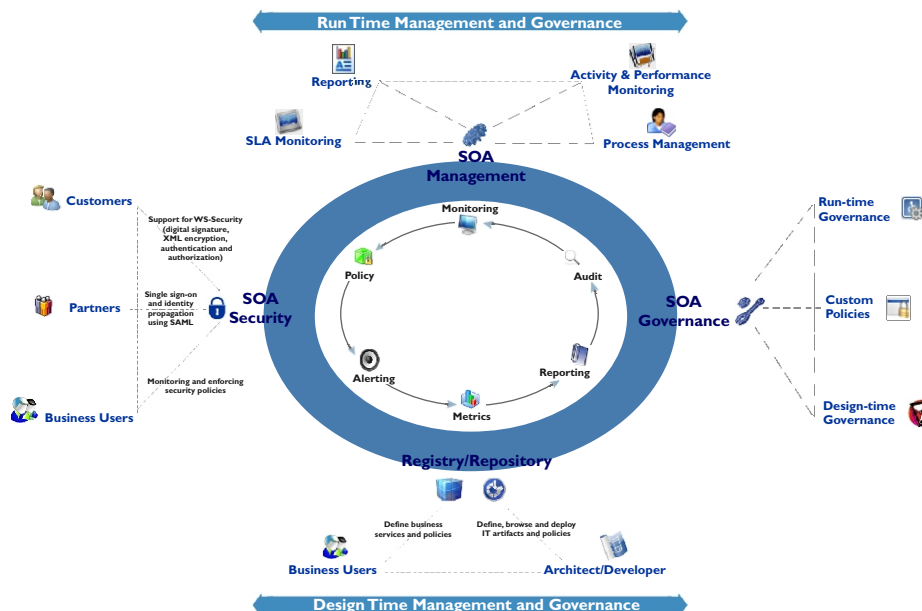


Management and Governance Challenges

Once composite/integrated applications have been built using Service Oriented Architecture (SOA), the challenge is to ensure that the performance is consistent and is meeting Service Level Agreements (SLAs) with respect to response time, throughput and availability. While SOA makes it easier to assemble and wire the services together to build a composite application, operational control, visibility and maintenance of enterprise becomes even more challenging for the following reasons:

- ▶ **Multiple Applications and Technologies:** SOA applications commonly involve multiple applications built on wide range of languages, protocols and technologies such as Java/J2EE, .NET, CORBA, COM/DCOM, HTTP, Files, RDBMS, XML, ERPs, CRM and so on and diverse operating systems. This makes it extremely challenging and time-consuming to troubleshoot, localize and isolate problems manually. For example, in composite application, exhibiting slow response or throughput, it is even more challenging to identify where the problem originates
- ▶ **SLAs, Performance and Availability:** Applications and services are often committed to SLAs with respect to response time, throughput and availability. Violation often leads to severe penalties and thus it is desirable that there are alarms when SLA violation is close or about to occur and better if the SLA violations can be prevented automatically
- ▶ **Distribution:** SOA deployments are often distributed – sometimes across departments, domains and geographies. This is caused primarily by the widespread adoption of web services across platforms and vendors and the ease of invoking them over the intranet and internet using HTTP(S). This creates the challenge of reliability, network latency and failures and the need to alert on failures and redress the problem wherever possible after the root cause has been identified
- ▶ **Security:** In SOA applications, it is most important to ensure that the access to services and processes is allowed only to authorized users, roles and user groups. It is desirable to insulate the business developers and users from the complex security details and let the underlying infrastructure handle it. Identity propagation and single sign-on is another challenge that often needs to be handled in composite applications
- ▶ **Compliance with Organizational and Federal Regulations:** It is mandatory for enterprises to comply with government regulations (such as SOX, Clause 49 from SEBI, depending on the geography and jurisdiction) and any others mandated by the organization. Enforcing these policies and providing the audit trail needs to be automated
- ▶ **Scale of Deployment:** In SOA projects, management and governance issues rarely come up in the piloting and prototyping stages as the number of services, processes and the number of service/process invocations is very low and can be managed manually. The problem comes up when the application moves into production when the scale increases tremendously and it is often too late to fix and could delay or even derail the projects. Dealing with such issues, problems related to SLAs, security and compliance when there are potentially millions of service/process requests is time consuming, labor intensive, error prone and sometimes nearly impossible

