

# Making Good SOA **GREAT** The WSO<sub>2</sub> Story of Componentization

## The WSO2 Story of **COMPONENTIZATION**

User experience improves tremendously when products evolve from a one-size-fits-all approach to a customizable solution. Customizing sophisticated products requires wisely factoring the core components. Service Oriented Architecture (SOA) has brought the benefits of componentization to enterprise IT, and now WSO2 is extending these end-user benefits significantly with WSO2 Carbon.

The new WSO2 Carbon framework represents a

**SEISMIC SHIFT**

in the middleware market, allowing the middleware to adapt to your enterprise, rather than adapting your enterprise to the middleware.

## Componentizing **THE WEB**

As products and technologies evolve, they introduce more opportunities for customized user experiences. Like many consumer products, the Web has shown a similar pattern of evolution. Initially, web pages were static but later evolved to enable increasingly powerful Web applications. More recently, major innovations in user experiences have come from sites like Facebook, which allow users to combine simple applications to build personalized pages.

## Middleware **FALLS BEHIND**

Middleware has lagged behind in this shift towards componentization. Enterprise software vendors need to offer the flexibility of customization to their customers, so products can become more suited to individual needs. Let's take a look at how Service Oriented Architecture (SOA) is bringing the benefits of componentization to enterprise IT.



Building Blocks

What's Missing

Enter Carbon

OSGi

Carbon Key Features

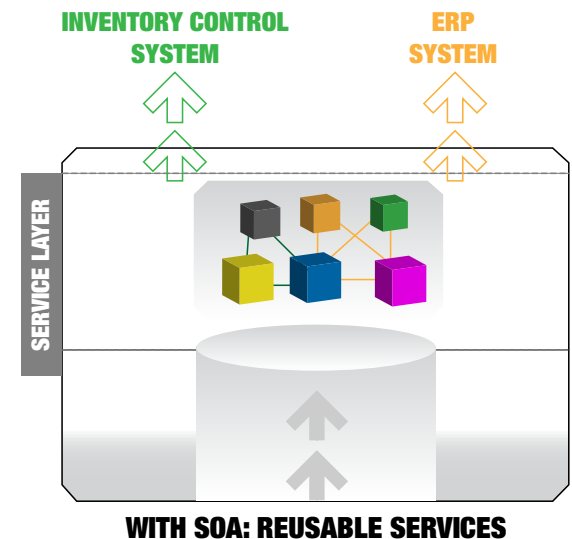
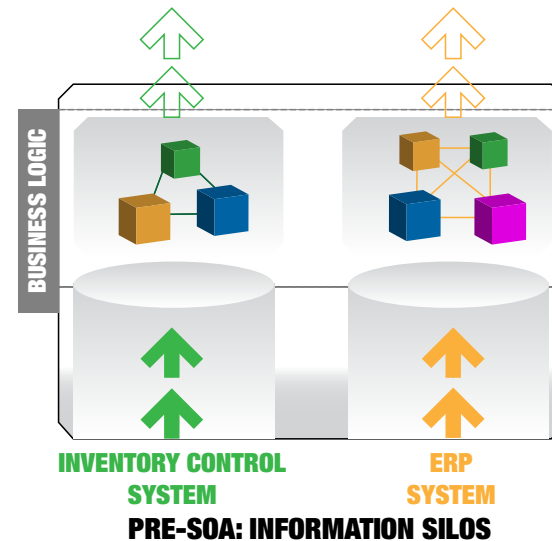
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## Componentization REACHES ENTERPRISE IT

Componentization is already bringing cost savings and more productive customer experience to enterprise IT, as demonstrated by the increased popularity of Service Oriented Architecture (SOA).

Traditionally, individual applications use their own separate data stores in order to carry out application functionality. This results in “silos” of information within an enterprise architecture. SOA breaks down these silos. Application functions, or business processes, can be defined and created as Web services. New applications can be easily assembled from these services.

