From Start to Finish: Developing an iPad app using SAP Netweaver Gateway

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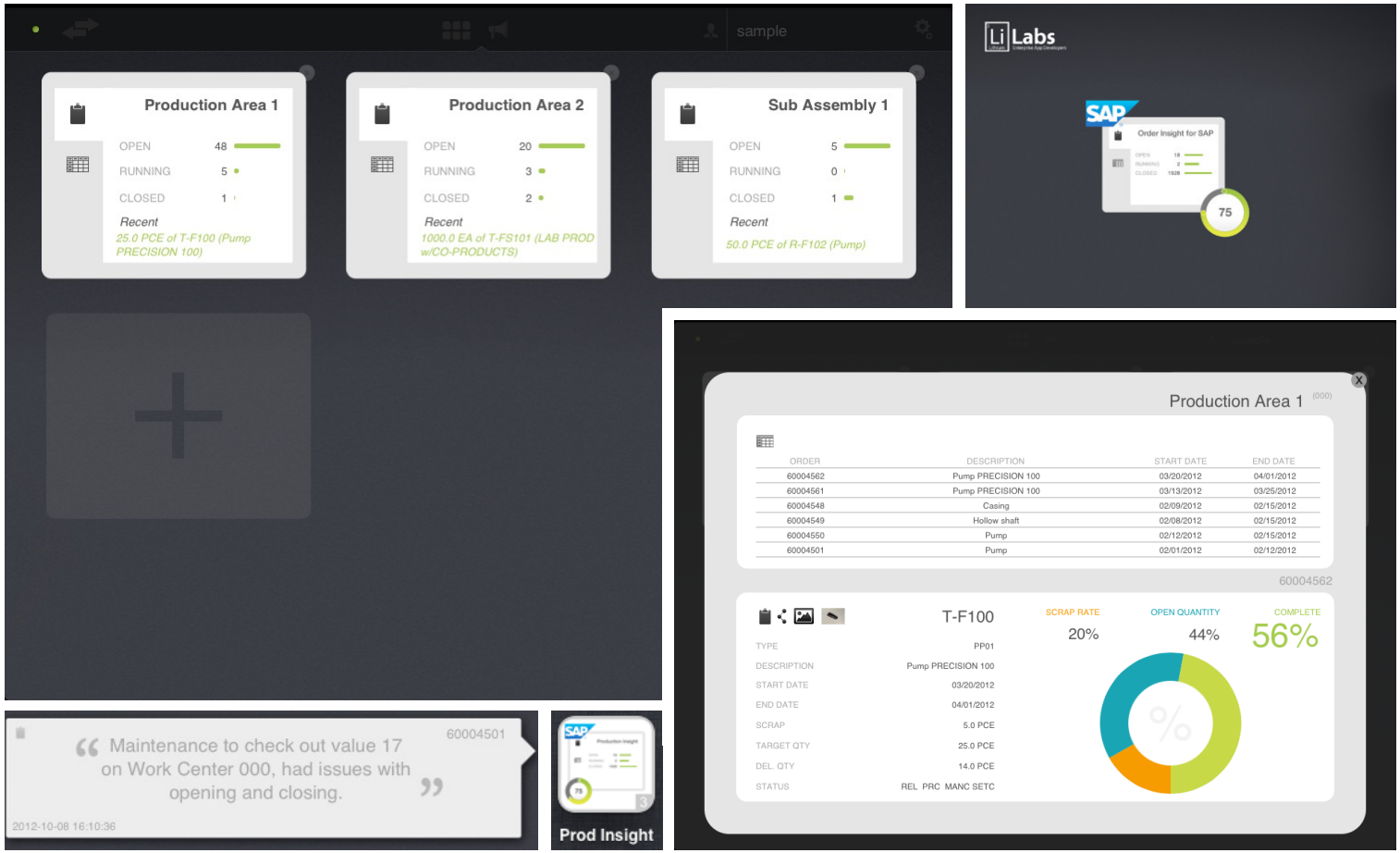
Lithium Labs


Mobility
+
Gateway

Goal


sample
Production Area 1
OPEN 48
RUNNING 5
CLOSED 1
Recent
25.0 PCE of T-F100 (Pump PRECISION 100)
Production Area 2
OPEN 20
RUNNING 3
CLOSED 2
Recent
1000.0 EA of T-FS101 (LAB PROD w/CO-PRODUCTS)
Sub Assembly 1
OPEN 5
RUNNING 0
CLOSED 1
Recent
50.0 PCE of R-F102 (Pump)
LiLabs
SAP
Order Insight for SAP
75
Production Area 1
ORDER DESCRIPTION START DATE END DATE
60004562 Pump PRECISION 100 03/20/2012 04/01/2012
60004561 Pump PRECISION 100 03/13/2012 03/25/2012
60004548 Casing 02/09/2012 02/15/2012
60004549 Hollow shaft 02/08/2012 02/15/2012
60004550 Pump 02/12/2012 02/15/2012
60004501 Pump 02/01/2012 02/12/2012
60004562
T-F100
TYPE PP01
DESCRIPTION Pump PRECISION 100
START DATE 03/20/2012
END DATE 04/01/2012
SCRAP 5.0 PCE
TARGET QTY 25.0 PCE
DEL. QTY 14.0 PCE
STATUS REL PRC MANC SETC
SCRAP RATE 20%
OPEN QUANTITY 44%
COMPLETE 56%
60004501
Maintenance to check out value 17 on Work Center 000, had issues with opening and closing.
2012-10-08 16:10:36
Prod Insight

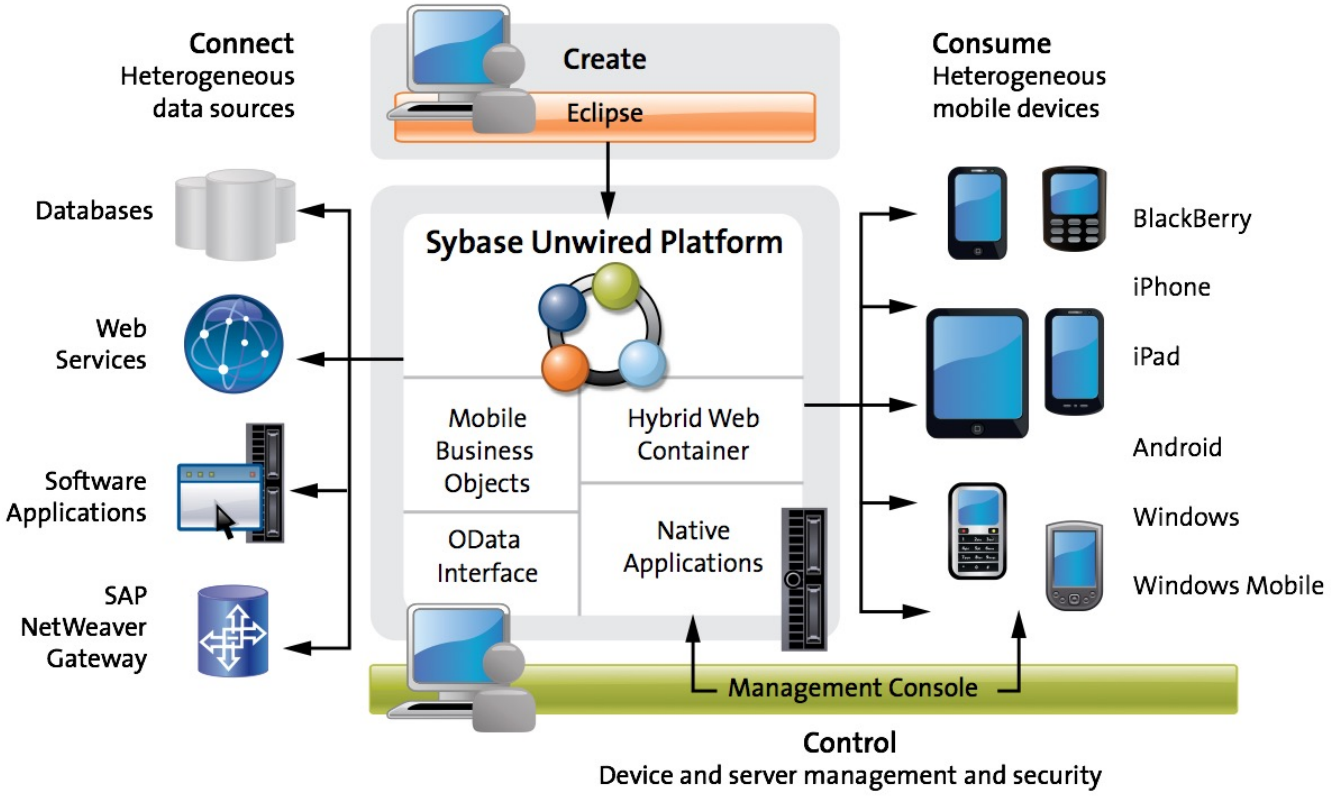
Agenda

Whats the plan?

