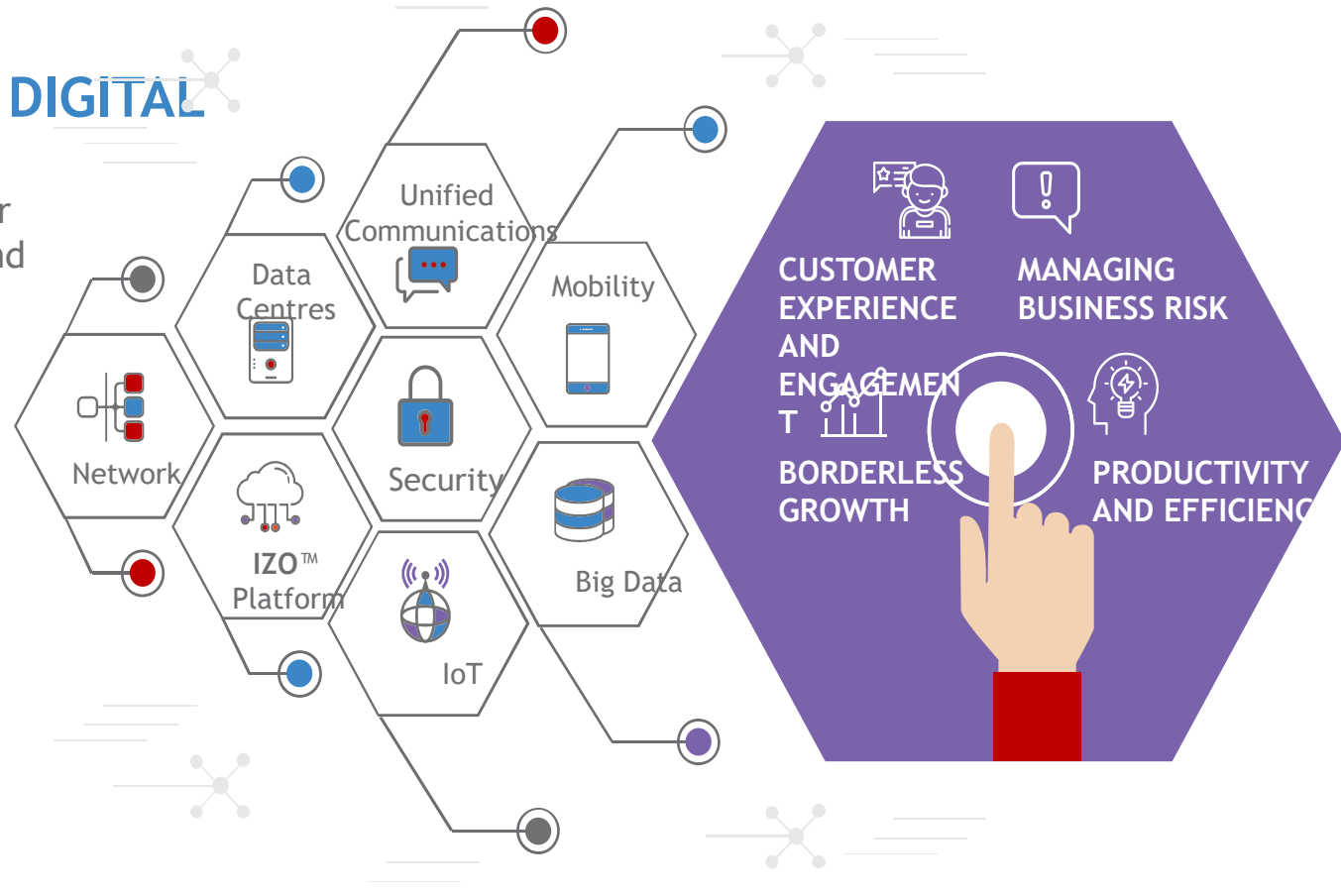


**FOCUSSED SOLUTIONS
USE CASES**

DO MORE WITH DIGITAL

Tata communications is your perfect strategic partner and is well poised to be an end-to-end orchestrator in the IoT revolution



IoT in Industries



Digital Factories



Digital Society (Smart Cities)

Productivity Focus

Vertical specialized

Public Utilities

Public-private solutions

Cost reduction

Ops efficiency

Increase revenue

Make available

Easy Access

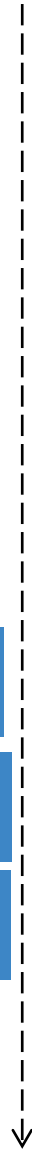
Communicate

Do More with Less

Sustainable solutions (Opex control)

Private infra

Public infra



Digital factories, powered by Tata Communications



Challenges:

- Legacy Infrastructure
- Customer value perception



Focus on:

