OPENSIGNAL

Advancing Connectivity For All

ITU-T Study Group 12 Workshop

Amman, Jordan

18 October 2022

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Opensignal approach

Capturing on-device mobile experience

Analysing billions of records to reveal true experience

Delivering insights for evidence-based decision making

End to end experience measurements

Representative sample

Innovative Data Science and Analytics

Impartial respected reports

Insights into real experience

Open and transparent

Independent

- Editorially independent reports follow a standard cadence
- Reports are never sponsored

Revealing Network Experience

- Experiential metrics measuring typical end to end experience
- Best practice automated tests across broad user base

Scientific Analysis

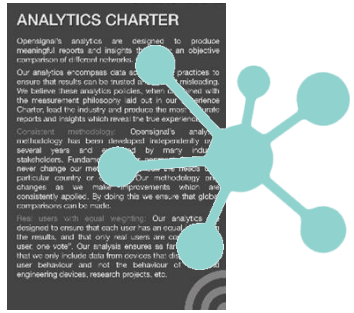
- Sophisticated, pioneering methodology applied consistently
- Conclusions tested for statistical significance

We are an independent business which transparently publishes the rules that govern our operations

INDEPENDENCE CHARTER

EXPERIENCE CHARTER

ANALYTICS CHARTER



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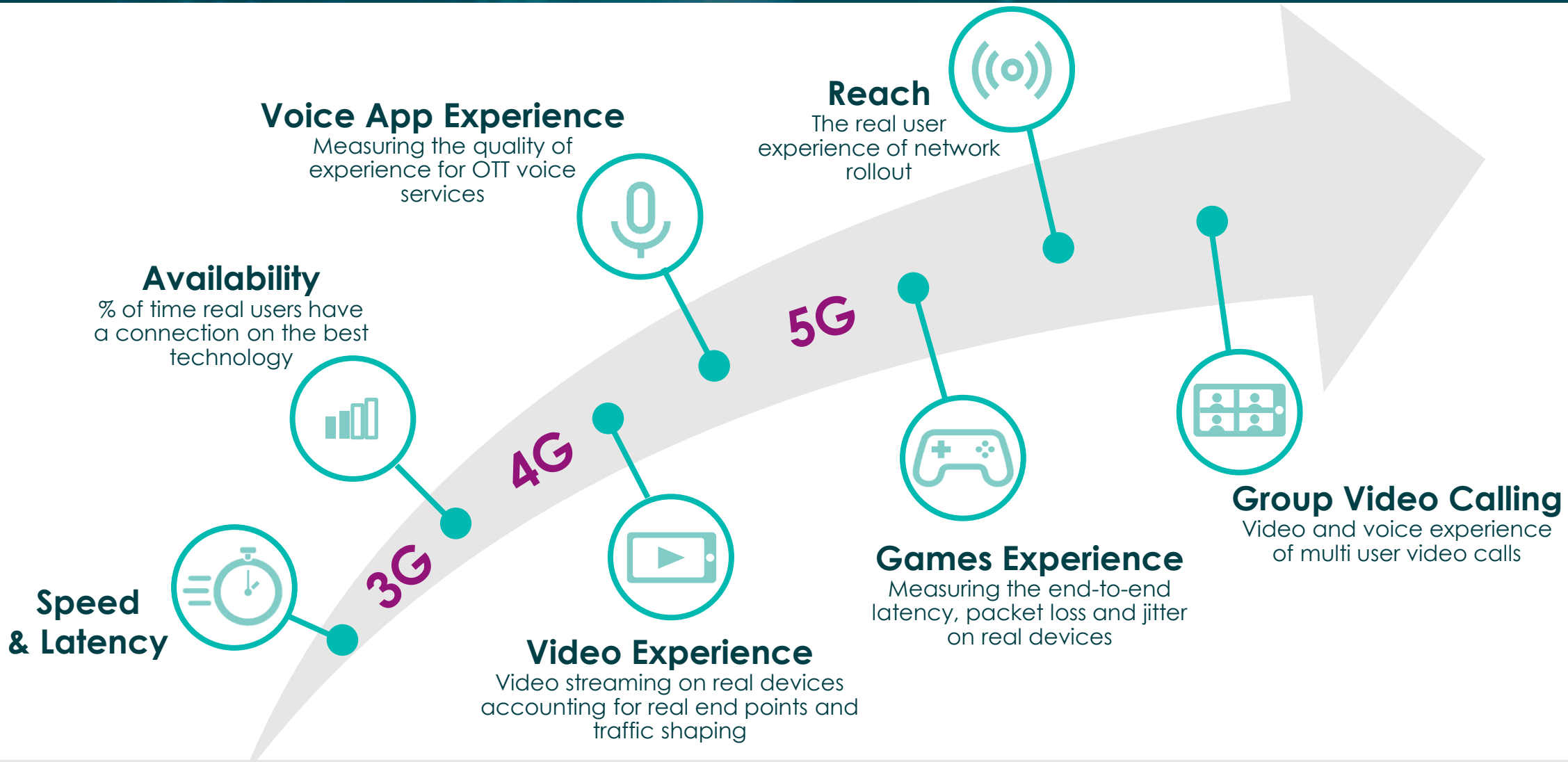
Leading experiential metrics



