

What's new in WildFly 8 ?

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- Fitness freak

The Great Java Application Server Debate with Tomcat, JBoss, GlassFish, Jetty and Liberty Profile

May 21, 2013 Simon Maple 27 comments



Part V – ...And The Best Application Server Award Goes To...

In case you were wondering, we did finally decide that one application server among those tested proved to win over the others...JBoss wins the award!

 **JBoss™ AS 7**
(aka WildFly) **WINS THE AWARD!**



**“If we had to pick a *winner*,
it would be *JBoss*. The
only application server in
the group whose score
*never dropped below a 4***

— zeroturnaround.com

“JBoss ***consistently*** performs ***very well*** in each category which is why it also ***shines*** in the developer profiles exercise

— zeroturnaround.com



The new and improved JBoss Application Server!

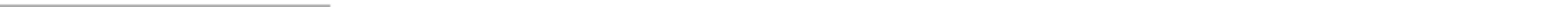
Objective:

**Understand the new features
of WildFly 8 and revise
some of the features carry
forward from AS 7.x.**

What is WildFly 8 ?

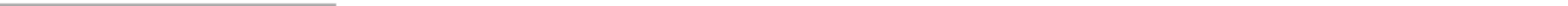
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 - Open source
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- Role based administration control & auditing

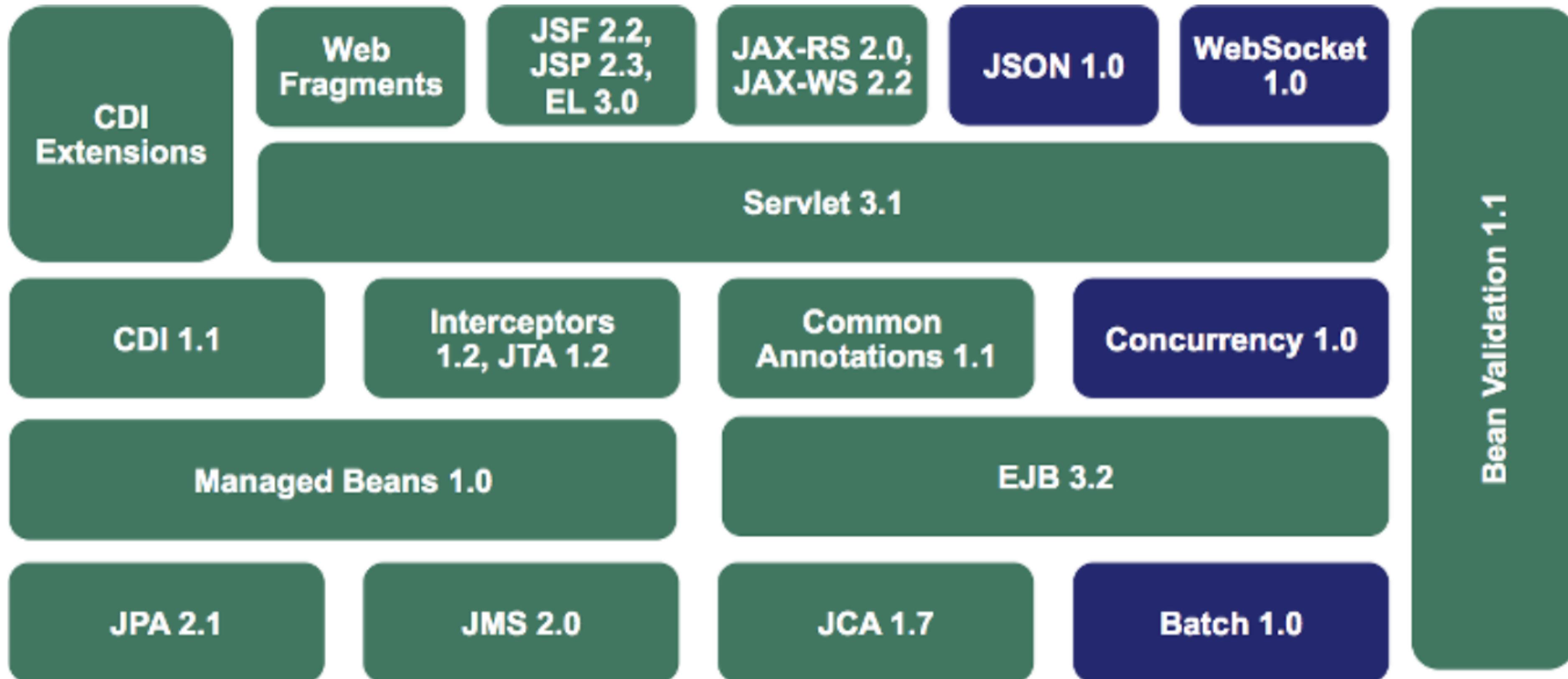
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 - Reduced port usage
 - Role based administration control & auditing
 - Automated patching
 - Minimalistic "core" distribution
-

