MVC 1.0

Das neue Webframework in Java EE 8

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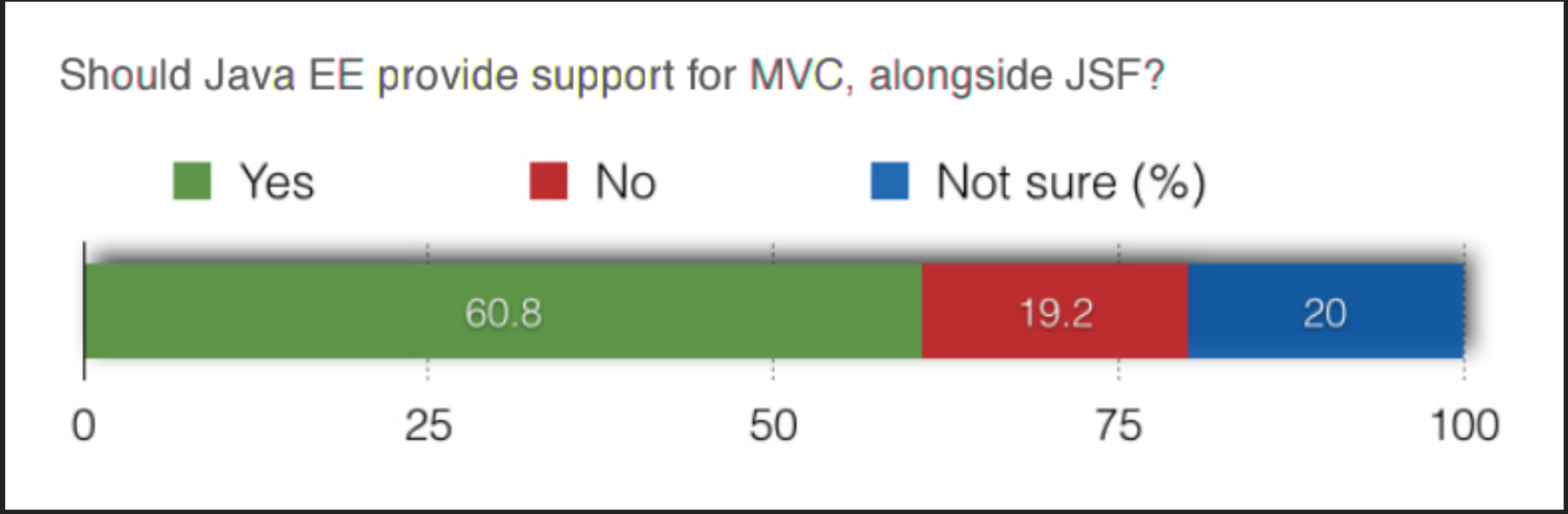
Warum MVC 1.0?

Java EE 8 Community Survey



https://java.net/downloads/javaee-spec/JavaEE8_Community_Survey_Results.pdf

JavaServer Faces

vs.

