Pulse
Comes to You 2009

IBM
Managing the World's Infrastructure

IBM Service Management in Utilities

- *Connecting Operational and IT Assets*

James Cooper, Tuesday 19th May

Agenda

- Introduction and Goals
- Utility Industry Challenges
- IBM Service Management for Utilities
- Optimising Work and Asset Management
- Dynamic Infrastructure – Intelligent Utility Network
- SMART Meters

CEOs Demand Change, But Their Infrastructure is Holding Them Back

Environment

- Climate is driving carbon cap and trade programs
- Renewable portfolios are growing
- Smart meters and intelligent grid projects are in progress

Regulatory & Policy

- Mandated reliability standards with severe fines for non-compliance
- System must be agile enough to support changing requirements

Goal: Accelerate the Utility of the Future

Customer Expectations

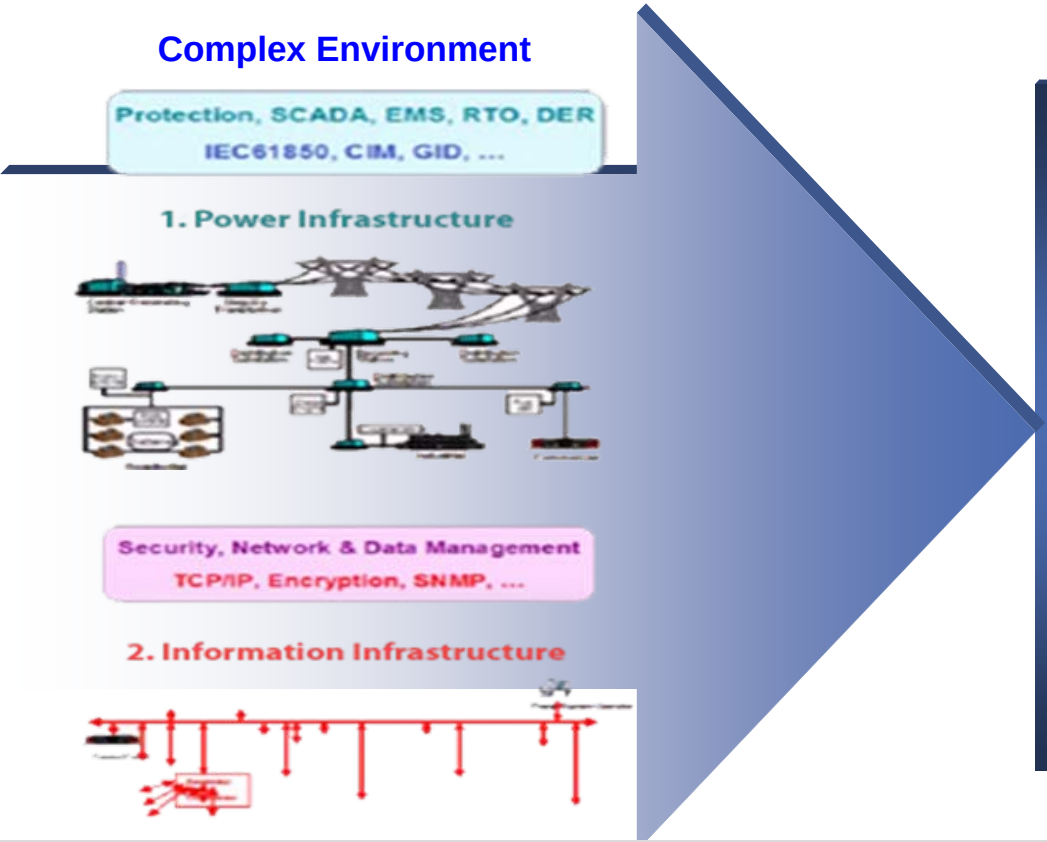
- An engaged, collaborative customer will bring positive benefits to the business

Aging Assets/ Aging Workforce

- New technologies support aging transmission grid and plant
- Need to secure grid
- Need to capture knowledge from workforce

Dynamic Infrastructure Converging IT and Operations Address These New Challenges with Service Management

Complex Environment



Service Management Challenges

- Siloed operations in the lines of business: generation, transmission, distribution
- Power infrastructure and the information Infrastructure are converging
- Devices on the grid are becoming more like IT assets
- Smart Grid initiatives require standards for operations and IT to function effectively
- IP enabled Smart Grid increases security risk
- Smart Grid acts like an IT network and requires monitoring and compliance

