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# Application Express …
# … and the REST of the world!

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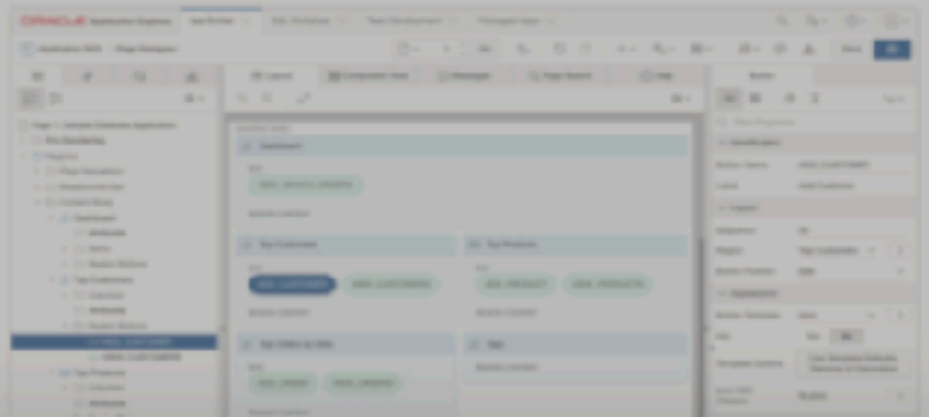

Oracle Application Express enables you to design, develop and deploy beautiful, responsive, database-dri ions using only your web browser. See ho ke advantage of this fully-supported,

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## Consulting Member of technical Staff

- Works for Oracle in Germany since 2001, based in Munich
- Member of the APEX development team since 2016

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- Blogs:
  http://blogs.oracle.com/apexcommunity_deutsch
  http://sql-plsql-de.blogspot.com

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# REST: **Re**presentational **S**tate Transfer

- Architectural style for interoperating computer systems
  - Web Services adhering to REST architectural constraints are called RESTful

- Architectural Constraints for a RESTful system
  - Client Server
  - Stateless
  - Cacheable (at least for GET requests)

- Most web sites on the internet are actually REST services

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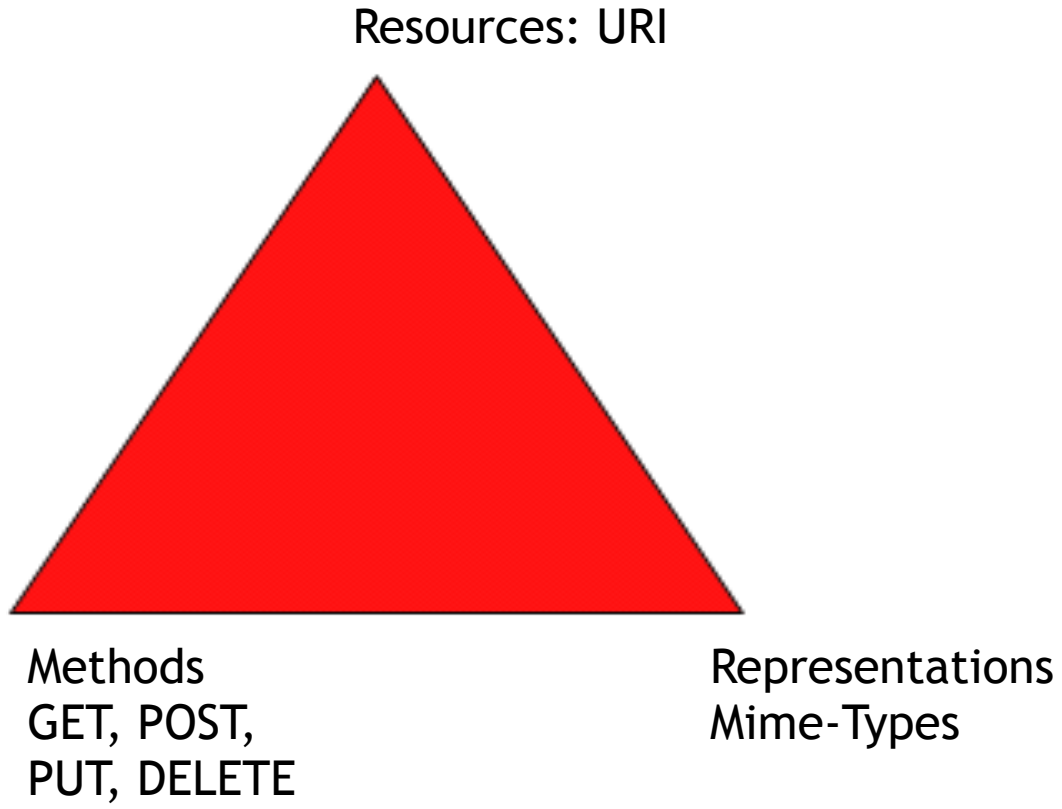
# RESTful HTTP Services interface