MVC 1.0

JavaServer Faces

=

Component Oriented

MVC 1.0

=

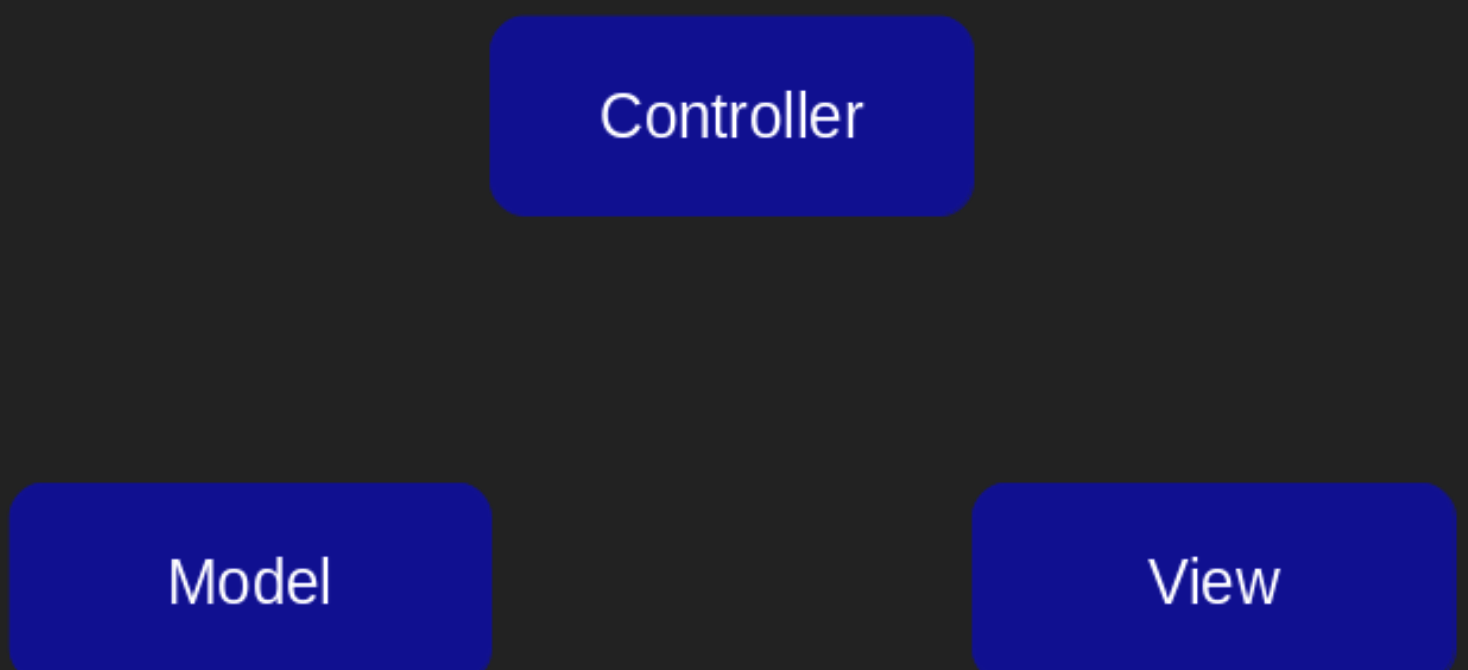
Action Oriented

