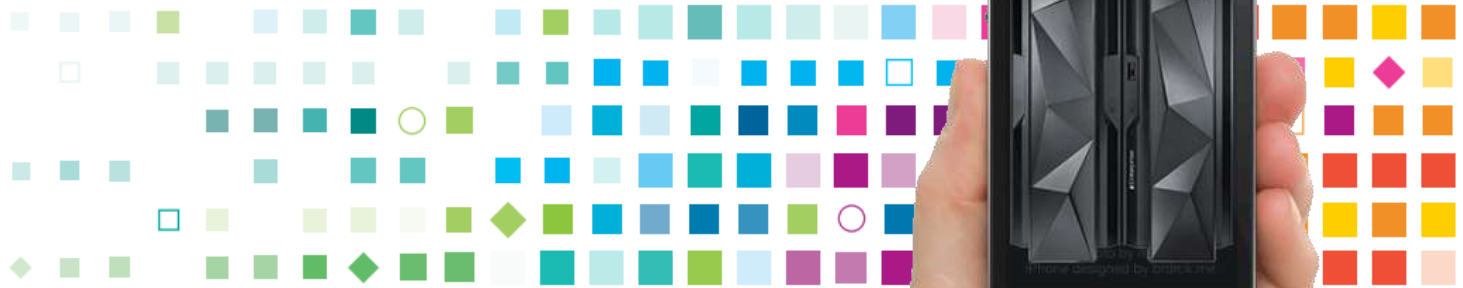


Mobile Anwendungs Transformation für z/VSE



Wilhelm Mild
Executive IT Architect
wilhelm.mild@de.ibm.com

Prognose für das Bezahlen Morgen

Das bleibt...



Bargeld und klassische Nutzung von Kredit- und Debitkarten

Aktuelle Neuerungen...



Kontaktloses Bezahlen am Terminal mit Karte und Handy, Nutzung QR-Codes

Was kommt noch?



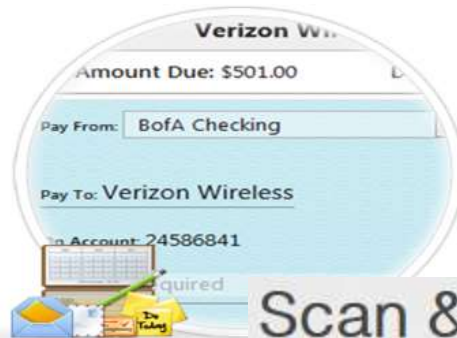
Andere Geräte: Uhren, Brillen,...?

Next Generation Bill Pay

For Private Banks & Trusts

Purpose built bill pay solutions.

Balance gives you the ability to connect with any US based checking account to pay any US bill. With Balance, you can scan and upload bills and set different payment rules and requirements related to payments. Provide access to multiple parties to make payments, approve bills and view documents.



Scan & Pay

It can be a hassle to pay bills online, when you need to type in various payment details on your smartphone. Why not just scan the bill with your built-in camera on your mobile phone and pay, when you want?

Photo Bill Pay & File

With the Balance iPhone app, client payments and file documents. They service professional such as a trust account. Use the photo bill pay photo organized and help clients better manage



An easy and well-proven solution

Trifork Scan & Pay is an intuitive solution which easily fits into your current mobile banking application or can be implemented as a feature into a new mobile banking solution. It's a well-

What about the mainframe?

The mainframe...

- Home to business critical applications and data
- How do we bridge the gap?



System z - Bridge Systems of Record and Systems of Engagement

Systems of Engagement

Systems of Engagement are cloud-based, decentralized, support rapid app development



