

Personalization and Intelligent Database Technology

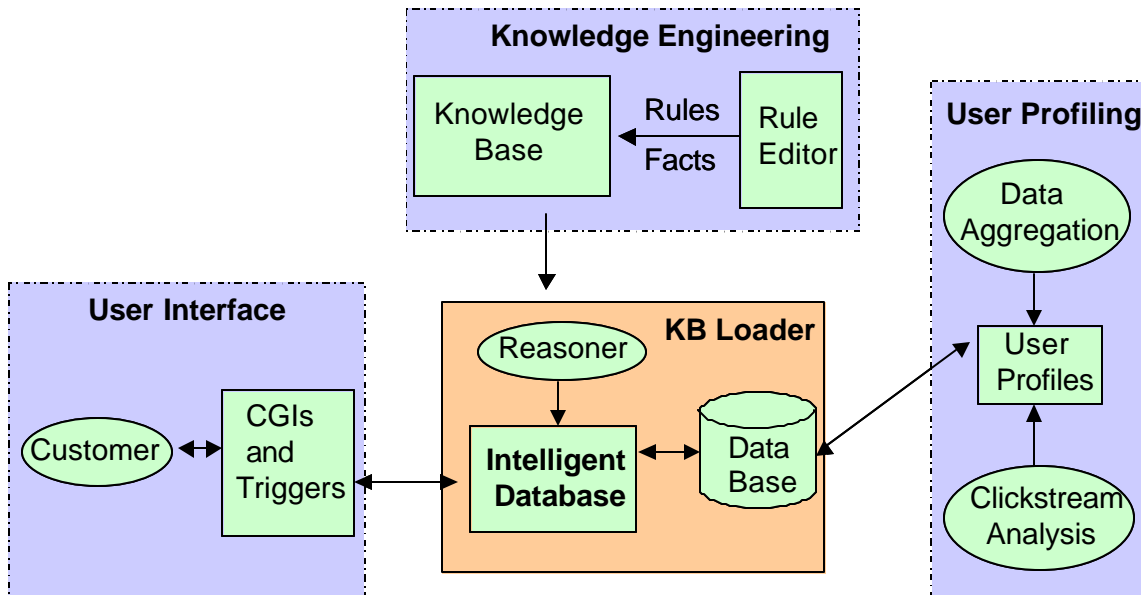
Large scale e-commerce application development requires expert systems (Parsaye and Chignell, 1988) and intelligent database technologies (Parsaye and Chignell, 1993) to simplify the development of intelligent software agents for tasks such as personalization and transaction handling.

Intelligent database technology can be used to facilitate and manage e-commerce transactions. Through the application of business and transactional logic on a large scale it allows precise control over how clickstreams and user inputs are handled, so that e-commerce developers can quickly and easily convert business logic into intelligent software functionality. Business logic is expressed in the form of readable facts and rules. The resulting intelligent database or e-commerce engine then handles the tasks of applying these rules on a large scale, of managing and updating customer profiles, and of identifying patterns and rules from clickstream data.

In order to make this work for e-commerce, an industrial strength expert system has to be designed from the ground up to handle thousands of customers, and the associated threads of reasoning, simultaneously. The expert system is then linked to a powerful relational database to create an intelligent database. This is then supplemented with rule editing and clickstream analysis to provide an effective environment for monitoring and facilitating customer interactions and activity.

These large-scale e-commerce applications require a powerful intelligent database connected to a knowledge engineering system. This system consists of knowledge bases of fact-rules that can be modified through a rule editor. Different knowledge bases can then be loaded into the reasoner based on the type of customer or application. The reasoner also responds to inputs provided from customers and utilizes user profile data collected through data aggregation (e.g., online services, customer databases, etc.) and by clickstream analysis.

The following figure shows the architecture of an intelligent database framework configured for use in e-commerce and personalization.



The figure shows the central role that the database places on applying business logic and personalization to transactions occurring through the user interface to a Website. Although not shown in the figure, an additional input to the intelligent database might be a backend server carrying out a variety of transactions such as online banking and trading.

Conclusion

E-commerce requires intelligent software agents to carry out transactions based on business logic and personalization. The potential scale of e-commerce means that these agents cannot be handcrafted but must be built using an efficient process that transforms business and personalization logic into intelligent software behaviour. This can best be done using proven intelligent database technology that combines industrial strength expert systems with powerful relational databases.

References

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