

Web Service Architectural Style Selection in Multi-Criteria Requirements

Authors : Ahmad Mohsin, Syda Fatima, Falak Nawaz, Aman Ullah Khan

Abstract : Selection of an appropriate architectural style is vital to the success of target web service under development. The nature of architecture design and selection for service-oriented computing applications is quite different as compared to traditional software. Web Services have complex and rigorous architectural styles to choose. Due to this, selection for accurate architectural style for web services development has become a more complex decision to be made by architects. Architectural style selection is a multi-criteria decision and demands lots of experience in service oriented computing. Decision support systems are good solutions to simplify the selection process of a particular architectural style. Our research suggests a new approach using DSS for selection of architectural styles while developing a web service to cater FRs and NFRs. Our proposed DSS helps architects to select right web service architectural pattern according to the domain and non-functional requirements. In this paper, a rule base DSS has been developed using CLIPS (C Language Integrated Production System) to support decisions using multi-criteria requirements. This DSS takes architectural characteristics, domain requirements and software architect preferences for NFRs as input for different architectural styles in use today in service-oriented computing. Weighted sum model has been applied to prioritize quality attributes and domain requirements. Scores are calculated using multiple criterions to choose the final architecture style.

Keywords : software architecture, web-service, rule-based, DSS, multi-criteria requirements, quality attributes

Conference Title : ICWS 2016 : International Conference on Web Services

Conference Location : Madrid, Spain

Conference Dates : March 24-25, 2016