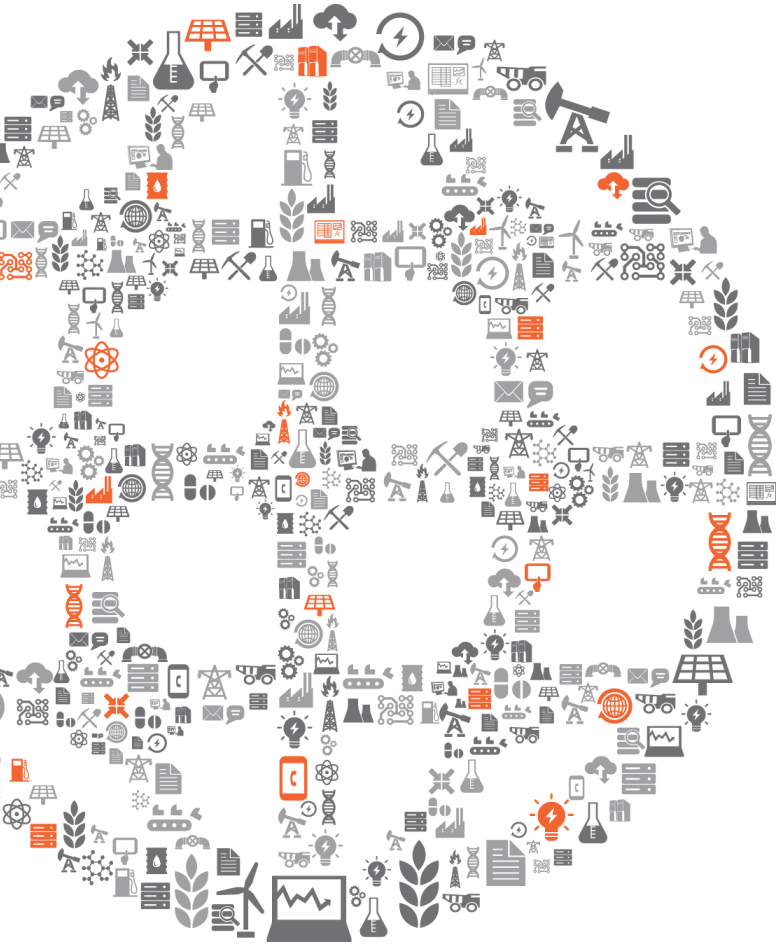


PI System for Water Management

Presented by **Almeus E. Almazan**
Telemetry Head
Maynilad Water Services Inc

PI System for Water Management

By Almeus E. Almazan
Telemetry Head

In partnership with
Information Technology Services

Presentation Outline

I. Corporate Background

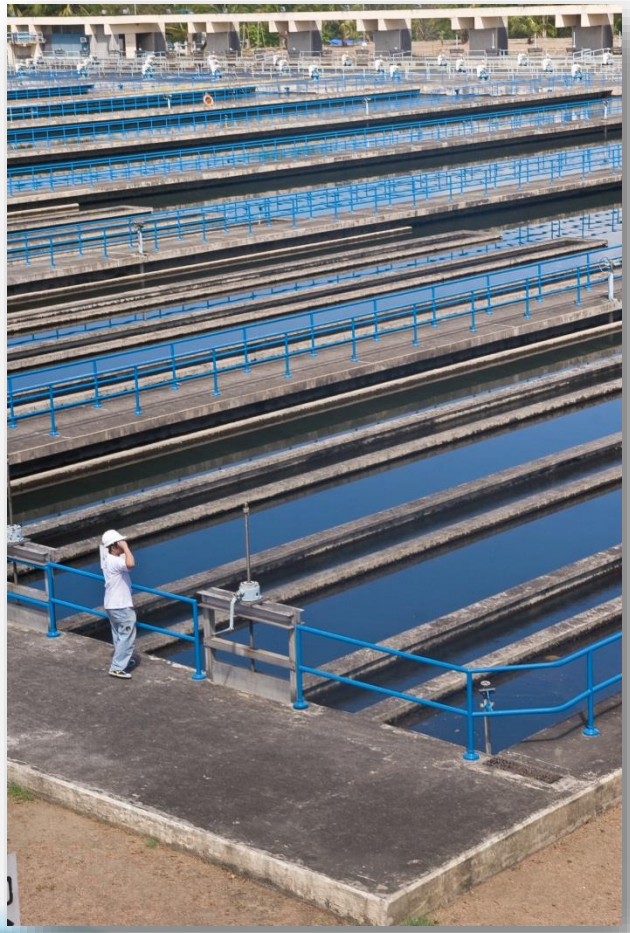
II. Telemetry

III. Challenges and Benefits

IV. Processes and Developments

V. Future Plans

Maynilad Water Services, Inc.



- Largest water concessionaire in terms of customer base in the Philippines
- Serves 8.2 million people
- Has exclusive rights to provide water and wastewater services in the West Zone of the greater Metro Manila area until year 2037
- Re-privatized on January 24, 2007
- Owned and operated by Metro Pacific Investments Corp., DMCI Holdings Inc. and Marubeni Corp.

Operations Snapshot

Service Area: 540 sq km

Coverage: 17 cities and municipalities in Metro Manila and Cavite

Key facilities: 3 water treatment plants *(2500 MLD combined)*
6 sewerage treatment plants
1 septage treatment plant
21 pumping stations
23 reservoirs

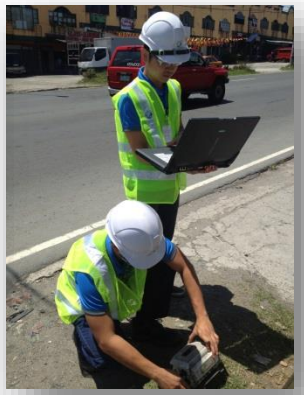
Distribution: Around 500 km sewer line
7,085 km water pipeline

Telemetry

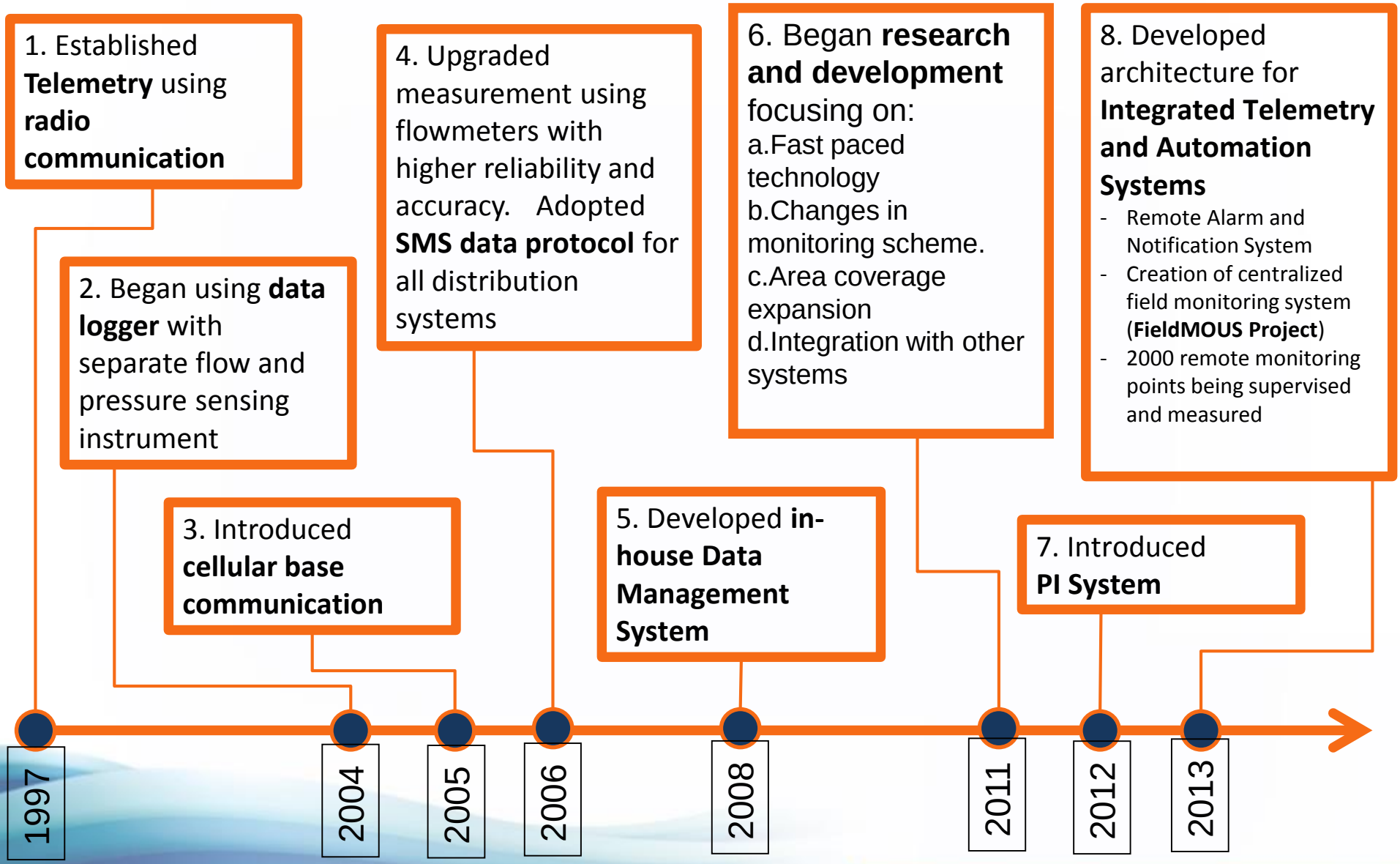
- Part of the Maynilad Technical Services Division

