

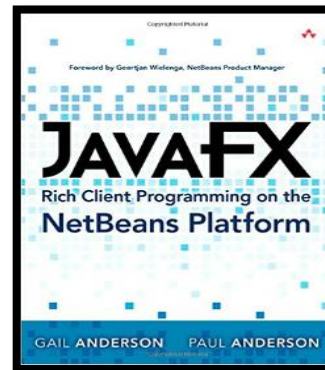
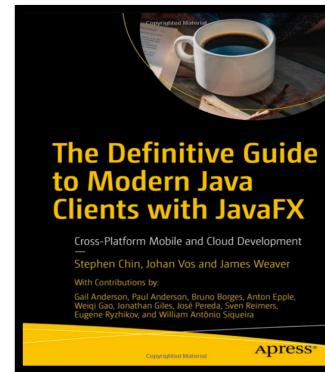
Atlanta
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JavaFX Now and Beyond, Desktop to Mobile

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So Who Are We?

- ▶ Training Company
 - Java, JavaFX Courses
- ▶ JavaFX Authors
 - Definitive Guide to JavaFX
 - JavaFX Rich Client Programming on the NetBeans Platform
- ▶ LiveLesson Videos
 - JavaFX Programming
 - Java Reflection



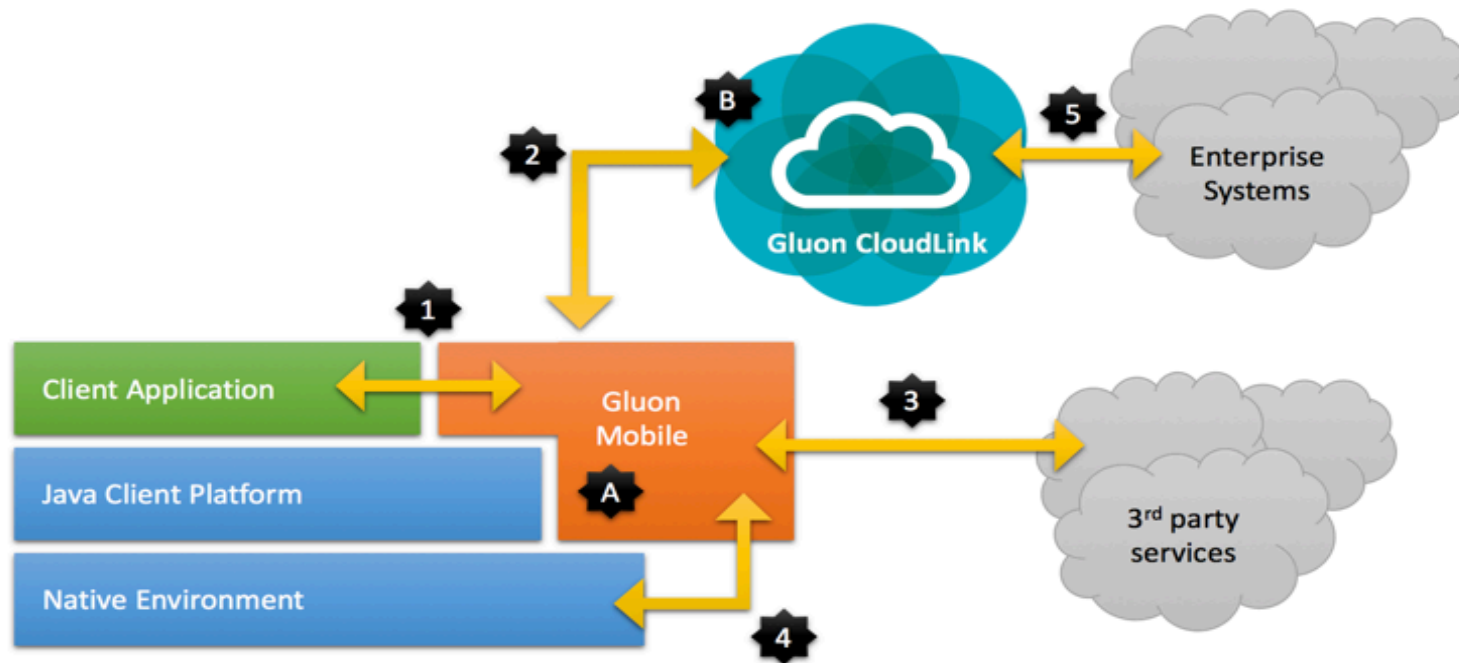
Agenda

- ▶ Why JavaFX on Mobile?
- ▶ Gluon Framework
- ▶ Gluon Charm Controls
- ▶ Gluon Connect and CloudLink
- ▶ Gluon Substrate and GraalVM
- ▶ Oracle Cloud Database
- ▶ Oracle REST Data Services
- ▶ Wrap Up, Q & A