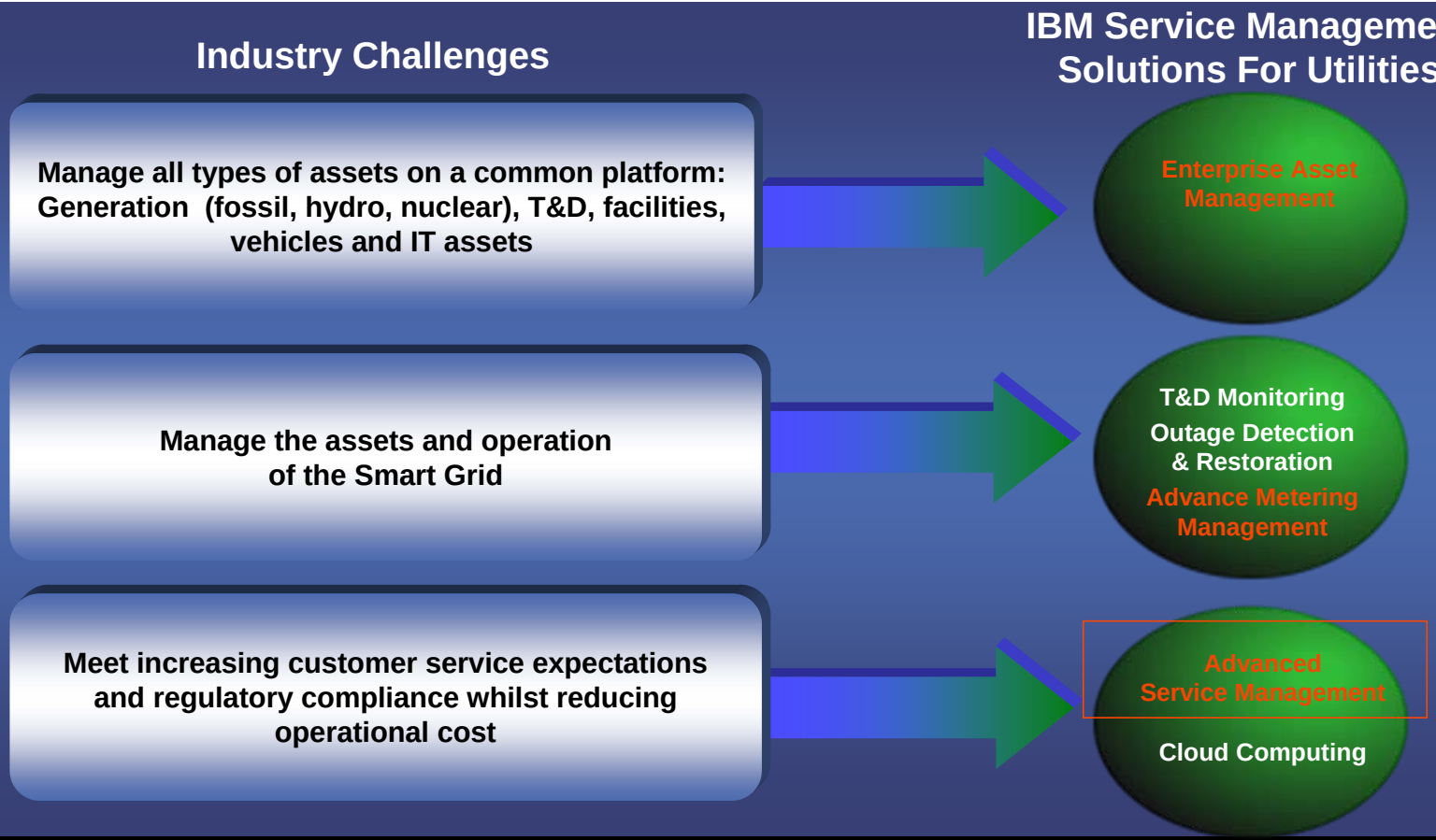
IBM Service Management helps address these challenges

"it has become crucial for utilities globally to combine the efforts of the IT and engineering departments, as well as business units to maximize the value derived from technology investments" *Gartner, IT and OT: Intersection and Collaboration, Kristian Steenstrup 9/29/2008*