- Major Thrusts
  - 24/7 operations monitoring
  - Centralized acquisition &management of operations data
  - Reliable operations information
  - Continuous improvement through innovations

- Services provided:
  - Field operation's measurements
  - Operation's data collection and handling
  - Maynilad Operations Data Summary Report

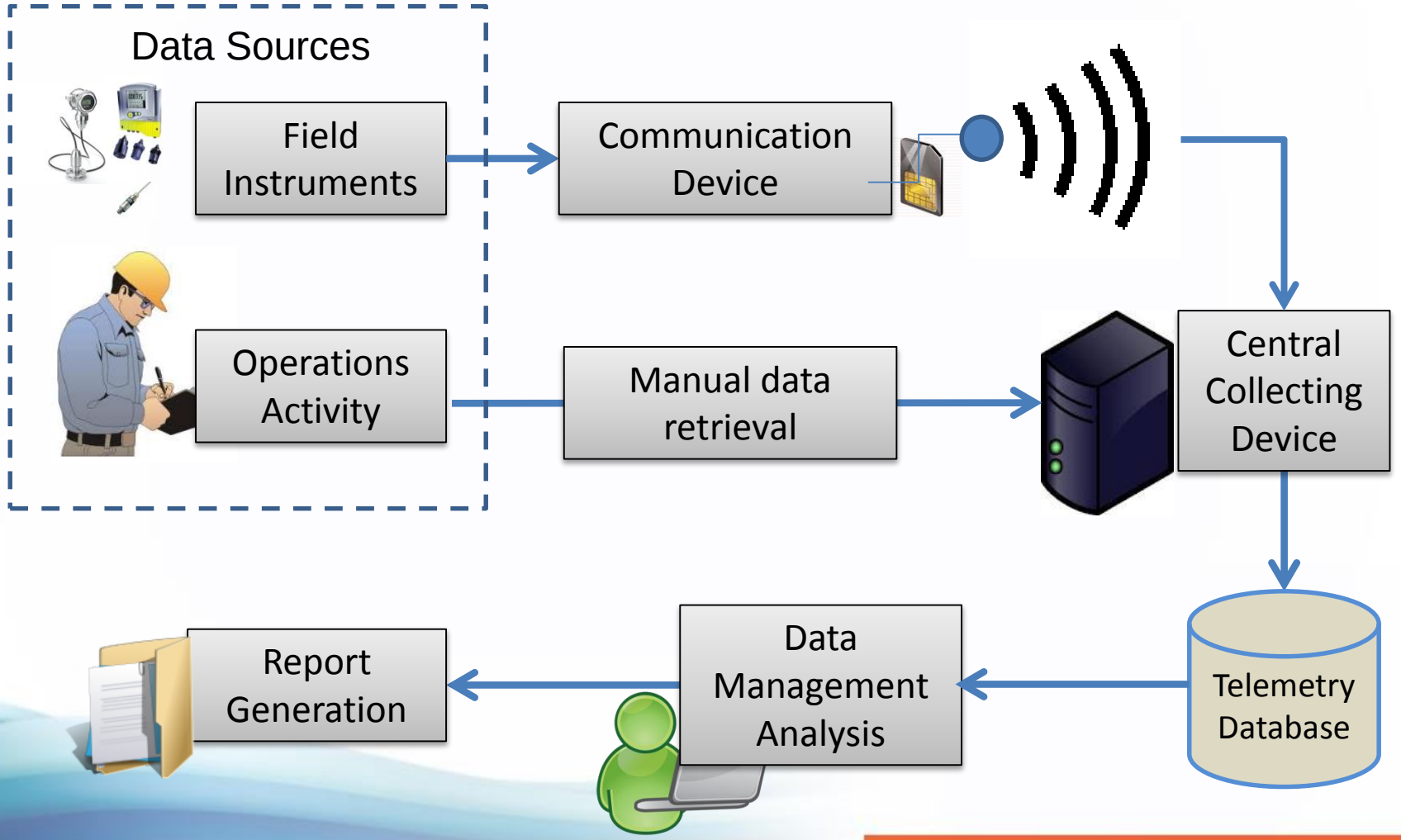


Telemetry Milestone



Field Data Acquisition

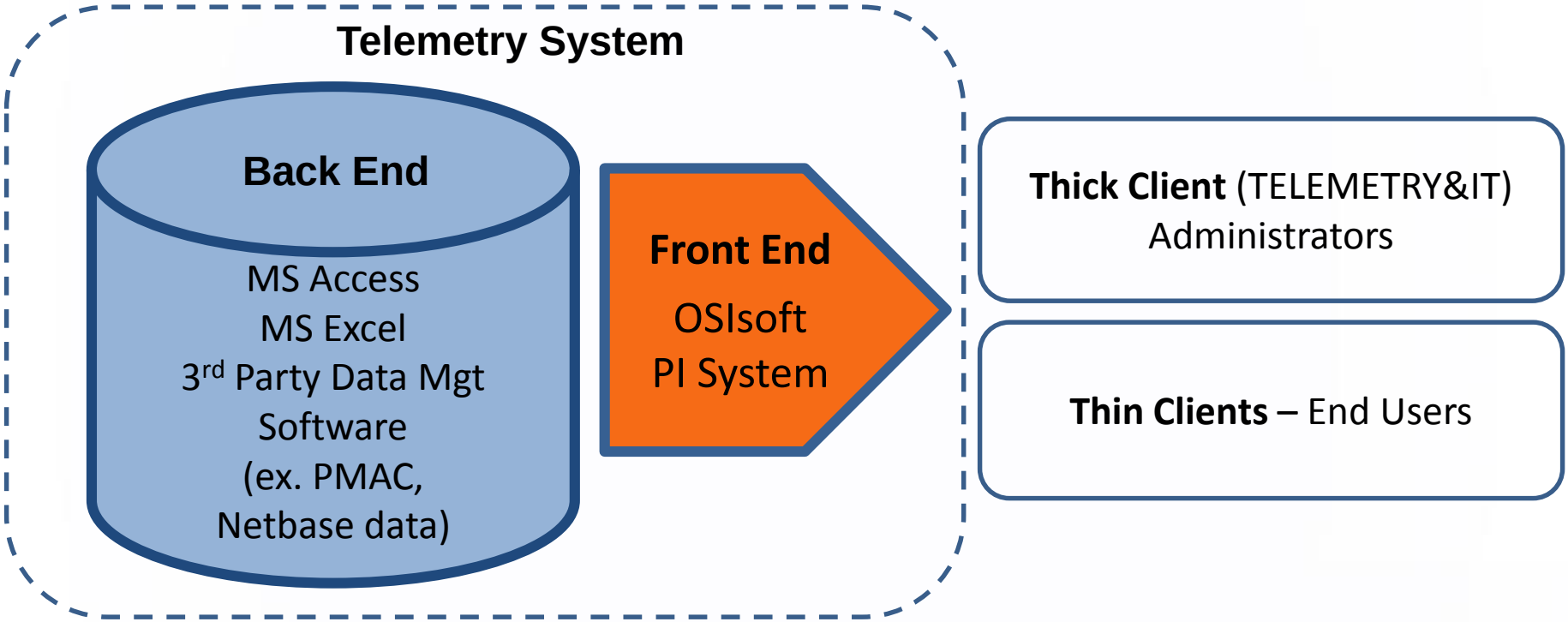
(Before PI System)



Our Challenges

- × Reports are manually sent via e-mail or FTP
- × Non real-time data sharing
- × Limited storage capacity
- × Decentralized database management
- × Manual system and data integration from different sources
- × Non-standard data & report format

Addressing Challenges



System Architecture

Results

(Maynilad with PI System)

- ✓ View up-to-date operations information remotely via web browser
- ✓ Automation of Treatment Plants, STPs and Pumping Stations data acquisition and monitoring
- ✓ Integration of Main distribution network to customer service line information
- ✓ Centralization of operations activity data
- ✓ Ease of access on real time data
- ✓ Developments - Customizable displays and reports