- Innovation
- Simplicity
- Ecosystem Partnership

Use Case 1: Employee Safety & Tracking

Business challenges:

- Lack of visibility of employee movement
- Traceability of employee during emergency evacuation
- Employee movement in hazardous/ restricted area
- Employee attendance
- Safety of women employees during transportation
- Alerts during accidents
- Identify worker fitness for the given job at hand



Implementation challenges:

- Interference from legacy systems
- Adoption
- Privacy of employee physical parameters out of work environment

Employee Safety & Tracking : Innovation at work

FLEXIBLE CONFIGURABLE SOLUTION ENABLING WELLNESS AND LOCATION BASED SERVICES FOR CUSTOMERS



WELLNESS FEATURES	LOCATION FEATURES	MANAGED SERVICES
 Heart rate measurement	 Hazardous Area by proximity	 Enterprise grade managed service - service delivery and assurance
 Body skin temperature	 Geofencing	 Configurable Application
 Fall and immobility	 Access Control	 Analytics engine
 Elevation (Absolute, relative)	 SOS Button	

Bedrock of Robust Network, Platform and Application

Safe Pass : Connected Worker - Simplicity

An ID card that helps organizations. track employees / contractors as well enable alert mechanism for workers to improve employee wellbeing



WELLNESS FEATURES



SOS Button

Employees can send an SoS signal to supervisor in case of an emergency



Audio alarm

The ID generates audio alarm to employee if they reach a hazardous/restricted location

LOCATION FEATURES



Tracking

Organization can track employee location, enabling automatic attendance, hazard warning etc.



Supervisor Alerts

Receive instant alerts if employees enter restricted or hazardous zones

MANAGED SERVICES



Enterprise grade managed service - service delivery and assurance



Configurable Application



Analytics engine

- Reduce emergency incidents and ensure safety
- Complete data control and end-to-end enterprise-grade service with solution lifecycle support with KPIs.
- Long lasting battery on devices.
- Long range Indoor/outdoor coverage.

Use Case 2: ENERGY MONITORING & TARGETING SYSTEM

BUSINESS CHALLENGES:

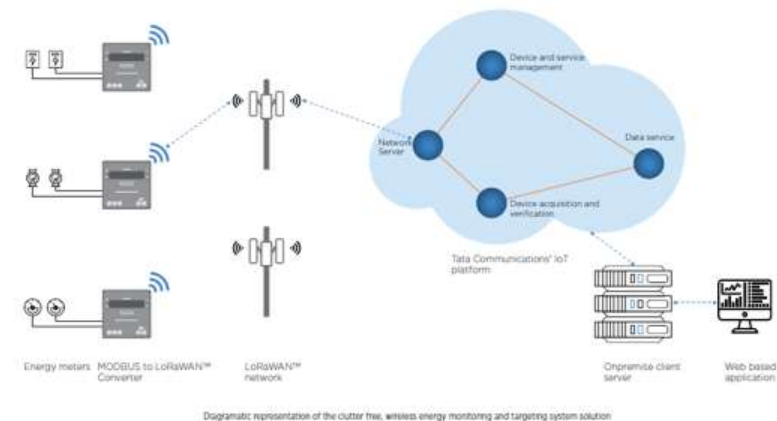
1. Optimising Specific Energy Consumption
2. Monitoring T&D Loss and Low PF feeders, arresting cable loss
3. Benchmarking of various departments
4. Arresting energy leakages
5. Implement IoT solution, using WIRELESS Communication

