“Vantiq helped us achieve digital transformation with its agility, ease of development, and data processing capabilities. We can now precisely forecast the timeline of the project, reducing both cost and risk.”

Shijie Zhao | CIO

Quick Facts

- Real-time data stream processing
- Agile microservice application development
- Shortened development time
- 70% reduction in the time to integrate previously disparate systems
- Reduced maintenance cost by 50%

With Vantiq, Capital Heat developed an agile development framework, where they can quickly and easily develop operation-oriented applications with high iteration. This infrastructure allows Capital Heat to further build its IoT platform and integrate with other intelligent systems. Vantiq ensured Capital Heat was successful in its digital transformation project by reducing both costs and risks.

THE CHALLENGE

Centralized district heating is a heating method in which one or several central heat sources supply the production heat and domestic heat required by users through the heat pipe network. Compared with decentralized heating boilers and small stoves, district heating can not only effectively use and save energy, but also prevents coal pollution. However, achieving timely and efficient heating for large areas remains a challenge.

Capital Heat is a district heating enterprise that relies on the industry’s most advanced independent innovation technology and intelligent systems. It is engaged in the integration of cross-regional heating resources,
municipal heating infrastructure construction, intelligent operation, and maintenance integrated management. They serve the area containing Xinjiang, Beijing, Tangshan, Lutai, Qingdao and other regions, with a total service area of 25,000,000 square meters.

Capital Heat was planning to develop its smart heating solution with event-driven architecture (EDA), IoT, and edge computing technologies. The capabilities of these new technologies will significantly optimize the end to end thermal energy transmission and the complicated SCADA deployments, while also saving money on the cost of heating and maintenance.

With a deep understanding of the required technical specifications, the management team knew the importance of finding the right platform to build an intelligent system that can integrate any device type to provide a holistic view of energy management and innovation.

THE SOLUTION

To ensure the success of their solution, Vantiq’s real-time event-driven application development platform was chosen by Capital Heat to build their Smart IoT heating platform. Developing on Vantiq allowed the application to be built with the following characteristics:

**Edge Computing to Seamlessly Run Advanced Technology**

AI algorithms built on the platform and running on the edge monitor and control the efficiency of the heat exchanger. Through edge optimization of the PLC and SCADA systems, Vantiq gives operators the level of granularity they need in order to heat the entire district safely and efficiently.

**Application Integration with Existing and Future Systems**

With Vantiq’s advanced event broker, Capital Heat was able to turn SAP into a back-end database with business logic. This allowed them to use Vantiq’s event-driven architecture to create a flexible platform, which integrates their BPM and other critical systems together. This platform integrates the data from different brands, protocols, data formats, and monitoring devices to provide a holistic view for better energy management.

**Situational Awareness via Human-Machine Collaboration**

By correlating data points such as weather conditions, house materials, and coverage areas with real-time streaming data from smart sensors in the field Vantiq provides operators with a holistic view of heating operations. By only alerting operators when a problem or situation of interest occurs the system cuts down on errors and keeps the system running smoothly.
“We really appreciate the unique features that Vantiq offers and the combination of functionalities needed to make sure our project is a huge success.”

Shijie Zhao | CIO

THE RESULT

Improved business agility & visibility
With Vantiq’s low code and agile application development platform, Capital heat was able to utilize the drag and drop interface to test out the application design and finish the IT infrastructure in weeks compared to what would normally take a year. With the IoT platform created on Vantiq, the management team has real-time visibility into multiple business events (sales, warehouse, purchase, return, delivery, manufacturing, etc.).

70% reduction in the time to integrate previously disparate systems
With Vantiq’s advanced event broker, Capital Heat was able to integrate previously siloed applications and isolated data. SAP sends events to Vantiq’s where the event is verified for completeness, standardized, and delivered to the subscriber. Having a loosely coupled integration mechanism was key to the success of the project.

This made it easier for Capital heat to manage many kinds of devices and sensors by providing a holistic dashboard to visualize incoming data.

Increased safety and security
Reduce Maintenance cost by 50%
The visual development and operation environment simplified on-going enhancements and maintenance for Capital Heat. Vantiq’s human-machine collaboration technology provides real-time alerts to operators and assigns technicians when maintenance is required. This helps reduce maintenance costs by managing the heating facilities in a more effective way and ensuring little to no downtime.