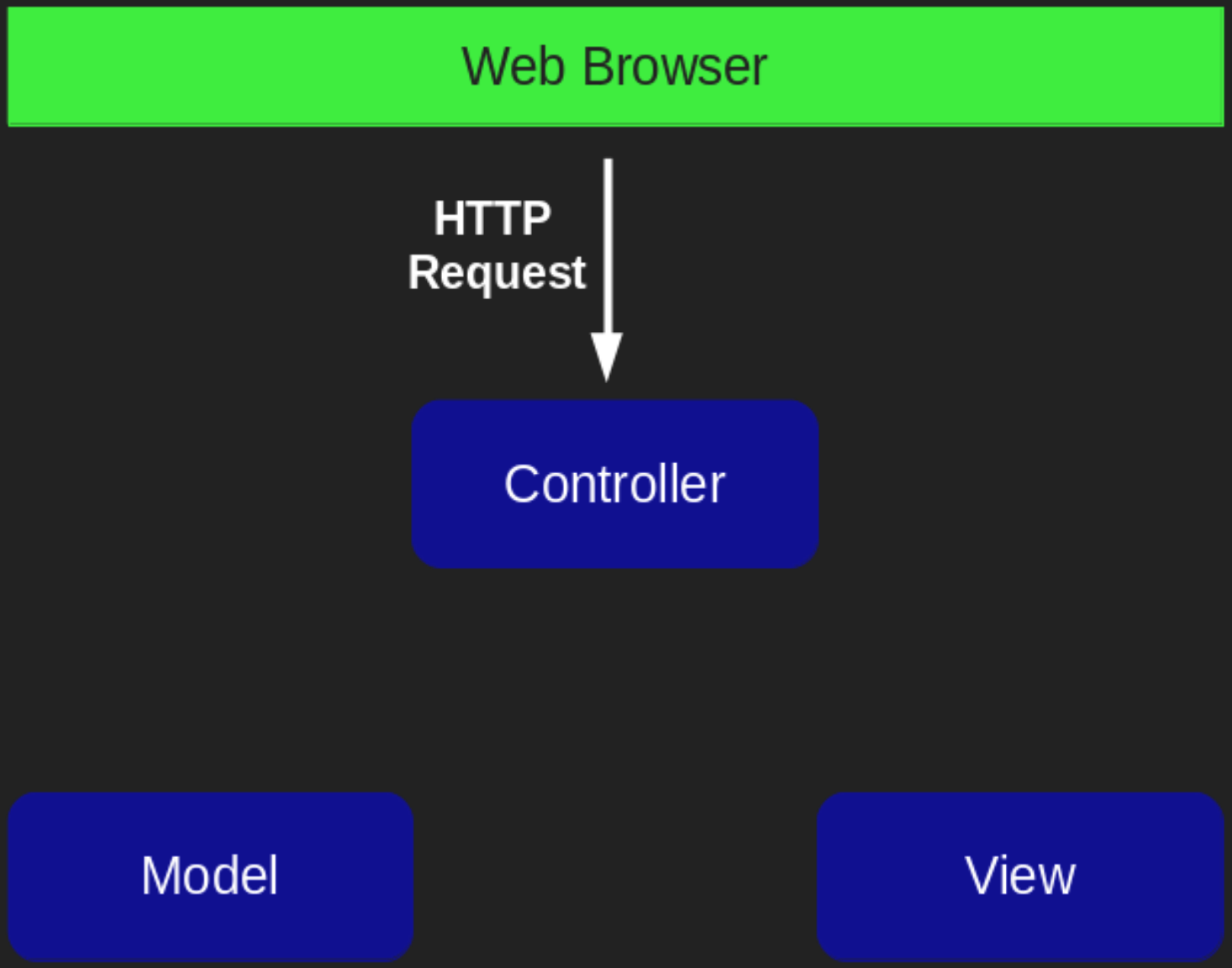
Component Oriented

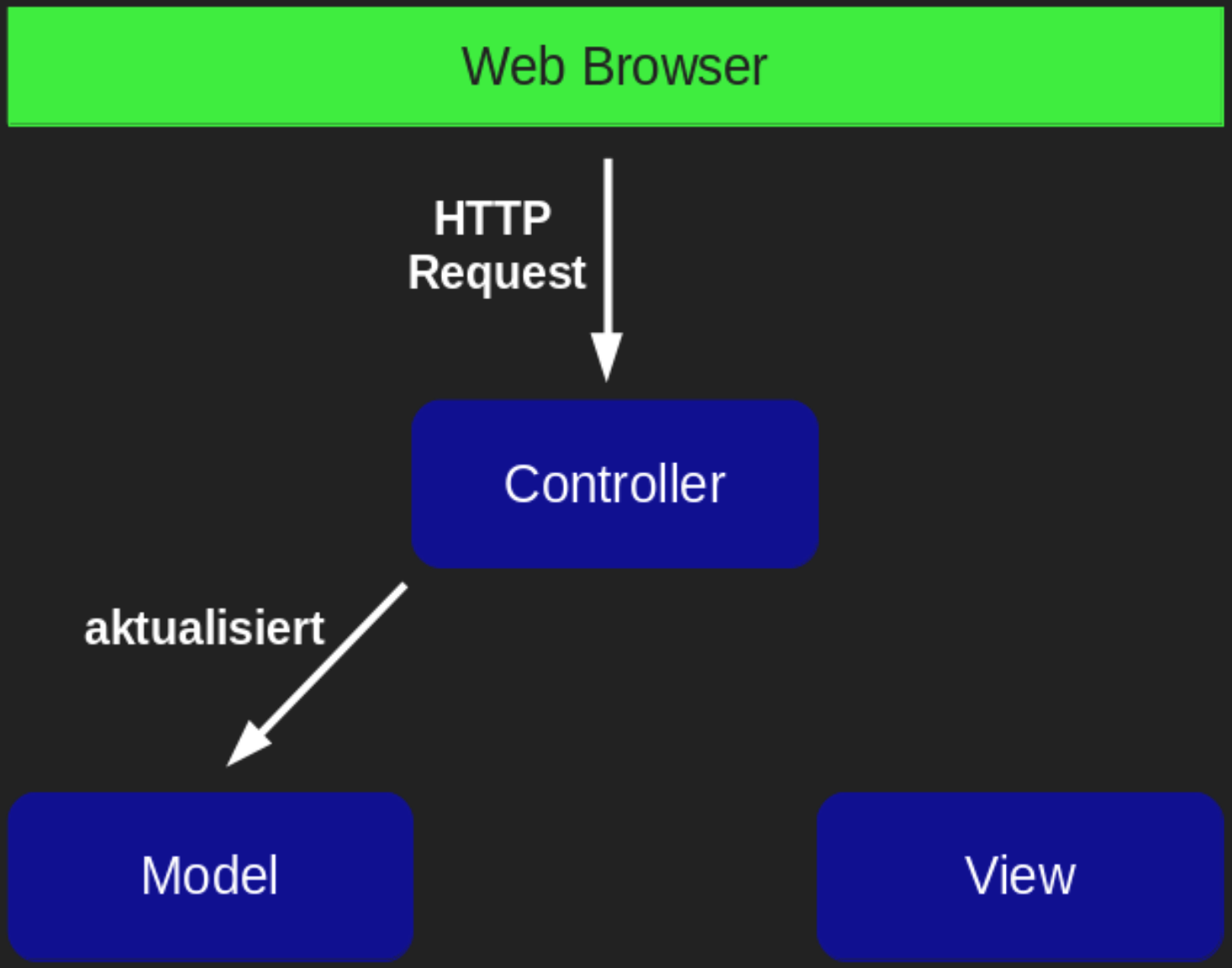
vs.

