RESTful webservices – Client API in Java - Jersey

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RESTful web services, Jersey

- Representational State Transfer – REST
- Resources accessed (identified) using URIs
  - http://localhost:8080/contextRoot/resource
- Stateless communication protocol – HTTP
  - Well defined operations: GET, PUT, POST, DELETE, …
- Jersey – JAX-RS reference implementation in Java
  - Server side - @Path, @GET, @Produces, …
  - Client side – jersey-client module
    - Compatible with other implementations

Accessing RESTful web services - possibilities

- No specification (yet – see JAX-RS 2.0)

- JDK – HttpURLConnection
- Jersey
- Apache CXF
- RESTEasy
- ...

Jersey Client – Why should I use it?

- Created as part of JAX-RS reference implementation
- Used internally for almost all tests
  - Production quality, stable & reliable API/implementation
- User base
- Supports XML and Json out of the box
- Jersey Test Framework integration

- Is used as a proof of concept for various new directions
  - Hypermedia
  - View based client

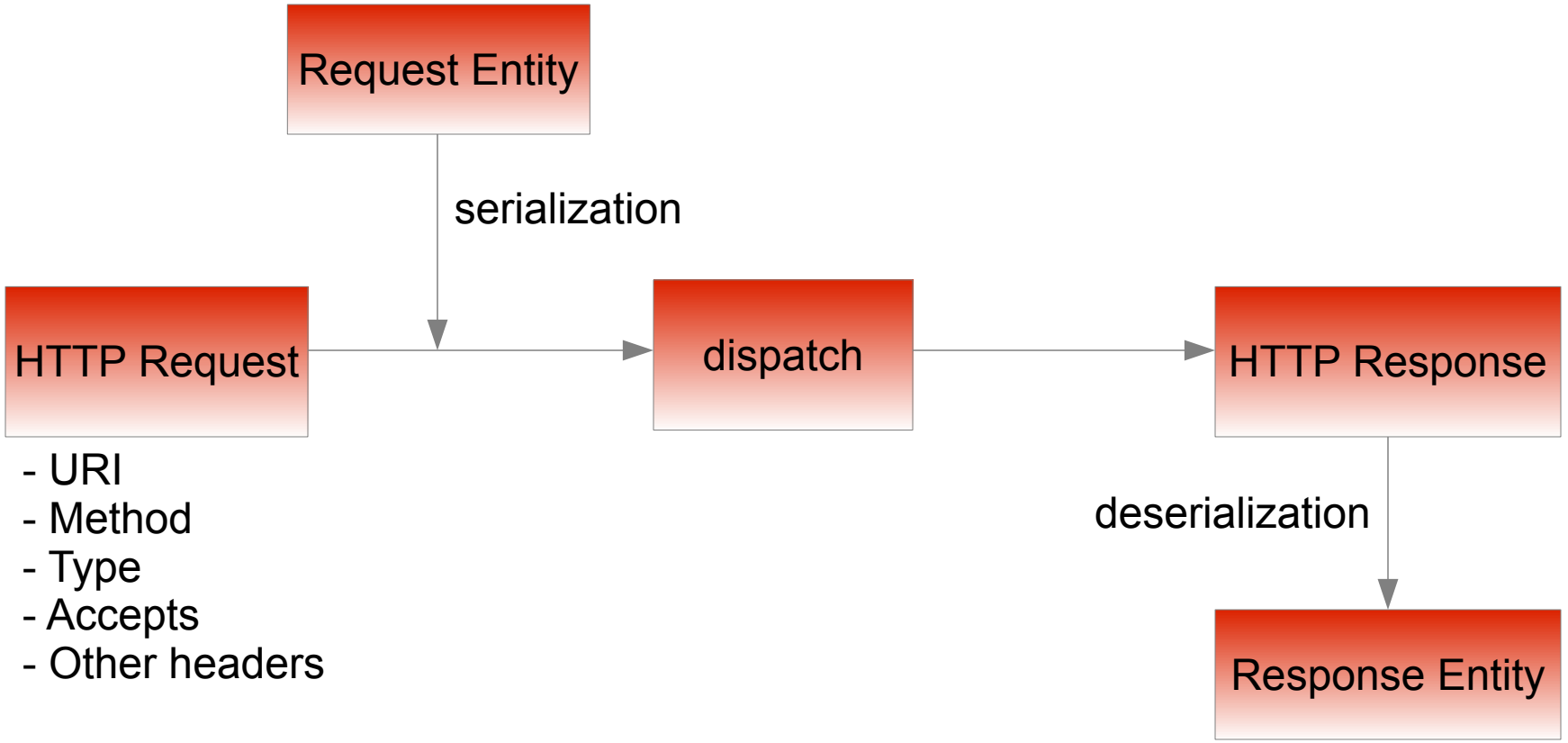
Jersey Client vs HttpURLConnection
a) HttpURLConnection

```
URL postUrl = new URL("http://localhost/customers");

HttpURLConnection connection = (HttpURLConnection)
postUrl.openConnection();

connection.setDoOutput(true);

connection.setInstanceFollowRedirects(false);

connection.setRequestMethod("POST");

connection.setRequestProperty("Content-Type", "application/xml");

OutputStream os = connection.getOutputStream();

os.write(newCustomer.getBytes());

os.flush();

connection.getResponseCode();
```

Jersey Client vs HttpURLConnection
b) Jersey Client

```
Client c = Client.create();
WebResource wr = c.resource("http://localhost/customers");
ClientResponse response =
  wr.type(MediaType.APPLICATION_XML).
  post(ClientResponse.class, newCustomer);


response.getStatus()
```

HTTP Request Processing



Jersey Client – API Crash course

```
Client client = Client.create();
Client client = Client.create(ClientConfig cc);

WebResource resource = c.resource(URI u);

resource.queryParam("name", "value");
resource.accept(MediaType.APPLICATION_XML_TYPE);
resource.path("path");
resource.header("name", "value");
resource.get(Class <T> c);
resource.entity(entity).post(Class<T> c);

client.addFilter();
resource.addFilter();
```

Jersey Client – Customization, Extensibility

- ClientConfig
- Custom Providers – MessageBodyReaders/Writers
  - XML, Json, ...
- Filters
  - `GZIPContentEncodingFilter, HTTPBasicAuthFilter (+Digest), ...`
- Apache HTTP Client integration
  - 3.x stable, 4.x experimental

Demo

- Using Jersey Client API
  - ClientConfig
  - Custom Filter
  - Custom Provider

Future?

- JAX-RS 2.0
  - Client API will be part of specification
  - Low level and high level API

- Hypermedia (loose coupling, “automatization”)
- Better Async support & Thread management
- Generating clients from wadl or other metadata
- Service as a Client

Jersey Client - Summary

- Stable, production ready Client API
- Widely adopted, convenient features
- JAX-RS 2.0

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