Developments

(Using PI System)

FieldMOUS Project

Field Monitoring User System

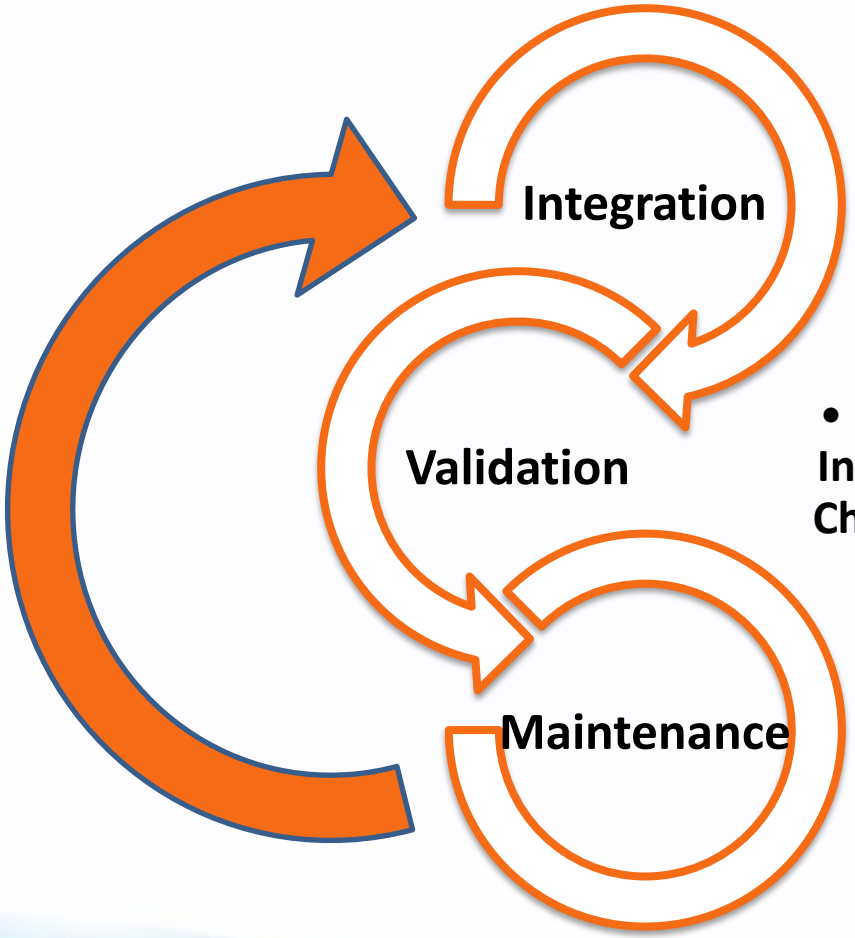
A joint project of Telemetry & ITS

Overview

- Provides details of Operation's information from **Production to Distribution line** level
- Delivers **detailed and updated operational data** about the company's current progress that shows **Operation's efficiency**
- Serves as a **data historian**
- Provides an automated, **synchronized and centralized** operations data monitoring from a **single centralized repository**

Data Acquisition

(Methodology)

