OpenO&M – A CALM Enabler

Keywords

OpenO&M, ISA-95, OPC, MIMOSA, CALM, EAM, CMMS, CBM

Summary

Managing the Operate & Maintain asset lifecycle phase remains a major challenge for manufacturers and other asset intensive organizations. Assets are expected to generate their returns and justify the investment decision during this phase. Disruptions to effective asset use limit returns, extend payback periods and, in many cases, impact corporate bottom lines and customer/supplier relations. Despite the importance of high asset per-

> High asset performance demands close collaboration between all groups within an asset-intensive organization. OpenO&M is an emerging information integration standard focused on the collaboration needs of operations and maintenance.

formance, maintenance budgets are frequent targets of cost cutting initiatives. Balancing performance requirements against budget constraints is a daily challenge for asset managers that demands close coordination between operating and maintenance organizations.

Asset management strategies like preventive maintenance (PM), reliability-centered maintenance (RCM) and total productive maintenance (TPM) have contributed significantly to higher asset availability in recent years. Predictive maintenance (PdM) or Condition-based Maintenance (CBM), using on-line condition monitoring and other asset health sensors, is the next step in improving overall asset performance. Recognizing problems before they become functional failures allows organizations to use scheduled downtime for the most important repairs, reduce parts inventories, and optimize use of limited labor. But the inability to share information between multi-vendor products and between operating and maintenance departments continues to hamper implementation of these newer strategies.

MIMOSA, the OPC Foundation and ISA-SP95 recently formed a joint working group to address this very challenging issue. They are collaborating on a new standard, OpenO&M, for integrating diagnostic, prognostic, control and maintenance applications within an enterprise. ARC applauds this effort and sees this as key step towards enabling the many benefits we have discussed in our Collaborative Asset Lifecycle Management (CALM) and Multi-Site CALM strategies.

Analysis

A variety of control system, maintenance management, condition monitoring and enterprise applications are involved in the management of complex, asset-intensive operations. Standards for information exchange have evolved independently for each of these areas. OPC has gained considerable acceptance as a standard for sharing information between control systems and associated manufacturing applications. MIMOSA's OSA-EAI standard for sharing condition monitoring and asset health information with maintenance, operations, and enterprise systems is likewise being widely supported. The Instrumentation, Systems & Automation Society ISA-95 standard for integration between enterprise and production management systems in continuous, batch and discrete industries is also already being adopted by a broad range of suppliers and users in those industries. Each of these efforts addresses an important issue and has clearly made significant progress in their own right. OpenO&M recognizes that the combination of these standards provides an excellent basis for addressing many of the challenges in asset management.

> Mimosa's OSA-EAI, OPC and ISA-95 have all made significant progress as standards in their own right. OpenO&M recognizes that a combination of these standards is necessary to address the full breadth of collaboration challenges in asset management.

OpenO&M is being developed through a joint working group of professionals with support from MIMOSA, OPC and ISA-95 standards. The goal of OpenO&M is to enable optimal asset performance through collaborative decision making across operating and maintenance organizations. While the standards being used for OpenO&M have their origin in process manufacturing, the joint working group is also charged with addressing the needs of the broader asset management community, including facilities and fleets in both the public and private sectors. The importance of these other areas is reflected in the involvement of several elements of the U.S. military services and the National Institute of Building Sciences Facility Maintenance and Operation Committee (NIBS FMOC).

OpenO&M Integration Model

OpenO&M is focused on information integration between four disparate technology arenas. Advancements in asset status assessment, through condition monitoring, specialized sensors and analysis tools, have been significant over the last decade. We are clearly at the point where Condition-based Maintenance (CBM) and Condition-based Operations (CBO) are becoming realizable strategies. But in many organizations this information

is still only being used by local technicians who maintain the equipment. Integration of asset condition monitoring (CM) information with control systems and operations (OPS), enterprise asset management (EAM) and other decision support systems (DSS) has now become the imperative.

