# Developing a Conceptual Relationship between Web Service Supply Chain Entities Using Web Security

Mr.Pankaj Kumar

*Lecturer Department of Computer Science & Engg Dr. T. Thimmaiah Institute of Technology Orgaum-563120,KGF, Robertsonpet , India.*

***Abstract:****In this Globalization each and every company offer their business services offline or online due to provide better supply chain system into organisation. As collaborative resulting static entities in the supply chain such as service-oriented architecture and Web Application Development services enable online / dynamic networks of supply chain services (SSCNs) through dynamic collaboration of many people are they formed. Web SSCNs units are interdependent and the profitability of a company affects the performance of other companies as well as the overall performance of network services. It is important to study the relationship between function and Web SSCNs each entity. After the relationship is recognized, it will contribute to the development of performance indicators of the supply of services, taking into account the interests of service providers and customers. We take a sample scenario on the supply chains of these online services are based to the feasibility of the solution based approach to the views of suppliers and customers. The conclusions show is about what kind of security parameters dominant and options of the service provider affect online service quality service. Security of a Web service describes performance and other quantitative aspects of a Web service.*

***Keywords****: Supply chains, Web Service, Web Security, QoS,*

## I. INTRODUCTION

A supply chain is a system of organizations that involved directly or indirectly to people with technology involved in moving a product or service from supplier to customer. A Supply chain not includes only service provider and supplier, its transporters, warehouses, retailers, and customers. Supply chain activities involves the process collecting raw materials, transform resources from one place to other place and delivered the product to the end customer. In sophisticated supply chain systems, the used product can be again recycle to reach to end customer with rich product information.

The Global Supply Chain Forum (GSCF) introduced another Supply Chain Model. This architecture is built on eight key business processes. Each state is managed by a cross-functional team, including vendors from logistics, production, ordering, finance, marketing and research and development. The PCF (Process Classification Framework) organizes operating and management processes into 12 enterprise level categories, including process groups and other associated activities.Supply chain management is a cross-function approach including managing the movement of raw materials into an organization, processing of raw materials into finished goods, and the shipping of finished goods out of the organization and to reach to the end-user. As organizations endeavour to focus on core competencies and becoming more flexible, these operations are increasingly being outsourced to other entities that can perform the activities better or more cost effectively. The effect is to increase the number of organizations involved in satisfying customer demand, while reducing management control of daily logistics operations. Less control and more supply chain partners led to the creation of supply chain management concepts. The purpose of supply chain management is to improve trust and collaboration among supply chain partners, thus improving inventory visibility and the velocity of inventory movement.

In other words, it is the ability of a product design to generate demand by satisfying end customer expectations. However, product design impacts not only demand generation, but also manufacturing processes, transportation. cost, quality, and lead time. The product design affects the associated supply chain and its requirements directly including, but not limited to: manufacturing, transportation, quality, quantity, production schedule, material selection, production technologies, production policies, regulations, and laws. From a broad perspective, the success of the supply chain depends on the product design and the capabilities of the supply chain, but the reverse is also true—the success of the product depends on the supply chain that produces it. A key feature of the scenario is the use of quality of service (QoS) as an essential criterion for dynamic selection of services in supply chain system.

### 1.1. WEB SERVICES

Web Services can change your applications into Web-applications. A Web service is a method of communication between two electronic devices over the web (internet). The W3C defines a "Web service" as "a software system designed to support interoperable machine-to-machine interaction over a network". It has an interface described in a machine-processable format (specifically Web Services Description Language, known by the acronym WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards.

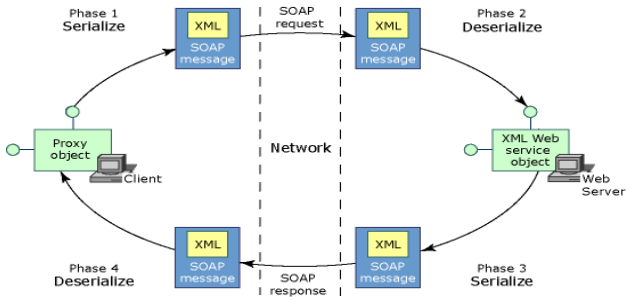



Fig 1: Process of communication between a client and an XML Web service

The W3C also states, "We can identify two major classes of Web services, REST-compliant Web services, in which the primary purpose of the service is to manipulate XML representations of Web resources using a uniform set of "stateless" operations; and arbitrary Web services, in which the service may expose an arbitrary set of operations.

