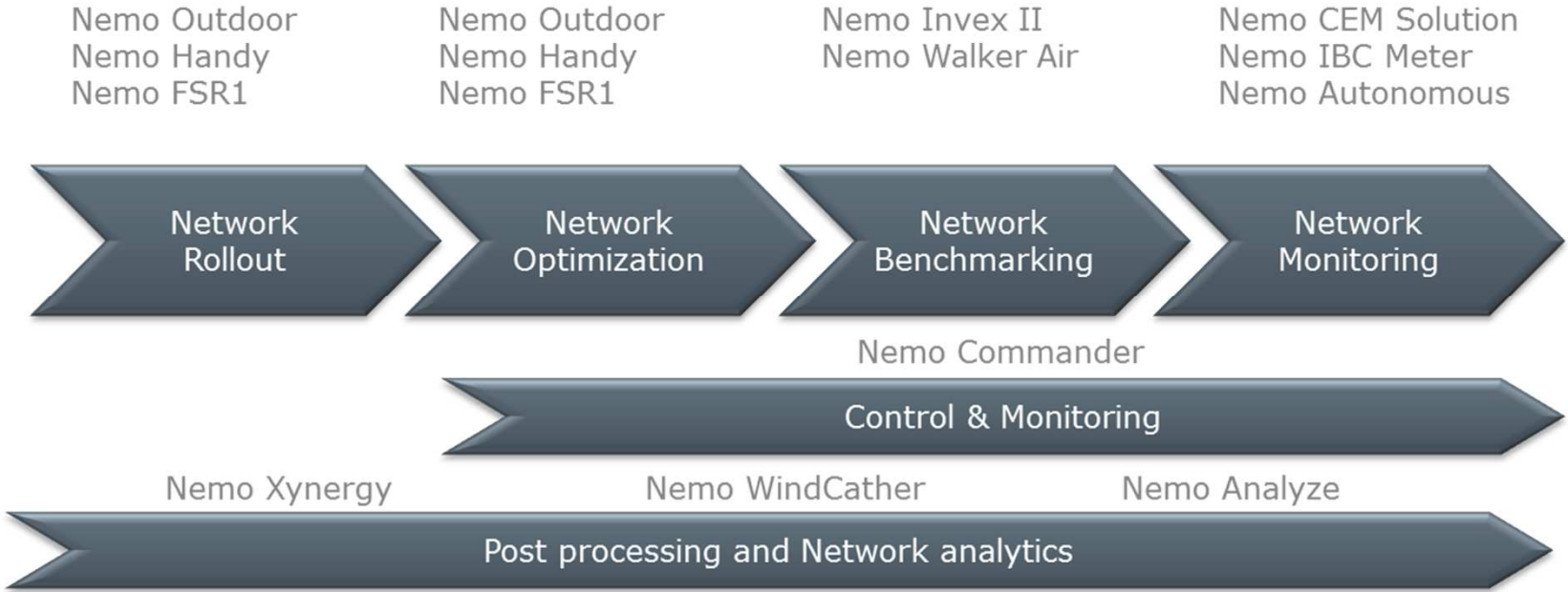
**REGIONAL DIRECTOR**

specialist  
wireless testing  
technology



Anite is now part of **Keysight Technologies**

# ANITE – WHO WE ARE



Anite is now part of Keysight Technologies



**THE MOST IMPORTANT QUESTION OUR CUSTOMERS ASK IS.....**

***"What does a good mobile network look like?"***



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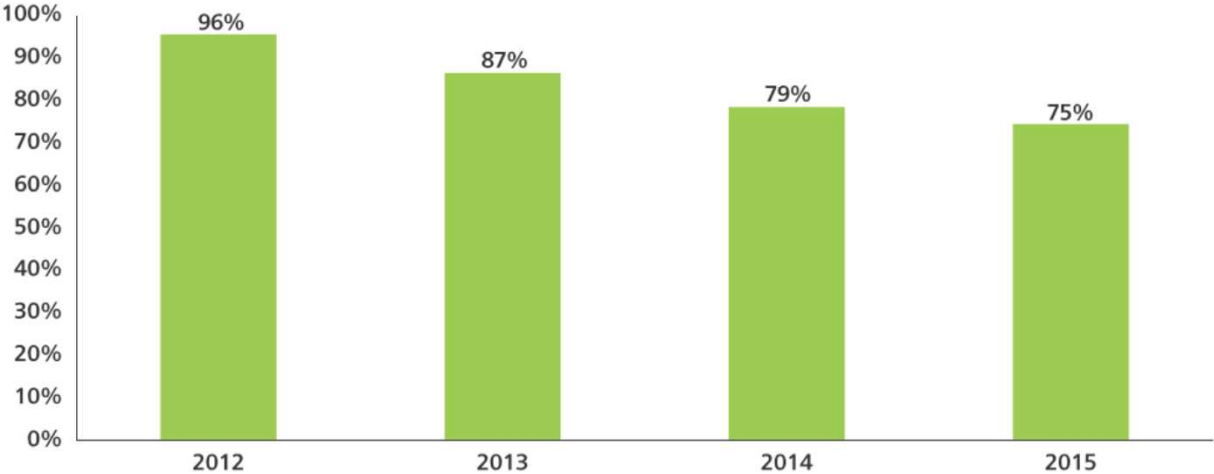
**Anite** | **NEMO**