- An HTTP based REST interface
  - Resources
  - Methods
  - Representations

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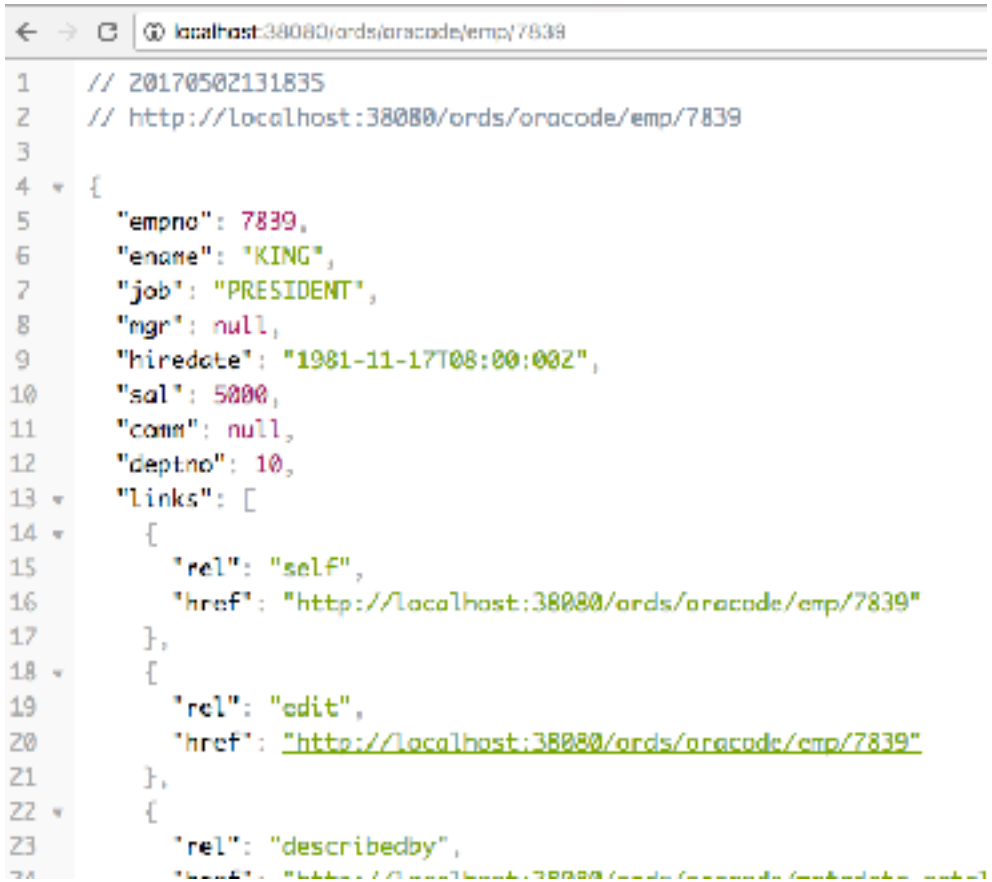
# REST Web Services in the enterprise

- Resource … HTTP-URL
  - Customers
  - Employees
  - Facilities
- Method … HTTP
  - GET to read a resource
  - POST to create a resource
  - PUT to change a resource
  - DELETE …
- Representation … JSON
  - Other formats …

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# HTTP methods used for REST services

| Method | Meaning | URI points to single Resource | URI => Collection |
|---|---|---|---|
| GET | Read a resource | Read single resource | Read full collection |
| POST | Create | N/A | Create a new collection member |
| PUT | Replace | Replace resource | N/A |
| DELETE | Remove | Remove single resource | Remove many or all resources |
| PATCH | Change | Change resource attributes | Change attributes of all collection members |

