BOREALIS

Borealis Achieves Faster Run Times and Better Quality Planning Solutions with Aspen PIMS-AO™

aspentech | Case Study

"With the adoption of Aspen PIMS-AO, Borealis is realizing dramatically faster run times, leaving more time to analyze scenarios and gain more accurate results."

Bengt-Ove Andersson
Group Expert, Borealis

CHALLENGE

Routinely evaluating hundreds of cases left little time for analysis. Complex models posed convergence and local optima problems, while non-linear processes were difficult to accurately model with traditional LP techniques. Difficulty managing and supporting distributed software deployment led to inefficient hardware use.

SOLUTION

Implement Aspen PIMS-AO in tandem with virtual machine (VM) deployment to provide the optimization team access to models and different versions of the software. Leverage key capabilities within Aspen PIMS-AO to support better decision-making for more profitable results.

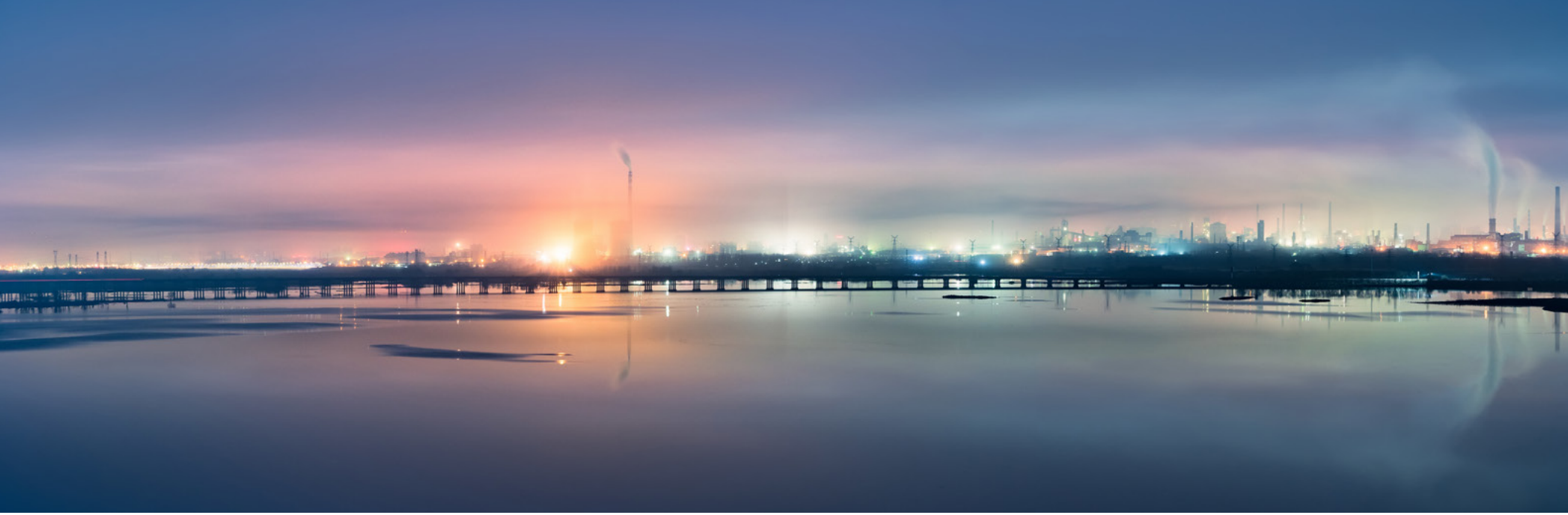
BENEFITS

- Achieved dramatically faster run times, yielding time to analyze more scenarios
- Converged all cases with virtually no local optima
- Employed non-linear modeling of key plant constraints
- Deployed planning models to a centralized virtual environment
- Eased software deployment time and maintenance with more efficient use of hardware

Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers. With headquarters in Vienna, Austria, Borealis employs around 6,900 people and operates in over 120 countries. The company generated EUR 8.1 billion in sales revenue in 2019. Mubadala owns 64% of the company, with the remaining 36% owned by OMV, the leading energy group in the European growth belt. Borealis provides services and products to customers around the world in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC).

"We achieved dramatically faster run times with Aspen PIMS-AO."

Borealis has three European locations for olefins and polyolefins production - Porvoo, Finland; Stenungsund, Sweden and Antwerp, Belgium. Each location has one main planner, with two to three alternate planners that may be in another location. To further complicate matters, Aspen PIMS was installed on separate desktops and laptops, leaving backup planners without access to the latest models and versions of Aspen PIMS. Borealis conducts weekly runs that consist of cost production and hold-even values of feedstock validation. The hundreds of cases that needed to be evaluated were time-consuming, leaving little time for analyzing the results or conducting additional project work.



Assembling a Task Force

In order to thoroughly evaluate Aspen PIMS-AO, Borealis formed an internal task force that included the information technology group. This facilitated the testing and validation of the new system, including the following actions:

- Migrated and fine-tuned existing models from Aspen PIMS to Aspen PIMS-AO with support from AspenTech
- Conducted a joint Borealis and AspenTech workshop, including all the relevant Borealis stakeholders (planners, IT, planning and optimization management) to review the results and benefits of the Aspen PIMS-AO migration, as well as discuss deployment options
- Tested the VM centralized server deployment
- Published Aspen PIMS-AO on the VM server

Evaluation

Borealis evaluated Aspen PIMS-AO's ability to:

- Reduce case work run times to allow for increased analysis to support better decision-making
- Address convergence and local optima issues
- Explore non-linear capabilities for more accurate modeling
- Leverage the latest advancements in optimization in the market today

Results

With Aspen PIMS-AO, Borealis experiences dramatically faster run times in the server environment. With more time for analysis, planners can routinely explore more scenarios. They are also leveraging non-linear modeling for key plant constraints and as a result, all cases converge with virtually no local optima. The centralized VM deployment of the planning models enables collaboration among the planners and eases software deployment and maintenance, with more efficient use of the company's hardware.

Borealis identified best practices during this project by collaborating with their IT department. Conducting the AspenTech workshop with all key stakeholders early in the process created alignment and internal commitment to the project. Since deploying Aspen PIMS-AO, planners have more time to explore additional scenarios in both the Porvoo and the Stenungsund sites. With all cases converging and virtually no local optima, confidence in the plans has increased.

The VM deployment of planning models has improved planner collaboration and increased consistency and efficiency. Moving forward, software deployment and maintenance will require less effort and the company's hardware will be used more efficiently – making it easier for Borealis to adopt new features as they become available from AspenTech.

"Aspen PIMS-AO helped us more easily identify and eliminate local optima."

aspentech | Technology That Loves Complexity

About Aspen Technology

Aspen Technology (AspenTech) is a leading software supplier for optimizing asset performance. Our products thrive in complex, industrial environments where it is critical to optimize the asset design, operation and maintenance lifecycle. AspenTech uniquely combines decades of process modeling expertise with machine learning. Our purpose-built software platform automates knowledge work and builds sustainable competitive advantage by delivering high returns over the entire asset lifecycle. As a result, companies in capital-intensive industries can maximize uptime and push the limits of performance, running their assets safer, greener, longer and faster.
Visit AspenTech.com to find out more.

www.aspentech.com