

Kurly: Transforming Delivery Logistics with Mathematical Optimization

Kurly

Kurly is a Korean online retailer offering a wide range of products, including fresh food, home meal replacements, daily essentials, and beauty items.

Industry: Retail

Location: Asia (South Korea)

Use Cases: Logistics planning

Website: www.kurly.com

Results

- Significantly reduced timeline for logistics network design projects
- Reduced warehouse tote usage, directly lowering operational costs

With Gurobi, Kurly can keep up with rising customer expectations while lowering costs and streamlining workflows.

Since its launch in 2015, Kurly has been transforming the online retail experience in South Korea. With its “dawn” delivery service (guaranteeing morning deliveries for orders placed by 11 p.m.), full cold-chain system, and data-driven decision-making, Kurly has changed the way Koreans shop online.

Initially targeting housewives in areas such as Seocho and Gangnam, Kurly’s customer base has since expanded to single-person households, dual-income couples, and health-conscious seniors, who value quality, freshness, and convenience.

Keeping Up Amidst Rapid Expansion

After undergoing rapid growth, managing logistics and supply chain operations became Kurly’s most critical challenge. Customers came to expect faster and more reliable deliveries, while order volumes increased dramatically.

The open-source optimization solvers Kurly was initially using proved insufficient, struggling to handle complex real-world constraints. Even simple models required significant time to solve, and key projects were significantly delayed, making agile iteration and improvement nearly impossible.

Optimizing Operations for Better Service and Lower Costs

Kurly adopted the Gurobi Optimizer to build advanced mathematical models capable of addressing these challenges. Applications included optimizing warehouse tote usage, improving delivery station assignments, and redesigning the logistics network.

Kurly’s data science team developed models in Python, integrated them with existing operational systems via FastAPI, and ensured real-time serving capabilities. To guarantee reliability, fallback heuristics were implemented



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Juyoung Wang, *Data Scientist, Kurly*

alongside Gurobi in real-time order batching systems to provide results if the solver did not return a solution within the time limit, ensuring uninterrupted service.

Since adopting Gurobi, Kurly has dramatically reduced their time spent on logistics network design projects. In addition, Kurly has significantly reduced warehouse tote usage, directly lowering their operational costs. They’ve also been able to implement more iterative stakeholder feedback loops per project.

“Gurobi is not just a solver—it has become an important platform supporting decision-making, and a key enabler of Kurly’s growth,” said Juyoung Wang, Data Scientist at Kurly.

Future Outlook

Kurly plans to continue expanding their use of Gurobi in future projects, driving further cost reductions and operational improvements.

The company also shares a message with other enterprises: “For mid-sized and large companies, the license cost should not be a barrier. If you identify a truly significant bottleneck, you can recover the entire solver fee in a remarkably short time—sometimes in as little as a week,” said Wang. “This immediate return, combined with Gurobi’s speed, language compatibility, and outstanding technical support, makes it the most reliable choice for ensuring optimization project success.”

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- Free access to our world-class technical guidance and support

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