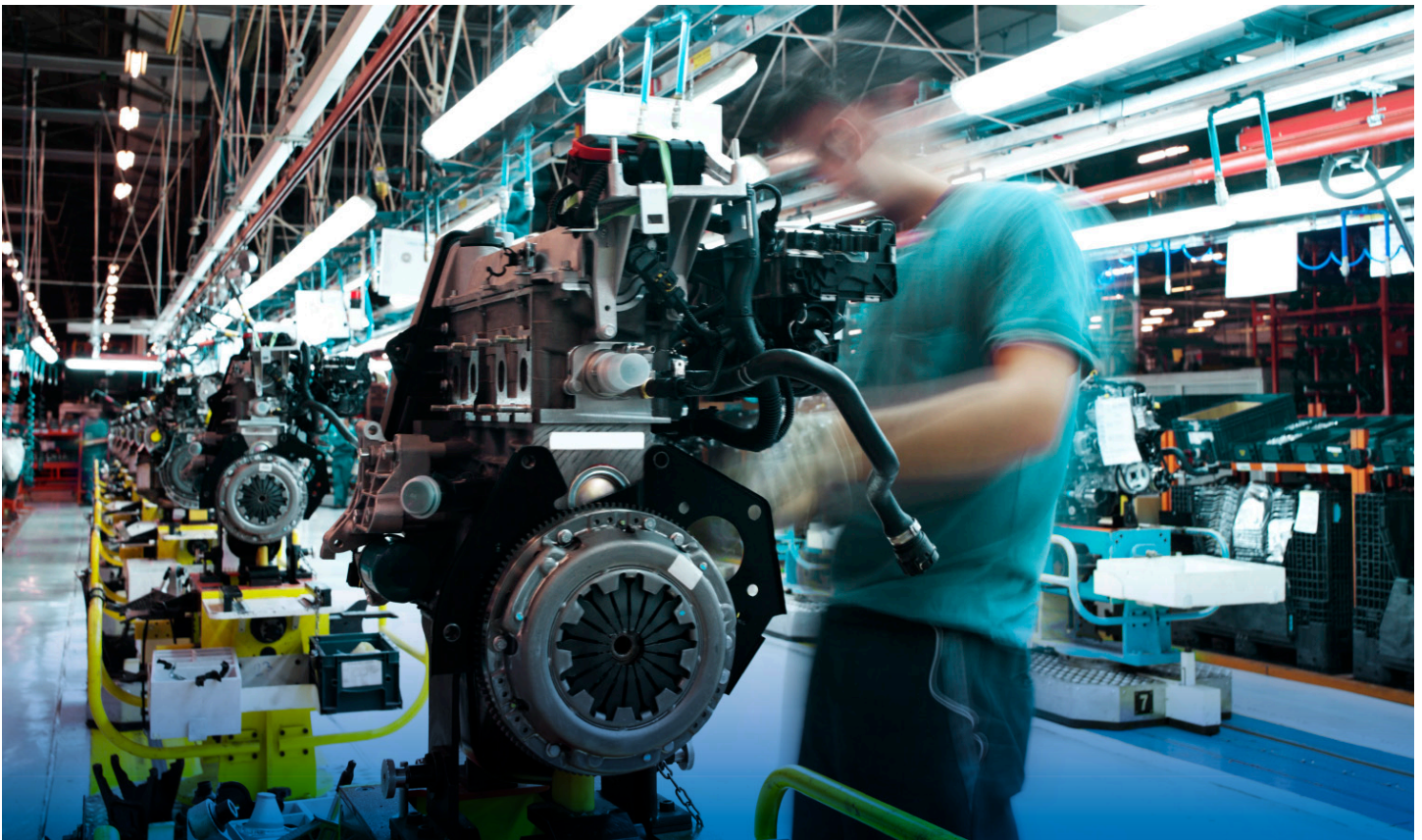# nMetric® Scheduling Software for Manufacturing, In Depth

nMetric®
Smarter scheduling®

nMetric® Scheduling Software for Manufacturing brings order to traditionally chaotic environments by transforming any factory into a highly efficient, flexible, reliable operation, letting you respond to customers in record time, keep your promises to deliver and avoid late penalties.

With nMetric, you'll have unprecedented real-time visibility into operations, their status and expected completion dates. Because the software is web-based, it allows your entire organization to gain situational awareness of the issues affecting operational performance and on-time customer satisfaction. Even more importantly, nMetric also gives your operations personnel the opportunity to be aware of and act on contentions and constraints for all resources before they become problems.