WildFly: Java EE 7



WildFly: Java EE 7 WebSocket

ChatServer.java

```
@ServerEndpoint("/chat") ①
public class ChatEndpoint {
    @OnMessage ②
    public void message(String message,
                        Session client) ③
        throws IOException, EncodeException {
        for (Session peer : client.getOpenSessions()) {
            peer.getBasicRemote().sendText(message);
        }
    }
}
```

- ① Creates a WebSocket endpoint, defines the listening URL
- ② Marks the method that receives incoming WebSocket message
- ③ Payload of the WebSocket message

WildFly: Java EE 7 Batch

job.xml

```
<job id="myJob" xmlns="http://xmlns.jcp.org/xml/ns/javaee" version="1.0">
  <step id="myStep" >
    <chunk item-count="3" > ①
      <reader ref="myItemReader"/> ②
      <processor ref="myItemProcessor"/> ③
      <writer ref="myItemWriter"/> ④
    </chunk>
  </step>
</job>
```

- ① Item-oriented processing, number of items in chunk
- ② Item reader for chunk processing
- ③ Item processor for chunk processing
- ④ Item writer for chunk processing

WildFly: Java EE 7 JSON

CreateJson.java

```
JsonObject jsonObject = Json.createObjectBuilder() ①
    .add("apple", "red") ②
    .add("banana", "yellow")
    .build(); ③

StringWriter w = new StringWriter();
JsonWriter writer = Json.createWriter(w); ④
writer.write(jsonObject);
```

- ① Creates a JSON object builder
- ② Adds a name/value pair to the JSON object
- ③ Returns the JSON object associated with this builder
- ④ Writes the JSON object to the writer

WildFly: Java EE 7 Concurrency

RunMyTask.java

```
public class MyTask implements Runnable { ①

    @Override
    public void run() {
        . . .
    }

    @Resource(name = "DefaultManagedExecutorService") ②
    ManagedExecutorService defaultExecutor;

    executor.submit(new MyTask()); ③
}
```

① `Runnable` or `Callable` tasks can be submitted

② `ManagedExecutor` is injected, default resource provided

③ Submit the task

WildFly: Java EE 7 JAX-RS

RunClient.java

```
Client client = ClientBuilder.newClient(); ①  
WebTarget target = client.target("..."); ②  
target.register(Person.class);  
Person p = target  
    .path("{id}") ③  
    .resolveTemplate("id", "1")  
    .request(MediaType.APPLICATION_XML) ④  
    .get(Person.class); ⑤
```

- ① `ClientBuilder` is the entry point
- ② Build a new web resource target, specifies the path
- ③ Sub resource URI
- ④ Define the accepted response media types
- ⑤ Call HTTP GET, specify the type of resource

WildFly: Java EE 7 JMS

SendMessage.java

```
@JMSDestinationDefinition(name="myQueue", interfaceName="javax.jms.Queue") ①  
  
@Resource(mappedName="myQueue")  
Queue syncQueue;  
  
@Inject  
// @JMSConnectionFactory("java:comp/DefaultJMSSConnectionFactory") ②  
private JMSContext context; ③  
  
context.createProducer().send(syncQueue, "..."); ④
```

