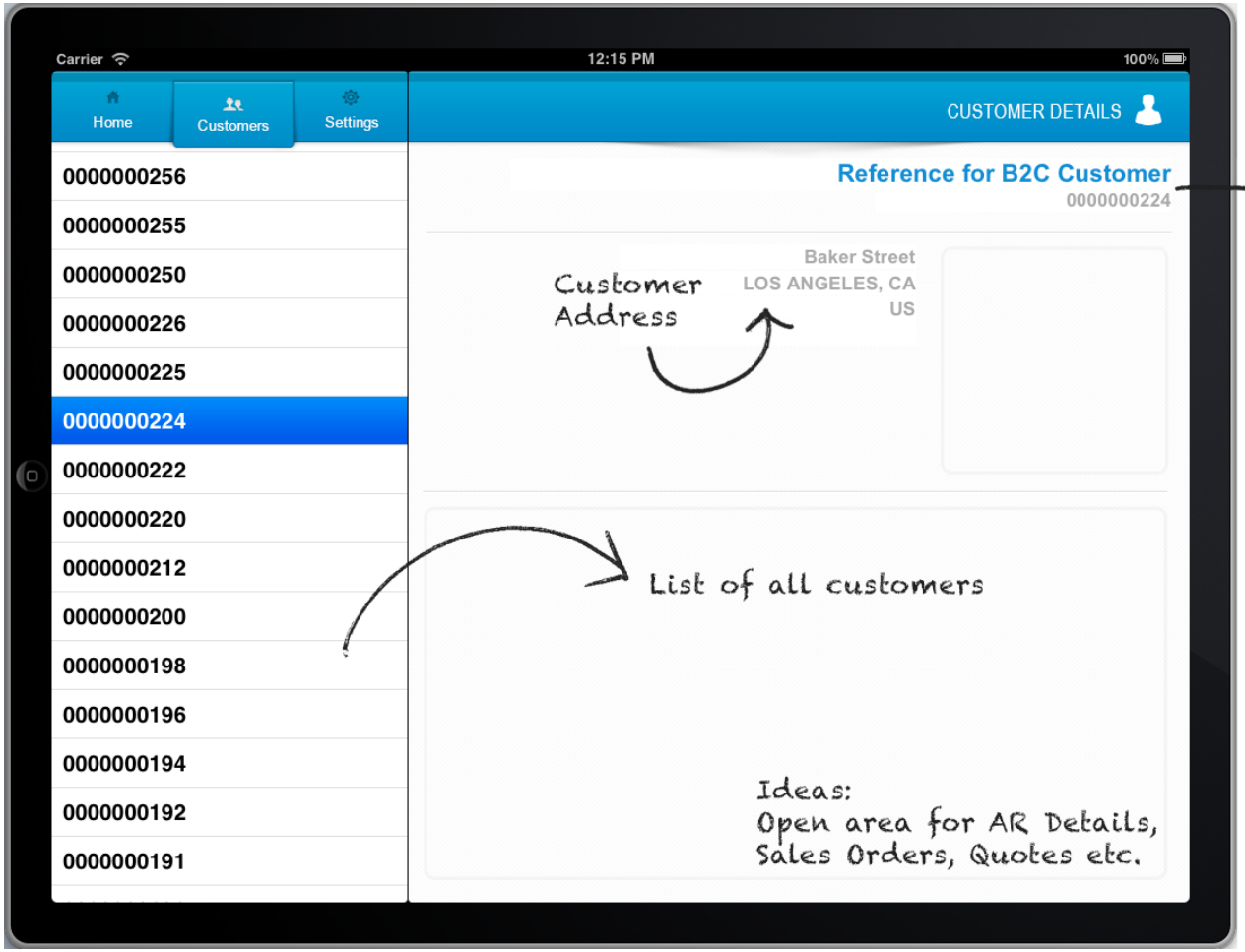
MOB205

From Start to Finish – Developing an iPad App Using SAP NetWeaver Gateway.

Goal

- What is needed to develop your own iPad app using Netweaver Gateway.
  - Why Mobile?
  - Why Gateway?

Goal



Agenda

- Platform
  - Gateway, ES Workplace
- Prerequisites
  - Machine
  - Apple developer account
  - Software
    - Firefox, SQLite, RESTClient, Xcode, Open Source
- SDLC
  - Requirements
  - Design
  - Development
    - Gateway Web Service
    - Xcode Project
  - Testing
  - Certification/Deployment
- Conclusion

SAP Mobility Platform

- 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.