Linux on z

z/OS,
z/VSE, zTPF



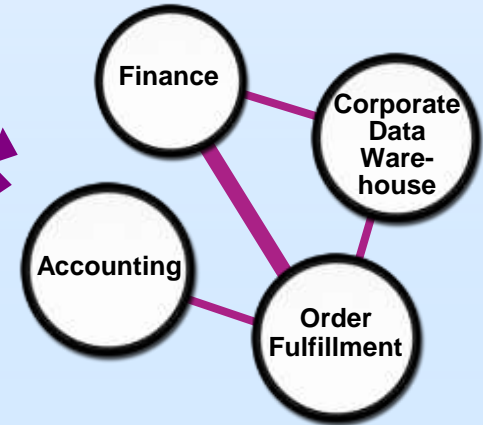
Existing Web Apps



Mobile Apps

Systems of Record

Systems of Record are well integrated, trusted repositories

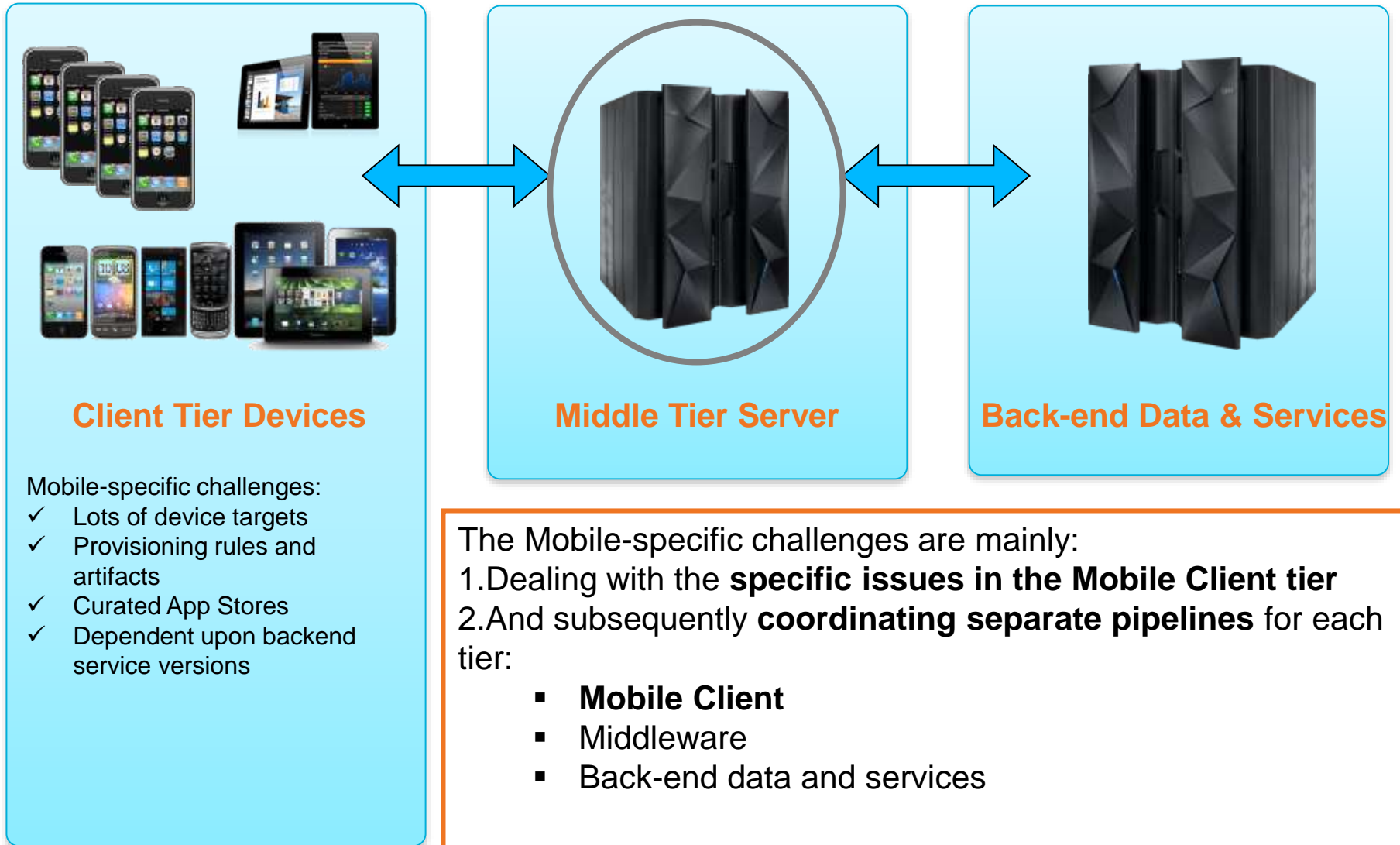


IBM positioning to solve the Mobilizing challenges

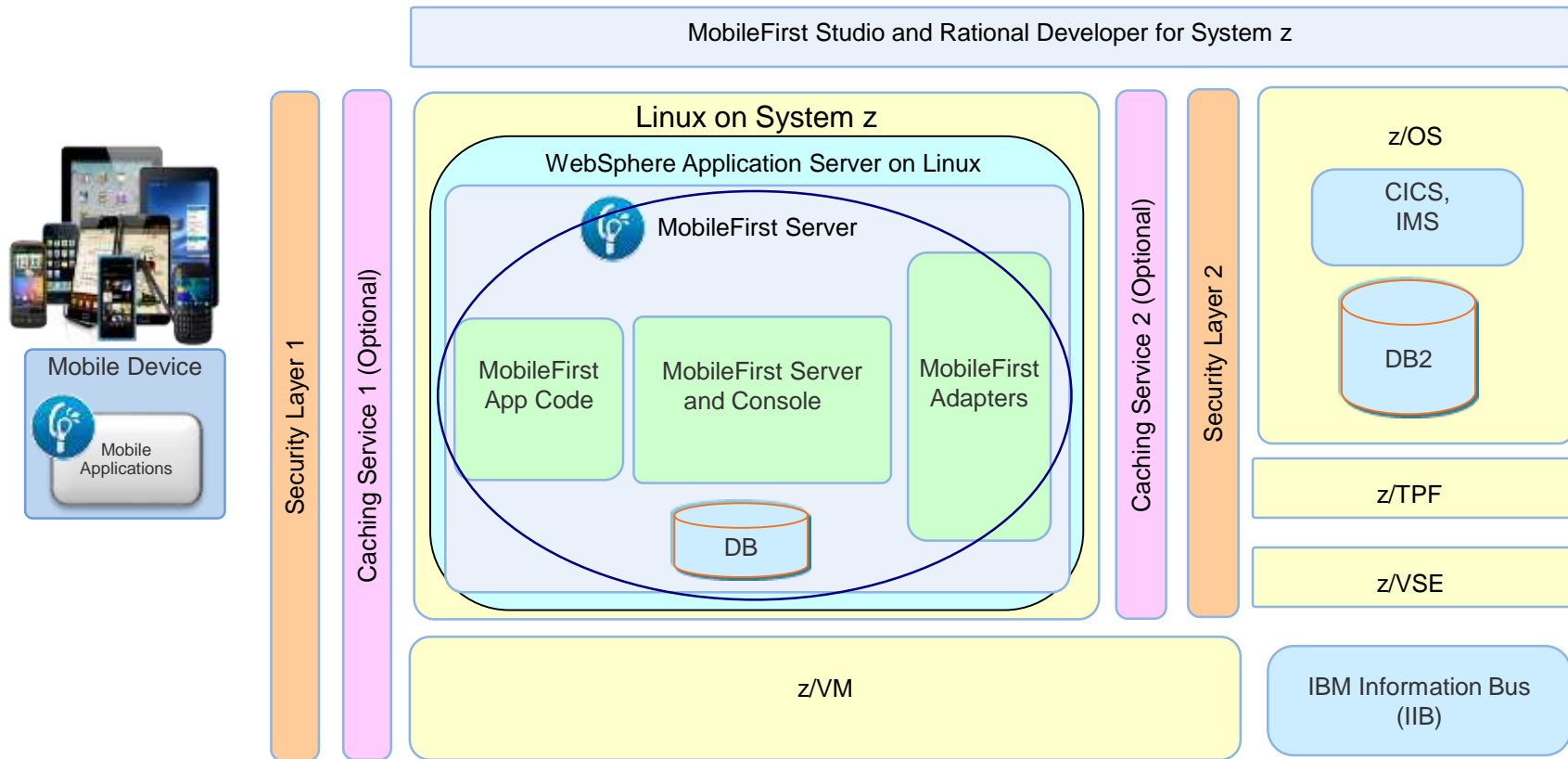
MobileFirst Platform – An Enterprise Blueprint



Multi-tier Mobile Apps - Specific Challenges



Mobile Architecture Overview for System z



MobileFirst overview



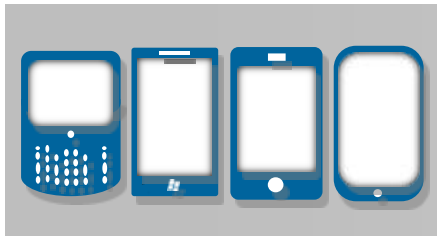
MobileFirst Studio

The most complete, extensible environment with maximum code reuse and per-device optimization



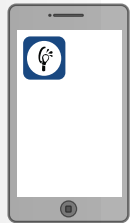
MobileFirst Server

Unified notifications, runtime skins, version management, security, integration and delivery



MobileFirst Runtime Components

Extensive libraries and client APIs that expose and interface with native device functionality

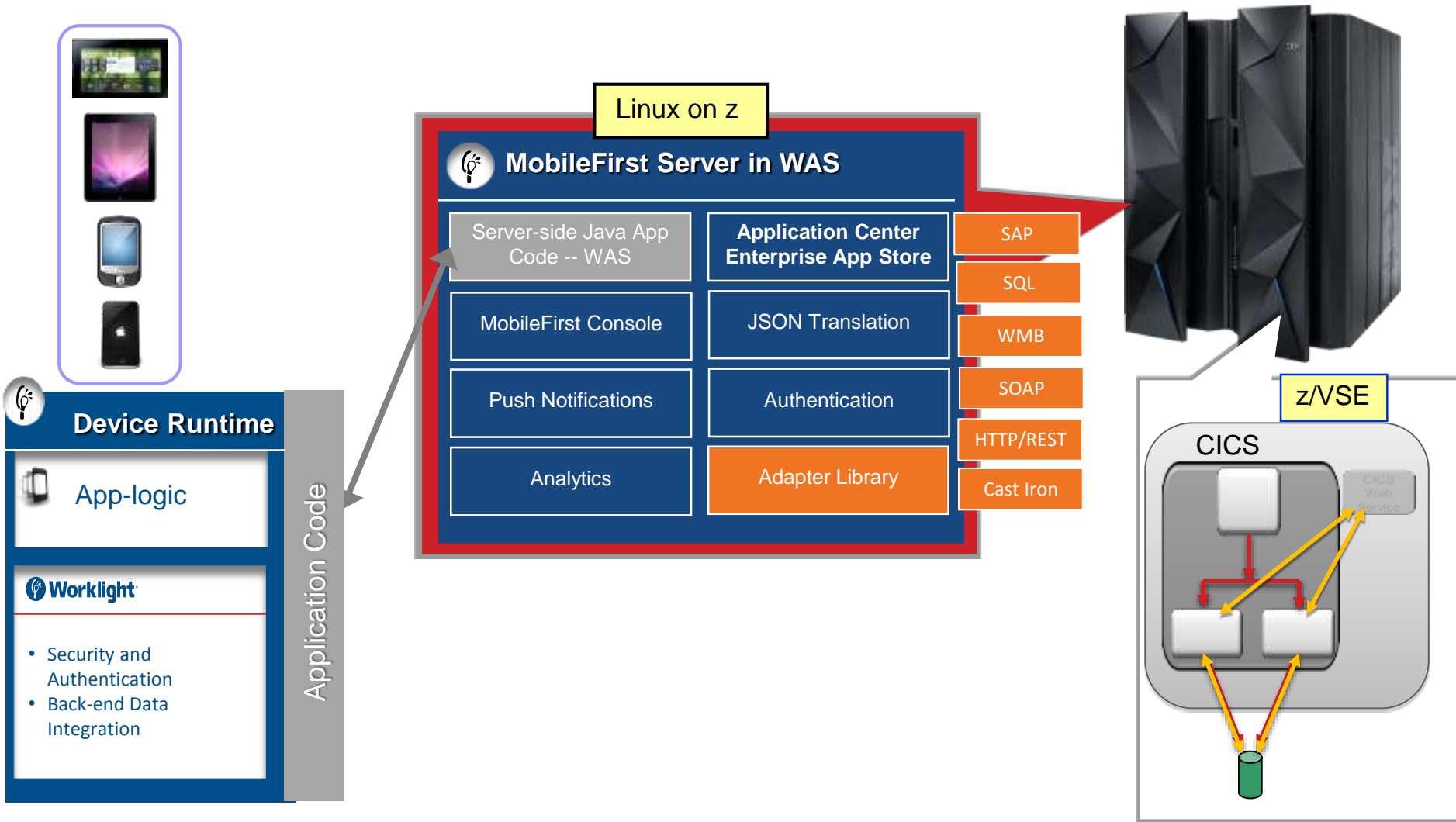


MobileFirst Console

A web-based console for real-time analytics and control of your mobile apps and infrastructure