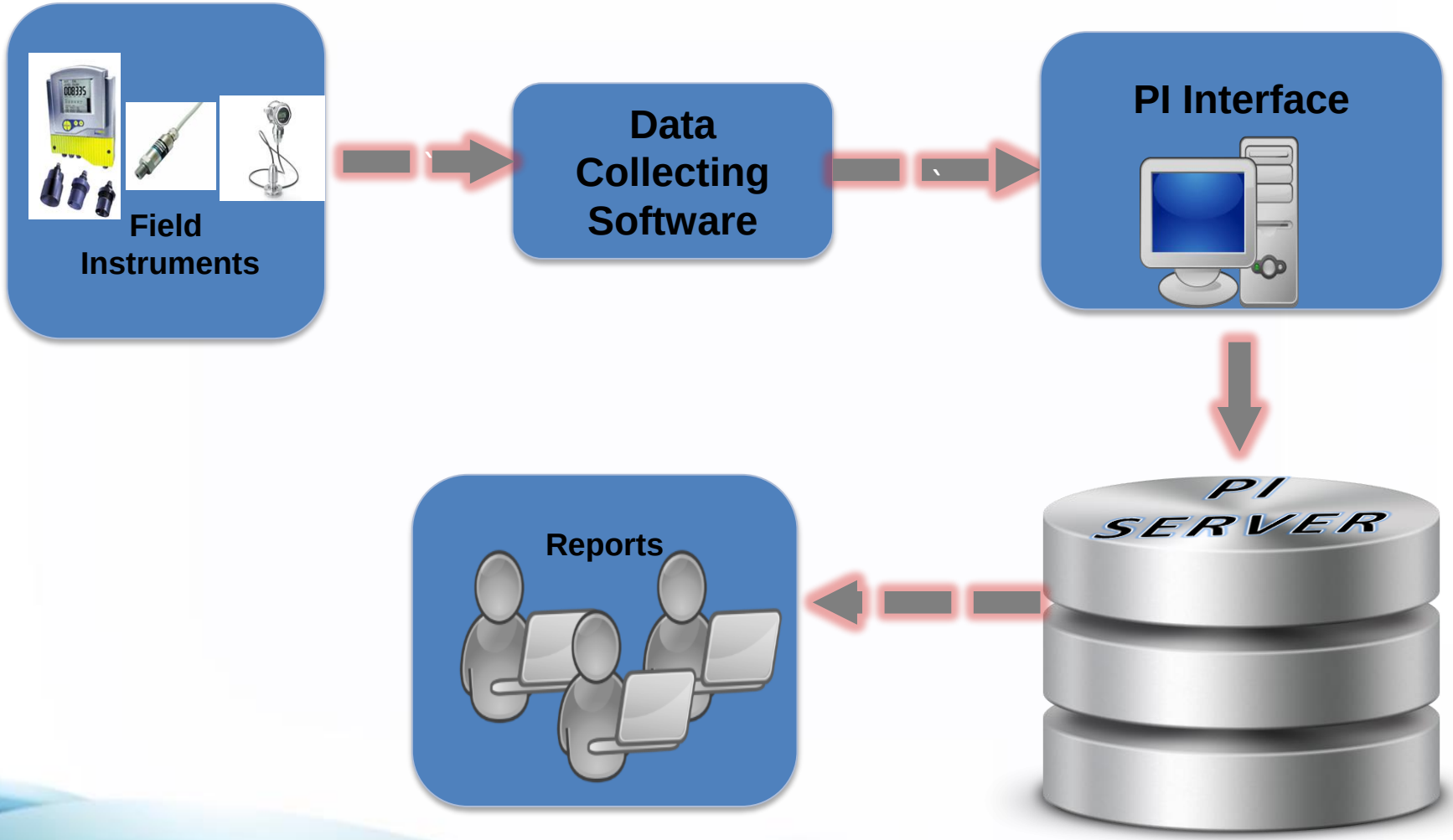


- Data Collection
- System Interfacing

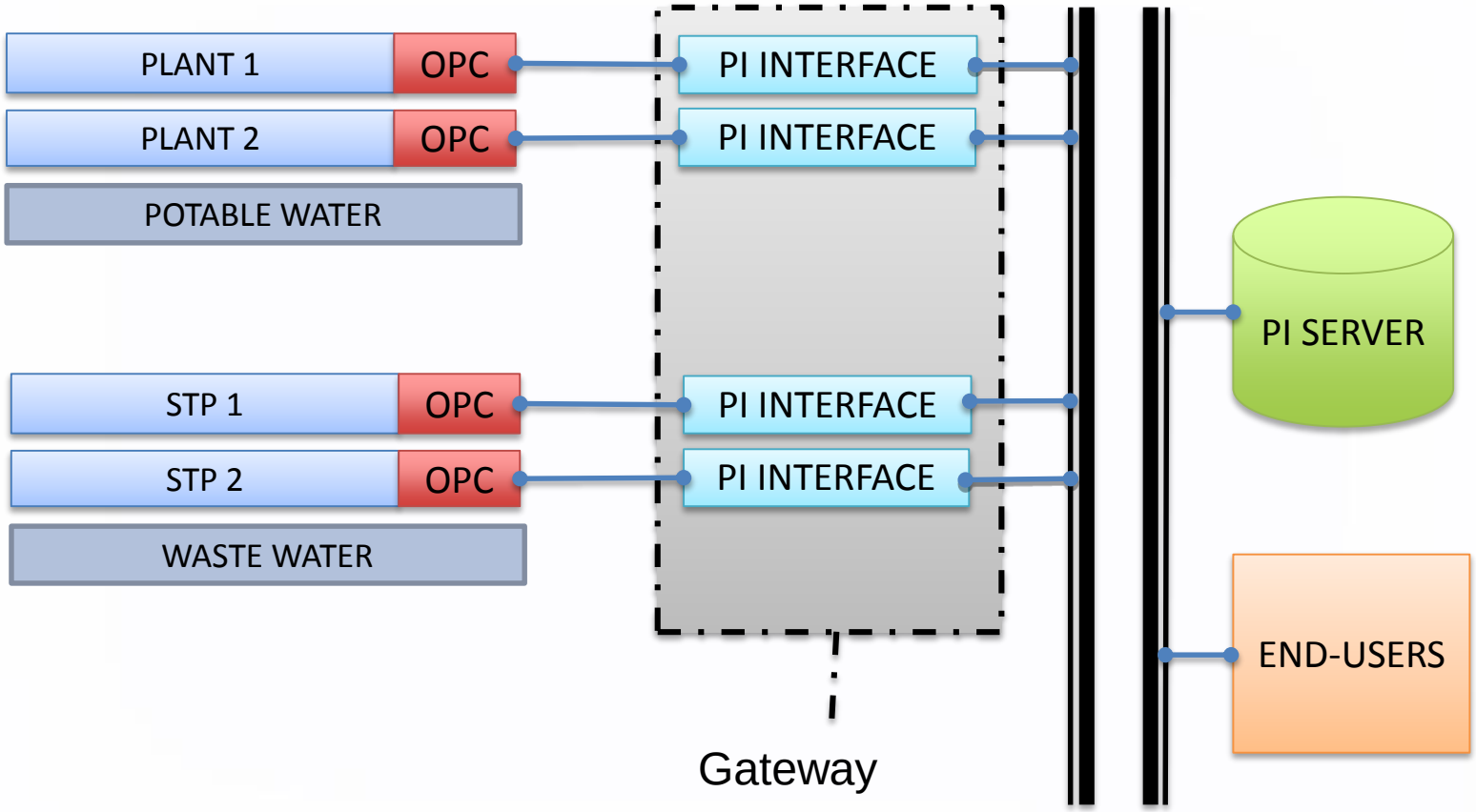
- Data Integrity Checking

- Preventive, reactive & proactive maintenance of data loggers

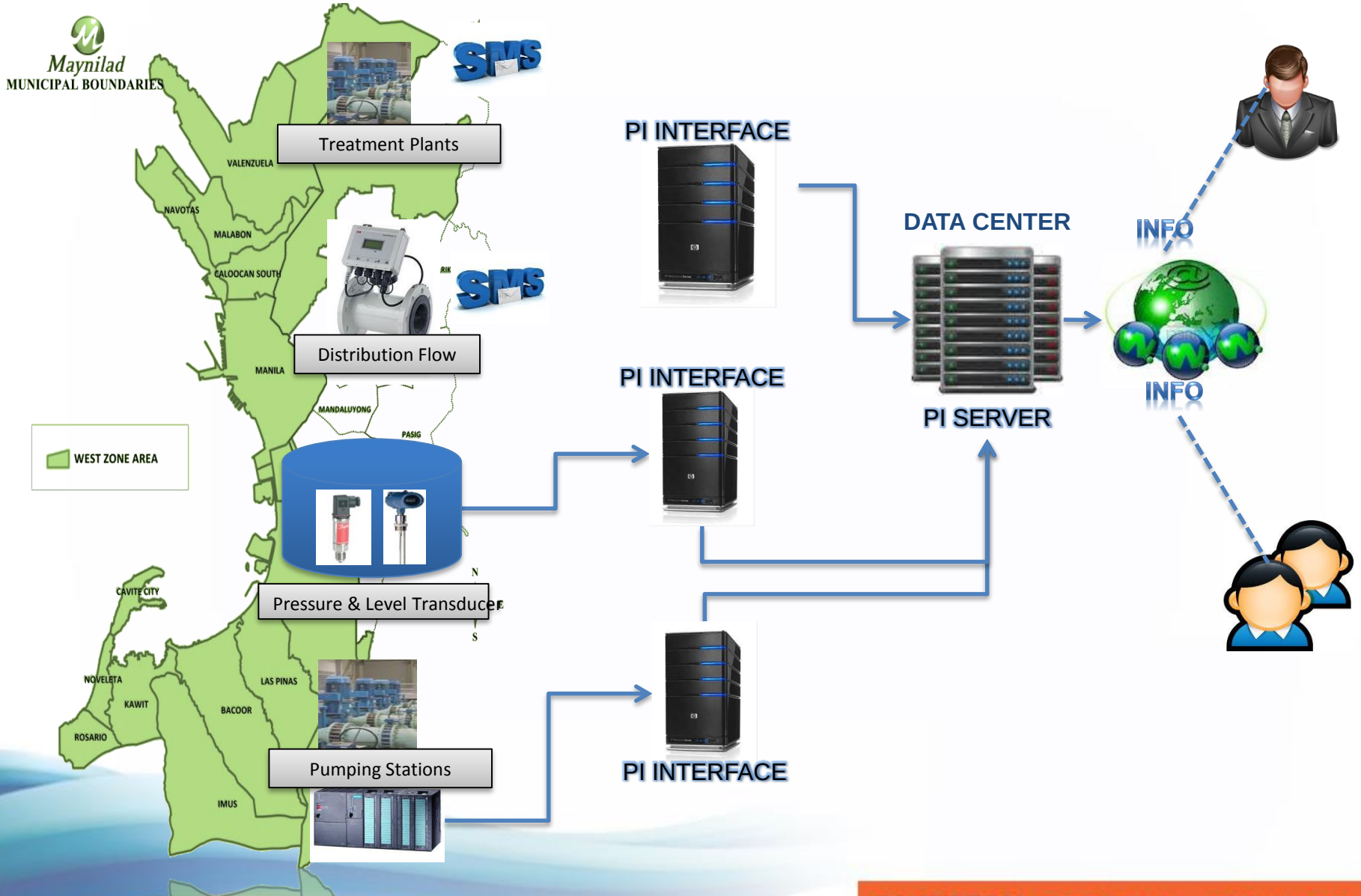
Distribution Network Setup



Plant Setup

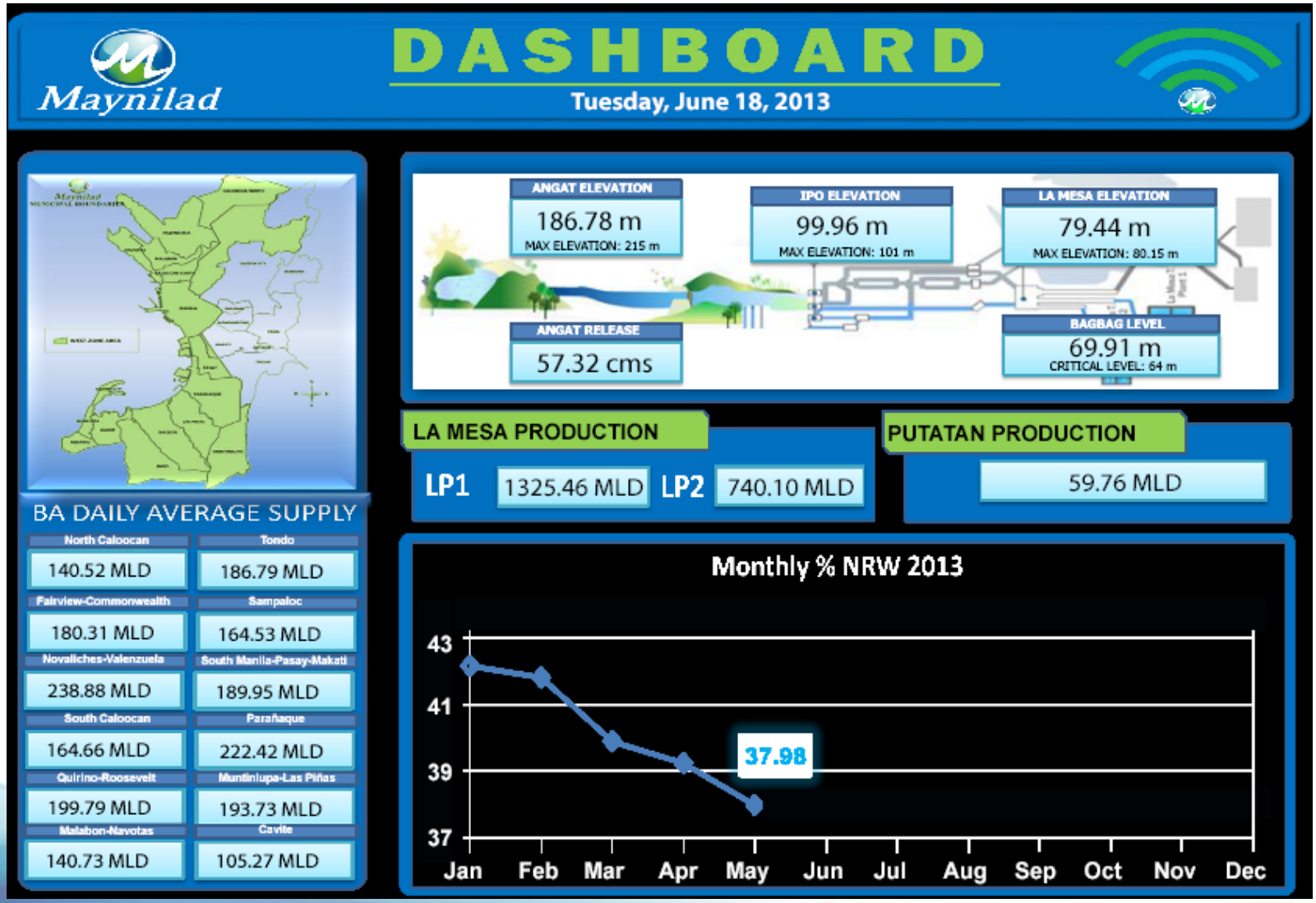

