Building the Smart Utility through IT OT integration

Abstract

Utility companies need to institutionalize a data-driven value chain that enables them to integrate their information technology (IT) and operational technology (OT) systems, and convert real-time data into actionable intelligence. Leveraging Asset Information Management (AIM) frameworks can achieve this goal, and boost efficiency, trim expenses, and enable customer engagement.

Disruptive changes are impacting the entire utilities sector. The growing penetration of customer centric technologies such as distributed generation and storage, electric vehicles, and growing end use efficiency is rapidly blurring the lines between IT and OT. Regulatory compulsions are on the rise, and the need for enhanced safety and sustainable practices makes it imperative to revamp business processes.
Technology and Business Drivers for IT-OT Integration

Smart devices are increasingly becoming the norm in utilities’ operational environment, generating volumes of data and requiring significant device configuration, communications management, and maintenance activities. As a result, the underlying technology of OT systems, spanning platforms, software, security, and communications, now resembles IT systems a lot more than in the past. Shared standards and platforms across IT and OT can simplify asset management and offer a holistic view of operations. This enables utilities to reduce costs across the software management landscape, including enterprise architecture, support and security models, software configuration practices, and information and process integration.

Fusion of enterprise wide data coupled with intuitive dashboards will enable holistic performance monitoring, planning, and analysis facilitating “on the fly” monitoring and decision-making.

According to a poll\(^1\) of 68 senior decision makers at 39 North American utilities, IT-OT integration is considered a higher priority than planning for future smart utility initiatives. Yet only 50% of utility companies have concrete plans for convergence.

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### CORPORATE IT NETWORK

**USUALLY MANAGED BY CIO**

<table>
<thead>
<tr>
<th>Enterprise software</th>
<th>Vertical application software</th>
<th>Centralized systems</th>
<th>Distributed systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise Resource Planning</td>
<td>Geographic Information Systems</td>
<td>Supervisory Control And Data Acquisition</td>
<td>Programmable Logic Controllers</td>
</tr>
<tr>
<td>Finance</td>
<td>Enterprise Asset Management</td>
<td>Energy Management Systems</td>
<td>Advanced protection relays</td>
</tr>
<tr>
<td>Accounts Payable</td>
<td>Customer Information Systems</td>
<td>Automatic Generation Control</td>
<td>Sensors, monitors, and fault indicators</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Energy Trading and Risk Management</td>
<td>Distribution Asset Analysis</td>
<td>Meters</td>
</tr>
</tbody>
</table>

Historically, OT and IT for distribution operations have been developed, maintained, and used in silos in utilities. Despite technical and organizational challenges, there are compelling business imperatives and strong technology drivers for merging IT-OT boundaries, and converting real-time data into actionable intelligence.
Implementing a Future-Proof Asset Information Management Framework

A holistic IT-OT integration architecture needs to encompass three critical areas:

1. Asset modeling using meta tags with “Single Source of Truth” approach to correlate them across systems
2. Business process modeling of operational and enterprise applications for a synchronized view of assets
3. Process monitoring and visualization via rich dashboards with industry-specific functionalities, Key Performance Indicators, and reports.

AIM increases Return on Investment (ROI) and Reduces Total Cost of Ownership (TCO)

AIM optimizes utilities’ operational performance, financial results, and risk management. They gain better visibility into critical asset attributes such as run hours, energy, and residual value, which enables accurate forecasting, and effective outage management. Companies can allocate resources more efficiently, improving asset utilization, minimizing downtime, and increasing returns on assets.

Automation of business processes streamlines maintenance, construction, and renewal, reducing costs and improving effectiveness.
AIM enables utilities to maximize the value of assets across the asset lifecycle, and enhance the level of customer engagement.

IT-OT integration enables harmonization of enterprise level application landscape reducing future capex and operation expenditure on IT as well improving ROI.

**Conclusion**

Integration between utilities' enterprise information and operational systems is the key to agility and performance. It enables utilities to meet growing consumer expectations, empowers actionable insights, and reorients them to succeed in the digital economy of the near future.

**References**

[1] Poll conducted by McDonnell Group, on behalf of Ventyx.
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