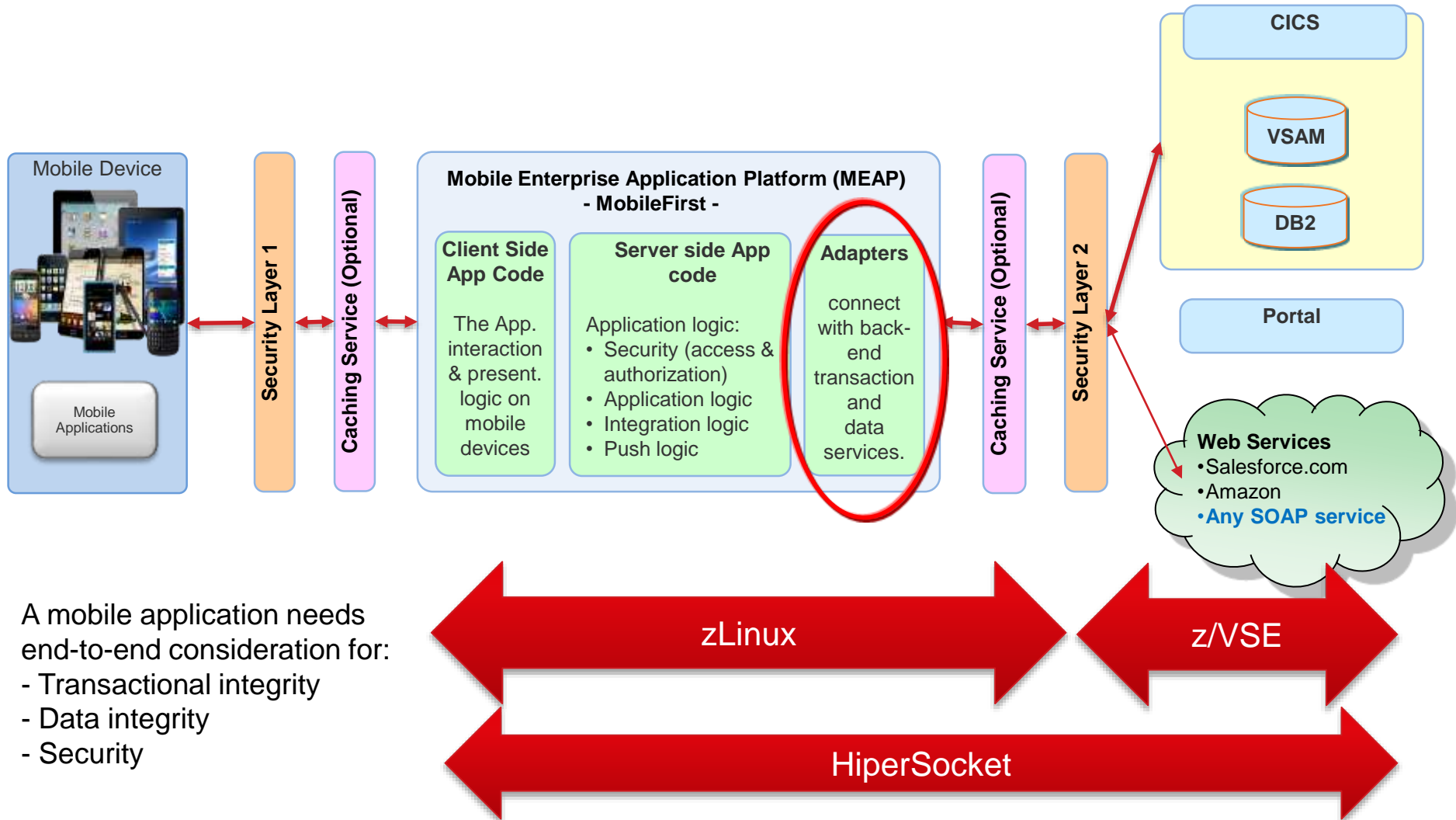


IBM MobileFirst Server



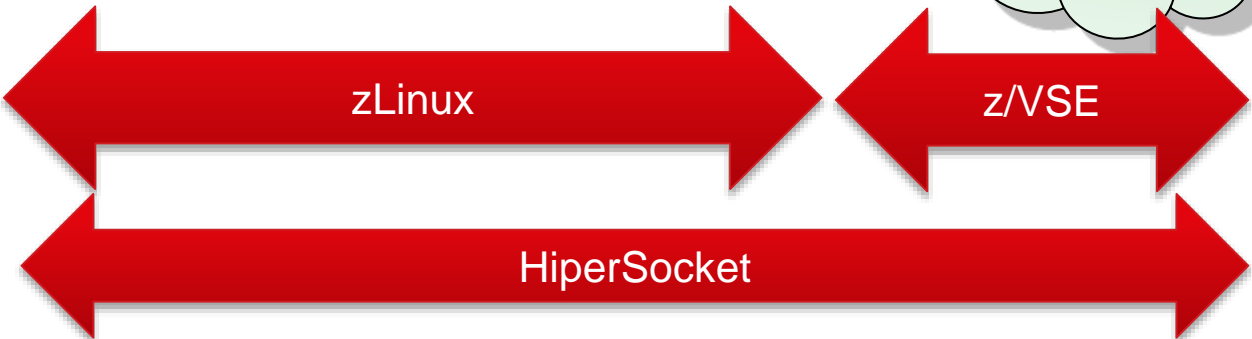
MobileFirst Video: http://www.youtube.com/watch?feature=player_embedded&v=zHnFw70XXo

Mobile application overview diagram



A mobile application needs end-to-end consideration for:

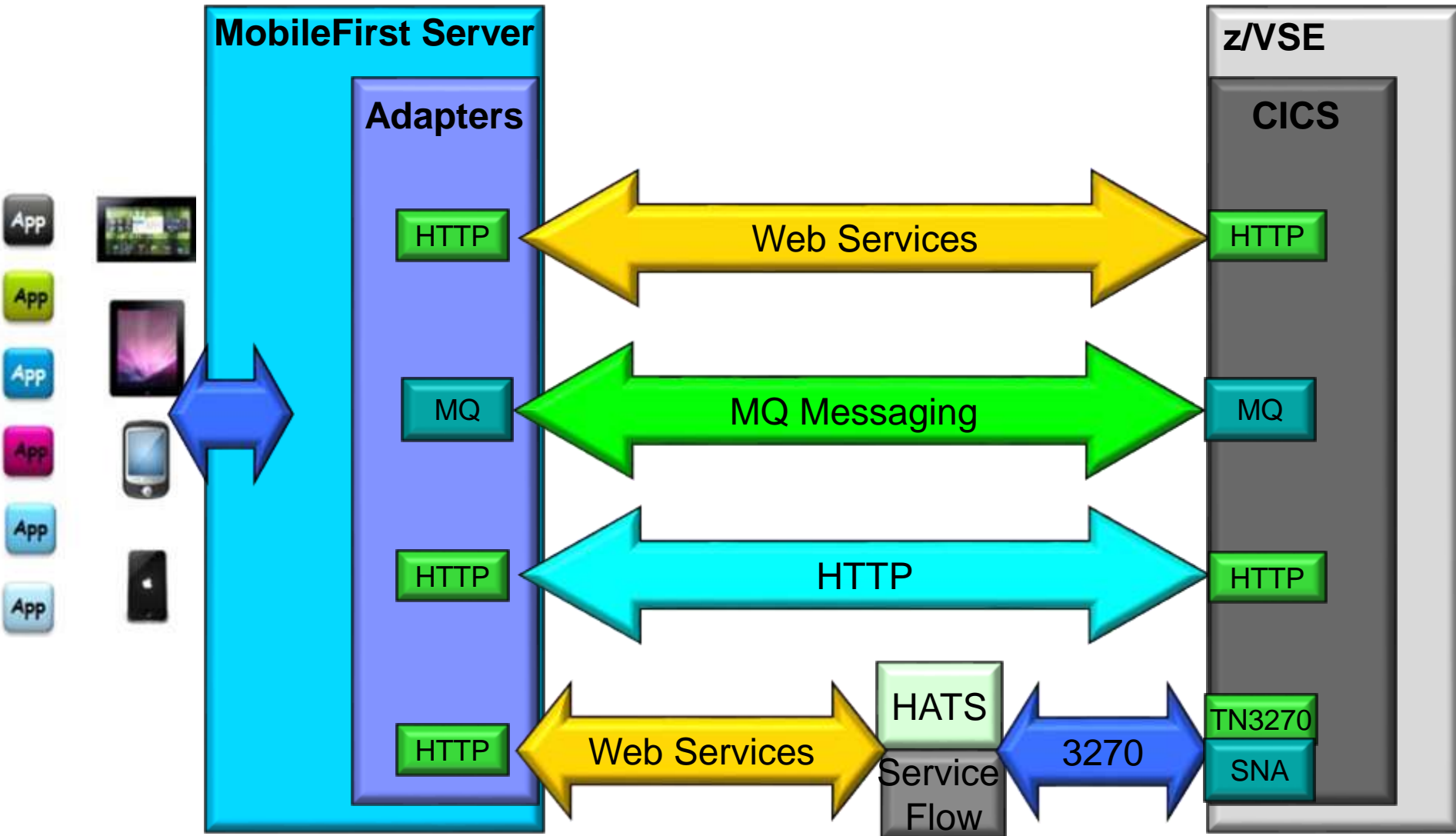
- Transactional integrity
- Data integrity
- Security