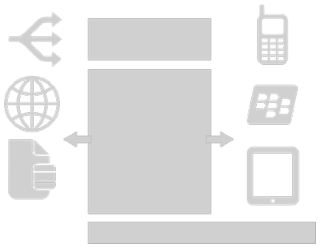
- Platform
- Prerequisites
- SDLC
- Summary

- Result of multiple acquisitions and partnerships
- Sybase, Syclo, Gateway, Appcelerator, PhoneGap, etc.
- Not a requirement, in fact you can use BSP's or .NET Connector to expose your own data

SAP Mobility Platform

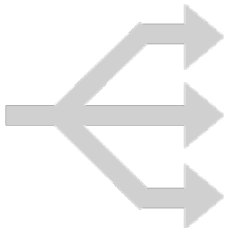


Mobile apps can be powered by:



Sup + Gateway

BSP/HTML



Gateway only

Custom

SOAP

SAP Netweaver Gateway is not …

- The SAP Gateway process in the Netweaver Application Server ABAP that enables external communication (e.g. RFC)
- A mobile infrastructure (SUP)
- A replacement for Netweaver PI and eSOA services

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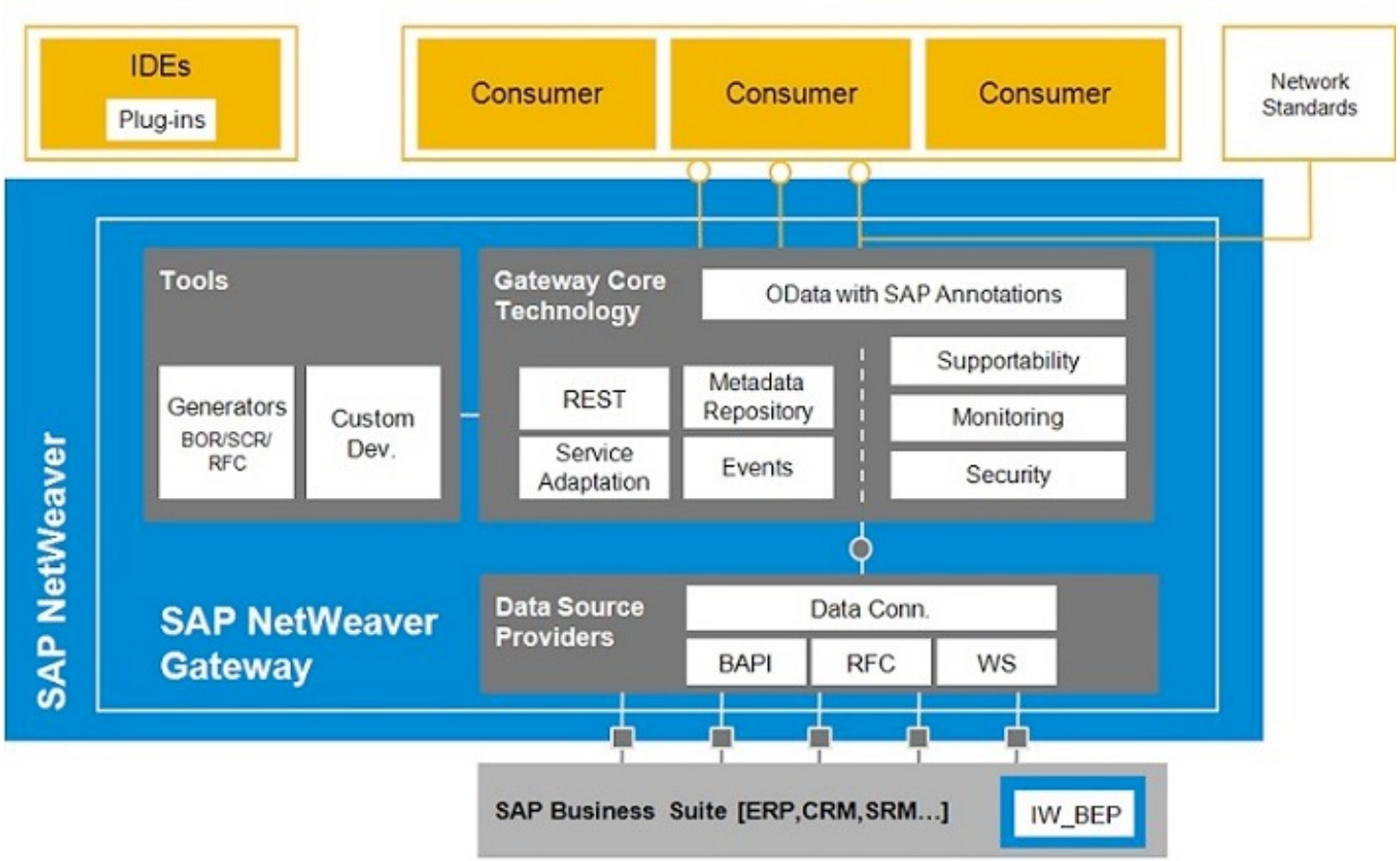
- A mobile infrastructure (SUP)
- A replacement for Netweaver PI and eSOA services

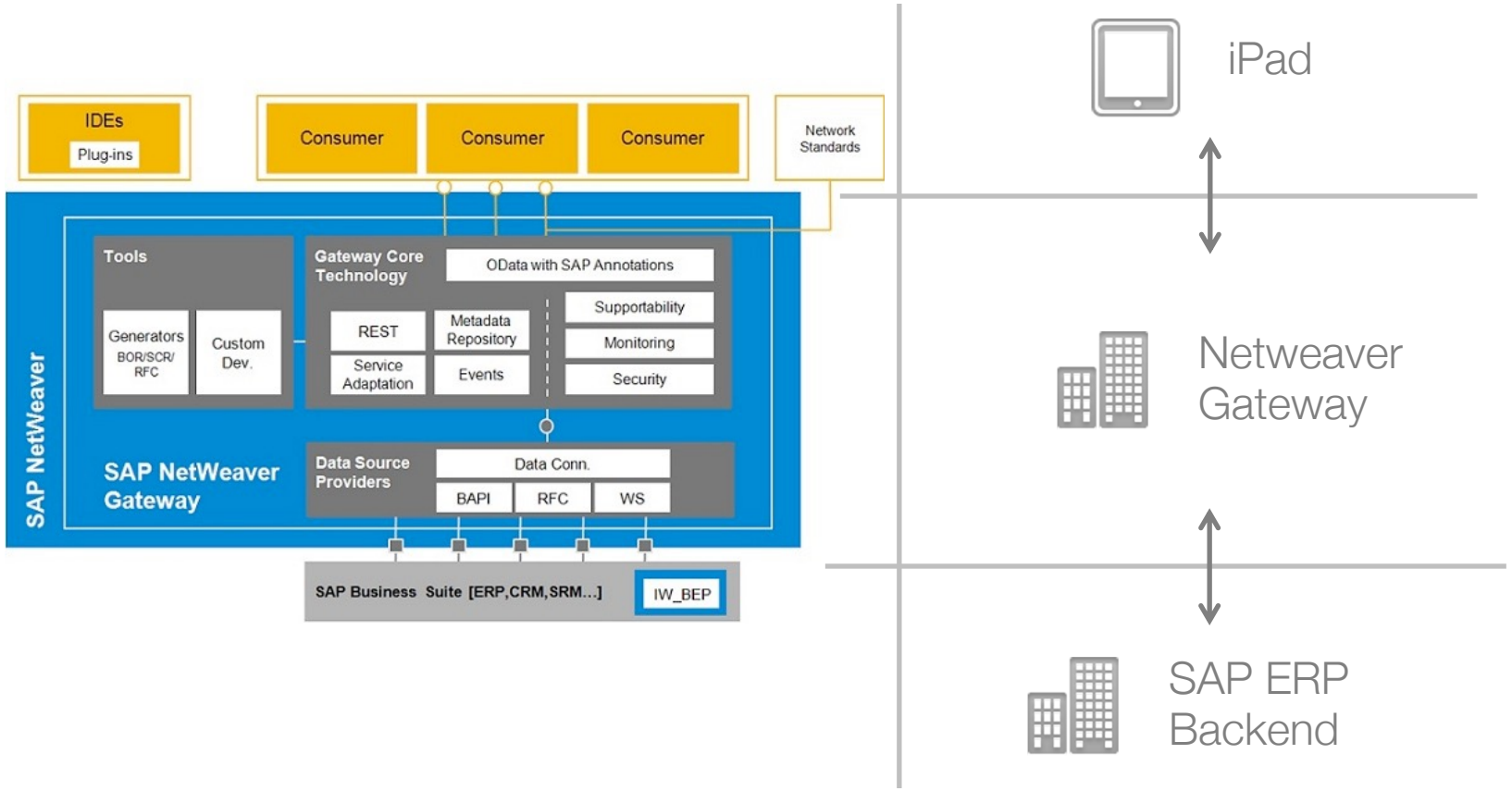
SAP Netweaver Gateway is …

- A point of access into SAP Business Suite data and functionality
- Uses a non-proprietary interface based on Odata
- Services can be consumed by any channel that can process XML or JSON received over an HTTP(S) connection

