



Mobile Analytics System

Centralized Measurement Data Management & Analytics Platform

Automating remote test management, data processing, analytics and reporting across multiple network technologies.

| Feature

- Web-based platform with single sign-on and role-based access
- Multi-technology: 2G / 3G / 4G / 4.5G / IoT / 5G (SA/NSA)
- Centralized device and test management across the test fleet
- Powerful analytics: parameter, event, coverage and KPI analysis
- GIS-based fault location and route visualization
- Real-time monitoring with customizable event alarms
- Flexible reporting: scheduled, multi-dimensional, KPI summary.
- Flexible deployment: self-managed, cloud-hosted, or SaaS subscription

| Application

- Mobile operator network optimization
- Multi-operator benchmarking & QoS assessment
- 24/7 long-term network performance monitoring
- Coverage and interference diagnosis
- Regulator / authority network quality oversight
- System integrator field-test workflow management

Introduction

Ascentac Mobile Analytics System is a centralized, web-based platform that turns large volumes of mobile network test data into actionable insight — automating remote test management, data processing, analytics and reporting across multiple network technologies.

Description

Mobile network teams generate enormous volumes of measurement data every day — across drive tests, walk tests and autonomous probes. Without a centralized way to manage this data, fault diagnosis is slow, benchmarking is inconsistent, and valuable insight is lost in scattered files. Ascentac Mobile Analytics System is built to solve this.

Ascentac Mobile Analytics System is an end-to-end platform for remote test management, data processing, analytics and reporting. It consolidates device control, automated post-processing, GIS-based visualization and statistical analysis into a single web-based environment — letting operators, regulators and system integrators turn raw test data into clear, actionable network insight.

The platform is technology-agnostic across 2G through 5G, scales from a single server to multi-server distributed deployments, and can be hosted on-premise or in the cloud — minimizing capital expenditure while ensuring stable, fast and secure operation.

Product Advantage

Compared with traditional, file-based analysis workflows, Mobile Analytics System brings the entire measurement lifecycle into one centralized, automated platform — cutting manual effort and turning data into insight faster.

Aspect	Traditional Approach	Mobile Analytics System
Data management	Scattered local log files	Centralized database, single source of truth
Analysis workflow	Manual, tool-by-tool processing	Automated decoding, analysis and reporting
Fault location	Slow coordinate lookup	GIS-based, immediate pinpointing
Reporting	Manual compilation	Scheduled, multi-dimensional, exportable
Scalability	Tied to single workstations	Multi-server distributed, on-prem or cloud
Collaboration	Files shared by email / drive	Web-based, role-based access for all teams

