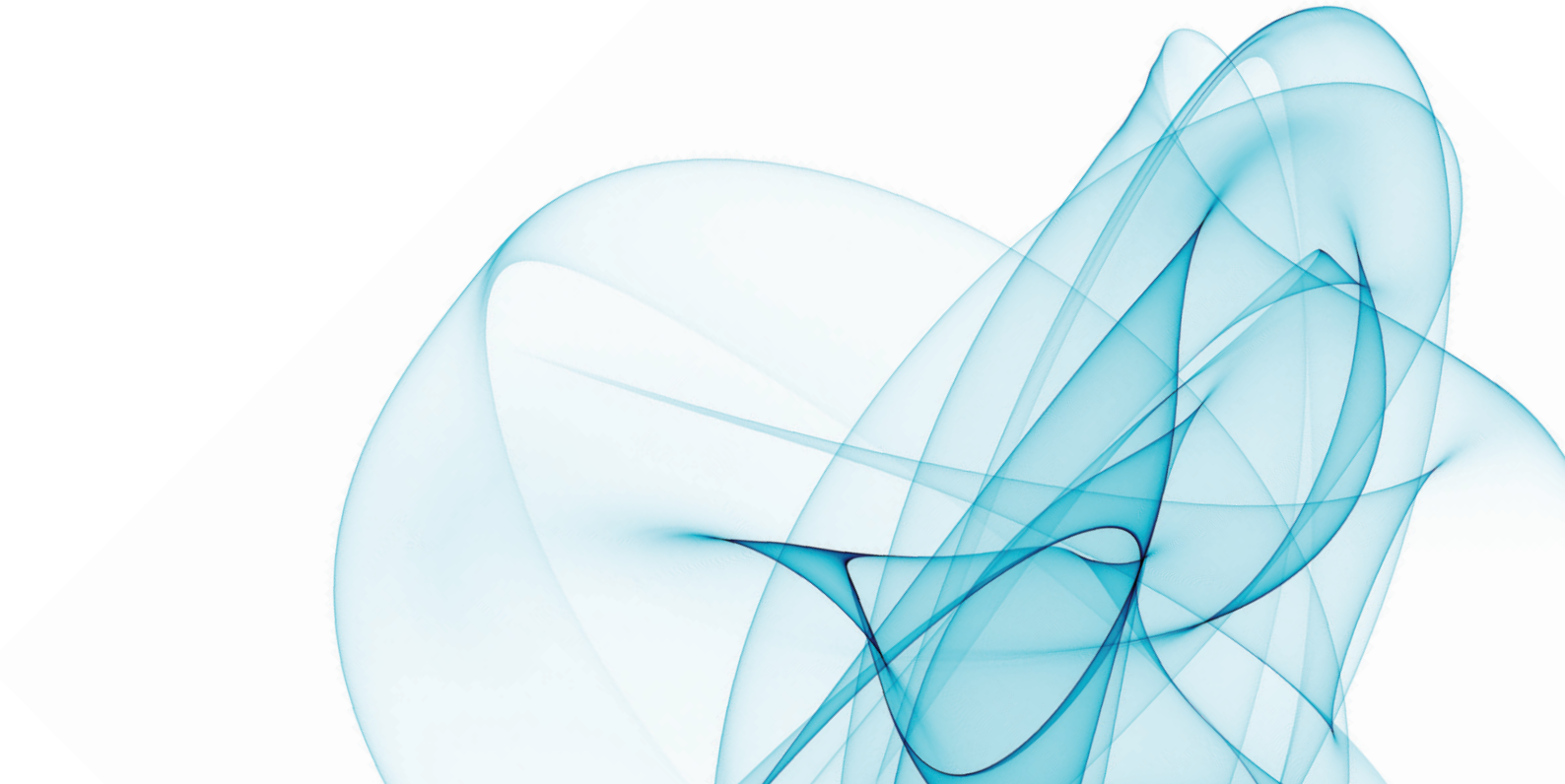
ENERGY & UTILITIES

In**GRID MDC**

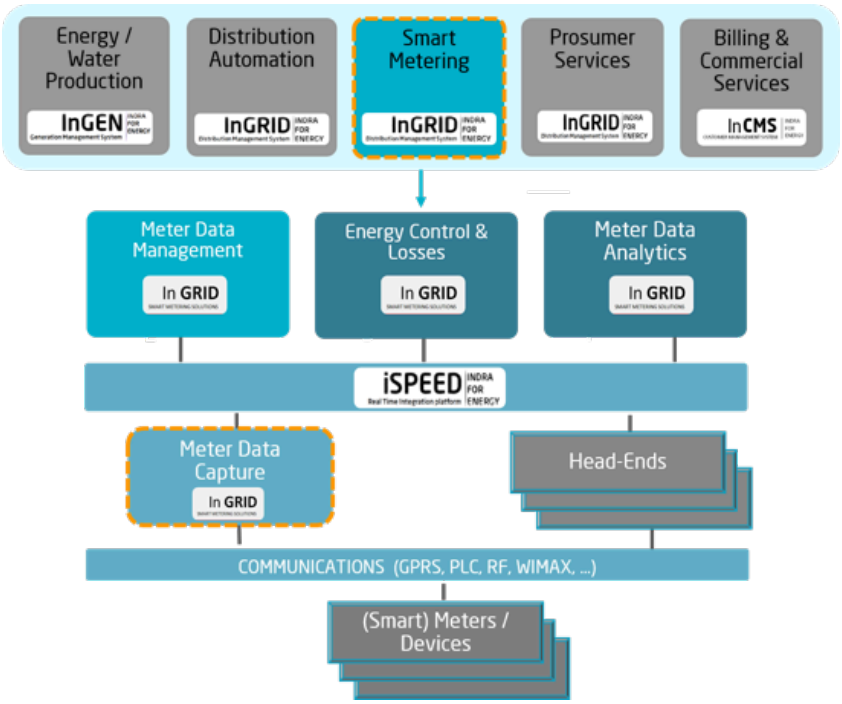
SMART ENERGY SOLUTIONS

Meter Data Capture

indracompany.com



SMART METERING SOLUTION TO HELP COMPANIES ACQUIRE COMPETITIVE ADVANTAGES IN AN ENERGY MARKET AFFECTED BY GLOBAL TRENDS



ACQUISITION MANAGER

Multi +

InGRID MDC is the **Multi Utility** solution for the acquisition of data measurements **(Electricity, Gas or Water)** coming from any type of field device. **Multi Layer** architecture working with **HTML5** technology gives a friendly and easy