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A Challenging Research of Service-Oriented Architecture (SOA): Maintenance and Evolution of Web Service Based Application

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Abstract. Service-Oriented Architecture (SOA) has changed the way with technology with a very fast peace keeping the demand of realignment time very short. With the emergence of SOA, many applications in the real world once realized for rendering services, services are given importance rather than individual applications. SOA permits a quick and low-cost application growth done facility composition. SOA architectural design has all characters which the business community desires for long. The authenticity is that Service-Oriented Architecture (SOA) leftovers the finest choice obtainable for schemes combination and influence of legacy systems. The technologies to implement SOA will certainly evolve to address emerging heads, but its concepts will remain. This needs is especially important because of recent concerns that SOA is potentially being stretched beyond its limits. SOA research based on a proposed life cycle that emphasizes the relationship between business and SOA strategy. As a consequence, new methodologies are required to ensure effective SOA application development. Web Service is the technology that is related to the concepts of SOA. An overview of the SOA research and focused specifically on maintenance and evolution, on growing concerns as more and more Service-Oriented Architecture are deployed. A Research theY include the elements of SOA problem and solution space, a SOA development life cycle to support strategic SOA adoption and implementation. This paper aims to SOA methodologies describing their solutions for SOA maintenance and evolution of web services based applications with SOA applications of different companies are integrated to have a unified facility to be condensed to end users. In this paper, we provide the insights on the technologies behind machine to machine integration and their applications in the real world.Keywords: SOA, SOA Analysis and Design, Web Services.

1. Introduction

SOAisoneofthemajormattersofconcernbecauseofthe dynamic nature of the service binding and the adaptabilitytoaccommodatethechangedrequirement.JustbyapplyingaWeb,Servicelayeronthetopoflegacyapplicationsorcomponents does not guarantee true SOA properties, such asflexibility,loosecouplingandreusability.Instead,asystematicandcomprehensiveSOAanalysisanddesignmethodologyisrequired[1].SOAadoptsaservicecentricapproachthatis about factoring functionality into shared, reusable servicesand applications are built by assembling those services intoautomated processes. Multiple patterns, defining design, implementations and deployment of the SOA [2]. We trust thatSOAistherightmethodforgreatmeasure,independent Schemes and offers the characteristic returns of SOA, such asreusability, independent expansion and disposition, platformindependence shot and elasticity. SOA is used to study thefeasibilitythatareoperatedbyindividualsacrosstheglobeandare combined to have a seamless integration of web services.Different kinds of ways used build web services are explored.ManyapplicationsthatarebasedonSOAareanalyzedin [3] forgivingusefulinsights.SOAbasedapplicationsareused in real world, web services that can be used to realizeSOAisgivenimportancewithtechnologydescriptionandusedcases. Here the changed scenario of implementation of SOAenabled applications, system integrators select services to beintegrated in their systems and assume that such services willmaintain their characters while being used. A number of SOAmethodologies have already been performed by they treat themfrom a general point of view without providing any analysis ofproperties of these methodologies aiming at SOA analysis anddesign phases. Web Services discovery and reputation basedapproached studied testing of web services that are composedinto different application is the main focus of flow of servicesand then tested them. Many people associate SOA with webservices,butthistightassociationisnotappropriate.SOAis an architectural elegance overseen by a usual of projectmoralities.Itisatechnologythatfacilitatesthedevelopmentof service-oriented systems, but using it doesn't guarantee asuccessfulSOAinitiative.

2. Service-Oriented Architecture

SOAisadesignstylethatenablesbusinesstoincreaseflexibilityandagility.Butincommandtoattaintheserecompenses,a group must hold SOA as an existence modification. Multipledesigns, essential, strategy, executions and disposition of theSOAsolutions,comprehensivethisstyle.SOAisanewwayto design systems, and this technology shows a new directionto its user's to think differently about business process. Toimprove the chances for success, an organization must establish discipline through a strong governance program. SOA aremutual to consume a unified integration of web services withcloud computing. In SOA is explored for e-commerce domainwhere distributed programming and application scenarios