# **WHAT?**

- 1. What is the aim of testing?**
- 2. Who is the audience for the results?**
- 3. What is the desired outcome of tests?**

# VOICE – IS IT STILL IMPORTANT?

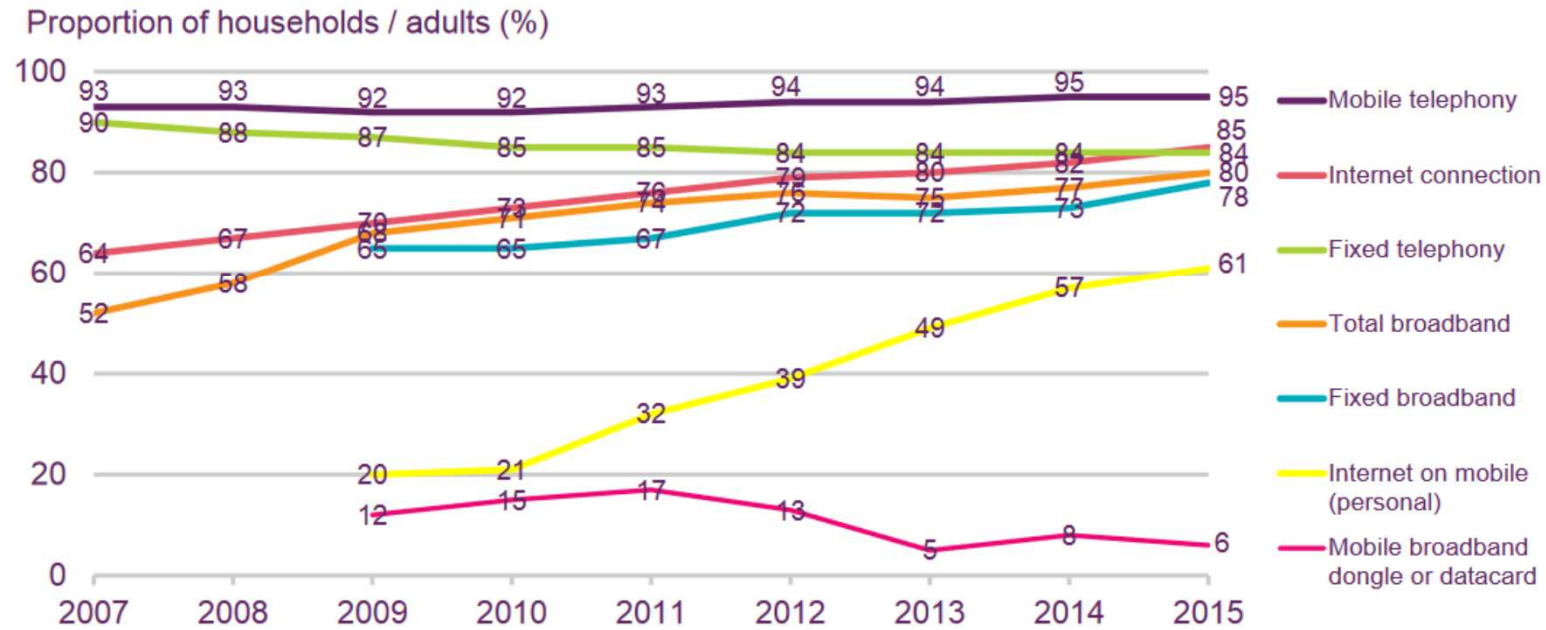
**Figure 9. Weekly use of standard voice calls**  
Question. In the last seven days, in which of the following ways did you use your smartphone to communicate with others (Standard voice calls)?