operation through the application interface. **InGRID MDC** uses a scalable architecture (horizontal & vertical) that could be installed and deployed in both proprietary and Open Technology Platform to support all industry protocols standards (XML, Web Services, SOA, CIM, etc...).

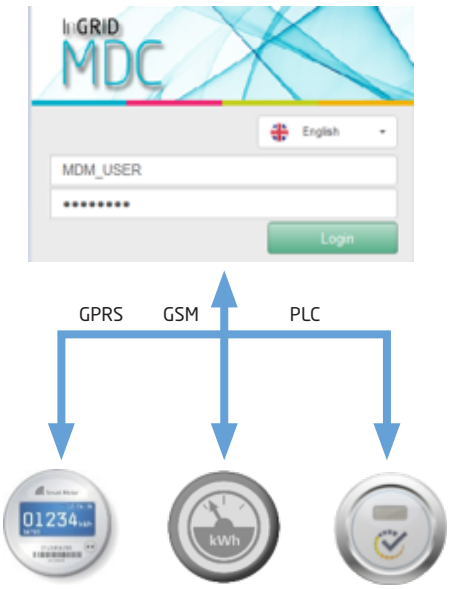
Data Capture

Bidiretional

Capability to execute both actions:

Send commands:
- Synchronization
- Reset
- Connect/Disconnect
- Etc...

Receive Information:
- Load Profiles
- Sum of Energy
- Peak Power
- Billing Profile
- Instant Values
- Etc.....