SOLUTION OBJECTIVE

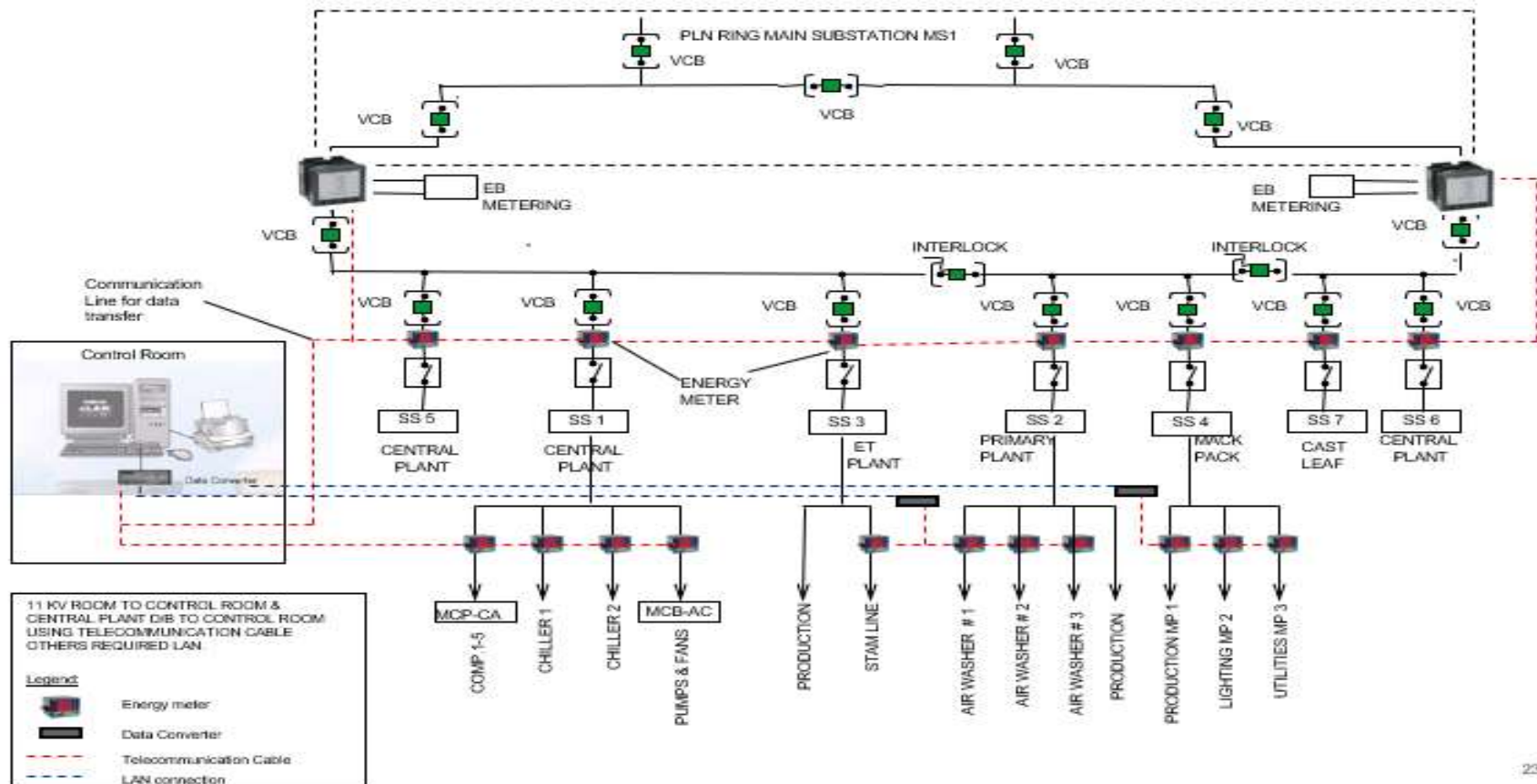
1. An effective energy monitoring and targeting mechanism is deployed by leveraging existing Infrastructure.
2. The device communicated wirelessly over Tata Communications' secure LoRaWAN network, adding to the pace of implementation and saving the workshop from additional wiring.
3. Actionable insights was delivered through Tata Communications' integrated IoT platform and associated web-based application. This combination of data segregation, analysis and presentation of real-time and periodic consumption rates.

SOLUTION OUTCOME

- Through this implementation, the management has better visibility to energy consumption patterns, and control over energy leakages which has met most of the business solution