**What are Web Services?**

- Web services are application components
- Web services communicate using open protocols
- Web services are self-contained and self-describing
- Web services can be discovered using UDDI
- Web services can be used by other applications
- XML is the basis for Web services

"**Big Web services**" use Extensible Markup Language (XML) messages that follow the SOAP standard and have been popular with the traditional enterprises. In such systems, there is often a machine-readable explanation of the operations offered by the service written in the Web Services Description Language (WSDL).

### 1.2 Conceptual Relationship

A concept [11] is expected to have some correspondence with any realizations of the architecture. For example, the message concept identifies a class of object (not to be confused with Objects and Classes as are found in Object Oriented Programming languages) that we expect to be able to identify in any Web services context. The precise form of a message may be different in different realizations, but the message concept tells us what to look for in a given concrete system rather than prescribing its precise form.+

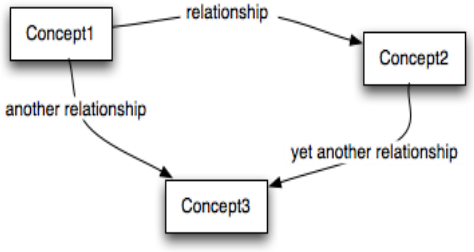



Figure 1 .Conceptual Relationship

Not all concepts will have a realization in terms of data objects or structures occurring in computers or communications devices; for example the person or organization refers to people and human organizations. Other concepts are more abstract still; for example, message reliability denotes a property of the message transport service a property that cannot be touched but nonetheless is important to Web services.Relationships denote associations between concepts. Grammatically, relationships are verbs; or more accurately, predicates. A statement of a relationship typically takes the form: concept predicate concept. For example, in agent, we state that An agent is a computational resource This statement makes an assertion, in this case about the nature of agents. Many such statements are descriptive, others are definitive:

Such a statement makes an assertion about valid instances of the architecture: we expect to be able to identify the message sender in any realization of the architecture. Conversely, any system for which we cannot identify the sender of a message is not conformant to the architecture. Even if a service is used anonymously, the sender has an identifier but it is not possible to associate this identifier with an actual person or organization.

**1.3 QoS**

QoS of a Web service describes performance and other quantitative aspects of a Web service. QoS criteria can either be generic or domain specific have described generic QoS metrics, a standard component of these metrics involves time, cost and reliability. There is a need for a well accepted ontology for the generic QoS criteria. Even more relevant to service selection may be domain specific criteria such as part delivery time and part specific details like reliability of the part. Domain specific ontologies are crucial for agreement about domain specific parameters. Critical to the selection of relevant services is the notion of QoS, also called as policy (WSPolicy).

## II. RELATED WORKS

Now a day's discovery approaches often support a very restricted set of use cases mainly due to the ignorance of non-functional properties of services. The research contributions considering the online service supply chains apart from the static service supply chains, non functional properties (NFPs) and consideration of multiple NFPs[3]. In our formal model of Web services, we have a unified view on properties that characterize functional as well as non-functional aspects. We present how desired combinations of properties are specified and interpreted as a set of desired service descriptions and show how service descriptions that full fill such constraints are discovered.

Text mining [4] (or knowledge discovery in text) has recently been addressed by It aims to extract concepts and their relationships from a set of textual documents. Part of the work, e.g., recognition of keywords and their assignment to simple categories and roles (e.g. *Person*, *Place*, *Company*) is close to our study. Generally the following algorithms are used for the web information mining.Characterization methodology for e-commerce sites that views an e-commerce site's workload in a hierarchical way.1 the top level is the session level, in which statistics of interest include session duration, type, and arrival rate. The next level is the function level, in which we're interested in each function type's frequency of occurrence and arrival process, as well as the popularity of certain terms in search requests. The bottom layer characterizes the workload in terms of HTTP requests. Important statistics at this level include the arrival process of HTTP requests and the analysis of long-range dependencies in the arrival stream.[7]Semantic web aims at improving the technology to organize, search, integrate,and evolve web-accessible resources (e.g., web documents, data) by using rich and machine-understandable abstractions for the representation of resources semantics. Ontologies are proposed as means to address semantic [8] heterogeneity among web-accessible information sources and services. They are used to provide meta-data for the effective manipulation of available information including discovering information sources and reasoning about their capabilities. Efforts in this area include the development of ontology languages such as RDF, DAML, and DAML+OIL [12]. In the context of web services, ontologies promise to take interoperability a step further by providing rich description and modeling of services properties, capabilities, and behaviour.