PLANT 1
OPC
PLANT 2
OPC
POTABLE WATER
STP 1
OPC
STP 2
OPC
WASTE WATER
PI INTERFACE
PI INTERFACE
PI INTERFACE
PI INTERFACE
PI SERVER
END-USERS
Gateway

Architecture



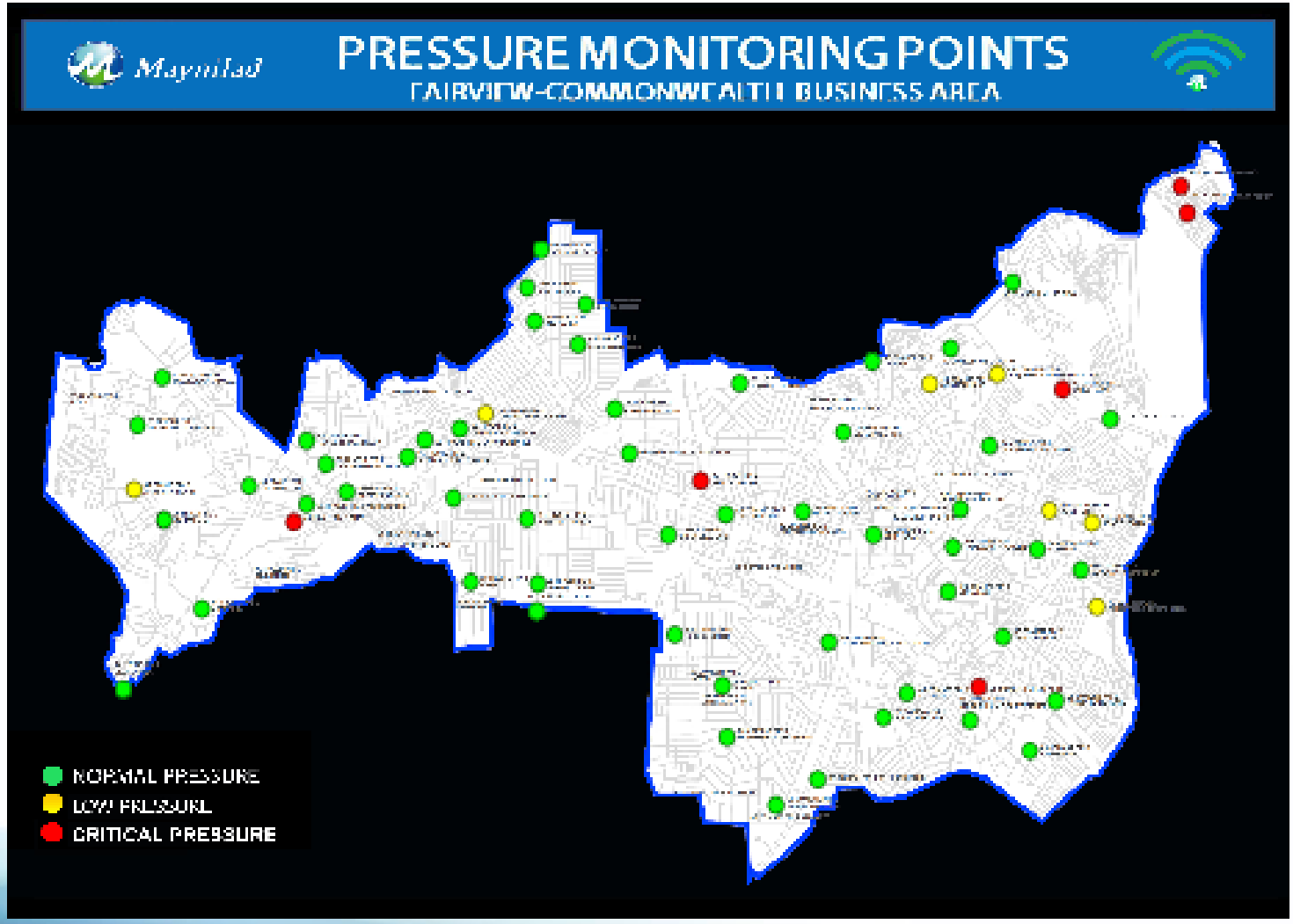
Developments

(PI Webparts)



Developments

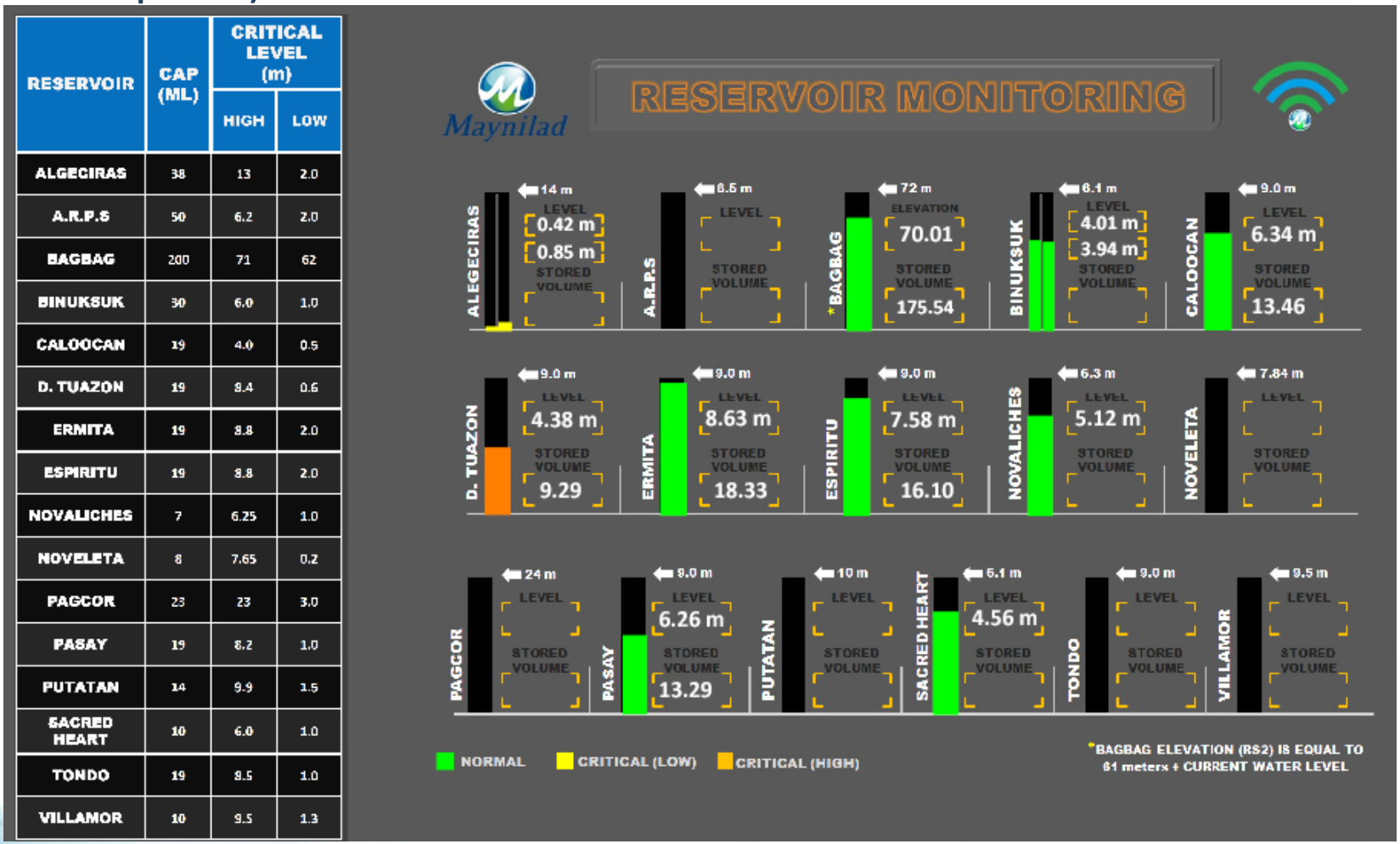
(PI Webparts)