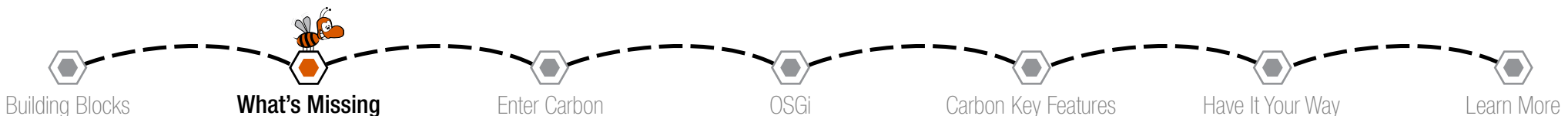


## Are You Adapting Your **ARCHITECTURE TO SUIT A VENDOR???**

Countless vendors, including proprietary middleware industry giants like IBM and Oracle, and open source platform companies like WSO2, have built products that enable SOA to varying extents.

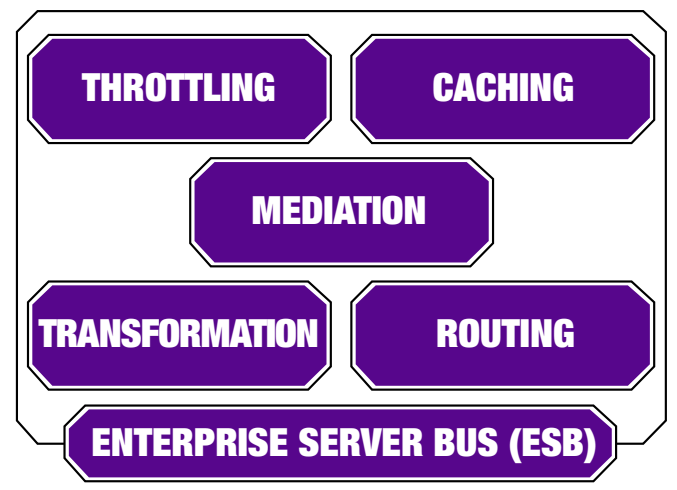
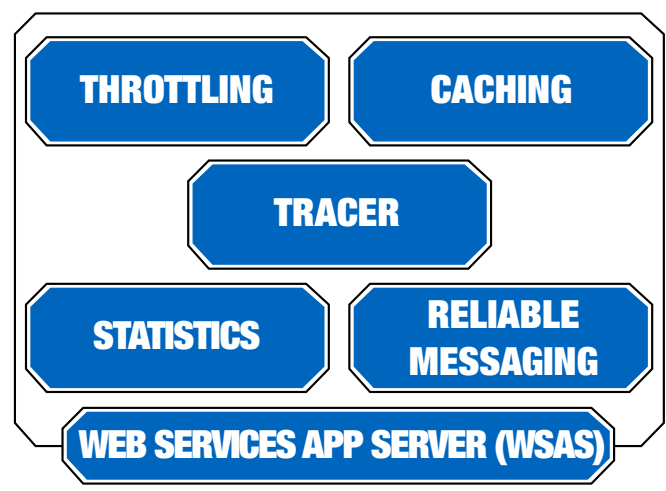
But no middleware product has taken a componentized approach to their own middleware “silos”. The features and functions of each middleware product have been predetermined by the vendor’s software designers, not built to each individual customer’s specification.

However if you could find a vendor who adapts to your architecture, how would that benefit you? Let’s take a look to find out.

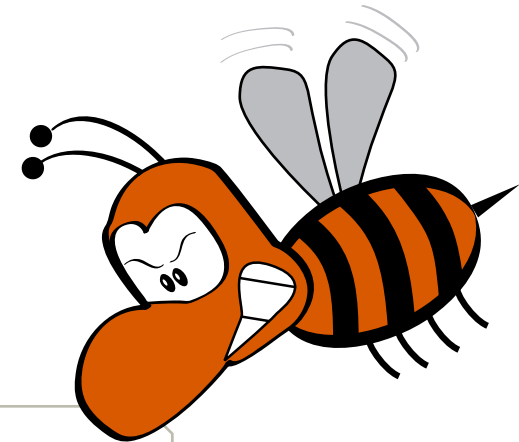


## The Need for MODULAR MIDDLEWARE

So why modular middleware? What's missing from all the SOA middleware already available? A successful SOA project may expand in scope, or become a model for new projects. This might not present a challenge if the new project requirements fall within the existing product functionality. But if your needs go beyond the scope of the existing product's capabilities, your project is slowed by the need to find, evaluate, purchase and install a new product.



