



GRIDSOLUT
Prozesse | Daten | Menschen

Stratos: ein Baukasten für eine Open-Source Cloud

Java Form Stuttgart, 5.7.2012

Inhalt

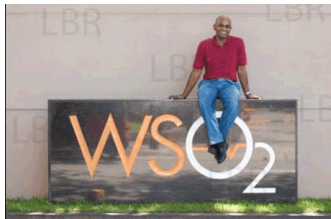
Industrialisierung
Middleware
PaaS
GRIDSOLUT / WS02

Über GRIDSOLUT

- Projektarbeit im Kontext betrieblicher Informationssysteme
 - Automotive, Maschinen- und Anlagenbau, Agrardomäne
- Kernkompetenzen
 - Service Oriented Computing (SOC)
 - Business Process Management (BPM) / Workflow Management
 - On-demand Computing (Cloud) / Plattformbau
- Partnerschaft mit WSO2
 - Ansprechpartner für WSO2 Produkte / Dienstleistungen D-A-CH
 - Wechselseitig ergänzendes Dienstleistungsportfolio

Über WSO2

- Intel Capital und Quest Software investierten 11 Mio. Dollar in WSO2
- **Ca. 200 Angestellte** in den USA, Europa, Australien und Sri Lanka
- 10 Bücher und 100+ technische Artikel publiziert
- „Sri Lanka – Center of Excellence“ für Open Source
 - Führender Apache Committer außerhalb der USA
 - Größter pro Kopf Open Source Contributor der Welt
 - Aktive Teilnahme am Google Summer of Code



Dr. Sanjiva Weerawarana

Founder, Chairman & CEO

Ex-IBM, leader in Web Services & SOA, leader in open source globally



Paul Fremantle

Co-Founder & CTO

Ex-IBM, leader in enterprise middleware, leader in Web services & SOA standards

Über WSO2

- Produkt(e): **Middleware** und **Cloudplattform**
 - Schlanke (lean) und anpassbare Middleware Plattform
 - On-Premise als auch cloudfähig (private und öffentliche Cloud, mandantenfähig)
 - 100% Open-Source (Apache 2.0 Lizenz)
 - In sich abgeschlossene und vollständige Middlewarepalette
 - Von den Daten bis zum Bildschirm (data to screen)
 - Agiler Entwicklungspfad (agile roadmap)

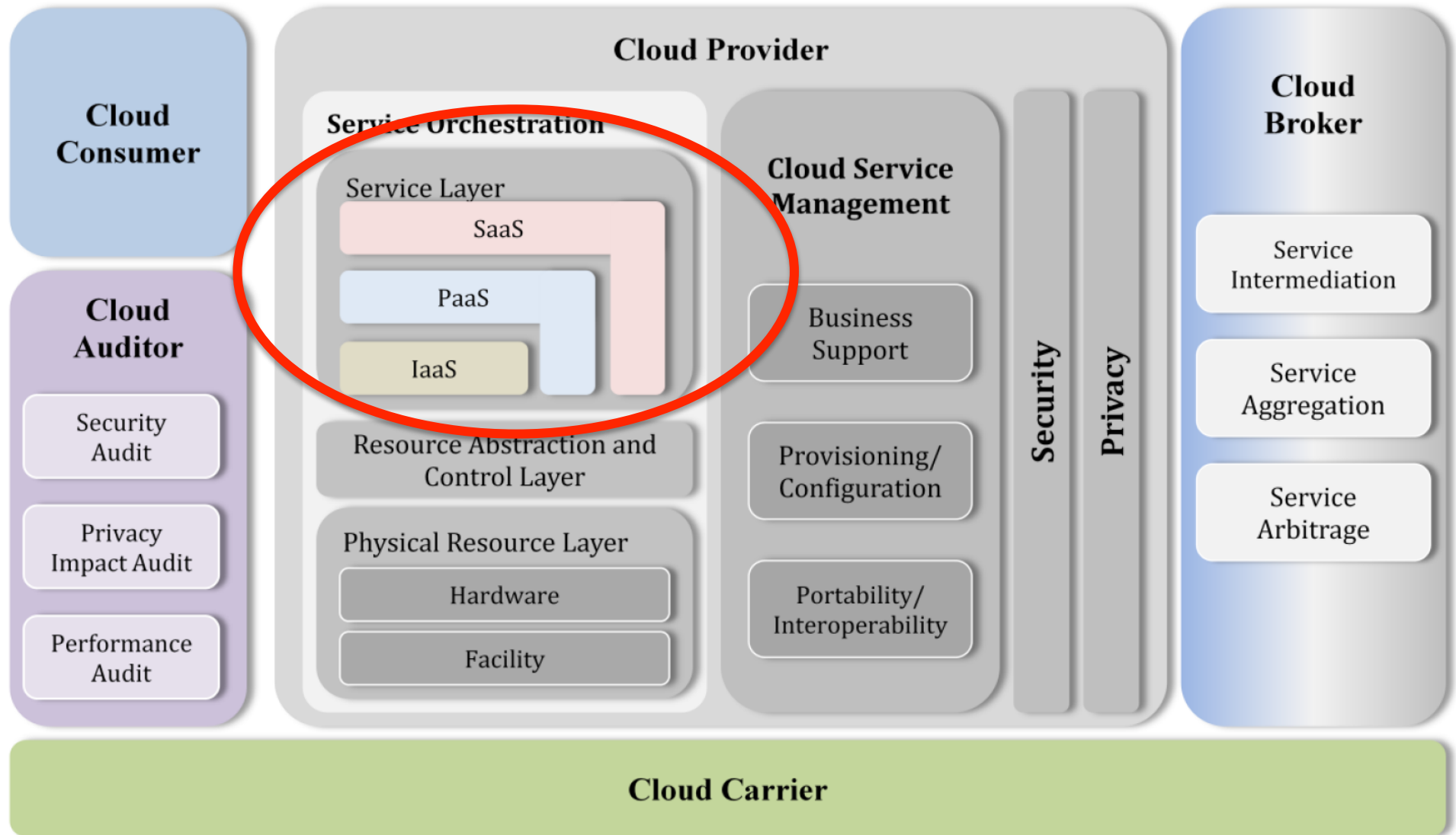


Industrialisierung

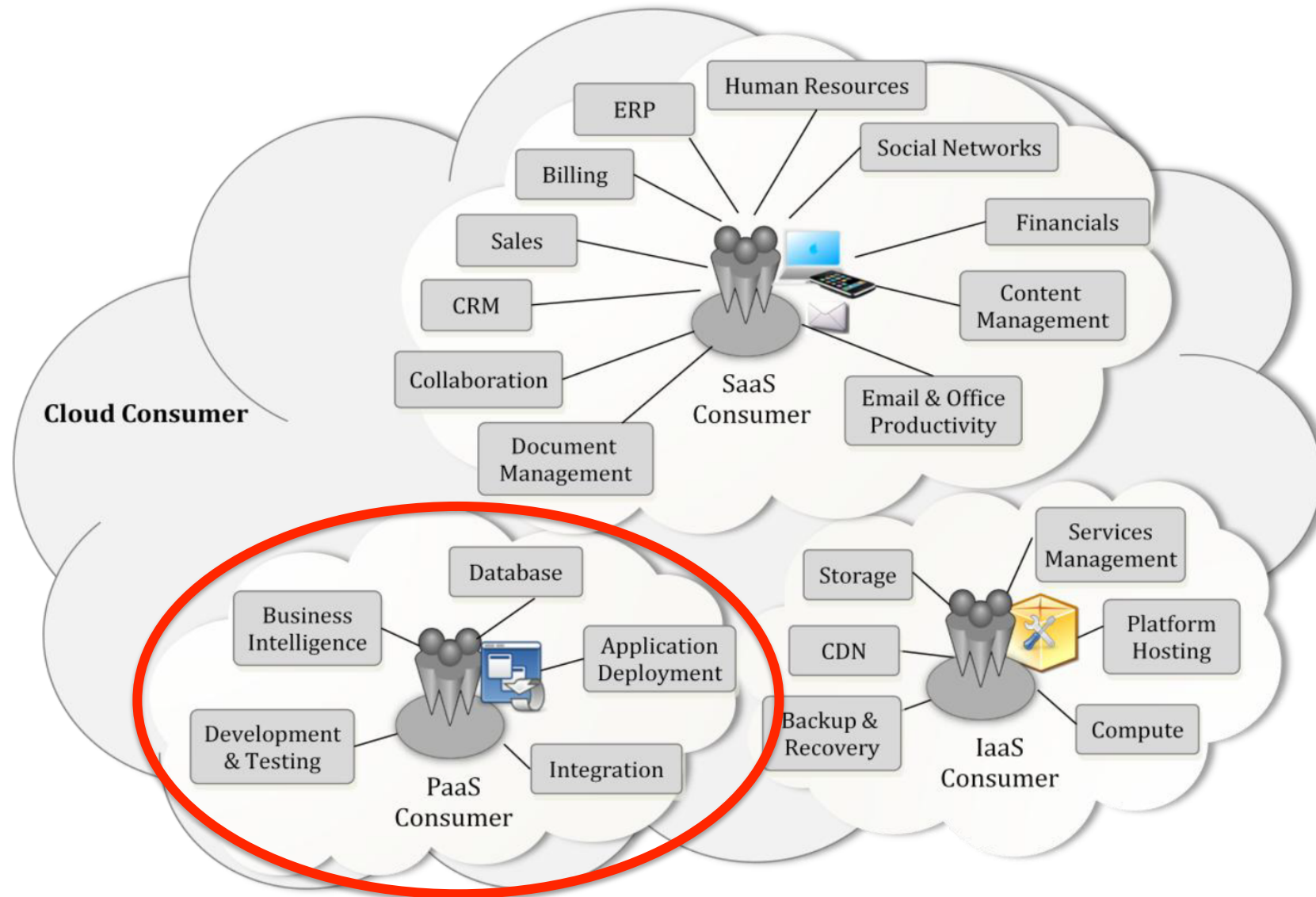
Standardisierung
Automatisierung
Outsourcing



NIST Reference Architecture



NIST Reference Architecture



Wann wird PAAS gebraucht?

