EXPERT INSIGHT FOR THE OPERATOR MARKET

A Hard-nosed Look at 6G RAN

2024 EXPERT INSIGHT TOC

MOBILE EXPERTS

Joe Madden
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Introduction

- The old trends are broken
- How the new trends will come about

Is 5G really a failure?

- Revisiting the famous Mobile Experts cost-per-GB model
- Apps driving 5G and eventually 6G
- The impact of URLLC and 5G IoT

What is a "G", anyway?

- 2G through 4G evolution
- The focus shifted with 5G
- How O-RAN and vRAN and other non-3GPP standards concepts fit in
- What a "G" means in the 6G cycle
- Our expectation for 6G's main thrust

Specific items to be developed in 5G-Advanced

- Detailed breakdown of features in Release 19-21
- Commercial impact of these features

What will come next in 6G (Releases 21-22)

- How AI will be used in the RF link
- What "AI-Native" really means

***Cloud-Native networks*:** How 5G-Advanced and 6G will enable Cloud RAN to enter

***Open Interfaces*:** How legacy networks will shift and migrate to open interfaces and how 5G-Advanced and 6G will facilitate the transition

***AI/ML optimization*:** How Artificial Intelligence and Machine Learning will play a role in adding capacity to the 5G and 6G networks

New RF Waveforms:

- What the operators want
- Dynamic Spectrum Sharing
- OFDMA and the future

- New waveforms above 100 GHz (sub-THz)

New Spectrum: How new spectrum will come into play

Notes on bands of interest:

- 470-694 MHz:
- 3-4 GHz:
- 4.4-4.8 GHz
- 5.9-6.4 GHz:
- 6.4-7.0 GHz:
- 7.025-7.125 GHz:
- 7.125-8.4 GHz:
- 10-10.5 GHz:
- 12.7-13.2 GHz:
- 14.8—15.35 GHz:
- 20-50 GHz:
- 100-250 GHz:

"AI-Native" Networks:

- Creating a waveform/constellation 'on the fly'
- Modifying the constellation to enhance capacity
- Standardization of multiple AI engines
- The role of 3GPP in AI coordination
- How AI adds capacity to the network

Conclusions

- Should 3GPP development continue?
- Some areas where 3GPP coordination will pay off in real networks
- New architectures not covered by 3GPP but will be part of the 6G cycle
- How 6G is likely to fix the problems with 5G

ILLUSTRATIONS: