

P.I. Works provides centralized mobile network performance and capacity management solutions.

P.I. Works solutions assure lower costs for managing the network. They allow the existing network to be used more efficiently, minimizing capital costs for capacity expansion.

P.I. Works helps to improve the mobile subscriber experience.

uSON

uSON is a centralized automated network optimization solution

Major SON Modules

- PCI/PSC Optimizer
- RSI Optimizer
- MRO
- MLB
- CCO
- ANR
- CODC
- ES
- Parameter Correction

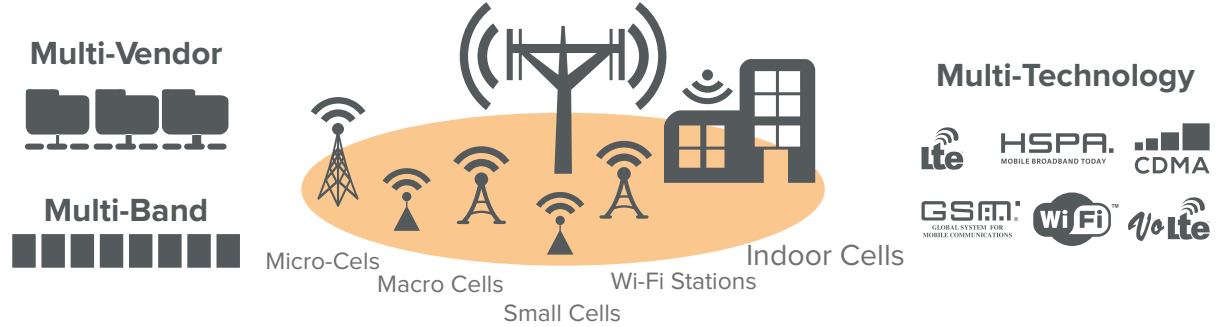
Tool Functions

- SON Dashboard
 - KPI Manager
 - Alarm Manager
 - User Management
 - Performance Reporting
 - Map (GIS) Interface
 - Configuration Audits
- Powered by same backend

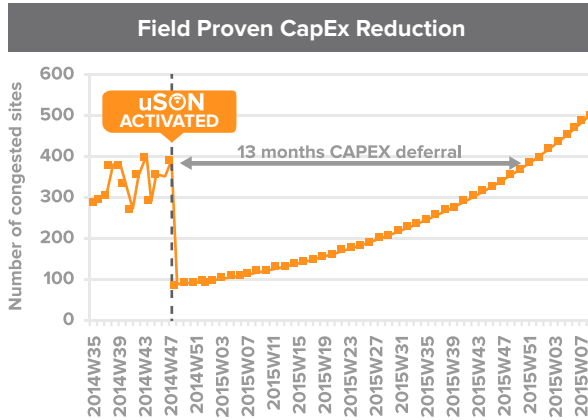
uSON

A new generation of automated network improvements

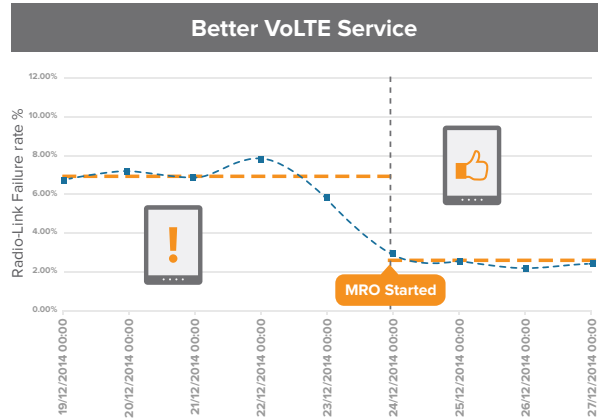
uSON is a centralized automated network optimization solution. Automated configuration management and adaptive optimization algorithms are coordinated centrally to manage improvements to complex heterogeneous networks (HetNets) and shared networks. The uSON solution yields best subscriber experience, increased data throughput, minimizing OpEx and improving utilization of network equipment leading to CapEx reductions and deferral.



Centralized uSON Coordination

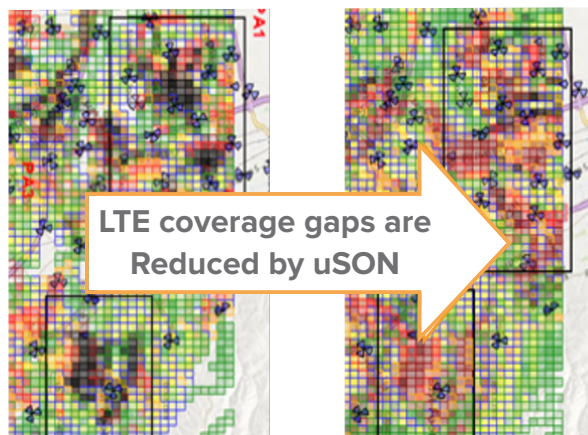


By resolving congestion problems using uSON automated capacity optimization, coordinated CCO and MLB actions resulted in 13 months CapEx deferral for a Tier-1 operator in Europe.



Automated MRO (Mobility Robustness Optimization) reduces handover failures by tuning the handover borders, which are crucial for mobile streaming and Voice over LTE (VoLTE) service.