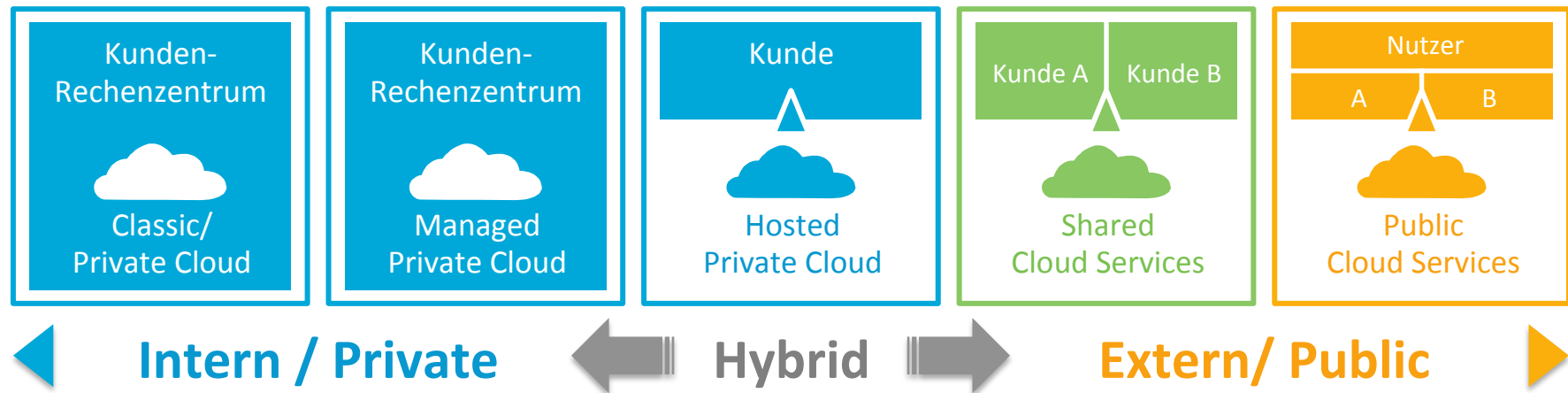
- Bei Applikationen, die eine sehr hohe Anzahl von Nutzern haben
- Falls Dienste über mehrere Provider verteilt sind
- Zur Optimierung der Infrastrukturkosten
- Zur Verbesserung der Ausfallsicherheit
- Um Plattformen für partnerübergreifendes E-Business zu bauen
- Mandantenfähigkeit
- ...

A blacksmith is shown in the process of forging a piece of metal. The metal is glowing with a bright orange-red heat. The blacksmith's hand is visible, holding a hammer with a dark handle, poised to strike the metal which is resting on a dark, heavy anvil. The background is dark and out of focus, emphasizing the action in the foreground.

Industrialisierung Nicht immer!

Middleware muss viele
Bereitstellungsoptionen unterstützen

Bereitstellungsoptionen

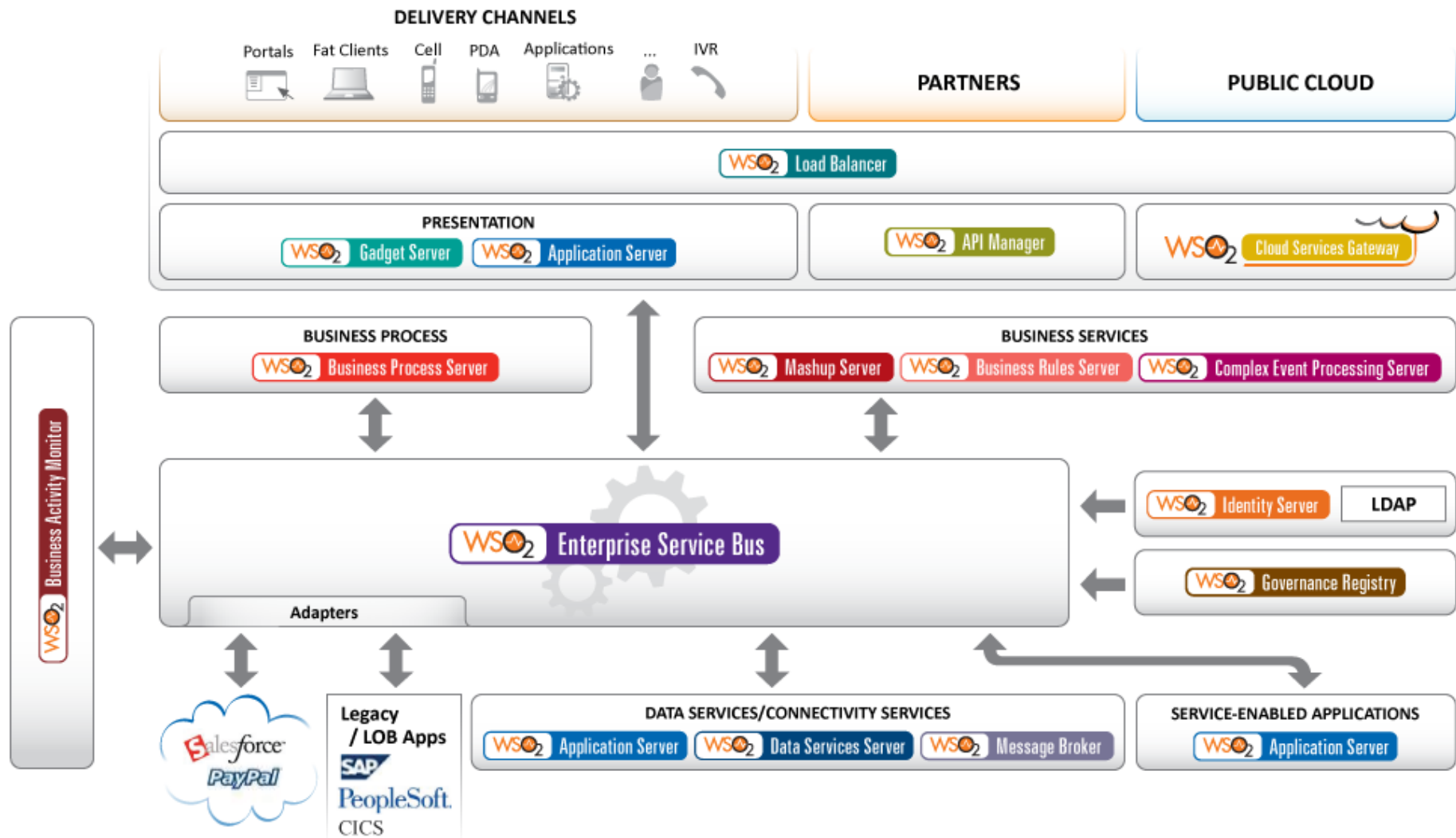


Quelle: Wolfgang Schmidt (X-INTEGRATE) [4]

