WHY nMetric?

How It Works

Traditional planning tools often prove to be inflexible, algorithmically driven to optimize on a few predefined criteria, and making exceptions are difficult to address. Also, as production mix shifts and changes increase, the increasing number exceptions bog down the system. Typically, you are forced to plan against snapshots in time rather than current reality, resulting in a schedule that is obsolete almost before it is issued.

nMetric's Smart Job Technology is designed to handle all exceptions. Our software embraces the constantly changing dynamic scheduling requirements of high-mix environments by honoring the reality of the resource capabilities and time limitations. It creates software objects for each task (Smart Jobs) and then, by applying probability and heuristic math, generates a virtual environment where Smart Jobs can negotiate with each other to reserve the resources they need.

nMetric not only virtually represents this dynamic environment, it embraces the uncertainty and assists you in navigating for best outcomes. To better understand nMetric dynamic scheduling solution software and its unique combination of functionalities, please read below and watch the videos on this page.

Scheduling Features

Attributes
The capabilities, skills or properties of any resource that is required by a task to be completed. nMetric matches the attributes of the resources with the requirements of a task, reserving time on those resources in the schedule.

Multiple Resource Types
Some tasks require more than one resource type to complete their work (work center, person, tool and material). nMetric gives you the option of scheduling any one or all of these resource types simultaneously.

Dependent Tasks
The dependencies of tasks in a series are recognized, honored and enforced by the scheduling engine.

Priority
Based on each task's required completion date/time for the full task series' on-time completion and any other client-defined criteria.

Ping Pong Scheduling

The scheduling engine reserves resources for each task, beginning with last operation and due date and working backward to the first task. If all tasks cannot be scheduled between the due date and the dispatch zone, then direction is reversed and the first task's resources are reserved beginning at the dispatch line moving to the last task. This process ensures just-in-time completion and WIP minimization.

Bus Route Scheduling

Operations are sequenced on a work center so that set-up times are minimized between operations, maximizing capacity utilization.

Load Level Scheduling

Demand is balanced across resources with like attributes to ensure all work is completed according to priority, utilizing capacity more effectively.

Multi-Task Scheduling

Some resources are capable of doing more than one task at a time. In recognition of this capability, a resource can be assigned the ability to do a number of tasks simultaneously. This appears as a stack on the Gantt chart.

Outside Vendor

nMetric provides visibility of WIP assigned to vendors and schedules for subsequent dependent operations.

Pinning/Anchoring

Tasks that must be completed on a specific resource can be pinned to and scheduled only on that resource. If the task needs to be done at a specific time, the task can be pinned to that time on any applicable resource. Or, if it needs to be on a specific resource at a specific time, it is anchored to the resource at the needed time.

Drag-and-Drop Moves

Tasks can be dragged from one location on the Gantt schedule and dropped onto another compatible resource. If a desired resource and time are required the task can be pinned or anchored to that resource and/or time when moved.

Now Line

As time progresses, the "now line" is always adjusting the schedule to represent the current situation. Tasks that have been started will pass through the now line and the queues for their resources will progress. If tasks do not start as scheduled they will be held back and the tasks behind them in the resource queue will be pushed back accordingly, absorbing gaps between tasks or shifting the entire queue. If subsequent dependent tasks are impacted by this shift, their place in their resource queue will be adjusted as well. The result is a true real-time view of your schedule according to the resource capabilities and status of all jobs.

Dispatch Zone

The schedule is frozen for a period of time ahead of the Now Line to allow for material staging, machine programming and other preparation activities.

Term Fences
These create "time from Now" thresholds where operations are held back in the schedule if specific criteria are not met. For example, if material is not in house, a credit or engineering hold is in effect, etc.

Overlap
Overlap provides the flexibility to start a subsequent operation in a series before the earlier operation is completed in order to shorten the cycle time, or time between start and completion, of an order.

Transport Time
nMetric recognizes the time required to move materials from one work center to another and inserts a buffer time between sequential jobs, creating a more realistic schedule.

Hot Order
When an order must be expedited and completed ASAP, nMetric provides functionality that allows the operations of that order to effectively cut in line at each required resource, and be forward-scheduled from the Now Line for the fastest possible completion. The only jobs that would not yield to a Hot Order task would be those anchored to both resource and time.

Split Order or Task
At times, it is advantageous for a very large order or task to be split into two or more smaller orders or tasks so that work can be done by multiple resources. nMetric provides the ability to split complete orders or single tasks into multiples, to be scheduled independently on available resources.

Resource Available Time Profiles

In addition to attributes, each resource must have a time profile indicating when each resource is available; shifts, holidays, overtime, downtime, etc.

Planned Resource Maintenance

Many resources require scheduled maintenance. nMetric provides methods for either one-time or regularly scheduled unavailable time for this purpose. Associated reminder alerts can be sent to required personnel.

Unplanned Resource Down

If a resource breaks down or becomes sick, the operations personnel can:

- Easily remove that resource's available time from the schedule.
- Automatically alert the appropriate maintenance people.
- For the down time period, if necessary, automatically reschedule Smart Jobs in the queue for that resource to a capable alternative, keeping the high priority tasks on schedule.

Task/Job Tracking

In order provide complete status to the schedule, nMetric combines basic MES functionality as part of our scheduling solution. Operations personnel can enter the starts, partial and full completions, scrap, and rework activities directly into the nMetric system using computer terminals, touch screens or bar code data-entry options.

Notes

Notes provide all levels of the organization with the opportunity for proactive communication, including engineering, schedulers, shop floor, maintenance and customer service and management; Notes are available for:

- Smart Jobs (general, hold, scrap and rework)
- Resources
- Customers

Lateness KPI

Lateness of orders and tasks are clearly visible with color display on scheduling Gantt chart. Additionally, the landing page graphically displays KPIs for overall percent lateness and aged lateness with drill down including numbers of orders and detail for:

- Past due
- Will be late (no change can help)
- Could be late (overtime intervention could prevent lateness)

Cycle Time KPI

The landing page graphically presents the average cycle time of unit production with options to view either past or future scheduled tasks. Display options incorporate all products or part numbers produced, including daily details.

Throughput KPI

The landing page graphically presents the total throughput (units of production), including target production rates, for the current day, week and year scheduled, with the option to view past or future scheduled production rates.

nVironment

nVironment is a unique graphical display of peak and underutilized capacity for advanced recognition and resolution of resource constraints. Using either over/under bar charts or heat maps, nVironment provides a multi-day view of full facility utilization and drill-down layered views for work areas, groups and individual resources. Long-term constraints are also visible to aid in asset acquisition planning.

Reports

Both standard and custom reports are available for dispatch, lateness, utilization and other criteria for analysis.

Alerts

Three levels of alerts include:

1. Onscreen messages for error notification
2. Client configurable, event-based alerts for issue proactive issue resolution using email
3. Notifications accumulated reoccurring conditions via email.