Weighted base (2012/2013/2014/2015): Respondents who own or have access to a smartphone  
(1,005/2,382/2,802/3,039)  
Source: UK edition, Deloitte Global Mobile Consumer Survey, May-Jun 2012, May-Jun 2013, May 2014, May-Jun 2015

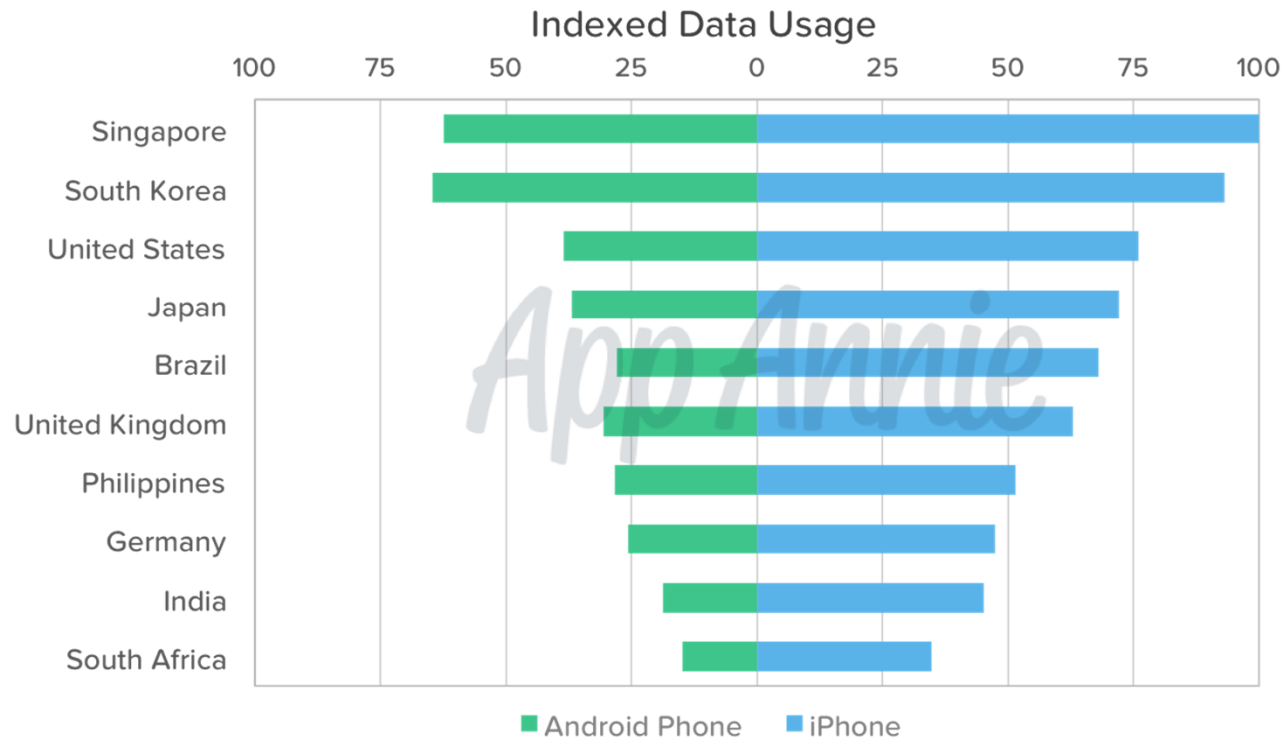
# DATA?

**Figure 1.6 Take-up of communications services**



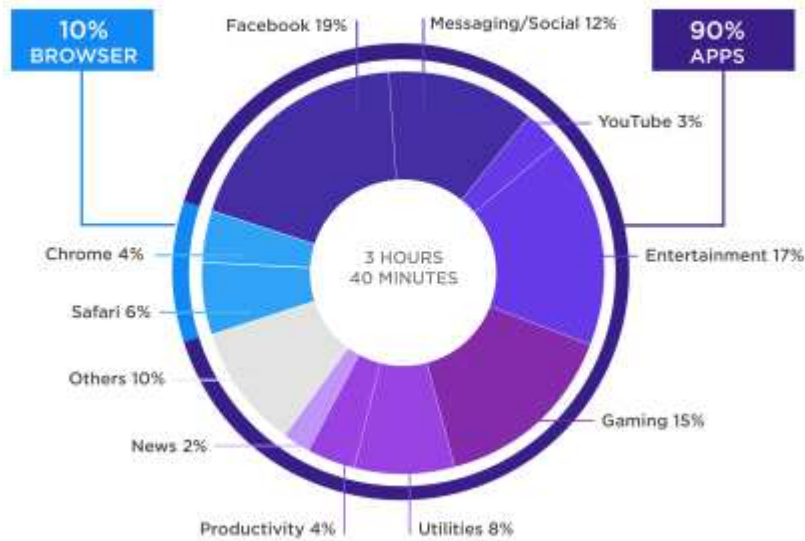
# DATA?

