

## Recommendation Engine Packaged Software Supporting One-to-One Marketing

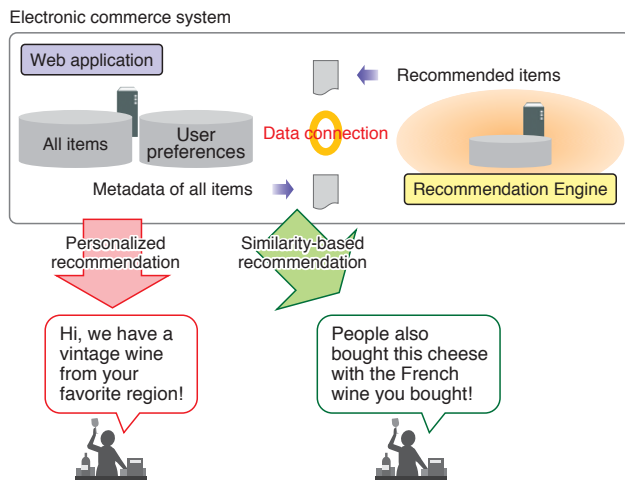
Toshiba has developed a packaged software called the Recommendation Engine for various Web applications such as online shopping services. This software has the following two recommendation methods:

- a personalized recommendation method, which uses the customer's history (purchases, viewing, etc.), analyzes his/her preferences, and recommends items using a Bayesian filtering model
- a similarity-based recommendation method, which uses the behavior history of other customers who have similar behavior to the customer and recommends items to him/her using a collaborative filtering model.

We have prototyped a multilingual version of this software that supports English and French. This feature is implemented by changing the natural-language processing core from Japanese to another language. We will complete these language versions, and also develop other language versions (German, Spanish, etc.) for the European market.

The Recommendation Engine can be used not only to recommend items, but also for customer relationship management (CRM).

This software stores each customer's preference data for making recommendations. The stored data can be used with the customer's profile and history data (described above) for targeted marketing such as the clustering of customers for sending of direct e-mail, or for analyzing and specifying targeted customer groups.



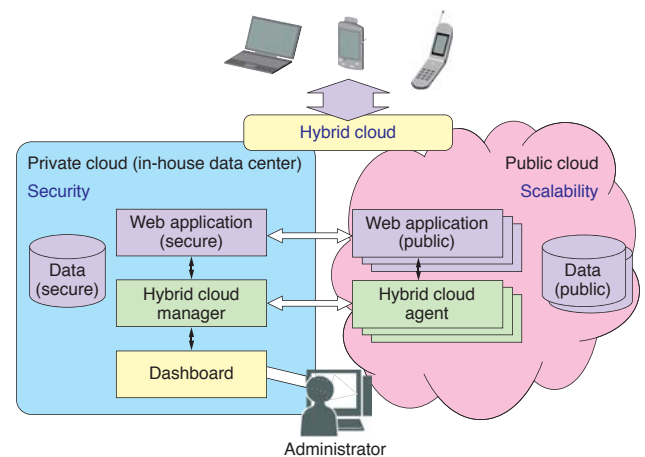
Example of recommendation system

## Service Architecture Using Hybrid Cloud Computing

Toshiba has designed a hybrid cloud service platform that provides both the scalability of a public cloud and the security of a private cloud (an in-house data center).

The management feature underlying the hybrid cloud service platform supports resource observation required for cross-cloud virtual-machine control, on-demand resource distribution, and the implementation of security tasks. In addition, the dashboard displays the resource distribution status and supports system operations appropriate to the situation of load status.

By constructing services on this platform, it becomes possible to offer services that can tolerate both concentrated traffic and security requirements.



Hybrid cloud service architecture