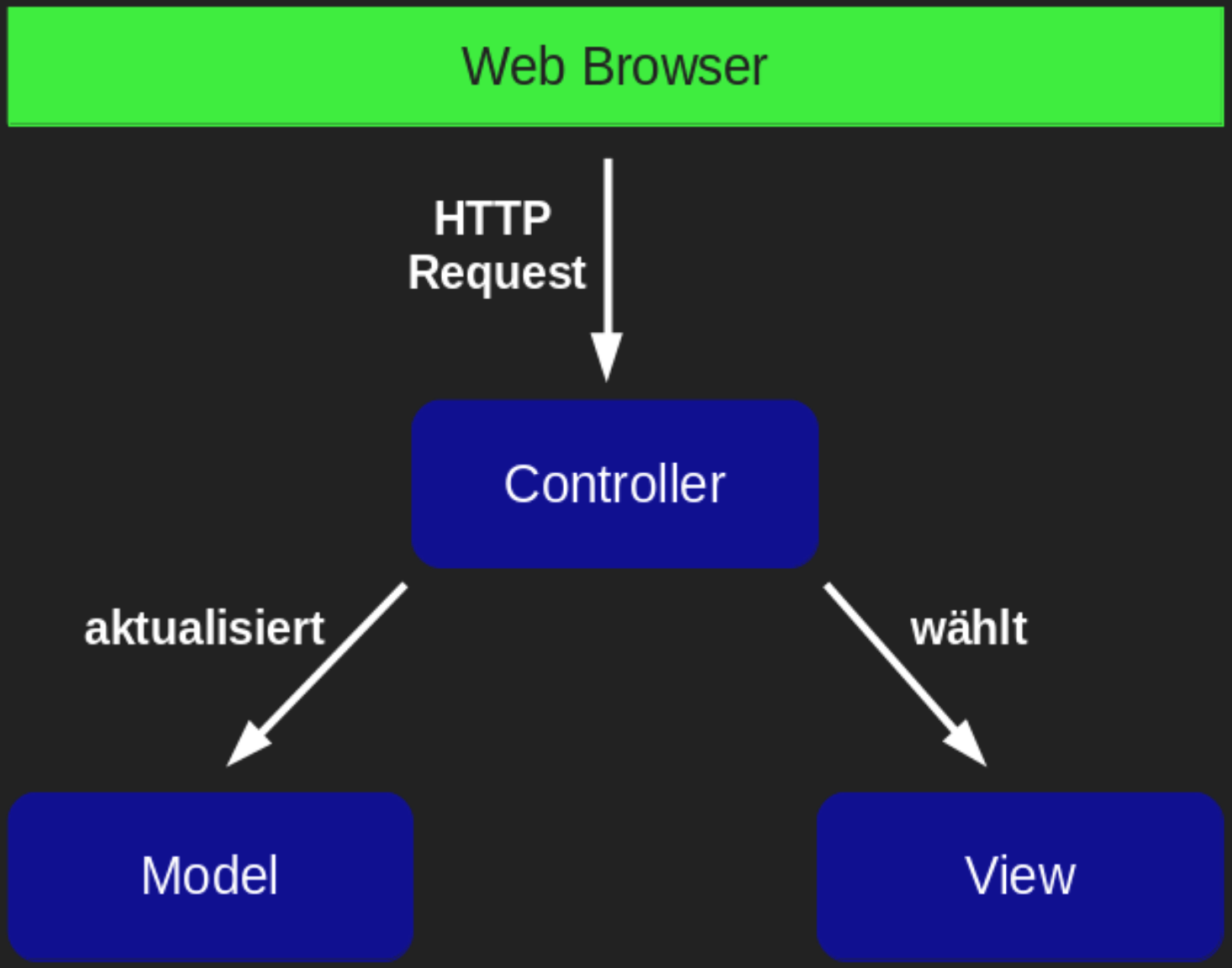
Action Oriented

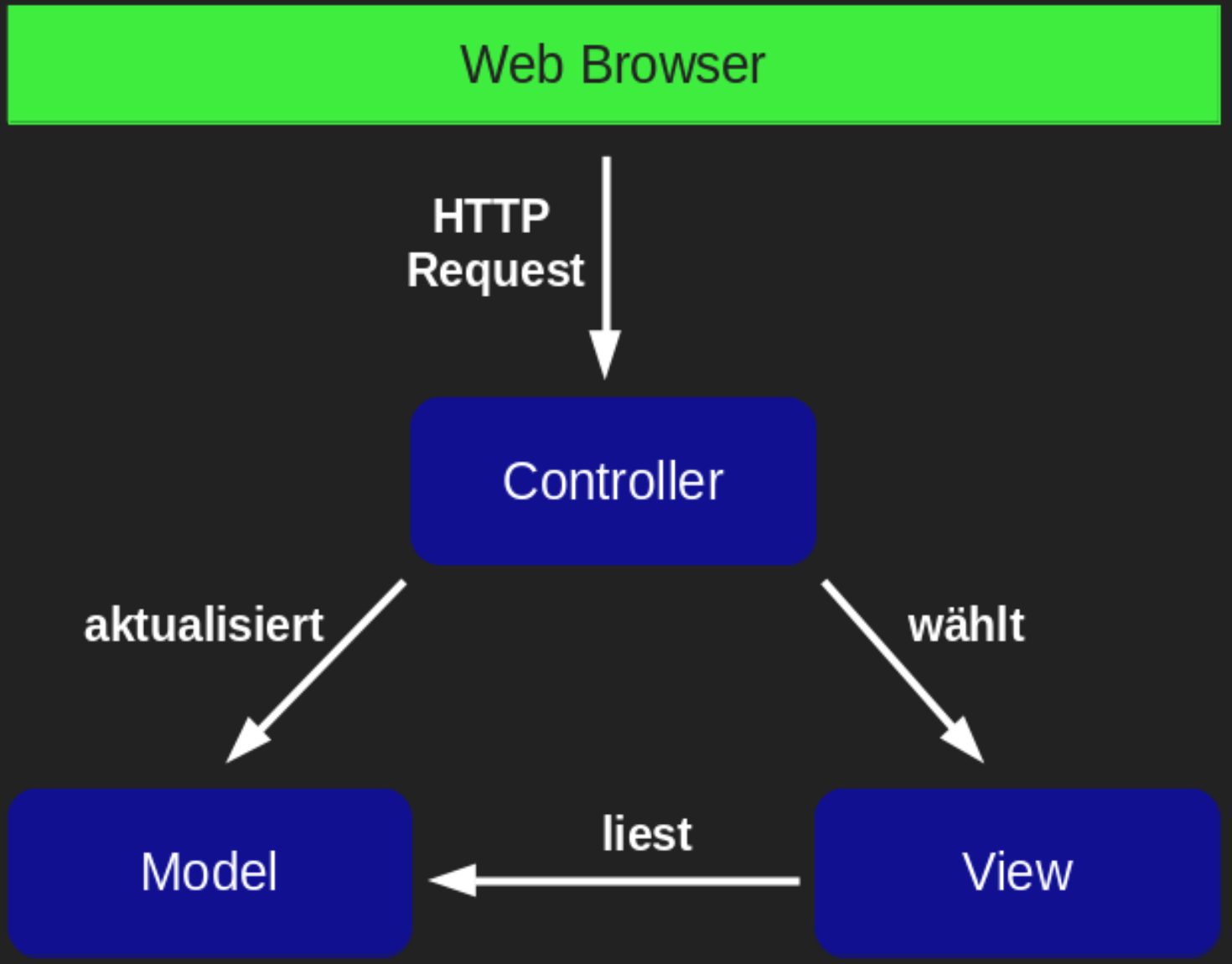
Das MVC Entwurfsmuster

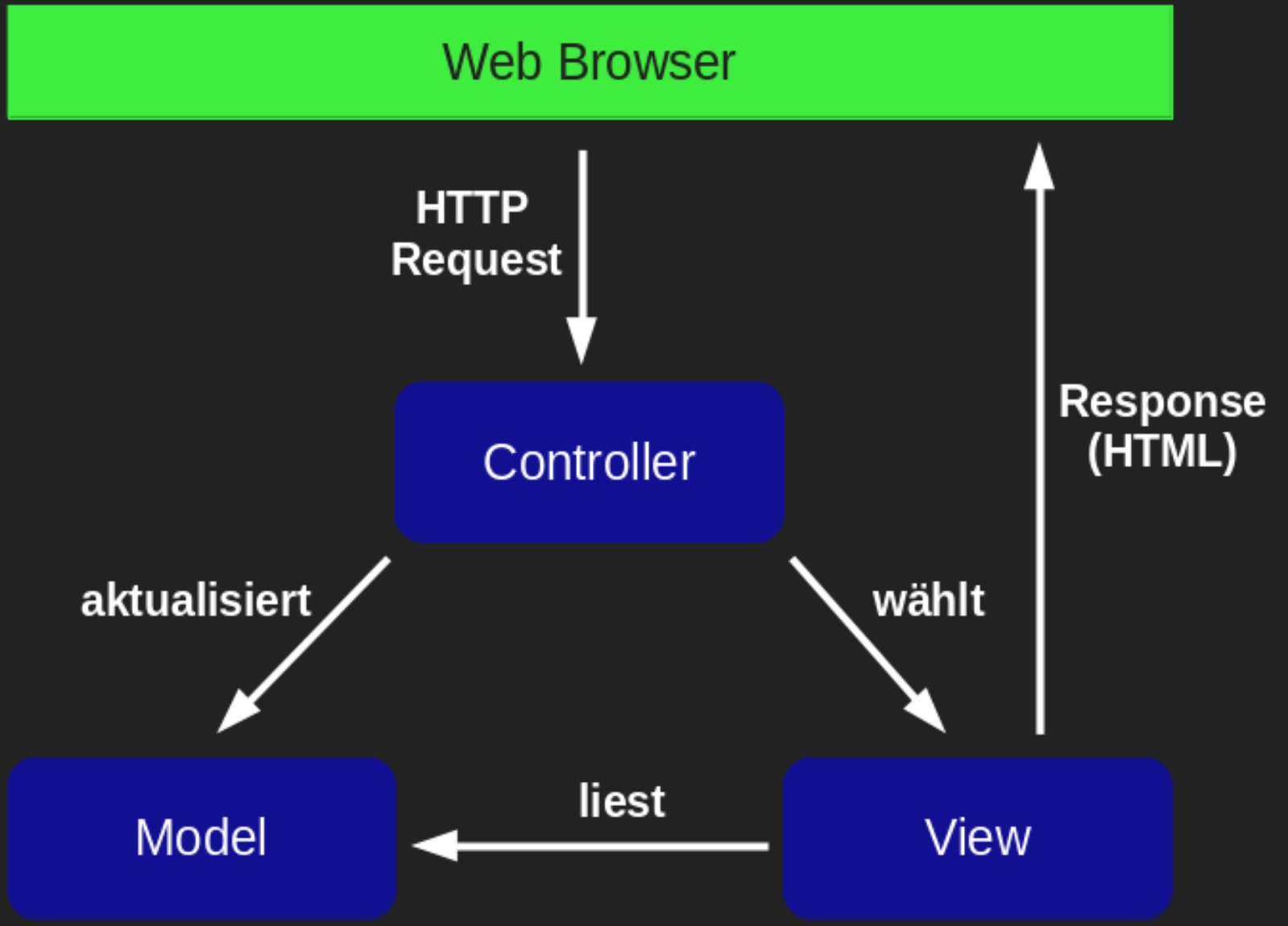

Controller
Model
View


Web Browser
HTTP
Request
Controller
Model
View


Web Browser
HTTP
Request
Controller
aktualisiert
Model
View


Web Browser
HTTP
Request
Controller
aktualisiert
wählt
Model
View


Web Browser
HTTP
Request
Controller
aktualisiert
wählt
Model
liest
View

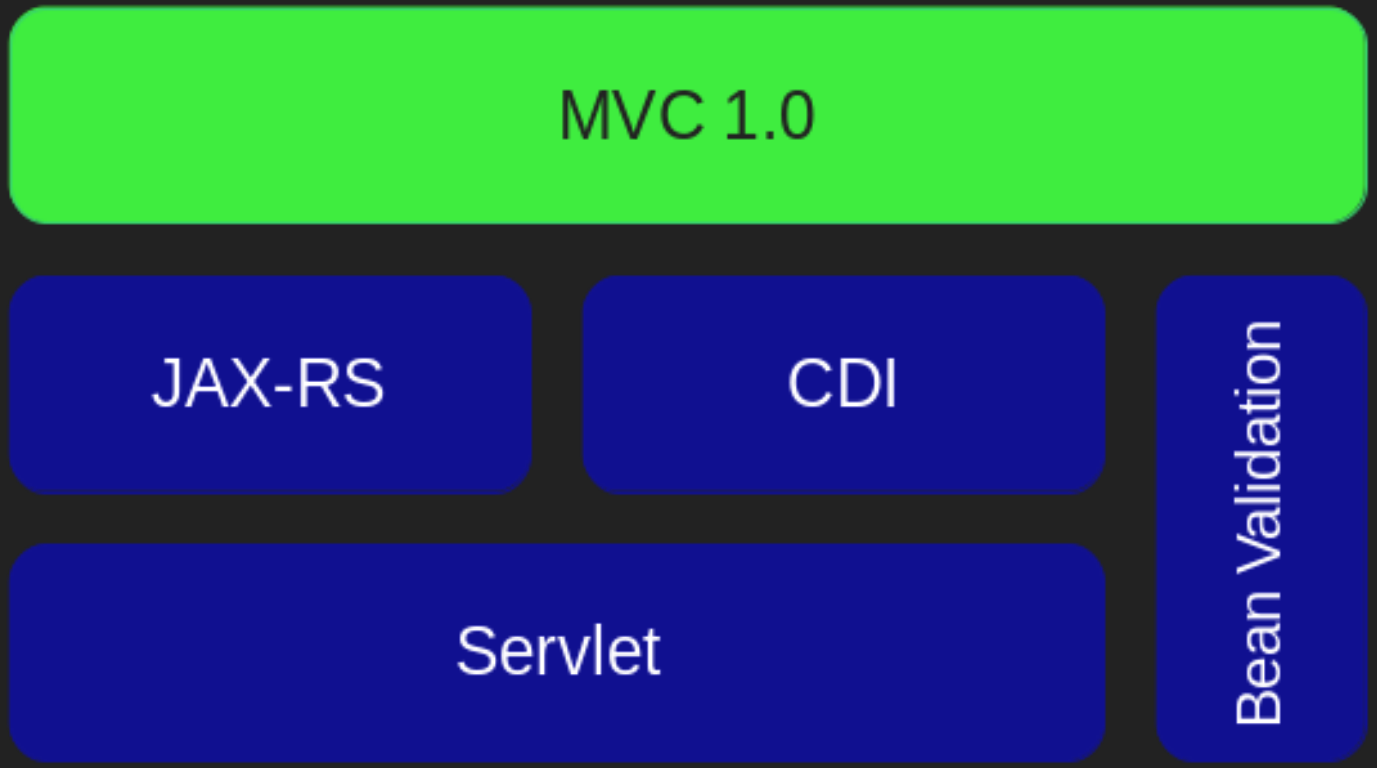

Web Browser
HTTP
Request
Response
(HTML)
Controller
aktualisiert
wählt
Model
liest
View

MVC 1.0

basiert auf

Java EE 8

MVC im Kontext



JAX-RS

(in < 3 Minuten)

JAX-RS Fakten

- "Java API for RESTful Web Services"
- Erstes Release 2008
- Seit 1.1 Bestandteil von Java EE 6
- JAX-RS 2.1 -> JSR 370 -> Java EE 8

JAX-RS Beispiel

```java
@Path("/hello")
public class HelloResource {

  @GET
  public String greet() {
    return "Hello world";
  }

}
```

JAX-RS Beispiel

```
@Path("/hello")
