

# NTT COMWARE enhances city tourism service by building business rules engine with Red Hat



**NTT COMWARE**

## Software and services

Red Hat® Decision Manager

Red Hat Consulting

Software developer and system integrator NTT COMWARE, part of the NTT Group, recently introduced a city tourism and transportation service, LIKEUP®, in 2020. However, manual business rules management made offering personalized, real-time recommendations—and making timely service updates—challenging. To prepare to expand LIKEUP to new areas and services, NTT COMWARE adopted Red Hat Decision Manager, an enterprise business rules engine. Now, the company can calculate accurate behavior forecasts to develop and deliver the right services at the right time, from traffic congestion relief to consumer shopping promotions.



## Technology

**5,766** employees  
**11** offices

## Benefits

- ▶ Replaced manual business rules management with efficient, automated rules engine
- ▶ Increased delivery cadence to align with user and market demand
- ▶ Created foundation for mid-term sales growth

“Compared to competing solutions, we found Red Hat Decision Manager to have far more flexibility in input format, where anyone at our company can set rules if they have an idea or a need.”

**Naoya Tajima**

Senior Manager, BigData Solutions Department,  
Enterprise Business Division, NTT COMWARE

“Red Hat’s veteran technology experts helped not just our young members but our entire team become experienced with agile development. Now, our teams can follow best practices for iterative, collaborative development to continue improving LIKEUP.”

**Karin Tanaka**

Engineer, BigData Solutions Department,  
Enterprise Business Division,  
NTT COMWARE

## Modernizing customer journey mapping to scale new travel service

NTT COMWARE, part of the NTT Group, provides system integrator services as well as various information services and solutions. In 2020, NTT COMWARE introduced LIKEUP, a travel service that provides personalized, real-time local information, including tourism and event information. LIKEUP uses photo comparisons, such as reviewing cafe menus, to ask users about their preferences. It then combines the answers with provided data—such as the purpose of their visit, the number of people traveling, and more—to offer tailored suggestions.

After completing a proof of concept (POC) with the East Japan Railway Company addressing station crowd congestion, NTT COMWARE began working with the Kaihin-Makuhari Station to provide tourism, event, and traffic information to users of the station’s Keiyo Line.

A key source of information for the service is a customer journey map modeled on the user’s service experience to predict future behavior. However, as NTT COMWARE began test deployments to shopping districts and businesses, scaling and structuring these journey maps became challenging. Attributes and other key indicators were manually and individually configured as rules in a database spreadsheet. As production launch for the LIKEUP service neared, NTT COMWARE sought to replace this manual approach with a more efficient, scalable approach.

“When we began planning expansion to multiple sites, we realized that we would need to rewrite programs for each implementation if we continued with our table-based method. But we had a tight schedule for the official LIKEUP launch,” said Naoya Tajima, Senior Manager, BigData Solutions Department, Enterprise Business Division, NTT COMWARE. “Instead, we decided to define and administer the customer journey map rules outside of the program itself by creating a logic-based rules engine that could use provided parameters to return the right information at the right time. With this approach, anyone at our organization could configure and customize the rules of a customer journey map as needed.”

## Replacing manual rules management with an enterprise rules engine

Since the main programming language for LIKEUP is Ruby on Rails, NTT COMWARE initially considered adopting rein, a rules engine written in Ruby. However, rein had a poor reputation for commercial use and maintenance. Instead, NTT COMWARE chose Red Hat Decision Manager as the rules engine supporting LIKEUP in production.

Red Hat Decision Manager is an automation platform for business rules management and more. Its ability to separate business rules from the application platform layer, and its ability to support entering and reading rules in a spreadsheet, contributed to NTT COMWARE’s selection. With a cloud-native architecture and rich application programming interfaces (APIs), Decision Manager creates a modular, easy-to-use repository for business rules.

NTT COMWARE’s teams worked closely with Red Hat Consulting to deploy and optimize its new rules engine. “Red Hat’s expert consultants were full project team members,” said Mr. Tajima. “They provided timely, helpful support to get issues resolved quickly.”

## **Establishing an agile, efficient service development approach**

### **Improved efficiency of business rules development and maintenance**

With Red Hat Decision Manager, NTT COMWARE can now manage and implement its business rules in a repository that is maintained separately from its applications. As a result, anyone at the company can complete definitions for a customer journey map—providing outcomes and rules based on user reactions to terms like different locations, activities, and moods. Any terms entered into the spreadsheet are converted to business rule parameters that inform LIKEUP's decisions and recommendations.

Additionally, customer journey maps can now be applied to other services with minimal alteration required. As a result, NTT COMWARE can scale this customer intelligence to develop new, tailored offerings faster.

"Compared to competing solutions, we found Red Hat Decision Manager to have far more flexibility in input format, where anyone at our company can set rules if they have an idea or a need," said Mr. Tajima.

### **Increased delivery cadence to align with user and market demand**

A key part of NTT COMWARE's successful shift to automated, modern business rules technology is its adoption of a more efficient, agile work approach. Working with Red Hat expert consultants has helped the company achieve a regular cadence of one minor release for LIKEUP per month and one major release every three months. Previously, major releases could take years to deliver. Now, NTT COMWARE more closely align with market conditions and user demand for ongoing service enhancements.

"Red Hat's veteran technology experts helped not just our young members but our entire team become experienced with agile development," said Karin Tanaka, Engineer, BigData Solutions Department, Enterprise Business Division, NTT COMWARE. "Now, our teams can follow best practices for iterative, collaborative development to continue improving LIKEUP."

### **Created foundation for mid-term sales growth**

Adopting an enterprise business rules engine has not only helped NTT COMWARE address user demands but also stay competitive with similar services, with support to continue expanding and adapting LIKEUP for new shopping areas and tourism-related businesses.

Aided by its new business rules approach and Red Hat software and services, NTT COMWARE expects sales for LIKEUP and related services to grow over the near future.

## **Adapting to data growth with microservices and containers**

After its successful adoption of an automated enterprise business rules engine, NTT COMWARE now plans to continue using Red Hat Decision Manager to support ongoing expansion of LIKEUP. The company plans to bring LIKEUP to additional transportation stations, facilities, and stores across broader tourist areas, as well as enhance suggestion capabilities to provide suggestions before and during travel.

With plans to also support real-time customer attraction campaigns and communication, NTT COMWARE is also evaluating how to accommodate anticipated growth in data processing volume. For example, the company is evaluating replacing LIKEUP's Ruby framework with the Red Hat build of Quarkus to take advantage of the scalability and responsiveness of running Java™-based microservices in a modular container environment.

"Thanks to Red Hat's exemplary support backed by their extensive knowledge, we have now created a foundation to take advantage of new open source technologies and development methods," said Ryoma Ibuka, Development Manager, BigData Solutions Department, Enterprise Business Division, NTT COMWARE. "No matter where the future brings us, we are confident we can meet new business challenges and achieve even more success for LIKEUP."

### About NTT COMWARE

Based on its slogan of "Connect hearts, deepen social networks," NTT COMWARE is developing various ICT solutions to support "Japan's communications" in order to realize a more enjoyable, warmly rich communication society with convenience and peace of mind. These solutions include such as communications infrastructure, business systems to support the corporate core, and large scale customer information management databases.



### About Red Hat Innovators in the Open

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