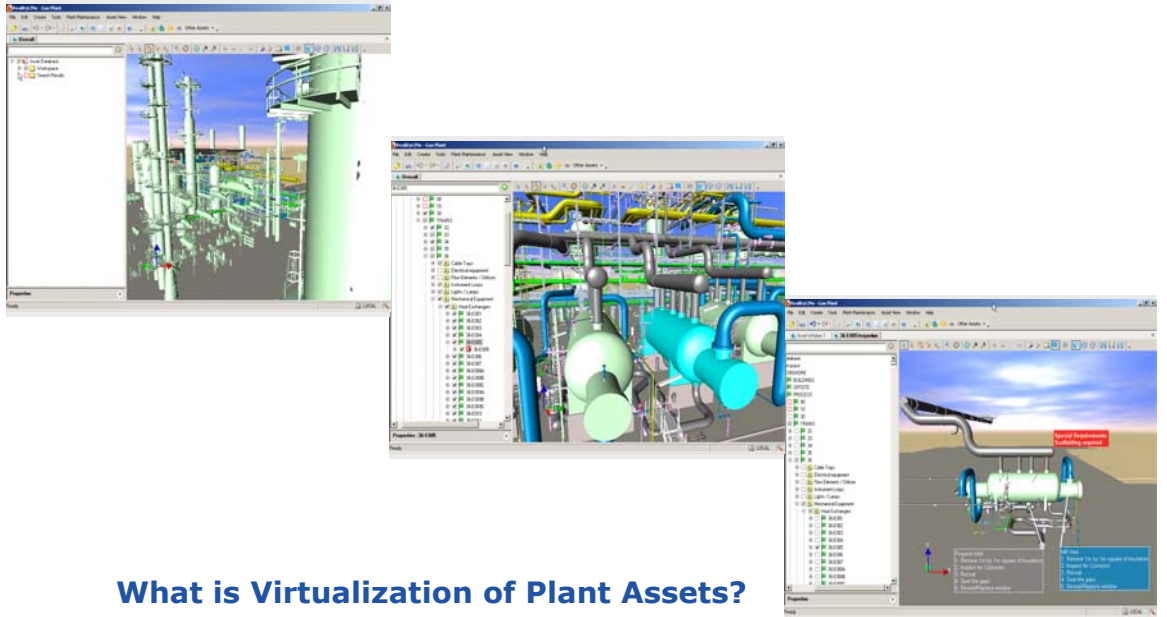


ARC CLIENT STORY

By Houghton LeRoy, Research
Director, Asset Management

Virtualization - A Better View of Plant Assets

Although managing plant assets is an old story, virtualization using 3D models to visually locate, identify and manage all plant assets is a new twist that offers significant benefits. The asset certainty of knowing exactly what you have and where it is permits more cost effective operations and maintenance as well as more accurate analysis for continuous improvement. Measurable benefits include faster response times, safety improvements, increased productivity and greater asset utilization resulting in better return on assets (ROA).



What is Virtualization of Plant Assets?

Asset intensive industries require many complex processes and facilities in a plant environment with numerous skilled workers and other critical resources. Ideally a process plant should operate at its full potential near optimum performance for maximum profitability. Given the many changing variables for processes, assets and resources this becomes a very challenging task. The ability to quickly identify and locate undesired performance deviations in production, maintenance and other operations is essential. This requires knowing what exists, the many assets and process characteristics, surrounding interdependencies and dynamic measurements for change management.



Virtualization provides an accurate view of the existing plant permitting easy identification and location of every asset, its physical surroundings, and any related asset information. It provides a way to simulate walking through your plant from your office and easily finding everything you need to know about your assets both faster and safer.

Virtualization provides an accurate view of the existing plant permitting easy identification and location of every asset, its physical surroundings, and any related asset information. It provides a way to simulate walking through your plant from your office and easily finding everything you need to know about your assets both faster and safer. The information access usually includes dynamic linkages to the enterprise digital infrastructure for key performance indicators (KPI), real time measurements for

condition monitoring and data structures of other popular applications from suppliers such as SAP for maintenance, OSI for operations, Meridium for inspection and Documentum for documentation.

Some Early Successes

Although Virtualization is just starting to be applied in the Operate and Maintain areas, the most natural starting points appear to be turnaround planning, inspection routes, and navigation of maintenance systems by operations to create and track work orders. However, there is increasing interest in using this technology for Operator Displays.

Typical of the comments received from the operating companies is summarized by this quote from Norm Blatz, Staff Inspector, with Shell Canada Limited "We remain impressed by the ease of use and the functionality of the [virtualization] software as well as its positive impact on our work."

In fact others have indicated that they have gained significant savings in Plant Maintenance – more "wrench time", Inspection Programs – improved work processes, Process Engineering – cost effective accurate creation of "as built", and Turn-around Planning and Execution – significant reductions in schedules. These improvements come from the fact that the graphical information provides better work planning, more accurate communication, and faster turn around of these tasks. Ultimately that is less down -time for the units.

This is just the beginning of the benefits that the industry will achieve with Virtualization. One of the more exciting ideas being considered by several DCS companies is to replace the current operator displays with 3D vir-

Practical Virtualization Applications

Plant Maintenance is a natural beneficiary of Virtualization since it offers a realistic view of existing assets and their surroundings.

Inspection Programs via Virtualization allows the inspection team to perform their routine inspections from their desktops and access historical data and trends for quick comparisons.

Turnaround Planning and Execution can be expedited by Virtualization to minimize costly downtime by helping to better manage isolation of asset groups and the surroundings for faster and safer maintenance.

Training and Certification is more easily accomplished when the plant environment including assets, infrastructure, and needed information is better understood through Virtualization.