public class HelloResource {

  @GET
  public String greet( @QueryParam("name") String name ) {
    return "Hello " + name;
  }

}
```

Hello World

mit

MVC 1.0

Controller

```
@Controller
@Path("/hello")
public class HelloController {

  @GET
  public String render() {
    return "helloworld.jsp";
  }

}
```

View

/WEB-INF/views/helloworld.jsp

```
<!DOCTYPE html>
<html>
  <head>
    <title>MVC Demo</title>
  </head>
  <body>
    <h1>Hello world</h1>
  </body>
</html>
```

Controller

```
@Controller
@Path("/hello")
public class HelloController {

  @GET
  @View("helloworld.jsp")
  public void render() {
    // ...
  }

}
```

Das Modell

- javax.mvc.Models
- Basierend auf CDI

javax.mvc.Models

```
@Controller
@Path("/hello")
public class HelloController {

  @Inject
  private Models models;

  @GET
  public String greet() {
    models.put( "message", "Hello world!" );
    return "helloworld.jsp";
  }

}
```

javax.mvc.Models

/WEB-INF/views/helloworld.jsp

```
<!DOCTYPE html>
<html>
  <head>
    <title>MVC Demo</title>
  </head>
  <body>
    <h1>${message}</h1>
  </body>
</html>
```

CDI Models

```
@Named
@RequestScoped
public class Greeting {

  private String message;

  public String getMessage() {
    return message;
  }

  public void setMessage( String message ) {
    this.message = message;
  }

}
```

CDI Models

```
@Controller
@Path("/hello")
public class HelloController {

  @Inject
  private Greeting greeting;

  @GET
  public String greet() {
    greeting.setMessage( "Hello world!" );
    return "helloworld.jsp";
  }

}
```

CDI Models

/WEB-INF/views/helloworld.jsp

```
<!DOCTYPE html>
<html>
  <head>
    <title>MVC Demo</title>
  </head>
  <body>
    <h1>${greeting.message}</h1>
  </body>
</html>
```

Views in MVC 1.0

- JavaServer Pages
- Facelets

JSP als View Technologie

```
models.put( "messages", Arrays.asList(
  "Hello W-JAX 2015",
  "MVC 1.0 rocks"
) );
```

```
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>

<c:if test="${not empty messages}">
  <ul>
    <c:forEach var="message" items="${messages}">
      <li>${message}</li>
    </c:forEach>
  </ul>
</c:if>
```

ViewEngine SPI

Custom ViewEngines

- Thymeleaf
- FreeMarker
- Velocity
- Handlebars
- Mustache
- StringTemplate
- Jade
- AsciiDoc
- JSR223
- React

Beispiel:

Thymeleaf

Thymeleaf

```
@Controller
@Path("/thymeleaf")
public class ThymeleafController {

  @Inject
  private Models models;

  @GET
  public String render() {

    models.put( "messages", Arrays.asList(
      "Text #1", "Text #2", "Text #3"
    ) );

    return "thymeleaf.html";

  }

}
```

Thymeleaf

/WEB-INF/views/thymeleaf.html

```
<!-- ... -->

<table>
  <tr th:each="msg: ${messages}">
    <td th:text="${msg}">
      Some text
    </td>
  </tr>
</table>

<!-- ... -->
```

```
<table>
  <tr>
    <td>Text #1</td>
  </tr>
  <tr>
    <td>Text #2</td>
  </tr>
  <tr>
    <td>Text #3</td>
  </tr>
</table>
```