Mobile application integration is realized with MobileFirst Adapters



CICS Connectivity Options with MobileFirst

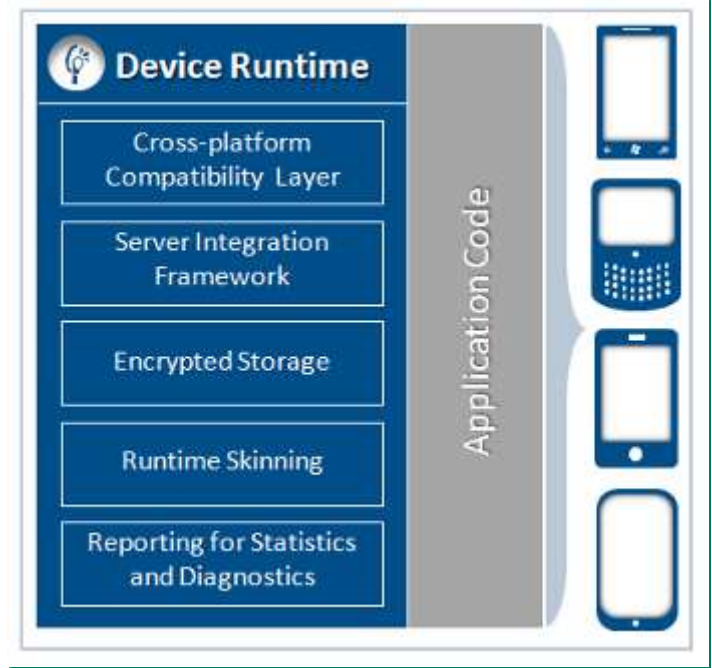


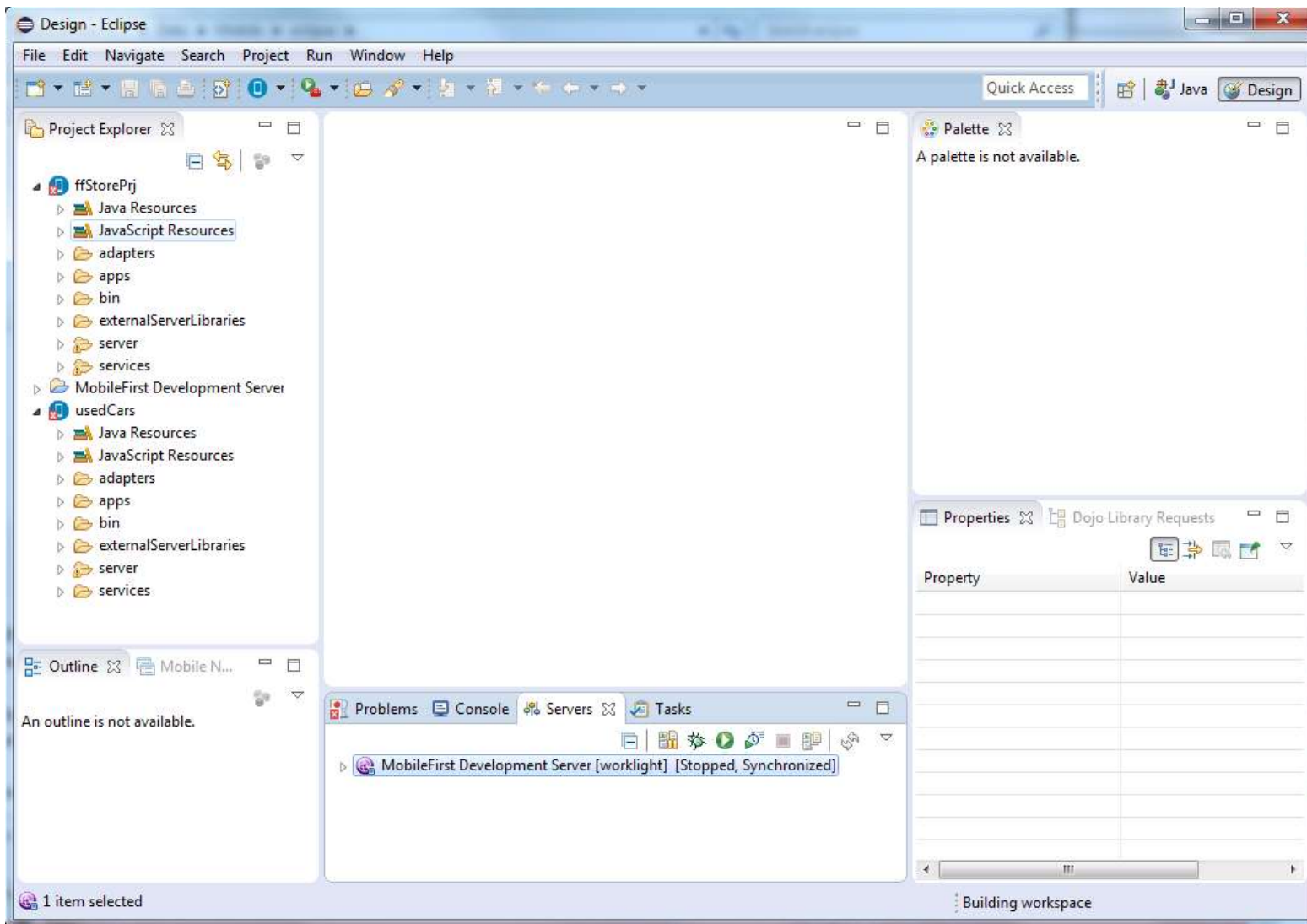


IBM MobileFirst Studio & Device Runtime



Eclipse based mobile **Integrated Development Environment (IDE)**







RDz with MobileFirst Studio a complete set of System z and Mobile Development capabilities (z/VSE Plug-In required)

Integration with Team Concert for Lifecycle and Source Management



Access to typical System z sub-system functionality in, CICS, IMS, DB2, WAS



- Built on Eclipse
- Common tool set for end to end development
- Build, preview, and deploy within the IDE
- Mobile simulator (for unit test)
- End-to-end debug
- Integrate with third-party SDKs (e.g. Android Development Tools)



Robust Mobile Development in conjunction with MobileFirst



Integration with Fault Analyzer for Dump Analysis

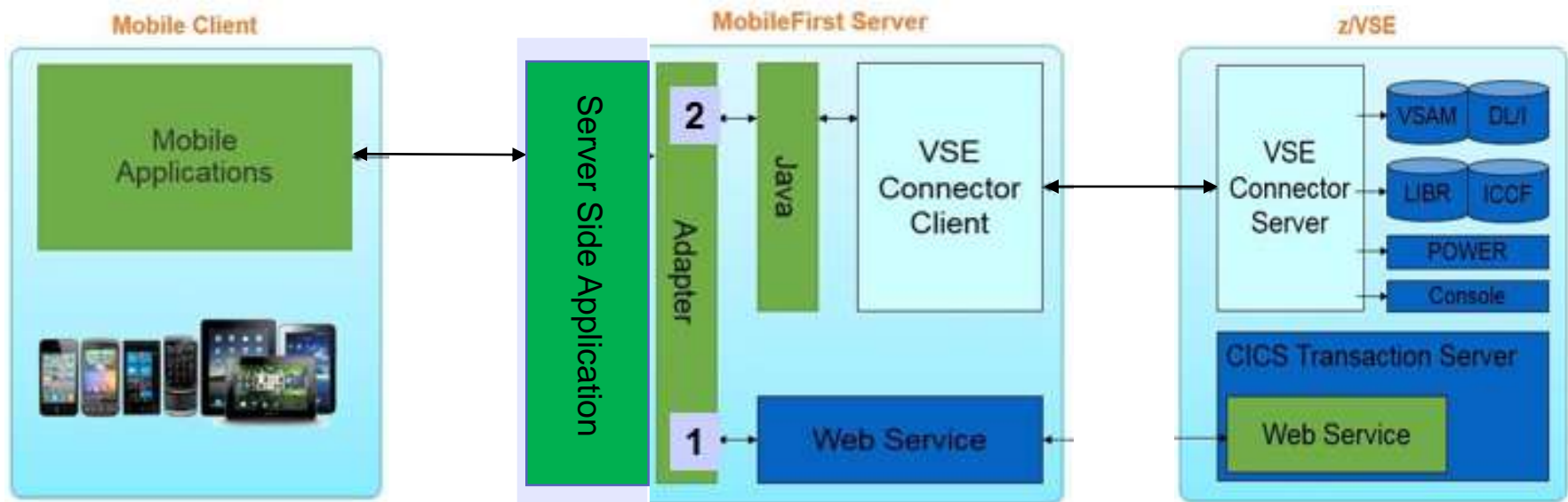


Integration with Asset Analyzer for Application Understanding and Impact Analysis





z/VSE and MobileFirst

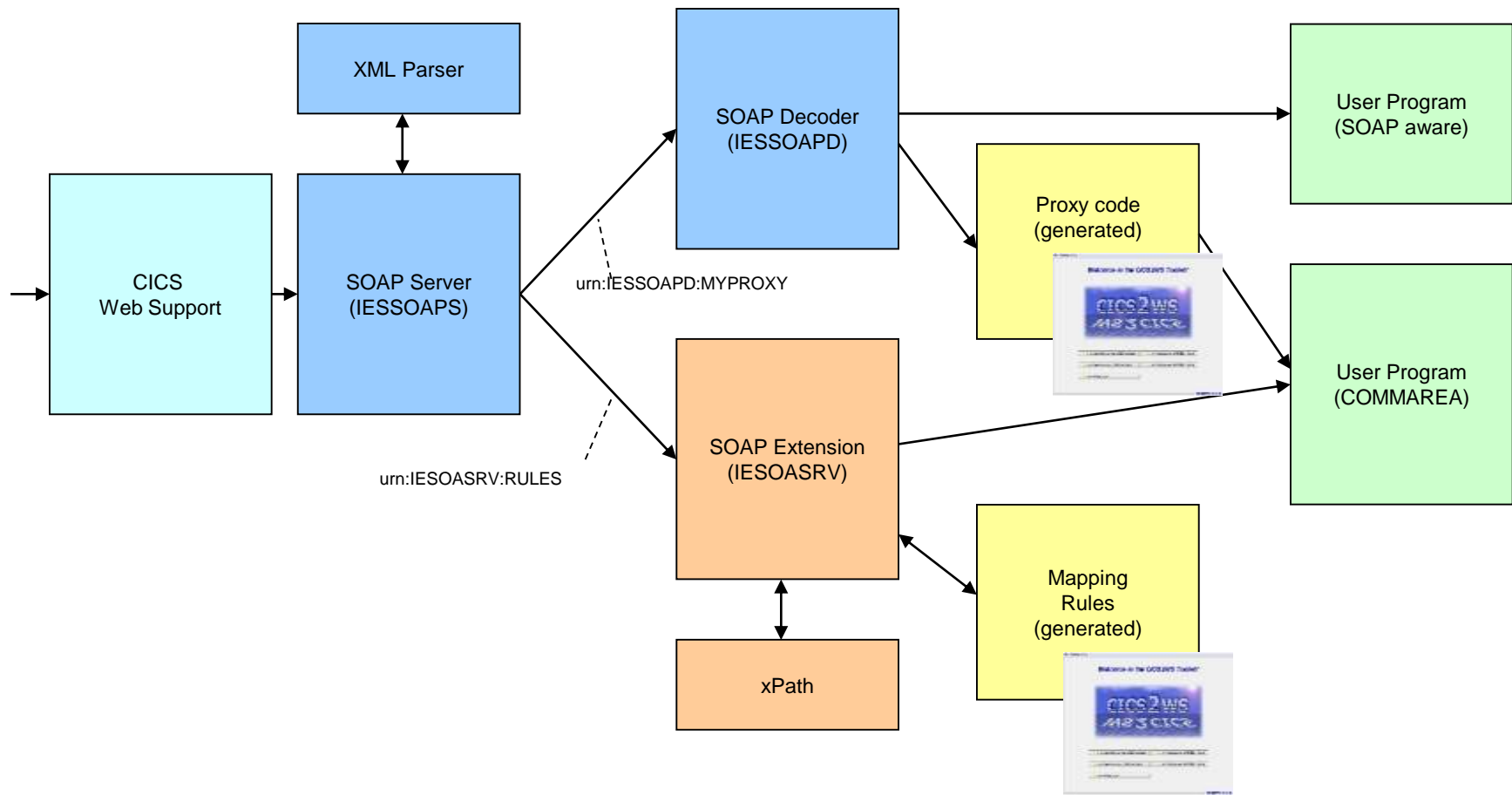


To start mobile development with z/VSE, you need to have the following applications:

- 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)



1) Web Services in z/VSE



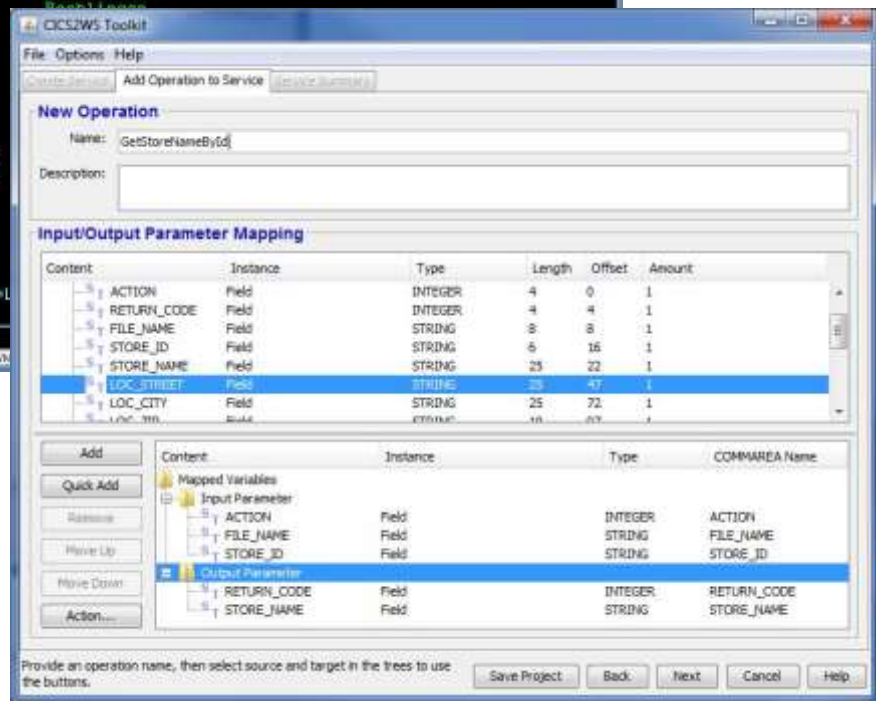
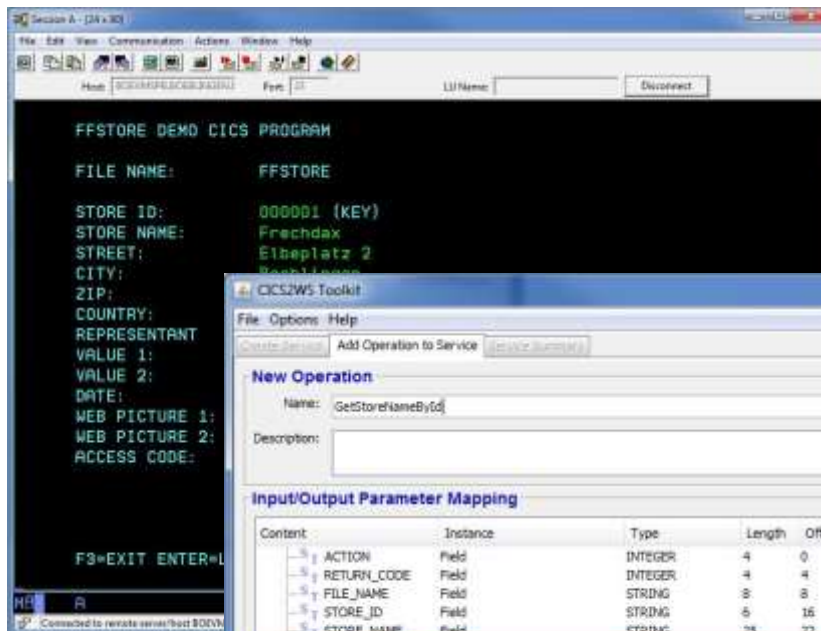


Existing z/VSE application

```

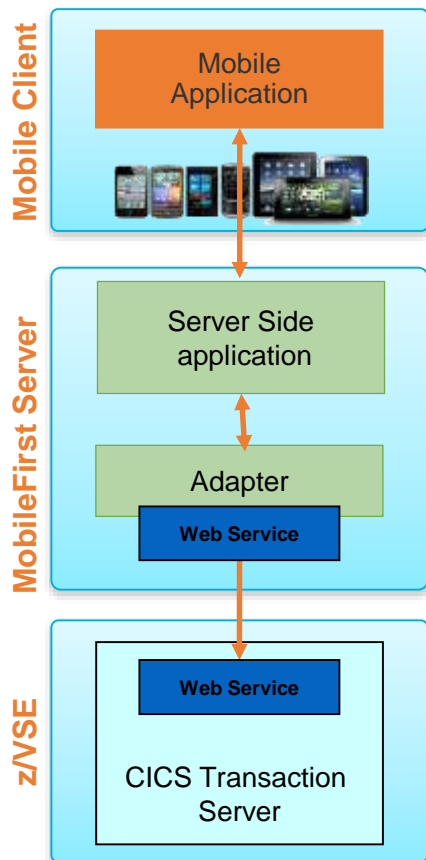
03 FSTIO-MAP.
05 ACTION          PIC 9(8) COMP.
05 RETURN-CODE     PIC 9(8) COMP.
05 FILE-NAME       PIC X(8) .
05 STORE-ID        PIC X(6) .
05 STORE-NAME      PIC X(25) .
05 LOC-STREET      PIC X(25) .
05 LOC-CITY        PIC X(25) .
05 LOC-ZIP         PIC X(10) .
05 LOC-COUNTRY     PIC X(25) .
05 LOC-REP         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) .