Grid Control

Capability to manage different metering technologies, such as:

- PRIME G3...
- GSM (GPRS, 3G, 4G...)
- Radio (Mesh, PP, PTP)
- M2M interfaces

Multi Device

Capability to obtain measurements from several devices, such as:

- Smart Meters
- Meters
- Data Concentrators
- Data loggers
- Etc.....

INVENTORY

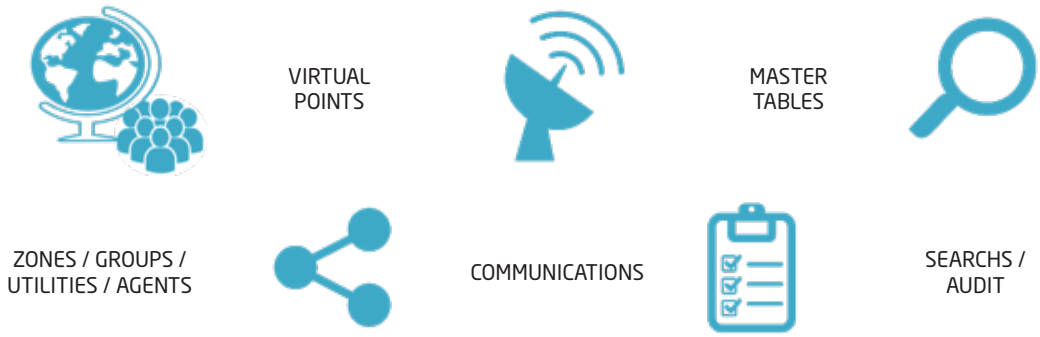
Centralization of information

Inventory

Ability to act as master of inventory, managing data required for the correct operation of the system. The system stores master data as static data and all the information related to the network topology, which can be grouped depending on the user criteria (geography, connection to main concentrator, etc...).

The inventory can be divided in two main blocks:

- **Data** related to the **communication infrastructure** of the system, which shall not be modified, unless there is an increase of communication channels or a change of the communication technology.
- **Data** related to the **field equipment**, which have higher probability to be modified, since the remote equipment varies depending on changes in the network topology.



CALLS & COMMUNICATIONS

Information Exchange

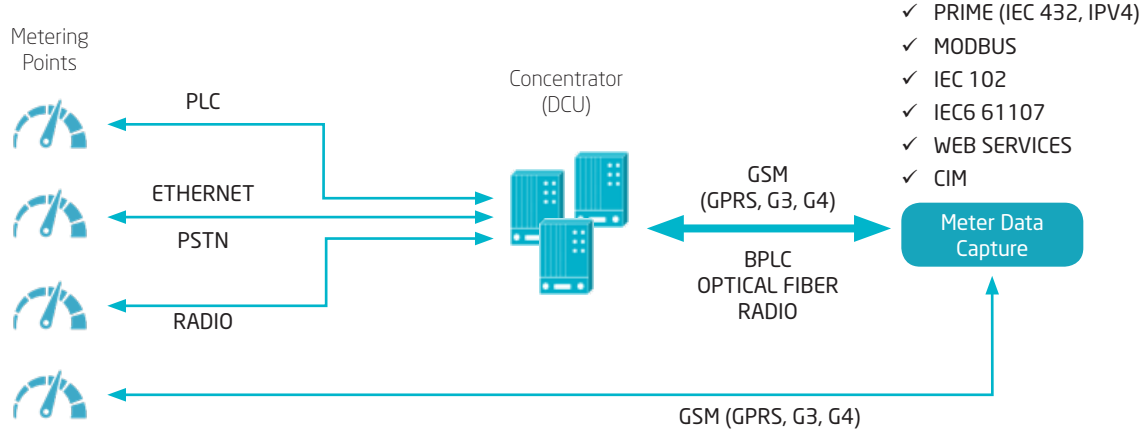
Acquisition Monitor

The system can communicate with any field device based on the different communication protocols implemented on it. The bidirectional communication is available through all the channels of the system. Modules as "Call Monitor" allow to control and monitor data based on the different processes associated with the communications it supports.