Scale & Performance

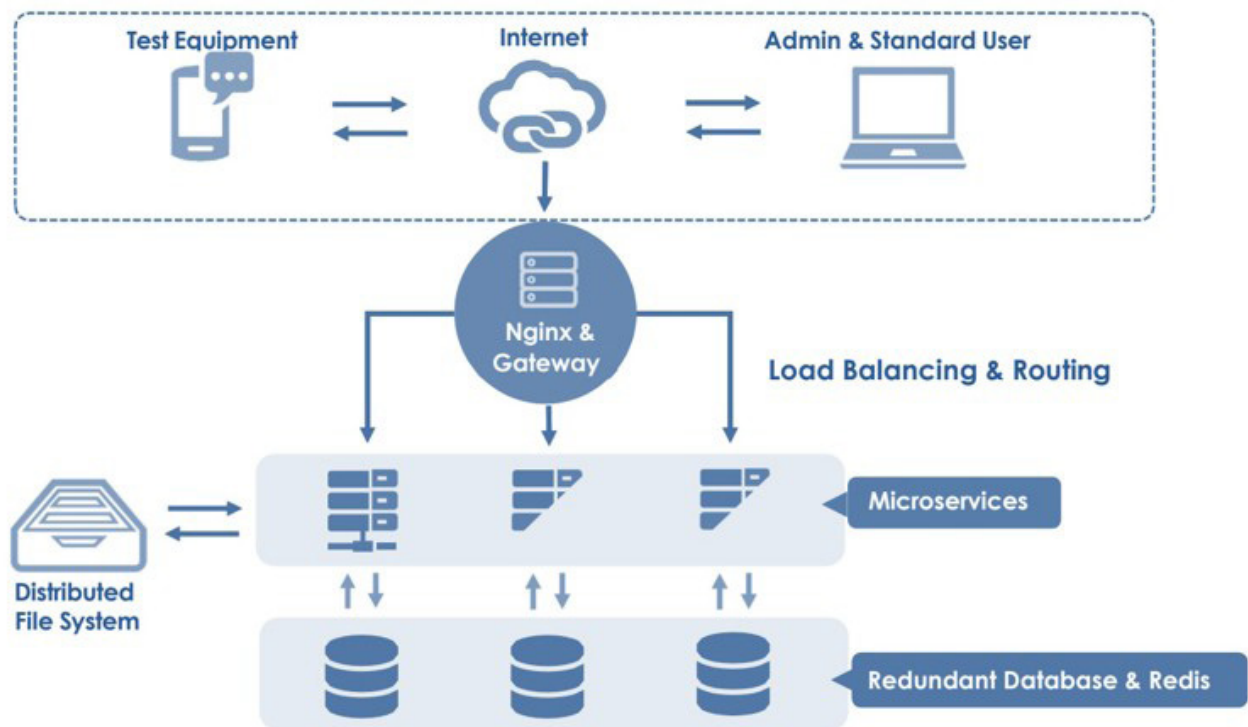
Mobile Analytics System is engineered to handle the data volumes and concurrency that real network operations demand — across long-running campaigns, large device fleets and multi-team access.

Daily Analysis Volume	Up to 2 TB
Concurrent Online Devices	Approximately 1,000 simultaneous test devices
Concurrent Users	Approximately 100 simultaneous user logins
Per-Server Throughput	Approximately 4 GB of data files processed and 1 GB imported to the database per hour
Scaling	Multi-server distributed networking to balance workload as scale grows

Actual throughput depends on hardware and software configuration. Please contact Ascentac for sizing tailored to your deployment.

System Architecture

Mobile Analytics System adopts a modern, scalable architecture. Test data is delivered over the internet to a load-balanced gateway, processed by a microservices layer, and stored in a redundant database with a distributed file system. Both administrators and standard users access the platform through a single web interface.



Built on Proven, Open-Source Foundations

The platform runs on a Linux-based operating system with a PostgreSQL database, an Nginx gateway for load balancing, and a microservices architecture for resilient, horizontally scalable operation. This open foundation gives operators full control over deployment, security and growth — without vendor lock-in on proprietary infrastructure.

Compatible Test Devices

Mobile Analytics System can be configured to work with a range of test devices according to different testing needs — from portable backpack systems for indoor and outdoor benchmarking, to autonomous probes for long-term unattended monitoring, to scanner-based measurement. Whatever your test mix, data flows back into the same centralized platform for unified management and analysis.