Operational Efficiency by Advanced Correlation



uSON's geo-located call-trace visualization, CEM-data processing, FM-correlation features allow operators to boost LTE service with fewer drive tests.

Minimized Coverage Problems by Dynamic RET



uSON CCO automatically reduces the coverage gaps by up-tilting the cells within the power budget. This resulted in fewer customer complaints and higher traffic volume.

OTHER PRODUCTS

● **Umbrella Monitoring**
uSON PM is an umbrella performance management solution for Mobile Network Operators. Besides Radio, Core and Transmission network support, custom sources like IN, VAS, Fixed Network Equipment, CEM and many others are also supported with advanced performance reporting, GIS interfaces and alarm management features.

● **RAN Troubleshooting**
uSON Inspection is an advanced, easy to use interface for in-depth examination of the access network with root-cause analysis functions. Mobility analysis, advanced GIS functions, timing advance visualization, CM vs PM correlation features, golden parameter audits features allow operator to improve their engineering efficiency while minimizing drive-test costs and customer complaints.

Contact Us

● Head Office

Teknopark İstanbul Sanayi Mah. Teknopark Bulvarı No:1/3A 103 34906 Pendik İstanbul, Turkey
Tel: + 90 216 999 1099

● APAC

100 Tras Street #16-01, 100AM, 079027 Singapore
Tel: + 65 31 590 450

● Europe

Dimitrie Pompei Street, no 10A, Conect 1 Building, 5th floor, District 2, Bucharest, Romania
Tel: + 40 31 828 0818

● USA California

5960 Stoneridge Dr., Suite #204 Pleasanton, CA 94588
Tel: + 1 925 737 0503

● USA Virginia

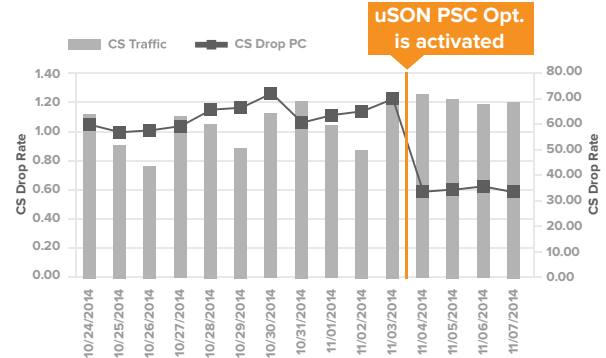
1760 Reston Parkway, Suite #506 Reston, VA 20190
Tel: + 1 703 828 0067

www.piworks.net

KEY FEATURES

- ▶ **Fast integration** with built-in technology packages for Ericsson, Huawei, Samsung, NSN, ALU and ZTE covering 2G, 3G and 4G technologies.
- ▶ **HetNet support** for TDD, FDD, LTE, 3G and small cells.
- ▶ **Shared Network support** with customizable segregation rules for SON functions.
- ▶ **Configuration and parameter regulation** mechanism periodically checks the golden configuration (parameter sets, licenses, features) to minimize network inconsistencies, faulty operations, and availability problems. This creates real value for fast-growing networks.
- ▶ **Plug and Play Support;** Fundamental cell parameters such as PCI/PSC, RSI codes and Initial neighbor planning are supported.
- ▶ **Network Planning (PSC/PCI)** Network-wide or cell-based PSC or PCI plan with both bulk and conflict resolution mode of operation.
- ▶ **Root Sequence Index (RSI)** planning.
- ▶ **Coverage & Capacity Optimization (CCO)** support.
- ▶ **Automated neighbor relations Optimization (cANR)** algorithm using an intelligent set of rules.

- ▶ **Mobility Robustness Optimization (MRO)** improves the mobility performance of a heterogeneous network.
- ▶ **Mobility Load Balancing (MLB)** Optimization provides load balancing and congestion recovery functionality across the network cells.



- ▶ **Cell Outage Detection and Compensation (CODC).** Promptly act and compensate outages, reduce churn and traffic loss.
- ▶ **Energy Savings (ES)** support.

KEY BENEFITS

- ▶ **Assured throughput improvements** to subscriber experience by making apps more responsive and reducing lost connections.
- ▶ **Quick results** see the impact on your network in less than one month.
- ▶ **Reduce and defer CapEx** uSON provides efficient usage of network resources with load balancing Function (MLB) and Coverage and Capacity Optimization (CCO) functions which have been demonstrated to defer capEx investments by 13 months.*
- ▶ **Reduce OpEx** automated optimization increases the productivity of your team to improve and maintain the quality of your network as it grows more complex.
- ▶ **Increase your revenue and profitability** improvements in network KPIs and better resource utilization minimize customer complaints and help you to reduce subscriber churn. Fast recovery time on network outages reduces lost traffic.

ARCHITECTURE

uSON system architecture consists of two main components; uSON Platform and Execution Manager. uSON ETL Platform collects, processes and stores all data from network sources. The execution manager is heart of the tool and executes the optimization algorithms according to configuration taken from web-based user interface. Command management and retrieval of system configuration are done with coordination of execution manager and OSS/IRP manager.