Gateway


IDEs
Plug-ins
Consumer
Consumer
Consumer
Network Standards
SAP NetWeaver
Tools
Generators
BOR/SCR/ RFC
Custom Dev.
Gateway Core Technology
OData with SAP Annotations
REST
Metadata Repository
Service Adaptation
Events
Supportability
Monitoring
Security
SAP NetWeaver Gateway
Data Source Providers
Data Conn.
BAPI
RFC
WS
SAP Business Suite [ERP,CRM,SRM…]
IW_BEP

Gateway


IDEs
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REST
Metadata Repository
Service Adaptation
Events
Supportability
Monitoring
Security
SAP NetWeaver Gateway
Data Source Providers
Data Conn.
BAPI
RFC
WS
SAP Business Suite [ERP,CRM,SRM...]
IW_BEP
iPad
Netweaver Gateway
SAP ERP Backend

- Apple Developer Account
  - Free
  - Developer Tools including SDK and Xcode
  - Cannot run on your physical device!

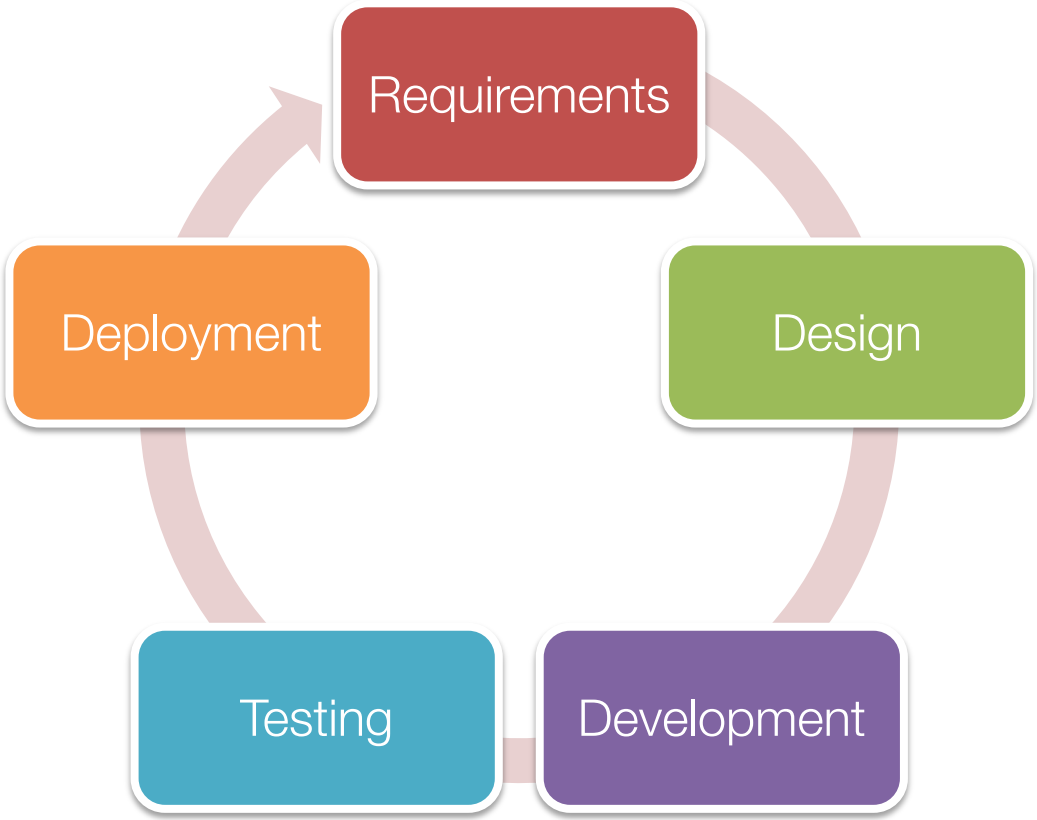
- App Distribution
  - iOS Developer Program ($99) -> App Store
  - iOS Developer Enterprise Program ($299) -> In-house Distribution

Software - Development IDE

- Native
  - XCode (Free)
- HTML5/Javascript
  - Sencha Touch (Free) + Architect ($399)
  - Appcelerator Titanium (Free)
  - Adobe Phone Gap (Free)

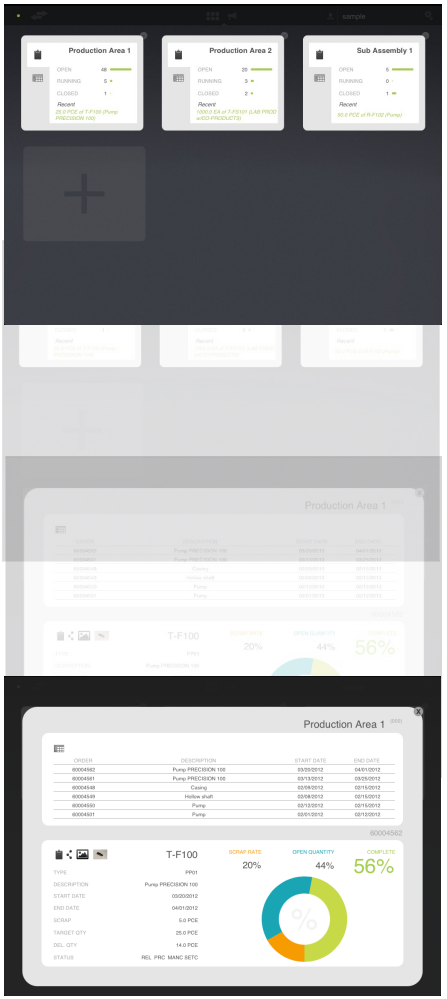
- Tools
  - Graphics Editor
    - Photoshop
    - Pixelmator ($15)
    - GIMP (Free)
- Firefox
    - RESTClient
    - SQLite Manager

