Ubiquitous Service-oriented Platform

The Ubiquitous Service-oriented Platform is technology for composing services that are suited for individual users, in particular, context-aware services, which are an anticipated feature of the future ubiquitous environment. We approach the problem of providing services specific to individual users by dynamically discovering service components and binding them according to the user's situation rather than preparing all services in advance. Specifically, this approach involves abstract description of service scenarios by using Semantic Web-based metadata. A service composition engine then translates an input scenario, discovers service components that suit the user's context, and binds them to achieve the service.

We established the core part and extended the functions of the service composition engine. Last fiscal year, we improved the metadata resolution function (while BPEL* and other technologies for cooperation among commercial services have strict interface specifications, the specification of semantic metadata allows for a flexible discovery process in which substitute components that are semantically close can be discovered when completely suitable components cannot be found at the time of execution) and increased the processing speed of the engine to handle 10,000 scenarios or more per hour. This technology allows the user to receive varied services by simply describing a semantic-level service scenario.

We developed a shopping support service system that uses this technology, which was well-received in the field trial conducted in February 2006 at the Elm City Shopping Center located in Goshogawara City Aomori Prefecture, Japan. We are also investigating other applications, such as a service coordination application that allows a user to freely compose functions of the NTT Group portal Web site, a home appliance coordination service application in which the composition engine is incorporated into a home gateway, and other applications.

Currently, we are developing a metadata attachment tool, a service scenario editor, and other functions to make the Ubiquitous Service-oriented Platform easier to use.

* BPEL: Business Process Execution Language

Outline of Ubiquitous Service-oriented Platform