## Integrating Services THE OLD SCHOOL WAY

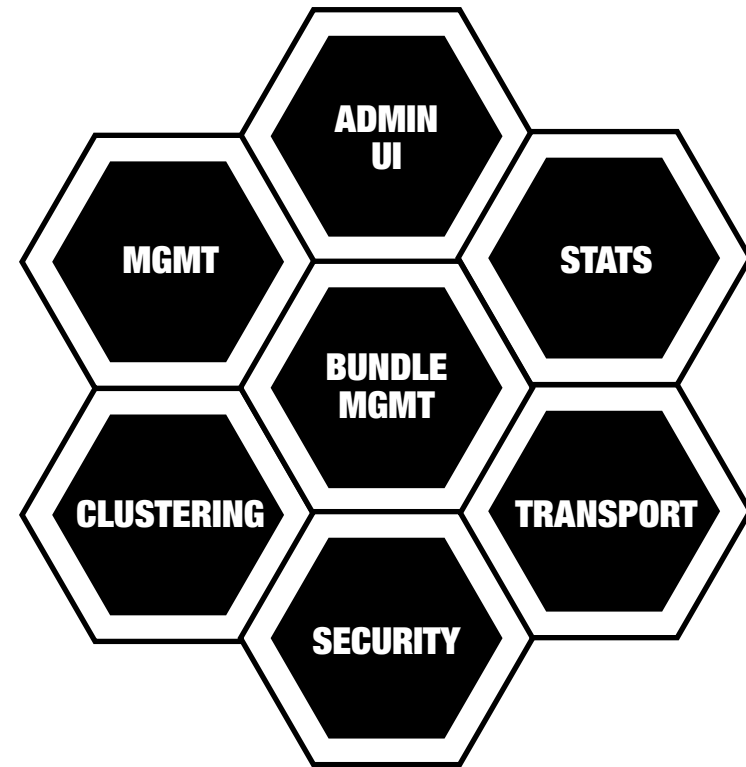


Let's take a common use case. You need to access data in an existing MySQL database for a new Web application. So, you simply download WSO2 Data Services solution, and within minutes you've created and deployed a new data service. But what happens when you want to integrate this service with existing systems using a different XML format? You could download the WSO2 ESB to transform the message formats or use an existing ESB, but that involves learning and configuring a new product or switching between different user interfaces, and managing both systems. Until now, spending a significant amount of time to implement new product functionality was just part of any developer's job.

## Modular **MIDDLEWARE**

Carbon is a framework that allows you to choose the functionality you need, so your SOA deployment can grow at the pace you require. It is built on top of a core SOA and Web Services engine, with pluggable modules that encapsulate major functionality such as data services, business process management, ESB routing/transformation, rules, security, throttling, caching, logging and monitoring.