## III. PROPOSEDWORK

The entities in web SSCNs are interdependent and the performance of one entity impacts the performance of other entities as well as overall performance of network. It is important to study the relationship and dependency between each entity of web SSCNs and web security. Once the relationship is identified, it will help in devising some composite performance indicator for the entire service supply chain considering the interests of service providers and clients. We take a scenario based illustration of such online service supply chains to show the feasibility of the concept.

Service quality [6] involves a comparison of expectations with performance. According to Lewis and Booms (1983) service quality is a measure of how well a delivered service matches the customers' expectations. Generally the customer is requesting a service at the service interface where the service encounter is being realized, then the service is being provided by the provider and in the same time delivered to or consumed by the customer. The main reason to focus on quality and security is to meet customer needs while remaining economically competitive in the same time. This means satisfying customer needs as well as providing good security of their personal details are very important for the enterprises to survive. The outcome of using quality practices is:

- Understanding and improving of operational processes
- Identifying problems quickly and systematically
- Establishing valid and reliable service performance measures
- Measuring customer satisfaction and other performance outcomes
- Applying security Algorithm for improve service Quality.

In this Frame, Web Service Oriented technologies [9] and protocols are deployed for modelling managing and executing business-oriented functionalities**.** Different companies are involved in a supply chain, information flow passes different systems of the companies in the supply chain. To automate the process of the information flow, the systems of different companies in the supply chain must be integrated in a global network. Architecture of this system as shown in figure1.In our system, 5 modules are there. There are

1. Service Request
2. User Credential
3. Add to Cart (Product ID)
4. Web Service
5. Admin Module
6. Security Issue

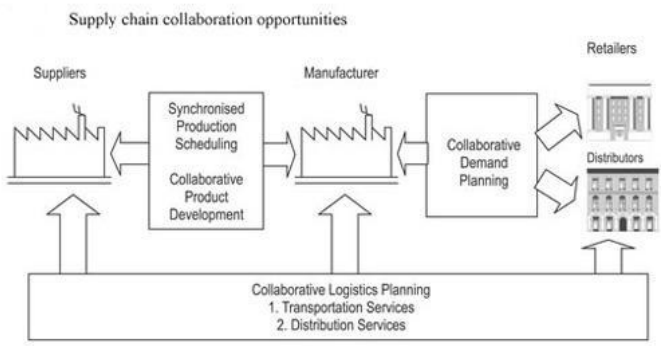



**Figure 2 . System Architecture of supply Chain Entity**

**Module 1: Service Request**

The Product Service Request module will get the customer require product details and number of product will be included. Also it will get the user detail.

**Module 2: User Credential**

In this module new user registration and the user login type and allow them to know about their order status through the track order sub module and can get the payment gateway.

**Module 3: Add to Cart (Product ID)**

In this module get the shipping order can be place by customer choice.

**Module 4: Web Service**

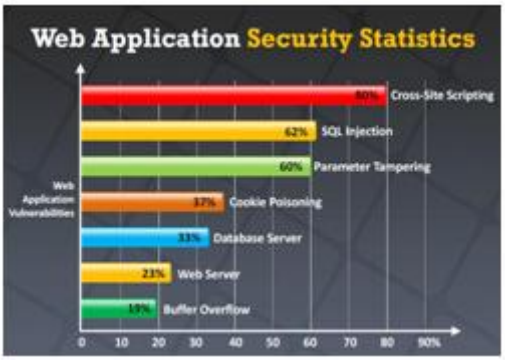
This module will generate the Confirmation mail to user and admin that particular order has been added into cart.

**Module 5: Admin**

In this module admin have full authorization to Confirm Order or process Pending Order or Reject order; even they can delete the customer details from server

**Module 6: Security Issue**

In this module we have be careful from several attach on web server. Security pros draw a line at the firewall-what happens "out there" might be beyond their control, but a secure perimeter is intended to protect the data and systems within. That view, however, fails to take into account the role of developers, vendors, customers, users, and others along the supply chain of IT systems, hardware, and software coming into the enterprise. It's called the cyber security supply chain, and, as it sounds, it applies the principles of supply chain management-product assembly and acquisition, data sharing among partners, governance, and more--to the security of IT systems and software.