You'll be able to adopt a true make-to-order, Just-in-Time model, while dramatically reducing the need for costly buffers and inventory, increasing throughput, significantly decreasing lead times and greatly improving profitability. All while knowing the on-time status of every order, all the time.

There is nothing else like it.

Smart Jobs®

nMetric software takes a unique approach to scheduling, resulting in unique capabilities and benefits. While other software planning and scheduling solutions (ERP, MRP, etc.) are deterministic, centralized and theory-based, nMetric is probabilistic, heuristic, distributed and reality-based.

The nMetric system breaks down each order into its actionable components, creating a series of task-oriented software objects called Smart Jobs. These intelligent objects know the attributes (skills or capabilities) of the resources each requires. Smart Jobs find and reserve all of the appropriate resources necessary for their on-time completion, including equipment, material, labor and tools. They know their priority and position in the task series and are thus capable of responding in real time to shop floor developments, including changes in resource availability or delays in prior dependent tasks – effectively routing themselves.

The nMetric Smart Job® Framework virtualizes the scheduling environment, recognizing each resource's attributes (skills and capabilities), compatibilities with other resources and available time for Smart Job reservations. This framework can be adjusted in real time as resource availability and capabilities change.

nMetric's software is a scalable, flexible solution built on a web-based platform. Its integrated capabilities including scheduling, dispatch, tracking, graphical performance indicators, reporting and more.
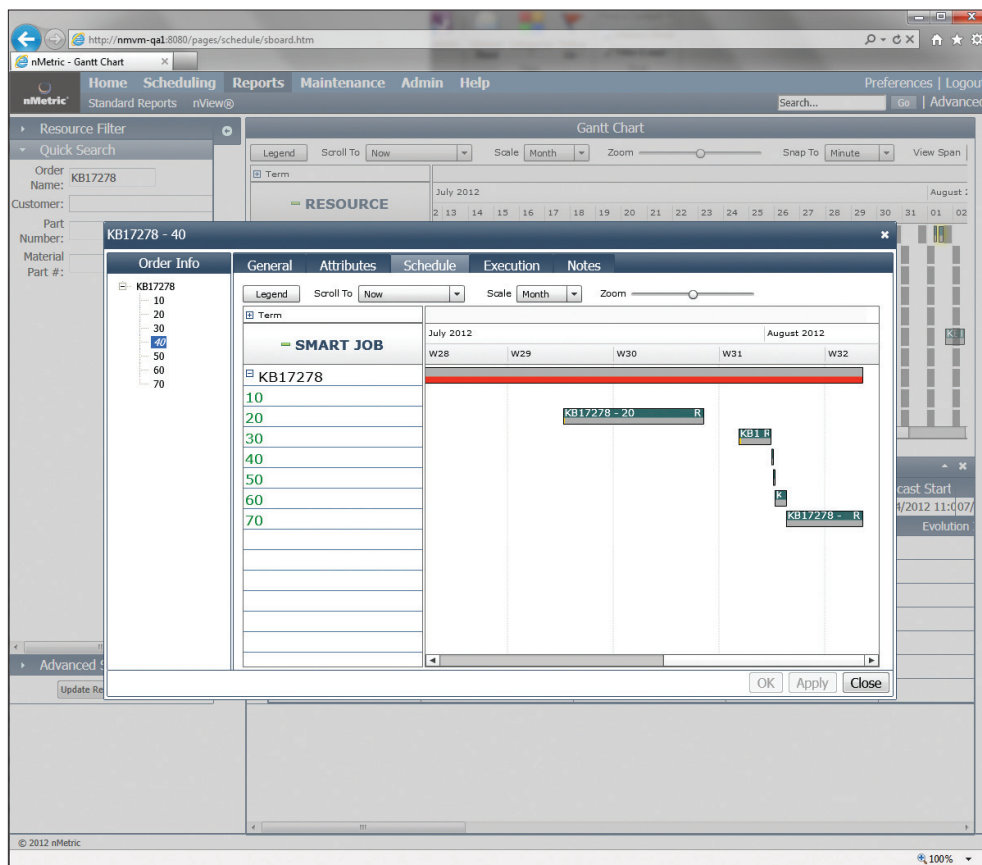
Ping Pong Scheduling

nMetric's dynamic Ping Pong scheduling processes all Smart Job reservations by backward-scheduling each task series from the requested ship date, making a series of operational reservations. If there is not enough time between the requested ship date and Now, nMetric will then forward-schedule starting at the dispatch freeze threshold, using ship date priority to shift other jobs that can be done at another time without becoming late.