Gesucht: Middleware, die viele Bereitstellungsoptionen erlaubt



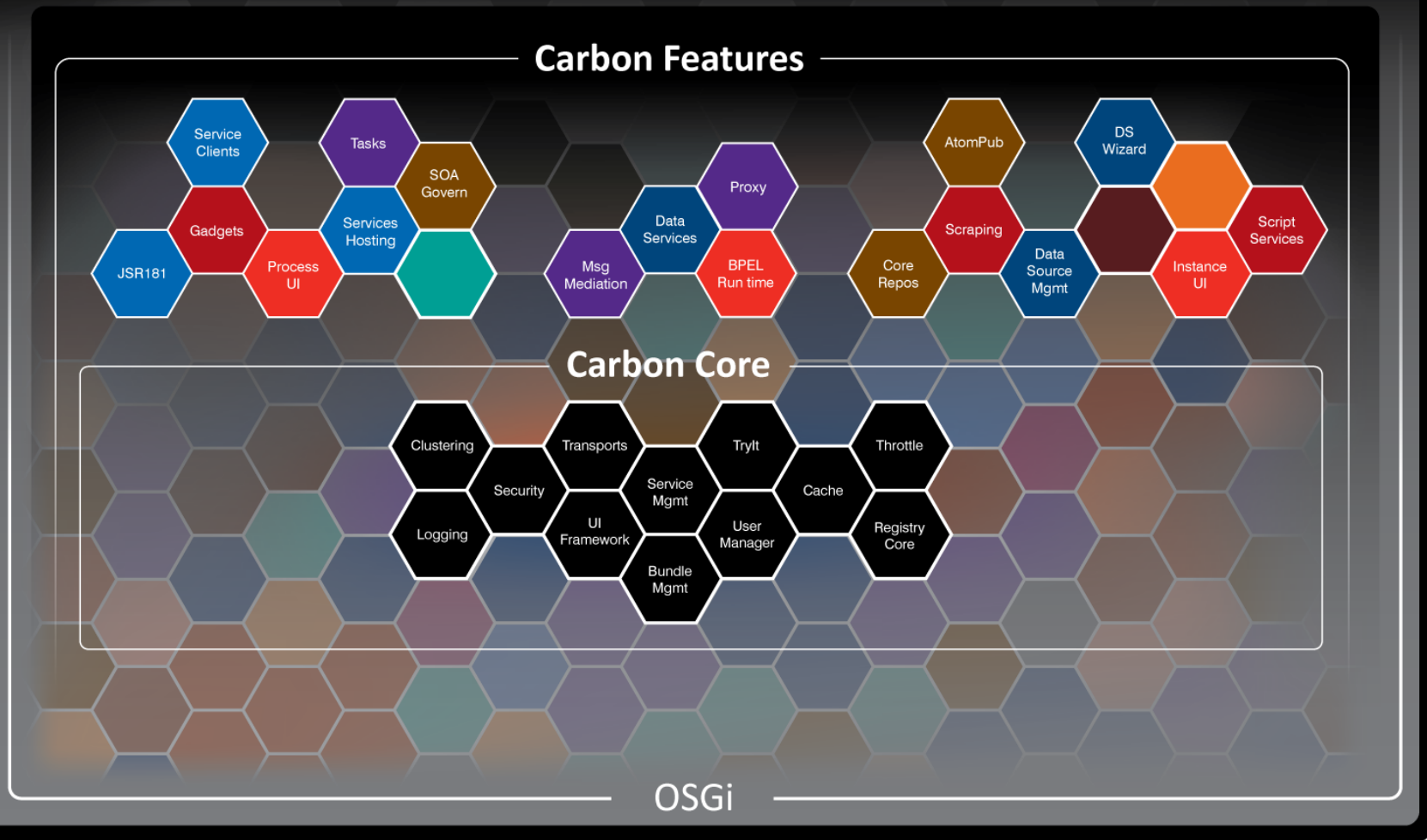
Welche Middleware Services werden benötigt?