Developments

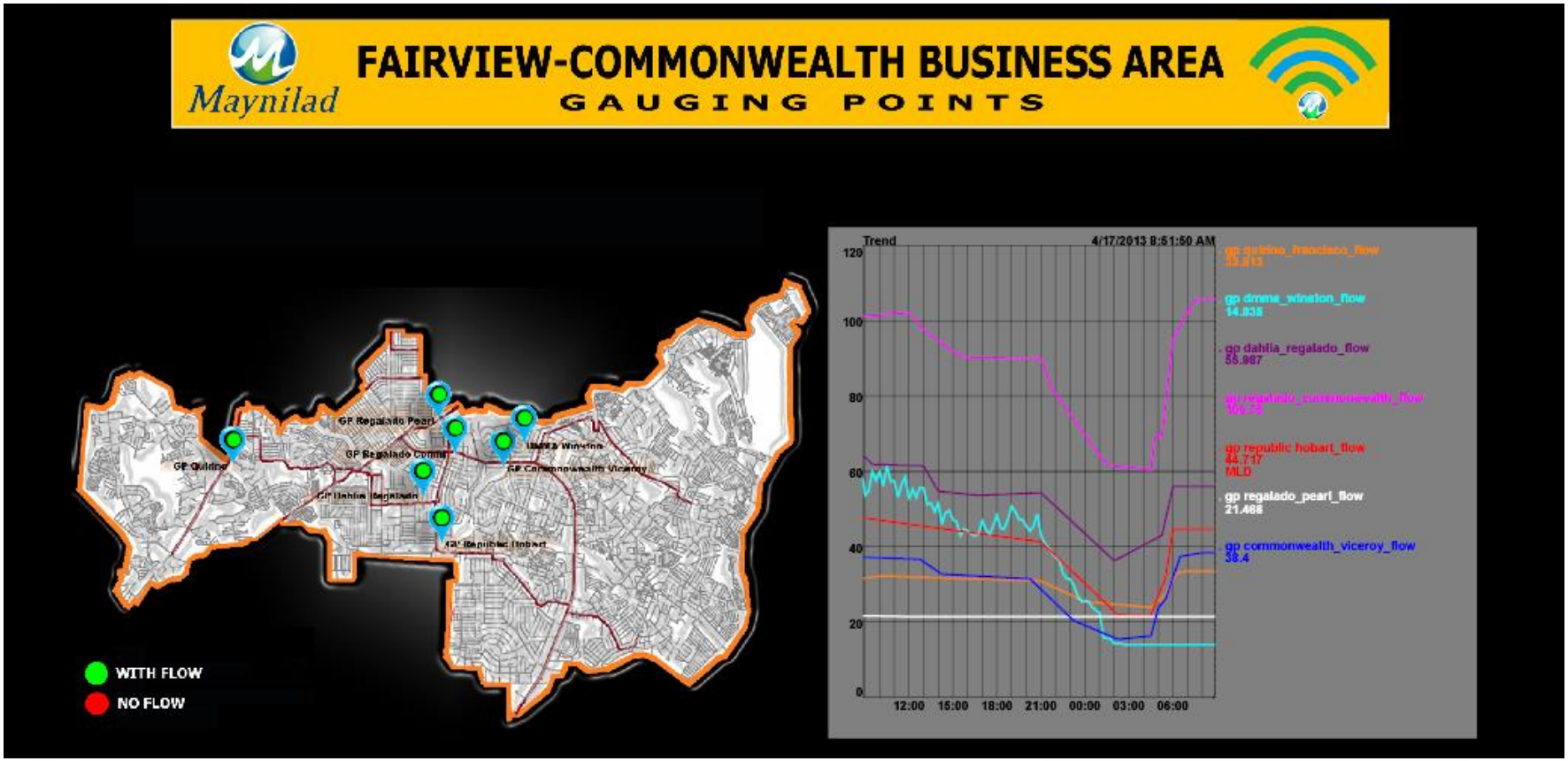
(PI Webparts)

RESERVOIR	CAP (ML)	CRITICAL LEVEL (m)	
		HIGH	LOW
ALGECIRAS	38	13	2.0
A.R.P.S	50	6.2	2.0
BAGBAG	200	71	62
BINUKSUK	30	6.0	1.0
CALOOCAN	19	4.0	0.5
D. TUAZON	19	8.4	0.6
ERMITA	19	8.8	2.0
ESPIRITU	19	8.8	2.0
NOVALICHES	7	6.25	1.0
NOVELETA	8	7.65	0.2
PAGCOR	23	23	3.0
PASAY	19	8.2	1.0
PUTATAN	14	9.9	1.5
SACRED HEART	10	6.0	1.0
TONDO	19	8.5	1.0
VILLAMOR	10	9.5	1.3



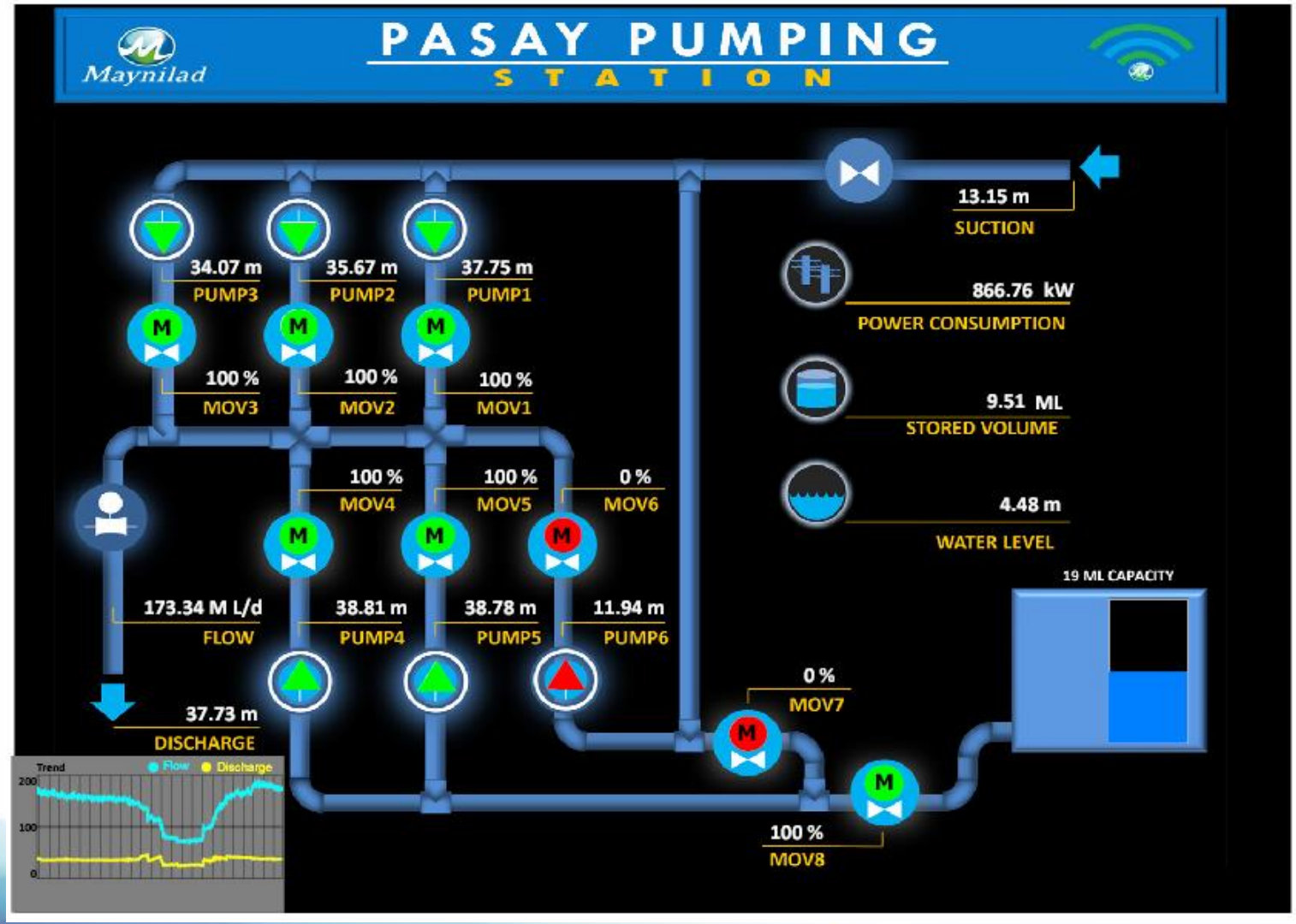
Developments

(PI Webparts)