Safety, HAZOP and Compliance Coordination is more manageable when the relationships between an asset and its environment can be easily viewed for potential impact and risk assessment.

Business Continuity and Recovery Planning uses Virtualization to establish a useful 3D model baseline to quickly document existing assets and infrastructure. Any changes or damages from natural disasters or other unexpected plant disturbances can then be more easily identified and assessed to expedite a more effective and rapid recovery.

Site Audits via Virtualization permit engineers to validate proper construction of new plants or inspect upgrades to existing plants for undocumented changes or unexpected design problems that can be corrected and captured for proper maintenance and future design planning.

Site Assessments and Risk Analysis uses Virtualization to document the current condition, performance and business impact of critical assets when implementing best practices such as Reliability Centered Maintenance (RCM).

tualization views of the plant. This will allow operators to navigate the various asset data bases (such as scheduled work orders, maintenance history, and operating performance) by just pointing at the asset of interest.

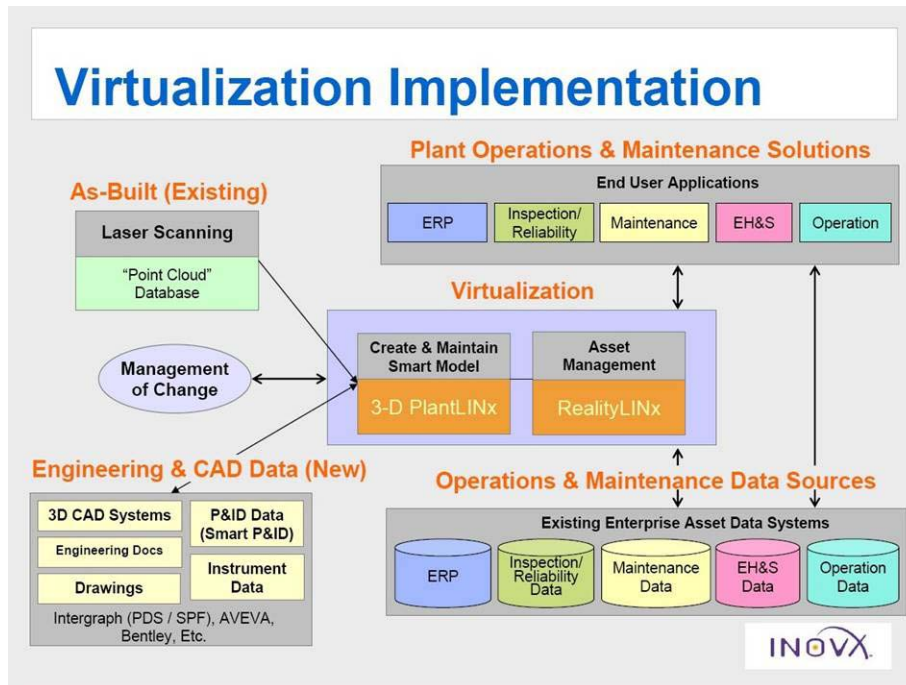
Creating the 3D Model

Providing a dynamic view of an existing plant requires live video or creation of an accurate 3D model. Since live video has many software limitations, use of 3D models is preferred for virtualization of plant assets. The model can either be imported from popular 3D design tools such as those from Intergraph or created on location using laser scans to create and import point clouds of the existing assets and infrastructure. Both approaches provide an accurate and precise virtual model which can then be configured for immediate and real time access to enterprise information as well as asset centric physical information such as attributes, location, documents, measurements and other important data. Once an accurate virtual model of the plant is available with easy access to important asset in-

formation, there are many intuitive and practical applications for saving time and money. A company's entire digital infrastructure can be accessed through the virtual model.

Solutions from INOVx

INOVx Solutions is an innovative company founded in 1999 that provides solutions for creating, managing and accessing accurate three dimensional



views of plant assets and using these views to get to all asset information. Their products include 3D PlantLINx which permits users to create a 3D model for existing or new assets and RealityLINx which provides real time access to all asset information from existing enterprise systems. INOVx is a leader in laser scanning services for the

process industries with best-in-class methodology yielding models with 5mm precision. INOVx is currently focused on the Oil and Gas industries for customers such as Ameriven and Shell where inspection program and plant maintenance virtualization applications have generated cost savings, productivity improvements and higher plant availability.

Conclusion

A simulated plant walkthrough with access to all associated asset data is a great application example of the ease of use, flexibility, capabilities and value of virtualization. This visually intuitive approach increases "wrench time", optimizes workflows, and enables rapid decision making with better collaboration for operations, engineering, maintenance, inspection, safety and security. Virtualization not only saves time, but allows more rapid

maintenance, shorter downtimes and overall safer actions throughout the plant. It enables asset certainty -- knowing exactly what is there and where it is, which leads to greater utilization of the assets and better return on assets (ROA).

Founded in 1986, ARC Advisory Group has grown to become the Thought Leader in Manufacturing and Supply Chain solutions. For even your most complex business issues, our analysts have the expert industry knowledge and firsthand experience to help you find the best answer. We focus on simple, yet critical goals: improving your return on assets, operational performance, total cost of ownership, project time-to-benefit, and shareholder value.

This ARC Client Story is based on information provided by the client, and not based on an independent product analysis.

You can take advantage of ARC's extensive ongoing research plus experience of our staff members through our Advisory Services. ARC's Advisory Services are specifically designed for executives responsible for developing strategies and directions for their organizations. For subscription information, please call, fax, or write to:

ARC Advisory Group, Three Allied Drive, Dedham, MA 02026 USA
Tel: 781-471-1000, Fax: 781-471-1100, Email: info@ARCweb.com
Visit our web page at ARCweb.com