

## Services for mobile operators: Optimization & multivendor integration



### Discover the full extent of your network's capabilities

Nash Technologies is ideally positioned to support you with analysis, optimization, benchmarking, performance & capacity enhancement, reliability, troubleshooting, diagnostics, health checks, migration and rehoming.

As a supplier-independent company, we deliver a comprehensive range of services to ensure and enhance your customers' satisfaction.

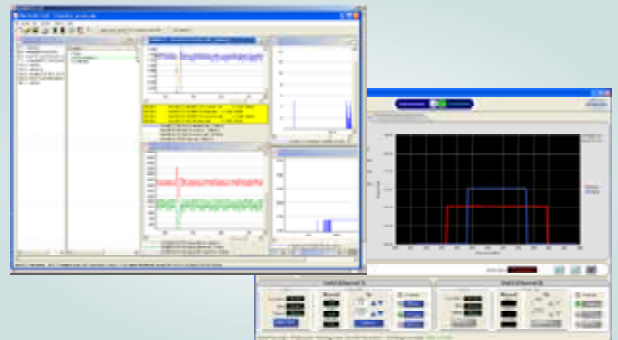
### You'll benefit from Nash Technologies' experience for your network performance and reliability

Our experience covers:

- Access networks (e.g. GSM, UMTS, LTE) with intersystem handover
- Transport networks (e.g. IP, ATM, SS7)
- Core networks (e.g. SGSN, GGSN, MSC, HLR / AuC / HSS).

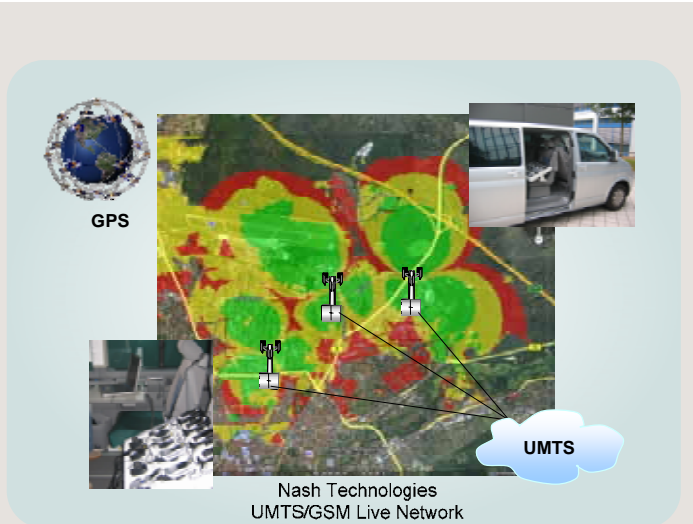
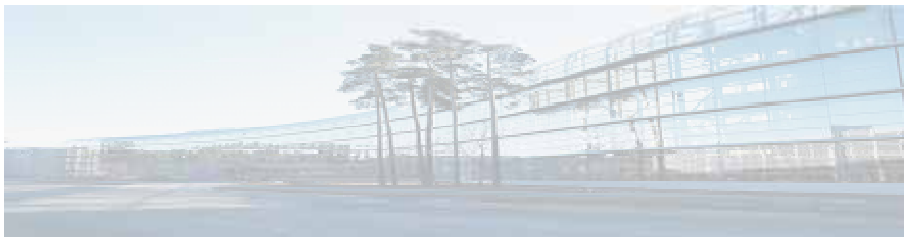
...in your networks	← detection & prediction
...in our labs	← analysis
...in our live network	← optimization
...in a pilot area	← final optimization
...in your life network	← verification

We offer services with multi-layer system simulation, the Nash Multi Protocol Tester (NPT), multi-channel fading simulators (e.g. Spirent, TCT, replay of profiles), load simulators for radio networks (e.g. OCNS) and core networks, as well as a variety of spectrum and protocol analyzers (e.g. Nethawk, Tektronix, Agilent, R&S, Anritsu) in labs (controlled RF) and in field (urban, suburban,...).



### Advanced collaboration with operators ensures successful multivendor integration & testing

Nash Technologies supports operators especially in the area of end-to-end multivendor integration activities. In our large testing facilities, all types of network elements can be integrated into existing reference access networks and core networks to support a complete range of testing activities targeting continuous release acceptance. Our extensive expertise has gone into the development of our state-of-the-art GSM/UMTS live network and interoperability testing processes (IOT) - with significant benefits for operators.



Nash Technologies also cooperates with various operators in view of developing and implementing end-to-end system test scenarios & concepts in:

- Specification & implementation
  - analysis of requirements
  - definition of test and verification strategies
  - test coverage analysis
  - definition of test environments, scenarios and test cases
  - test automation
- Optimized execution & validation
  - adaptive execution of test cases and test result analysis
  - change request process
  - root cause analysis and test improvements
  - risk assessment and bottleneck analysis
  - implementation and maintenance of feedback loops to adapt test process to actual needs
  - detailed test result analysis & reporting

### Nash Technologies is your ideal partner

Nash Technologies operates networks and labs ranging from 2G to the latest 4G. Its highly integrated 3G and 4G R&D and testing facilities rank among the largest in the world. Our services are based on expertise and know-how acquired over 20 years with GSM, 10 years with UMTS / W-CDMA, 3 years with LTE including our work with FemtoCells and intersystem handovers between the different access technologies. Additionally we perform interoperability tests (IOT) with leading vendors of mobiles and wireless infrastructure. Nash Technologies owns and operates a 2,500 square meters testing facility including a live test network covering >25 square kilometers for field issue reproduction & functional verification. Since 2005, Nash Technologies has been supporting a leading US-based customer network.

*"More than 3,000 man-years of experience in 2G through to 4G positions Nash Technologies as the ideal independent partner for your projects."*

### About Nash Technologies

Nash Technologies, based in Nuremberg Germany, develops, tests and supports software for the fast-growing global wireless technology sector. The center of excellence, with in-depth experience acquired in the world-renowned Bell Labs, joined the Harvey Nash Group as an independent spin-off of Alcatel-Lucent's R&D operation. Nash Technologies' wide-ranging expertise covers all phases of the product lifecycle, and its wireless testing facilities rank among the largest in the world.

Nash Technologies' services comprise wireless communication system development and support, telecommunication testing services as well as embedded software development and testing. We deliver a unique combination of blended onshore and offshore research and development service – in Europe and Vietnam – and are thus ideally positioned to provide our international clients with onshore quality service at a very competitive price.