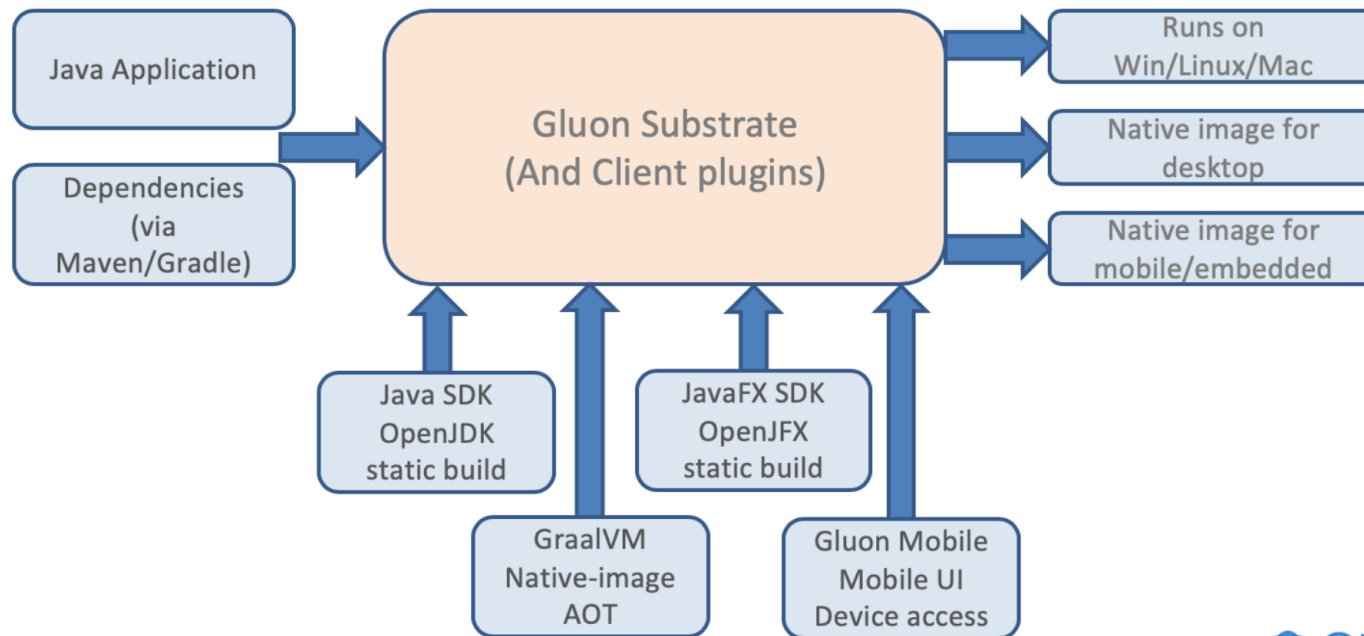
Why JavaFX On Mobile?

- ▶ **Critical Goal**
 - Platform independent source code
 - “Write Once, Install Everywhere”
- ▶ **Design Approach**
 - Frameworks are a must
 - Hide platform dependencies and messy details
- ▶ **JavaFX Advantages**
 - Java UI, scene graph, nodes, FXML views
 - Properties, listeners, binding, event handlers

