What is SOA?

Service Oriented Architecture

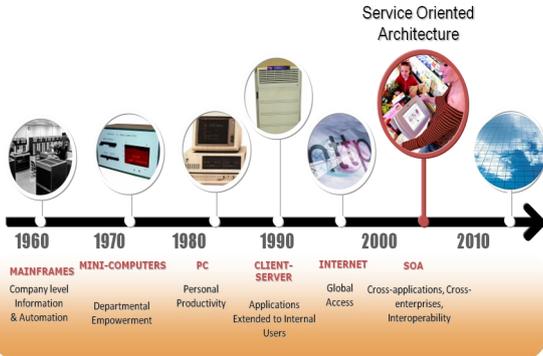| 1960	1970	1980	1990	2000	2010
MAINFRAMES	MINI-COMPUTERS	PC	CLIENT-SERVER	INTERNET	SOA
Company level Information & Automation	Departmental Empowerment	Personal Productivity	Applications Extended to Internal Users	Global Access	Cross-applications, Cross-enterprises, Interoperability

Service Oriented Architecture (SOA) is defined as an architecture for developing, deploying and managing semantically enriched, loosely coupled, platform-independent, work units composed as 'Services' among Providers and Consumers to support business functions [1].

SOA is considered the fourth wave of distributed computing approach, which began with the centralized computing paradigm in the 1960s and 1970s, then moved through the PC and client-server era to the rise of the Internet and the web. The openness created by the web increases the need for integration and enables the foundation of SOA that allows the creation of Service-centric systems. Such systems integrate services from different providers regardless of the underlying operating systems or programming languages of those applications.

SOA Principles

SOA advocates seven main principles:

1. Formal service contract: service contracts establish the terms of engagement to which consumers and providers of a service need to comply.

2. Functionality and technology abstraction: SOA encourages the development of services as black boxes; hiding their underlying details from consumers.

3. Loose-coupling concept: SOA minimizes the dependencies between the different services to support better modularity.

4. Service autonomy: services must have a significant degree of control over their underlying resources in order to provide reliable and predictable performance.

5. Reusability and service composition: SOA achieves new business requirements by building less and using more of what we already have.

6. Service statelessness: services should minimize the amount of state information they manage.

7. Service discoverability: SOA helps to avoid creation of redundant services or services that implement redundant logic.

SOA Pillars

SOA Pillars

Business-IT Alignment | SOA Readiness | SOA Governance | SOA Technologies

ROI
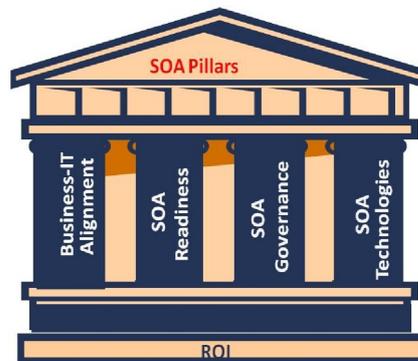
1. Business-IT Alignment: deliver more effective, and efficient IT solutions according to the ongoing business demands.

2. SOA Readiness: perform an analysis of the organization's readiness to move to a service-oriented architecture.

3. SOA Governance and Change Management : define and manage a set of policies and guidelines to coordinate SOA infrastructure providers, service providers and application developers.

4. SOA Technologies: understand the benefits and disadvantages offered by the different SOA technologies (XML, CORBA, SOAP, REST ,.....etc.) depending on the business and system requirements.

SOA Adoption
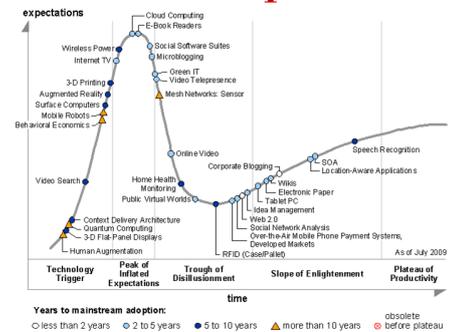
SOA is not a silver bullet for software success. So, when not to adopt SOA?

- When the organisation does not change their business needs continously and frequently.
- When the organisation is not technically mature enough to deploy SOA.
- When the existing architectures are homogeneous and do not require integration.
- When the bussiness value of change is low.

Gartner 2009 shows the wide range of competing and complementary technologies at different stages of maturity that can promote the application integration and platform middle-ware. This hype cycle defines a time scale of 2 to 5 years for SOA to achieve sufficient technical maturity to become actively and widely adopted by mainstream users.

SOA in SECC

According to News Research Report at ReportsnReports.com, Services Oriented Architecture (SOA) markets are anticipated to reach $15.1 billion in 2019 that is considered a significant growth. In 2010, research had SOA markets at $4.0 billion; by 2012 they had reached $7.1 billion. Growth has been achieved organically because more frameworks are needed to build cloud computing and more infrastructure is needed in the data center to interconnect applications using SOA middleware. Even though, SOA technologies have been largely embraced for use in large enterprises to deal with their complex services and business processes; however, Small and Medium Enterprises (SMEs) can also benefit from SOA to start, support, and grow their businesses.

Software Engineering Competence Center (SECC) focuses on supporting the establishment and deployment of SOA architecture for the SMEs in Egypt. SMEs can find exciting opportunities by taping in the services world, what they actually need is to leverage open-source SOA solutions along with emerging technologies (e.g., Cloud and Mobile.) to exploit these opportunities. This is achieved through training courses that aims at bridging the technological gap of the SMEs to enable them to understand the benefits and obtain the know-how for exploiting SOA in building innovative services and solutions. In addition, SECC provides hands-on-experience on how to practically implement and integrate SOA-based solutions in real-life projects through providing consultation services.

For more information, please visit http://www.secc.org.eg/RECOCAPE/ .

[1] Object Management Group, http://www.omg.org/