OpenO&M exploits the benefits of MIMOSA's common Asset Registry model to eliminate asset identification issues across multi-vendor systems and across different enterprise organization solutions. Integrating this with the standard object models of OPC provides a recognized interface with automation systems and all supporting solutions, including in many cases, EAM. Working within the context defined by ISA-95 further ensures that this same information can be used by higher level enterprise applications.
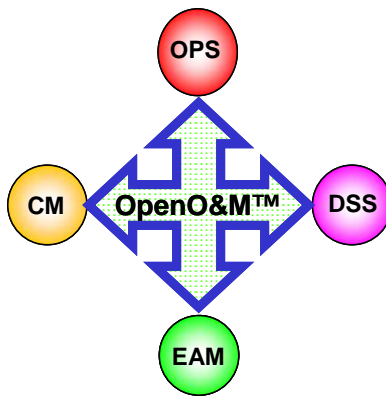
The emerging standard is specifically focused on providing value to end users by creating plug and play capabilities for faster implementation and by allowing them to pick and choose the best solutions from suppliers that comply. An extensible, open architecture based on XML and Service oriented interfaces that leverage best of breed technology and support practical interoperability and compliance is implicit in OpenO&M.

The OpenO&M Concept

Collaborative Asset Lifecycle Management

OpenO&M is consistent with the requirements identified in ARC's CALM and Multisite CALM strategies. CALM focuses on optimization of all classes of assets across all lifecycle stages, from sourcing and installation, to operations, maintenance and retirement. CALM recognizes the needs of multiple stakeholders in the asset management process and the value of cross-functional, collaborative decisionmaking. Cross-functional collaboration enables disparate departments such as operations, maintenance and procurement to work together in achieving better return on assets, reduced parts inventories and more optimal asset deployment.

Multisite CALM (M-CALM) addresses the additional opportunities of cross-facility collaboration for organizations with geographically distributed assets. In this case information is shared across the same groups located at different sites in order to collaborate on best practices, maintenance knowledge, performance standards, resource sharing and asset performance measurement and improvement.

OpenO&M has the potential to support both forms of collaborative asset management. OpenO&M within a single site enables different functional groups to share information and work together. Organizations that implement OpenO&M at all sites will also have a platform for standardization which is mandatory for sharing information across sites and with external service providers.

CALM vs. Multisite CALM Collaboration Focus
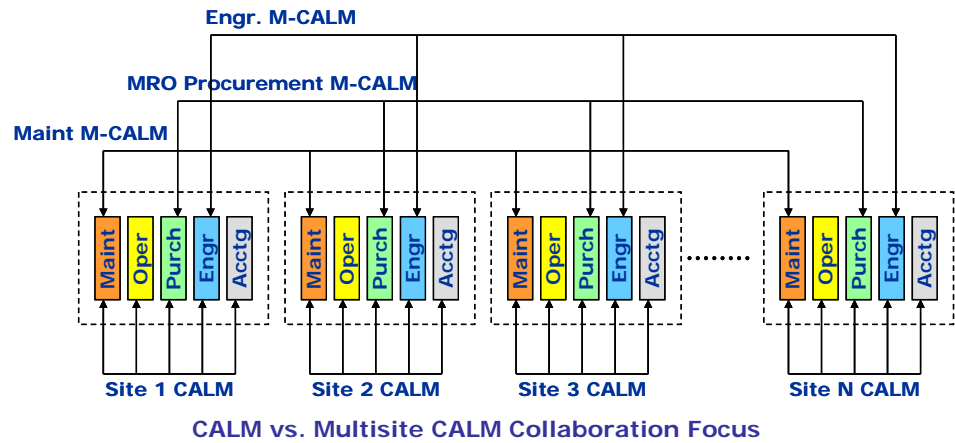
Recommendations

- Implementing new standards requires a concerted, cooperative effort from suppliers, end users, and service providers. Everyone must first agree on the OpenO&M standard. Suppliers must then develop products based on the new standard, end users must deploy the new products and service providers must support and recommend them.

- ARC believes that OpenO&M has potential for addressing a vital issue in asset management. All end users and suppliers should investigate this initiative by contacting MIMOSA, OPC Foundation or ISA-SP95. Our hope is that many will become active members of the OpenO&M joint working group and ensure the success of this important program.

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