P.I. SON Suite Concepts

Son Suite provides end-to-end optimization features for mobile operators with intensive drill down and root cause analyze functions and healer modules for bulk optimization and automatic optimization.

P.I. Son Suite helps optimization engineers in their daily tasks with a flexible user interface which enables the users to customize their working environments in the most effective way with a wide range of display and usage options.

Executive Dashboard

The Executive Dashboard is the starting point in which the user will see the network or area status with a holistic approach. From the dashboard he/she will be able to jump to any specific module for drilling down and deep analysis operations.

The Executive Dashboard has the most important information about data consistency and integrity. User will see if the data is consistent and complete before starting optimization tasks.

Also the following summaries are available on the first screen which enables to jump the corresponding plug-in for detailed analysis.

- AM-CM Correlations
- AM-FM Correlations
- Alarm Overview
- Healer Summaries
- KPI Trend Overview

AM-CM Correlations:

Son Suite uses the Floating Alarms generated by P.I. Event Management System which checks for the defined KPI's for all network elements (Cell, RNC/BSC, Cluster, etc.) with a previous period on a sliding window principle and triggers an alarm if a defined delta percentage is exceeded to catch a sudden change in the KPI.

e.g.

Compare yesterdays KPI value with the last week same day's KPI value and warn if the difference is more than %20.
Compare last hour's KPI value with the previous 3 hours average KPI value and warn if the difference is more than %10.

At the same time all CM changes are logged in the database at each level and the floating alarms are correlated with these CM changes in order to see if there is a CM change for the corresponding or related elements (Neighbors, etc.).

Son Suite gives this correlated information in order to highlight the sudden KPI change along with the CM Change.

AM-FM Correlations

The Fault Management alarms are collected from any alarm management tool and these fault management alarms are correlated with floating alarms to inform the user for sudden KPI changes on the element which also has a raised Fault Management alarm at the same time frame.

Handover Plugin

The Handover plug-in enables the user to analyze the cell neighbor definitions and their performance statistics with complementary information such as a wide range of KPI selections and multiple map formats including Google, yahoo, Bing map with 2D,3D,Street View modes.
The Handover Plug-in gives a comprehensive view for all neighbor related analyses.
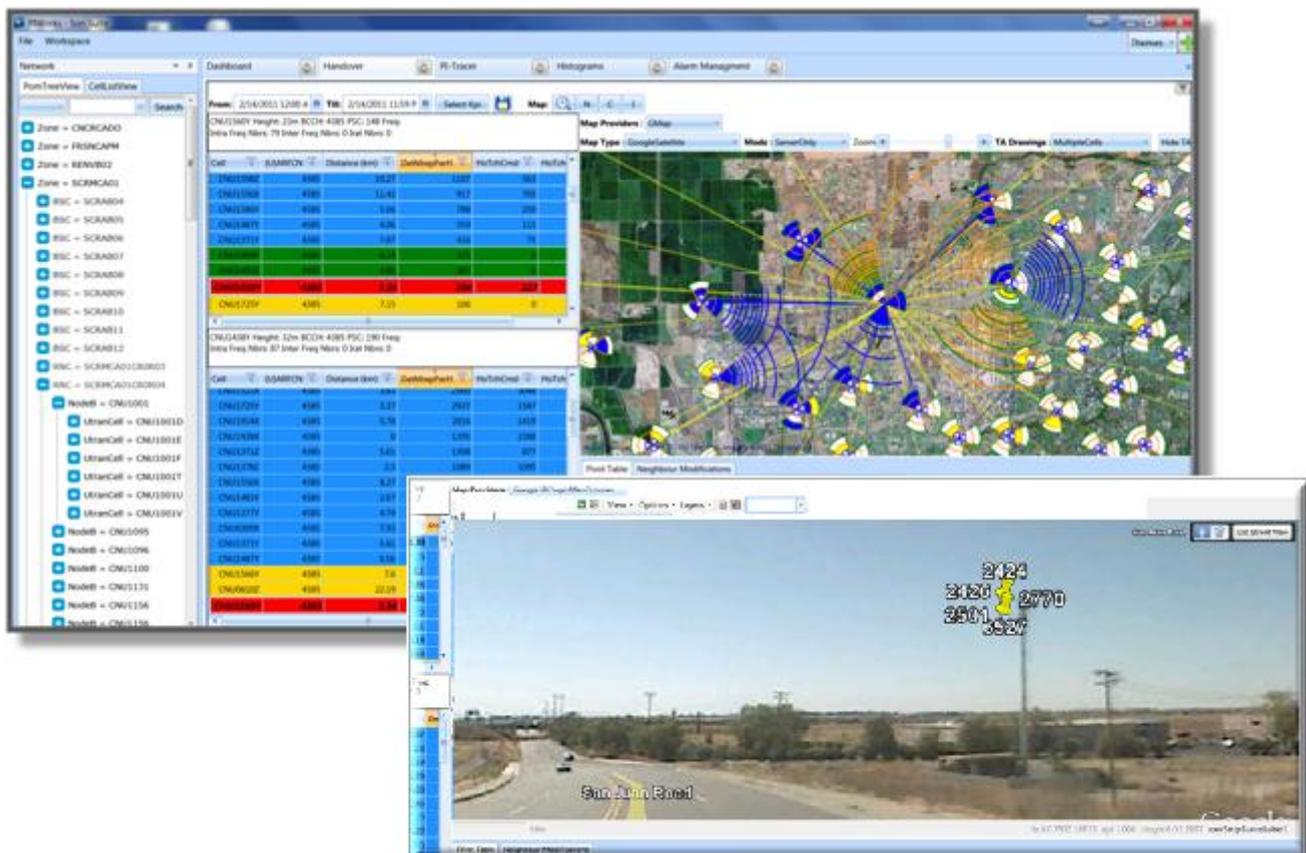
Healers