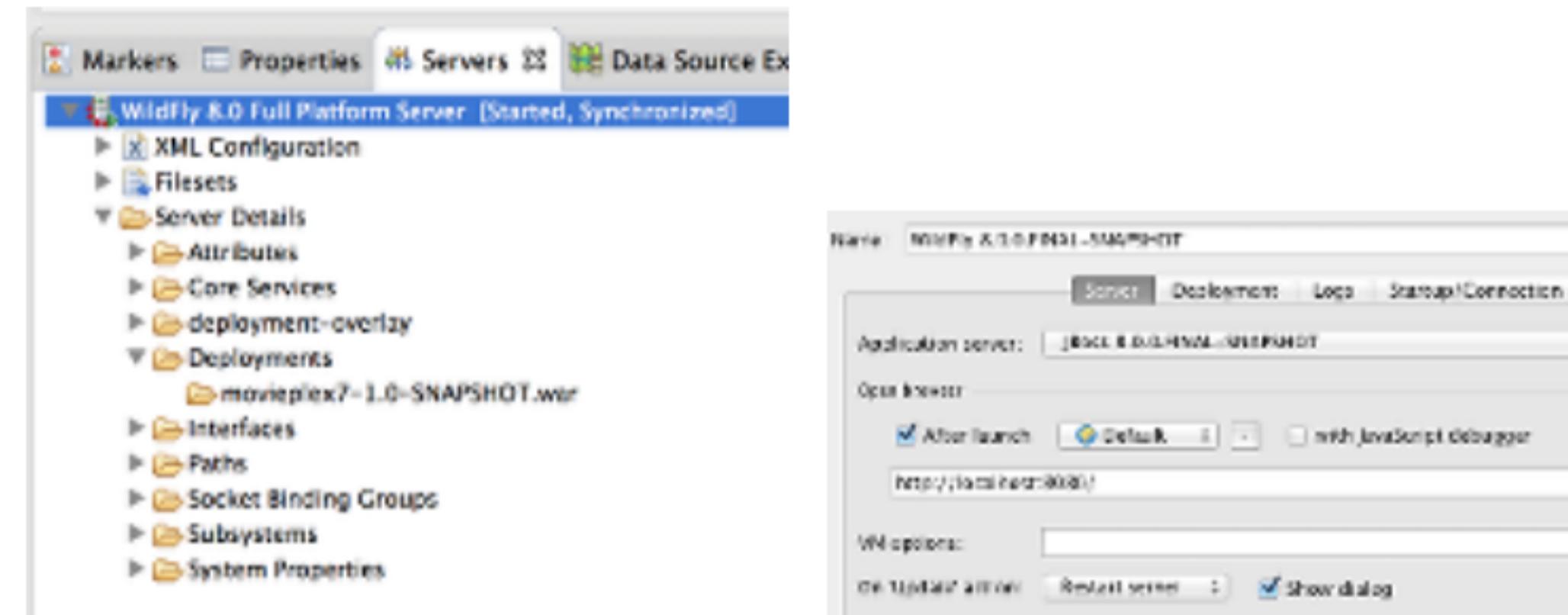
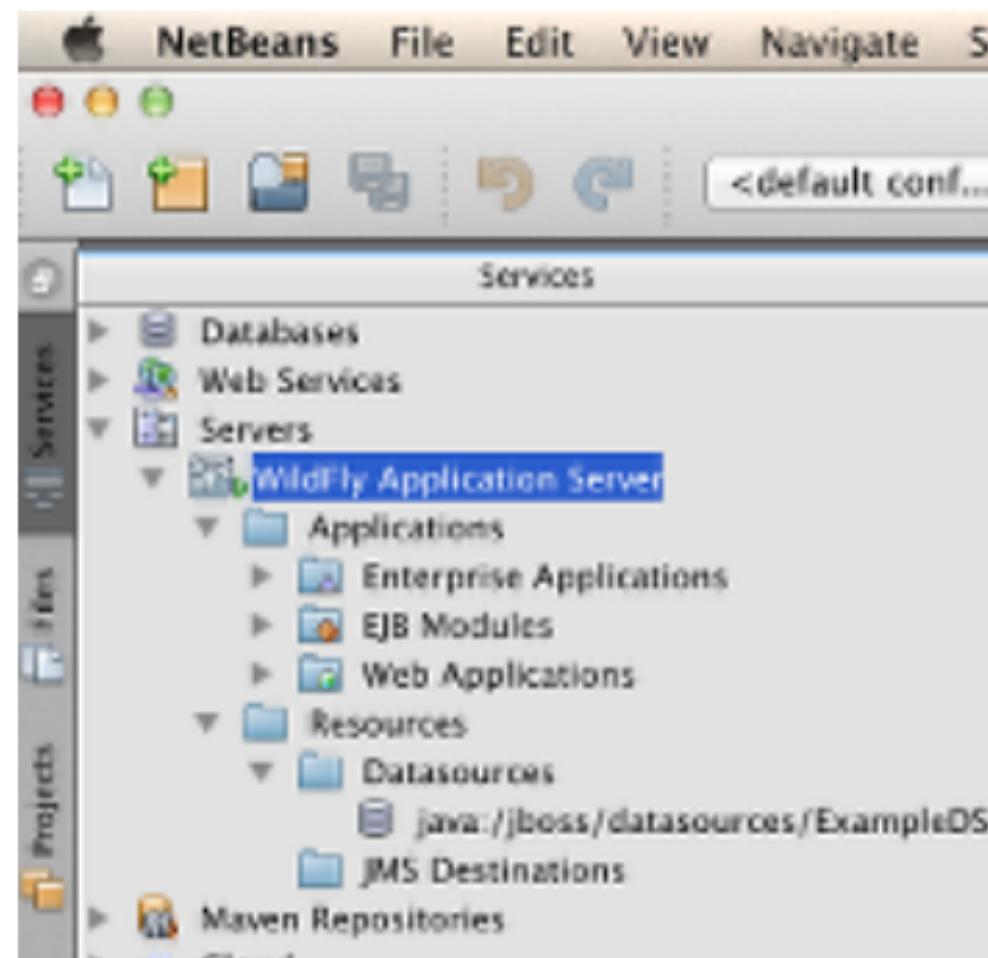
① Create destination resource during deployment