Multi-Physical Channel

Multi-Protocol

- ✓ DLMS / COSEM
- ✓ PRIME (IEC 432, IPV4)
- ✓ MODBUS
- ✓ IEC 102
- ✓ IEC6 61107
- ✓ WEB SERVICES
- ✓ CIM

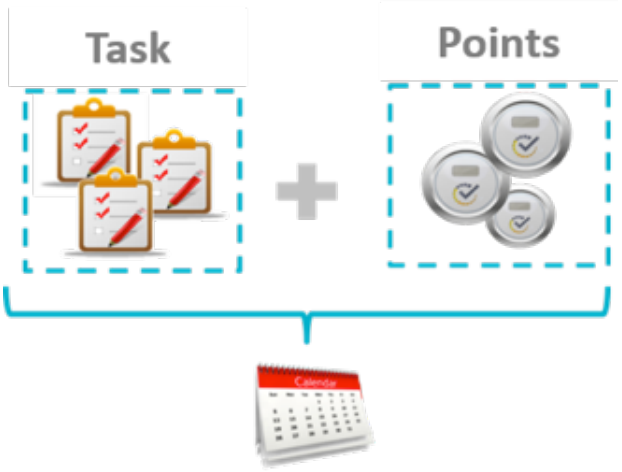


TASK SCHEDULER

Reduce user intervention

Task Scheduler associated with group of points enables the system to minimize user intervention. The actions and tasks that can be performed within the system have two ways of execution:

- **Manual:** the user prepares the desired task in a specific moment (On demand).
- **Automatic:** on the one hand, it is defined the actions that the user wishes to repeatedly execute and, on the other hand, points or groups of points on which those actions should be applied so that they are automatically executed.



REPORTS

Customized visualization

This functionality contains all the reports related to the measurements captured by the system. These reports could be exported in any format, such as MS Excel. The content that this module shows could be customized, existing the following predefined main reports:

General: normal values of measurements over a certain period.

Measurement management: anomalies in the measurement curve of certain points or groups of points.

Equipment configuration: technical characteristics of smart meters, such as daylight saving time or contracted power.

Communications: summary of calls made by the system, errors and events arising from such communications.

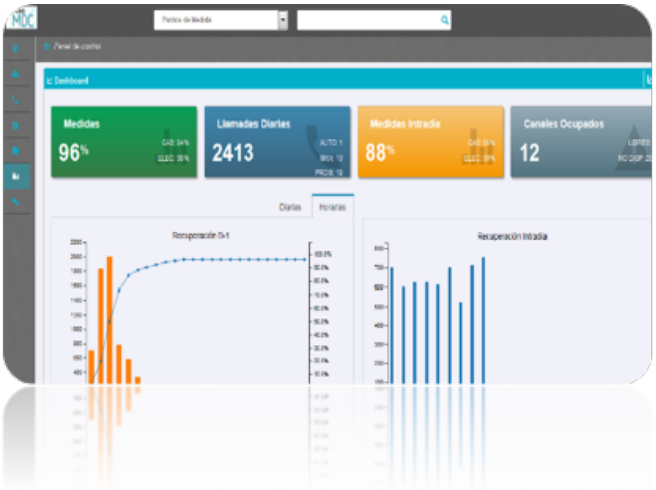
Homologation: prior integration tests performed to ensure the day-to-day operation, allowing a reduction in call costs.