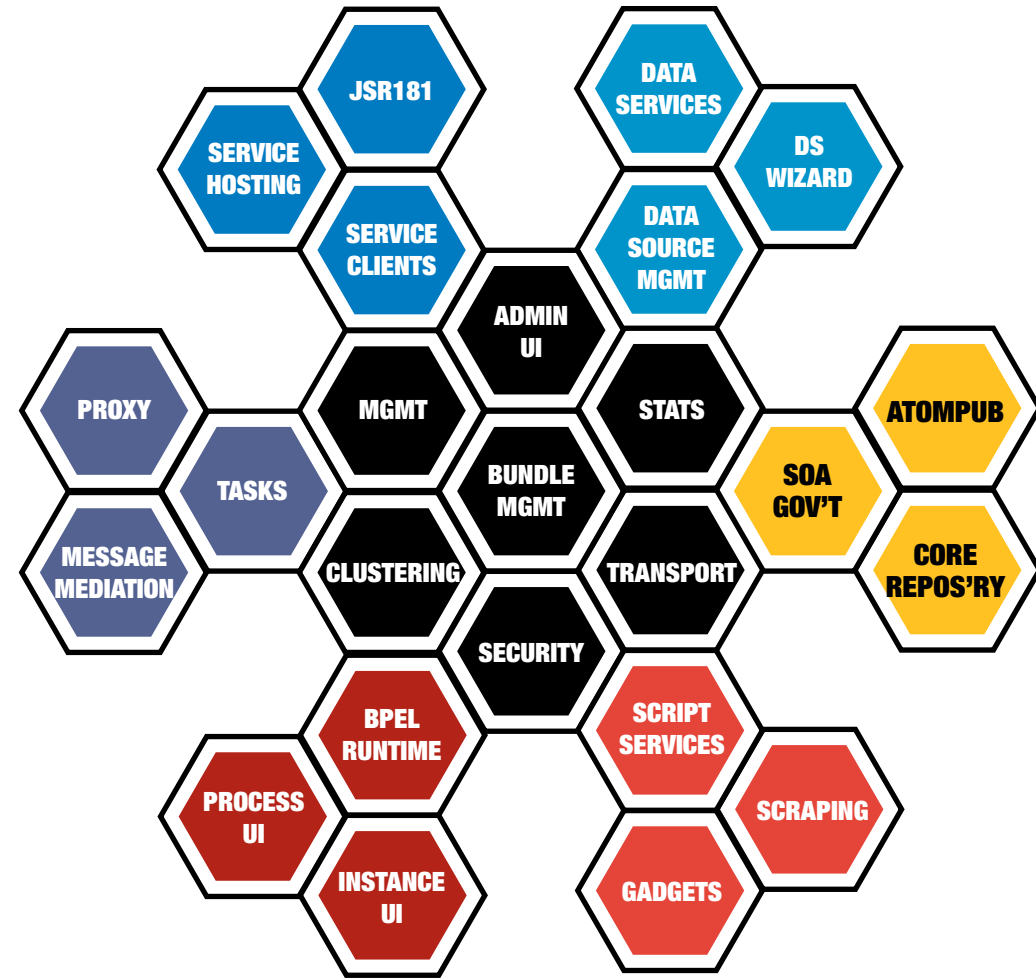
With Carbon, you can assemble these components into composite applications that serve your precise SOA requirements, without having to aggregate a suite of applications yourself.





## Carbon: **EXTENSIBLE MIDDLEWARE**

WSO2 Carbon revolutionizes SOA middleware by letting you add more functionality to a powerful core runtime. Growing a core runtime which is proven to perform on major production deployments lets you adopt SOA functionality at precisely your own pace. Built on OSGi, the dynamic module system for Java, Carbon defines consistent capabilities and user experiences across the platform. Carbon offers a complete SOA platform in a single download, and is 100% open source.



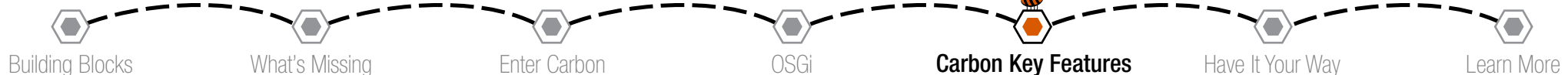
# Carbon **KEY FEATURES**

Carbon is designed to separate the core functions of an SOA platform into

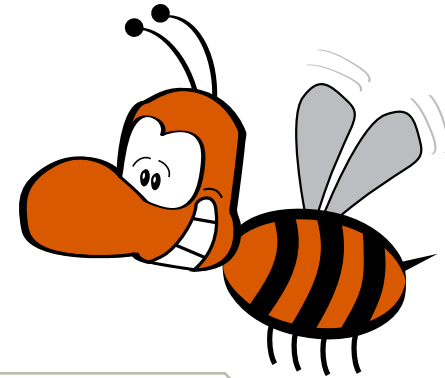
## **INDEPENDENT, PLUGGABLE COMPONENTS.**

Users can simply assemble the middleware functionality needed to build and manage their specific SOA application.

- **Core SOA functionality:** mechanisms for providing and consuming services, message mediation, service orchestration, service governance and business process management.
- **Quality of Service (QoS)** capabilities such as security, clustering and scalability.
- **OSGi-based extensibility** allows patching on the fly.
- **Future-proof**, as components not in use today can be plugged in when your IT infrastructure demands it.
- **Easy configuration** via a rich Web-based graphical management console allows the administration of the system remotely.
- **Loose coupling** ensures implicit dependencies and highlights explicit dependencies.
- **Clear interfacing** for component configuration.
- **Configuration and management** of the system infrastructure facilitated by monitoring flow, message tracing and other statistics.