② Default JMS connection factory

③ Main interface of the simplified API

④ Fluent builder API, runtime exceptions

WildFly: Java EE 7 IDEs



WildFly: New web server ([Undertow](#))

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WildFly: New web server (**Undertow**)

- Flexible and high-performance
- Blocking / non-blocking NIO based APIs
- Composition/handler based architecture
- Lightweight & fully embeddable
- Supports Servlet 3.1 & HTTP upgrade
- **mod_cluster supported**

WildFly new web server: Undertow

NonBlockingHandler.java

```
Undertow.builder() ①
    .addListener(8080, "localhost")
    .setHandler(new HttpHandler() { ②
        @Override
        public void handleRequest(final HttpServerExchange exchange)
            throws Exception {
            exchange.getResponseHeaders()
                .put(Headers.CONTENT_TYPE, "text/plain");
            exchange.getResponseSender()
                .send("Hello World");
        }
    }).build().start(); ③
```

- ① Same API used for WildFly integration, fluent builder API
- ② Can create multiple handlers
- ③ Start the handler in JVM

WildFly: Port reduction

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- **Uses HTTP Upgrade**
- **Number of ports in default installation is two**
 - **8080 for applications with JNDI and EJB multiplexed**
 - **9990 for management, for both HTTP/JSON & Native API**