```



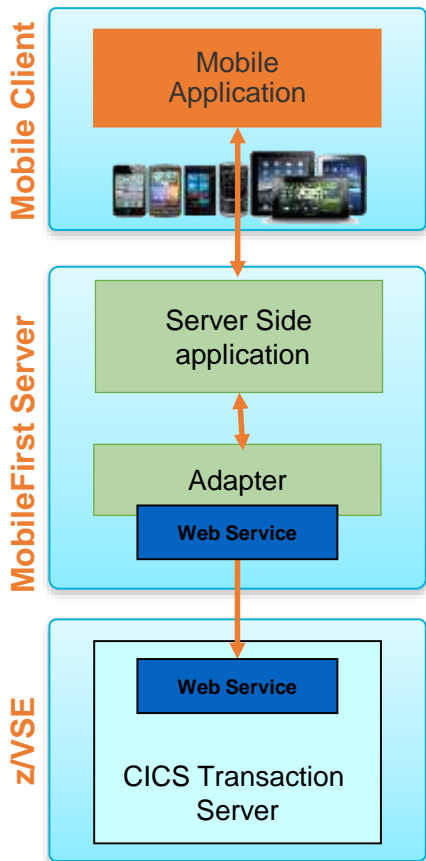


Web Services for mobile





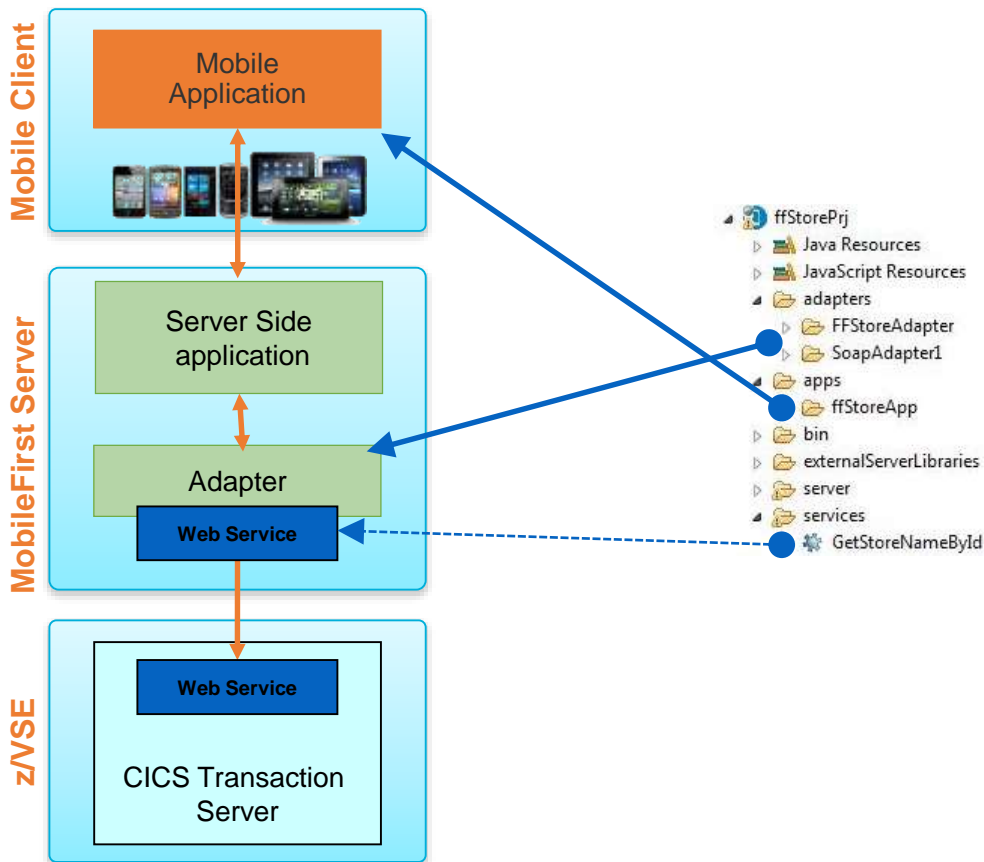
Web Services for mobile



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



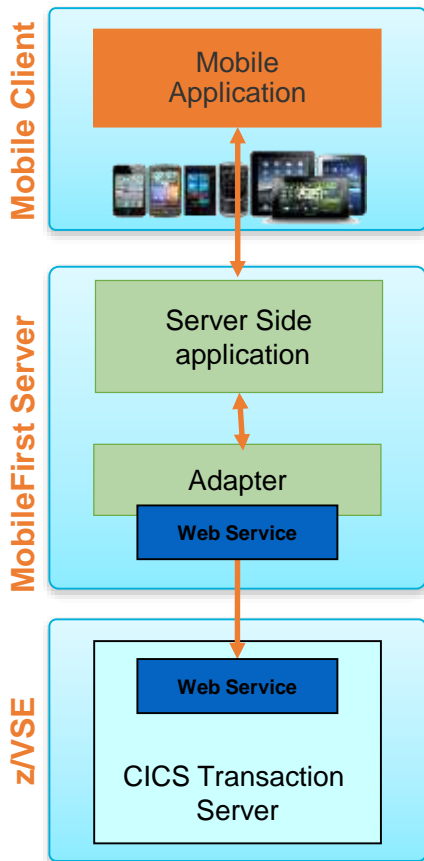
Web Services for mobile



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



Web Services: create adapter



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

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

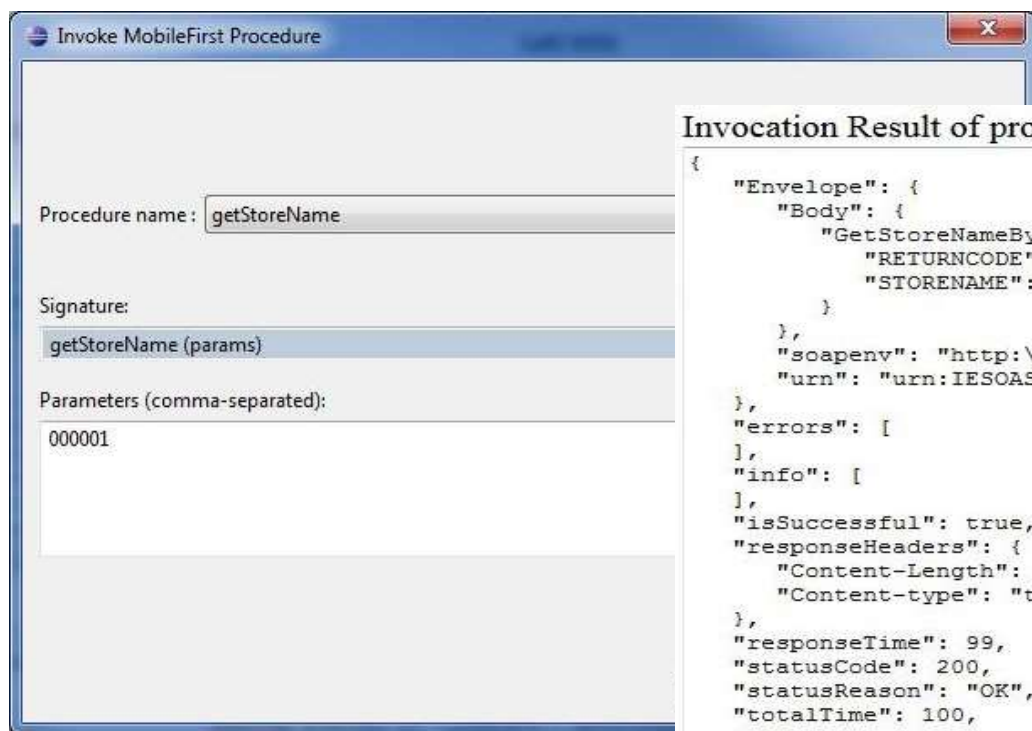
MobileFirst will automatically create a simple adapter for you. You need to change files:

- *<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

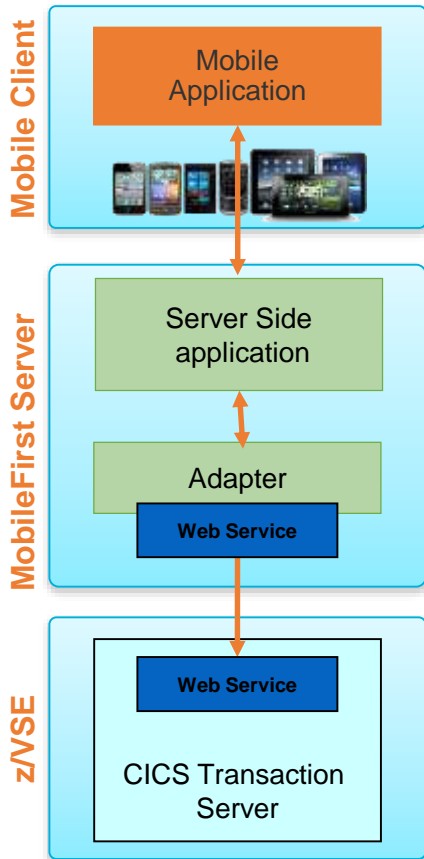


Invocation Result of procedure: 'getStoreName' from the MobileFirst Server:

```
{
  "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

The screenshot shows the FFStore App interface with a text input field containing '1' and a 'Get Store Name' button. Below the input is a 'Result' label. The browser's developer tools are open, showing the 'Debugger' tab with a JavaScript function `getStoreNameById()` selected. The code includes comments and logic for calling an adapter and displaying the result.