Formulare

Einfache Forms

/WEB-INF/views/form.jsp

```
<form action="./form" method="POST">

  Bitte geben Sie Ihren Namen ein:
  <input type="text" name="name"/>

  <input type="submit" value="Absenden"/>

</form>
```

Einfache Forms

/WEB-INF/views/form.jsp

```
<form action="${mvc.basePath}/form" method="POST">

  Bitte geben Sie Ihren Namen ein:
  <input type="text" name="name"/>

  <input type="submit" value="Absenden"/>

</form>
```

Einfache Forms

```
@Controller
@Path("/form")
public class FormController {

  @Inject
  private Models models;

  @POST
  public String post( @FormParam("name") String name ) {

    models.put( "message", "Hello " + name );
    return "form.jsp";

  }

}
```

Komplexe Forms

```
public class HelloForm {

  @FormParam("name")
  private String name;

  @FormParam("age")
  private Integer age;

  @FormParam("address")
  private String address;

  /* getter + setter */

}
```

Komplexe Forms

```
@Controller
@Path("/form")
public class FormController {

  @Inject
  private Models models;

  @POST
  public String post( @BeanParam HelloForm form ) {

    models.put( "message", "Hello " + form.getName() );
    return "form.jsp";

  }

}
```

Validation

JSR 303
Bean Validation

Validierung

```
public class HelloForm {

  @FormParam("name")
  @Size(min = 3, message = "Geben Sie Ihren Namen ein")
  private String name;

  @FormParam("age")
  @NotNull(message = "Geben Sie Ihr Alter ein")
  @Min(value = 18, message = "Sie müssen 18 Jahre sein")
  private Integer age;

  /* getter + setter */

}
```

Validierung

```
@Controller
@Path("/form")
public class FormController {

  @Inject
  private BindingResult bindingResult;

  @POST
  public String post( @BeanParam @Valid HelloForm form ) {

    if( bindingResult.isFailed() ) {
      models.put( "messages", bindingResult.getAllMessages() );
      return "form.jsp";
    }

    // Verarbeitung des Forms...
  }

}
```

Security

CSRF

Cross Site Request Forgery

CSRF Beispiel

https://www.example.com/tweet

```
<form action="/tweet" method="POST">

  Bitte geben Sie einen Text ein:
  <input type="text" name="status"/>

  <input type="submit" value="Absenden"/>

</form>
```

CSRF Beispiel

http://www.bad-guys.com/

```
<form id="form" style="display: none;" method="POST"
      action="https://www.example.com/tweet">
  <input type="text" name="status"
         value="PHP ist die beste Sprache der Welt!"/>
</form>
```

```
<a href="javascript:void(0)"
   onclick="document.getElementById('form').submit();">
  Gratis iPhone
</a>
```

Page Token Pattern

- Server erstellt geheimes Token
- Token wird in Hidden-Field gerendert
- Prüfung des Token bei Submit

MVC 1.0 CSRF Modes

OFF	Kein Prüfung (Default)
EXPLICIT	Prüfung des Tokens mit @CsrfValid
IMPLICIT	Prüfung bei jedem POST-Request

CSRF Beispiel

```
<form action="/tweet" method="POST">

  <!-- CSRF Page Token -->
  <input type="hidden" name="${mvc.csrf.name}"
      value="${mvc.csrf.token}"/>

  Bitte geben Sie einen Text ein:
  <input type="text" name="status"/>

  <input type="submit" value="Absenden"/>

</form>
```

Prüfung mit @CsrfValid

```
@Controller
@Path("/tweet")
public class TweetController {

  /* ... */

  @POST
  @CsrfValid
  public String post( @FormParam("status") String s ) {

    /* ... */

  }

}
```

Empfehlung

IMPLICIT verwenden!

MVC kann mehr...

- Einfache Redirects aus Controller
- CDI Scope: @RedirectScoped
- MvcContext / #{mvc}
- CDI Events
- ViewEngine SPI
- HTML/JS Encoding/Escaping

Vollständiges Beispiel

https://github.com/chkal/todo-mvc/

MVC 1.0 TODO

- Internationalisierung / Lokalisierung
- Typsicheres Erstellen von URLs
- ...

Zeitplan

- Q3 2014 Expert Group formed
- Q1 2015 Early Draft
- Q4 2015 Early Draft 2
- Q1 2016 Public Review
- Q3 2016 Proposed Final Draft
- H1 2017 Final Release

Feedback erwünscht

Mailinglist	https://java.net/projects/mvc-spec/lists
JIRA	http://java.net/jira/browse/MVC_SPEC
Ozark (RI)	https://ozark.java.net/

Danke!

Fragen?

https://github.com/chkal/wjax15-mvc
https://github.com/chkal/todo-mvc

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