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基于CAFISE Framework的高适应性面向服务软件开发

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Abstract

In enterprise information systems and e-government systems, the problems caused by the changes of heterogeneous distributed resources and requirements are becoming more and more serious. How to make an application accommodate to these changes rapidly has become a hot research topic. This paper presents an adaptive service-oriented software framework, named as CAFISE (convergent approach for information system evolution) Framework for supporting business-end programming, and a CAFISE Framework based development method for service-oriented adaptive software. The CAFISE Framework enables to encapsulate the heterogeneous resources into business services and provides strong supports for open and dynamic service-oriented software architecture. Beginning with analyzing the environment factors that affect an application, the CAFISE Framework based development method supports to design software architecture according to the changes that the application will adapt to, with quality feature driven architecture analysis, and facilitates the just-in-time development and evolution of service oriented applications by architecture based business-end programming. The actual applications and experimental results show that the service-oriented enterprise information systems and e-government systems developed with the framework and the method of this paper can accommodate better to the changes of heterogeneous resource and business requirements, and can continuously evolve with lower costs.

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摘要

在企业及电子政务应用中,由资源分布异构及需求动态变化而产生的问题越来越严重,如何让应用快速适应这些变化一直是人们关注的一个研究难题.首先给出了一个面向服务的支持业务端编程的适应性软件结构框架CAFISE(convergent approach for information system evolution) Framework,然后给出了基于该框架的面向服务的适应性软件开发方法.CAFISE Framework对异构资源的服务化、业务化及开放动态的面向服务软件体系结构提供了较好的支持.基于该结构框架的开发方法,从对影响软件的环境要素分析入手,通过质量属性驱动的体系结构分析,重点针对应用要适应的变化进行结构设计,最终通过以体系结构为基础的业务端编程,实现面向服务应用的即时开发与演化.在实际项目中的使用及实验证明:用该框架和方法开发的面向服务应用,能够较好地适应异构资源的动态变化及用户业务变更,能以较低的代价实现企业及电子政务面向服务应用的持续演化.

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