Key Functions

Centralized Device & Test Management

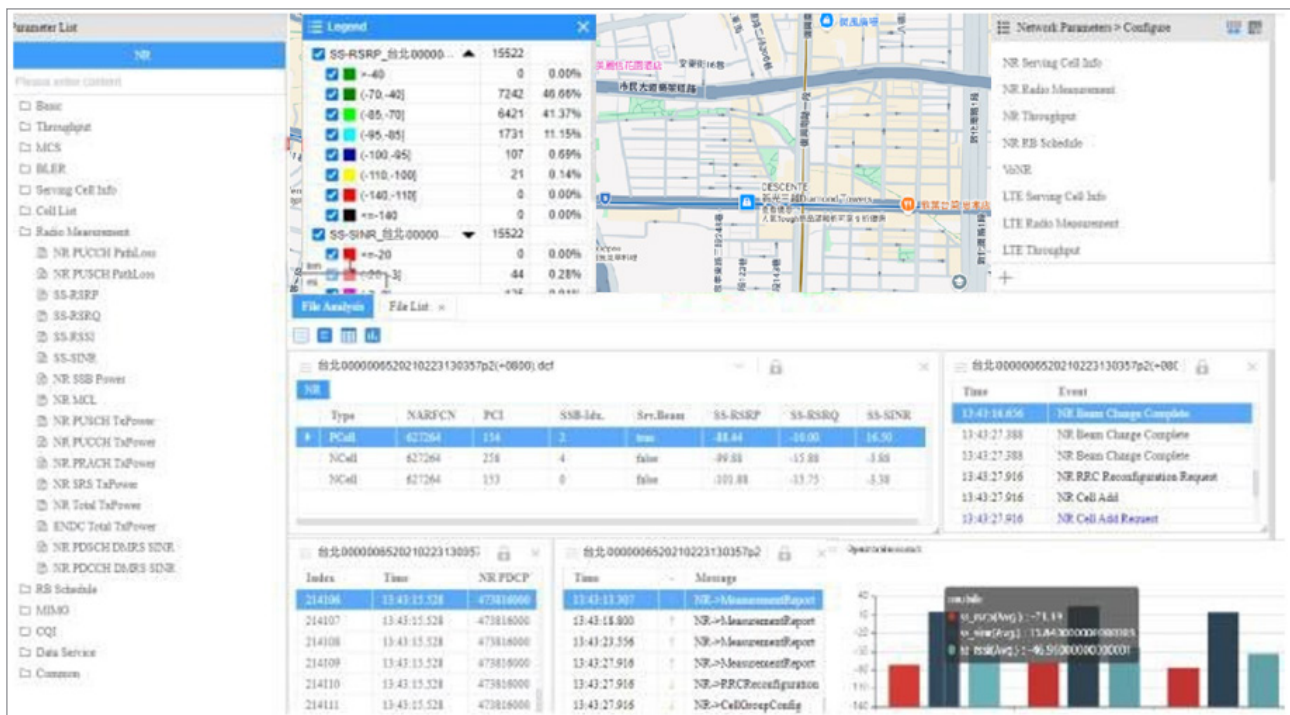
- Add, modify, query and group test devices from a single web console.
- User-defined test plans with flexible scheduling and templates applied across multiple devices.
- Batch import / export of devices and test plans to minimize manual workload.
- Online firmware version management and remote upgrade for supported devices.

Powerful Data Analytics

- Powerful data pre-processing for operational efficiency and post-processing for root-cause analysis and recommendations.
- Automatic test data decoding minimizes RAM usage, sustaining performance on large datasets.
- Multi-dimensional analysis: by parameter, event, region, device, network technology or test plan.
- Coverage analysis: poor coverage, overlapping coverage, qualified coverage, side-lobe and back-lobe coverage.
- Interference and quality analysis: MOD X interference, antenna feeder reversal, recurring bad quality.
- Throughput and call performance: recurring low throughput, dropped / blocked call analysis for VoLTE, CSFB and EPS Fallback.
- Custom analysis with user-defined SQL datasets and innovative BI-based smart analysis.
- Data replay: review test routes, parameters, events, messages and cell information with synchronized multi-window log playback at any speed and position.

GIS Visualization & Fault Location

- Powerful GIS rendering of high-volume measurement data and cell sites on the map.
- Multiple grid granularities for data visualization, letting analysts choose the right level of detail for each scenario.
- Supports OSM and Google maps; offline map support and local map server connection.
- Locate position, measure test route length, pick coordinates, view street-level detail.
- Synchronized display of sites, regions and road-level data in a single map view.