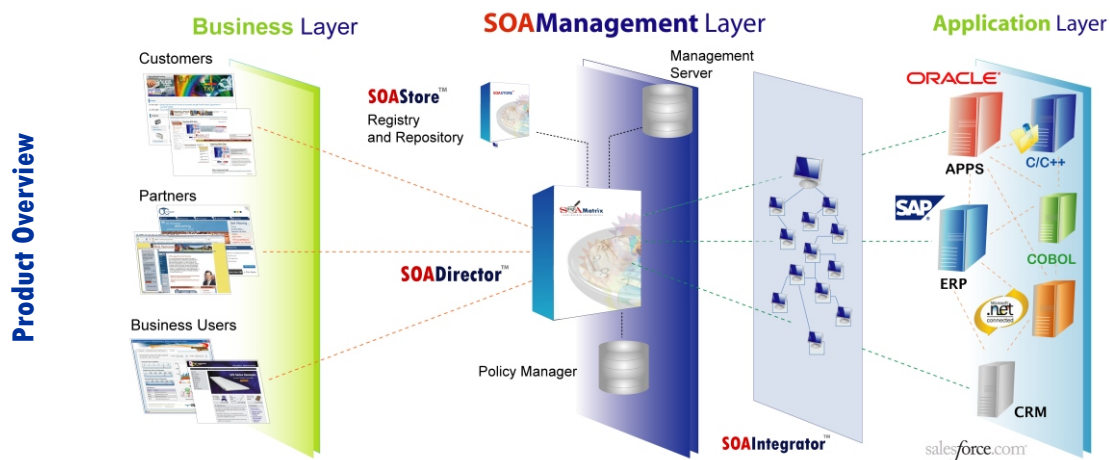
SOA Management and Governance



SOADirector is an enterprise-class SOA management and governance product that enables users to secure, govern and manage web services and business processes. SOADirector is positioned between the service consumer and service provider and gathers message data and enforces policy on every transaction to provide unprecedented visibility and control. SOADirector is a standards based product that offers platform independence and seamless interoperability with other products. It uses SOAStore (or any JAXR compliant registry/repository) as the underlying registry/repository for design time governance.

SOADirector manages the runtime delivery of new and existing services across their lifecycle. By actively managing the service runtime, it simplifies the tasks of rolling-out new services, scaling them for performance and availability and ensuring easy upgrades to new versions. Users can govern the runtime processing of messages flowing in an SOA infrastructure by enforcing management policies without writing code.

SOADirector offers a number of advantages over existing solutions for management and governance enablement, including faster implementation and deployment cycles, a flexible platform for future expansion offering a high degree of reuse, easy extensibility, seamless interoperability and an improved ROI.



Management and Runtime Governance

SOADirector offers the following management and governance features:

- ▶ **Monitoring and Managing SLAs, Performance, Availability:** This involves monitoring and reporting response-time, performance, throughput, availability and other data relevant to SLA management. Based on the configured policies, various actions can be taken to fix/correct the problem
- ▶ **Security Enforcement:** SOADirector can monitor and enforce Authentication, Authorization, Encryption, Identity Propagation and Single Sign-on. This ensures that the business process developer doesn't need to worry about security details and configuration in the business logic but do it by defining relevant policies using an intuitive and simple UI at runtime
- ▶ **Logging, Audit and Compliance:** SOADirector can log relevant data which is then used for automating audit and ensuring compliance
- ▶ **High Performance and Minimal Overheads:** SOADirector has been designed keeping enterprise capabilities and needs in mind. The product is highly scalable, reliable, extensible, secure and performant. It has also been designed to minimize the monitoring overheads and ensure they apply only to the monitored services
- ▶ **Simple and Intuitive UI:** The user interface is browser based and simple, making it easy for business users to graphically define policies, manage the SOA infrastructure and take appropriate actions based on a rich, powerful and flexible dashboard, reporting and alerting features
- ▶ **Custom Policies:** Custom policies specific to any vertical or domain (such as those defined on device voltage, ambient temperature, stock price and so on) can be composed intuitively without any coding

Governance Policy

Governance policies allow one or more actions to be performed if the associated conditions (simple or complex) are true:

- ▶ Can be used by business users to define business policies-system translates/maps them to low level data and artifacts
- ▶ User Interface driven and intuitive - no coding
- ▶ Can be applied to any process, service or operation