WildFly: Port reduction

- **Uses HTTP Upgrade**
 - **Number of ports in default installation is two**
 - **8080** for applications with JNDI and EJB multiplexed
 - **9990** for management, for both HTTP/JSON & Native API
 - **Only overhead is the initial HTTP Upgrade request/response**
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WildFly: Role based access control

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- Pre-defined administrative and privileged Roles
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 - Users or Groups are defined in Roles
-

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- Logging of connection/authentication events
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- **Audit logging handlers**
 - Local file
 - Syslog (UDP / TCP / TLS)

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- Multiple one-off patches can be applied; invalidated by the next point/CP release
- Rollbacks are possible



WildFly: Minimalistic "core" distribution



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WildFly: Minimalistic "core" distribution

- **15 MB download**
 - **Rich management layer**
 - **Fully concurrent service container with advanced capabilities**
 - **Modular class loading which enables multi-tenancy of applications**
 - **Pluggable hot deployment layer**
 - **Built-in lightweight web server**
-

WildFly: Miscellaneous

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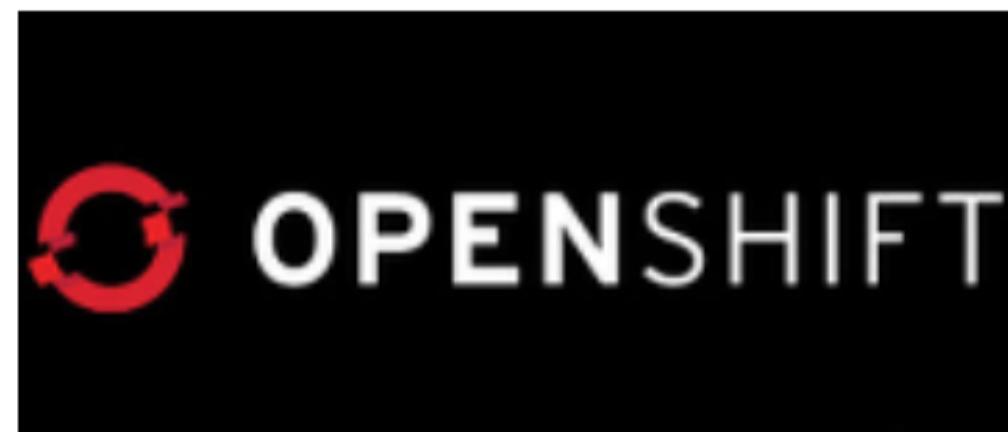
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- New public clustering API



WildFly: Miscellaneous

- Improved JDK8 compatibility
- RESTEasy 3
- Hibernate search
- Per-deployment security permissions
- New public clustering API
- Pruned: CMP, JAX-RPC, JSR 88

WildFly: In the cloud



Carry forward from AS 7.x

- **Standalone and Managed Domain**
- **Centralized Administration**
 - **Command Line Interface (jboss-cli)**
 - **Admin Console**
 - **Configuration files**



