The research and implement of service sharing using FIPA discovery mechanisms in Ad Hoc environment

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ABSTRACT

The increases of the functions and the applying fields of mobile devices has made personal information processing become Multiple. However, there is lack of a service integrating Mechanism to let all kinds of information service functions exchange. Furthermore, mobile devices have mobility and fixed traditional information service can't offer the requirement which mobile environment need. This paper brings up an multi-agent community architecture – DASS (Distributed Agent Service Sharing). The study use the autonomy and the communication of the agent’s property and construct the service sharing architecture in order to discover service actively and share service negotiation. This System of the study is modeled according to PASSI methodology. The discovery-agent searchs remote agent platform and its services on them with existing service discovery architecture on JXTA. This paper proposes the template translating-agent which is able to translate the service description of service discovery architecture in order to interoperate more service discovery protocols, and the recording-agent which manages the records on the proxy in the Ad Hoc network, and the config-agent which accomplishs the configuration setting of system, and the resource-management agent executes the tasks including the service of deployment, security of control and resource of monitor. We develop this system in the agent middleware platform on JADE. The contributions of this paper are (1) constructing service sharing system with agent technology in the mobile device, our system communicates with other agents using One-Stop concept. After accomplishing the framework and service discovery template of this system, the developer could construct the application of service sharing in the short time; therefore, they will be able to pay more attention on the logical definition and creation of service sharing; (2) extending abstract discovery mechanism defined by FIPA in order to increase the tolerance between agent systems, and implement publish and search of service in the agent platform with JXTA. By this ways we can solve the problem which is hard to obtain service among peers in Ad hoc network; (3) We make the negotiation of service sharing model according to ACL defined by FIPA, and set up the simple ontology of service sharing; therefore, in the process of communication, the study simplifies the question of communication between hetrogeneous agents. We can understand mutual intention without needing to take notice of the vocabulary and syntax between both sides.

Keywords : service sharing ; Agent Society ; FIPA standard ; PASSI Methodology ; JXTA

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