IBM Service Management for Utilities - *Managing the World's Infrastructure* ™

Visibility. Control. Automation.™

Solving Challenges in Utilities with IBM Service Management

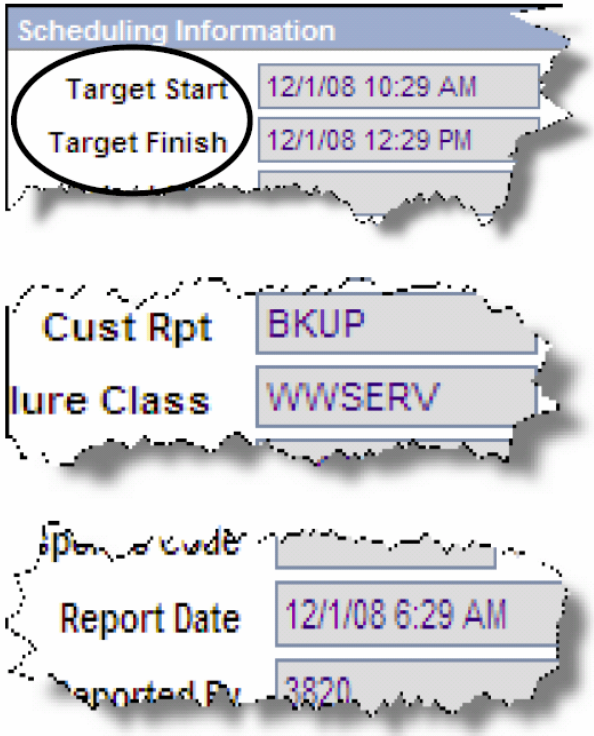


Maximo EAM - SLA Management

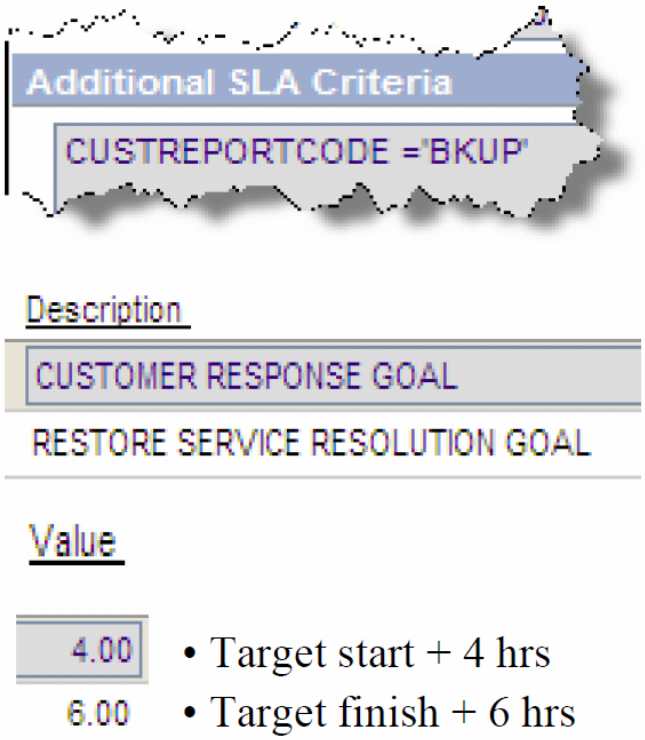
Corpus Christi Utility

Work order targets set by Service Level Agreement

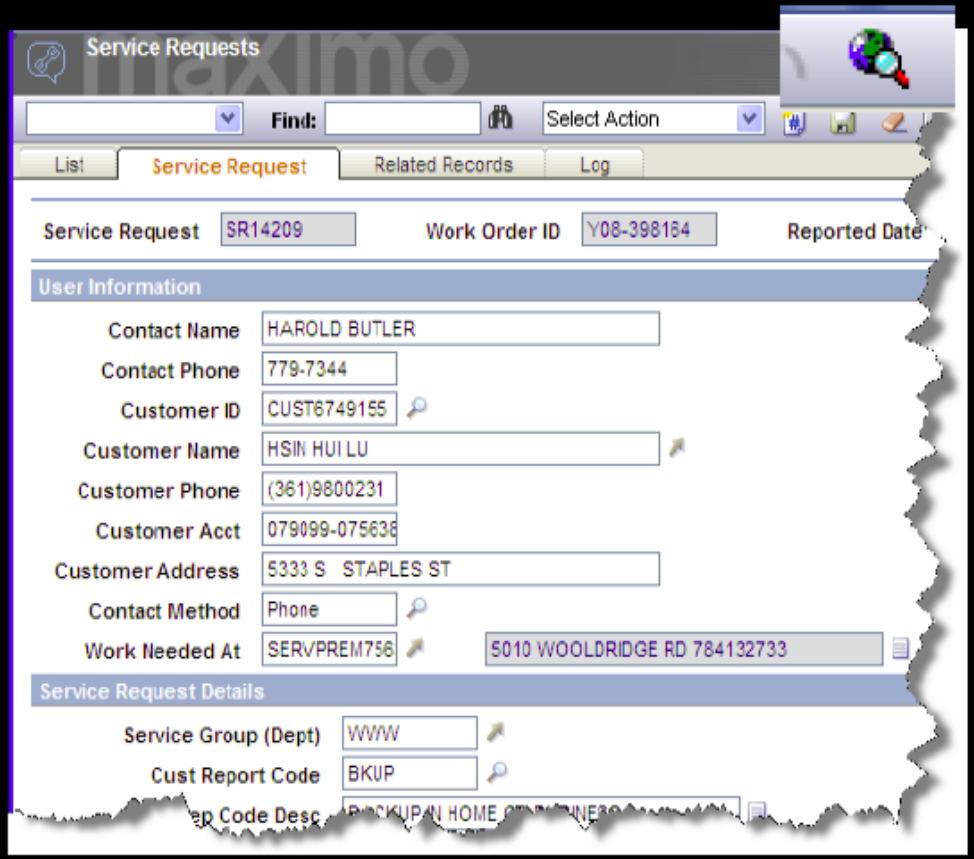
Work Order Fields



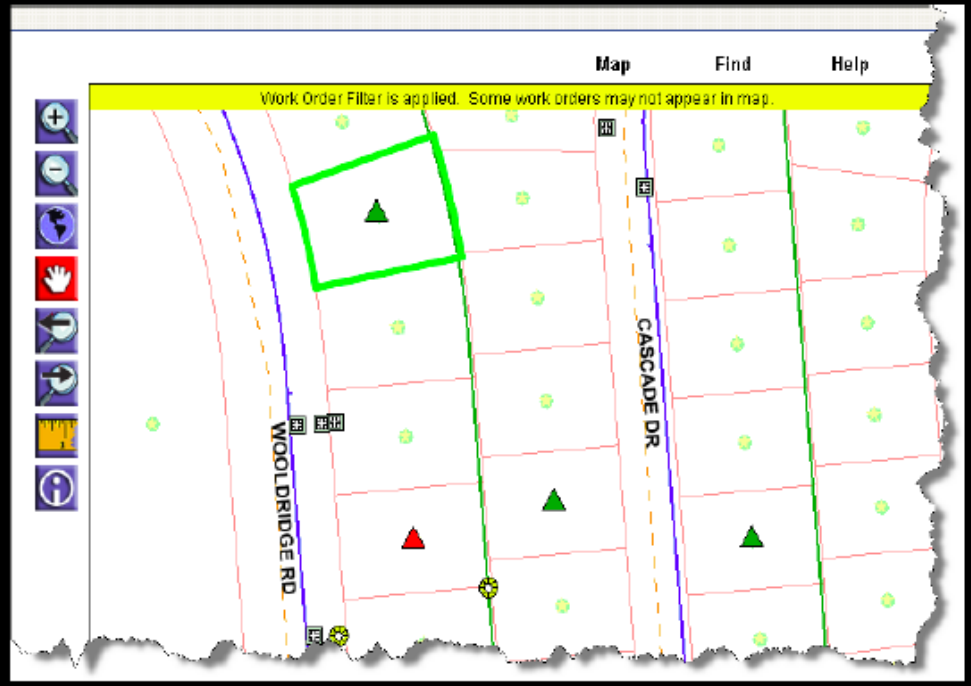
SLA (excerpts)