Gluon Framework



Gluon Substrate



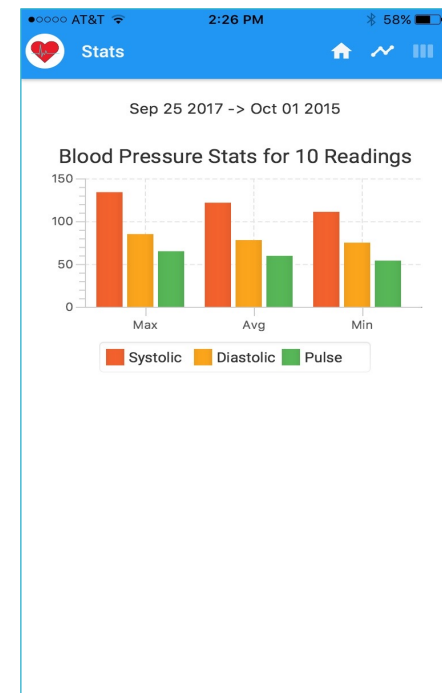
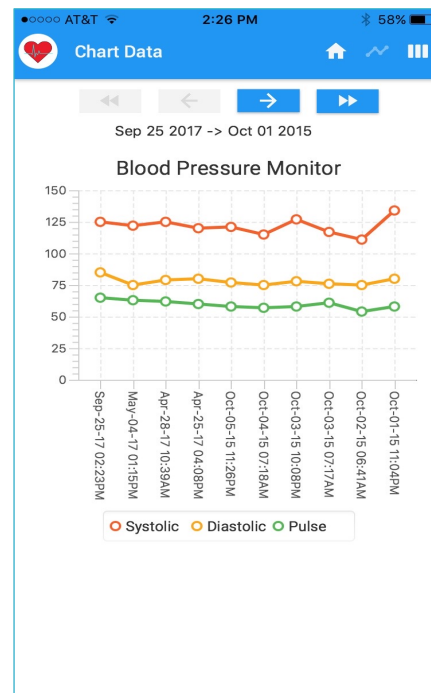
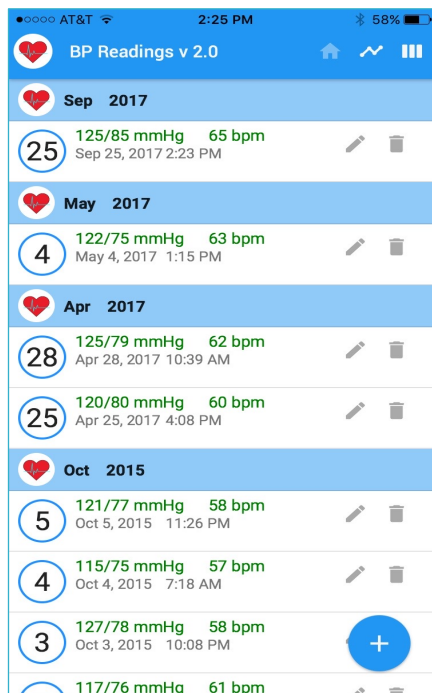
Gluon Mobile

- ▶ **Development Tools**
 - Scene Builder for layouts, CSS and skins
 - Maven for builds, IDE independent
- ▶ **Gluon Library**
 - Charm Controls, Material Design Guidelines
 - Local and cloud storage
 - Gluon Maps
- ▶ **Hardware Control**
 - Camera, accelerometer, GPS, gestures, ...

Mobile App Structure

- ▶ **MobileApplication**
 - Main class for JavaFX mobile applications
 - Extends JavaFX Application class
 - Specify views as factories that are called on demand
- ▶ **Views**
 - View class invokes FXMLLoader for FXML
 - Presenter class is the FXML controller class
- ▶ **Resources**
 - fxml, css, images, licensing files

Gluon Charm: Look and Feel



Build and Run with Maven

- ▶ Configuration File

`pom.xml`

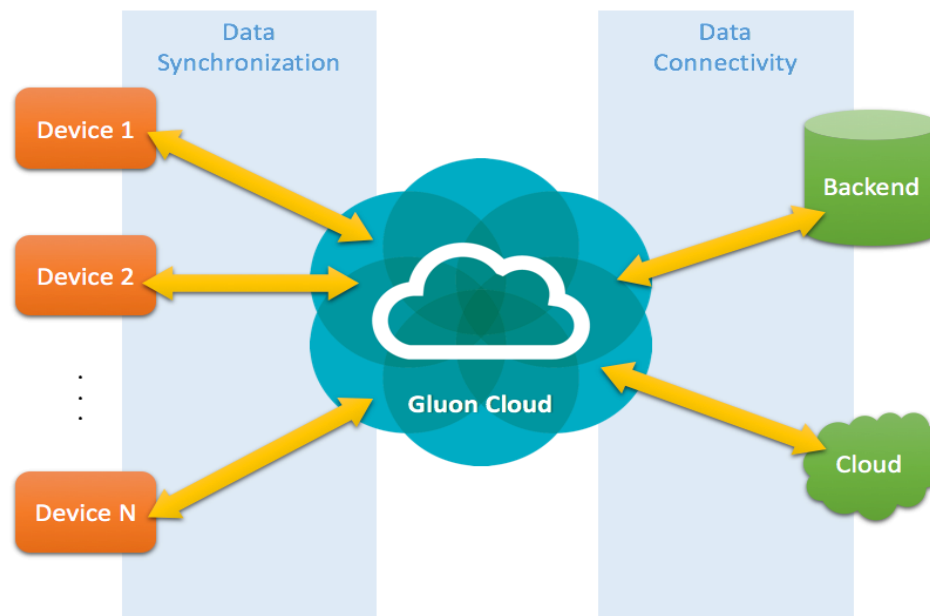
- ▶ Desktop Native Target

```
$ mvn client:build  
$ mvn client:run
```