nMetric then consolidates and organizes all reservations, presenting a dynamic scheduling board and operational dispatch screens that provide a visual and virtual map of what can and is expected to happen at each work center, given all limitations or constraints. This allows your organization to embrace, manage or mitigate the chaos created by:

- Unique and specialized task series requirements
- Smaller, more frequent order patterns
- Scheduling multiple product lines (value streams)
- Multiple product routings using shared resources
- Contentions for highly specialized workforce
- Resource competition for tools and labor
- Shifting bottlenecks due to changes demand mix
- "Invisible" bottlenecks
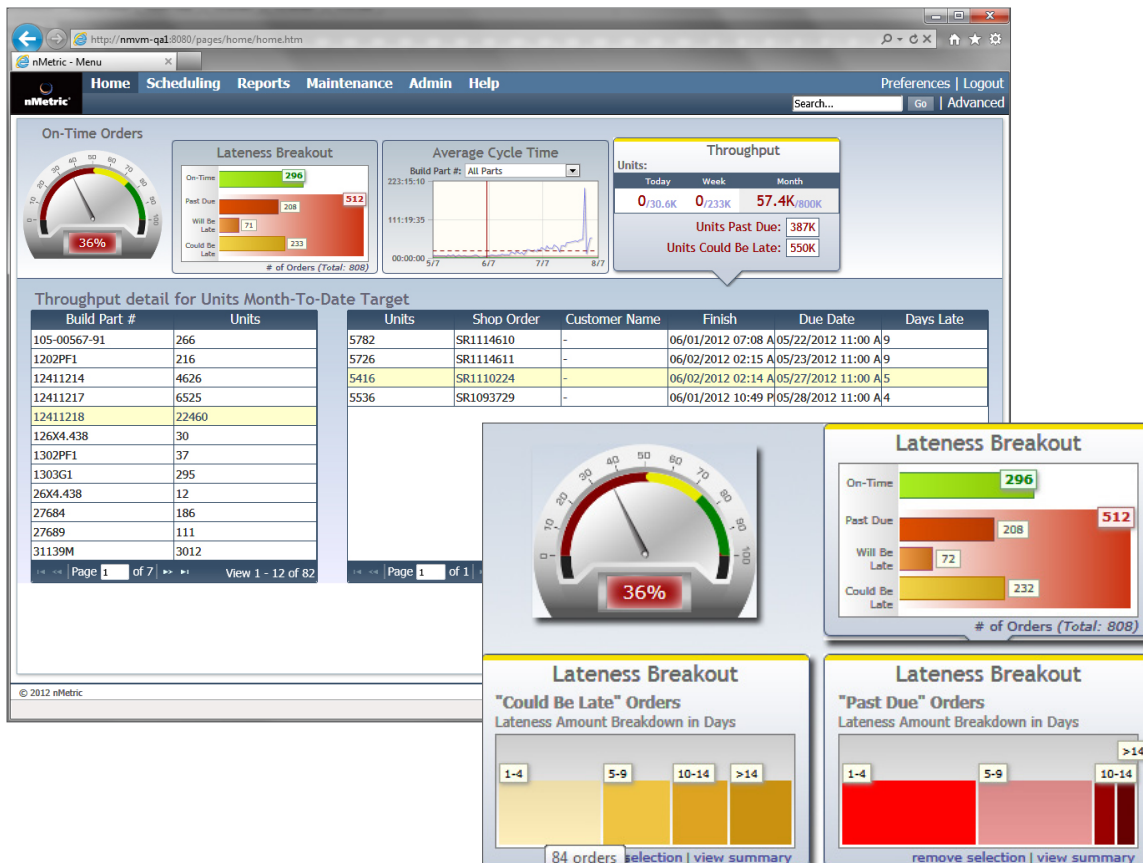- Overlapping tasks at fixed location work depot
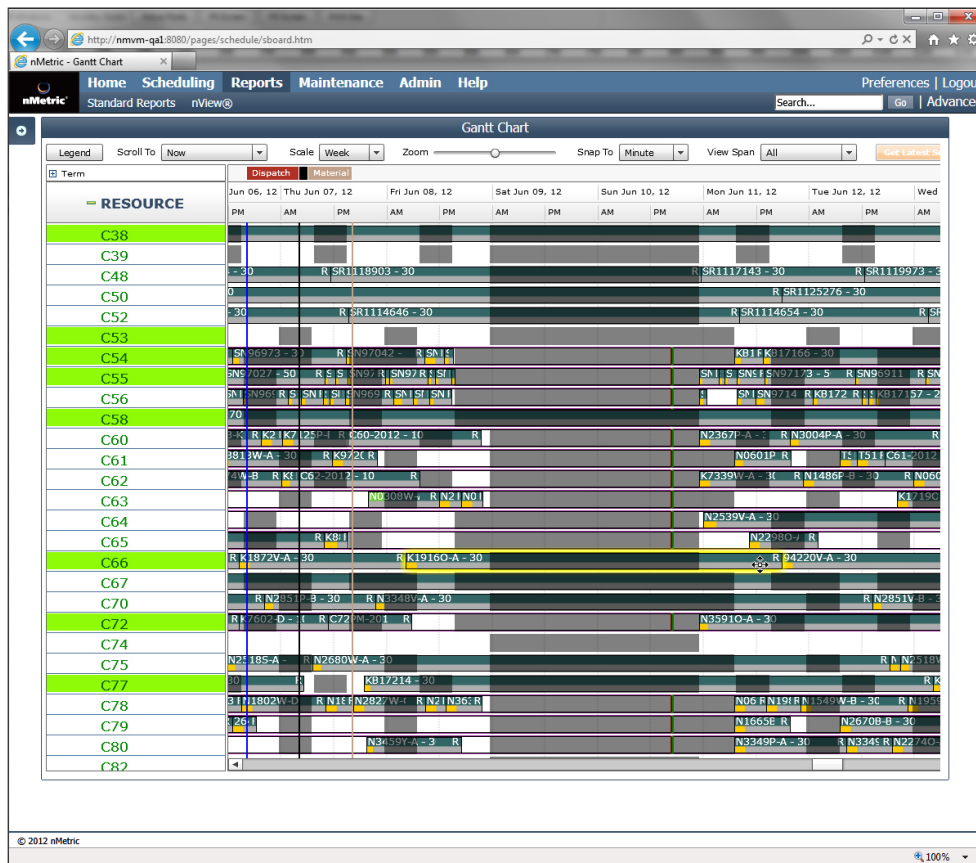
See reality as it really is