**3.1 WEB SERVICE DEFINATION LANGUAGE:**

As communications protocols and message formats are standardized in the web community, it becomes increasingly possible and important to be able to describe the communications in some structured way. WSDL addresses this need by defining an XML grammar for describing network services as collections of communication endpoints capable of exchanging messages. WSDL service definitions provide documentation for distributed systems and serve as a recipe for automating the details involved in applications communication.
A WSDL document defines **services** as collections of network endpoints, or **ports**. In WSDL, the abstract definition of endpoints and messages is separated from their concrete network deployment or data format bindings. This allows the reuse of abstract definitions: **messages**, which are abstract descriptions of the data being exchanged, and **port types** which are abstract collections of **operations**. The concrete protocol and data format specifications for a particular port type constitute a reusable **binding**. A port is defined by associating a network address with a reusable binding, and a collection of ports define a service. Hence, a WSDL document uses the following elements in the definition of network services:

- **Types**– a container for data type definitions using some type system (such as XSD).
- **Message**– an abstract, typed definition of the data being communicated.
- **Operation**– an abstract description of an action supported by the service.
- **Port Type**–an abstract set of operations supported by one or more endpoints.
- **Binding**– a concrete protocol and data format specification for a particular port type.
- **Port**– a single endpoint defined as a combination of a binding and a network address.
- **Service**– a collection of related endpoints.

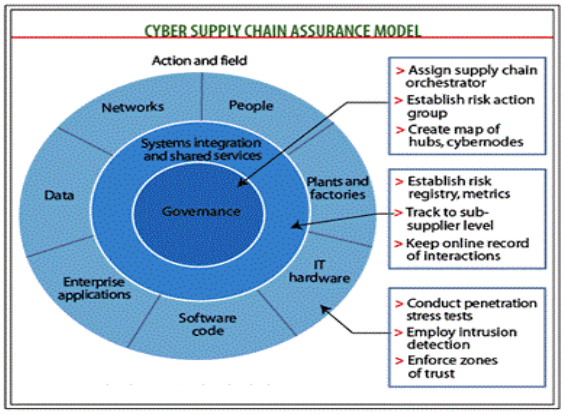
It is important to observe that WSDL does not introduce a new type definition language. WSDL recognizes the need for rich type systems for describing message formats, and supports the XML Schemas specification (XSD) as its canonical type system. However, since it is unreasonable to expect a single type system grammar to be used to describe all message formats present and future, WSDL allows using other type definition languages via extensibility.WSDL defines a common **binding** mechanism. This is used to attach a specific protocol or data format or structure to an abstract message, operation, or endpoint. It allows the reuse of abstract definitions. In addition to the core service definition framework, this specification introduces specific **binding extensions** for the following protocols and message formats:

- SOAP 1.1
- HTTP GET / POST
- MIME

Although defined within this document, the above language extensions are layered on top of the core service definition framework. Nothing precludes the use of other binding extensions with WSDL.

## IV. SECURITY ALGORITHM

In this paper, we present a novel information web security algorithm, over semi-structured information on the Web. We have described cyber supply chain assurance model.




### 4.1 Pretty Good Privacy (PGP) and Monitoring system Algorithm

PGP provides confidentiality by encrypting messages to be transmitted or data files to be stored using an encryption algorithm such CAST-128or 3DES. Email messages can be protected by using cryptography using hash function, such as the following:

- Signing to email message to ensure its integrity and assure the identity of its sender.
- Each email message body to ensure its confidentiality if it is encrypted.
- This able to confuse the firmware enough that the cipher text (encrypted form) of unrecognized packets was returned to us.
- Enhance the firmware of service provider to secure from inject traffic.

The above first two methods that are message signing and message body encryption are often used together. Encrypting the transmissions between mail servers is typically used only when organizations want to protect emails regularly sent between each other.

### 4.2 Monitoring system

In this monitoring system the service provider can monitor the performance of their services using web based application or Smartphone. If a state change to object on human manipulation then it will be captured using sensor enabling activity-support services and it will send to mail to admin at urgency level.

## V.CONCLUSIONS

The service providing entity if chosen based on NFPs and web security algorithm rather than just functional properties that would ensure good quality end service. The processes show that these supply chains are stage wise. The literature points out gaps in consolidation of multiple QoS parameters into single composite parameter though there are such possibilities. The day by day improvement on web services, we have numerous of security issue and this becoming a challenges tasks to secure our web services which is our future work.

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