- ▶ IOS Native Target

```
$ mvn -Pios client:build  
$ mvn -Pios client:run
```

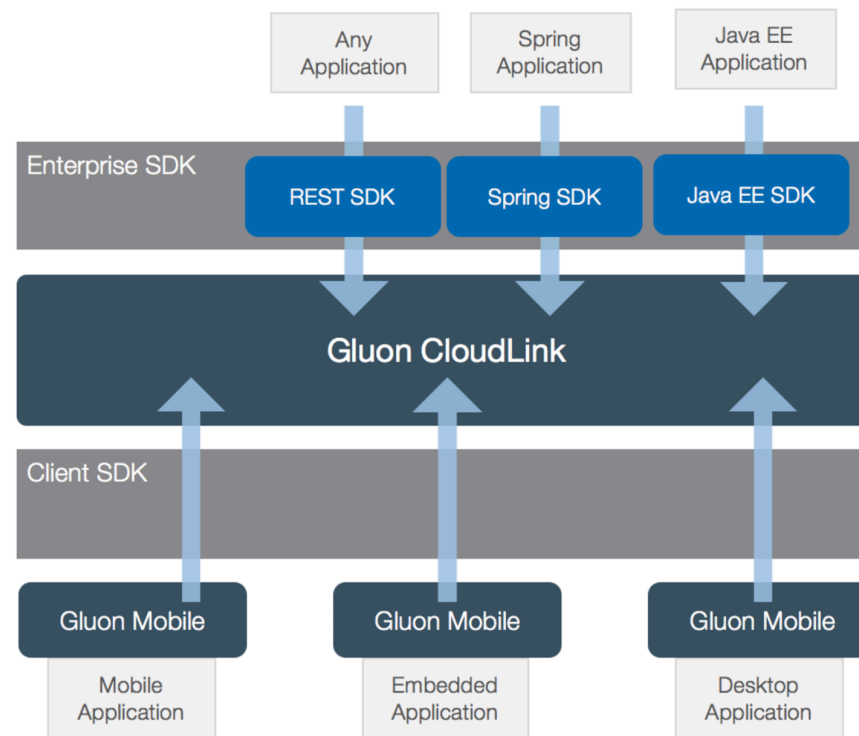
Gluon Cloud



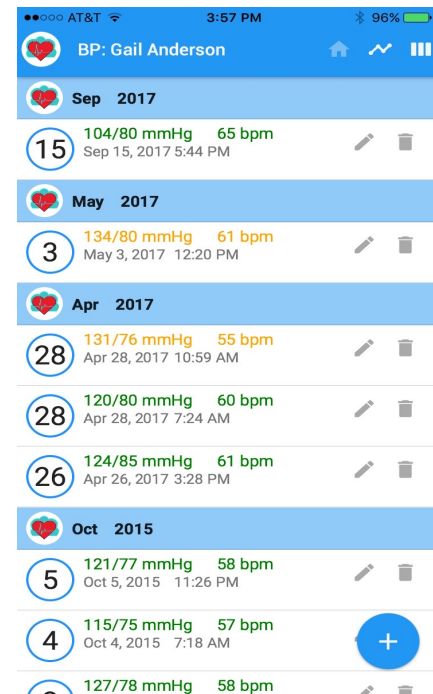
Gluon Connect

- ▶ Client Side Library
 - Maps data with observable properties and lists
 - Supports bidirectional data transfers
 - Provides notifications
 - Syncs data automatically
- ▶ Supports Common Data Sources
 - Gluon CloudLink
 - File provider
 - REST provider