```
16 // Common initialization code goes here
17
18 }
19
20 function getStoreNameById( )
21
22 // Get input parameters
23 var storeId = document.getElementById('storeId').value;
24
25 // Define adapter data
26 var invocationData = {
27   adapter : 'FFStoreAdapter',
28   procedure : 'getStoreName',
29   parameters : [storeId]
30 };
31
32 // Call adapter and show results
33 WsClient.invokeProcedure(invocationData, {
34   onSuccess : showResultSuccess,
35   onFailure : showResultFailure
36 });
37
38 // Successful connection, not necessarily successful result
39 function showResultSuccess(result){
40   alert("Connection was successful");
41 }
42 }
```

The screenshot shows the FFStore App interface with a text input field containing '1' and a 'Get Store Name' button. Below the input is a 'Result' label displaying 'Frechdax'.



2) z/VSE Connectors for Mobile

Skeleton in lib 59: SKVSSAMP

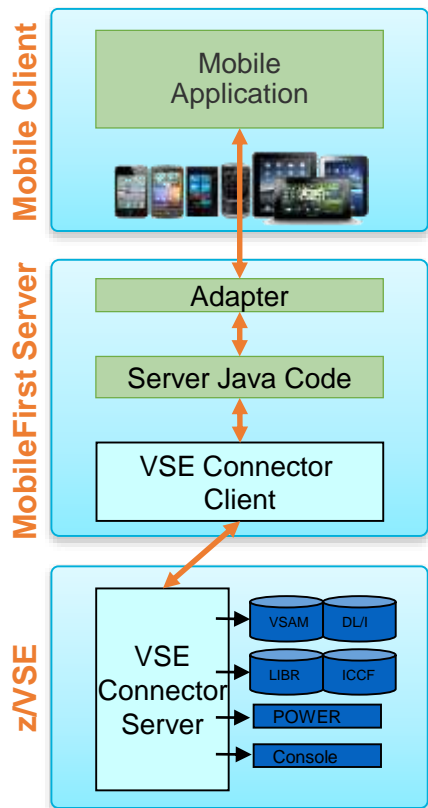
Export of a VSAM data in HTML format

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

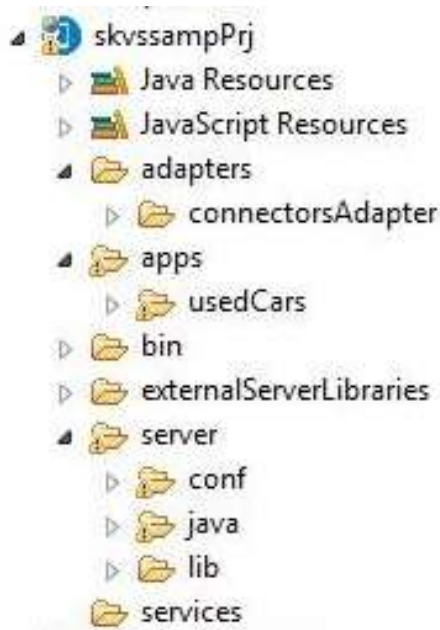
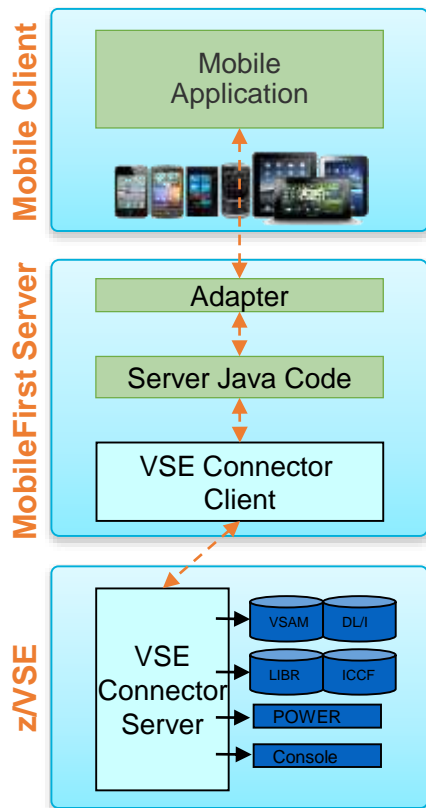


Using Java in MobileFirst adapters





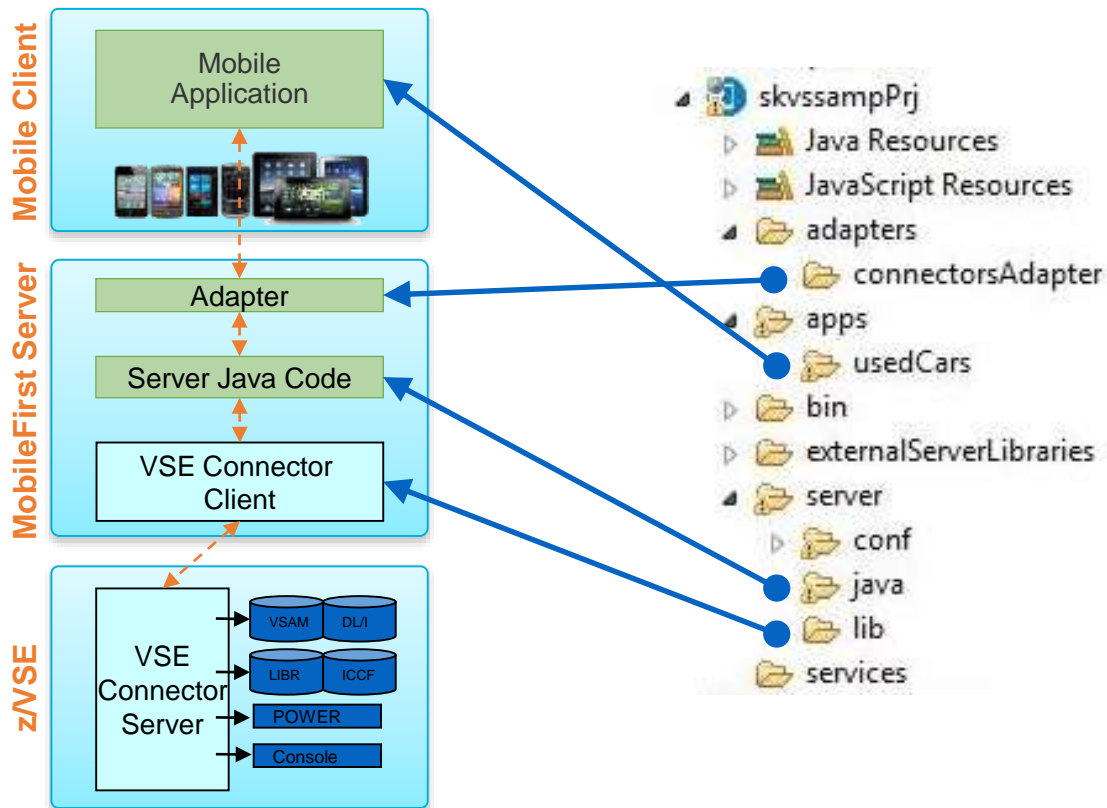
Using Java in MobileFirst adapters



1. Create a project
2. Add *VSEConnector.jar*, *cci.jar*, *ibmjssse.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`



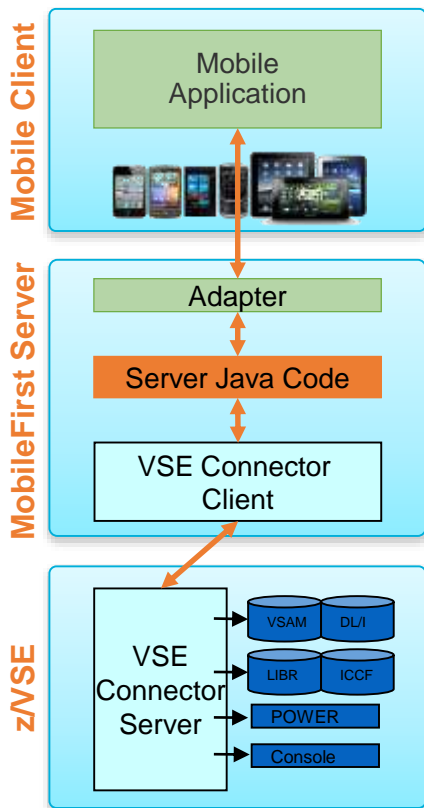
Using Java in MobileFirst adapters



1. Create a project
2. Add *VSEConnector.jar*, *cci.jar*, *ibmjssse.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/VSE 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`

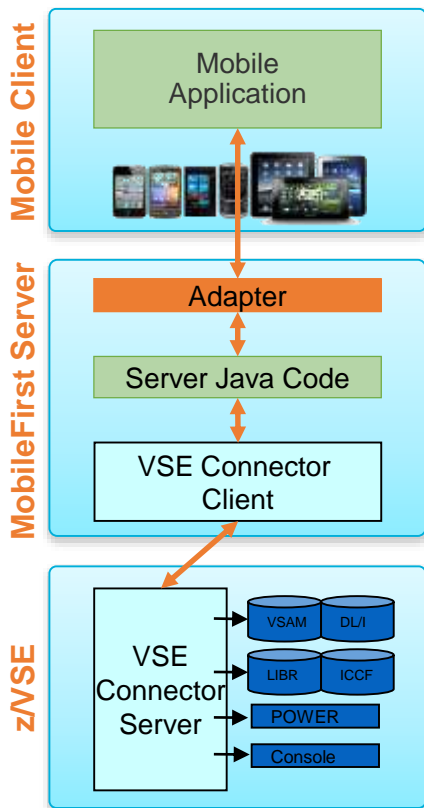
`addNewCar(...), changeCar(...), deleteCar(...), getInfo()`

Code sample:

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



z/VSE 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

Invoke MobileFirst Procedure

Procedure name: **getInfo**

Signature: **getInfo ()**

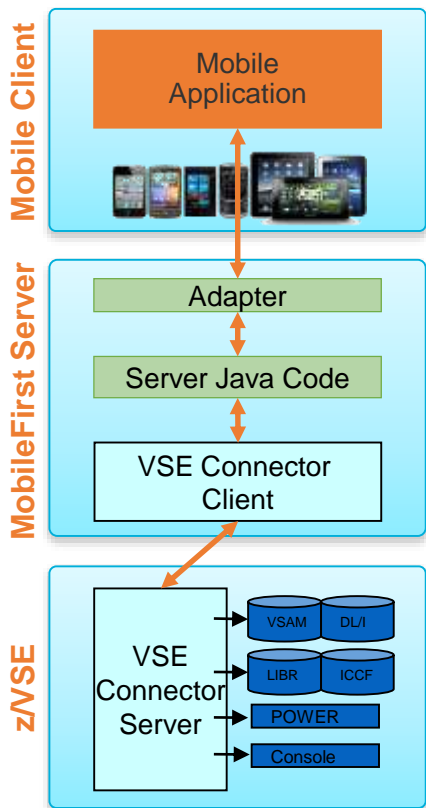
Parameters (comma-separated):

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
  \",\"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\":23290
  \",\"TYPE\":compact,\"MODEL\":316i
  \",\"HP\":102,\"DISPLACEMENT\":1600,\"CYLINDERS\":4,\"COLOUR\":ValveBlue 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\":52300},{\"ARTICLENO\":7,\"MANUFACTURER
  \":Ford,\"TYPE\":Escort,\"MODEL\":ZX2 2 Door Coupe,\"HP\":150,\"DISPLACEMENT
  \":2000,\"CYLINDERS\":6,\"COLOUR\":White,\"FEATURES\":Sp.Seats,250cc Eng.,\"PRICE\":15715
  \",\"ARTICLENO\":8,\"MANUFACTURER\":Volvo,\"TYPE\":C30,\"MODEL\":vcgh
  \",\"HP\":125,\"DISPLACEMENT\":1798,\"CYLINDERS\":3,\"COLOUR\":grey,\"FEATURES
  \":sport,\"PRICE\":10800},{\"ARTICLENO\":9,\"MANUFACTURER\":Volvo,\"TYPE
  \":S60,\"MODEL\":adfsdf,\"HP\":123,\"DISPLACEMENT\":4,\"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
    });
}
```