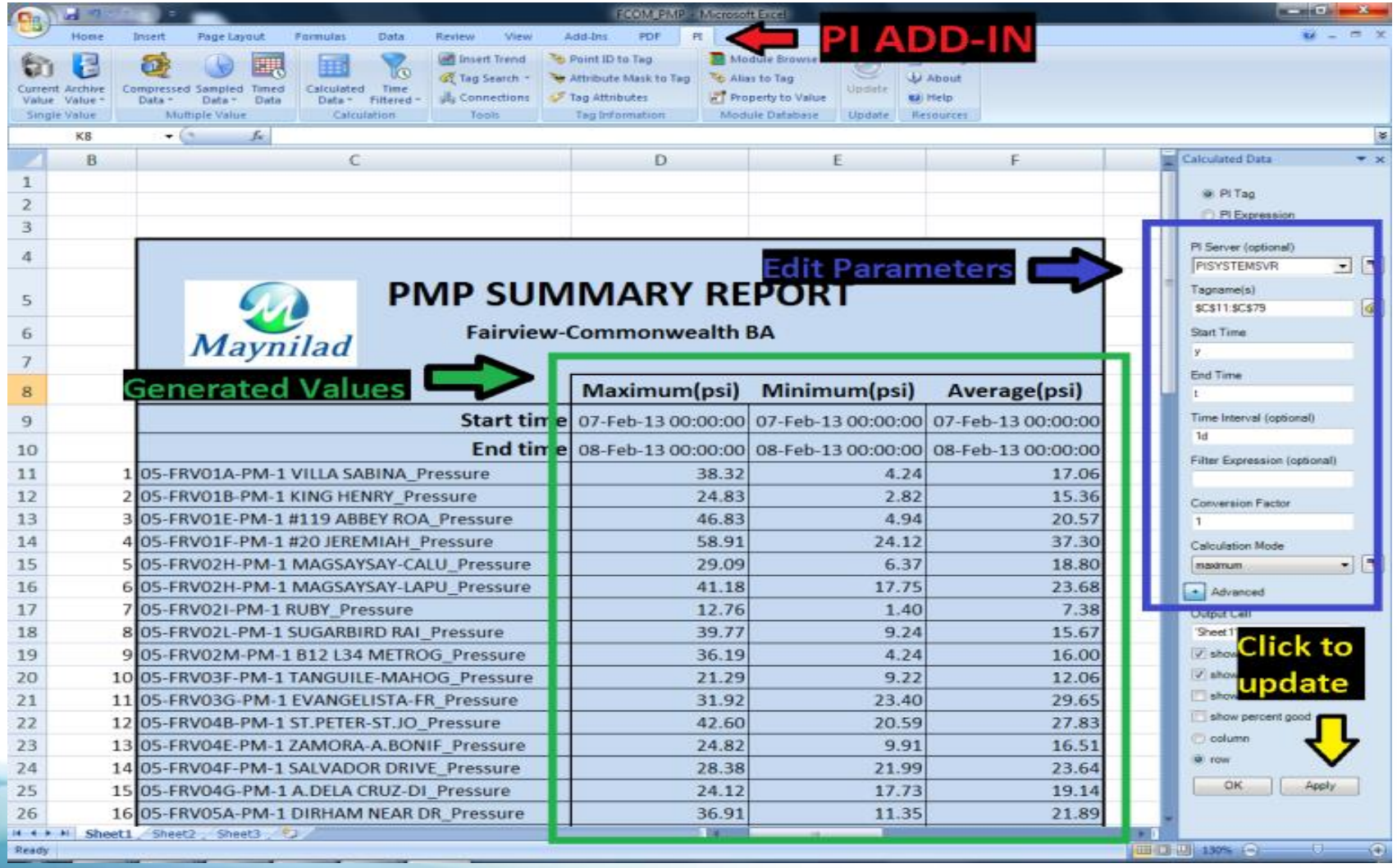
Developments

(PI Webparts)



Developments

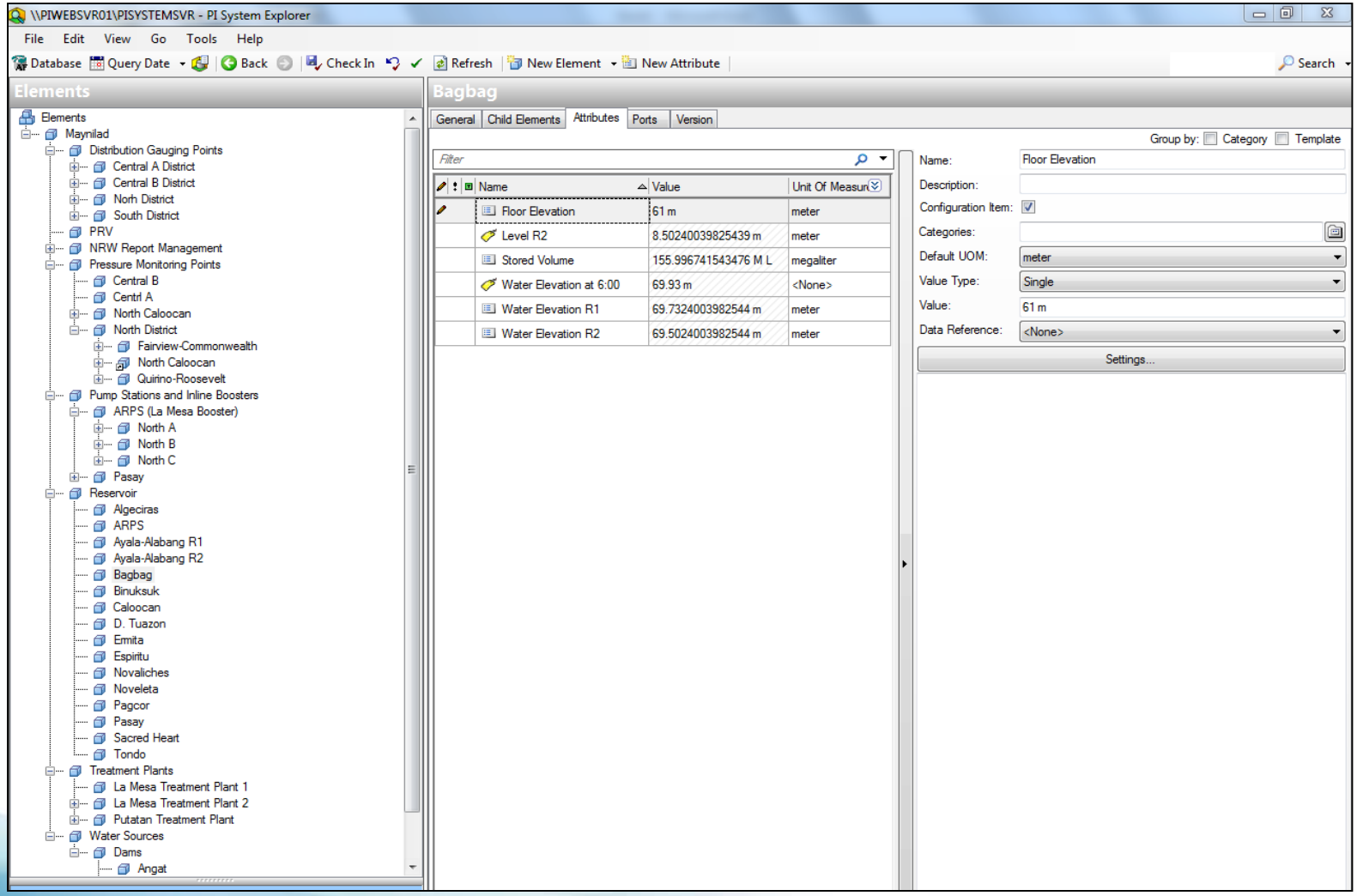
(PI Datalink)



