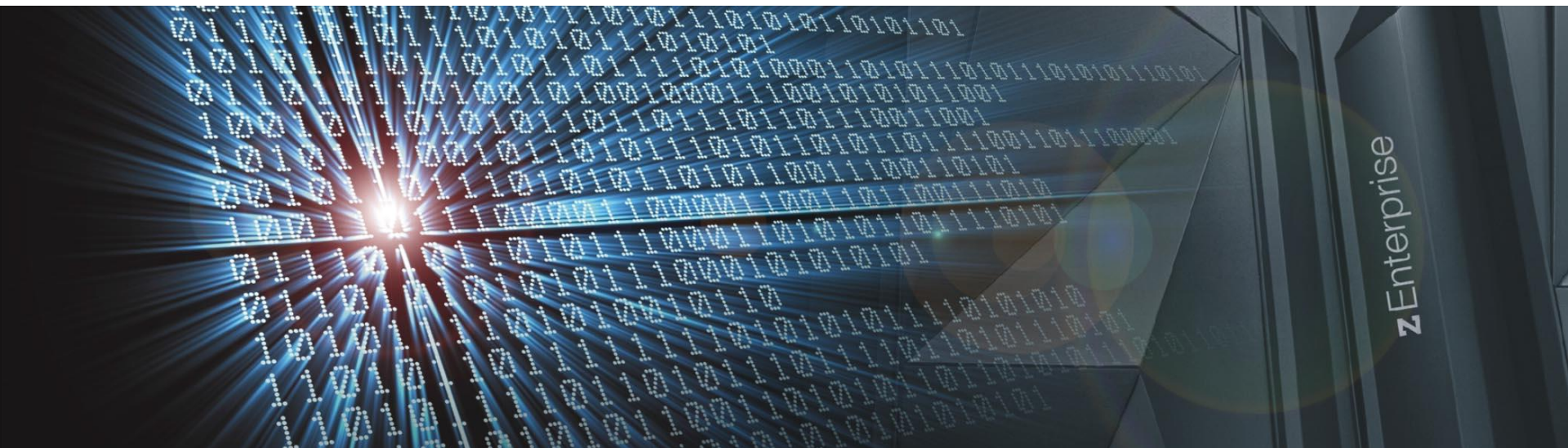


Mobile access to the existing z/VSE application

Alina Glodowski



<http://www.ibm.com/zVSE>

<http://twitter.com/IBMzVSE>



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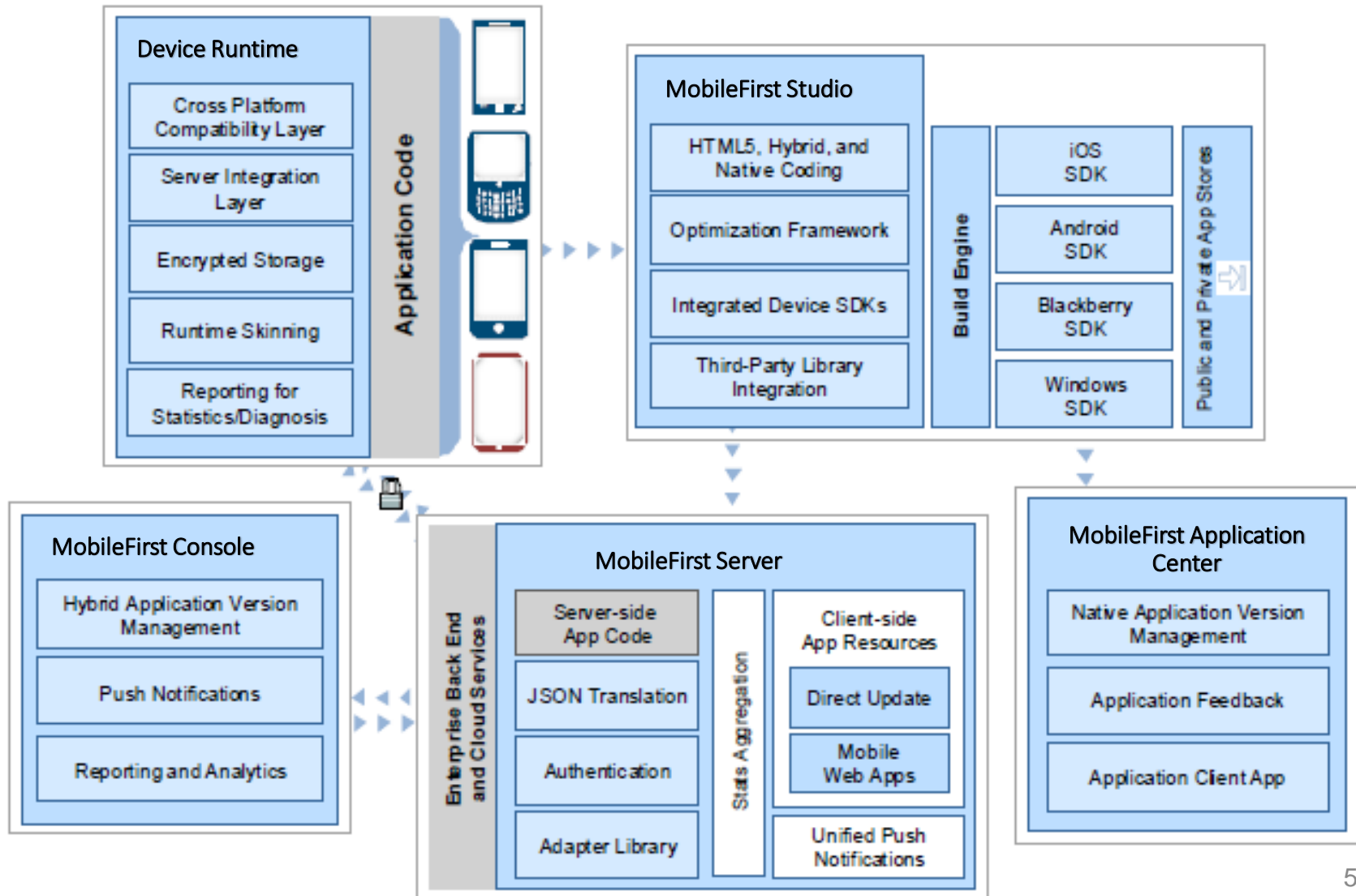
No other workload processing is authorized for execution on an SE.

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Agenda

- Introduction
 - IBM MobileFirst
 - z/VSE Connectors
- How to use z/VSE Web Services in a Mobile App
 - MobileFirst Project
 - MobileFirst Adapter
 - Mobile Application
- How to use z/VSE Connectors in a Mobile App
 - Use Java in MobileFirst Adapter
 - MobileFirst Adapter
 - Mobile Application

IBM MobileFirst Foundation



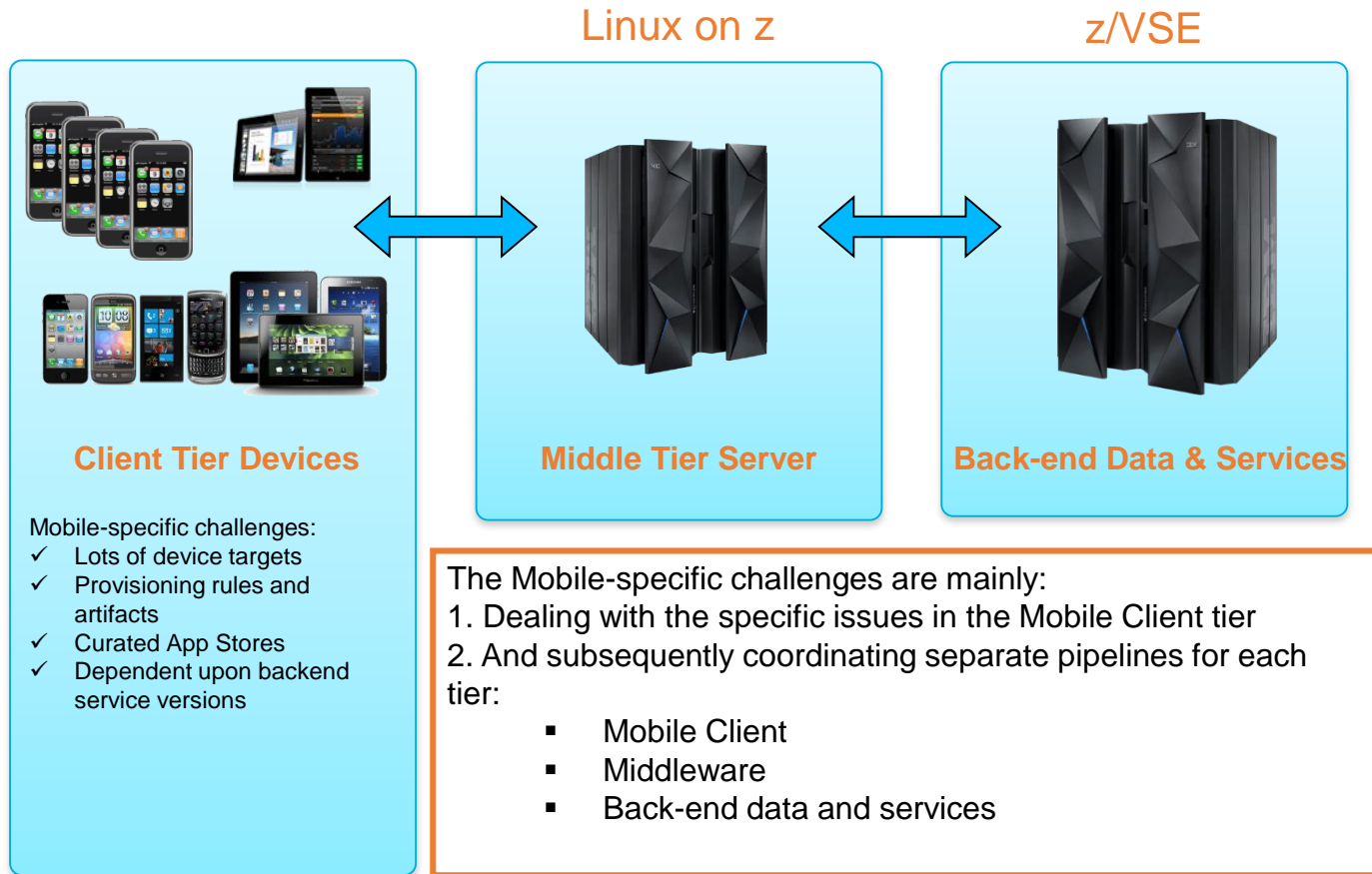
MobileFirst Platform Studio

MobileFirst Studio is an Eclipse plug-in that supports the development of rich, mobile web, native, and hybrid apps. It contains an embedded version of MobileFirst Server.

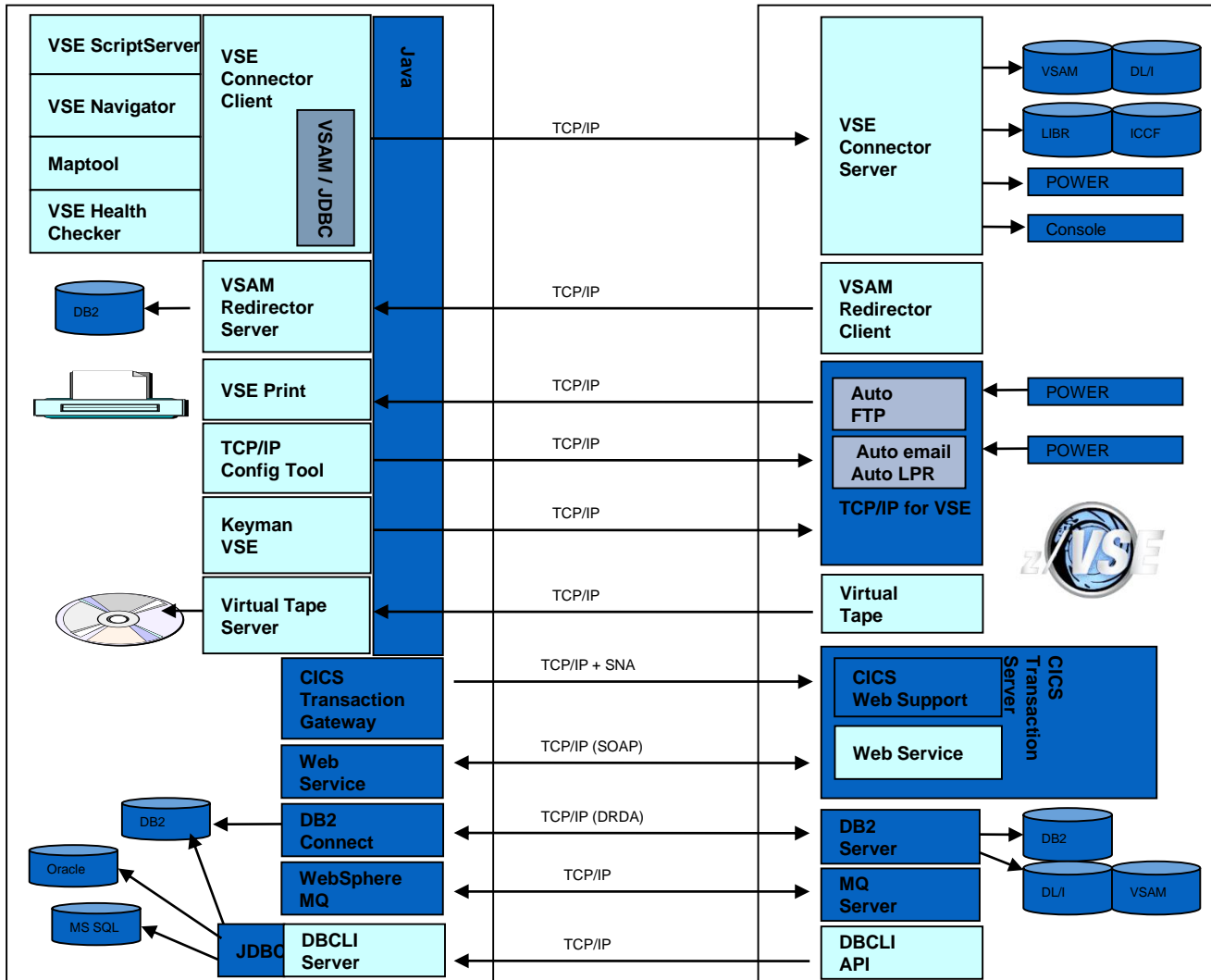
You use MobileFirst Studio to:

- Create and modify applications
- Deploy applications to the embedded MobileFirst Server
- Preview and manage applications by using MobileFirst Console
- Create custom server-side Java code that can be used by MobileFirst adapters
- Create and modify MobileFirst adapters
- Deploy MobileFirst adapters to the embedded MobileFirst Server
- Test MobileFirst adapter procedures

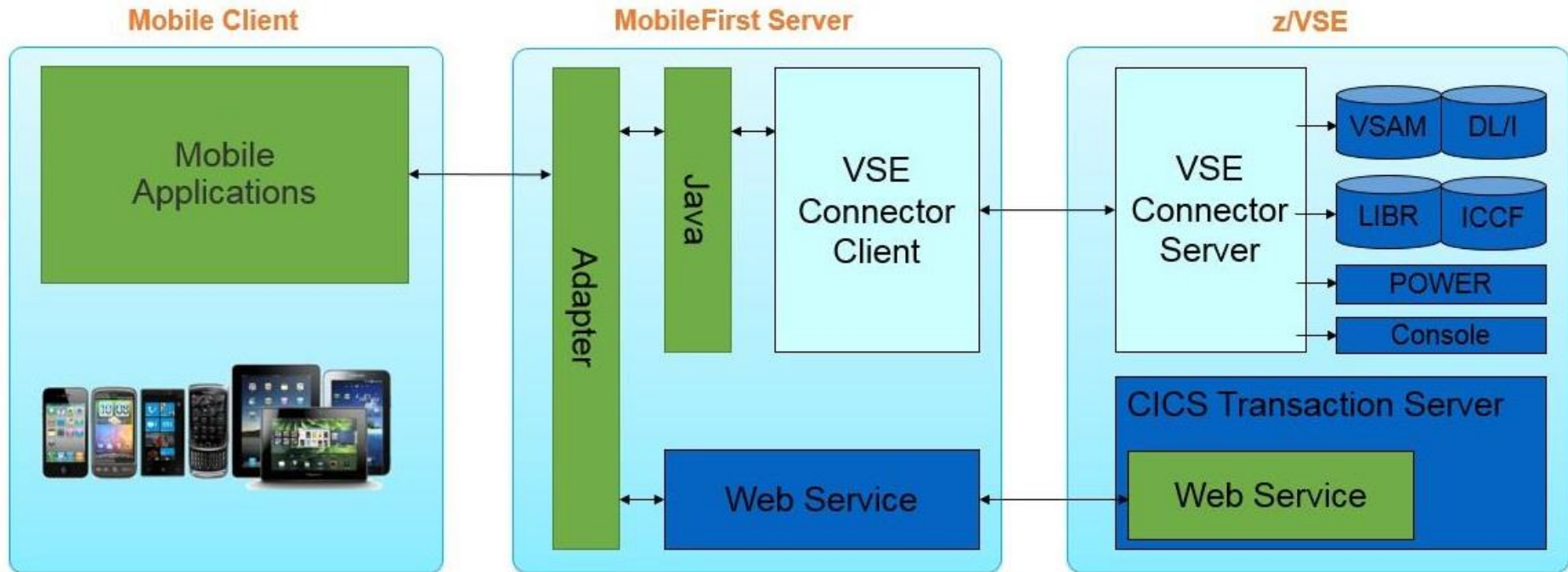
Multi-tier mobile applications



z/VSE Connectors overview



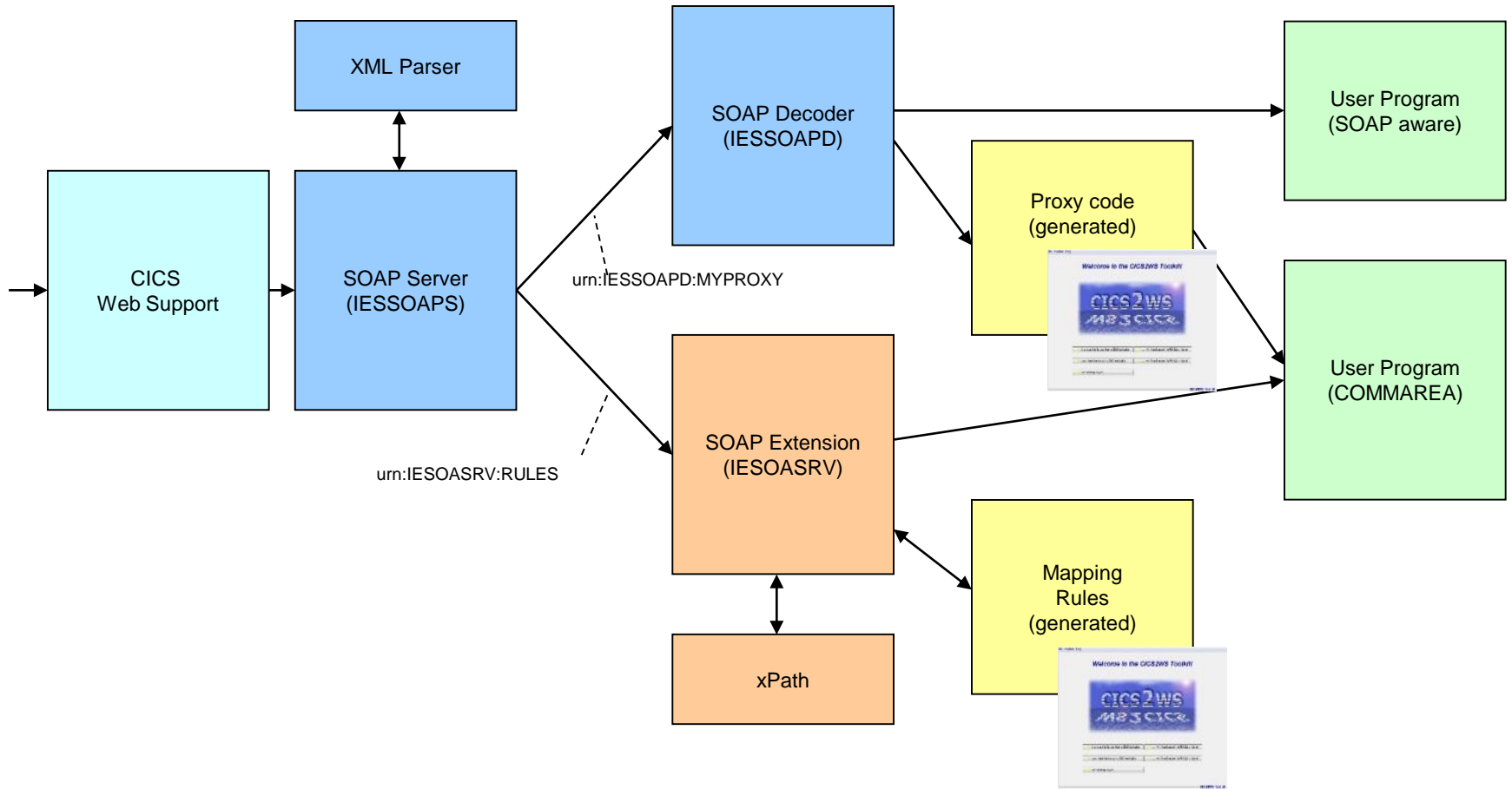
z/VSE and MobileFirst



To start mobile development with z/VSE, you need to have the following applications:

- The **IBM MobileFirst Platform Developer Edition**
- The **z/VSE Connector Client**
- The **z/VSE Connector Server** (part of VSE/ESA 2.5 and later releases)

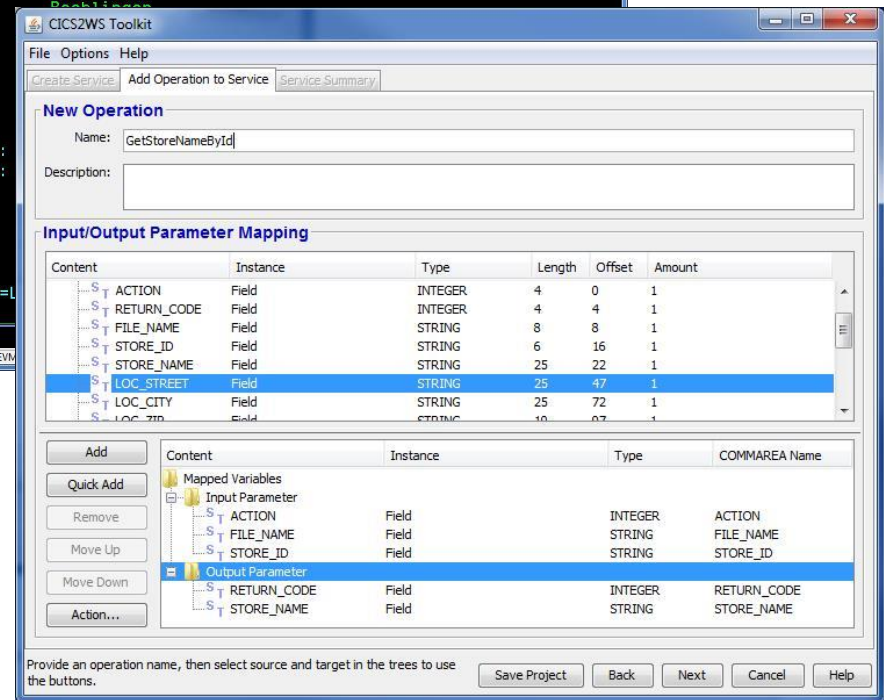
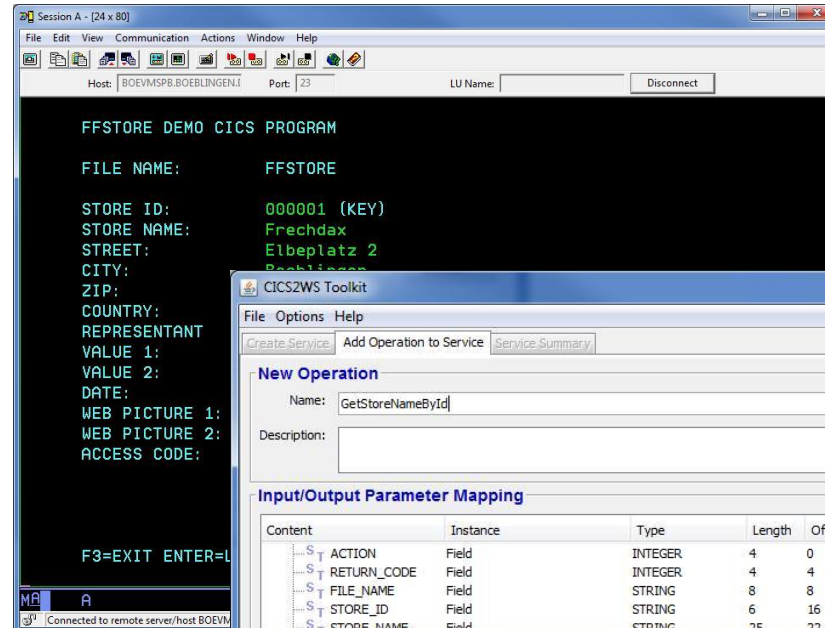
Web Services in z/VSE



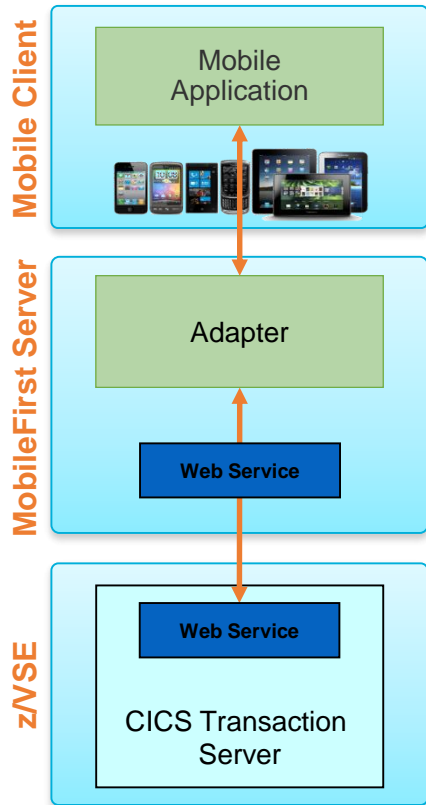
Existing z/VSE application

```

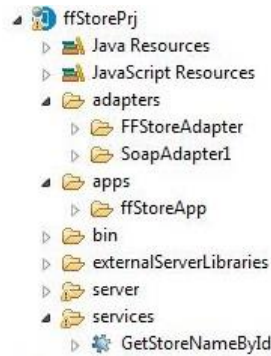
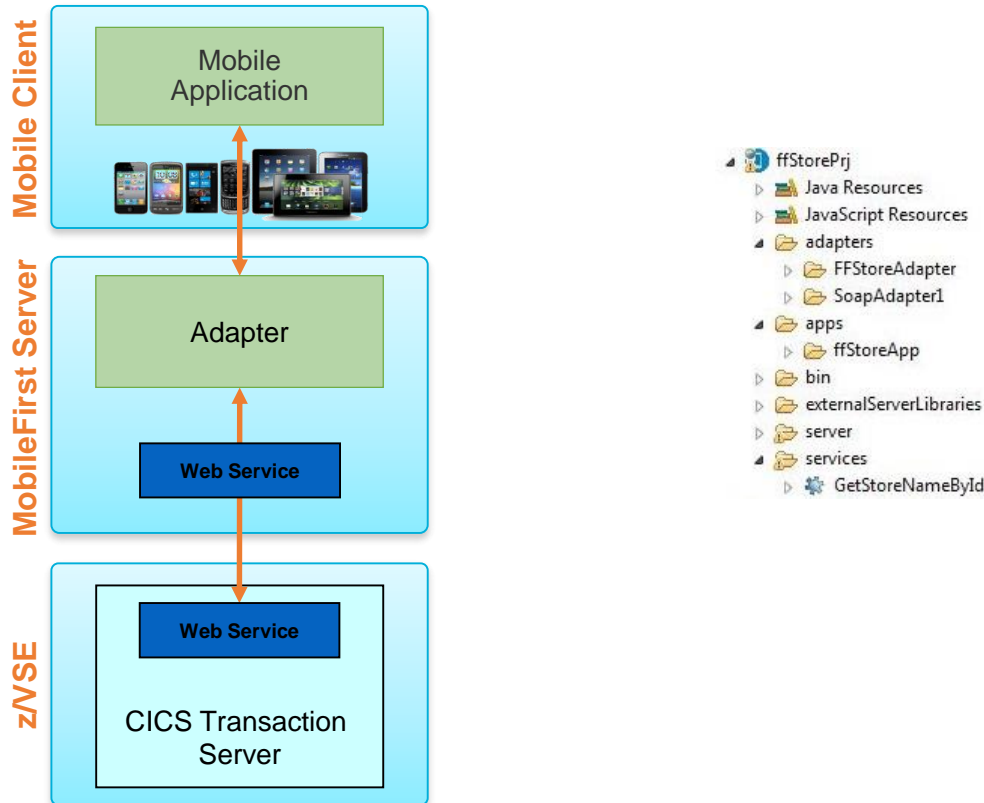
03 FSTIO-MAP.
05 ACTION          PIC 9(8) COMP.
05 RETURN-CODE     PIC 9(8) COMP.
05 FILE-NAME       PIC X(8) .
05 STORE-ID        PIC X(6) .
05 STORE-NAME      PIC X(25) .
05 LOC-STREET      PIC X(25) .
05 LOC-CITY        PIC X(25) .
05 LOC-ZIP         PIC X(10) .
05 LOC-COUNTRY     PIC X(25) .
05 LOC-REP        PIC X(20) .
05 VAL1            PIC 9(8) COMP.
05 VAL2            PIC 9(8) COMP.
05 DATE           PIC X(10) .
05 WEB-PIC1       PIC X(20) .
05 WEB-PIC2       PIC X(20) .
05 A-CODE         PIC X(10) .
05 FILLER         PIC X(6) .
    
```



Web Services for mobile

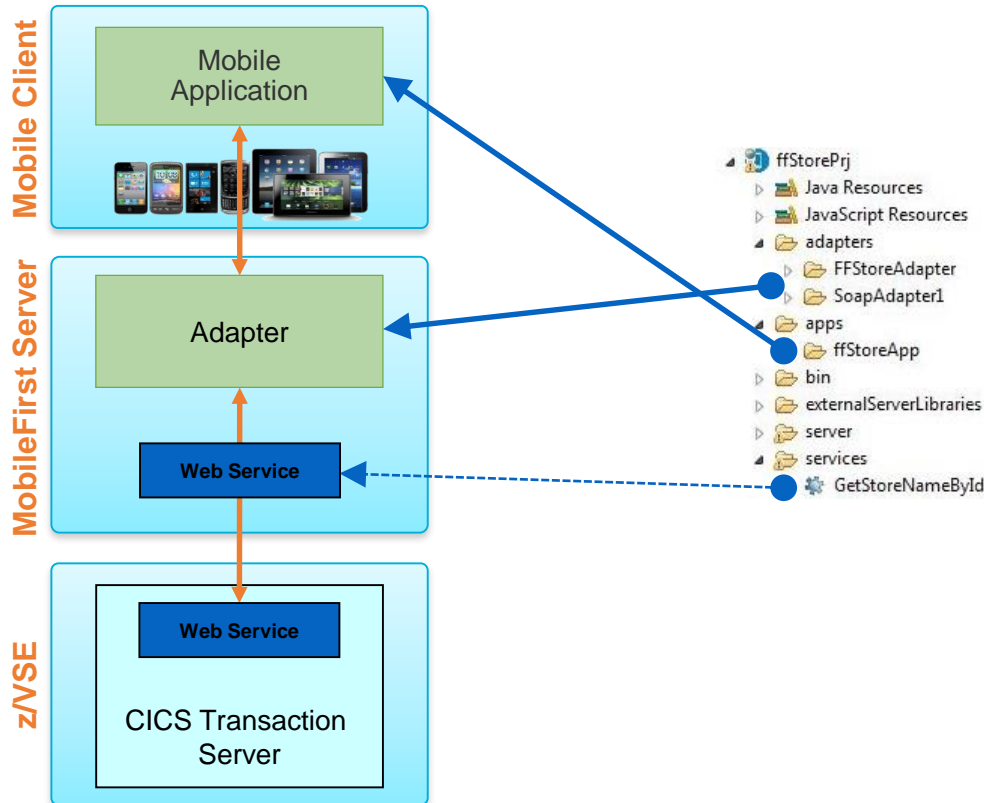


Web Services for mobile



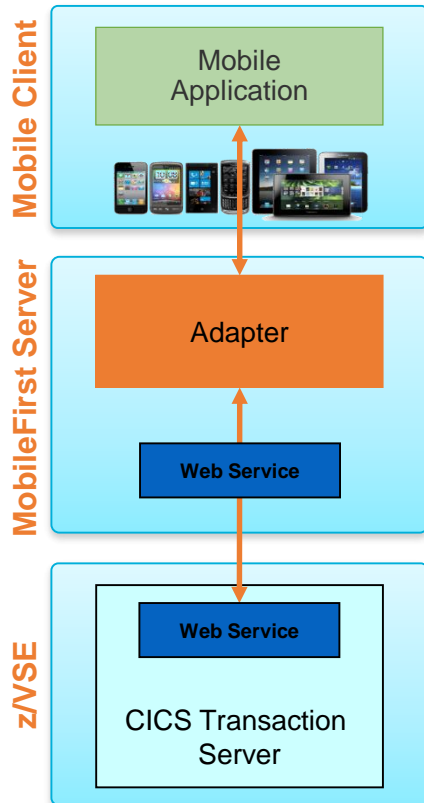
- Create a project
- Create an adapter
 - SOAP adapter
 - Pure HTTP adapter

Web Services for mobile



- Create a project
- Create an adapter
 - SOAP adapter
 - Pure HTTP adapter

Web Services: create adapter



1. *<your project name>* → services → "Discover Backend"

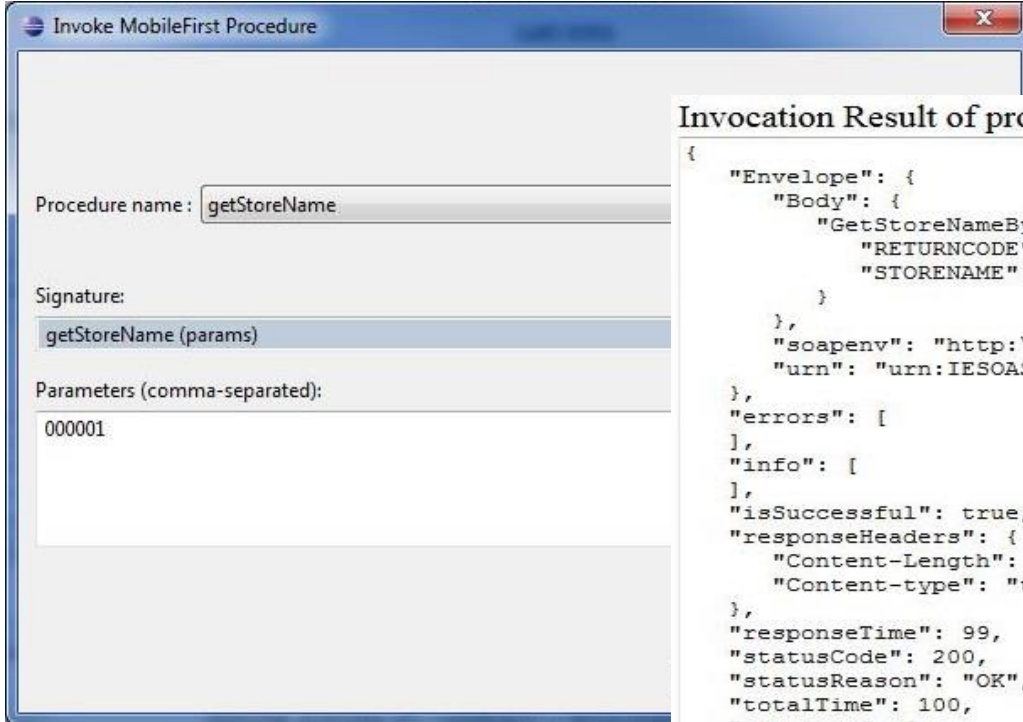
2. *<your project name>* → adapters → New → MobileFirst Adapter

MobileFirst will automatically create a simple adapter for you. You need to change files:

- *<your project name>* → adapters → *<your adapter name>.xml*
- *<your project name>* → adapters → *<your adapter name>-impl.xml*

Web Services: test adapter

<your adapter name> → Run As → Invoke MobileFirst Procedure



Invoke MobileFirst Procedure

Procedure name:

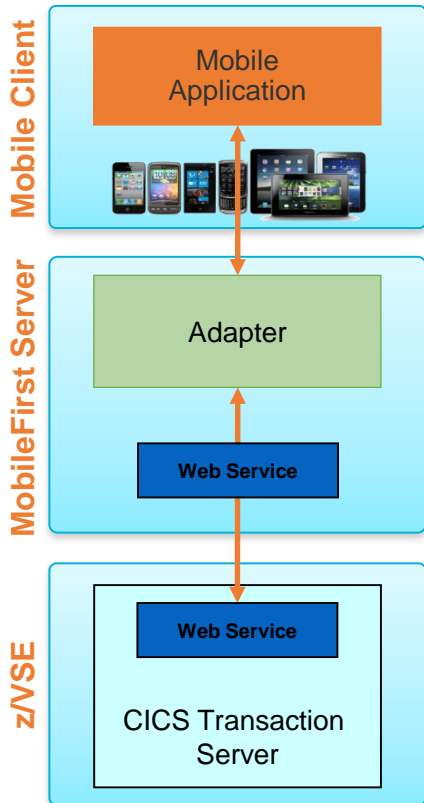
Signature:

Parameters (comma-separated):

Invocation Result of procedure: 'getStoreName' from the MobileFirst Server:

```
{
  "Envelope": {
    "Body": {
      "GetStoreNameByIdResponse": {
        "RETURNCODE": "0",
        "STORENAME": "Frechdax"
      }
    },
    "soapenv": "http://schemas.xmlsoap.org/soap/envelope/",
    "urn": "urn:IESOASRV:FFSTRL"
  },
  "errors": [
  ],
  "info": [
  ],
  "isSuccessful": true,
  "responseHeaders": {
    "Content-Length": "00000292",
    "Content-type": "text/xml; charset=utf-8"
  },
  "responseTime": 99,
  "statusCode": 200,
  "statusReason": "OK",
  "totalTime": 100,
  "warnings": [
  ]
}
```


Web Services: create mobile application



User Interface

`<your project name>` → apps → `<your app name>` → common → **index.html**

```
<div data-role="content" style="padding: 15px">
  <!--application UI goes here-->
  <label for="text">Type Store ID:</label> <input type="number" name="storeID" id="storeID" value="00001">
  <a href="#" data-role="button" onclick="getStoreNameById();" id="button" data-icon="forward">Get Store Name</a>
  <label id="storeName">Result:</label>
</div>
```

Logic

`<your project name>` → apps → `<your app name>` → common → js → **main.js**

```
function getStoreNameById( ){
  // Get input parameters
  var storeId = document.getElementById('storeID').value;

  // Predefine adapter data
  var invocationData = {
    adapter : 'FFStoreAdapter',
    procedure : 'getStoreName',
    parameters : [storeId]
  };

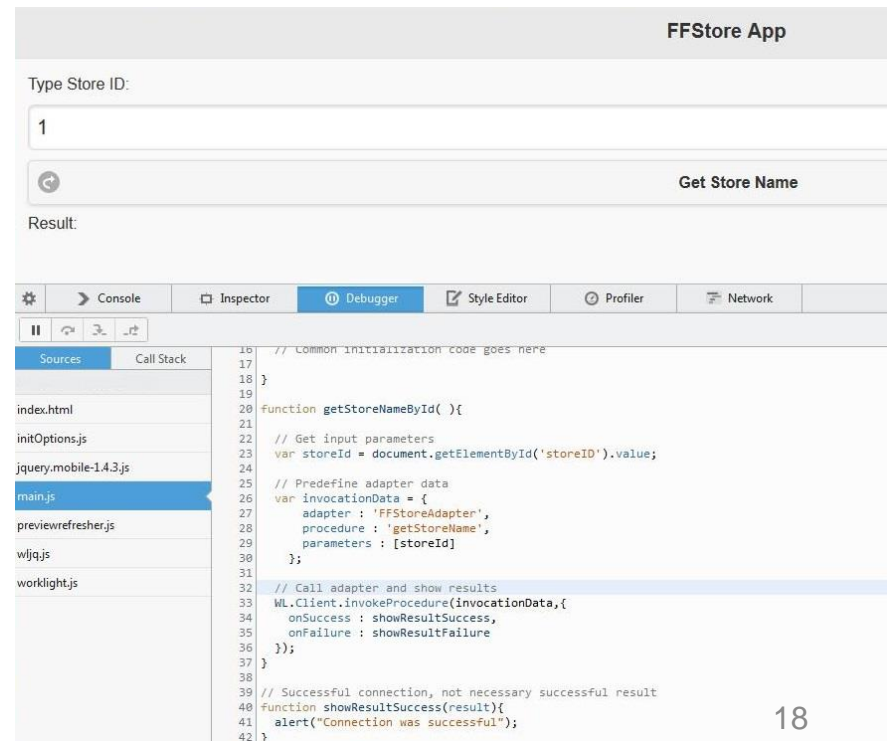
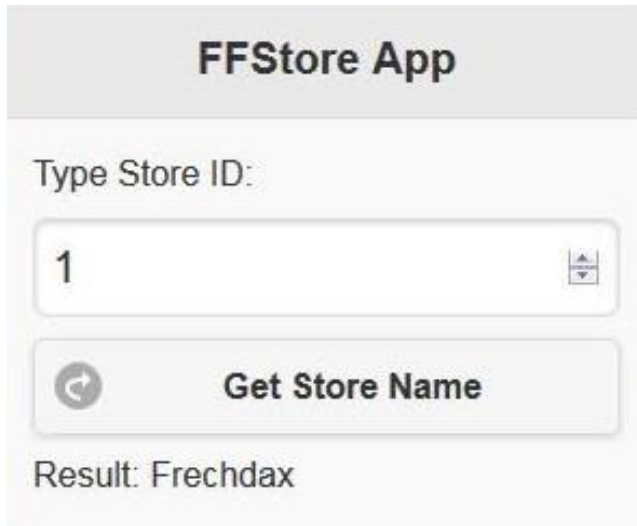
  // Call adapter and show results
  WL.Client.invokeProcedure(invocationData,{
    onSuccess : showResultSuccess,
    onFailure : showResultFailure
  });
}
```

Web Services: test and debug

<your mobile app name> → Run As →

Run on MobileFirst Development Server

<your mobile app name> → Run As → Preview



z/VSE Connectors for mobile

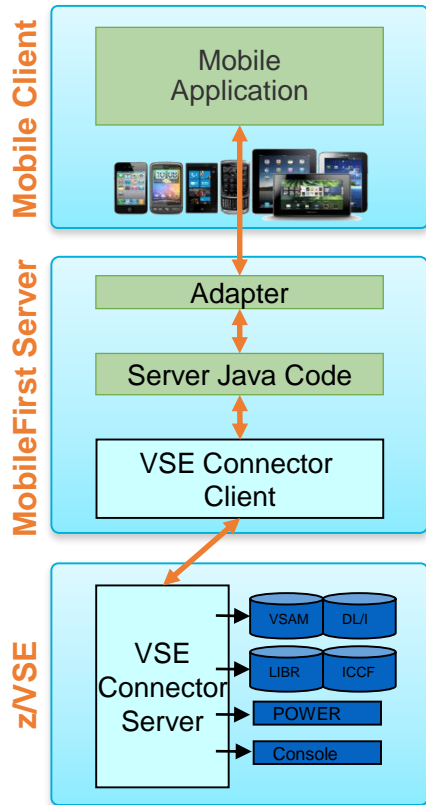
Skeleton in lib 59: SKVSSAMP

Export of a VSAM data in HTML format

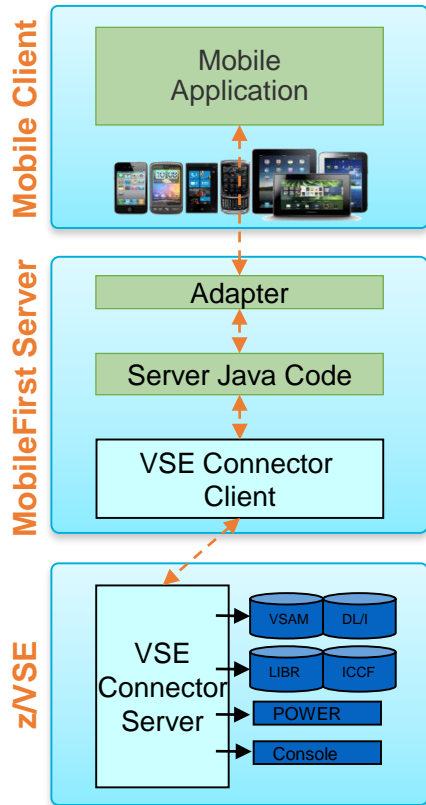
Catalog: VSESP.USER.CATALOG
 Cluster: VSAM.CONN.SAMPLE.DATA
 Map: USED CARS
 Number of records: 7
 Date: 23.12.2014 10:38:23

ARTICLENO	MANUFACTURER	TYPE	MODEL	HP	DISPLACEMENT	CYLINDERS	COLOUR	FEATURES	PRICE
1	Volkswagen	New Beetle	Petro Model	115	2000	4	Red	Sliding Roof	17000
2	Mustang	GT 2	DR CONV	250	4600	8	Black	Smoker's Package	30190
3	Ford	Taurus	SE Station Wagon	200	3000	6	Blue	Appearance Package	23280
4	BMW	compact	316i	102	1600	4	VelvetBlue Metallic	sport edition	20500
5	Mercedes	E220	Avantgarde	160	2300	6	Grey	Navigation System	67000
6	Porsche	Roadster		220	2700	6	Silver	Leather,CD Changer	42300
7	Ford	Escort	ZX2 2 Door Coupe	150	2000	6	White	Sp.Seats,Zetec Eng.	15715

Using Java in MobileFirst adapters

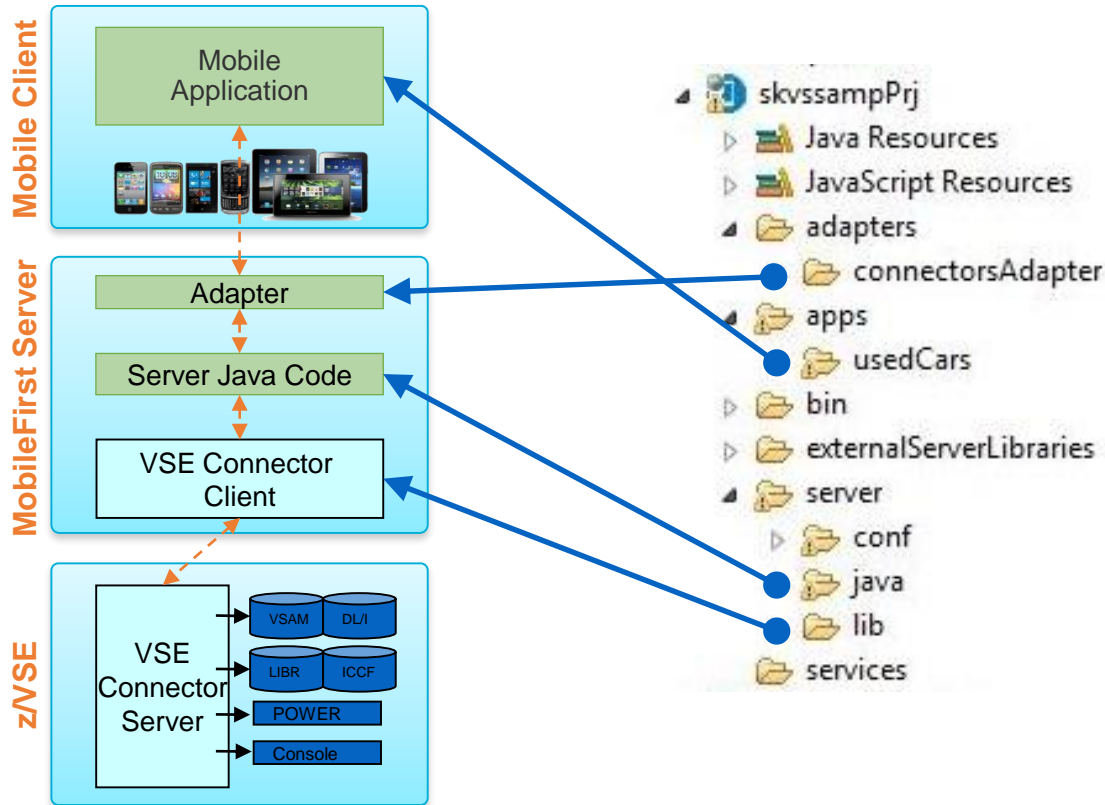


Using Java in MobileFirst adapters



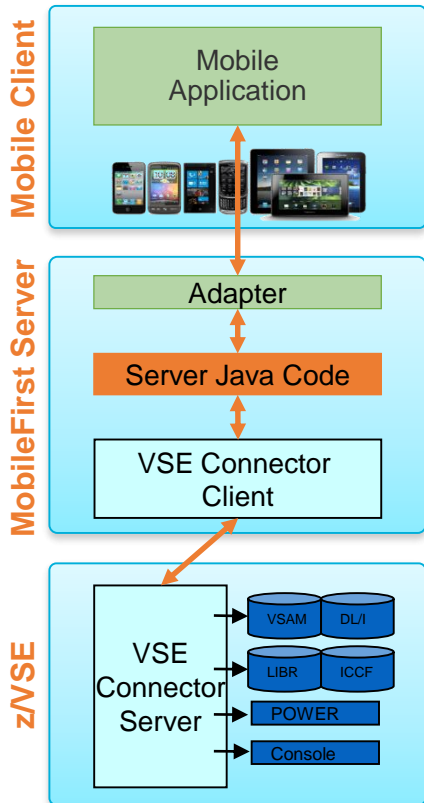
1. Create a project
2. Add *VSEConnector.jar*, *cci.jar*, *ibmjsse.jar*, *ibmpkcs.jar* to your mobile project: copy these libraries to *<your project name>* → *server* → *lib*
3. Your java source code for adapter will be located under *<your project name>* → *server* → *java*

Using Java in MobileFirst adapters



1. Create a project
2. Add *VSEConnector.jar*, *cci.jar*, *ibmjsse.jar*, *ibmpkcs.jar* to your mobile project: copy these libraries to `<your project name>` → `server` → `lib`
3. Your java source code for adapter will be located under `<your project name>` → `server` → `java`

z/VS E Connectors: server Java code



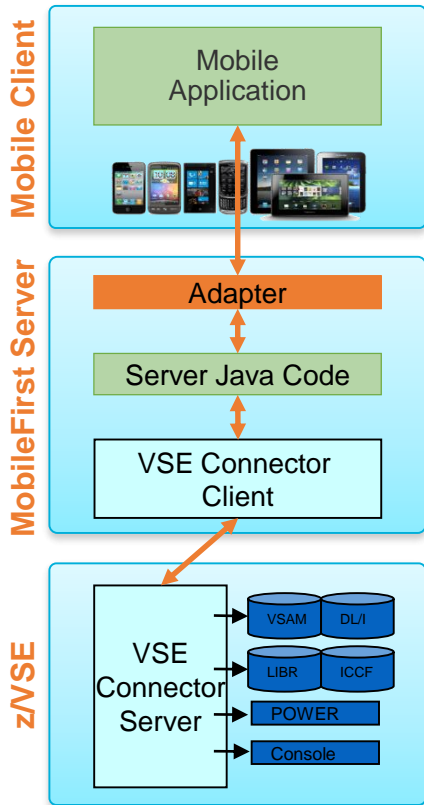
*<connector client folder> → samples → com → ibm
 → vse → samples → VsamDisplayExample.java*

<project> → server → java → new Class → ...

Main java file is called *skvssampJava.java* with the predefined package *com.ibm.zvse.adapter*
*addNewCar(...), changeCar(...), deleteCar(...),
 getInfo()*

Code sample:
<ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/download/skvssampPrj.zip>

z/VS E Connectors: create adapter



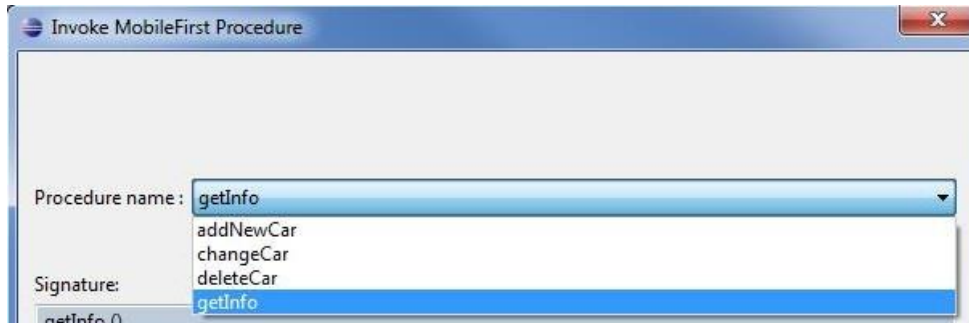
Create a HTTP adapter

- `<your adapter name>.xml` – change connectivity
- `<your adapter name>-impl.js` – change logic

```
function getInfo() {
    var cclInstance = new com.ibm.zvse.adapter.skvssampJava();
    return {
        result: cclInstance.getInfo( )
    };
}
```


z/VSE Connectors: test adapter

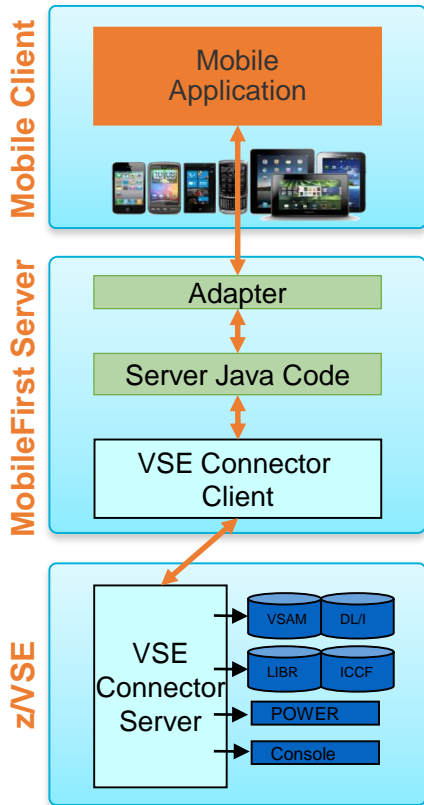
<your adapter name> → Run As → Invoke MobileFirst Procedure



Invocation Result of procedure: 'getInfo' from the MobileFirst Server:

```
{
  "isSuccessful": true,
  "result": "{\list":{{"ARTICLENO":\1,\MANUFACTURER\:"Volkswagen \,\TYPE\:"New Beetle \,\MODEL
\:"Petrol Model \,\HP\:"115,\DISPLACEMENT\:"2000,\CYLINDERS\:"4,\COLOUR\:"Red
\,\FEATURES\:"Sliding Roof \,\PRICE\:"17000\},{"ARTICLENO":\2,\MANUFACTURER\:"Mustang
\:"GT 2 \,\MODEL\:"DR CONV \,\HP\:"250,\DISPLACEMENT\:"4600,\CYLINDERS\:"8,\COLOUR
\:"Black \,\FEATURES\:"Smoker's Package \,\PRICE\:"30190\},{"ARTICLENO":\3,\MANUFACTURER
\:"Ford \,\TYPE\:"Taurus \,\MODEL\:"SE Station Wagon \,\HP\:"200,\DISPLACEMENT
\:"3000,\CYLINDERS\:"6,\COLOUR\:"Blue \,\FEATURES\:"Appearance Package \,\PRICE\:"23280
\},{"ARTICLENO":\4,\MANUFACTURER\:"BMW \,\TYPE\:"compact \,\MODEL\:"316i
\,\HP\:"102,\DISPLACEMENT\:"1600,\CYLINDERS\:"4,\COLOUR\:"VelvetBlue Metallic \,\FEATURES\:"sport
edition \,\PRICE\:"20500\},{"ARTICLENO":\5,\MANUFACTURER\:"Mercedes \,\TYPE\:"E220
\,\MODEL\:"Avantgarde \,\HP\:"160,\DISPLACEMENT\:"2300,\CYLINDERS\:"6,\COLOUR\:"Grey
\,\FEATURES\:"Navigation System \,\PRICE\:"67000\},{"ARTICLENO":\6,\MANUFACTURER\:"Forsche \,\TYPE
\:"Roadster \,\MODEL\:"\ \,\HP\:"220,\DISPLACEMENT\:"2700,\CYLINDERS\:"6,\COLOUR
\:"Silver \,\FEATURES\:"Leather,CD Changer \,\PRICE\:"42300\},{"ARTICLENO":\7,\MANUFACTURER
\:"Ford \,\TYPE\:"Escort \,\MODEL\:"ZX2 2 Door Coupe \,\HP\:"150,\DISPLACEMENT
\:"2000,\CYLINDERS\:"6,\COLOUR\:"White \,\FEATURES\:"Sp.Seats,Zetec Eng. \,\PRICE\:"15715
\},{"ARTICLENO":\8,\MANUFACTURER\:"Volvo \,\TYPE\:"C30 \,\MODEL\:"ycgh
\,\HP\:"125,\DISPLACEMENT\:"1798,\CYLINDERS\:"3,\COLOUR\:"grey \,\FEATURES
\:"sport \,\PRICE\:"10000\},{"ARTICLENO":\9,\MANUFACTURER\:"Volvo \,\TYPE
\:"S60 \,\MODEL\:"sdfsd \,\HP\:"123,\DISPLACEMENT\:"11,\CYLINDERS\:"2,\COLOUR
\:"blau \,\FEATURES\:"nice \,\PRICE\:"5000\}}}
```

z/VSE Connectors: create mobile application



UI : *<your project name>* → apps → *<your app name>* → common → **index.html**

Logic : *<your project name>* → apps →

<your app name> → common → js → **main.js**

```
function getInfo() {
    // call adapter with predefined procedure
    var invocationData = {
        adapter : 'connectorsAdapter',
        procedure : 'getInfo',
        parameters : []
    };
    WL.Client.invokeProcedure(invocationData,{
        onSuccess : showResultSuccess,
        onFailure : showResultFailure
    });
}
```

z/VSE Connectors: create mobile application (cont)

function showResultSuccess(result)

arr = **JSON.parse**(result.invocationResult.result)

arr.list[i]

.MANUFACTURER

.MODEL

etc

Invocation Result of procedure: 'getInfo' from the MobileFirst Server:

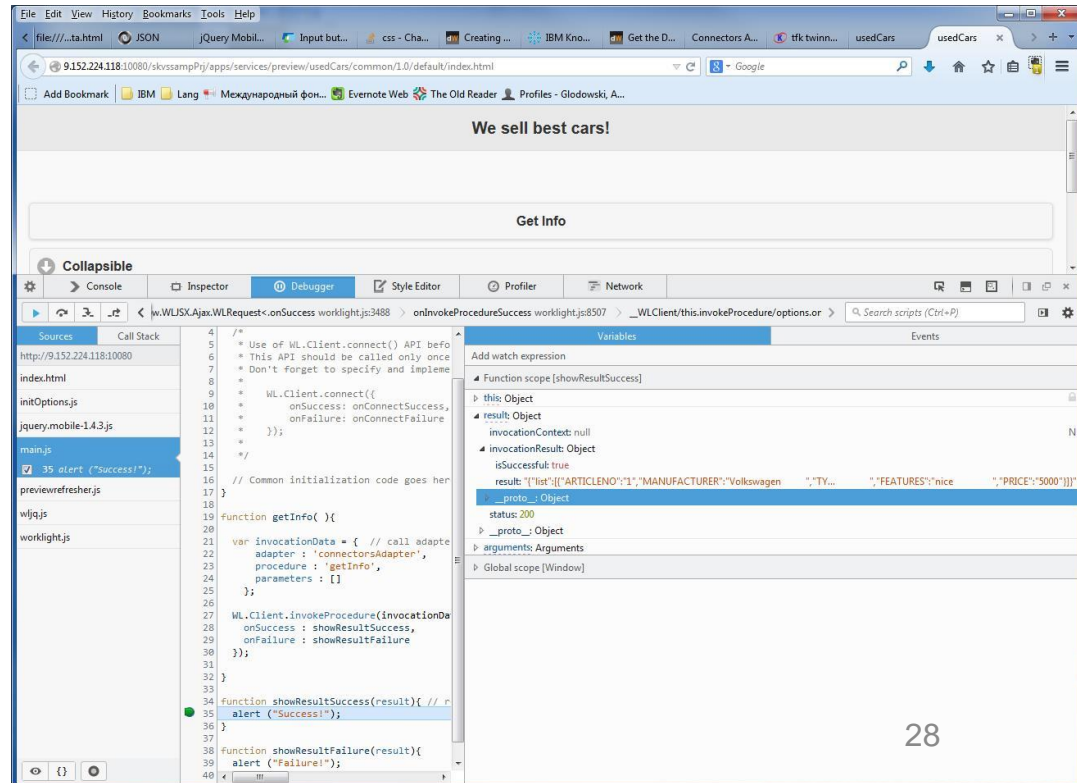
```
{
  "isSuccessful": true,
  "result": "{\"list\": [{\"ARTICLENO\": \"1\", \"MANUFACTURER\": \"Volkswagen\", \"TYPE\": \"New Beetle\", \"MODEL\": \"Petro Model\", \"HP\": \"115\", \"DISPLACEMENT\": \"2000\", \"CYLINDERS\": \"4\", \"COLOUR\": \"Red\", \"FEATURES\": \"Sliding Roof\", \"PRICE\": \"17000\"}, {\"ARTICLENO\": \"2\", \"MANUFACTURER\": \"Mustang\", \"TYPE\": \"GT 2\", \"MODEL\": \"DR CONV\", \"HP\": \"250\", \"DISPLACEMENT\": \"4600\", \"CYLINDERS\": \"8\", \"COLOUR\": \"Black\", \"FEATURES\": \"Smoker's Package\", \"PRICE\": \"30190\"}, {\"ARTICLENO\": \"3\", \"MANUFACTURER\": \"Ford\", \"TYPE\": \"Taurus\", \"MODEL\": \"SE Station Wagon\", \"HP\": \"200\", \"DISPLACEMENT\": \"3000\", \"CYLINDERS\": \"6\", \"COLOUR\": \"Blue\", \"FEATURES\": \"Appearance Package\", \"PRICE\": \"23280\"}, {\"ARTICLENO\": \"4\", \"MANUFACTURER\": \"BMW\", \"TYPE\": \"compact\", \"MODEL\": \"316i\", \"HP\": \"102\", \"DISPLACEMENT\": \"1600\", \"CYLINDERS\": \"4\", \"COLOUR\": \"VelvetBlue Metallic\", \"FEATURES\": \"sport edition\", \"PRICE\": \"20500\"}, {\"ARTICLENO\": \"5\", \"MANUFACTURER\": \"Mercedes\", \"TYPE\": \"E220\", \"MODEL\": \"Avantgarde\", \"HP\": \"160\", \"DISPLACEMENT\": \"2300\", \"CYLINDERS\": \"6\", \"COLOUR\": \"Grey\", \"FEATURES\": \"Navigation System\", \"PRICE\": \"67000\"}, {\"ARTICLENO\": \"6\", \"MANUFACTURER\": \"Porsche\", \"TYPE\": \"Roadster\", \"MODEL\": \"\", \"HP\": \"220\", \"DISPLACEMENT\": \"2700\", \"CYLINDERS\": \"6\", \"COLOUR\": \"Silver\", \"FEATURES\": \"Leather, CD Changer\", \"PRICE\": \"42300\"}, {\"ARTICLENO\": \"7\", \"MANUFACTURER\": \"Ford\", \"TYPE\": \"Escort\", \"MODEL\": \"ZX2 2 Door Coupe\", \"HP\": \"150\", \"DISPLACEMENT\": \"2000\", \"CYLINDERS\": \"6\", \"COLOUR\": \"White\", \"FEATURES\": \"Sp.Seats, Zetec Eng.\", \"PRICE\": \"15715\"}, {\"ARTICLENO\": \"8\", \"MANUFACTURER\": \"Volvo\", \"TYPE\": \"C30\", \"MODEL\": \"vcgh\", \"HP\": \"125\", \"DISPLACEMENT\": \"1798\", \"CYLINDERS\": \"3\", \"COLOUR\": \"grey\", \"FEATURES\": \"sport\", \"PRICE\": \"10000\"}, {\"ARTICLENO\": \"9\", \"MANUFACTURER\": \"Volvo\", \"TYPE\": \"S60\", \"MODEL\": \"sdfsdf\", \"HP\": \"123\", \"DISPLACEMENT\": \"1\", \"CYLINDERS\": \"2\", \"COLOUR\": \"blau\", \"FEATURES\": \"nice\", \"PRICE\": \"5000\"}]}\"}
```

z/VSE Connectors: test and debug

<your mobile app name> → Run As →

Run on MobileFirst Development Server

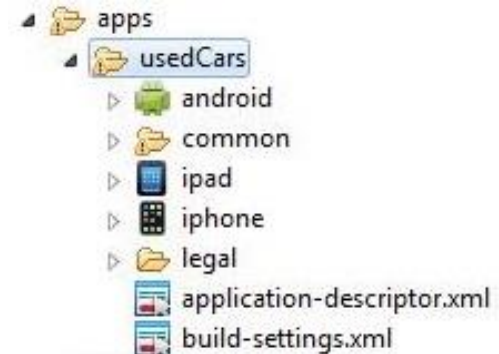
<your mobile app name> → Run As → Preview