Average Monthly Data Usage per Active User  
Mobile & Wi-Fi Combined, Sep 2015



# APPLICATIONS?

90% of Time on Mobile is Spent in Apps



Source: Flurry Analytics, comScore, Pandora, Facebook, NetMarketShare. Note: US Jun 2015

Top 25 mobile apps by US unique visitors, June 2015



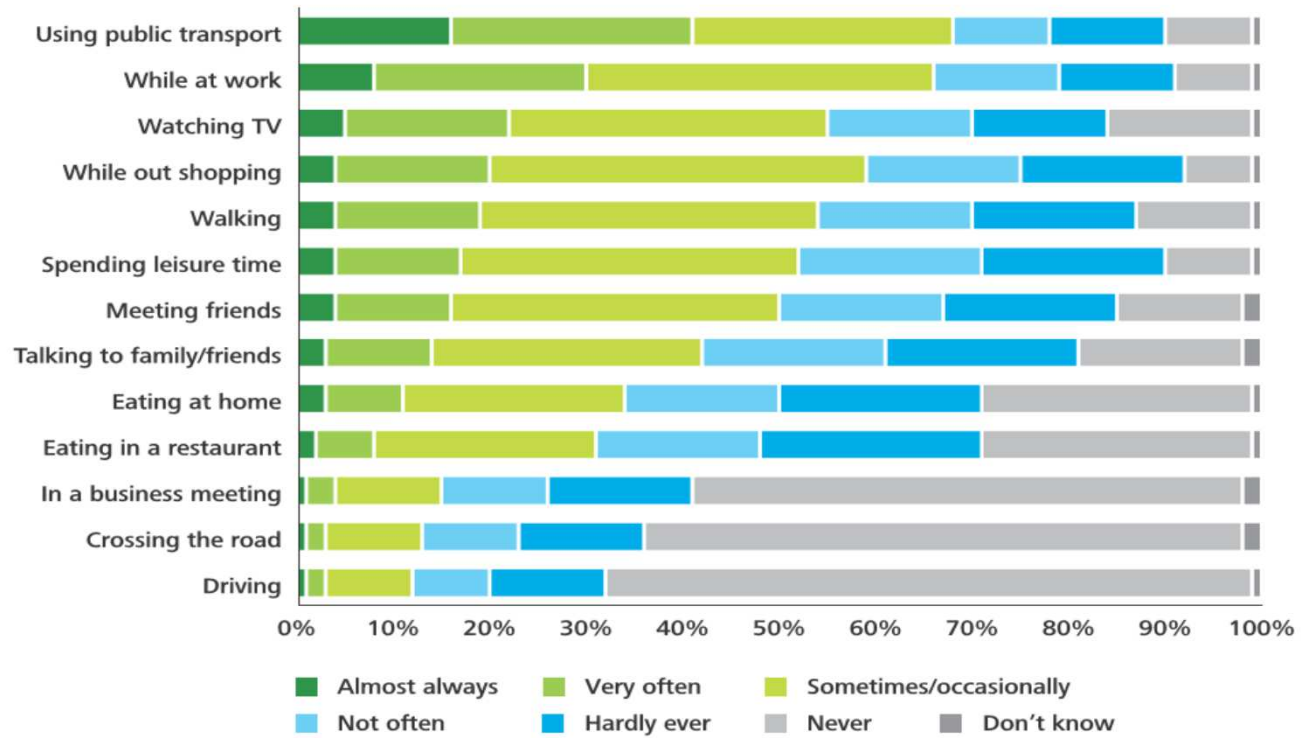
ATLAS | Data: comScore

Share



# WHERE?

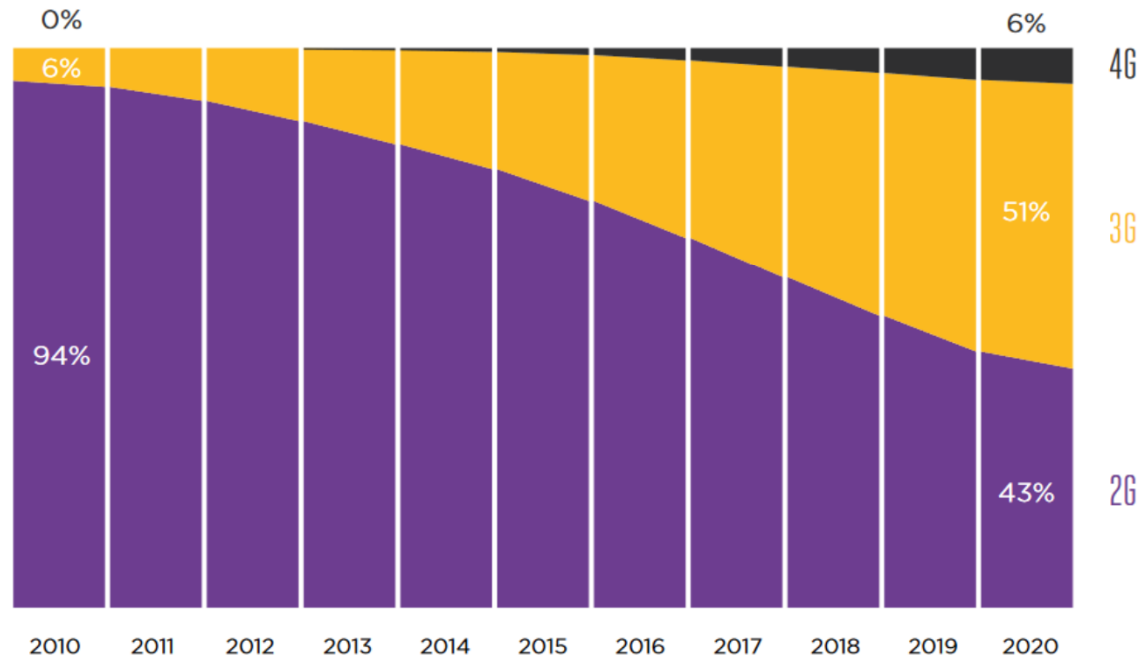
**Figure 1. Usage of smartphones while doing other activities**  
 Question. How often, if at all, do you use your smartphone while doing the following?