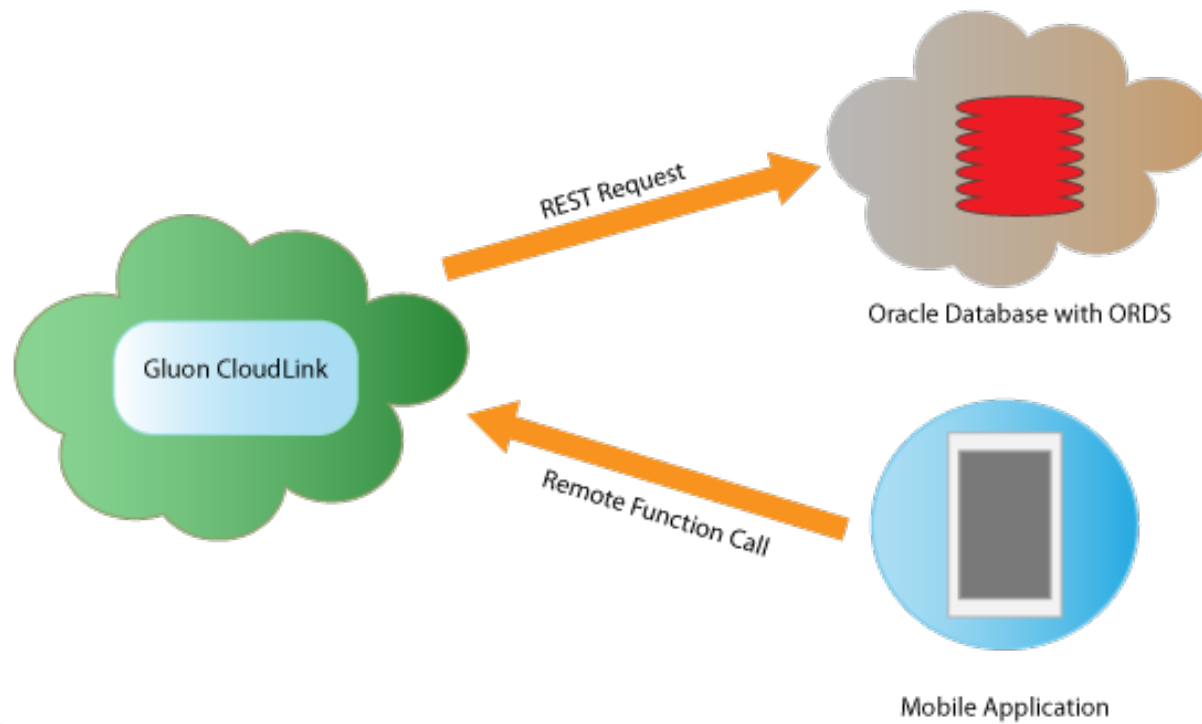
Gluon CloudLink



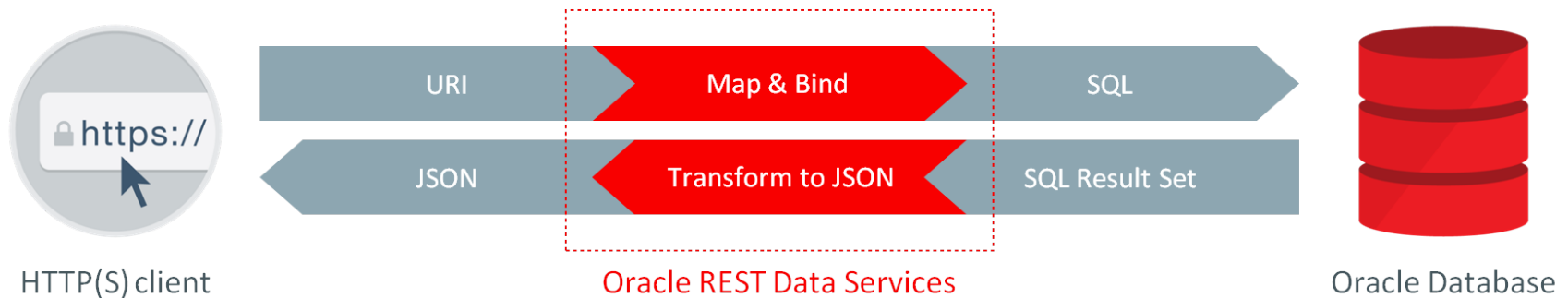
Gluon Cloud Demo



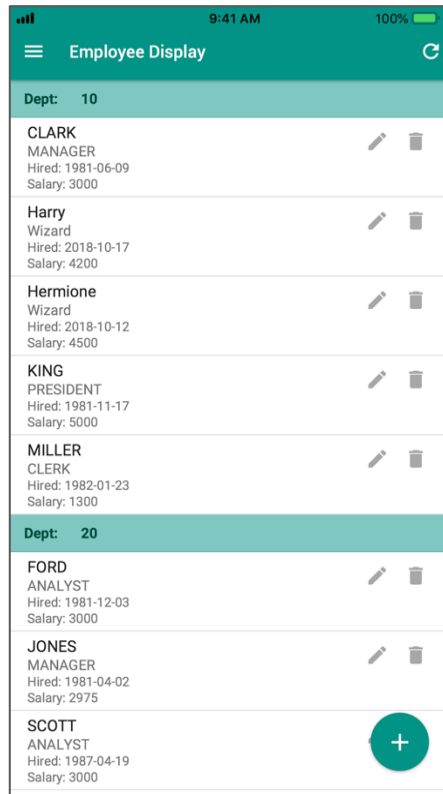
Oracle Database


















Oracle REST Data Services



People Demo



The image shows a mobile application interface titled "Employee Display". It features a teal header bar with a menu icon, the title, and a refresh icon. The status bar at the top shows "9:41 AM" and "100%" battery. The content is organized into two sections, "Dept: 10" and "Dept: 20", each with a teal header. Each section contains a list of employees with their names, titles, hire dates, and salaries. Each employee entry has edit and delete icons. A green circular button with a white plus sign is located at the bottom right of the "Dept: 20" section.

Dept: 10	
CLARK MANAGER Hired: 1981-06-09 Salary: 3000	 
Harry Wizard Hired: 2018-10-17 Salary: 4200	 
Hermione Wizard Hired: 2018-10-12 Salary: 4500	 
KING PRESIDENT Hired: 1981-11-17 Salary: 5000	 
MILLER CLERK Hired: 1982-01-23 Salary: 1300	 
Dept: 20	
FORD ANALYST Hired: 1981-12-03 Salary: 3000	 
JONES MANAGER Hired: 1981-04-02 Salary: 2975	 
SCOTT ANALYST Hired: 1987-04-19 Salary: 3000	

Remote Functions with REST

REST Method	Remote Function
GET	getEmployees()
GET	getEmployee()
POST	createEmployee()
PUT	updateEmployee()
DELETE	deleteEmployee()

API Dashboard

API Management

[Functions](#) [Authentication](#) [Call Log](#)

Remote Functions

getEmployee

+

✎

🗑

Function Information

Type: HTTP Request

Name: getEmployee

Internal only: false

Method: GET

End Point: http://54.217.216.239/ords/pdb1/myuser1/testmodule9/emp/\$empno

Request Body: none

Function Parameters

✕ Test

+

🗑

	Type	Name	Value	Test Value
<input type="checkbox"/>	Variable param	empno	7521	7369

Remote Functions

▶ GET Method Definition

```
public class RemoteService {  
    public <T> GluonObservableObject<T>  
