

## LARGE ROLL-OUT PROJECT: METERING DATA OPERATION

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### ABSTRACT

Moreover the AMR system infrastructure as a single channel for data-exchange, the different important subjects like operation and maintenance, exploitation costs, interfaces of the metering system makes the possibility of using new and different applications very useful for the utility distribution business.

### INTRODUCTION

Telvent has experience in carrying out services for installation, maintenance and operation of large roll-out residential metering projects.

As indicated in the specifications for the projects, Telvent provide a service centre for the following objectives:

- Data reception from metering
- Information management
- Information delivery to Utility in structured way
- Helpdesk to support field workforce
- Field Work order management
- Infrastructure monitoring and administration
- Metering Operation Desk

This paper will explain the following tasks implemented in the Telvent Metering System (TMS):

Helpdesk & Metering Operation Desk that manages work orders and change request

Business Processes that manage field crews, assets, and metering tasks

Operation and Administration that assures IT availability

Data centre and Infrastructure that supports communications and hw/sw

### TMS-AMM SERVICE CENTRE DESIGN

The different processes associated to the metering system implemented in the frame of an AMM project are classified into different areas:

- Installation Processes:
  - Work Order Management
  - Material Management
- Operation Processes:
  - Meter reading values operational processes.
  - Alarm/Events Management

- AMR System configuration: control centre, communication infrastructure (data concentrator, modem and VPN) and meter nodes.

- Maintenance Processes:
  - Maintenance of control centre
  - Maintenance of communication infrastructure
  - Maintenance of meter node
  - Tariff Change Management

This paper is focused on the operational area and covers the different meter reading values operational processes.

### Process Overview

The process “daily and hourly meter reading values” covers the following phases as shown in next figure:

- Data Collection Phase
- Files Generation
- Delivery of Meter Reading Value Files.



Figure 1: Schedule Readings: daily and hourly readings.



Figure 2: Schedule Readings: daily and hourly performance reports.

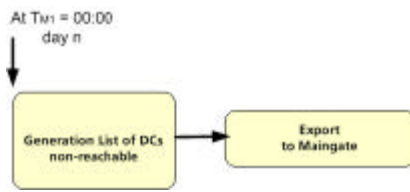


Figure 3: Schedule Readings: communication problems

Figure 1: Alarm/Event Management Process. High-level description.

The alarms received in the Service Center can be from the following five sources:-

- Titanium/ application
- Communication operator/ network
- Collector/network
- Server/network
- Customer phone request

**Alarm/Event Management Process**

The alarm/event management process associated to the operation phase of the AMM system covers the following phases:

**Meter and DC-based Alarms and Events**

- TMS receives alarms and events from field devices, DCs and meters.
- TMS stores this information in Alarm/Events data repository.
- Action associated to event/alarms generated is performed (taking into account priority associated).
- If required, event/alarm is reported to Utility.

**TMS-based Alarms and Events**

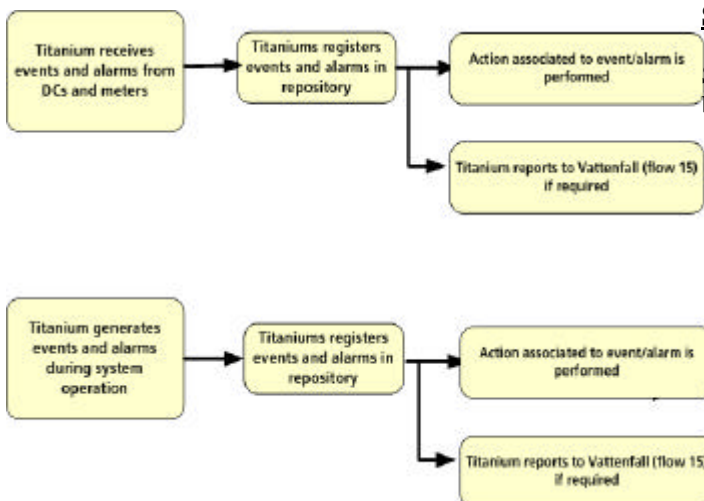
- TMS generates alarms and events during system operation (e.g possible power failure, DC non-reachable,...)
- TMS stores event/alarm information in the Alarm/Event Data Repository.
- Actions associated to events/alarms generated is performed (taking into account priority associated).
- If required, event/alarm is reported to Utility.

The Service Center registers the alarm in Data Center and the remote handling to solve the problem commences and if the remote handling is successful, the issue-case is closed.

In the event of the Service Center not being able to remotely solve the problem the following sequence of events is promoted: -

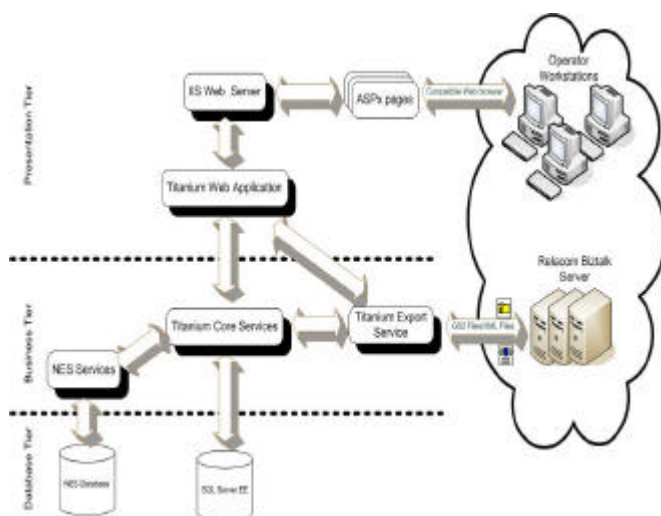
- A request is manually put in the Work Order Management System by the Service Center for a workorder from the Customer (3)
- A workorder is generated by the Customer and automatically sent to the Work Order Management System (4)
- The workorder is routed to a technician who gets this in his PDA/PC (5)
- Following completion of the job the workorder is updated with the correct information (6)
- The completed order is sent to the Customer with information about the issue (7)

If new data is required from the meter, the Customer automatically provides the actual meter reading in Titanium



**Software High Level configuration**

Software architecture in TMS (Telvent Metering System) is based on a tier model using standard and scalable technologies.



On one hand, TMS shows a web interface used for the administration of the whole AMR system; this allow many users to work at the same time for administration and maintenance issues, speeding configuration of devices, system management, etc. This web interface is part of Titanium v2.0 platform