

ABSTRACT

The applications for a business or industry for the integration of its business process within and across verticals and across various platforms, requires an integration strategy such as the emerging Web Services (WSs) technology. The technology of web services has been proved of its effectiveness in the implementation of, usability and functionality services in the World Wide Web consortium [www.w3c.org] and in the current most widely used business services delivered over the internet. Web Services technology simplifies the process of design, publication and further development of business services over the internet based on wide number of easy to follow specifications and rules where even the existing services can use with easy techniques. The technological advantages of web services are being seen in building, application-based process driven websites for integrating into the websites framework applications that are different, can be implemented in diversified environments and are independent in nature. We can define a web service as an independent application which connects, communicates and processes the process with other web services using standard technologies of Internet. A web service can help a composite business process such as “Travel Planner” to integrate its several different individual services such as, travel insurance, flight booking, hotel bookings, car rental and itinerary planning that can be sequentially or concurrently implemented.

In the numerous web services available today, a group of WSs may provide services of the same type that may group as a community. For selecting a web service from a community, the nonfunctional properties such as differences of pricing, are used. The non-functional properties termed as Quality of Service (QoS) characteristics are strongly suggested for selection of a web service. Web services-based technology is an encouraging technology for resolving system integrators issues of platform interoperability and compatibility. This web service selection process however does not use QoS factors in the selection process due to which the rate of acceptance has been low.

To this, our research is aimed to define set of meta-heuristic strategies towards forecasting the fault proneness of the compositions defined. The initial objective of the

research is to identify the significance of the Quality of Service Centric web service composition, current benchmarking Service Composition Strategies and their limits. To achieve this, the Contemporary Affirmation of the Recent Literature was done. Further to overcome the limits observed in existing service composition strategies, further contribution devised a novel statistical approach to assess the service composition impact scale towards fault proneness. The devised model explores the higher and lower ranges of the service composition impact scale, which is from the earlier compositions that are notified as fault prone. According to the real-time practices the QoS assessment by one or two factors is impractical. Moreover, these soft computing approaches are delivering the computational complexity as $O(n^2)$, which is due to the magnification of number evolution against the increment in number of services available to choose. Henceforth, here in our further contribution of the research, a set of exploratory metrics were proposed, which enables to assess the services by multi objective QoS factors. These QoS metrics enables to assess the services based on multiple number of QoS factors and should stabilize the computational complexity to $O(n \cdot \log(n))$. The experiment results are indicating the significance of the proposed model towards scalable and robust QoS- aware service composition. These devised explorative measures reconnoiter the higher and lower ranges of the QDI & CBS, which is from the earlier compositions that are notified as either fault inclined or hale. In our best of knowledge, this dimension of considering cohesion between services towards QoS aware service composition was not considered in earlier research. Further contribution of the research is a heuristic metric to assess the service composition impact scale for composition fault inclined (SCFI). The devised model explores the higher and lower ranges of the SCFI, which is from the earlier compositions that are notified as either fault inclined or hale. The experimental results explored from the empirical study indicating that these devised models are significant towards estimating the state of given service composition is fault inclined or hale.