Service Requests are used by Call Center to record citizen service calls



Able to spatially view existing work orders to avoid creating duplicate work orders,



and better inform citizens of work in the area

City of Corpus Christi Balanced Scorecard

About Balanced Scorecard

Customer | Process | Financial | Sustainability

Print: Card | Targets

Card: — Wastewater

Period: Month | Sep | 2007 | Run

Goal	Objective	Metric	Target	Actual
Operate Efficiently	Maximize Efficiency by Planning and Scheduling Work in Advance	% of Treatment Maintenance Costs Spent on Proactive Maintenance	> =10.00%	79.39%
Operate Efficiently	Maximize Efficiency by Planning and Scheduling Work in Advance	% of Actual Treatment Labor that was Planned and Scheduled	70.00% TO 90.00%	83.70%
Operate Efficiency	Maximize Efficiency by Planning and Scheduling Work in Advance	% of Work Orders with QA Review Completion < 15 days	> =95.00%	86.80%
Operate Efficiently	Maximize Efficiency by Planning and Scheduling Work in Advance	% of Work Order Labor Charged to Overhead Work Orders	< =10.00%	0.86%
Operate Efficiently	Maximize Efficiency by Planning and Scheduling Work in Advance	Ratio of Actual Workload to Budgeted Labor	> =100.00%	84.21%
Operate Efficiently	Maximize Efficiency by Planning and Work in Advance	% of Collection Maintenance Costs Spent on Proactive Maintenance	> =10.00%	12.44%
	ciency by Planning and ork in Advance	% of Actual Collection Labor that was Planned and Scheduled	40.00% TO 60.00%	25.46%

% of Collection Maintenance Costs Spent on Proactive Maintenance

Divide cost of all proactive (preventive) maintenance work orders by the cost of all maintenance work orders (PM and repairs) completed during the

BSC reports % of Preventive Maintenance Work

Optimizing Work and Asset Management

What We Often See Today in the Utility Industry…

- **Business Units operate within isolated asset management silo systems**
  - Rigid architectures prevent upgrades to new releases/functionality
  - Many “pop-up” apps built in Access or Excel and critical to supporting the business
    - No Governance, such as back-ups
    - Often built by users and duplicated by different users across the business
  - Commonly used business processes are duplicated but isolated, such as supply chain, work mgmt.

Fossil Generation

Work Mgmt
Plan & Sched
Asset Mgmt
Contract Mgmt
Supply Chain

Pop-up Apps

Nuclear Generation

Work Mgmt
Plan & Sched
Asset Mgmt
Contract Mgmt
Supply Chain
Action Tracking

Pop-up Apps

Transmission & Distribution

Work Mgmt
Plan & Sched
Asset Mgmt
Contract Mgmt
Supply Chain
Compatible Units Est

Pop-up Apps

Vehicle Maintenance

Work Mgmt
Plan & Sched
Asset Mgmt
Contract Mgmt
Supply Chain
Warranty Mgmt

Pop-up Apps

Corporate Functions:
IT Asset Mgmt
Facilities Mgmt

Work Mgmt
Plan & Sched
Asset Mgmt
Contract Mgmt
Supply Chain
Service Desk

Pop-up Apps

IBM Asset Management in the Utility Industry

Fossil Generation

Nuclear Generation

Transmission & Distribution

Vehicle Maintenance

Corporate Functions:
IT Asset Mgmt
Facilities Mgmt

- Single set of common business process tailored for unique requirements of each business
  - Aligned with the business objectives and processes of each business
  - Driving cross enterprise reporting, adoption of common best practices and cross business sharing of resources- labor, materials, etc.

