

# Service Oriented Architecture

*Let IT serve the business process; Not the other way around*

## CHALLENGE — Preserve information and realize business processes in modern IT systems.

Business processes should drive the IT infrastructure, and not vice versa. Yet legacy information structures can constrain an organization's ability to derive the full benefit from its IT investment. Worst of all, your users—your customers—grow frustrated with a system that seems ill-suited to their needs.

## SOLUTION — Implement a service oriented architecture.

Service oriented architecture (SOA) is an enabler of network centric operations. It breaks down complex applications into services that can be used from remote locations to access distributed data. An SOA infrastructure allows different applications to exchange data with one another as they participate in business processes. It unifies business processes by structuring large applications as an ad-hoc collection of smaller modules called “services.”

Used in conjunction with data warehousing, SOA can enhance mission performance and decrease information technology costs. Services are reusable and can be packaged or combined for specific requirements, and increased access to enterprise data improves mission performance. SOA can be more mission-focused than other architectures, as mission knowledge leads to the services that will be created. SOA has proven valuable in reconciling the complexities of distributed data, which greatly increases the effectiveness and value of data warehouses.

Diverse data can be pulled from a data warehouse to create common services of value. Combining SOA and data warehousing in the design phase will ensure that data are a reusable asset from the start of their existence. SOA provides a design framework with a view to realizing rapid and low-cost system development and to improving total system quality. Services are reused when possible, modified when necessary, and only created from scratch when there is no other alternative.

## RESULT — Turn business processes into services.

QinetiQ North America has experience delivering SOA and web services to access data from customer legacy systems to provide the users with necessary data for application transactions. SOA packages business processes as services, greatly increasing their interoperability across different information systems and making them easier for customers to use.

We analyze the customer's requirements in order to understand how their business processes will be modeled, built and deployed as an SOA implementation. In doing this, we detail the tasks and business rules that will be encapsulated in the system, and which will be re-used to the maximum extent possible. A variety of web services can be deployed in an SOA implementation, including: business processes, utility, and data services. We categorize each web service using the types mentioned above and document them accordingly.

The life-cycle activities of the web services can be managed by:

- **Business Process Management (BPM)** – For creating and linking business processes as web services in a collaborative way to implement business workflows
- **Enterprise Service Bus (ESB)** – For moving data among various modules/integration interfaces. Various integration interfaces can be supported by using ESB adapters such as database-to-database, file based adapters, message queues and other XML web services
- **Security Management** – For defining and enforcing security policies among services
- **Business Activity Monitoring (BAM)** – Allows system administrators to define and track key performance indicators that can be used to track the usage of web services and resources BAM is also used to ensure that services are operating in compliance with service level agreements and the overall governance

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Talented engineers, scientists, program managers and other professionals deliver:

- Information Technology Services & Solutions
- Cyber Security & Cyber Operations
- Network Architecture, Engineering & Operations
- Mission Operations, Engineering & Logistics
- C4ISR and Counterintelligence Solutions
- Unmanned Systems & Survivability Technologies

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- ERIS and IRS Chief Counsel Projects - CMMI® Maturity Level 2
- ISO 9001:2008 Quality Management System Certification
- ISO 20000-1:2005 IT Service Management Certification

## FOR MORE INFORMATION

For more information about our service oriented architecture capabilities, contact: [informationsolutions@QinetiQ-NA.com](mailto:informationsolutions@QinetiQ-NA.com), and visit [www.QinetiQ-NA.com](http://www.QinetiQ-NA.com).