Carbon - Idee



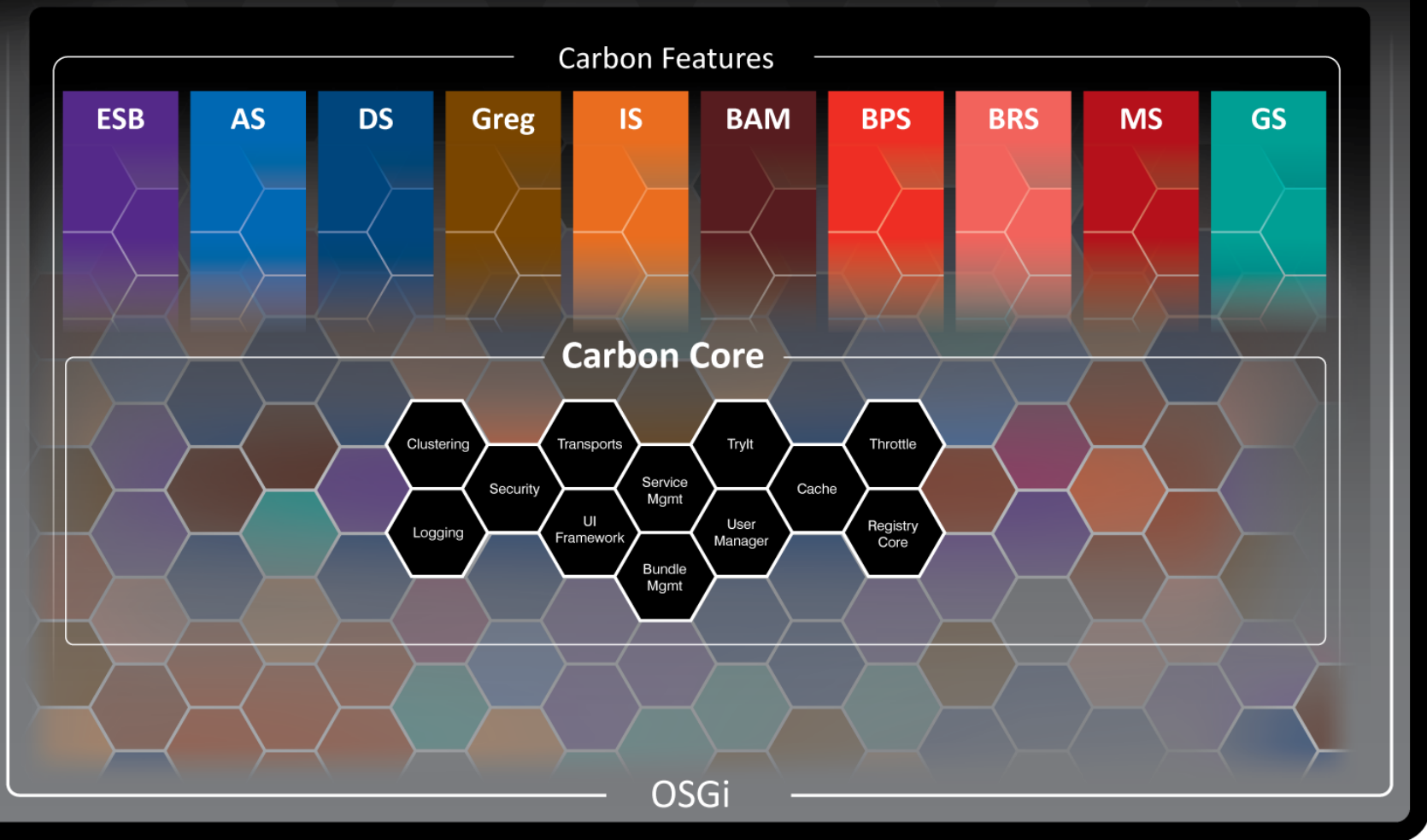
Carbon



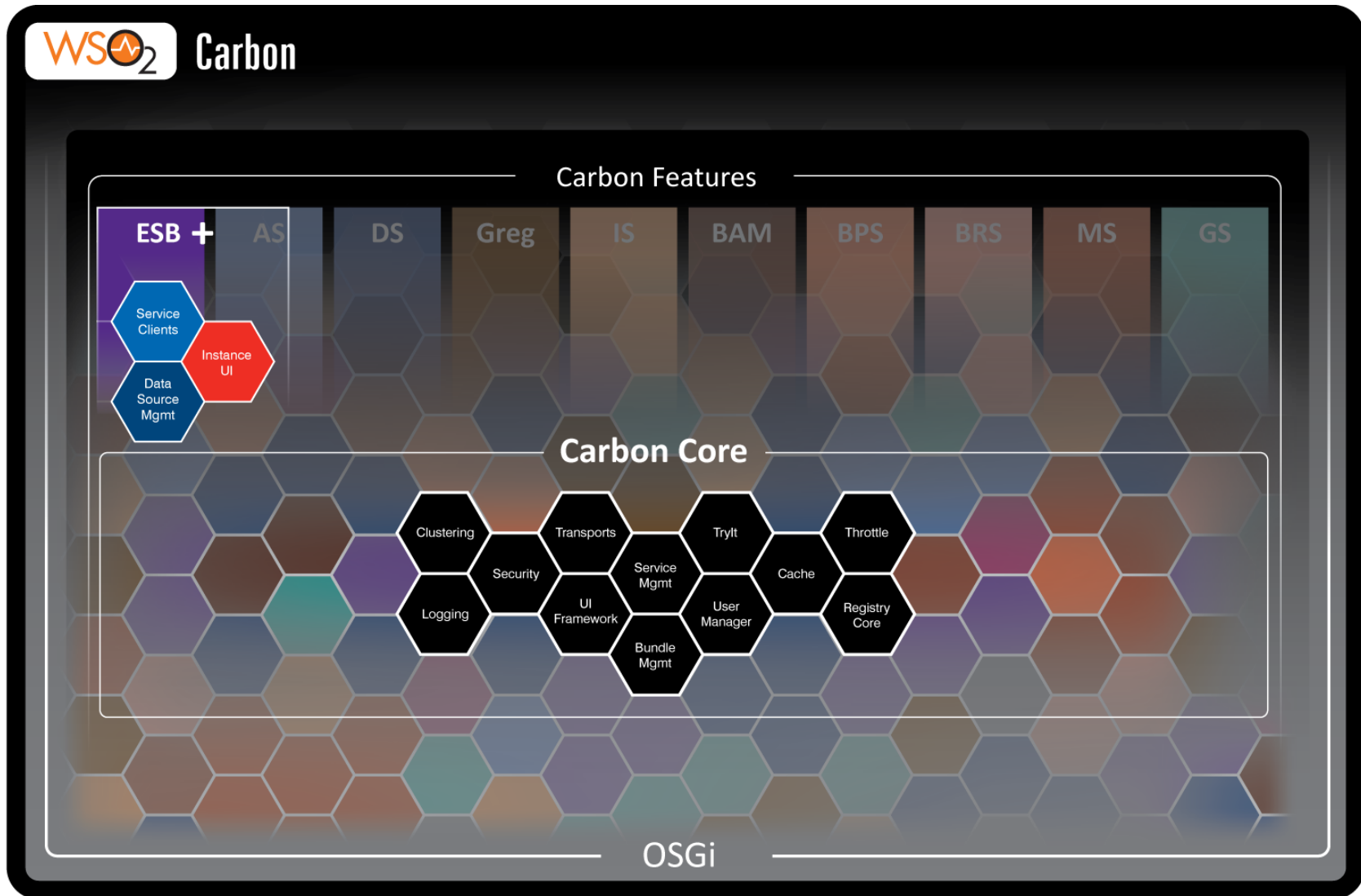
Carbon - Produkte



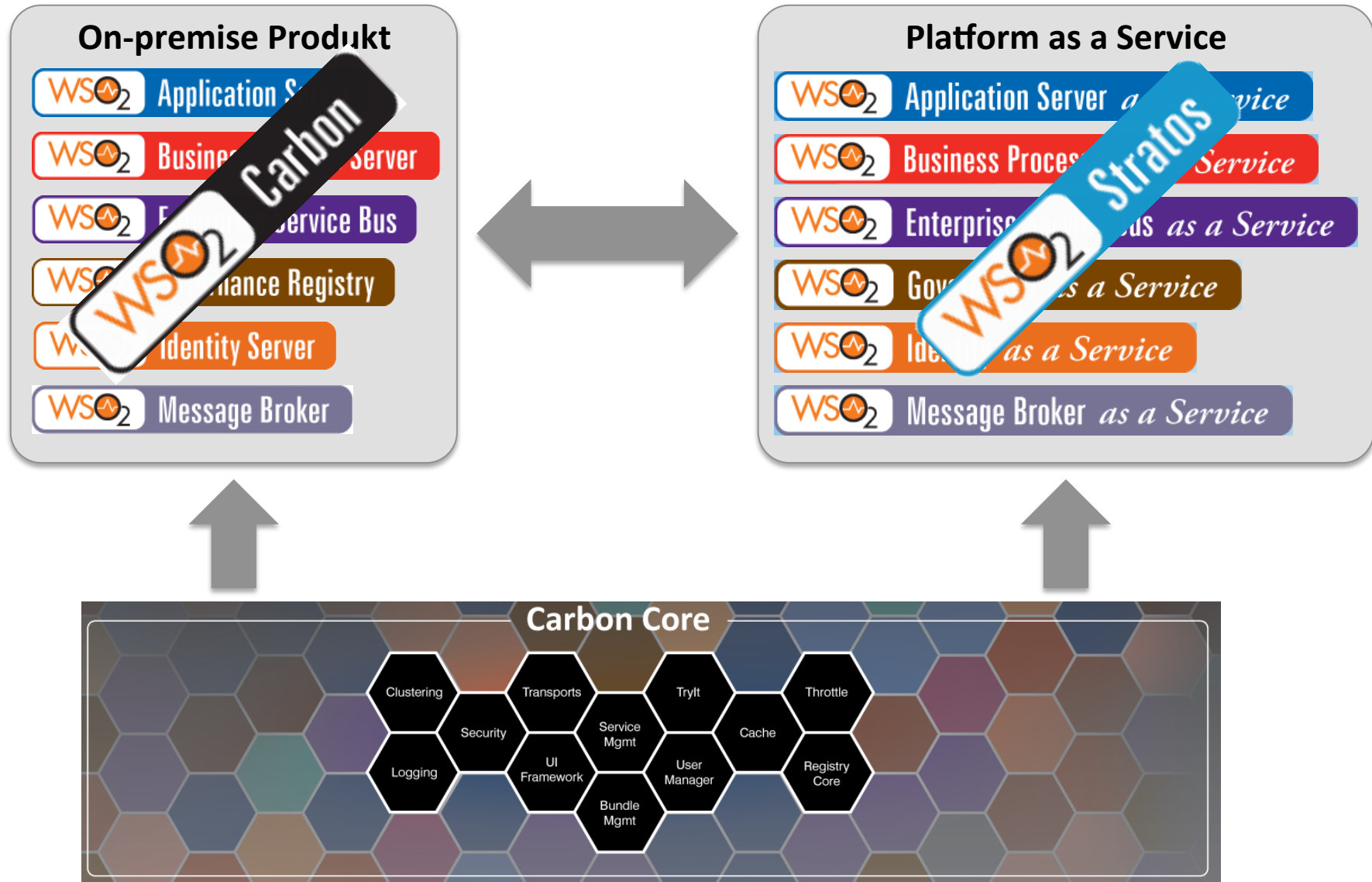
Carbon



Carbon - Produktanpassung



Betriebsmodelle



WSO2 Produkte - Vergleich

 **Enterprise Service Bus**

 **Governance Registry**

 **Identity Server**

 **Application Server**

 **Data Services Server**

 **Business Rules Server**

 **Business Process Server**

 **Business Activity Server**

 **Complex Event Proc. Server**

 **Message Broker**

 **Mashup Server**

 **Gadget Server**

On-premise

- auf realer Hardware
- in virtuellen Umgebung

Vollständiges Middleware- Produktportfolio

Baukastenprinzip

- nur absolut notwendige Produkte / Features je VM

 **Carbon**

Cloud-native

- Mandantenfähig
- Private Cloud
- Public Cloud
- Hybrid Cloud

Kundenindividuelle Lösung

- PaaS-Lösung
- SaaS-Lösung

Zentrale Verwaltung und Self-Service für Entwickler