User Interface

Integration

Business Process

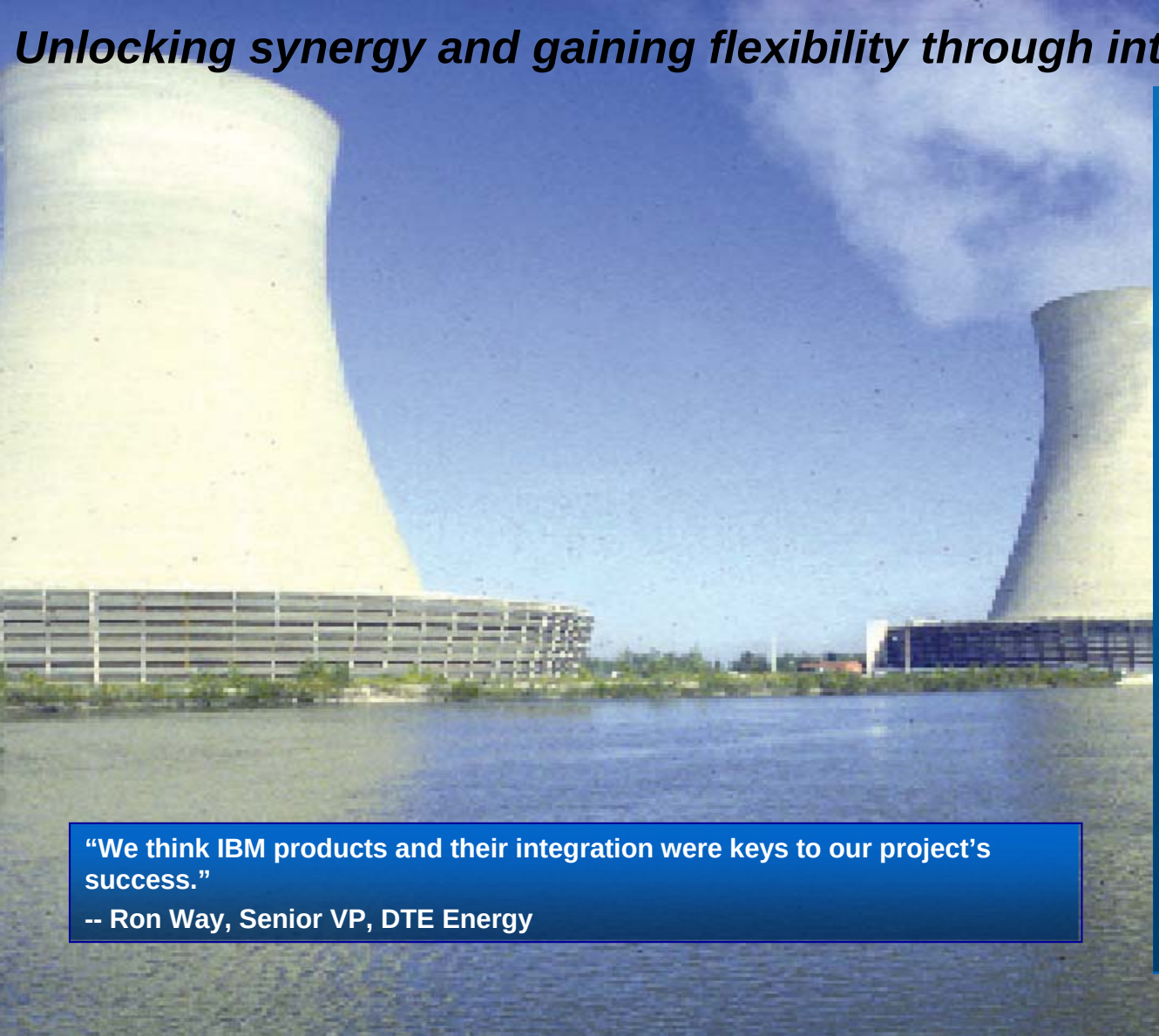
Business Logic

Data Model

- Single instance of hardware, software and database supporting the global enterprise
  - On a modern Service Oriented Architecture (SOA) resulting in dramatic reduction in system cost and complexity

Maximo Enterprise Asset Management
Tivoli IT Asset Management

Unlocking synergy and gaining flexibility through integration



“We think IBM products and their integration were keys to our project’s success.”

-- Ron Way, Senior VP, DTE Energy

DTE Energy

The Business Challenge

- Disparate systems, processes across 200 business units
- Critical data difficult to share
- Unable to realize underlying synergy from acquisitions

Tivoli Industry Solution

- IBM Maximo asset and work management platform
- Open SOA architecture anchored by IBM WebSphere
- IBM DB2 common data repository

Benefits of the Solution

- Projected US$75M annual savings
- Improved decision-making through better access to data
- Improved ability to implement best practices across enterprise

ScottishPower



Coal Process | Gas… | Hydro….

User Interface - Web / Portal / Mobile

Workflow – Generic business process

Work Management | Service Management

Asset Management | Inventory

Purchasing | Contract Management

Maximo Integration Framework / SOA model

Generation generic data model

Reports – Run-time; ad-hoc and KPI

maximo

Agile standards based Service Orientated Architecture

Asset Reliability
RCM2

NiSoft eclipse
Isolations | Permits

FileNet
Documents

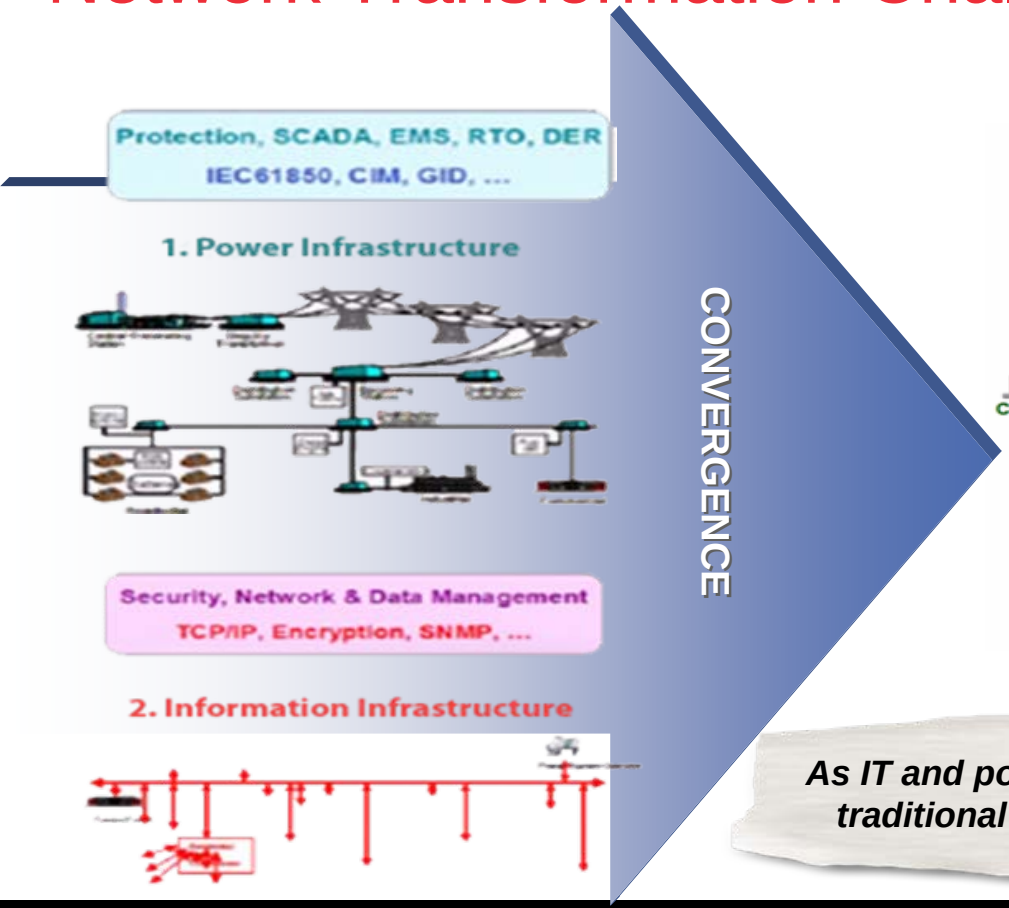
Plant Floor Assets
Process | Data History

