ABSTRACT

Service Oriented Architecture (SOA) is fast catching increasing in the business world due to the many benefits it offers such as reliability, manageability, re-usability, flexibility, efficiency, and interoperability. It includes methodologies and strategies to follow in order to develop complicated applications and information systems.

SOA is a “view” of architecture that focuses on services as the action boundaries between the needs and capabilities are helpful to service discovery and reusability. It is a very popular architectural paradigm for designing and developing distributed systems. Applying SOA to increase reuse and standardization provides those functions that are used across systems, departments, and organizations. Departments that maintain or access the same information use the same service, making any data and processing redundancies transparent to users.

SOA is an architectural style for creating and using business processes that are packaged as services. It provides a uniform means to offer, discover, interact with, and use capabilities to produce desired effects that are consistent with measurable preconditions and expectations. The main goal of these services is to expose the business functions with as much loose coupling as possible from the operating systems and programming languages upon which they are built.

The SOA facilitates the development of systems by supporting modular design, application integration and software reuse. Secure access to information for any business is a fundamental need. In the service-oriented environment all the services are loosely coupled. Due to the loose coupling of services, secure accessing of the service becomes more important. Required authorization by an authenticated identity and applying confidential techniques which
ordinarily gained via encryption, are essential for structured implementations according to service-oriented architecture principles.

SOA does not limit the architecture to software design only. It is now being used in hardware and embedded appliances design too. The hardware can easily be designed based on SOA, and there is no limit to what this architecture can do. It can bridge the gap between the very proprietary world of embedded systems and the world of enterprise software. It provides for an increasing efficiency by allowing applications to be reused, decreasing the learning capability for developers and speeding up the total implementation process. It allows integration of existing systems, applications and users into a flexible architecture that can easily accommodate changing needs. Integrated design, reuse of existing IT investments and above all, industry standards are the elements needed to create a powerful SOA.

This thesis aims to propose a new architecture for healthcare environment to improve the authentication technique based on service oriented technique, to search any content from the web service by using normal or knowledge based search. For authentication technique is proposed a new minutiae matching algorithm by using labeling technique. To evaluate the efficiency of the proposed algorithm, the researcher has used two parameters: False Acceptance Rate (FAR) and False Rejection Rate (FRR). The two parameters were compared with existing solutions. The total execution time of the proposed algorithm was also compared with an existing algorithm’s total execution time. The new minutiae matching algorithm proposed here, can be used with compressed image for matching and it also supports various types of images like JPEG, bmp, etc. The researcher also has proposed modified duplication elimination Minhash clustering algorithm for clustering the patient’s data, based on the disease name. The clustering technique was used to reduce the searching time. To evaluate the caching efficiency of a web service, two metrics were
introduced: provider file hit ratio and provider byte hit ratio for each page and throughput. The lower numbers for provider file hit ratio and provider byte hit ratio indicate the higher caching efficiency for the web service.