Standalone and Managed Domain



Standalone and Managed Domain

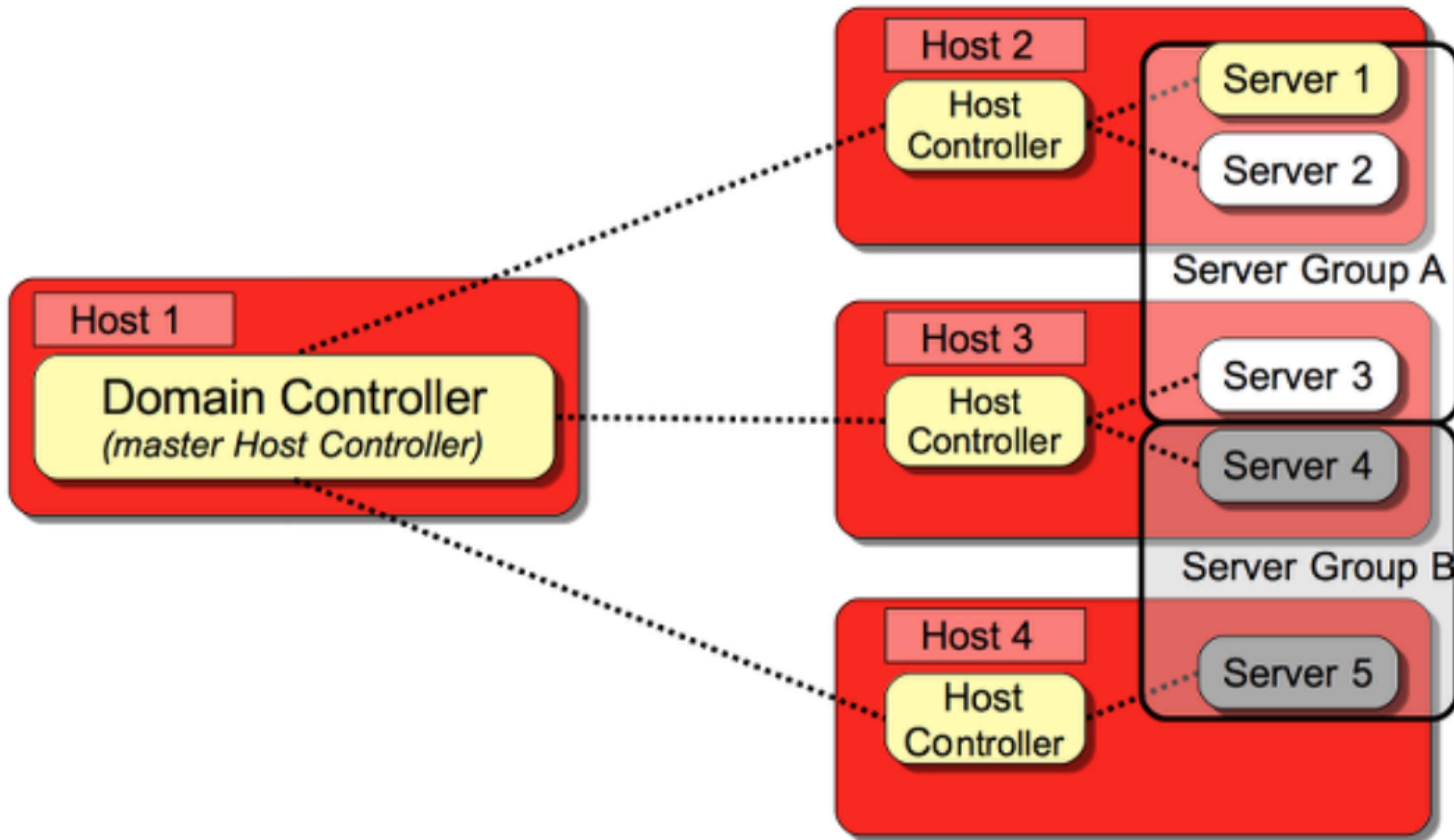
- **Standalone:** single independent instance

Standalone and Managed Domain

- **Standalone:** single independent instance
- **Managed domain:** manage multiple WildFly instances from a single control point
 - Host controller
 - Domain controller
 - Server group
 - Server



Managed Domain



Command Line Interface



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 - Contextual command and resource-tab completion
 - Non-interactive mode: commands in files
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 - Persistent changes
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Admin Console

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 - **Lightweight**
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Admin Console

- Simple
- Fast
- Lightweight
- Avoids XML configuration
- Single instance and domains
- Mostly configuration, basic monitoring
 - Not a Red Hat JBoss Operations Network replacement