# HOW?

## Africa: Technology shift ongoing

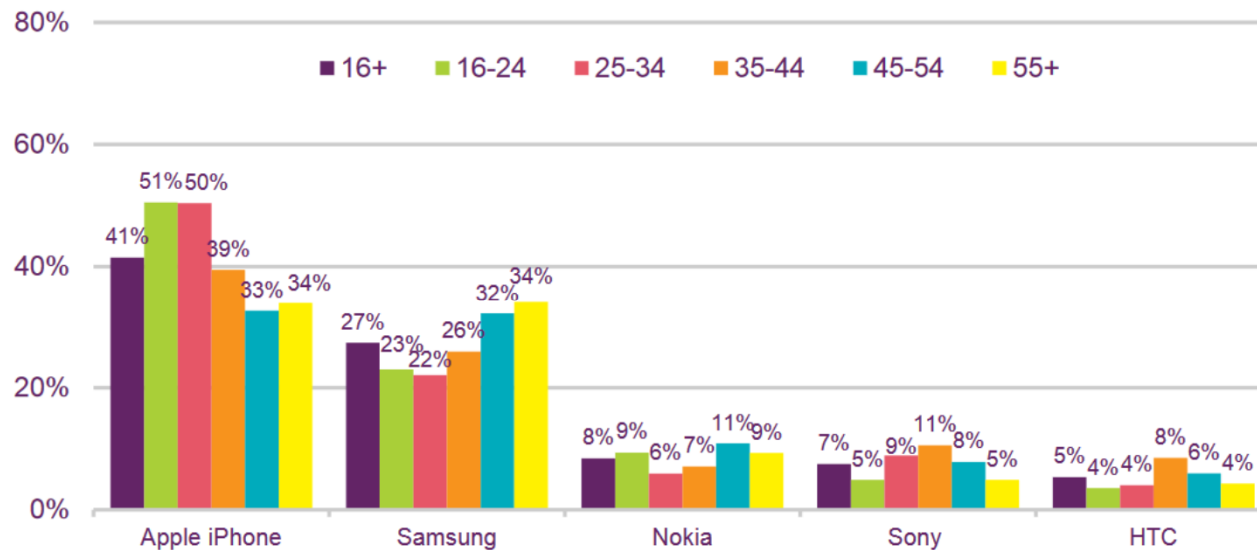
Percentage of connections



# HOW?

**Figure 1.44 Brand of smartphone owned**

Proportion of smartphone owners (%)






Source: Ofcom research, 'Connected Devices', May 2015

Base: All smartphone owners aged 16+ (n=1401)

Q7. You said you have a smartphone that you connect to the internet. Which of the following brand of phone do you use? If you use more than one please tell us the one you use most often.

Handsets with reach above 5% for adults 16+ shown on the chart

## SUMMARY OF TESTING

1. Voice testing – **Including voice quality**    **VoLTE!!!!!!**
2. Data services - Throughput is **King** but
  1. Browsing 
  2. YouTube 
  3. Facebook 
3. Where – Road, rail, air, walking,
4. Competition – how are my rivals doing compared to me?