        getEmployees(Class<T> clazz) {  
        RemoteFunctionObject function =  
            RemoteFunctionBuilder  
                .create("getEmployees")  
                .object();  
        return function.call(clazz);  
    }  
    // other remote functions. . .  
}
```

Remote Functions

► Dependency Injection

```
@Inject
private RemoteService remoteService;

@FXML
private
CharmListView<Employee, Integer> charmListView;

private
GluonObservableObject<WorkForce> workforce;

private ChangeListener<? super Boolean>
    listener = null;
```

Remote Functions

▶ GET Method Invocation

```
workforce = remoteService.getEmployees(WorkForce.class);  
.  
.  
workforce.initializedProperty().addListener(  
    listener = (ObservableValue<? extends Boolean>  
        obsrv, Boolean ov, Boolean nv) -> {  
        if (nv) {  
            charmListView.setItems(FXCollections.  
                observableArrayList(  
                    workforce.get().getItems()));  
        }  
    });
```

Remote Functions

▶ DELETE Method Definition

```
public class RemoteService {  
    public <T> GluonObservableObject<T>  
        deleteEmployee(Class<T> clazz, String value) {  
        RemoteFunctionObject function =  
            RemoteFunctionBuilder  
                .create("deleteEmployee")  
                .param("empno", value)  
                .object();  
        return function.call(clazz);  
    }  
}
```

Summary

▶ JavaFX Advantages

- Platform independent source code
- Observables, binding & background tasks to sync UI
- Flexible skinning to fit mobile form

▶ Useful Frameworks

- Gluon/Maven framework for mobile deployment
- Based on OpenJDK and OpenJFX
- Afterburner framework for dependency injection
- Oracle Cloud Database and ORDS

Wrap Up

▶ Thanks for Coming!

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▶ Source Code

- asgteach.com
 - DEVNEXUS 2020 Code
 - [Click to Download](#)
- Q & A