SDLC Overview

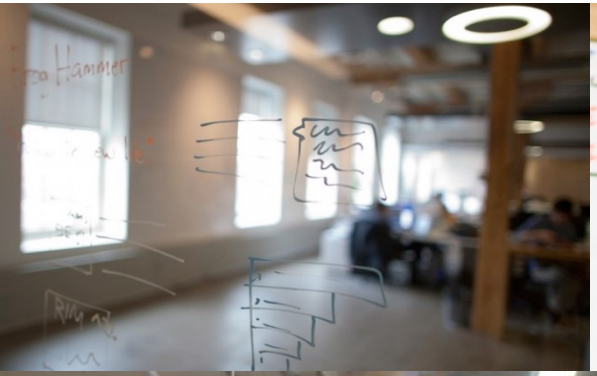


Use Cases

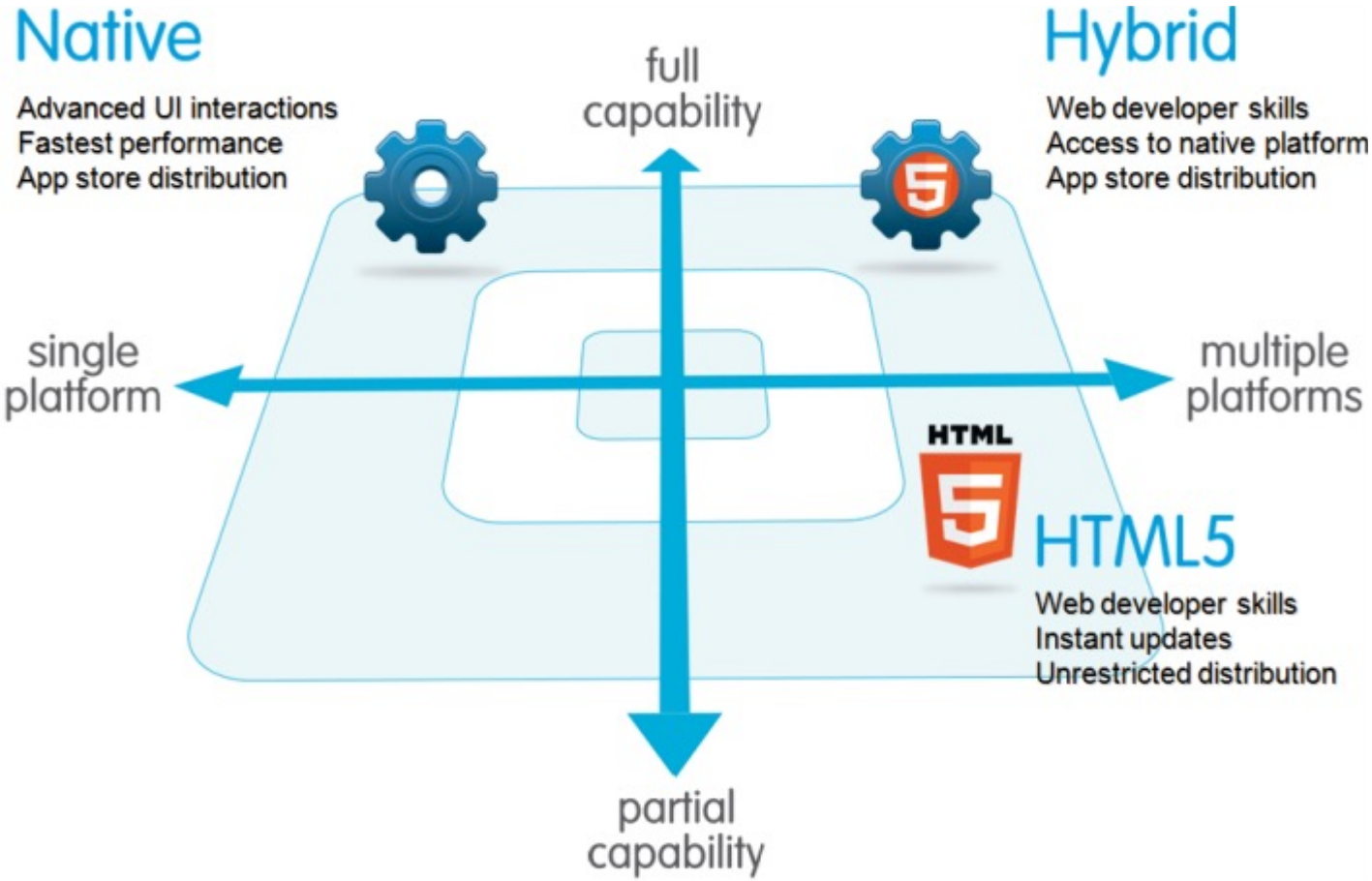
- Plant Managers
  - Highlevel plant overview
- Production Supervisors
  - Highlevel plant overview
  - Line overview
- Line Supervisors
  - Highlevel Line overview
  - Detailed Line View



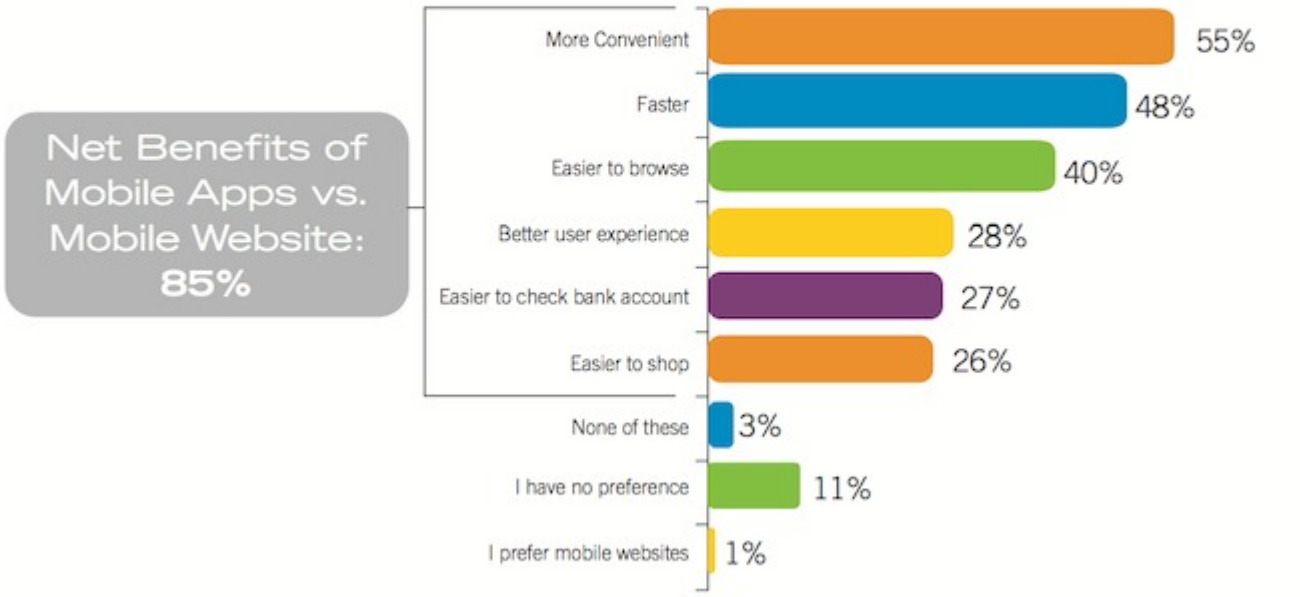
SDLC - Requirements



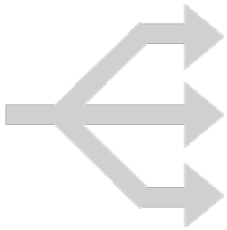
SDLC - Requirements



Mobile Apps vs. Mobile Websites



1. Model Data Source
2. Design the UI
3. Develop the application

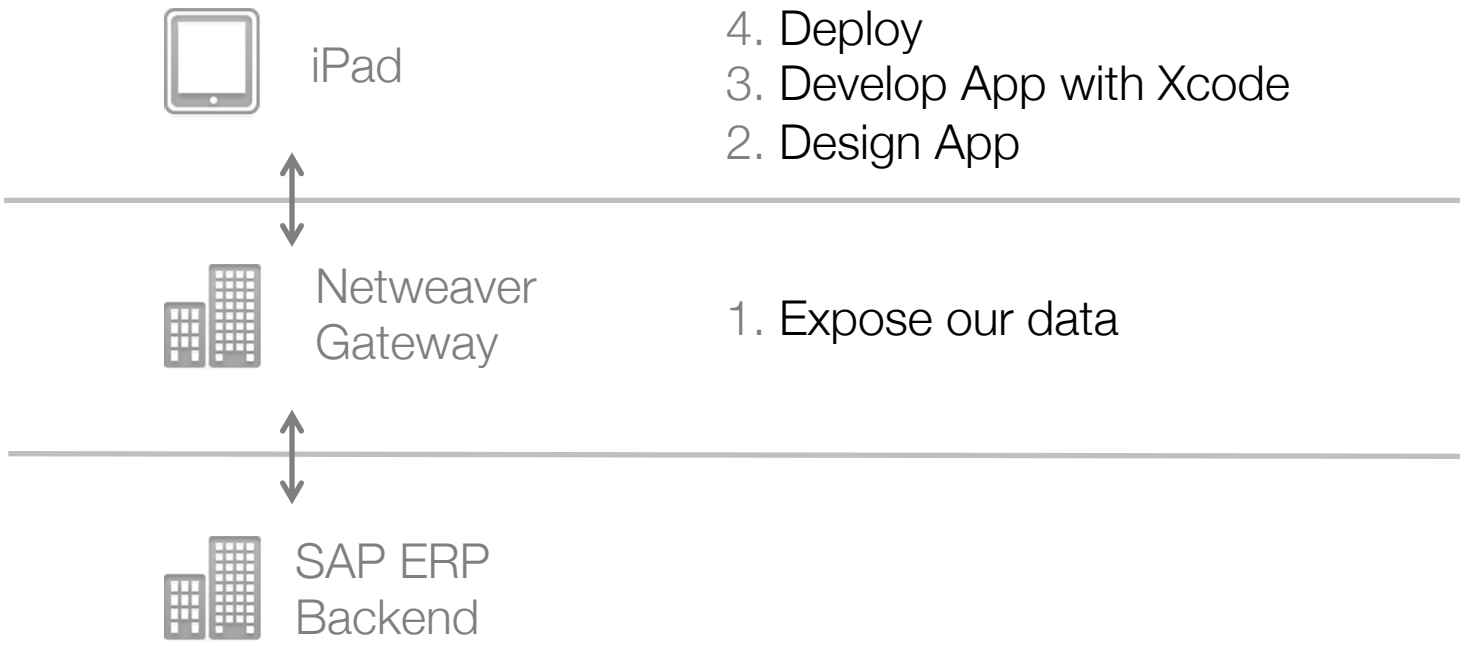


Datasource

UI

App

SDLC – Design


iPad
4. Deploy
3. Develop App with Xcode
2. Design App
Netweaver Gateway
1. Expose our data
SAP ERP Backend