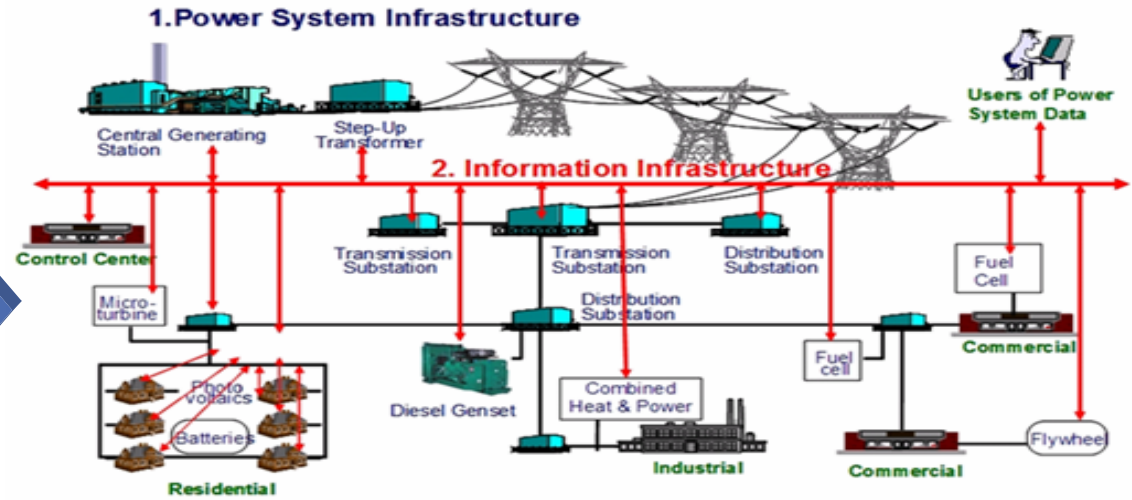
SAP
Accounts Payable
General Ledger

One Way project

The Intelligent Utility Network

Network Transformation Challenges





Source: Electric Power Research Institute (EPRI)

As IT and power systems networks converge, traditional security risks impact power infrastructure