Real-Time Monitoring & Alarms

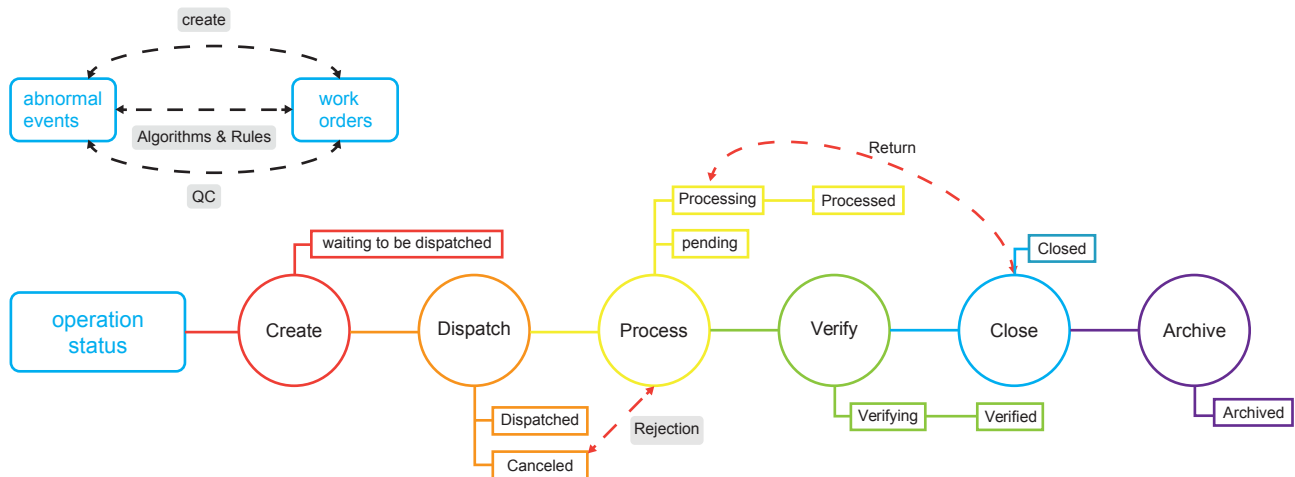
- Online device status, online duration, location and firmware version at a glance.
- Real-time monitoring of network events, alarms, parameters and test routes.
- Customizable event alarms.
- Multi-channel notification: in-platform alerts, with email available on integrated configurations.

Flexible Reporting

- Voice and data service reports across 2G / 3G / 4G / 5G technologies.
- Multi-operator benchmarking reports with threshold-based statistics and GIS rendering.
- Database-based reports for fast generation from large datasets.
- Scheduled reports automatically delivered to designated email recipients.
- Customized and specialized reports tailored to specific operational requirements.

Smart Work Order

Going beyond pure analysis, Mobile Analytics System converts abnormal events detected by intelligent analysis into actionable work orders. Based on preset rules — creation method, aggregation algorithm and workflow definition — work orders are automatically generated, dispatched, processed, verified, closed and archived through role-based access control.



Work Order Management

- Work order overview, pending list, unassigned queue, and archived records.
- Configurable workflow rules and aggregation algorithms.
- Work order statistics and review at every stage of the process.

Work Order Details

- Basic information, problem-point event list and event details.
- GIS presentation of the issue before and after verification.
- Complete processing details, assignment history and workflow records.

Specification

Platform

Deployment	Three models — self-managed, cloud-hosted, or SaaS subscription; multi-server distributed networking supported
Access	Web-based interface; single sign-on; role and project-based permissions
Operating System	Linux-based platform (see notes for currently supported distributions)
Database	PostgreSQL
Architecture	Microservices with Nginx gateway, load balancing and redundant storage

Network Technologies Supported

Cellular	GSM / GPRS / EDGE; CDMA 1x / EVDO Rev.0/A/B; WCDMA / HSDPA / HSUPA / HSPA+; TD-SCDMA
4G / 5G	LTE (FDD, TDD, CA, NB-IoT); 5G NR (NSA & SA)

Test Services Supported

Voice	Voice Call, CSFB, EPS Fallback, VoLTE, VoNR
Data	FTP UL/DL, Multi-FTP, Ping, HTTP page/upload/download, video play, speed test, traceroute, email, PBM, and more
Messaging	SMS Send / Receive / Self, NR message
Scanner	ScannerACD, ScannerNR
Data Formats	Qualcomm diagnostic formats and scanner data formats supported

Recommended Server Configuration (Minimum)

CPU	16 cores / 32 threads
RAM	32 GB / 64 GB
System Disk	1 TB
Data Disk	Sized according to data volume and backup requirements
Scaling	Multi-server distributed networking supported to balance workload

Final dimensioning depends on project scale — number of devices, modules, test duration and services. Please contact Ascentac for a tailored sizing recommendation.



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