 **Stratos**

Öffentlich verfügbare PaaS-Lösung

- Betrieben von WSO2

Sofortiger Zugang zu Middleware-as-a- Service

Pay as you go

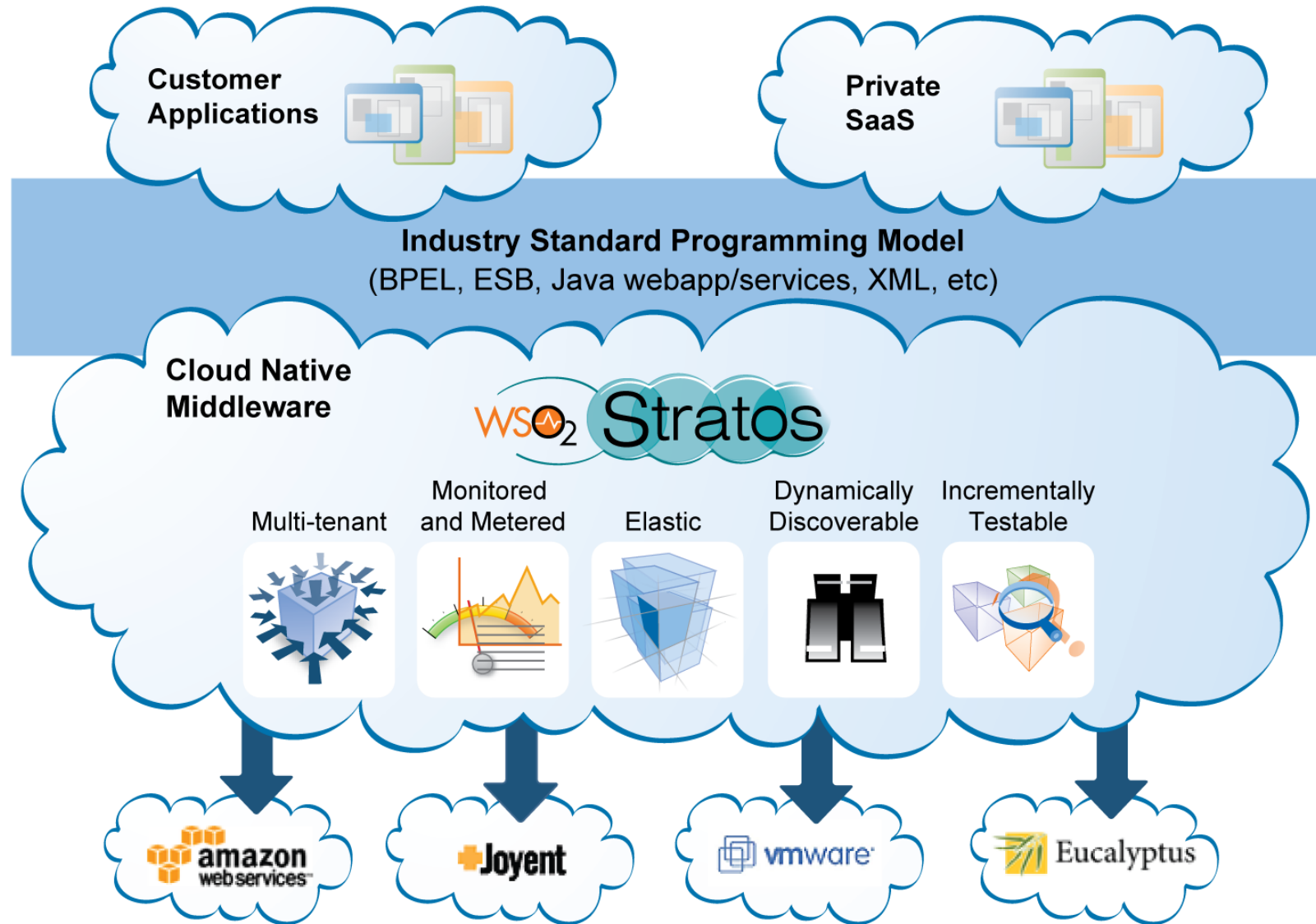
- Nur variable Kosten

 **StratosLive**

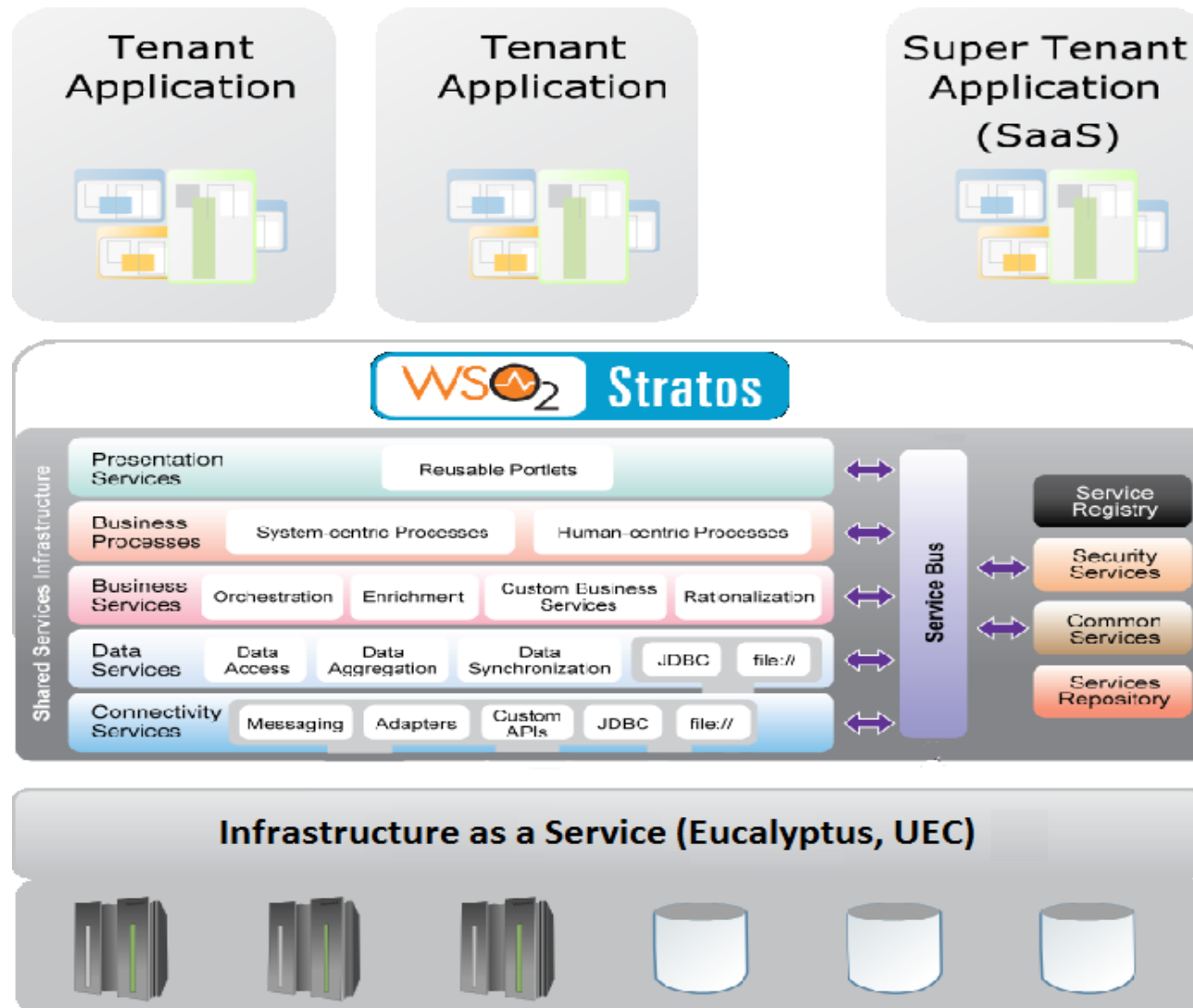
Open Source Projekte (Auszug)

- Apache Tomcat
- Apache Axis2
- Apache Synapse
- Apache CXF
- Eclipse Equinox
- Apache Abdera
- Apache Zookeeper
- Apache Tribes
- Apache Tiles
- Apache Neethi
- Axiom
- Antlr
- Apache POI
- Apache Commons
- Annogen
- OpenSAML2
- Apache Qpid
- HttpCore-NIO
- Quartz
- Commons-VFS
- JBOSS Drools
- Web-Harvest
- Quickfix/J
- Apache Hive
- Apache Hadoop
- Apache Thrift
- Apache Cassandra
- Apache ODE
- OpenJPA
- Apache Batik
- Apache Shindig
- Apache Rhino
- Apache DS
- Apache Rampart
- Apache Amber
- Apache jUDDI
- Apache Jackrabbit
- Apache Lucene
- Apache Solr
- Eclipse WSDL Validator
- Atomikos
- Opencsv
- Gdata
- Apache Jena