FILE MANAGEMENT

Input/Output

This module includes all the functionalities related to file input and output for the exchange of information with corporate systems:

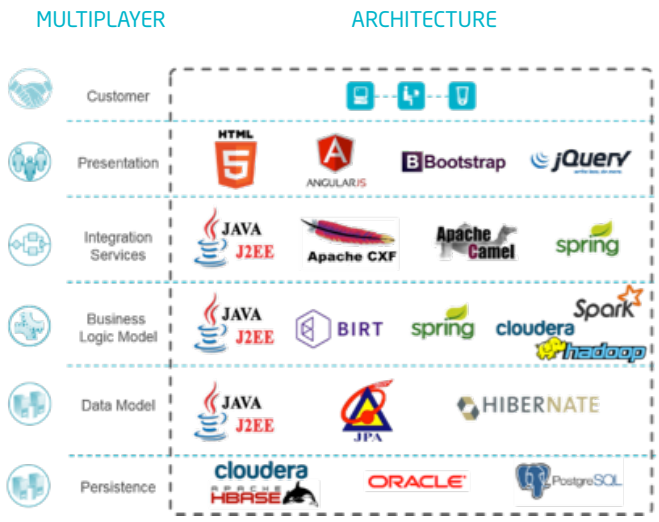
- Management of the different files used by InGRID MDC
  - ✓ Import text files from HHU (Hand Held Unit), or corporate systems (System Operator, SCADAS, etc.)
  - ✓ Export files to corporate systems.
- Upload and generate files on demand or scheduled
- Traceability of file upload and generation.
- Formatted text files: XML, CSV, etc.
- RAW and CIM formats



ARCHITECTURE

Software Implementation

Indra´s platform is an advanced system based on a **100% Web** front-end architecture based on a platform created with **HTML5**. The back-end is an **Open Source** product, implemented with **J2EE** and integrated with the most recent standards and security frameworks. The system uses **Big Data** technology from **Cloudera** for data storage and processing, Open Source technologies like PostgreSQL and HBase, and proprietary relational database systems such as **Oracle**.



COMPETITIVE ADVANTAGE

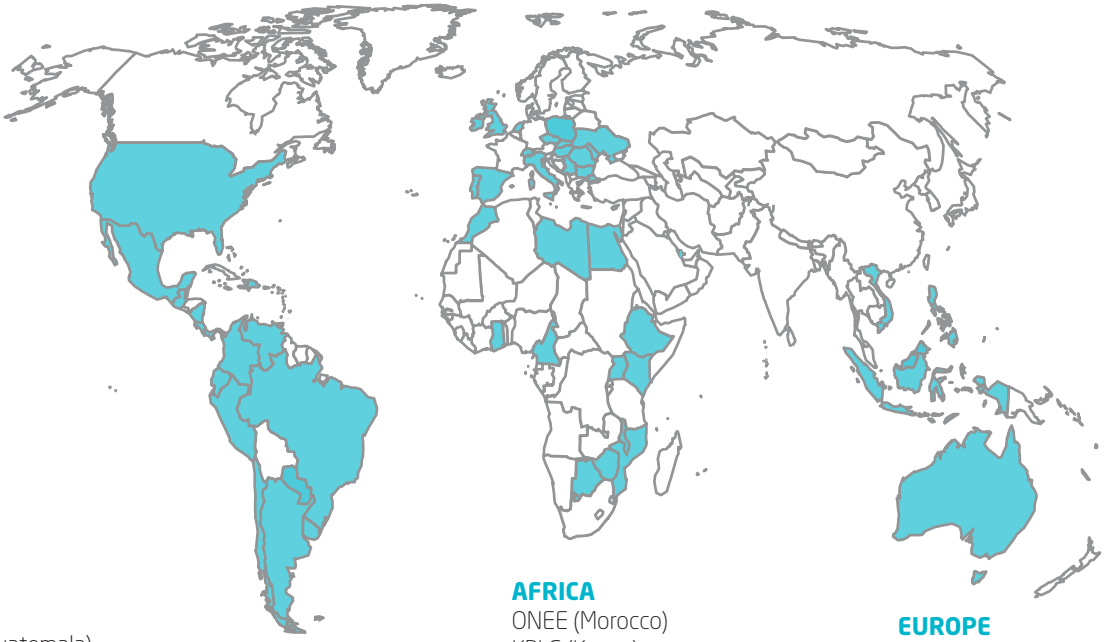
Characteristics

InGRID MDC is one of Indra´s Smart Metering Solution that helps companies achieving a strategic position. In an energy market in constant change affected by global trends, the following functionalities provide a competitive advantage:

Multi-Protocol	☑
Multi-Utility	☑
Horizontal Scalability	☑
Vertical Scalability	☑
Spring Security	☑
Web Interfaces	☑
Open Source Software	☑
Online Monitoring	☑
Alarms, alerts and notifications	☑
Group of points	☑
Load Balancing	☑
Distribution Nodes	☑
Integration with corporate systems	☑
Dashboards / KPI	☑
Request Manager	☑

Over **140 Utilities** use Indra's technology solutions.