- Using BAPI's

  BAPI_PRODORD_GETLIST

  BAPI_PRODORDCONF_CREATE_HDR

- Use the follow guide to expose BAPI as a Web Service

  http://scn.sap.com/docs/DOC-5010

  Tips:

  Dont forget to assign a system alias to the service

http://scn.sap.com/docs/DOC-5010

1. Create GW Data Model -> Tcode: SE80 (or SEGW)
2. Model Type is PS (Public Solution)
3. Generate from Data Source Object
4. Select the BAPI from our Source system
5. Create „QUERY" mapping
6. Set range for the customer names
7. Generate model
8. Create consumption model
9. Assign system alias -> Tcode: /IWFND/MAINT_SERVICE

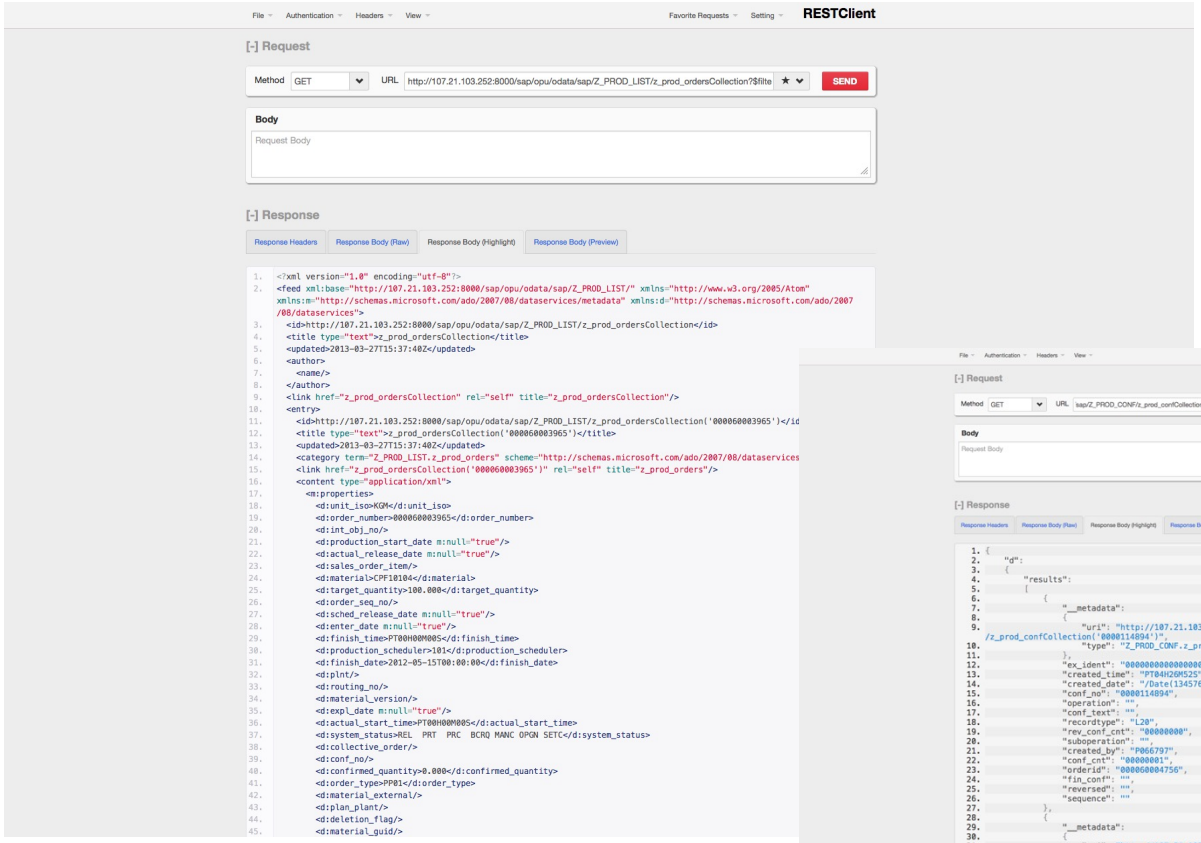
Using RESTClient for Firefox:

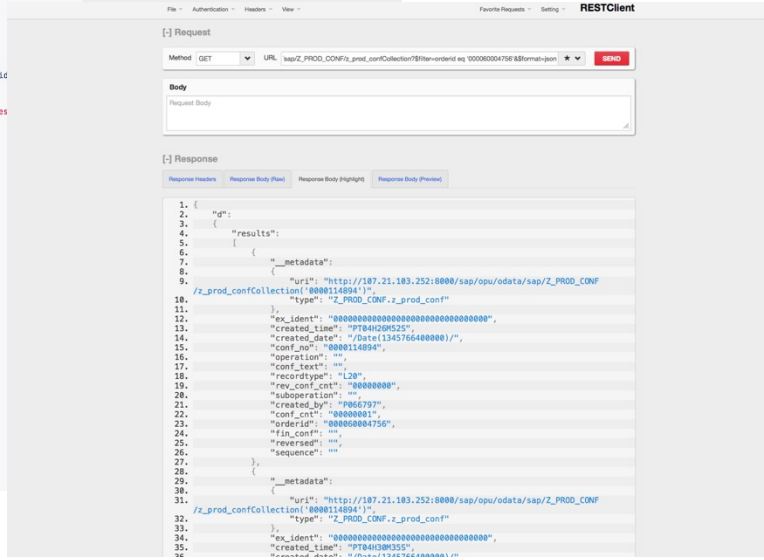
BAPI_PRODORD_GETLIST

Get List of Production Orders by Plant

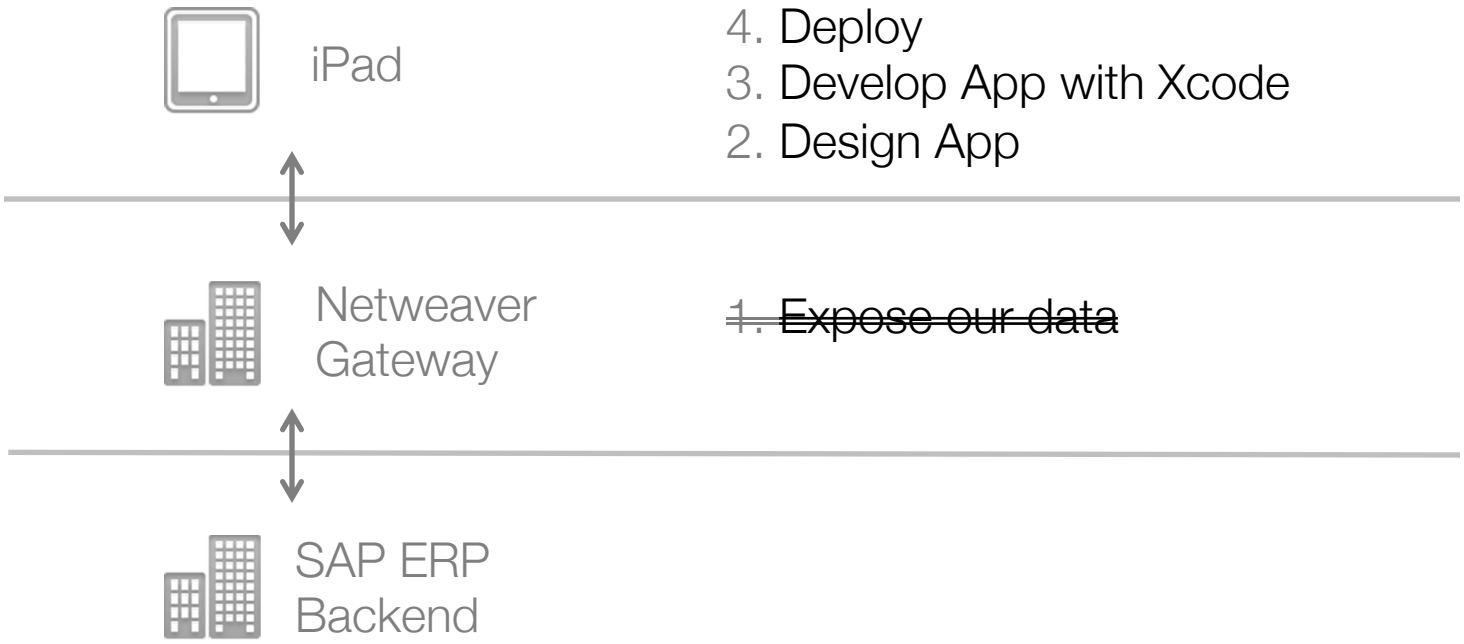
http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_LIST/z_prod_ordersCollection?$format=json