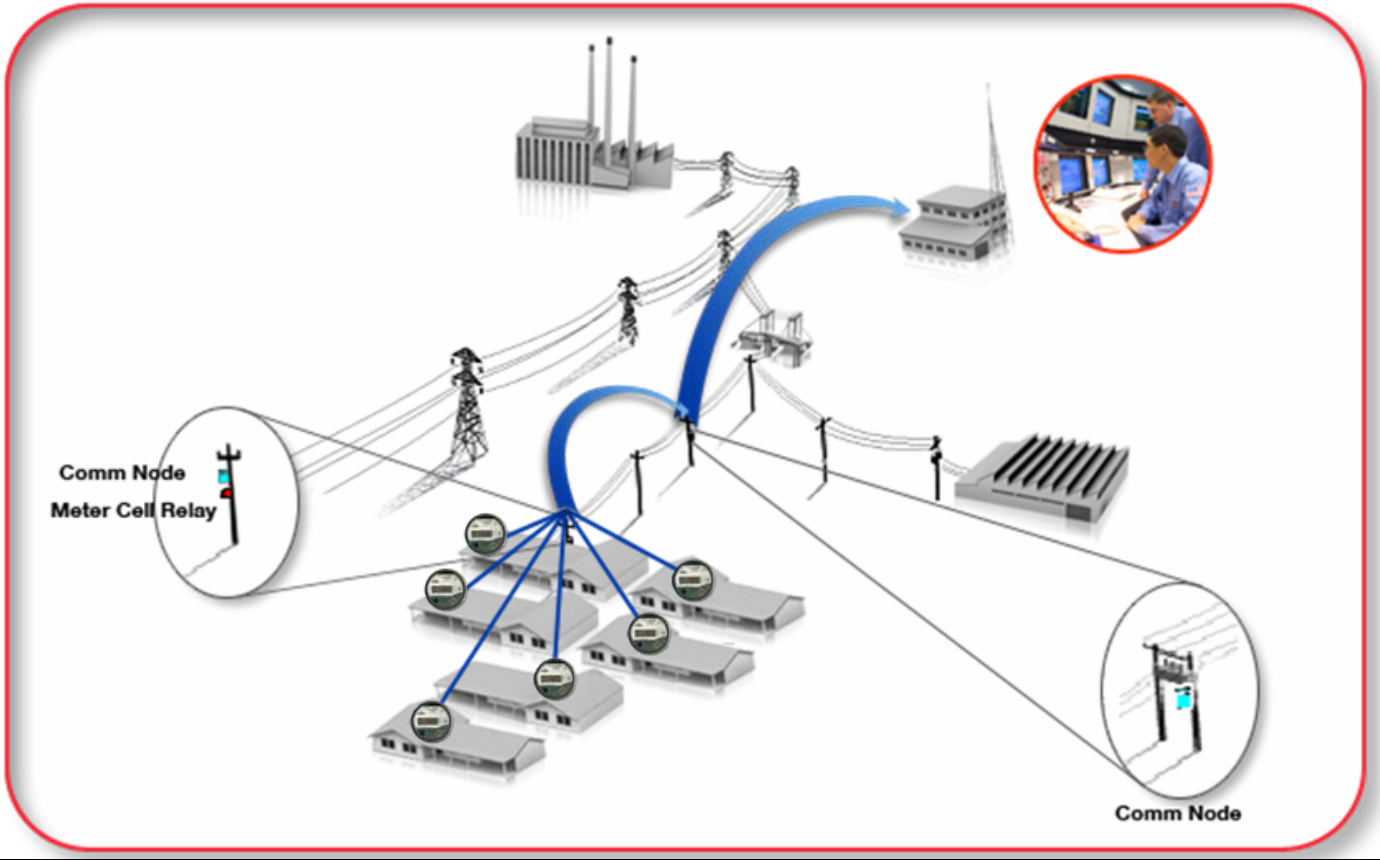
Smarter Planet

From Analog Meter

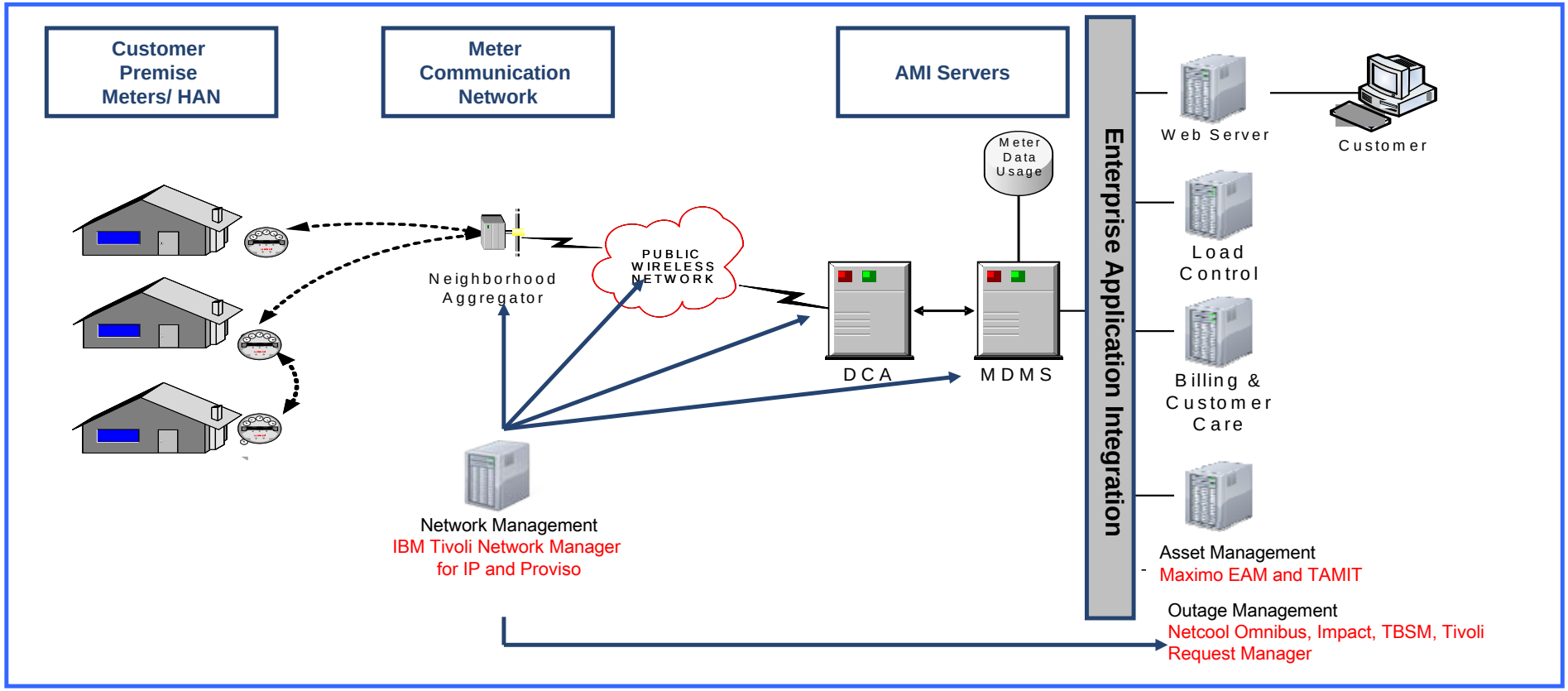
Smarter Planet

to *Digital Smart Meter*

Smarter Planet – Interconnected Devices

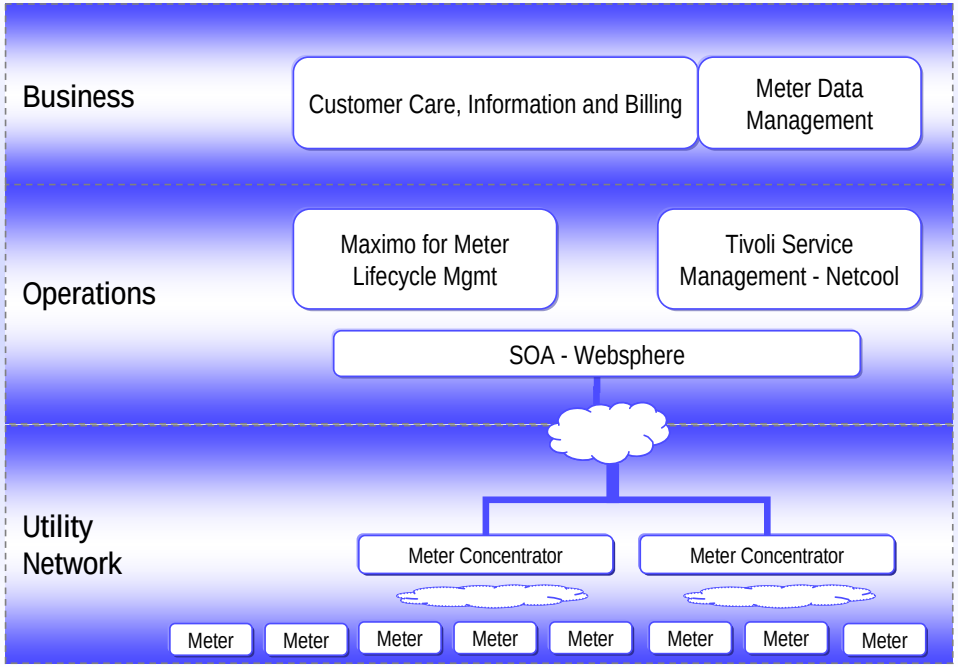


AMI Topology with Tivoli Solutions



Automated Meter Management

Frequently the First Major Intelligent Utility Network Project in the Company



Netcool

- Leverage the scalability of Netcool as deployed in the telecommunications industry