Sample Policies:

- ▶ Alert technicians through email/SMS/IVRS on critical events
- ▶ Spawn additional services if response time or throughput do not meet SLAs
- ▶ Restart service if unavailable
- ▶ If basic authentication failed more than three times, block access to that user
- ▶ If average response time for the last one week is below five seconds, raise an alert to the administrator
- ▶ Ensure that sensitive data (password, social security number, credit card data) is encrypted

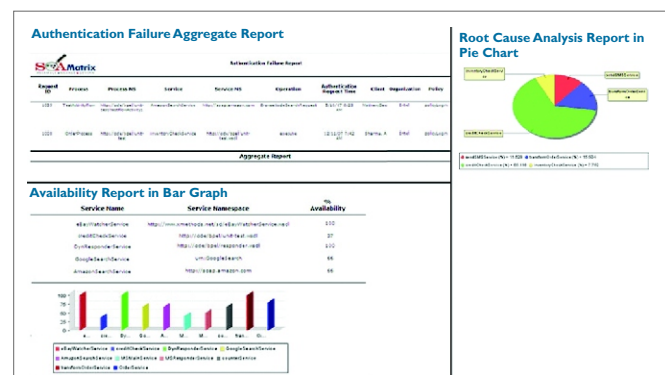
Reporting

Reporting provides the users a reliable and secured piece of information in enterprise applications. Reports let you examine statistics over long periods of time. Reporting supports various reports such as:

- ▶ Metering Report - grouped by Client/Organization/Group based on the selected filter criteria
- ▶ Message Log Report - displays the number of messages and message size generated by Process/Service
- ▶ Usage Rate Report - displays usage and performance measurements for the Process/Service/Operation
- ▶ Fault Rate Report - displays the number of faults generated by a Process, Service and Service Operation
- ▶ Root Cause Analysis Report - displays a pie chart showing the percentage of the average response time of the service for the selected process
- ▶ Availability Report - displays the Availability of a Service for the selected time filter in a bar-graph
- ▶ Unauthorized Access Report - displays the requests that are unauthorized
- ▶ Authentication Failure Report - displays the requests for which authentication failed

Other Features

- ▶ Reports can be exported in various formats such as HTML, PDF, CSV, XLS and so on
- ▶ Dashboard allows users to view real time data on Faults, Response Time, Throughput, Availability etc based on user preferences
- ▶ Custom reports can be built easily



Advantages of SOADirector

- ▶ Support for multiple vendors and product stacks
- ▶ Only vendor with support for custom policies specific to any vertical or domain
- ▶ Integration with Registry/Repository makes it easy to model artifacts, resources, their associations, constraints, organization hierarchy and enables composing flexible and powerful policies on them
- ▶ Policy mapping and ordering provides added power and flexibility
- ▶ Modular and highly extensible-works with multiple ESBs and BPEL engines and can use other registry/repository
- ▶ Standards based - support for BPEL, JBI, SCA, WSDM, WS-Security, WS-RM, WS-Policy, WS-Trust, SAML and so on providing maximum interoperability
- ▶ Complements the SOA infrastructure and delegates to various enforcement points (SOAP engines and ESBs) providing better performance and ease of use
- ▶ Better support for complex business level policies
- ▶ Easy to use and intuitive
- ▶ Single console and design interface for the complete SOA stack
- ▶ Greater visibility, control, agility and automation
- ▶ Support for event driven architecture (EDA) and complex event processing (CEP)
- ▶ Enterprise class, high performance, scalable, modular and highly extensible

System Requirements

Operating System	-	Windows, Linux, Solaris, Macintosh and HP-UX
Database	-	Derby, PostgreSQL, MySQL, Oracle, DB2, HSQLDB, SQLServer
Browser	-	IE 5.x and above, Mozilla Firefox
Hardware	-	1 GB RAM, Intel Pentium III 800 MHz and above



info@soa-matrix.com

www.soa-matrix.com

SOAMatrix, the SOAMatrix logo, SOAStore, SOADirector, SOAIntegrator, SOALayers are trademarks or registered trademarks of SOAMatrix Software Pvt. Ltd. Other brands and/or product names are the trademarks or registered trademarks of their respective companies.
Copyright © 2007-2008 SOAMatrix Software Pvt Ltd. All Rights Reserved.