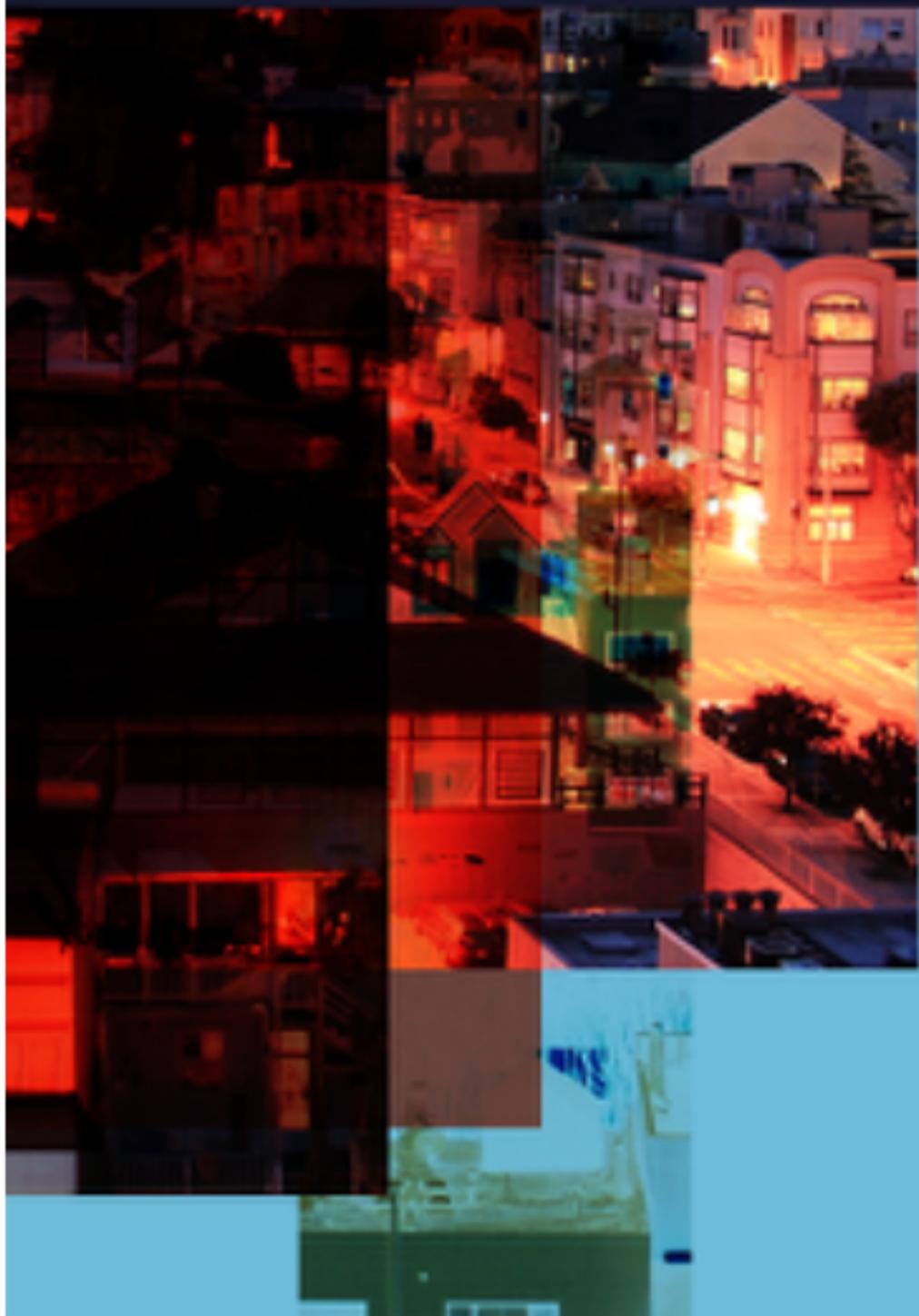
- Java EE 7 compliant
- lightweight
- manageable
- highly scalable
- open source
- application server

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References

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- JBoss EAP 6.2 - <http://redhat.com/jboss>
- Java EE 7 samples - <https://github.com/javaee-samples/javaee7-samples>
- Slides generated with Asciidoctor and DZSlides backend
- Original slide template - Dan Allen & Sarah White

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