**Empower**

SESP looks after 4 activities in Empower:

1. **Roll out** 2. **Trouble shoot** 3**. Stocking taking (ware-house control)** 4. **Meter reading.**

**Empower Domains**: Kerva, Porvoo, Ves and Ksoy.

**Planning**: 3 types of planning.

1. Area Planning: Here mile-stone (target) area is selected for the work order to perform.
2. Technical Planning: Here we plan for any devices required along with their specification.
3. Order planning: Here we plan for the total order required for the total work along with time.

**Work order**: It is the job that is required to be done which is either generated by utility company (Meter roll out, meter change, meter trouble) or sesp(remote service call). Some of the key fields in work order file are :

**Work\_order\_id, work\_order\_type, accessible\_to\_technician, Address\_info\_customer, type\_Area, sla** (earliest\_start\_date, earliest\_finished\_date, late\_start, late\_finish).

**Smart meter**: A meter where 2 way communication is possible. That is it can receive new request or order and also can send us back the feedback or alarm. Request which it can receive like remote service call. And response it can generate is like remote service successfully executed, meter data sending automatically after a certain period of time,etc.

**Events In smart meter**: These are triggered during certain abnormality or regarding any response to remote service call. Abnormalities like low voltage, device error, low current etc.

A smart meter has 3 properties:

**Register**:

A+= Active consumption (power delivered from utility company is used by client).

A-= Active production (power produced like solar, hydro etc from by client used by itself).

R+=Reactive production.

R-=Reactive consumption.

**Tariff**: It specifies the type of consumers, purpose of energy consumption (domestic or household) according to which rate will be charged.

**Resolution**: It determines the period after which meter reading data will be sent. It can be 15 min (minimum most), hourly and daily.

**Head End System:** A complex System from where meter reading is fetched by sesp. It generates an XML file which contains detailed description about meter info and meter reading. This system is not managed by SESP.

Now collection type can be of 2 types:

**Sporadic**: SESP req data from HES.

**Periodic**: HES send data to SESP after a defined period.

**Unique device**: A device which can identified by special serial number .e.g. smart meter

**Bulk device**: The device falls under a group which has a special serial number. E.g. cable

**Case:** It is an instance of case\_type. It is generated whenever any operation is required to be done through SESP. Like there can be 100 meter troubleshoot work orders. So each of the meter trouble shoot is a case. Each of these case follows through some steps, known as case\_action flow, which are generic for a certain case type.

SESP can track the progress the of each case action flow through these values in database, known as case status.

**Case status** are:

Scheduled, In progress, closed, cancelled and error.

Case Result: The out of any case have 3 types:

**Performed, Not performed** (here reattempt can be made to perform) and **Not performed Final**(After several not performed the case is permanently closed).

Cases result tagged as error and cancelled can’t be performed.

The case generated by SESP is known as parent case. This copy is not at all sent directly to Field Company. Rather a child case is generated and sent to Field Company. To maintain security and original doc can’t be tampered.

**Roll out:** it means old meters are replaced with an upgraded meter.

**Meter change**: Damaged meters are replaced with new once.

**Remote Service Request**: These are the commands which can be provided to smart meters without physically handling them. Like through wireless or wired command from any remote location.

**3 types of Remote Service Request are possible**:

Connect(meter connection available), disconnect(electrical connection is terminated) and product change(tariff or resolution of smart meter can be changed).

Unit e-r diagram:

Unit type

1

\*

Unit Model

1

\*

Unit

**Unit Type**: It represents the characteristics of the unit. Example Mobile, ipad, tablet etc.

**Unit Model**: It represents the class Of each unit type. E.g. Apple Iphone x, Samsung galaxy 10 etc.

**Unit**: It is the actual object of unit Model. Example Each of the handset produced with IEMI number of Iphone 10.

So One unit Type can have more than one unit Model. And similarly One unit Model can have more than One unit.

**Deviation**: It explains The way away from normal. Like There are many vacation house in Sweden. So during the customer is in the house then meter would be active. But when they are absent then through a remote call SESP can disconnect the meter of the house. So in that period the meter reading will be 0. And these meters will be flaged, So that any SLA brich can be avoided.

‘\*’ (means more than 1) in diagram.

**Domain**: Since SESP is using single data base inside it is storing all its vendors data, so there must be a logical separation so that the data is visible to the specific vendor only. Also, the parent company can see the child company’s data but in general reverse is not possible. So this is achieved through creation of domain.

**Some Area types:**

**Operational Area**: Geographical area where Automatic Meter Reading is managed.

**Service Area**: Geographical area where Operation is managed.

**Mile stone Area**: Geographical area where W.O. is carried out.

**Net Area**: Geographical area where installation data is bought.

**Work flow inside transaction server:**

Utility

Correct collection System

Export ready the result

msg generate after processing

Start Solving

Create msg+ generate case\_Id

File import

**Typed data**:

Any Data from where we can get the variety of data is known as type data. E.g. case\_type, it explains the variety of cases under it. Which can be meter installation, meter roll out, meter trouble shoot, etc.

Any Table Name ending with ‘**tto**’ describes the type data containing inside it.(tto= typed table object)

**Factory File:** A file having details about new devices are coming from the manufacturer. These are stored in database. This file data is imported during new meter installation or roll out.

The fields it contains are:

Model\_type, GIAI, Production\_Date, Confuration\_id, Hardware\_version, software\_version. etc

**Distribution:** After the field order is generated then the task will be allotted to a particular technician to do. So the selecting criteria is based on the field technicians experience and knowledge.

**Release:** The distribution field order is converted to field order and send to respective technician.

Above 2 phases are carried out after planning phase of “case flow” is done.

**Iskraemiko:**

Files:

2 types of files are able to process here:

Factory file: File containing details of device. It only contains **unit model** and **serial number**.

Work Order File: Containing only 2 information only. One is **Field Company** and other is **work order type**. The type of file is Xls(excel).

This work order file misses various info like Area location, meter information, customer information etc. which are collected by filed technician through android app.

**Data Base**: Microsoft sql server.

Utility

Manually search for defect units

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Sesp Platform

Trigger

Trouble shoot

Manual Import of work order

Auto distribution and release to field company.

Csv file

DB

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Field technician

Android app

Field company operator

Save