Sencha

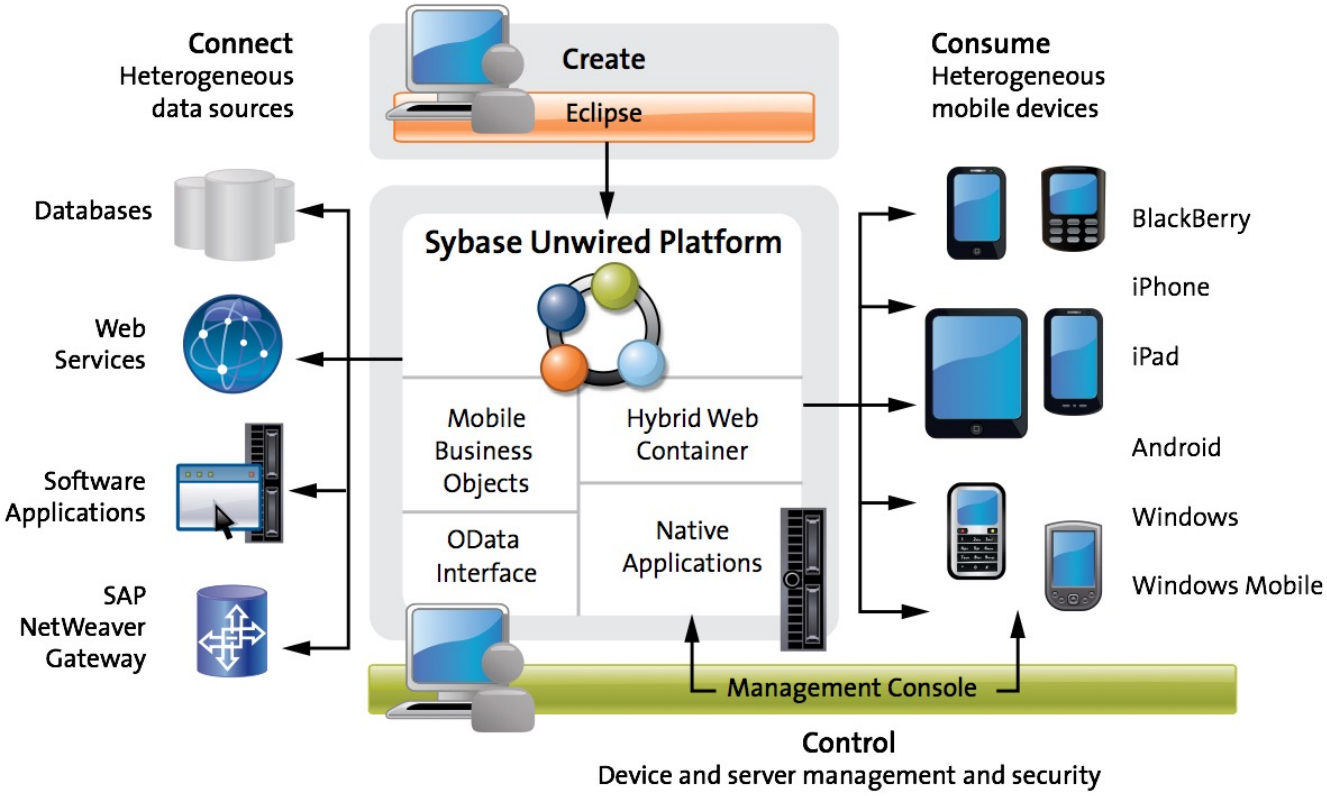
Syclo enabling the mobile enterprise

appcelerator

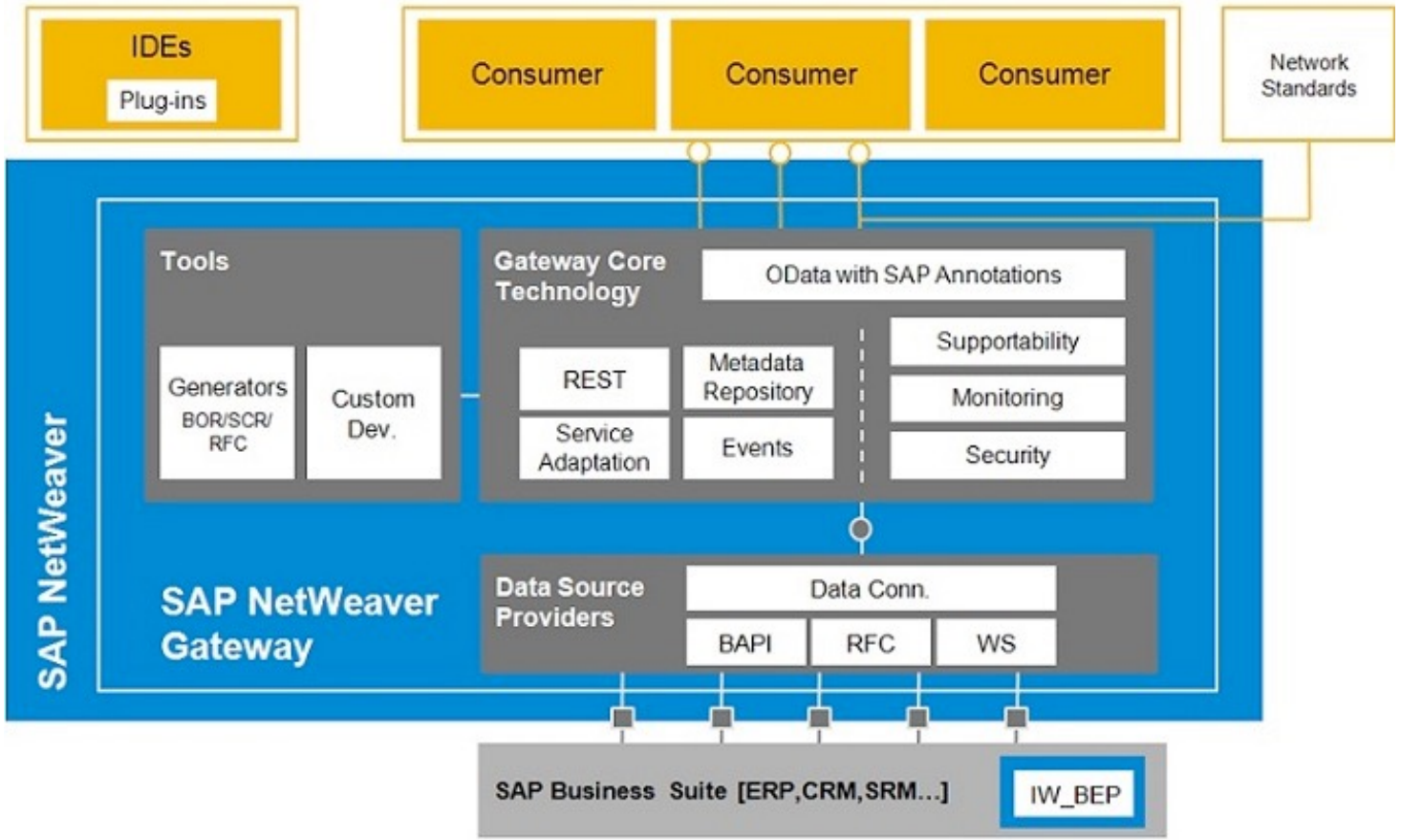
PhoneGap

SYBASE An SAP Company

SAP Mobility Platform



Gateway Platform



Gateway Platform

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

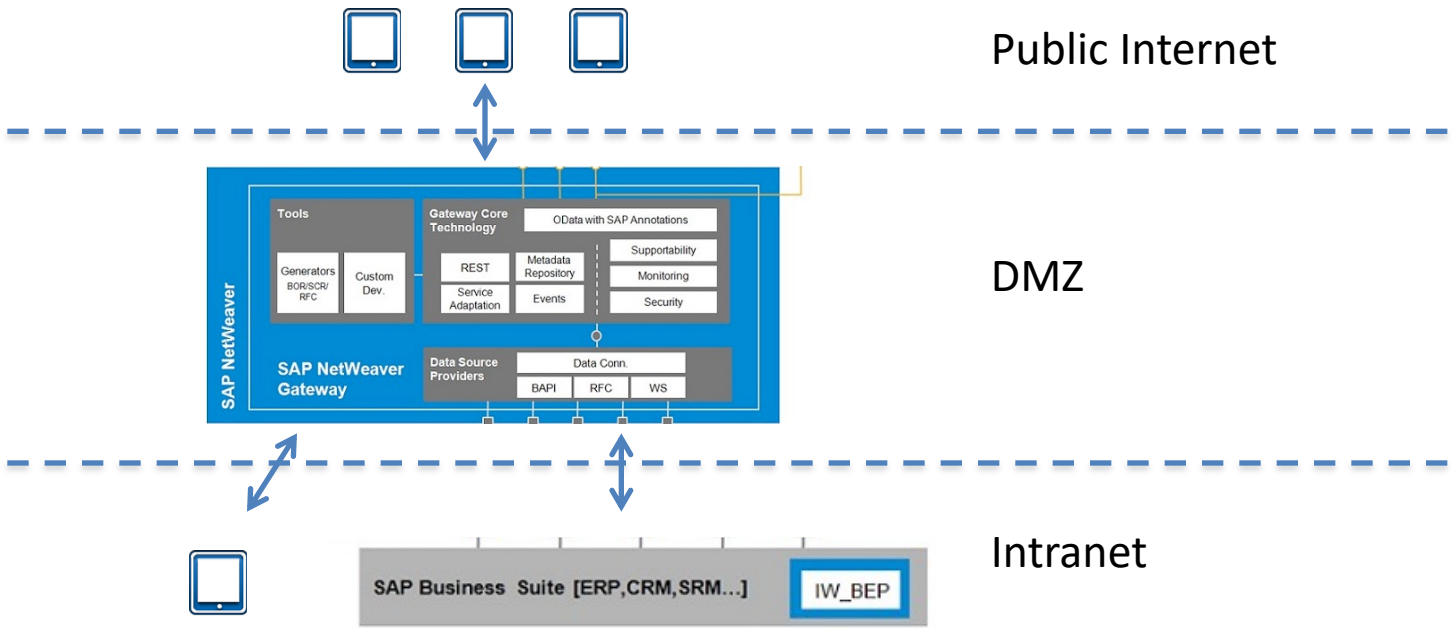
SAP Netweaver Gateway …