SDLC – Test Datasource





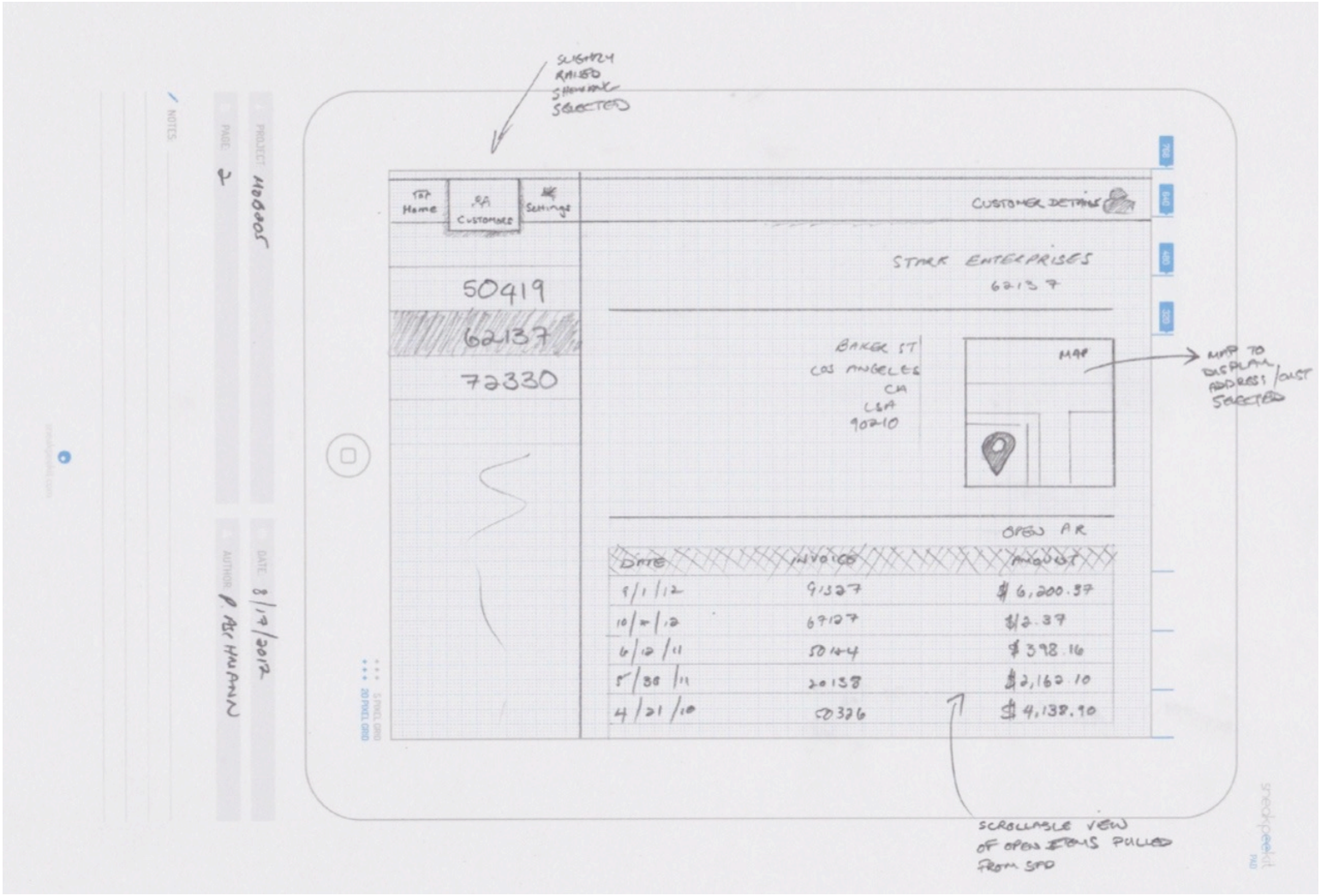
SDLC – Checkpoint



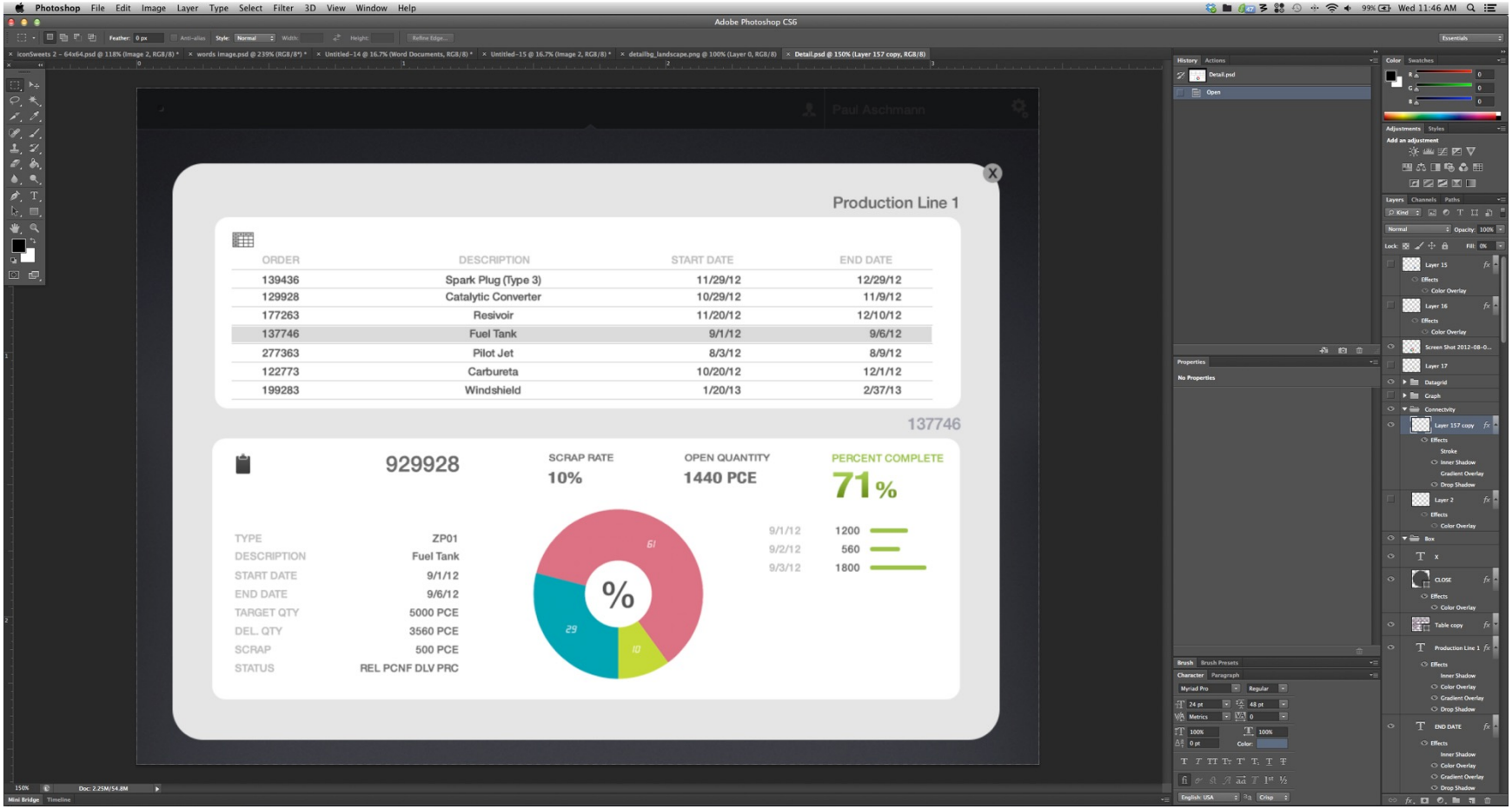
SDLC – Design UI

"A picture is worth a 1000 words, but words with pictures, equals clarity."

