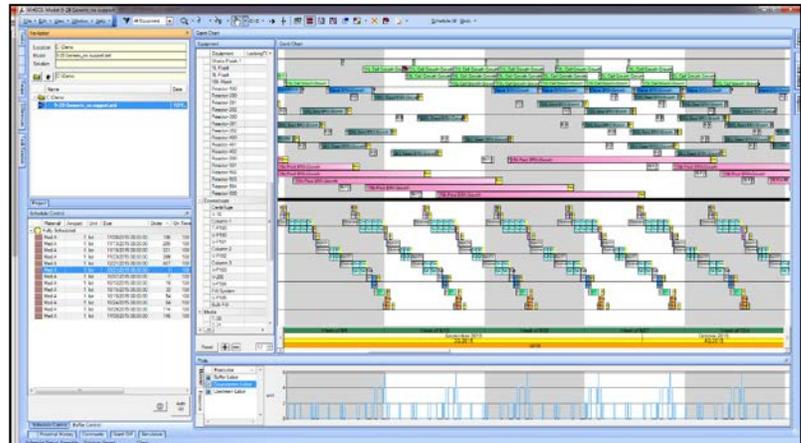


VirtECS™ Scheduler

For Capacity Planning and Process Improvement

VirtECS Scheduler provides unparalleled speed and power in considering process improvements to increase capacity.



Fully Automated Scheduling Engine

Capacity Planning and Process Improvement

Maximize Return on Investment

Efficient Frontier Generations

*When considering options for improving throughput & planning capacity, you need a solution that generates quality schedules **automatically** over a wide range of conditions.*

Maximize Throughput

With any plant or process, it is critical to get the maximum return from your capital investment. VirtECS Scheduler not only automatically delivers flexible daily schedules, but also gives you the tools to generate optimized schedules that maximize throughput.

Powerful Process Modeling

The VirtECS Scheduler allows fully automatic schedule generation and detailed process models. Process parameters such as yields, rates, setup times, as well as target inventory levels and even the number of process vessels can be easily defined and modified.

Extensive Scenario Analysis

VirtECS' ability to automatically vary plant parameters and generate feasible schedules can save considerable time and money by providing the power to analyze any number of scenarios. When there are many separate options to consider for process improvement, the number of different combinations to consider can be staggering. Using VirtECS allows you to look at options that might have been missed before.

Identify Effective Changes

By exploring a spectrum of possible process or policy changes, VirtECS Scheduler can help you identify the most productive change – or set of changes – which can improve your plant's overall capacity or throughput. VirtECS can also consider economic factors such as the expected benefit versus the cost of the recommended change.

Foster Continuous Improvement

With traditional initiatives to consider process improvements, the time and effort to identify a course of action can be significant. With the powerful strategic planning capabilities of VirtECS Scheduler, continuous process improvement doesn't have to be time consuming. Demand levels and resource bottlenecks are not static – use VirtECS to monitor the dynamic variables which limit your plant's capacity.

Simulation and Optimization

If your operation has uncertain demands or variable yields, VirtECS Scheduler can use sophisticated simulation techniques to help you respond rapidly to change.

Case Study: VirtECS Scheduler

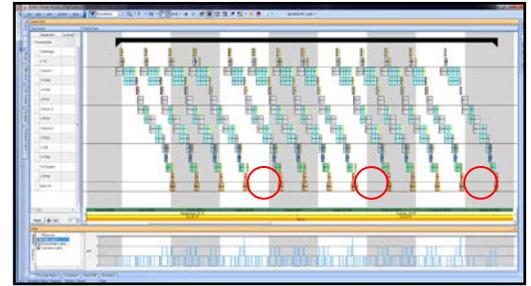
Capacity Planning and Process Improvement

Scenario

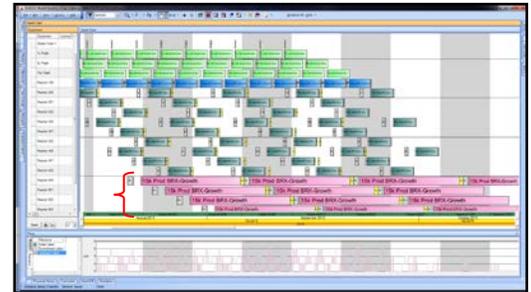
A biologics pharmaceutical manufacturing plant is expecting a large increase in demand in about four months. They need to increase capacity to meet anticipated demand levels.

Analysis using VirtECS Scheduler

There are currently 5 days between each bulk fill step. Bulk fill needs to happen every 3.5 days in order for the new product demand to be met. The cadence was increased from 5 days to 3.5 days in the model. This caused bottlenecks in downstream with some bulk fill tasks running late. The red circles to the right show delays in the process.



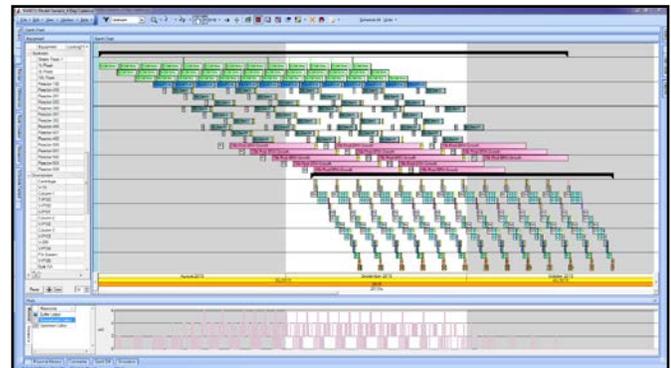
Looking at upstream, the seed bioreactors have time for more productivity, but the production bioreactors are now running back-to-back. Instead of buying a new production bioreactor, one is added into the model to see if this will alleviate scheduling pains.



Results

Adding in a fifth production bioreactor relieved the bottleneck on production bioreactors. Bulk fill is now able to run every 3.5 days. Taking a look at the resource plot, we can also see that adding in the fifth production bioreactor relieved heavy use of upstream labor by spacing out when bioreactors are run.

Management determined that adding in the extra production bioreactor pays off between less labor requirements and added productivity to meet the new product demands.



To see how VirtECS Scheduler can help you improve capacity contact Advanced Process Combinatorics...



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