- Manage events from all elements of the meter infrastructure

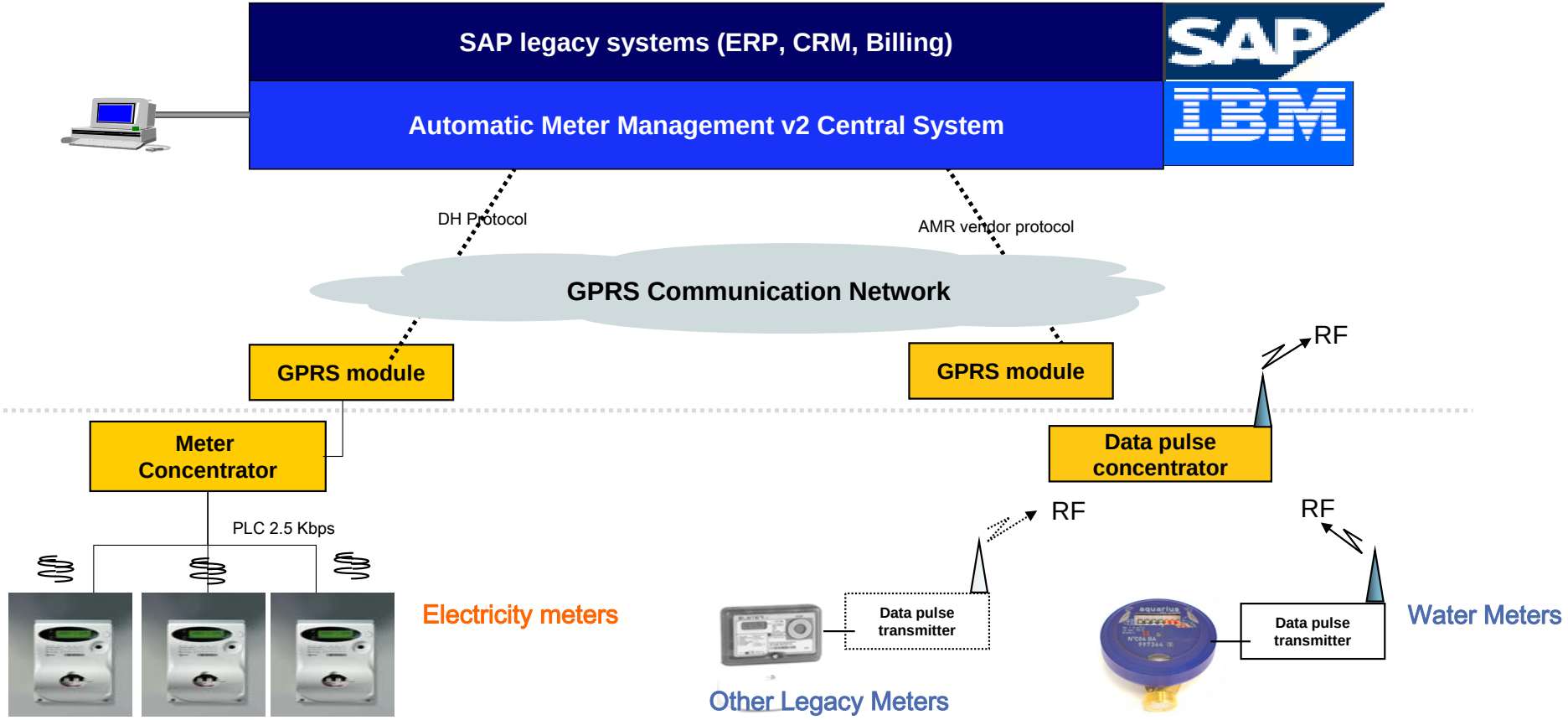
Maximo

- Perform lifecycle management of meters with Maximo from receiving through deployment and servicing

WebSphere

- Support SOA-enabled business processes based on utility industry standards
- Use DataPower to distribute meter data and events

Real Smart Grid infrastructure architecture



Recap

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