WSO2 Stratos



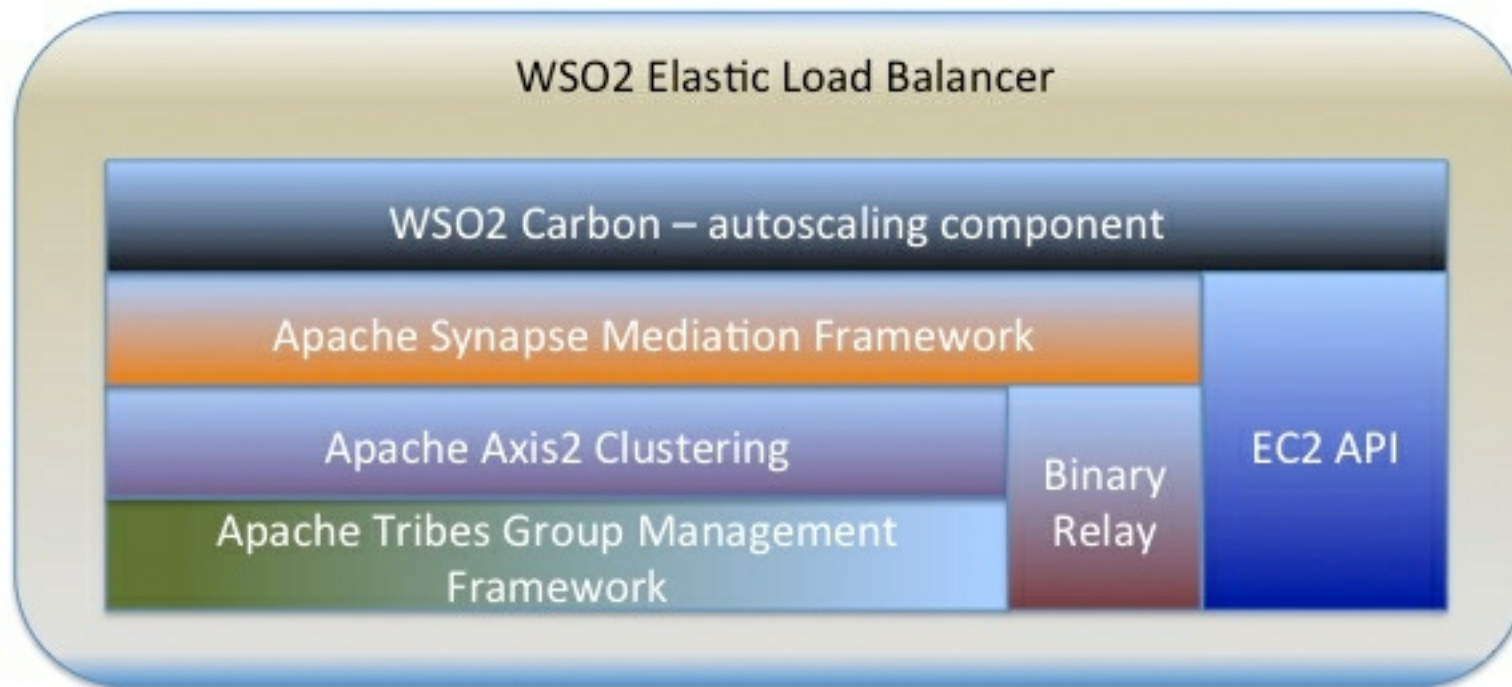
User Experience



Stratos – Kernfunktionen

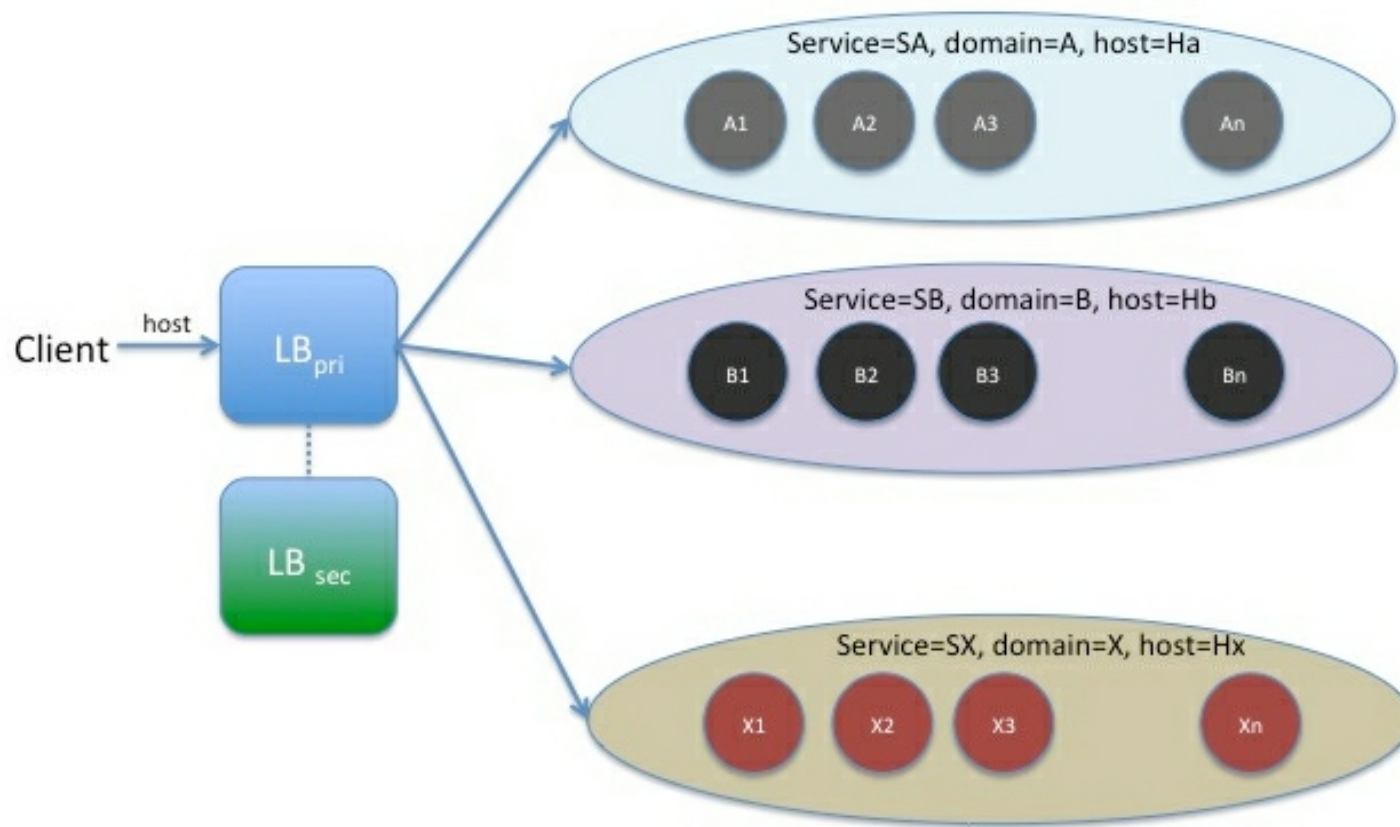
- Elastizität
- Mandatenfähigkeit
- Datenzugriff
- Vollständigkeit in Bezug auf Middleware-Funktionalität
- Governance
- Flexibilität
- Integration

Autoscaling - Architecture



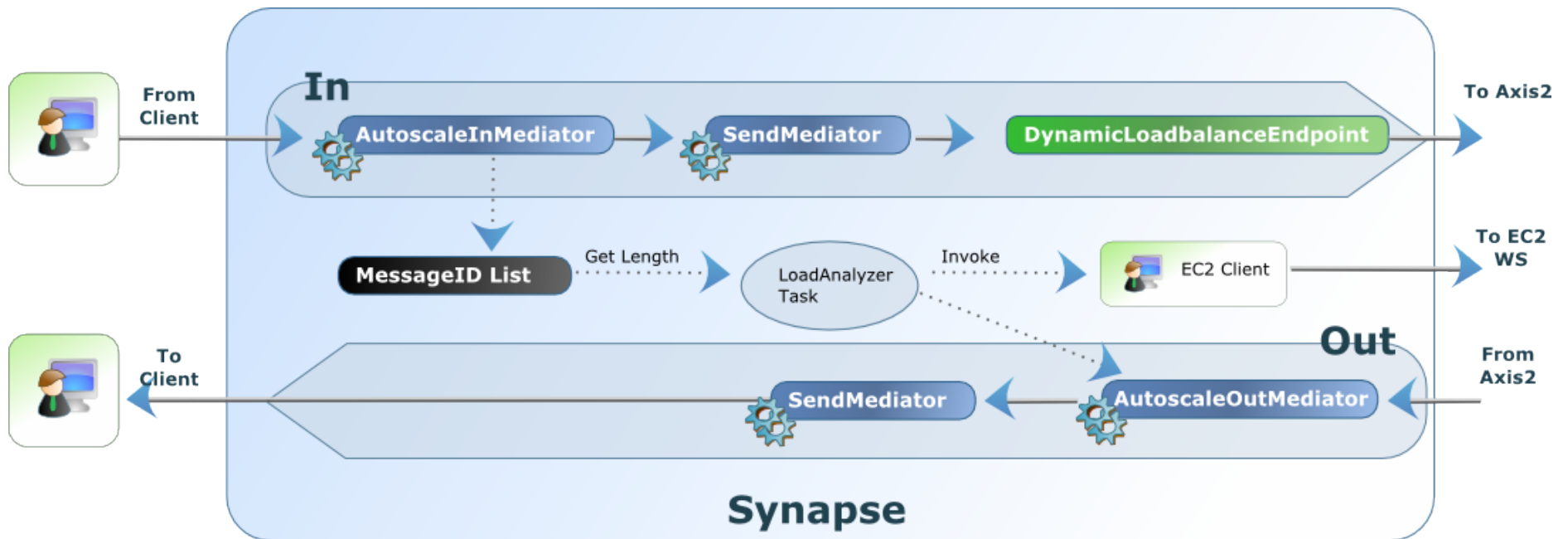
Quelle: Afkham Azeez (WSO2/Apache Axis)

Autoscaling – Cluster & Group Management



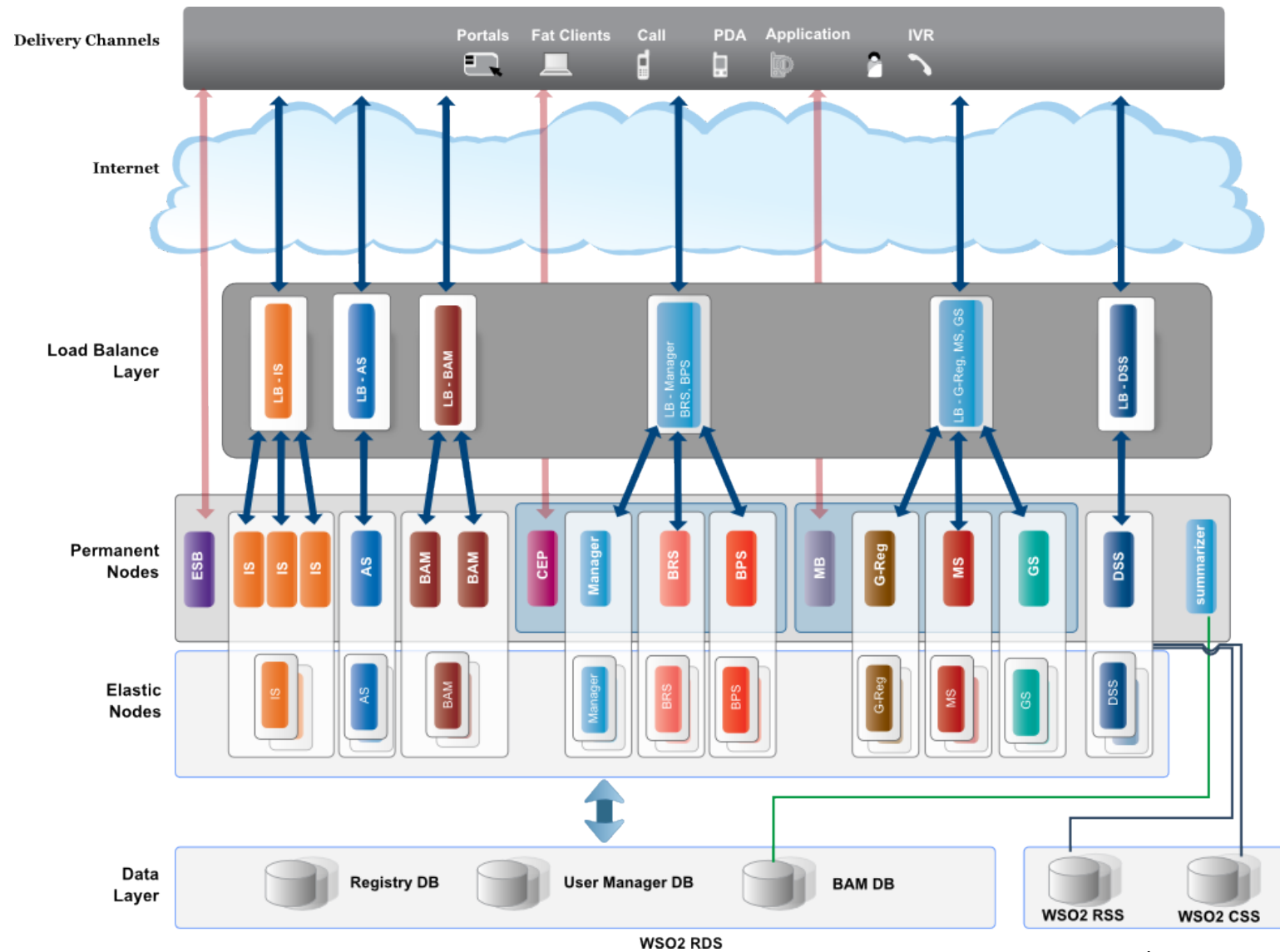
Quelle: Afkham Azeez (WSO2/Apache Axis)