# BUT

1. Fast

2. Cheap

3. No errors

*Simple*



*Automated*



## ROAD - NEMO INVEX II



e.g. COMREG – Regulator for Republic of Ireland

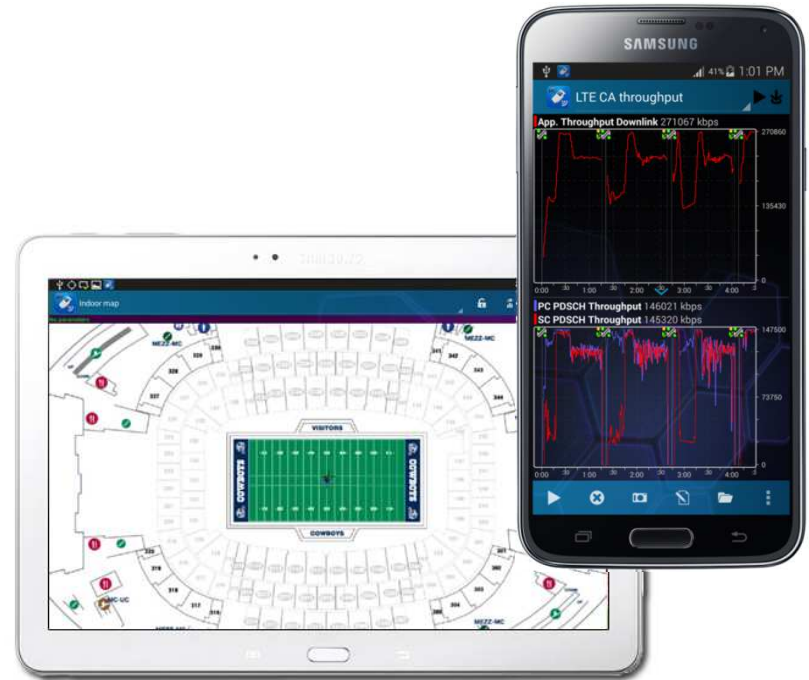


WALK

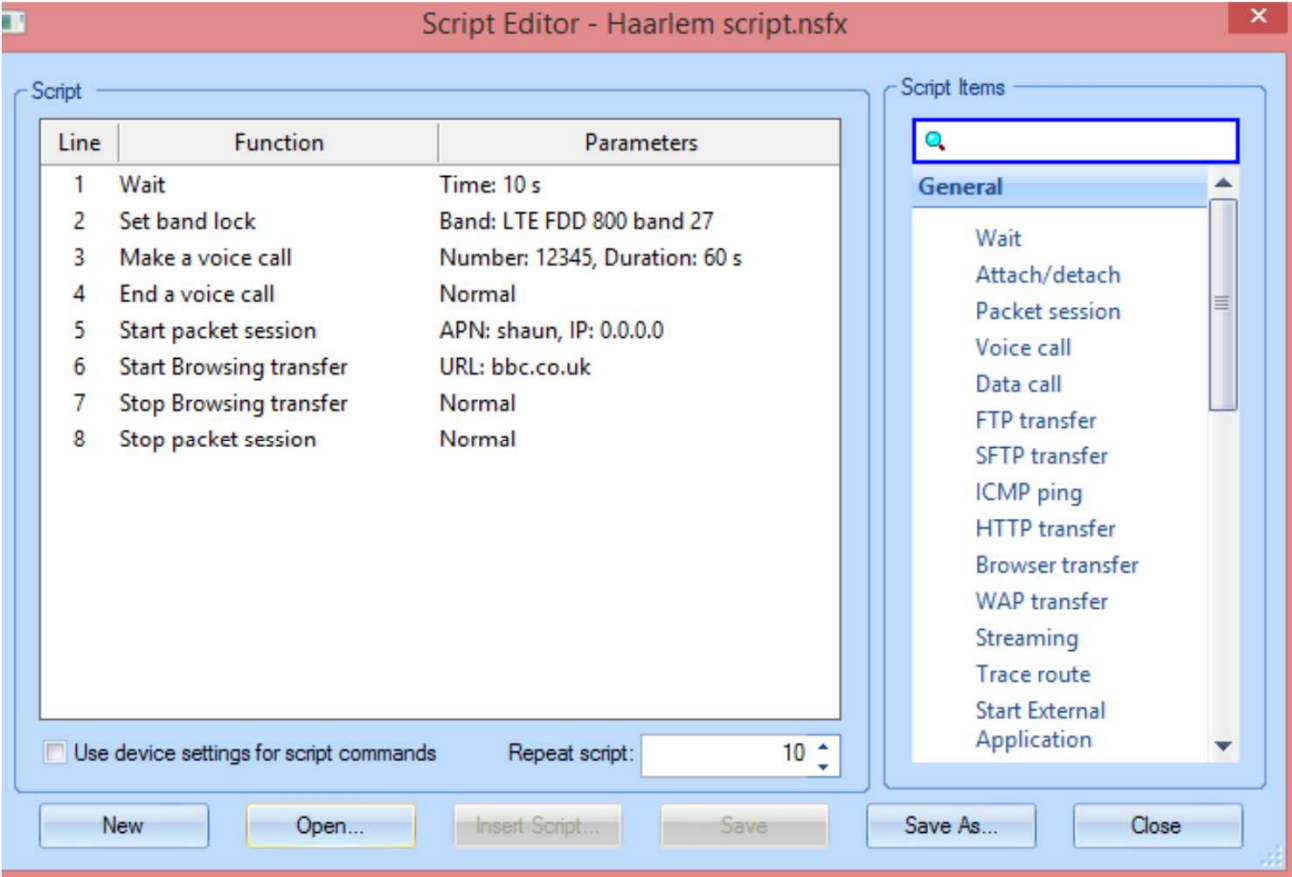
**NEMO WALKER-AIR**



**NEMO HANDY**



# AUTOMATION - SCRIPTING





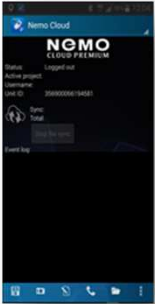
# AUTOMATION REMOTE CONTROL



Nemo CloudCommander



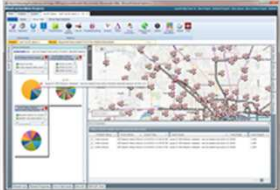
Nemo Handy



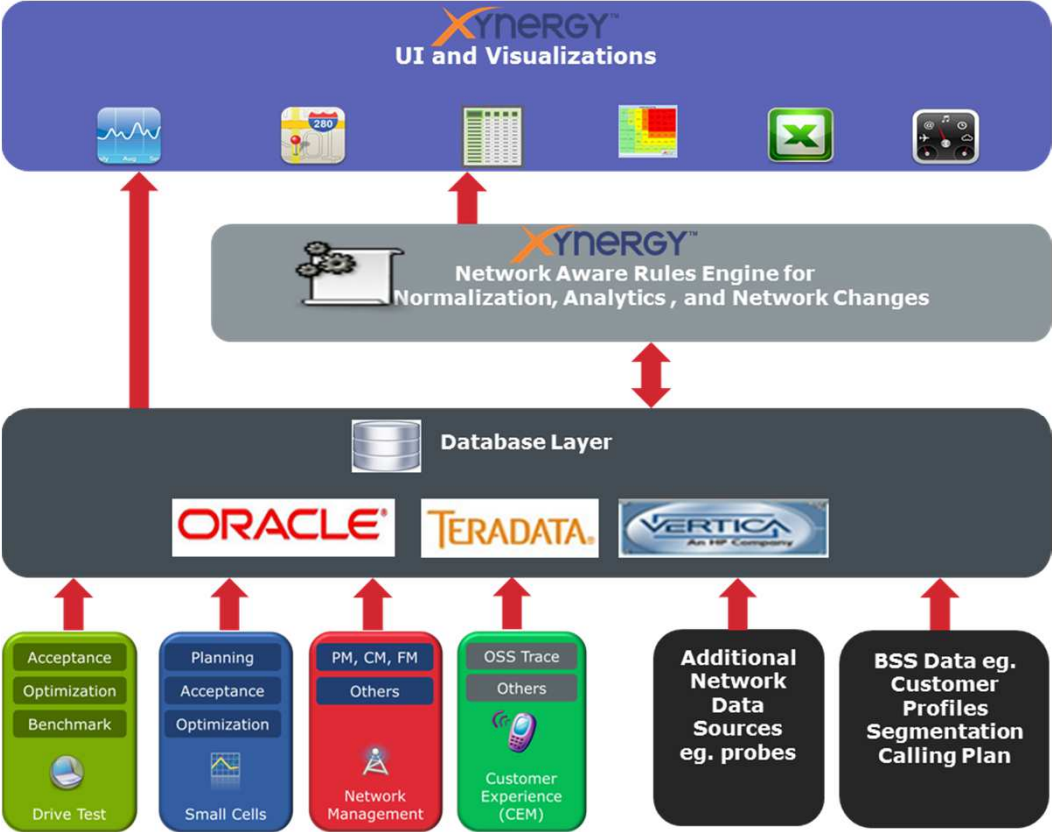
Nemo Outdoor/Invex



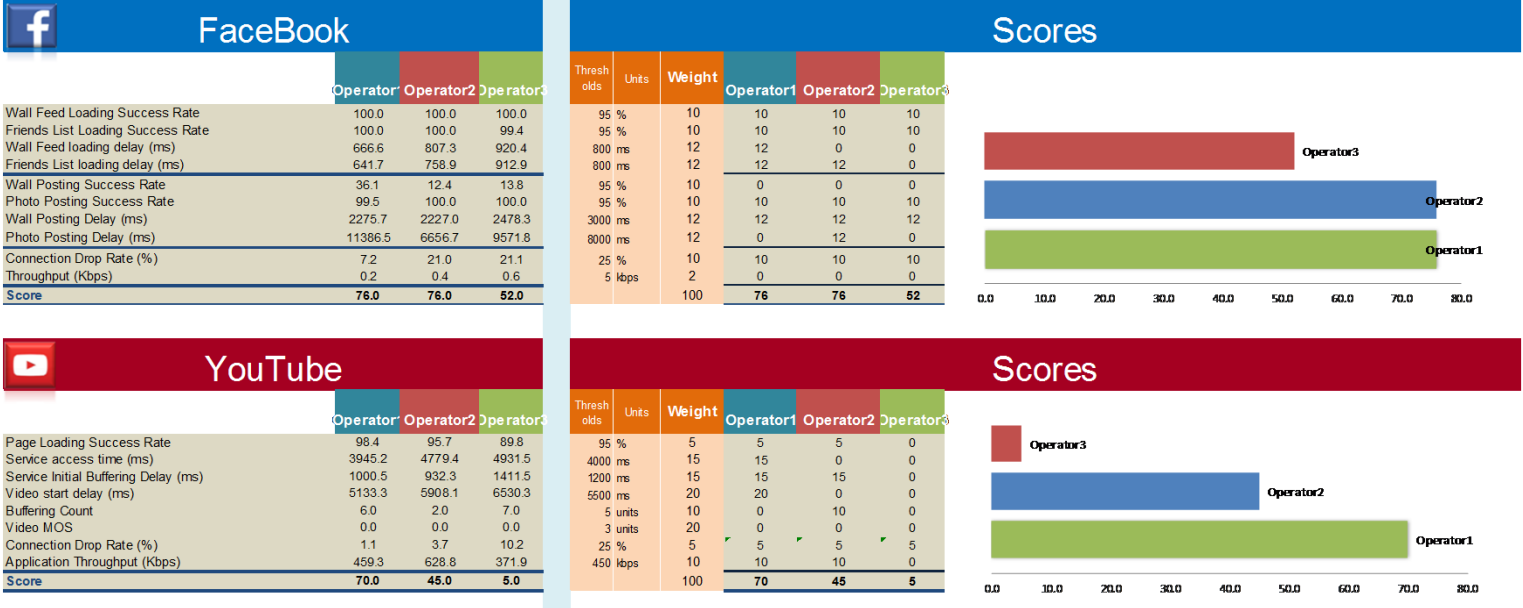
Nemo Xynergy



# AUTOMATION ANALYSIS



# AUTOMATION - REPORTING

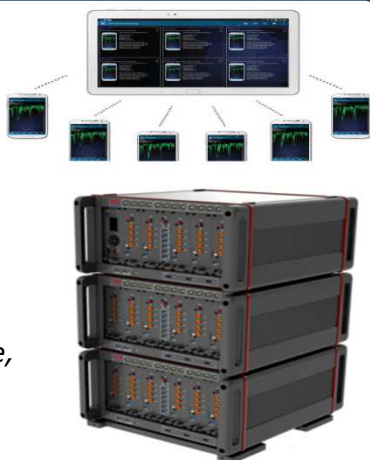