areimportant [4]. SOA is one of the major matters of concernbecauseofthe dynamic natureof the servicebindingand theadaptabilitytoaccommodatethechangedrequirement.SOA has changed the way business enterprises get alignedwith technology with a very fast pace keeping demand of realignment time very short. Most SOA benefits are hard tomeasure, but a number of organizations have been able todemonstrate significant cost savings through reuse. A SOAcreativity can help a group classify terminated functionalityand withdraw identical submissions. Execution is growing acentral role, thus planning becomes one of aids for execution.SOAbasedapplicationsindistributedenvironmentsarewidelyusedintherealworldandtheplatformthatisdeviceleveland self-manageable is explored in energy resources. Eventhough they may not be sufficient there are some open sourceand commercial tools, some of which are part of SOA-basedapplications. SOA promises greater flexibility and efficiencyinapplicationdevelopmentbyenablingapplicationstobecomposed using third-party services. Currently the SOA adoption in increasing in the industry due to various applicationsaligningwithSOAparticularlyforcloudbasedapplicationand other areas. Another important issue that challenge theSOAbasedapplicationsisthelackofuserinterfacesofvarious servicesin SOA.Existing applicationsare analyzedin order to find which software components can be reused inSOA development. SOA methodologies vary from the mostprescriptivetothelossdescriptiveones.SOAenablesaccesstowhateverdataorfunctionalityanapplicationrequires,thereforeser vice-orientedapplicationsshouldsupportbusinessprocessesmoreeffectively,andshouldimprovetheuser-experience. SOA requires a different mindset and it requiresdiscipline to improve the chances for success, an organizationmustestablishdisciplinethroughastrongprogram.SOAisthe right approach for large scale autonomous systems andprovides the typical advantages of SOA, such as reusability,independent development etc., Analyzing potential changes toexisting applications in a will to discovery which progressionsandapplicationmechanismscanbeusedinanupcomingSOA solicitation development. SOA is very ideal architecturaldesigntofacemanyofcomplexchallenges.WidespreadSOA adoption and its success in many companies is a proofthatSOAisgoingtobecomestandardforanorganization.Due to the agility and flexibility characteristics of SOA, anorganization can get rid of touch decision making process.WhileSOAcanprovideanorganizationbychoosingfromthe great variety of service provides, it will definitely increasecomposition among providers which can result reduced costandimprovedqualityofservice.SOAisanopportunityforthesoftwarearchitectstogetinvolvedinstandardsettinginitiatives at an early stage. If an organization wants to adoptSOA, it has to go through the process of web service. SOAgives the opportunity to concentrate on the care competencesofacompanywithoutcompletefieldsofwork.SOA Analysis and Design*:*Many applications that arebased on SOA are analyzed for giving useful insights. Aimingat SOA analysis, there are a number SOA methodology havealready been performed but they treat them from a generalpointofviewwithoutprovidinganyin-depthanalysisof properties.Theaimofservice-orientedanalysisistoelicitthe requirements for SOA application. Investigating possiblefluctuations to present requests in a will to discovery whichprogressions and claim mechanisms can be used in an up-coming SOA request development. Service-oriented analysisresults in the preparation to be process model that an SOAapplication will be implementing. When talking about executionsuch analysis only first three phases Incept, Define and Designofthismethodologyareimportant.ThefirstInceptaimstounderstand themadefor SOAdevelopmentand howtoSOAfitswithintheorganization.TheDefineisthemostcriticalinSOAproject.ThethirdDesignaimstotranslateuse case realizations and SOA architecture in into detaileddesigndocuments.Thetechnologycanhelpinleveragingcomputational power that is required to process huge amountofdatainshortspanoftime.InSOA,asystemcanbedescribedbymeansofaworkflowofabstractservicesthatareautomatically bound to concrete services retrieved by one ormore registries during the execution of a work flow instance.This significantly reduces the time and effort required for theSOAbasedapplication.ItsupportsSOAanalysisstrategy,butitdoesnotcoversomeoftheSOAanalysisactivities,lacksprescription andexistingtechniquesandnotationstoassure successful SOA development. The work on the criticalcategory of analysis, which extracts knowledge about the environment and run-time behavior of plans. In order to evaluateSOAanalysisanddesignwillbeanalyzedandcomparedfor development. To transform business processes and servicedescriptions to well-documented service interfaces and servicecompositions.Themethodnotonlyassistancesinspeedyexpansion and placement, but also balances to great schemes,makesupkeepinformalandprovisionsimprovementswithfresherandmorewell-organizedalgorithms.SOAanalysisand design descriptions meaning that it cannot be used fromthestartoftheprojectbutitcanbeusedinconjunctionwithmethodologythatprovidesdetailedrecommendationshow to initiate SOA project. Developers can easily developtightly coupled, monolithic applications using the web serviceeven if they don't follow SOA design principles. For internalapplications, a better user experience will improve customersatisfaction and for internal application, a better user experience will make employees more productive and efficient. Itreflects the use of external agents to perform one or moreorganizational activities, is now widely used in SOA. Successof SOA is inviting new debates about the changes in businesspractices. WebServices: The Web Services is a type of standards-based middlewarefor implementing SOA services. Many people associate SOAwithwebservices,SOAisanarchitecturalstylegovernedbyasetofdesignprinciples.WebServicesasexplorein[5]are widely used in research and academics. As presented inFigure 1, it is evident that a web application can make use ofweb services. Web Services can be interoperable web serviceusedtorealizetherequirementsofSOA.AWebService developed in a language can be called from a program writtenin any language making it interoperable. Thus Web Servicescan be recycled and web services can be used to assimilatevaried applications. The use case for SOA which demonstratesthe need for web services as the parties involved in the systemare using different platforms. Due to a side industry supportand their model of loose