		Maximum(psi)	Minimum(psi)	Average(psi)
Start time		07-Feb-13 00:00:00	07-Feb-13 00:00:00	07-Feb-13 00:00:00
End time		08-Feb-13 00:00:00	08-Feb-13 00:00:00	08-Feb-13 00:00:00
1	05-FRV01A-PM-1 VILLA SABINA_Pressure	38.32	4.24	17.06
2	05-FRV01B-PM-1 KING HENRY_Pressure	24.83	2.82	15.36
3	05-FRV01E-PM-1 #119 ABBEY ROA_Pressure	46.83	4.94	20.57
4	05-FRV01F-PM-1 #20 JEREMIAH_Pressure	58.91	24.12	37.30
5	05-FRV02H-PM-1 MAGSAYSAY-CALU_Pressure	29.09	6.37	18.80
6	05-FRV02H-PM-1 MAGSAYSAY-LAPU_Pressure	41.18	17.75	23.68
7	05-FRV02I-PM-1 RUBY_Pressure	12.76	1.40	7.38
8	05-FRV02L-PM-1 SUGARBIRD RAI_Pressure	39.77	9.24	15.67
9	05-FRV02M-PM-1 B12 L34 METROG_Pressure	36.19	4.24	16.00
10	05-FRV03F-PM-1 TANGUILE-MAHOG_Pressure	21.29	9.22	12.06
11	05-FRV03G-PM-1 EVANGELISTA-FR_Pressure	31.92	23.40	29.65
12	05-FRV04B-PM-1 ST.PETER-ST.JO_Pressure	42.60	20.59	27.83
13	05-FRV04E-PM-1 ZAMORA-A.BONIF_Pressure	24.82	9.91	16.51
14	05-FRV04F-PM-1 SALVADOR DRIVE_Pressure	28.38	21.99	23.64
15	05-FRV04G-PM-1 A.DELA CRUZ-DI_Pressure	24.12	17.73	19.14
16	05-FRV05A-PM-1 DIRHAM NEAR DR_Pressure	36.91	11.35	21.89

Developments

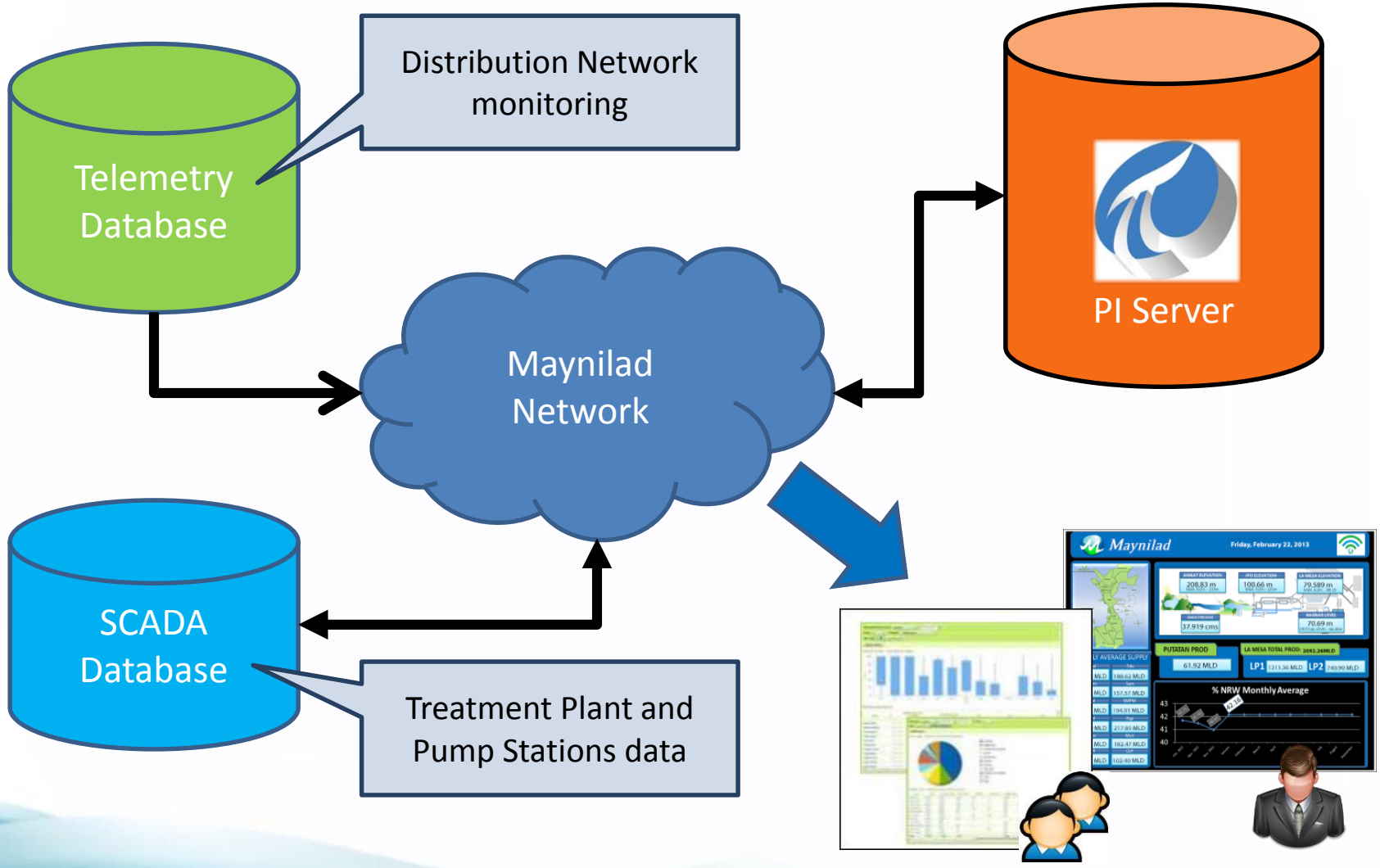
(PI Asset Framework)



Benefits

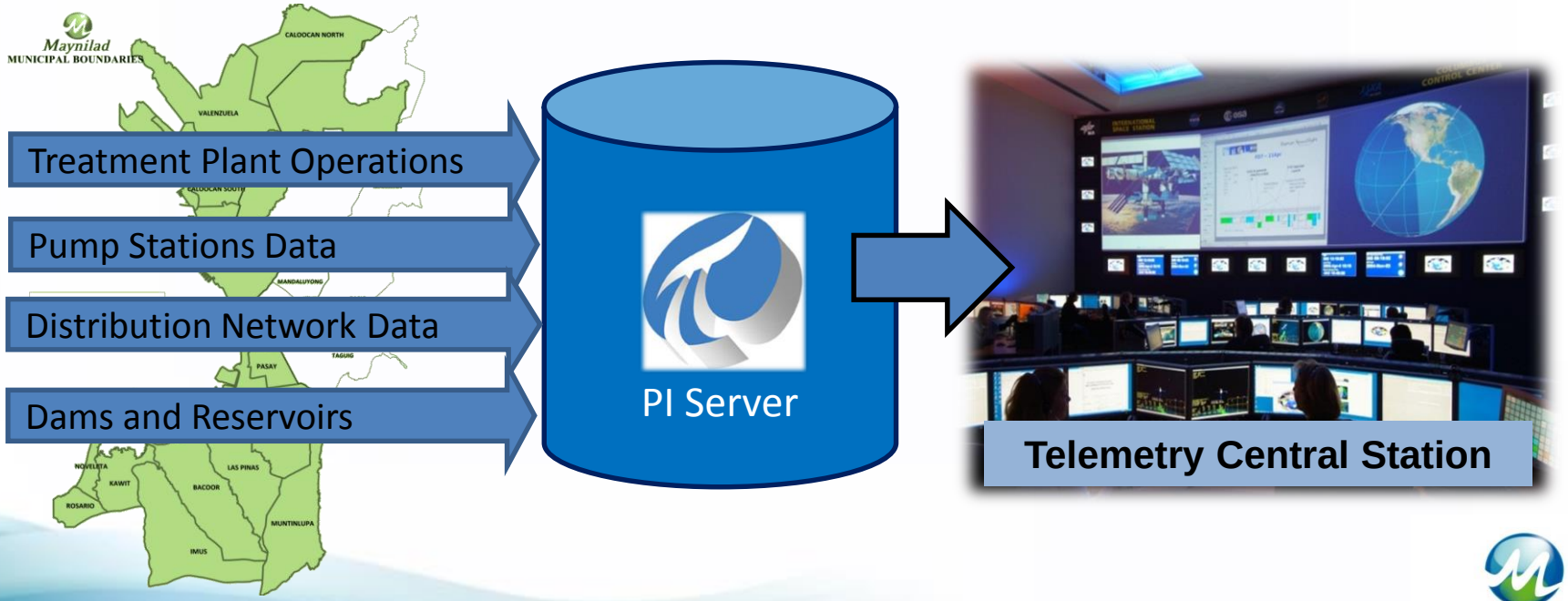
- ✓ Quick response to unusual distribution network changes
- ✓ Better asset condition management
- ✓ Faster assessment on operations efficiency
- ✓ Cost on Operations
  - ✓ Less outsourcing
  - ✓ Reduced downtime
  - ✓ Less manpower
- ✓ Secure, scalable and redundant data management system

Future Plans



Future Plans

- Interface
  - Water Treatment Plants
  - Sewage Treatment Plants
  - Sewerage Lift Stations
  - District Meters
- Creation of Central Monitoring Station



Maynilad

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Telemetry Head

Maynilad Water Services, Inc.

T E L E M E T R Y

Reliable Information for Better Operation

THANK YOU