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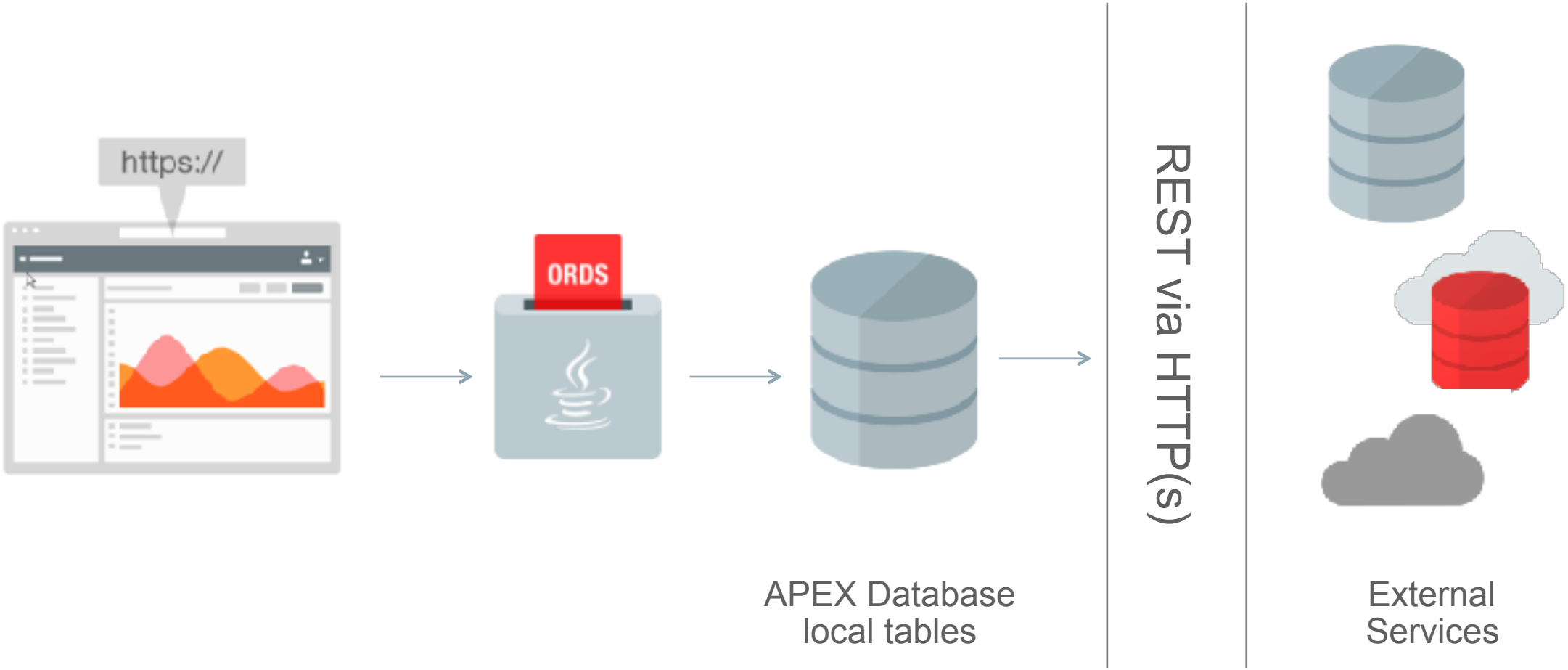
# REST Services and Application Express

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# A simple REST example: USGS Earthquake service

*http://earthquake.usgs.gov/earthquakes/feed/v1.0/geojson.php*

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# Use the USGS Earthquake service in APEX

| Type | Mag | Place | Time | |
|---|---|---|---|---|
| Feature | 1.9 | 93km WNW of Skagway, Alaska | 1493726592008 | M |
| Feature | 1.5 | 83km WSW of Cantwell, Alaska | 1493726384342 | M |
| Feature | 1.9 | 35km W of Anchorage, Alaska | 1493726320993 | M |
| Feature | .65 | 7km NNW of Fontana, California | 1493726178800 | M 0. |
| Feature | .85 | 12km N of Valley Center, California | 1493725551300 | M 0. |
| Feature | 1.9 | 94km WNW of Skagway, Alaska | 1493725314804 | M |
| Feature | 1.8 | 91km WNW of Skagway, Alaska | 1493724663365 | M |
| Feature | 1.8 | 93km WNW of Skagway, Alaska | 1493723874794 | M |
| Feature | 2.8 | 82km WNW of Skagway, Alaska | 1493722994096 | M 2. |
| Feature | 1.35 | 1km NW of Tustin, California | 1493722185260 | M |

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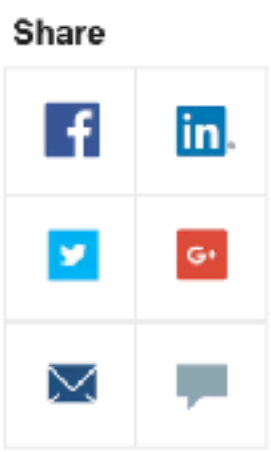
# Use REST Services in APEX 5.1 …




WEDNESDAY, APRIL 12, 2017

## REST Services and Application Express 5.1 - Part 1

By: Carsten Czarski | Consulting Member of technical Staff

More and more Application Express developers are faced with the requirement to integrate REST services or HTTP/JSON data feeds into their applications. Application Express provides great support for SOAP web services, but for REST services using JSON to exchange data, the

https://blogs.oracle.com/apex/rest-services-and-application-express-51-part-1

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# APEX 5.2

## *Statement of Direction*

http://www.oracle.com/technetwork/developer-tools/apex/application-express/apex-sod-087560.html

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# Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

# Demo

## Application Express 5.2
## REST and Remote SQL

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