Autoscaling – Autoscaler



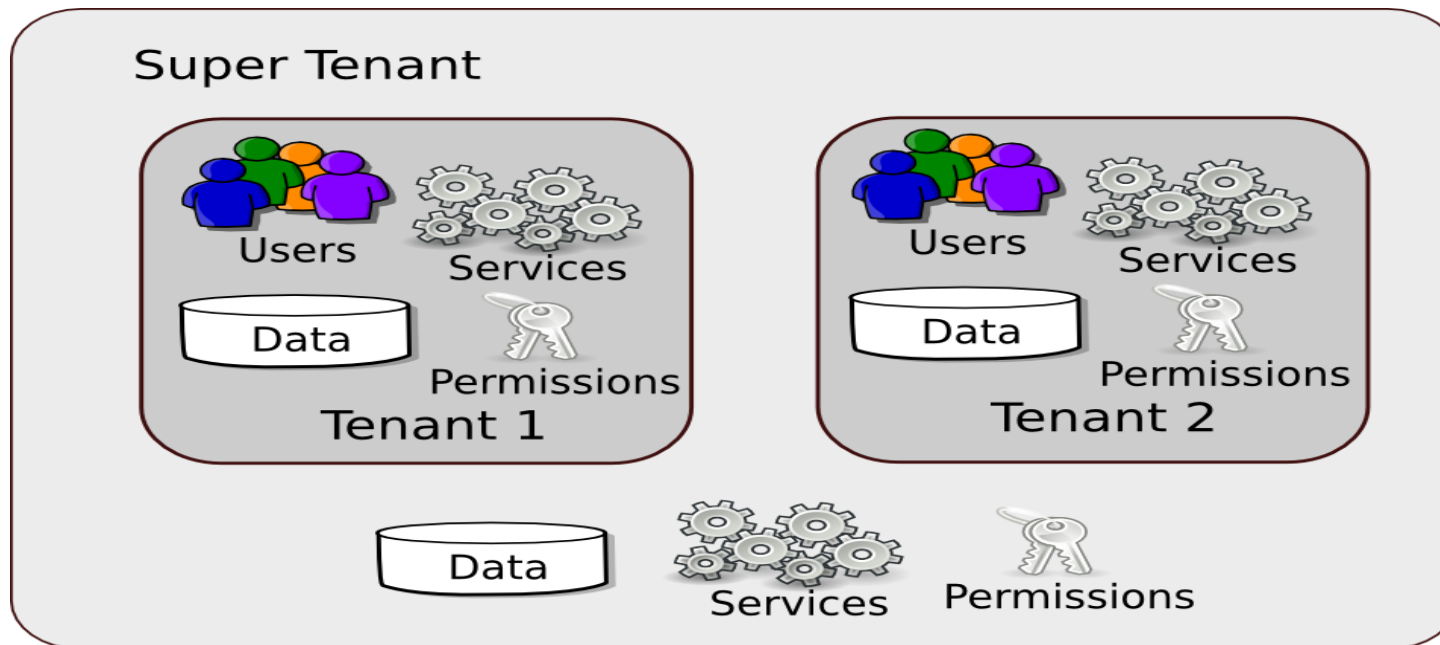
Quelle: Afkham Azeez (WSO2/Apache Axis)

Loadbalancer@Statos Live



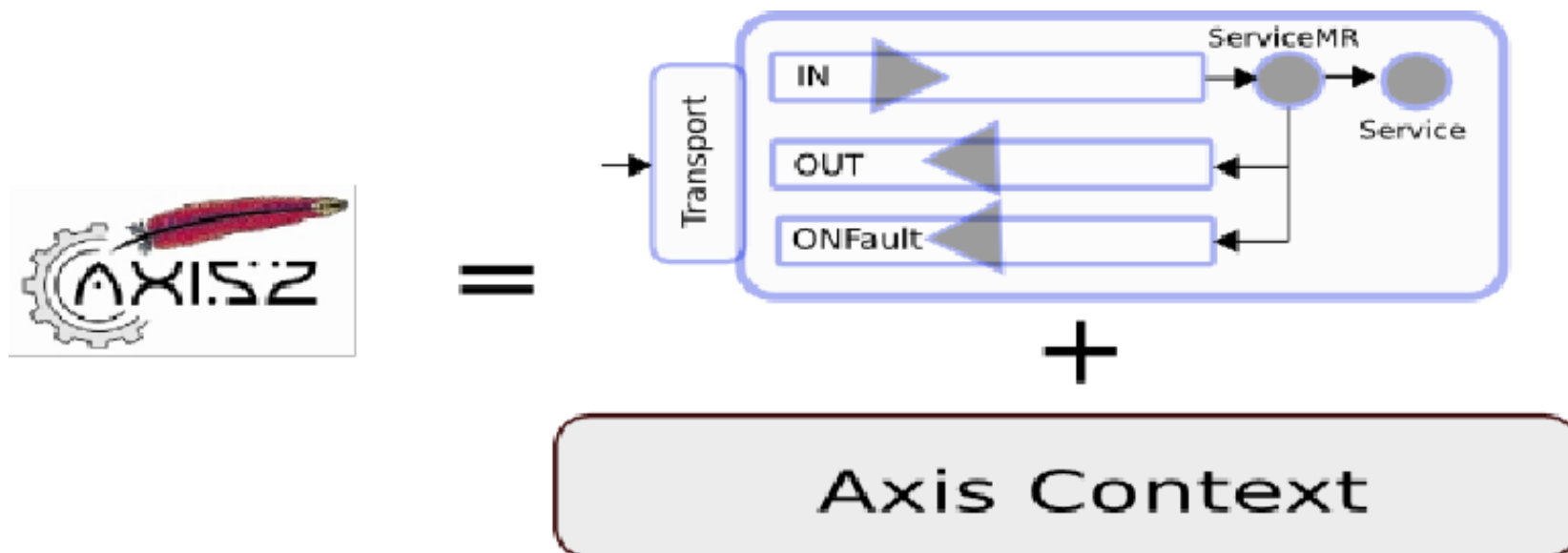
Quelle: Afkham Azeez (WSO2/Apache Axis)

Multi-Tenancy - Tenant Isolation (1)



Quelle: Afkham Azeez (WSO2/Apache Axis)

Multi-Tenancy - Tenant Isolation (2)



Quelle: Afkham Azeez (WSO2/Apache Axis)

Identity (1)

WSO2 Stratos Identity - Mozilla Firefox

File Edit View History Bookmarks Tools Help

WSO2.com https://identity.cloud.wso2.com/t/shankar-test1.com/carbon/admin/index.jsp?loginStatus=true

WSO2 Stratos Identity

WSO2 Identity as a Service Beta

Signed-in as: shankar@shankar-test1.com | Sign-out | Docs | About

Help

Identity & Entitlement quick start dashboard

- User Profile**
Update your user profile or add multiple user profiles. The value from your profile will be used to populate your Information card and OpenID profiles.
- OpenID**
This OpenID can be used with any OpenID relying party which trusts your domain for login.
- Information Card**
This card can be used with any identity selector that supports Microsoft CardSpace specifications and will allow you to login to web applications that support information card logins.
- SAML 2.0 Single Sign-On**
Use WSO2 Identity Server for Single Sign-on configuration. Service Providers can be added and removed.
- Multifactor Authentication**
Use WSO2 Identity Server to Enable XMPP based multi-factor
- Users and Roles**
WSO2 Identity Server enables you to manage users and roles in your system.
- Relying Parties**
Manage your Relying Parties with WSO2 Identity Server.
- Key Stores**
Manage your Key Stores with WSO2 Identity Server

Find: Next Previous Highlight all Match case

Done

Identity (2)

- Mandanten werden in Domänen geteilt
 - Z.B. @stratos.gridsolut.de
- Externe LDAP-Stores können einbezogen werden
 - Z.B. existierendes Firmen-LDAP
- Jeder Nutzer hat eine OpenId/Infocard und SAML2 tokens nutzen
 - Single-Signon & Single-Signoff
- Stratos nutzt intern SAML2
 - SAML2 kann auch für z.B. Web-Apps, Gadgets und anderen Inhalt genutzt werden, der auf Stratos „gehostet“ wird

Data Services

- NoSQL as a Service
 - Apache Cassandra
- Relational Database as a Service
 - MySQL Stratos Live
- FileSystem as a Service
 - Hadoop Distributed File System
- MapReduce as a Service (upcoming)
 - Hadoop Map Reduce

“Leichtgewichtig”

PaaS

“Schwergewichtig”

Richtig gewichtet!