Leading the evolution from network performance to network experience

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What we mean by measuring "end-to-end" experience

Content ⟷ Transport ⟷ Exchange Point ⟷ Core ⟷ RAN ⟷ Device ⟷ 24/7 user scenario

Network testing *(e.g. Drive-testing)*

Manual testing to a server *(peak throughput, etc.)*

Opensignal measures the full end-to-end user experience via active & passive testing

Forward-looking regulators are now taking a layered approach

Device to CDN crowdsourced QoE

Network-level "controlled" QoE

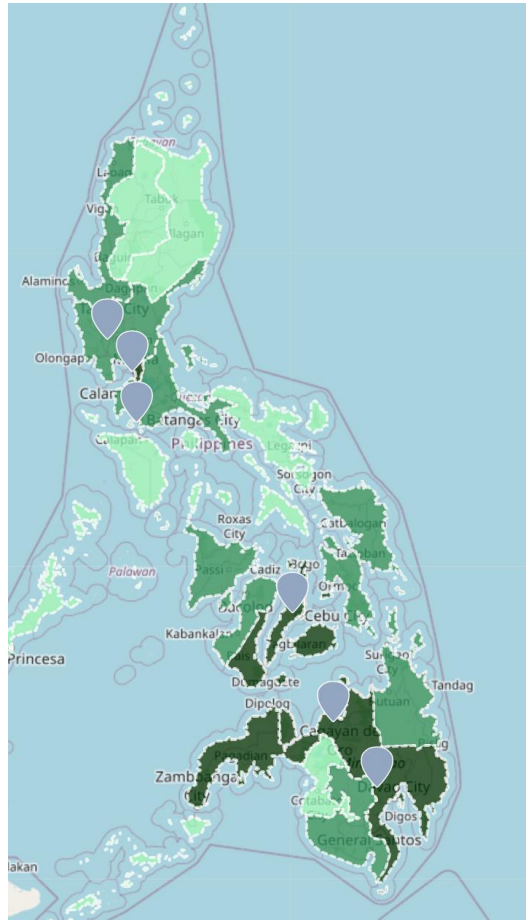
Network-level drive testing

- *These approaches can complement each other – this is not a binary choice between QoS or QoE measurements*
- *However - not all data will be equally representative of the consumer experience*

