

Architecture for QoS Based Service Selection Using Local Approach

Authors : Gopinath Ganapathy, Chellammal Surianarayanan

Abstract : Services are growing rapidly and generally they are aggregated into a composite service to accomplish complex business processes. There may be several services that offer the same required function of a particular task in a composite service. Hence a choice has to be made for selecting suitable services from alternative functionally similar services. Quality of Service (QoS) plays as a discriminating factor in selecting which component services should be selected to satisfy the quality requirements of a user during service composition. There are two categories of approaches for QoS based service selection, namely global and local approaches. Global approaches are known to be Non-Polynomial (NP) hard in time and offer poor scalability in large scale composition. As an alternative to global methods, local selection methods which reduce the search space by breaking up the large/complex problem of selecting services for the workflow into independent sub problems of selecting services for individual tasks are coming up. In this paper, distributed architecture for selecting services based on QoS using local selection is presented with an overview of local selection methodology. The architecture describes the core components, namely, selection manager and QoS manager needed to implement the local approach and their functions. Selection manager consists of two components namely constraint decomposer which decomposes the given global or workflow level constraints in local or task level constraints and service selector which selects appropriate service for each task with maximum utility, satisfying the corresponding local constraints. QoS manager manages the QoS information at two levels namely, service class level and individual service level. The architecture serves as an implementation model for local selection.

Keywords : architecture of service selection, local method for service selection, QoS based service selection, approaches for QoS based service selection

Conference Title : ICCSEA 2015 : International Conference on Computer Science, Engineering and Applications

Conference Location : Madrid, Spain

Conference Dates : March 26-27, 2015