- More than **100 million Customers** managed throught Indra's commercial systems.
- More than **700 generation Plants** are managed with Indra solutions.
- Successful implementations in **most of the European and Latin-American** companies.



AMERICA

Energuate (Guatemala)
Ecopetrol (Colombia)
Cemig (Brazil)
Elektro (Brazil)
OSE (Uruguay)
UTE (Uruguay)
AES SUL (Brazil)
CPFL (Brazil)
Aguas de Hermosillo (Mexico)
Aguas de Monterrey (Mexico)
Cadafe (Venezuela)
Hidrocapital (Venezuela)
Seneca (Venezuela)
Disnorte-Dissur (Nicaragua)
Electricaribe (Colombia)
Eleval (Venezuela)
Eletrobas (Brazil)
CEEE (Brazil)
Energisa (Brazil)
Emdersa (Argentina)
EEC (Colombia)
Epsa (Colombia)
Grupo EMEL (Chile)
Petrobras (Brazil)
RGE (Brazil)
Chevron (USA)
AyA (Costa Rica)
Aysa (Argentina)
Edelap (Argentina)
Sedapal (Peru)
Sedalib (Peru)
Electrodunas (Peru)
Osinergmin (Peru)
Sempra (USA)
AES (Brazil)
Ligth (Brazil)
Petroperú (Peru)
EP Petroecuador (Ecuador)
CDEEE (Dominicana)
Edesur (Dominicana)
Edenorte (Dominicana)
Edeeste (Dominicana)
DelSur (El Salvador)
EDEN/EDES (Argentina)
UTE (Uruguay)

AFRICA

ONEE (Morocco)
KPLC (Kenya)
ENEO (Cameroon)
EEPCO (Ethiopia)
NCWSC (Kenya)
KENGEN (Kenya)
UMEME (Uganda)
ZESCO (Zambia)
ZETDC (Zimbabwe)
GECOL (Libya)
ESCOM(Malawi)
EDM (Mozambique)
ECG (Ghana)
KETRACO (Kenya)

MIDDLE EAST - ASIA - PACIFIC

Meralco (Philippines)
Mayniland (Philippines)
Manila Water (Philippines)
E&W Authority (Bahrain)
Cepalco (Philippines)
Caltex (Australia)
Origin (Australia)
PLN (Indonesia)
RAWEC (Saudi Arabia)

EUROPE

GNF (Spain / LATAM)
Enel / Endesa (Italy / Spain/LATAM)
Enel Green Power (Spain)
Viesgo (Spain)
Iberdrola (Spain / Portugal)
REE (Spain)
ACEA (Italy)
ENI (Italy)
EDP (Portugal)
BP (Portugal)
Canal Isabel II (Spain)
Agbar (Spain)
FCC Aqualia (Spain)
SSE Grupo EDF (Slovakia)
Grupo PP&L CEZ (Czech Republic, Romania)
RWE (Czech Republic)
Red Chisinau, Centru, Sud (Moldova)
Electrica (Romania)
EDA (Portugal)
EDM (Portugal)
GALP (Portugal)
REPSOL (Spain / Portugal)
Lafarge Energy (Switzerland)
ENEA (Poland)
NEK EAD (Bulgaria)
Trafigura (Global)
SEPS (Slovakia)

indra

Avda. de Bruselas 35
28108 Alcobendas
Madrid (Spain)
T +34 91 480 50 00
F +34 91 480 50 80
indracompany.com