

## Hughes Systique: Develop software defined radio-enabled mobile phone

**Customer Profile:** World's leading provider of satellite broadband for home and office, delivering innovative network technologies, managed services, and solutions for enterprises and governments globally

### Project Profile:

Customer is a Tier I industry leader in telecommunications. With the advent of smartphones and onset of new technologies like WCDMA, HSDPA, HSUPA, LTE, IEEE 802.11 a/b/g/n, DVB-T/H, GMR1 3G, the customer wanted to create a product using the software defined radio architecture with multi RAT support.

It contracted HSC to perform initial R&D on feasibility and subsequent development of such a solution. Starting with high-end technology consulting, contributions to platform selection and architecture, HSC implemented complete Access Stratum (PHY, L2/L3) with NAS and RF interface on multi-core SIMD architecture.

### Methodology:

- HSC set up a dedicated engineering team for customer comprising of DSP Engineers, L2/L3 experts, and embedded professionals, as the project involved significant R&D from initial feasibility analysis, system partitioning to final integration and testing
- The HSC team worked in close interaction with the offshore development team, providing them periodic releases keeping with agreed deadlines
- Major milestones were achieved when HSC successfully demonstrated a voice call using SDR platform and a subsequent ping to establish successful integration of GMR-3G software on SDR platform for both voice and packet data

### Results Achieved:

- a) Reusable solution that could be used for various end customers
- b) As not all the standards implemented in a handset need to run in parallel, the SDR baseband solution provided for a proof of concept where processing resources could be shared between different standards resulting in cost-efficient solution at competitive power consumption
- c) The solution reduced the number of components, lowering the PCB size and simplifying the system design
- d) Highly scalable solution enabling client to keep solution up to date; enable unprecedented use of software and hardware