coupling, web services have be onethe mechanism of choice to interconnect organizations. Thewebserviceisatechnologythatfacilitatedthedevelopmentof service-oriented systems.

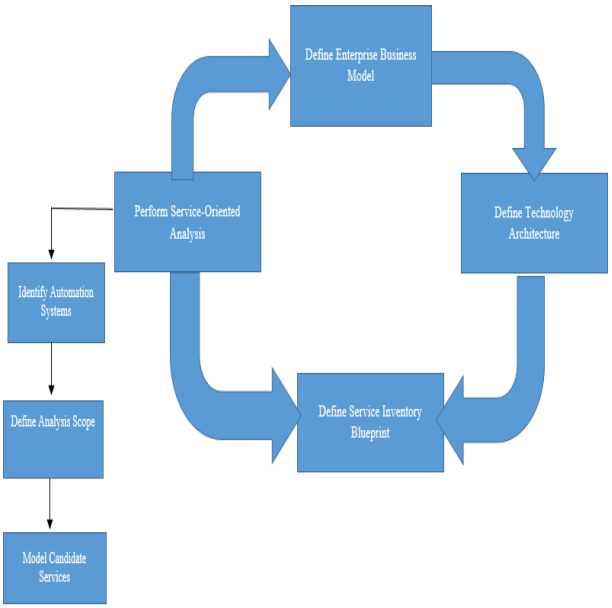

Fig 1. SOA Analysis and Design

If an organization wants to adoptSOA, it has to through process of web service. An effectiveand dynamic organization needs the help of technology, i.eSOA or Web Service. Applications written in different languages can invoke web service irrespective of the platform inwhichwebserviceisdeveloped.WebServicescanbeusedto realize the requirements of SOA. A web service developedin one language can be called from a program written in anylanguagemakingitinteroperable.Theconnectivityneedstobedone with web services technology; this is the reason why it isan example where SOA is needed. We explored web servicesasthetechnologyaspartofdistributedcomputingforrealizingapplicationthatarebasedonSOA.Thereisrisingessentialfor web services API in the actual world. Such applicationsneed specific architecture for providing desired services, thetechnologyusedtobuildapplicationsthatcanworktogether.Legacy System Understanding:Legacy System understandingoftenincludesstudyingthegrowthhistory,interrogating the designers and present workers to originate to considerateoftheplanningofthelegacysystem.Understandingthe legacyschemeanditssituationarecriticaltotheachievementofanydevelopment[8].

3. Conclusion

In this paper we studied and focused on the need for SOA,with many technologies. SOA is one of the important whichrequires a lot of effort to the system and will be helpful for theautomation. The aim of this paper uses to compare the mostwidely known and popular SOA development and analyzedSOA vary in a degree of prescription for the most ones let theuser and to adopt to concentrate on SOA. Most of analyzedSOA propose the strategy and are targeted the change legacysystems. We can conclude that, while SOA can provide anorganization flexibility of changing from the great variety ofservice providers, it will definitely increase among providerswhich can result reduced cost and improved quality of service.ButbyadoptingSOA,companiescanhaveanopportunityor a task. SOA is also called by some professionals, exportsandacademicsasInternetbasedarchitecture.Oneoftheadvantages of this architecture is that it will link companiestogether in networks. We have proposed a loosely coupled,flexible service-oriented architecture as a candidate solution.Web Services care the technology used to build applicationsthatcanworktogether.Infuturewefocusonusingwebserviceand the applications for improving quality of service-orientedapplications.

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