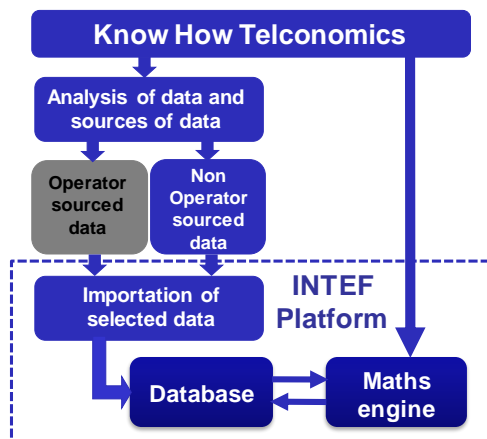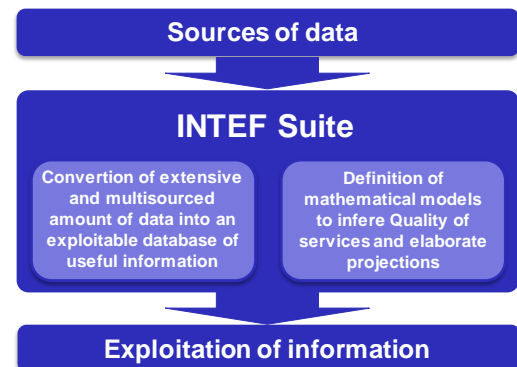# TELCONOMICS INTEF

Analytical and graphical Suite for data treatment designed to help managing a Mobile Access Network driven by the Quality of Services delivered to customers.

INTEF is a Suite designed to help managing a Mobile Access Network driven by the Quality of the Services delivered to the customers. It converts extensive amount of data coming from different sources into useful information that can be easily exploited producing on time results.

A core data platform is provided with customised facilities and a web interface to allow exploitation agents to run analytics producing real time results. Analytics can be defined on a case by case base by using web provided filters and buttons as well as predefined one-click routines. The web interface supports interactive visualization and exportation of results. Customised reports can be easily implemented as well.

Sources of data

INTEF Suite

Convertion of extensive and multisourced amount of data into an exploitable database of useful information

Definition of mathematical models to infere Quality of services and elaborate projections

Exploitation of information

Know How Telconomics

Analysis of data and sources of data

Operator sourced data

Non Operator sourced data

Importation of selected data

INTEF Platform

Database

Maths engine

The core of the Suite is a data platform which consists on a database of the selected data properly processed and ordered plus a mathematical engine to produce models of Quality of services following network behaviour.

To build the database, it is necessary to identify which type of data are going to be imported, where they can be found and how to get them imported. Most of it, especially where and how to get the data, is Operator dependant, therefore, customization of the importation is required. Upon the stablished database, a mathematical engine elaborates models which are loaded to the database. Once the data platform is built, the whole process of keeping it up and running, including mathematical modelling, is fully automatic and continuous.

INTEF is fed with two main sources of information. On one hand, information from the access network; each node (cell) of the network generates an extensive amount of data on a periodical basis which are collected upstream in one or more systems within the Operator structure, i.e., an OSS system. On the other hand, information from the user side; Telconomics has tools to empirically and statistically determine the objective quality of the services as delivered to customers by running a limited number of selected tests, running on commercial devices, therefore, closer to user experience than most drive testing procedures. INTEF can also import data from other sources, both operator generated and non-operator generated, such as network technical inventory, devices installed base, transmission topology, demographics, etc. than can be of use in many applications.

Avenida de la industria, 32 Edificio C 2P-5-2
28108 Alcobendas, Madrid, Spain
+34916624338
www.telconomics.com

The collected information is processed, debugged and stored in a database. Further, Telconomics own developed engine stablishes mathematical relations between network performance and quality of services. This is of utmost importance, as it allows to infer the customer quality anywhere and anytime in the network from its observed performance and to elaborate projections based on given conditions, such as expected traffic evolution, technicalities on coming releases, refarming scenarios, etc.
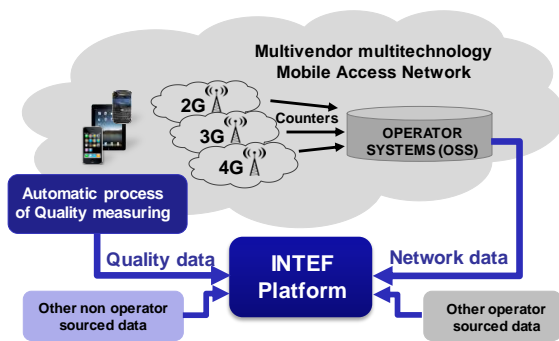
Network data is collected and processed on a non-stop base, thus reflecting any change and evolution of the network. Quality testing is done on a random as well as on-target but limited base, thus reflecting the impact of network actions and evolution as well as trends in use. Any other information source is also adequately updated. There is no practical limitation to the amount of information to be stored on INTEF Platform. This allows for long term analytics on network evolution.