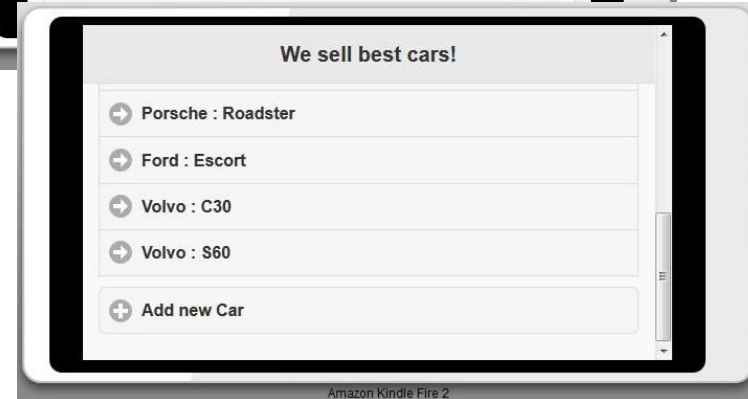
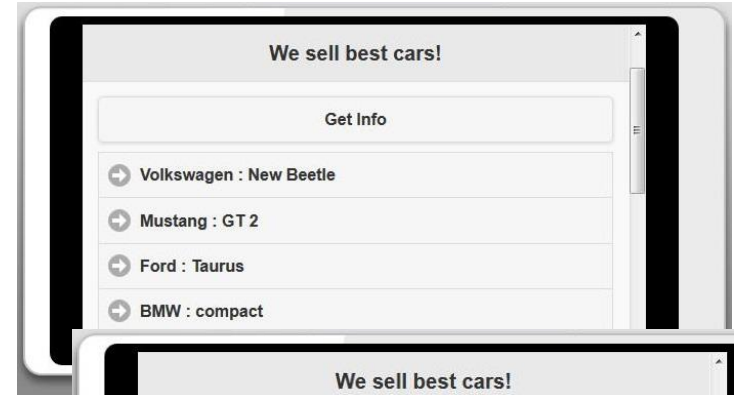
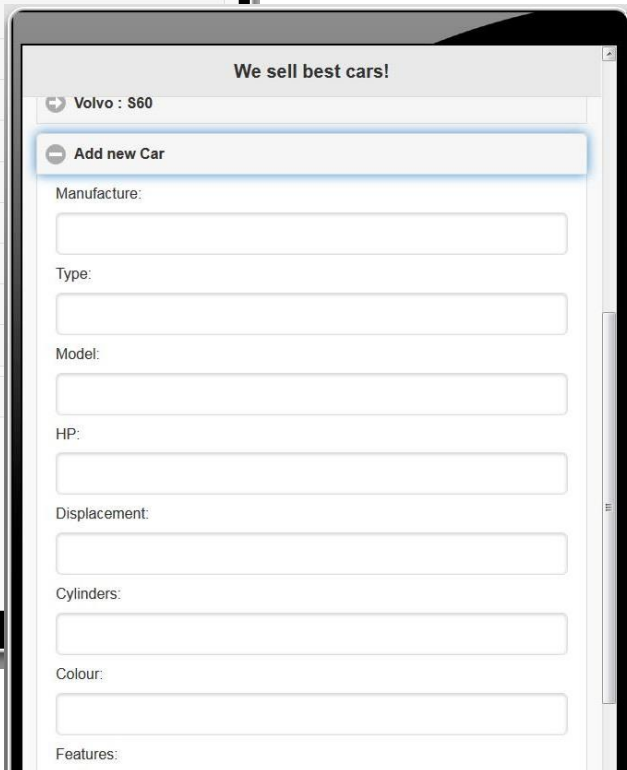
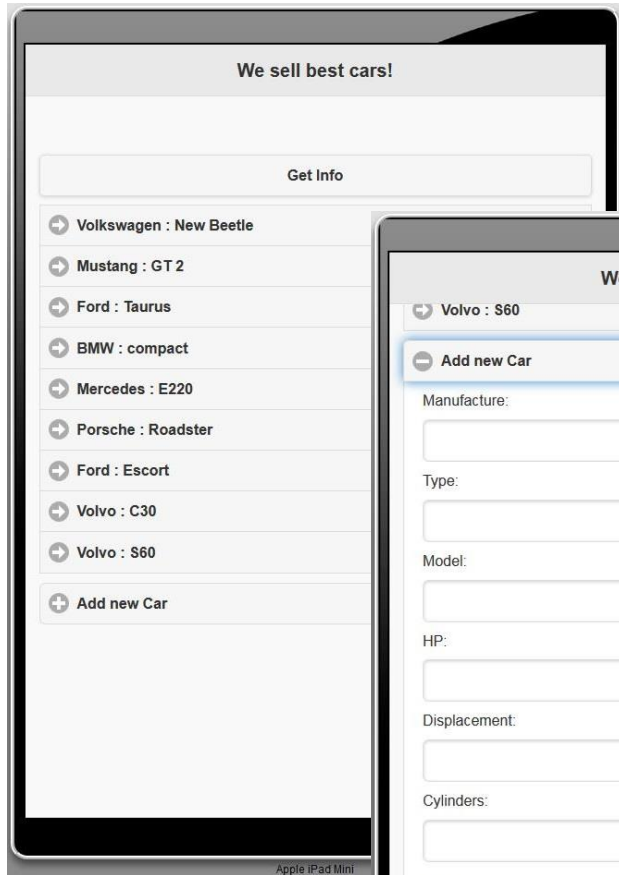
The screenshot shows a web browser window displaying a mobile application interface. The page content includes the heading "We sell best cars!" and a button labeled "Get Info". Below the browser window, the developer tools are open, showing the "Debugger" tab. The "Sources" pane on the left lists files like "index.html", "initOptions.js", "jquery.mobile-1.4.3.js", "main.js", "previewrefresher.js", "wjq.js", and "worklight.js". The "main.js" file is selected, and a breakpoint is set at line 35, which has been hit. The "Console" pane shows the message "Success!". The "Variables" pane on the right shows the state of the application, including a "result" object with properties like "ARTICLENO", "MANUFACTURER", "TY...", "FEATURES", and "PRICE".

Add MobileFirst environment

<your mobile app name> → New → MobileFirst Environment



Running app in MobileFirst Environments



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System z in a Mobile World

An IBM Redbooks® Point-of-View publication by the IBM Client Center, Montpellier

By Nigel Williams, Certified IT Specialist, and **Frank van der Wal**, Certified IT Specialist

Highlights

- ▶ The speed of adoption of mobile devices is significantly faster than previous technology adoptions, including TV, radio, and the internet.
- ▶ Today, mobile transactions are part of everyday life for anyone who uses a mobile banking app, for supply chain managers optimizing responsiveness to sales orders, or for hospital staff collaborating on patient care.
- ▶ Extending existing enterprise applications onto a mobile platform allows you to capitalize on existing investments without the need to develop completely new solutions to support mobile services.
- ▶ Nearly 70% of all enterprise transactions touch a mainframe.
- ▶ System z plays an important role in today's mobile world by providing the secure and stable base that you need to extend existing enterprise data and transactions to mobile users.

Mobile from an enterprise perspective

As organizations engage with customers, partners, and employees who are increasingly using mobile as their primary general-purpose computing platform, these organizations have tremendous opportunity to transact—everything from exchanging information to exchanging goods and services, from employee self-service to customer service. This mobile engagement allows you to build new insight into your customer's behavior so that you can anticipate their needs and gain a competitive advantage by offering new services.

Becoming a mobile enterprise is about re-imagining your business around constantly connected customers and employees. The speed of mobile adoption dictates transformational innovation rather than incremental innovation. Mobile really is a "disrupt or be disrupted" technology.

This brings some specific challenges:

- ▶ Reacting to a new set of user expectations about the way they interact with your company
- ▶ Delivering high-quality mobile applications quickly and efficiently
- ▶ Coping with sudden unexpected increases in mobile-initiated transactions, for example when a new sales offer becomes available
- ▶ Managing a wide range of different devices and adapting the existing enterprise security framework to the unique security challenges of a mobile environment

Business benefits of mobility

Mobile solutions are pushing companies to rethink the user experience, from the presentation of data to the interaction patterns that are required to integrate new and existing business services. This change in the way that you interact with customers can improve service and enable new business opportunities.

Figure 1 on page 2 shows how mobile enablement can be used to improve customer service in banking. It shows the following scenarios:

1. When a large or unusual payment is captured, the client is asked to authorize the transaction using a mobile device (for example, by using a biometric authentication). This type of solution improves fraud detection and, therefore, potentially saves the bank money.
2. If the client's credit card is not returned by an ATM, a message can be sent informing the client of the location of the nearest branch. This solution limits the risk of customer dissatisfaction.

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Resources

- MobileFirst Foundation <http://www-03.ibm.com/software/products/en/mobilefirstfoundation>
- MobileFirst Platform <https://developer.ibm.com/mobilefirstplatform/>
- z/VSE Connectors Tools <http://www-03.ibm.com/systems/z/os/zvse/downloads/index.html>
- How to use Web Services with z/VSE
<ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/pdf3/HowToUseWebServicesWithzVSE.pdf>
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<ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/download/GettingStartedWithMobileDevelopmentForVSE.pdf>
- Samples source code <ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/download/skvssampPrj.zip>
- IBM white paper: An overview of IBM MobileFirst Platform
<http://public.dhe.ibm.com/common/ssi/ecm/en/wsw14181usen/WSW14181USEN.PDF>
- IBM white paper: Native, web or hybrid mobile-app development <ftp://public.dhe.ibm.com/software/pdf/mobile-enterprise/WSW14182USEN.pdf>
- IBM MobileFirst Strategy Software Approach <http://www.redbooks.ibm.com/redbooks/pdfs/sg248191.pdf>
- User interface design for the mobile web <http://www.ibm.com/developerworks/web/library/wa-interface/index.html>

Thank You

Questions



Please forward your questions or remarks to
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