P.I. Son suite has a wide range of healers for bulk optimization purposes and gives summary information in the Executive Dashboard from which the user is able to jump to the relevant healer plugin for extensive investigation.

Each healer suggests a list of change requests (hard or soft parameters), which user can choose to execute directly or analyze further, within the SON Suite tool.

P.I.Scopt : Scrambling code Optimizer that gives SC Change recommendations for clashing cells. The optimizer works on a cell cluster, RNC, set of RNC's or any defined region. P.I.Scopt comes with a default rule set but also it is possible to define certain rules for different areas or network characteristics for specific requests. It also allows to perform a full plan from scratch by P.I.Scopt .

P.I.Neighopt : Neighbor optimizer that gives neighbor addition/deletion recommendations. P.I.Neighopt gives recommendations based on call trace data measurement and detections, performance counters and geographic parameters by a customizable rule sets for neighbor addition and deletion in 3G networks. It follows the 3GPP standard definition of SON ANR functionality for LTE networks.

P.I.Freqopt: Frequency Optimizer which gives frequency change recommendations. The FreqOpt chooses the cells which suffers from co-channel and adjacent channel interference. Then it suggests clean frequencies for these cells.

P.I.Wheelopt: Optimizer that detects and warns for cross-feeders. The cross feeders is a common problem, especially in fast rollout environment. The output of the healer is a list with a high probably cross feeder issue.

P.I.Covopt: Coverage optimizer for better coverage handling. The Covopt takes measurement reports coming from call traces and identifies the over shooter and undershooter cell. It then suggests antenna tilt or azimuth changes.

P.I. Tracer

The P.I.Tracer plug-in enables the user to analyze 3G call traces collected through different vendors and formats (GPEH, IOS, CHR, etc.) for troubleshooting and VIP Case Analyze purposes. Call traces can be filtered IMSI based or IU release cause based with timeframe selection . It is possible to analyze connection by connection with the complete message flow to see the whole status during the connection or problem state.

P.I.CMA

Due to hierarchical network topology, there may be cases where inconsistencies between node configurations may cause network to underperform.

CM Analyzer is a Multi-Vendor / Multi-Technology compatible tool and allows all cross-checks to be done in a mixed network with different vendors and technologies.

CM Analyzer fills the gap for catching inconsistencies between nodes of different vendors and technologies. All standard audit checks are ready off-the-shelf and due to the flexible architecture new audit checks can be added easily.

CM Analyzer takes daily CM snapshots through the network elements and makes it possible to compare multiple days CM parameters to track and detect changes. It is also possible to create reference parameter lists for network elements and CM Analyzer check through the network for non-compliant elements.

Histograms Plug-in

The Histograms plug-in is a graphical interface with many predefined histograms which the user is able to configure in many ways. The user chooses from a wide range of histograms such as Carrier Power (UL/DL), Ec/No, RSCP, PRACH Delay, HS Throughput (UL/DL), CQI (UL/DL), etc. and configures the screen by how he/she wants to see these histograms. Multiple screens are also supported.

KPI Trend Plug-in

The KPI Trend plug-in displays the KPI trend in a graphical way between 2 selected days and for the selected object (RNC/BSC, Cell, Cluster, etc). It is possible to display multiple KPI's at the same time for more detailed analysis. The results can be tabular or graphical with multiple graphic display options.

Geolocation Plug-in

Geolocation features are based on collected call trace measurements for locating mobile devices during the event generations. The output is used for :

- Event based location detection
- Traffic density heat map
- Imsi/imei based mobile tracking/troubleshooting

The presentation layer has a wide range of maps including Google maps, bing, yahoo maps,etc. and has the ability to export to any required format for various usages.

P.I.Son Suite fits all the needs for optimization engineers from junior to expert level with direct recommendations to extensive drill down operations with various plugins in a customizable and rich user interface.