Visualization considerations: mapping end-to-end mobile experience

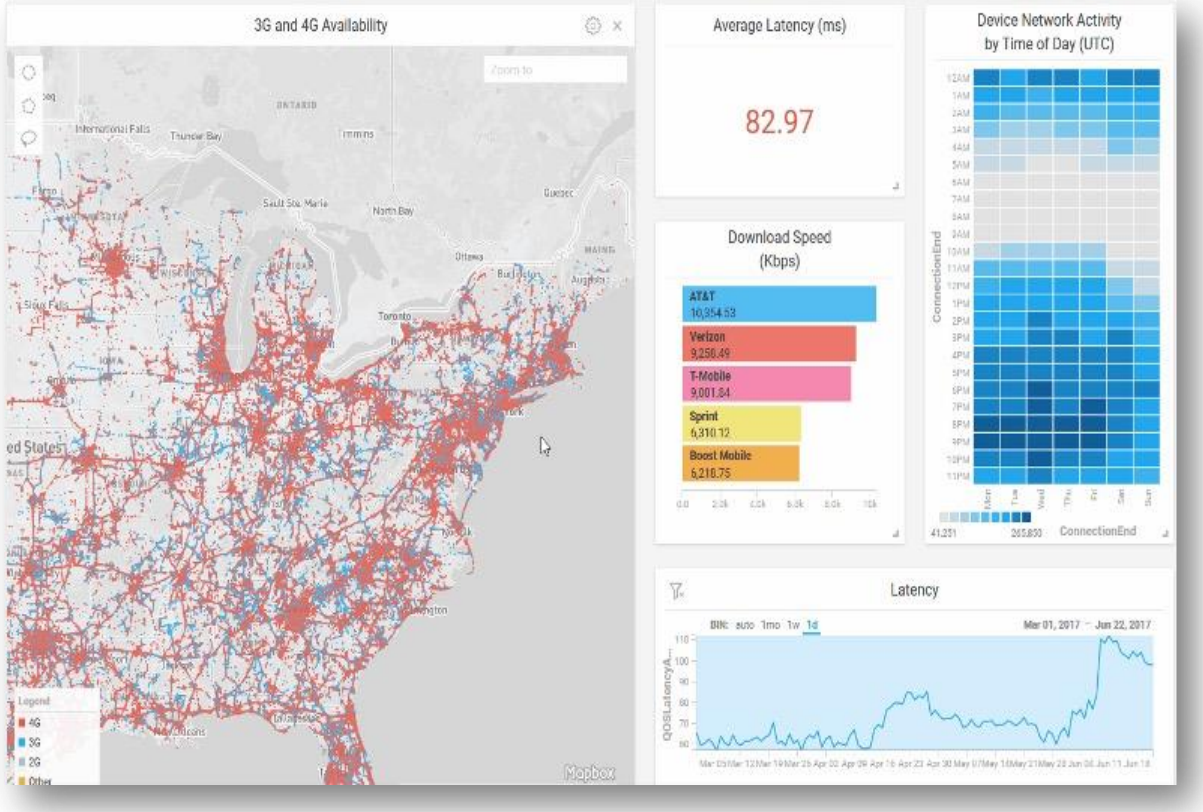
Visualization types to consider

- **Point maps** may be used to represent highly localized events and structures
- **Choropleth maps** offer a clear way of visualizing a metric by regional blocks. They can provide a useful means of highlighting which administrative groupings may require investment.
- **Hexagon based maps** allow metrics to be visualized at a variety of scales. As the map is zoomed hexagons can be replaced by another layer.
- **Heatmaps** or smoothly varying maps may work well for variables that can change rapidly on small dimensional scales (such as measures of signal strength).
- **Three dimensional maps** enable the visualization of measures at different elevations.



Example: highly-granular, flexible and fast point mapping

- Explorer is a GPU powered web-based tool for big data analysis and visualisation
- The massive dataset can be rendered and analysed in real-time to answer questions faster than any other tool – this speed is essential to utilise the full data set
- Explorer uses GPU acceleration to achieve extreme performance and flexibility.
- Regulators need to consider their various use cases - consumers, policymakers, and industry will all require different levels of detail and interactivity.



Thank you

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