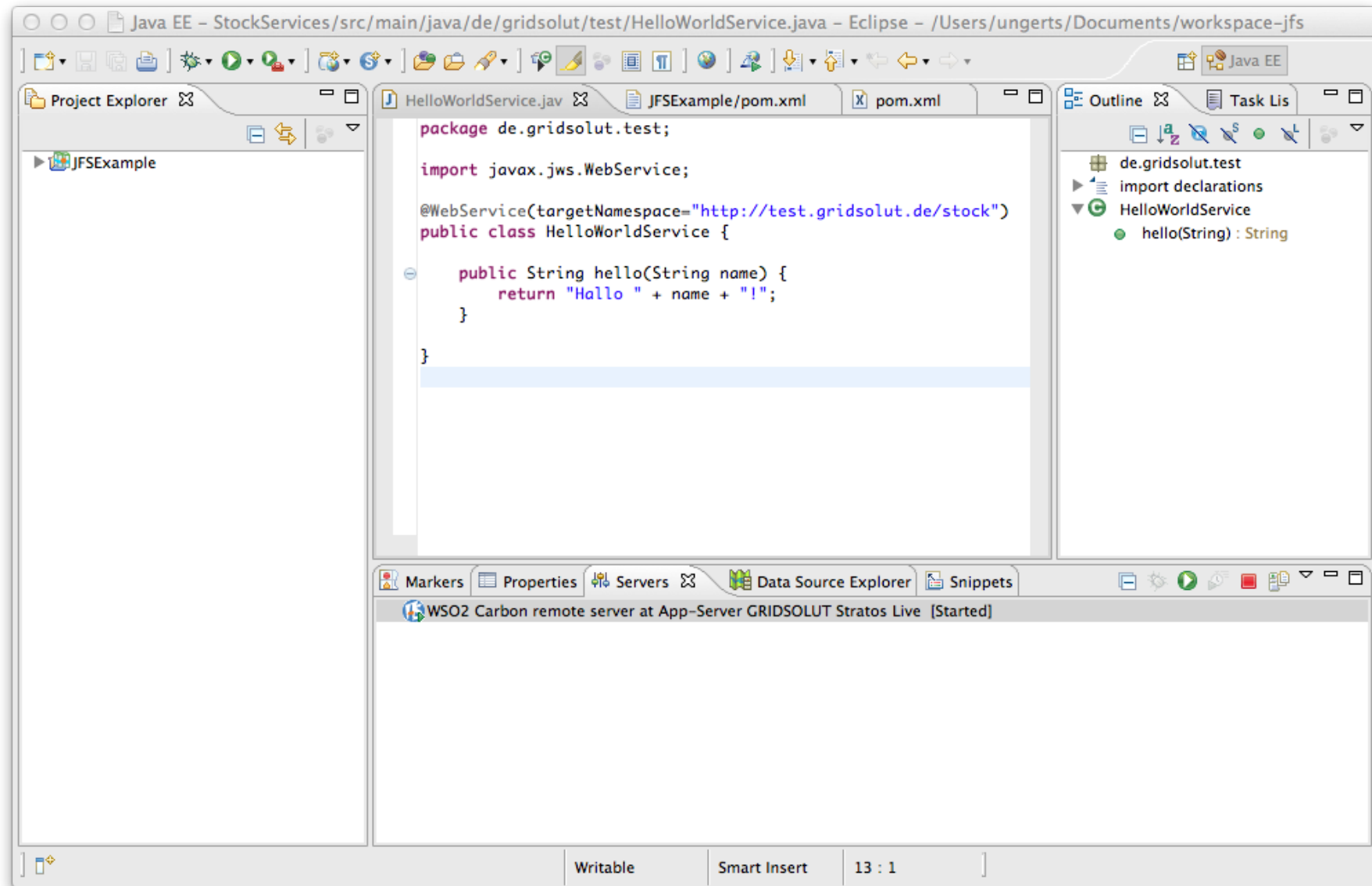
Wählen Sie selbst...

Programmiermodell?
Programmiersprache?
Persistenzmodell?

...



Carbon Studio für Tool-Liebhaber



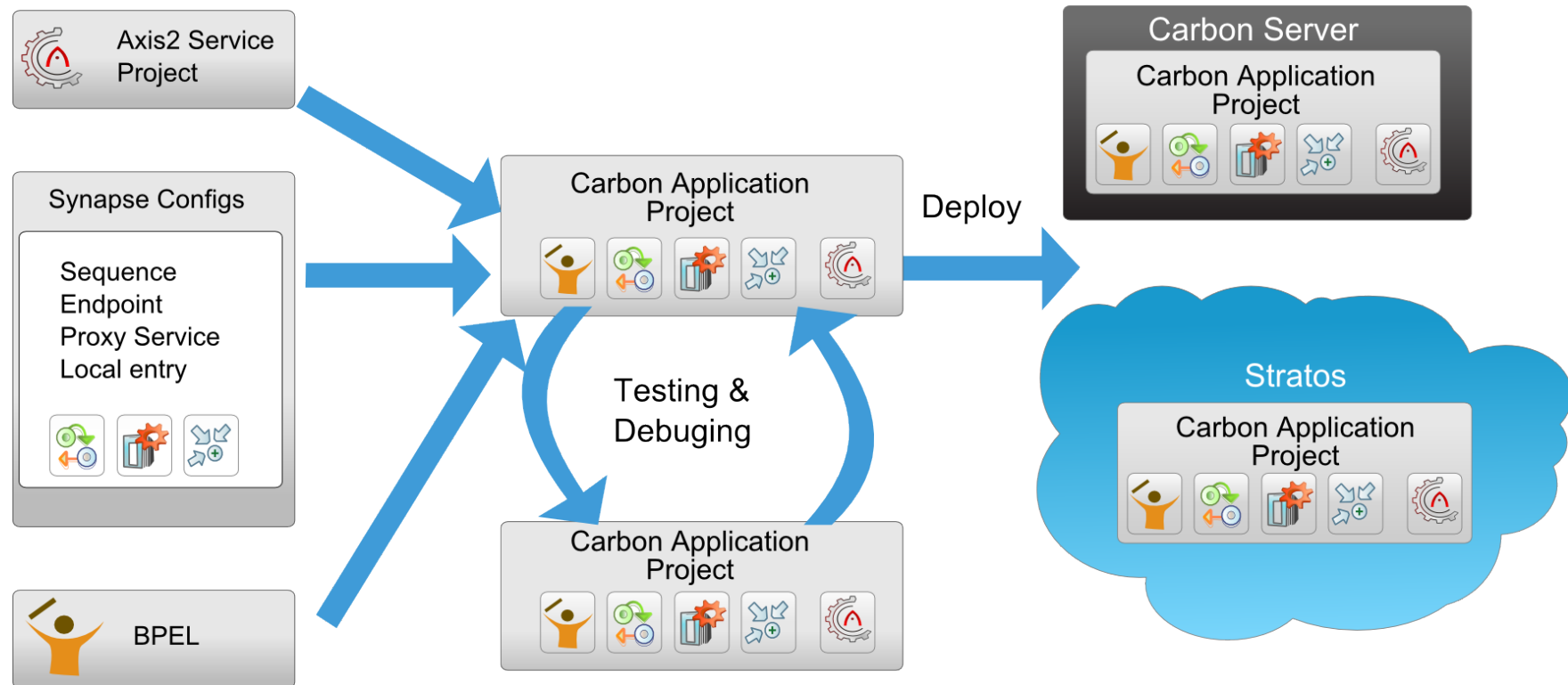
Editor für XML-Liebhaber

The screenshot shows the WSO2 Stratos Manager web interface. The browser address bar displays the URL: `https://esb.stratoslive.wso2.com/t/stratos.gridssolut.de/carbon/configadmin/index.jsp?region=region1&item=config_menu`. The page title is "Service Bus Configuration". The left sidebar contains a navigation menu with categories: Home, Manage, Main, Monitor, Configure, and Tools. The main content area shows the "Service Bus Configuration" page with a description: "Make the required modifications to the configuration and click 'Update' to apply the changes to the server. Use 'Reset' button to undo your changes." Below this is the "ESB Configuration" section, which contains an XML editor. The XML code is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<definitions xmlns="http://ws.apache.org/ns/synapse">
  <registry provider="org.wso2.carbon.mediation.registry.WSO2Registry"/>
  <proxy name="StockQuoteProxy" transports="https http" startOnLoad="true" trace="disable">
    <target>
      <endpoint>
        <wsdl service="StockQuote" port="StockQuoteSoap" uri="http://www.websvcex.net/stockquote.asmx?WSDL"/>
      </endpoint>
      <inSequence>
        <log level="full"/>
      </inSequence>
      <outSequence>
        <send/>
      </outSequence>
    </target>
    <publishWSDL key="stock_wsd1"/>
  </proxy>
  <proxy name="StockQuoteJSONProxy" transports="https http" startOnLoad="true" trace="disable">
    <target>
      <endpoint>
        <wsdl service="StockQuote" port="StockQuoteSoap" uri="http://www.websvcex.net/stockquote.asmx?WSDL"/>
      </endpoint>
      <inSequence>
        <xslt key="in_transform_stock"/>
      </inSequence>
    </target>
  </proxy>
</definitions>
```

At the bottom of the XML editor, there is a status bar showing "Position: Ln 1, Ch 1" and "Total: Ln 194, Ch 9568". Below the status bar, there is a "Toggle editor" checkbox which is checked. At the bottom of the page, there are "Update" and "Reset" buttons.

Application Life-Cycle



Architektur zählt...

...Sprechen Sie mal mit uns!



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Dipl.-Ing. sc. agr., Dipl.-Inf.

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Platform-as-a-Service:

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WSO₂ Data Services Server

WSO₂ Mashup Server

WSO₂ Identity Server

WSO₂ Governance Registry

WSO₂ Business Activity Monitor

WSO₂ Business Process Server

WSO₂ Business Rules Server

WSO₂ Enterprise Service Bus

WSO₂ Message Broker

WSO₂ Complex Event Processing Server

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Sign-in

Gleich mal testen...



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applications that
automatically scale**

**Pay just for the services you
use**

**Freedom to move
applications and data to
WSO2 Stratos in your own
datacenter**



DANKE FÜR IHRE AUFMERKSAMKEIT! NOCH FRAGEN?

Quellen:

- ① <http://www.gridsolut.de>
- ② <http://wso2.org>
- ③ <https://stratoslive.wso2.com/home/index.html>
- ④ Wolfgang Schmidt: Compliance-Aspekte in hybriden Clouds. In: IT-Sicherheit, 2/2012