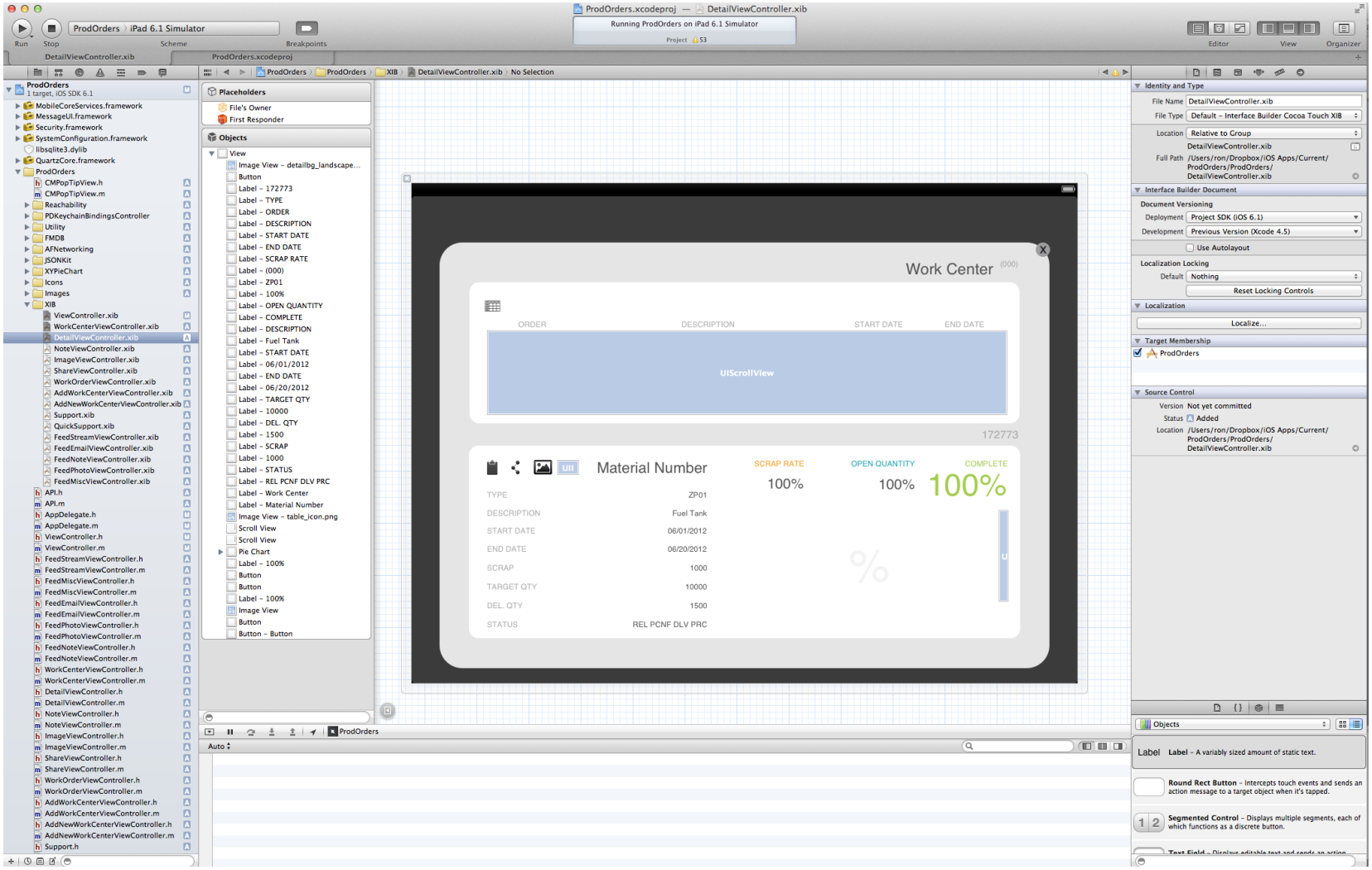
SDLC – Design UI



SDLC - Design


Photoshop File Edit Image Layer Type Select Filter 3D View Window Help
Adobe Photoshop CS6
Production Line 1
ORDER DESCRIPTION START DATE END DATE
139436 Spark Plug (Type 3) 11/29/12 12/29/12
129928 Catalytic Converter 10/29/12 11/9/12
177263 Resivoir 11/20/12 12/10/12
137746 Fuel Tank 9/1/12 9/6/12
277363 Pilot Jet 8/3/12 8/9/12
122773 Carbureta 10/20/12 12/1/12
199283 Windshield 1/20/13 2/37/13
137746
929928
SCRAP RATE
10%
OPEN QUANTITY
1440 PCE
PERCENT COMPLETE
71%
TYPE ZP01
DESCRIPTION Fuel Tank
START DATE 9/1/12
END DATE 9/6/12
TARGET QTY 5000 PCE
DEL. QTY 3560 PCE
SCRAP 500 PCE
STATUS REL PCNF DLV PRC
%
61
29
10
9/1/12 1200
9/2/12 560
9/3/12 1800

SDLC - Design


Work Center
ORDER
DESCRIPTION
START DATE
END DATE
UIScrollView
172773
Material Number
SCRAP RATE
OPEN QUANTITY
COMPLETE
100%
100%
100%
TYPE ZP01
DESCRIPTION Fuel Tank
START DATE 06/01/2012
END DATE 06/20/2012
SCRAP 1000
TARGET QTY 10000
DEL. QTY 1500
STATUS REL PCNF DLV PRC