EM&TS - Earlier approach

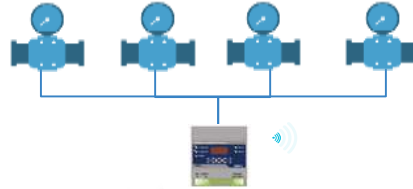


EM&TS - CURRENT APPROACH

ENERGY METERS



WATER METERS



GAS METERS



CLOUD/INTERNET

LoRaWAN Universal IOT Platform/Application



AIR FLOW METERS



STEAM FLOW METERS



MACHINES



MODBUS TO LORAWAN DEVICE

Key Features

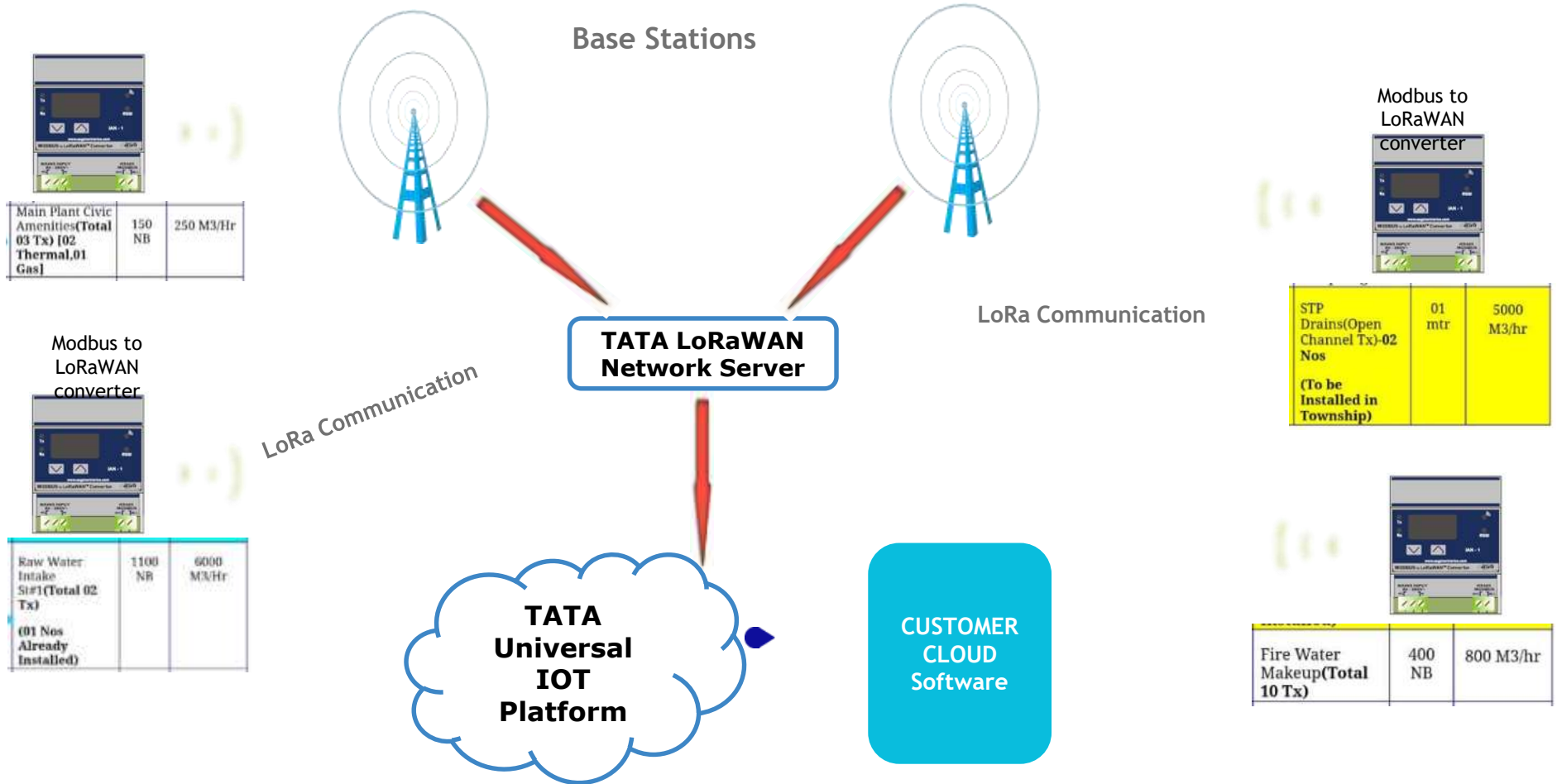
- Converts Modbus RS485 Protocol to LoRaWAN
- Device Configurable for Multi Brand Energy meter and any Modbus RTU output Device
- Data transmission up-to 1 km
- Transmit up-to 9 electrical parameters every 5 min interval. Critical parameters (events) transmitted instantaneously (stores meaningful data)
- DIN rail Mountable

Application:

- Energy Monitoring & Targeting System
- Process equipment's monitoring
- VFD and Machine communication



POWER PLANT - FLOW MONITORING SYSTEM CONFIGURATION

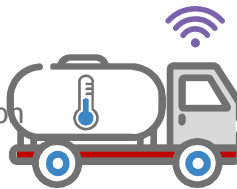


Tata Communications Limited: IoT Solutions

End to end solutions from device to application

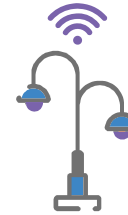
Asset Tracking solution

Track asset location, monitor temperature and vibration anomalies remotely



Smart Lighting solution

Enable better management of energy by orchestrating street lights



Employee Health and Safety

Monitor employee and environment with a two way alert mechanism



Industrial IoT

Measuring and tracking industrial parameters to create digital factories



Safe Pass

Connected worker solution. Geofencing and Hazard alerts



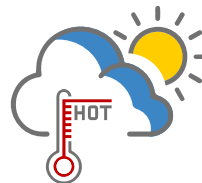
Automated Metering solution

Monitor customer usage through automated meter reading and data processing



Environment Monitoring

Sensors to monitor environmental parameters accurately



We are just getting started, soon one of our solutions will touch your lives

IOT.TATACOMMUNICATIONS.COM