

qMON

QUALITY MONITORING SYSTEM



5G INDUSTRIAL IoT CRITICAL COMMS SMART FACTORIES TELECOMS

AT A GLANCE

- Unified mobile, fixed and cloud (FMC) system operations
- 5G and Cloud/VNF ready (MANO)
- Distributed autonomous agents and system operation with zero data loss
- Feature-rich and multi-layer with support of 100+ KPIs
- True end-to-end automated measurements and realistic load generation
- GIS and operator-based KPI data enrichment



USE CASES

- Drive and benchmark testing
- End-to-end QoS and QoE monitoring of network and services in live environments
- Continuous service and SLA/SLS monitoring in real-time
- Coverage and performance assessment
- Live network and service troubleshooting
- Network and services trending
- Device and system performance predictions under realistic load conditions



SYSTEM COMPONENTS

- qMON Manager – Centralized cloud-based system management
- qMON Collector – Centralized KPI collector deployed on site or in the cloud
- qMON NetworkSensor – Network agents for active user and services emulation
- qMON Insight – Real-time monitoring and advanced cloud-based analytics

DEVICES

- Mobile: Samsung Galaxy Series*
- Mobile M2M: iBASE**, BeagleBone***
- Fixed: iBASE**, Lenovo Tiny Series*, RPi4*
- Cloud: VNF, VM, docker

ENVIRONMENT

- Controlled *
- Industrial -40°C to +60°C **
- Outdoor IP67+ ***

MANAGEMENT

- All devices are managed through cloud-based management (qMON Manager)
- Multiple user profiles are available
- Remote control option: APN setting, reboot, USIM selection (Samsung only)

MEASUREMENT AND KPI

- Centralized KPI collector (qMON Collector) on site or in the cloud
- Multiple enterprise and data streaming DB outputs: My/MS-SQL, influxDB, Elastic, Kafka, Prometheus
- Real-time KPI streaming dashboard
- Advanced analytics with external enrichment

ANALYTICS

- Flexible cloud-based analytics options
- E2E Real-time monitoring
- Advanced analytics with data enrichment and KPI visualization

LOCATION SERVICES

- Android-based location services: GNSS, WiFi/Cellular if used indoor
- External industrial GNSS USB module

MEASUREMENT DATA ENRICHMENT

- External GIS and operator data enrichment

MOBILE NETWORK TESTING

- RSSI, RSRP, RSRQ, SINR, Tx Power
- PLMN ID/name, EARFCN, Band, BW, Cell ID, PCI, Carrier Aggregation, RRC state
- Radio sampling rate of 1.5 s (Samsung Galaxy Series)

PROTOCOLS

- TCP/IP (IPv4 and IPv6)
- SNMP (for SLA/SLS testing)
- IGMPv2/v3 (for IPTV testing)

TECHNOLOGIES

- Mobile: 5G NSA and SA, LTE-A Pro, LTE-A, LTE, HSPA+, EDGE, GPRS, EDGE (Cat3 to Cat21)
- Cloud: VNF, MANO (OSM), OpenStack, VMware, Docker
- Fixed: FE, GE and 10GE

NETWORK AND SERVICES TESTING

- Data based: DNS, PING, FTP UL, FTP/HTTP DL, Web browsing, YouTube
- IPTV (multicast)
- Voice: 2G, 3G, 4G/VoLTE
- SMS: 2G, 3G, 4G/VoLTE
- Synthetic traffic: IPERF UDP/TCP

SLA/SLS MONITORING

- Combined active testing and passive KPI collection (SNMP based) from devices
- Standardized and proprietary SNMP OID's

PLUG AND DRIVE

- Easy to use drive and benchmark testing with status monitoring

OVER-THE-AIR (OTA) UPDATES

- "Live" system upgrades
- Autonomous agent operation with zero data loss

