DIGITAL INDUSTRIES SOFTWARE

Optimize resources with centralized architecture

Address global deployment challenges with Siemens MES

Manage multiple plants from one single central installation

To achieve manufacturing excellence, an effective rollout of a global manufacturing execution system (MES) can be a game-changer. However, until now many companies have been deterred by the difficulties of standardizing their manufacturing processes in different countries, the varied IT tools they have in place, and the high capital expenses associated with making such a change.

Many companies that rely on local installation of software and hardware spend a significant amount of time and money on projects to ensure all their plants have the latest upgrades and are all aligned. Furthermore, local installation requires an increase of resources to have the right infrastructure in place, in each plant. The need to install and upgrade individually in every location means that rollouts can take years to complete, by which time it may be time to start the process all over again.

Siemens manufacturing execution system (MES) proposes an innovative multi-plant architecture that enables rapid global deployment, connecting multiple plants and sites to one central installation to consume the solution via a regional solution hub.

Our multi-plant solution hub architecture enables multiple production sites to use one single solution instance to help promote manufacturing process standardization while critically retaining the flexibility of plant-specific needs.

A harmonized MES solution

Any customer solution is automatically enriched with multiplant capabilities. However, businesses can start from one single plant connected to a hub and additional plants can be added over time to the existing solution with no further installation required.

Compared to a traditional MES solution, there are multiple advantages to deploying multiplant architecture, you can guarantee a much faster rollout of new capabilities and functionalities to your plants as all sites can be updated at the same time, with the functions available immediately, meaning everything is in place by default and you no longer have to spend precious resources to align product versions across your plants.

Moving to hub architecture helps companies to reduce their overall capital and operational costs in comparison with deploying an MES solution individually on every site. With fewer servers to update, fewer licenses to purchase and renew, and the option of cloud-based installation, companies can ensure the latest data is always available to all plants while enjoying greater flexibility and scalability should business needs change at any time without making a big upfront investment.

In addition to cost savings, governance is also vastly simplified. Implementing a centralized solution administration allows remote management of systems and reduces the likelihood of human errors in system alignment.

As hardware is centralized in the regional hub, you can experience a significant reduction in your hardware footprint, a lower number of machines leading to lower costs, but also lower energy usage and a reduced carbon footprint. Furthermore, centralizing hardware and software also resolves the issue of finding people with the right, local IT expertise to respond to issues when they arise. A centralized deployment makes remote service and management a reality, reducing the impact of unexpected issues and downtime.

After deploying the solution, a leading aerospace and defense customer experienced a 3x faster rollout to new sites. Additional benchmarks* show that a centralized approach can bring over 35% reduction in implementation costs and around 50% reduction in total cost of ownership.

*Simulation of a Customer Enterprise Program adopting Opcenter Execution with multi sites capability compared to a 'classic' per-plant deployment

Benefit from the flexibility of plant-specific configurations

Thanks to multiplant architecture the different sites that are connected to the same regional hub benefit from sharing the same solution configuration. However, each plant may have its own, local needs due to different products or processes or a different enterprise resource planning (ERP) system or legacy systems. In these situations, it is vital to maintain plant-specific configurations to ensure that each site can function as required. Siemens multiplant solution allows for specific runtime applications, endpoints and interfaces to be installed in each plant to meet individual needs. Furthermore, the solution is able to integrate seamlessly with external third-party systems.

As an extra security measure, data multitenancy is supported. Data is physically segregated in different databases per plant. This ensures the right protection against software security threats. Users are centrally defined, they can be granted permission to only view data relevant to their plant or to see data related to other plants, depending on their position. Through the use of tags for each user, companies can ensure that data is never shared with unauthorized users.

A further benefit of physical data segregation is that plants are not affected by workload peaks or issues at any other site. Data is not only stored separately for each plant, but also each internal software stack is replicated individually for each plant. This architecture removes single points of failure and ensures that any eventual issue at a software level only affects one plant at a time. An additional benefit is that configuration changes and patches can be applied without having to synchronize production downtimes: they can be deployed plant by plant, without impacting the other plants where production can continue.

Deploying Siemens multiplant program, Opcenter Execution, ensures:

• **Business continuity:** there is no plant downtime during updates on other plants, doing away with the need to stop production in all plants during a new rollout.

• **Security and usability:** each user only has visibility and can only modify data that is related to their plant or their confidentiality clearance.

• **Robustness:** there is no single point of failure in the system and every plant can operate individually while mitigating risk through a shared configuration.

Siemens Opcenter Execution portfolio offers out-of-the-box services and tools with industry-specific data models and templates to provide multiple levels of scalability, leveraging the existing available hardware resources to meet increasing workloads as needed.

Opcenter Execution's multiplant architecture enables companies to deploy MES across multiple sites in the shortest time possible while also reducing the total cost of ownership and enabling standardization and harmonization throughout the network while maintaining flexibility to cover plant-specific needs.

Learn more about how to configure your global deployment of Siemens Opcenter Execution here.

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