# BENCHMARKING CASE STUDIES AROUND THE WORLD

## Regulator in Greece

### Nemo Invex II, Walker Air

- *Invex II used for benchmarking by drive test and fixed location testing*
- *Walker Air used for Indoor*
- *Explorer IV for fixed location autonomous testing*
- *3 operators, 2G/3G/4G voice, data and coverage testing*
- *internet*



## Regulator 1 in Asia

### Nemo Invex I

- *Invex I used for benchmarking by drive test*
- *3 operators, 3G/4G voice, data and coverage testing*
- *PESQ MOS for voice, FTP, HTTP browsing, SMS, coverage*
- *Handy used for indoor coverage measurements in idle mode*
- *Results are published in internet*



## Regulator 2 in Asia

### Nemo Walker Air

- *Nemo Walker Air used for Indoor, Outdoor and mountain coverage measurements*
- *Voice, data and coverage measurements*



## Operator in Australia

### Nemo Invex I and II

- *Invex I and II used for benchmarking by drive test*
- *2G/3G/4G voice, data and coverage testing*
- *Polqa for MOS, FTP, HTTP, SMS, Youtube, Ping, coverage testing*
- *LTE CAT-6, MIMO performance testing*



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## CONTACT THE TEAM

**TALK** +358 50 395 7700  
**READ** [ANITE.COM/NEMO](http://ANITE.COM/NEMO)  
**WRITE** [NEMO.SALES@ANITE.COM](mailto:NEMO.SALES@ANITE.COM)

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