The majority of manufacturing software solutions can tell you if an order is currently past due, but most are unable to provide an accurate view of expected future order on-time status. With nMetric, you always know which orders are on time, which and how many are late or going to be late, and how late each will be.

The system uses real-time MES style updates to track the progress of each task, adding resource availability input data to create a continuous view to all stakeholders with real-time and forward-looking visibility of all orders and all operations on the shop floor.

The entire company can operate with a common awareness of current status and future possibilities. Event-based alerts will notify all interested parties when conditions change, providing the opportunity to proactively take action as appropriate.

Smart Jobs are updated and tracked in real time by a built-in MES functionality with operational task status, scrap tracking, rework rescheduling, order and operational notes and resource availability change management including adding overtime and maintenance downtime as needed. As a result, nMetric provides unprecedented current and forward visibility into workload, orders and constraints.

The system rearranges tasks and provides a real-time dispatch view for each resource, based on the on-time priority and prior task status for each task, so workers know which Smart Job has the highest priority and should be done next.

Additionally, a "material in house" scheduling fence holds back Smart Jobs where materials are not yet available. Other scheduling fences or terms are available for engineering or credit hold and other conditions where the work is not or should not be done.

To provide a stable window for materials to be staged and other preparations to be made, a configurable dispatch zone freezes the schedule for a period of time after the Now line, where new tasks cannot be added to the queue of a resource.

The schedule can be manually adjusted through drag-and-drop functionality that easily identifies for the user which resources are capable of substitution, allowing manual load leveling to less preferred resources if a particular resource is overutilized.

Track every step of every order

Integration and technical information

nMetric's scheduling software uses unique, patented Smart Job methodology, which is unavailable with any other scheduling software solution.

nMetric's nTegrator® integration technology uses best practices in ETL technology to provide continuous two-way relevant data interchange with any database including ERP, supply chain management, legacy and other custom solutions, so you can leverage your existing infrastructure and investment.

nMetric's Services Oriented Architecture (SOA) is stable, yet nimble and adaptive. Our solution is based on industry technology and performance standards that result in a world-class application. The architecture is open, scalable and component-driven with multi-platform capability and is database-agnostic. The architecture uses an n-tiered modular approach with event-oriented and near-real-time communication for messaging.

nMetric expects to offer its manufacturing software as a hosted solution in the near future, allowing smaller firms with to benefit from our unique offering.

External System (ERP, MRP, Other) — Event → nTegrator® → Query/Update → nMetric

External System (ERP, MRP, Other) — API ↔ nTegrator®

nTegrator® — Create → nMetric

External System DB ↔ Direct Access ↔ nTegrator®

nMetric — Event → nTegrator®