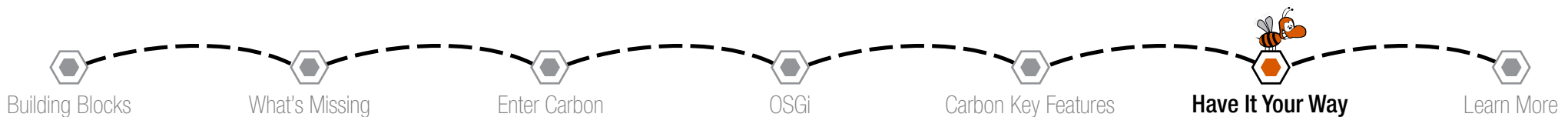


## Painless **SERVICE CREATION & INTEGRATION**



In the hypothetical use case we presented earlier, you need to aggregate the Data Service you've built with an existing system. A process flow could accomplish this, but with traditional middleware, this would require 3 separate products - data services, ESB, and process manager.

By using WSO2 Carbon, you can quickly assemble a middleware solution customized to this application instead of integrating three products from a traditional middleware suite.



## Set the Pace of **YOUR SOA ADOPTIONS**

A big bang approach is often disruptive and risks failure. If you're moving towards SOA, Carbon grows as quickly – or as slowly – as you require.

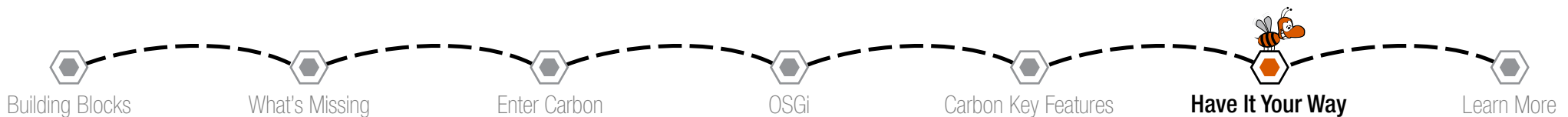
- **Database Administrators:** WSO2 Carbon lets you start with Data Services, and then add transformation functionality if and when it's required.
- **Enterprise Architects:** Instead of forcing a single central ESB that mixes up low-level routing and management with transformation and business processes, WSO2 Carbon lets you put the right function in the right place. With this flexibility comes the central governance and management to ensure success.
- **Front-end Designers:** WSO2 Carbon allows you to start by creating simple mash-ups and Web gadgets and then expand into building the processes that power them.
- **CIOs/ CTOs:** WSO2 Carbon is a single platform that covers the entire SOA space, from creating and connecting services, or composing services into new business processes, to comprehensive SOA governance. WSO2 Carbon is highly interoperable, which means that it can work with legacy systems and enhance your existing investments.

## WSO2 Carbon: **THE EVOLUTION OF MIDDLEWARE**

With Carbon, middleware has evolved. No longer one-size-fits-all products with functionality combinations decided by software designers, middleware can be customized so that the product does exactly what you require. Instead of spending valuable development cycles on integrating vendors' products, you can quickly and easily adapt the middleware to your existing IT infrastructure.

Regardless of your existing investments in SOA products, you can immediately begin to benefit from WSO2 middleware à la carte. In a project where you need a certain service-related capability, start by using a Carbon-enabled WSO2 product. Then, as your project grows, just turn on the new functionality that you need.

SOA has promised significant benefits through breaking down IT architectures into reusable components. But until now, the middleware labeled as "SOA products" has lagged behind the ability to deliver on these promises. With WSO2 Carbon, the benefits of componentization are extended beyond SOA as a philosophy. Now, the middleware itself is modular, reusable and flexible: you can now make your good SOA great.



## Learn more **ABOUT CARBON**

To learn more about Carbon, and how the suite of WSO2 open source SOA products work together, visit <http://wso2.com>. Product downloads, tutorials, demos, podcasts and much more can be found in the WSO2 OxygenTank developer portal at <http://wso2.org>.



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What's Missing



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Carbon Key Features



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