The whole process of keeping the platform updated, including the modelling, is done without any impact to the network and without any action required form the Operator.
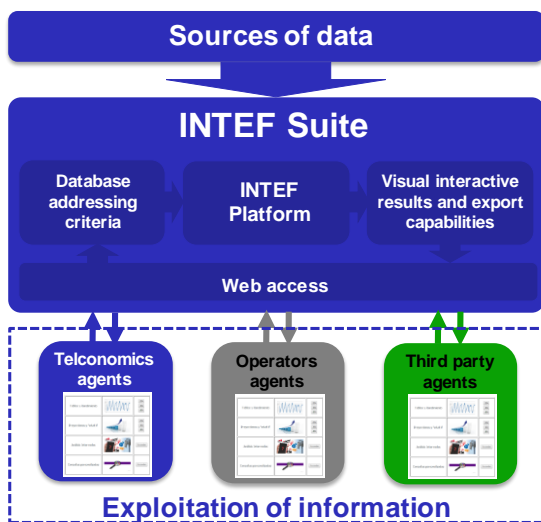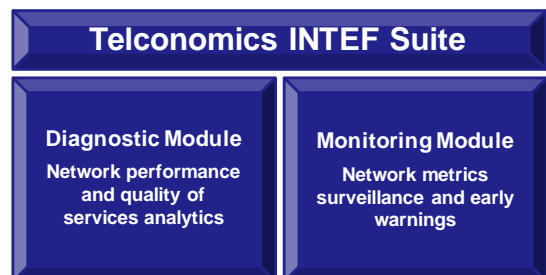

INTEF Platform compiles Telconomics expertise for selecting, searching and extracting the precise amount of data and convert it into useful exploitable information to improve the quality of the services provided by the mobile access network.

The platform is conceived to be exploited as a suite of functions by a number of agents. For that propose, the platform is complemented with certain capabilities to address queries to the database and report in real time visual and interactive lists, graphs and maps that can also be exported. Initially thought to be run as a service, it is also possible to grant access to operator's agents and third party agents, by means of web access connectivity.

Access to information and exportation capabilities are adequately managed and secured, allowing for different profiles of exploitation. Once into INTEF Suite, agents will make use of friendly menus.

There is an unlimited potential of exploiting INTEF Suite, not only because of the usefulness of the available data but also because of the flexibility in defining queries and presenting results, which will be very much based on Operator needs and processes. Telconomics provides an over the shelf version of INTEF Suite specially intended for short time of getting into operation and very friendly use. It includes two analytics modules.

Telconomics INTEF Suite

Diagnostic Module
Network performance and quality of services analytics

Monitoring Module
Network metrics surveillance and early warnings

Avenida de la industria, 32 Edificio C 2P-5-2
28108 Alcobendas, Madrid, Spain
+34916624338
www.telconomics.com

First one is called Diagnostic Module and it is aimed to allow agents to define very specific consults and to evaluate projections. A specific consult is defined by a number of input conditions that can be filled or selected from pop-up possibilities. Agent will define which technical or set of technical parameters to analyse, including inferred quality of service, where, for how long and with which time granularity. For example, a graphical representation of the hourly evolution of propagation delay distribution of a given cell for two months before and after a given actuation on the cell or affecting the cell.
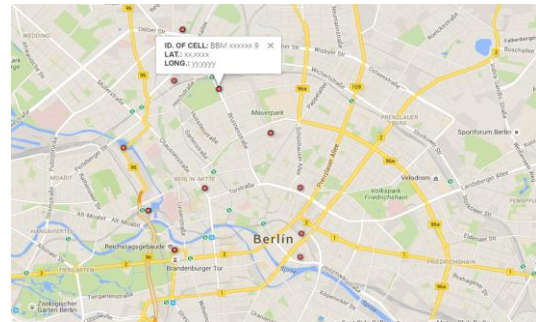
Scalability
INTEF apply to any mobile access network, regardless the size, technologies involved and services offered.

Architecture
INTEF run on general propose hw supporting a logic structure based on comercial available sw and Telconomics developments. It guarantees any level of customisation. It can be implemented on premise and on the cloud.

Non intrusiveness
INTEF operates with no intrusión or affection to the network nor any other operator process.

Operation
INTEF Suite is open to be operated fully as a service with no requirement to the operator as well as allowing operator and third party agents.

Cost
INTEF conception assures operational costs fractional respect other analytics solutions.

Easy of use
INTEF Menu guided web Access and customisation assures easiness of use. On-line tutorials provide a quick training to agents.

Quality driven vision
INTEF is the unique analytics solution providing network performance and quality of services visión at a time. It allows for quality driven management ot the network.

Multifunctional operation
➢ Performance analytics
➢ Quality driven management
➢ Projection and what if analytics
➢ Network metrics follow up
➢ Out of range early warnings
➢ External processes integration

A projection has the same inputs plus some conditions to define a feasible scenario. For example, a geolocation of the cells that are performing under certain level of quality within a time period and persistence, and then how this result would change if traffic increases according to marketing expectations. Hence, Diagnostic Module is especially useful for agents in charge of network performance and quality improvement, as well as in network planning.
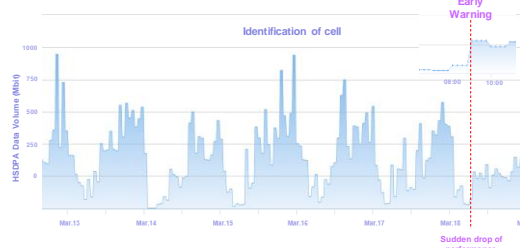
Second one is called Monitoring Module which is aimed to allow agents to run one-click pre-defined routines showing network performance and quality indicators as well as early warning alerts when certain parameters move out of given thresholds. This Module is especially useful for agents in charge of network follow up, both from technical detailed perspective as well as high level metrics reporting. Once the Operator is skilled on using the Suite it is very easy to implement periodic analytics and reports, allowing for one-click follow up of network performance metrics.

There is a third block of functionalities INTEF Suite is ready for, called Interaction Module which is aimed for real time interaction with other processes, either to feed them with specific predefined set of results or to exchange information in real time, for example, importing specific data from a network event and exporting automatically a set of graphics showing the performance of all cells potentially involved in it. There is no practical limit to functional customisation as far as the required data is available or reachable.

TELCONOMICS INTEF SUITE
"It is not about how big the data available is but to know which are relevant and how to convert them into useful information".