- Open Source Packages

JSONKit – reading JSON data sources

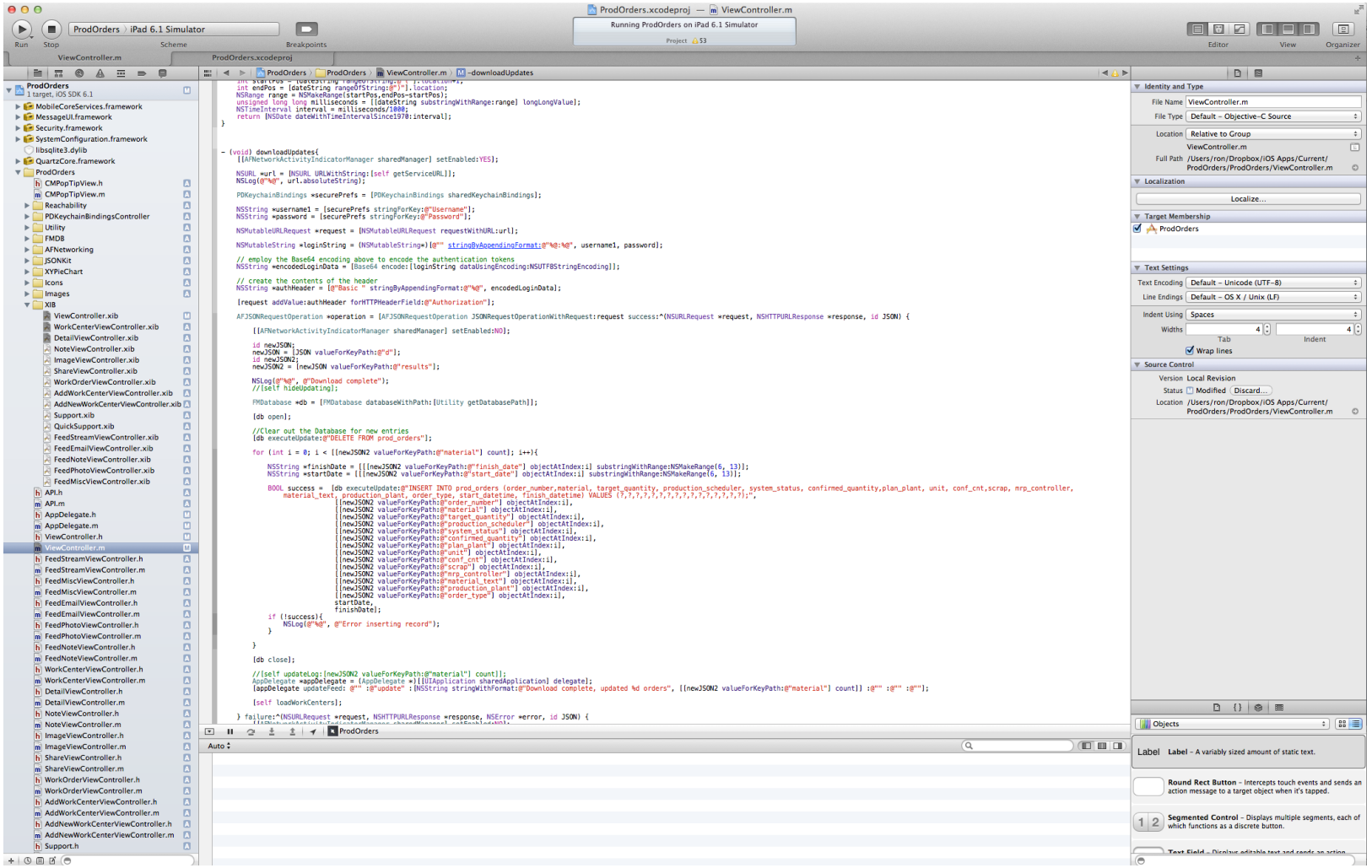
AFNetworking – Handling connectivity

SDLC – Checkpoint

4. Deploy
3. Develop App with Xcode
~~2. Design App~~

~~1. Expose our data~~

SDLC - Development



```
// This is a function to build the URL using the various parameters.
// TODO: Generally this would be from NSPrefs and Keychanin for security purposes, modify this below.
- (NSString *) getServiceURL{
    NSString *username1 = @"xxxxx";
    NSString *password = @"xxxxxx";
    NSString *servername = @"107.21.103.252:8000/sap/opu/odata/sap/Z_CUST_GET_LIST/z_cust_getlistCollection";
    NSString *strURL = @"";
    strURL = @"http://";
    strURL = [strURL stringByAppendingString: username1];
    strURL = [strURL stringByAppendingString: @":"];
    strURL = [strURL stringByAppendingString: password];
    strURL = [strURL stringByAppendingString: @"@"];
    strURL = [strURL stringByAppendingString: servername];
    strURL = [strURL stringByAppendingString: @"?$filter=customer%20lt%20'0000000300'&customer%20gt%20'0000000001'"];
    strURL = [strURL stringByAppendingString: @"&$format=json"];

    return strURL;

}
```

SDLC - Development

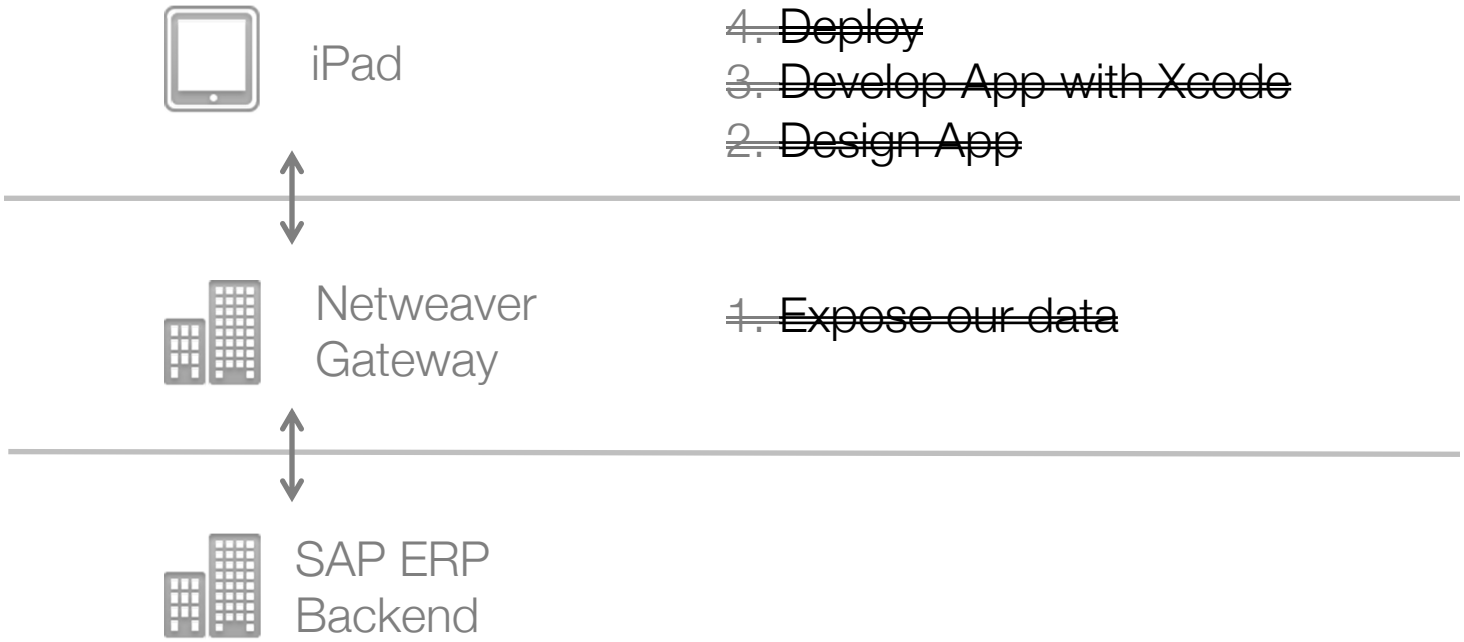
```
- (void) downloadUpdates{
    // Start the small spinning wheel (network actvity monitor) indicating that the download has started
    [[AFNetworkActivityIndicatorManager sharedManager] setEnabled:YES];

    // Use the getServiceURL function to fetch the service URL for this call to gateway
    NSURL *url = [NSURL URLWithString:[self getServiceURL]];

    // Display the url for debugging and reference
    NSLog(@"%@", url.absoluteString);

    // Create the URL request
    NSMutableURLRequest *request = [NSMutableURLRequest requestWithURL:url];

    // Use a AFJSON Request Operation Block to execute the request
    AFJSONRequestOperation *operation = [AFJSONRequestOperation JSONRequestOperationWithRequest:request success:^(NSURLRequest *request, NSHTTPURLResponse *response, id JSON) {

        NSLog(@"%@", @"Download complete");

        // Stop the network activity monitor
        [[AFNetworkActivityIndicatorManager sharedManager] setEnabled:NO];

        // Parse the results from the array from d -> results into a results array
        id results = [[JSON valueForKeyPath:@"d"] valueForKeyPath:@"results"];

        // Loop through each of the results and add them to a 'listOfCustomers' array, then add them to the table
        for (int i = 0; i < [[results valueForKeyPath:@"customer"] count]; i++){
            [listOfCustomerNos insertObject:[[results valueForKeyPath:@"customer"] objectAtIndex:i] atIndex:0];
            NSIndexPath *indexPath = [NSIndexPath indexPathForRow:0 inSection:0];
            [self.tableView insertRowsAtIndexPaths:@[indexPath] withRowAnimation:UITableViewRowAnimationAutomatic];
        }

    } failure:^(NSURLRequest *request, NSHTTPURLResponse *response, NSError *error, id JSON) {

        // Stop the network activity monitor
        [[AFNetworkActivityIndicatorManager sharedManager] setEnabled:NO];

        // In the event an error occurs, display a error message as well as the error response from the call.
        NSLog(@"%@", error);
        UIAlertView *message = [[UIAlertView alloc] initWithTitle:@"Connection Error"
                                                          message:@"Please check your connection and the Server, Username and Password are correct in the settings."
                                                         delegate:nil
                                                cancelButtonTitle:@"OK"
                                                otherButtonTitles:nil];

        [message show];

    }];

    [operation start];

}
```

SDLC – Checkpoint

SDLC - Testing

Demo

- Developing mobile apps on top of gateway is simple and easy
- Another +- 20 lines if you want to cache that data locally



SDLC – Certification/Deployment

- Apple App Store
- Apple Requirements (+- 2 weeks)

- SAP App Store
- SAP Requirements
- ABAP/GW certification or SUP cert.
  - AAK Kit
  - Own namespace

- In House Distribution
  - Renew certs yearly, recompile and redistribute
  - http://help.apple.com/iosdeployment-apps/#appc28ee0f4
  - Very simple and straight forward

SDLC – Review

Hours

8	4	110	8
Requirements	Services	Development	Testing

=

Files

40	159	16	5
Images	Files	“Forms”	OS

=

Helpful Links

- Download the app here
  www.li-labs.com/prod.php
- JSONKit
- AFNetworking
- Gateway Master Install Guide
- Gateway Landscape Implementation Guide
- CRUD Operations with RFC

Helpful Links

- SAP Netweaver Gateway Tool for Xcode
  Quick and easy starting point
- URL Encoding in XCode
- iPhone/iPad Notepad Template
- Cocoacontrols.com
- Apple Developer Programs
- Other Lithium Labs Apps
  www.li-labs.com

SDLC - Development

Scenarios for Supported and Recommended Authentication Methods

The following is a list of the supported and recommended authentication methods for use in SAP NetWeaver Gateway scenarios:

Consumer and Authentication Option	Basic	X.509 Certificate	SAML 2.0
Web application (HTML5, Silverlight, Flex)	√	√	Recommended
Desktop application (Microsoft .NET, Java)	√	Recommended	√
Mobile application	√	Recommended	
Cloud application		√	Recommended
Social network integration		Recommended	
Web server side (PHP/ASP.NET)		Recommended	√

A check mark (√) indicates the supported authentication method for the consumer scenario. Empty spaces do not have any comments.