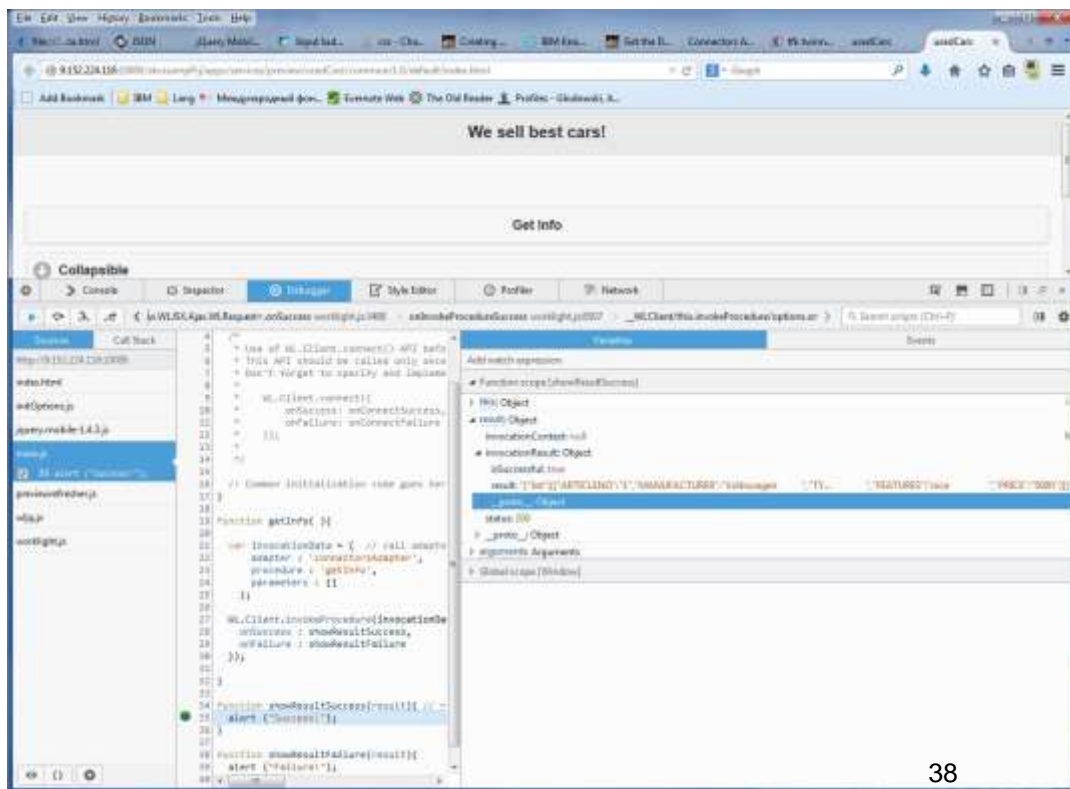


z/VSE Connectors: test and debug

<your mobile app name> → Run As →

Run on MobileFirst Development Server

<your mobile app name> → Run As → Preview





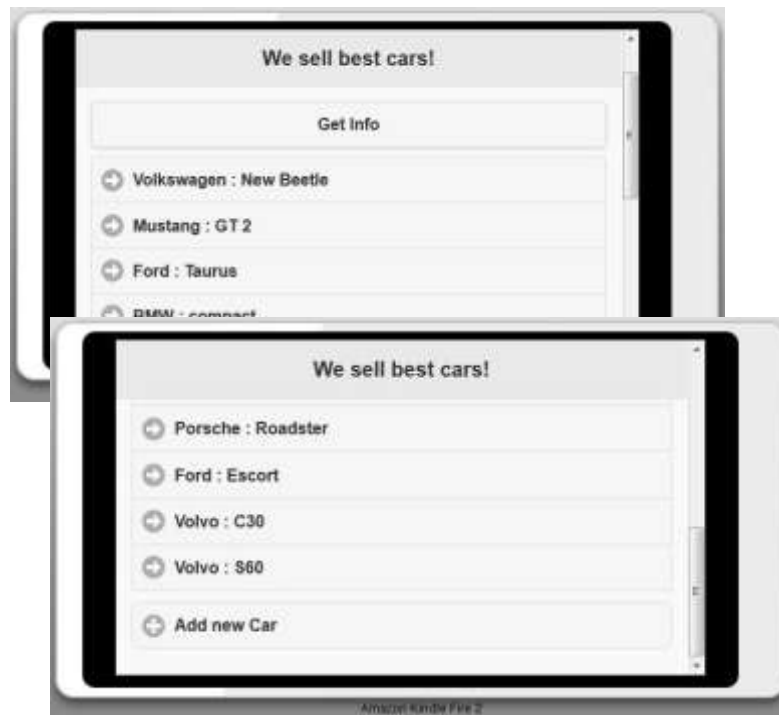
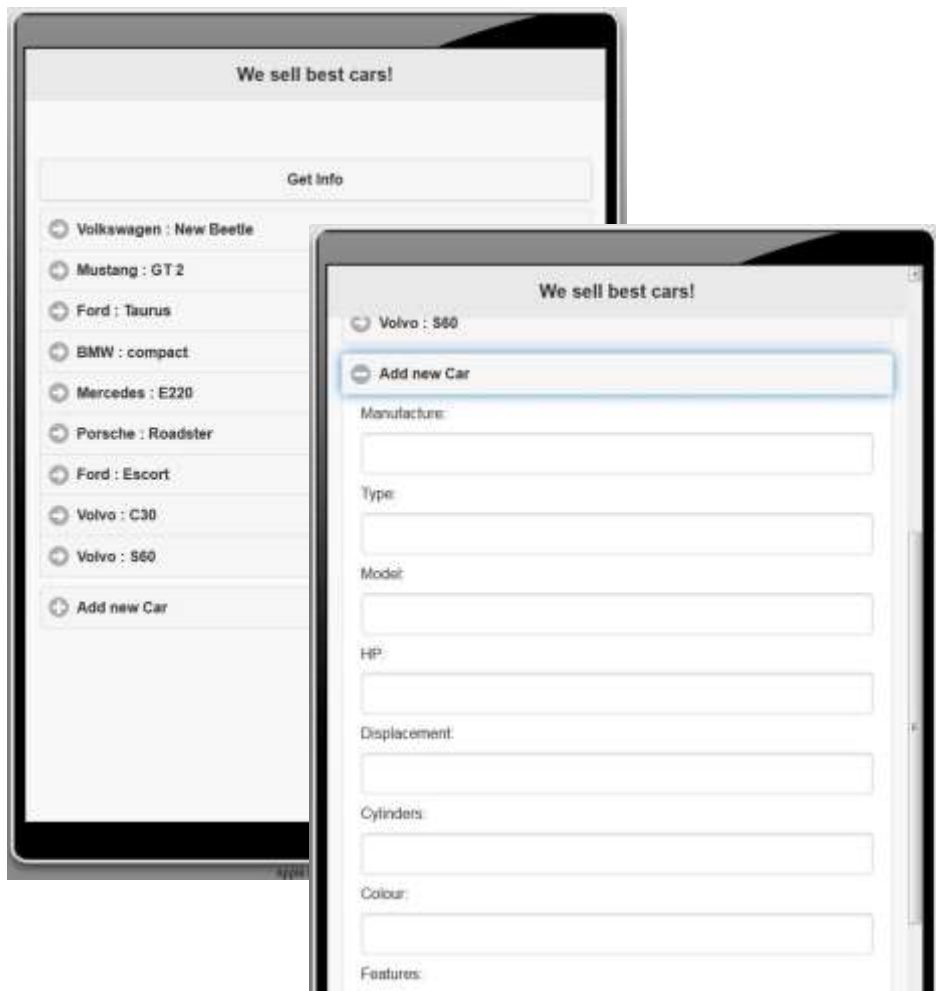
Add MobileFirst environment

<your mobile app name> → New → MobileFirst Environment





Running app in MobileFirst Environments



Live Virtual Class:
Mobile access to the existing z/VSE application (February 24, 2015)

<http://www-03.ibm.com/systems/z/os/zvse/education/index.html>



Interested in mobile with z/VSE and z Systems ? Next steps...

- **Boeblingen Client Center is European Center of Competence (CoC) for Mobile**
- Request a Briefing, Demo or workshop
 - Industry independent
- Read our [Point-of-View paper](#).
- Read the [Mobile Solution Guide](#)
- [System z Mobile home page](#)
 - Customer case studies
 - Analyst reports
 - Customer Videos

Contact us: zvse@de.ibm.com
tmcc@de.ibm.com



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

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 transcend... 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.

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

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 optimize on existing investments without the need to develop completely new solutions to support mobile services.
- Nearly 70% of all enterprise transactions touch a handheld.
- 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.

Business benefits of mobility

Mobile solutions are enabling 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 service 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>
- Getting started with Mobile Development for z/VSE
<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/skvsampPrj.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>

Questions?



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IBM Executive IT Architect



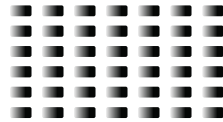
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[Thanks to Alina.Glodowski for the contribution.](#)

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Wellcome to the Mobile era !



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