- 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 received over an HTTP(S) connection

Gateway Platform

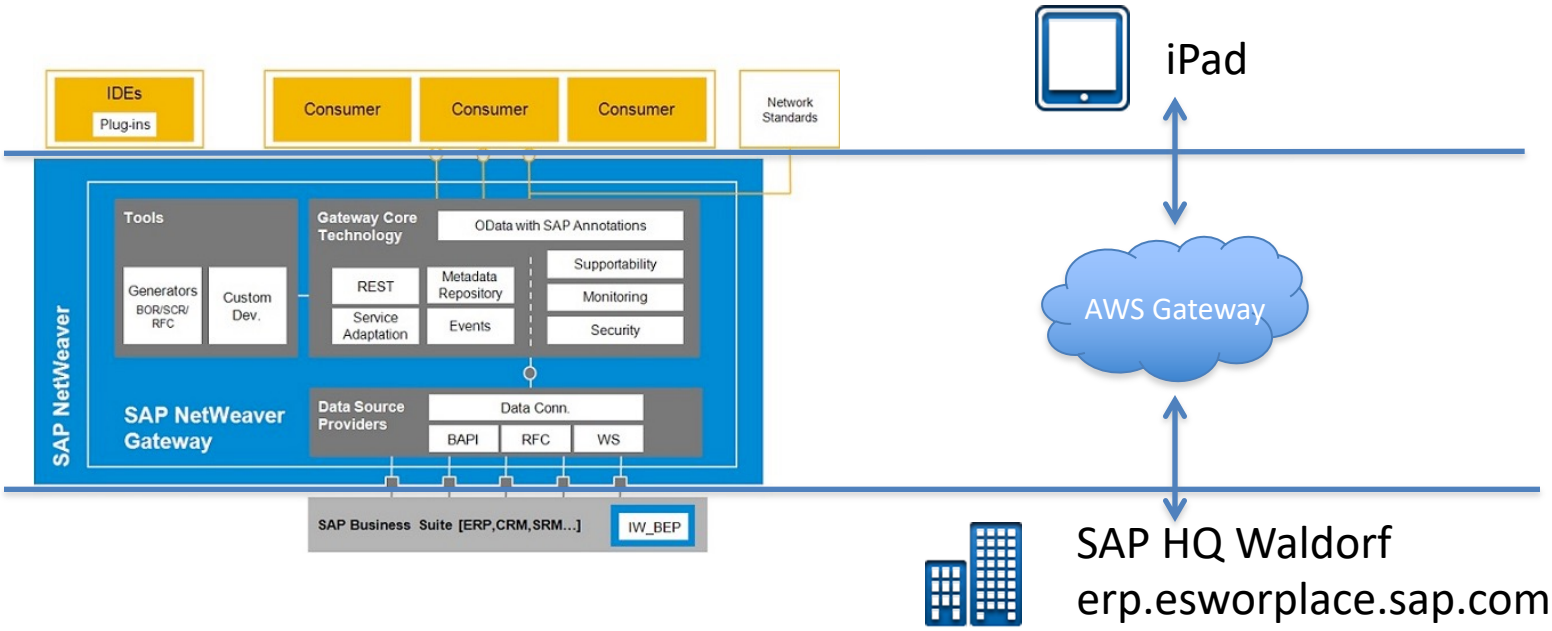
- Mobile apps can be powered by:
  - Sup + Gateway
  - Gateway only
  - SOAP
  - BSP
  - Create your own Web Service using SAP .NET Connector

Gateway Platform



Platform

- Our app will be using SAP Netweaver Gateway (hosted on AWS) and a ES Workplace ERP Server.



Prerequisites Overview

- Platform (Just discussed)
- Development Machine
- Software
- Tools

Prerequisites

- Machine
  - Mac Mini
  - Used, anything that can run Mountain Lion (latest version of OSX)
  - Min version is Snow Leopard for Xcode 4
  - “Hackintosh”

Prerequisites

- 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
- Helpful Links
  - https://developer.apple.com/programs/start/ios/

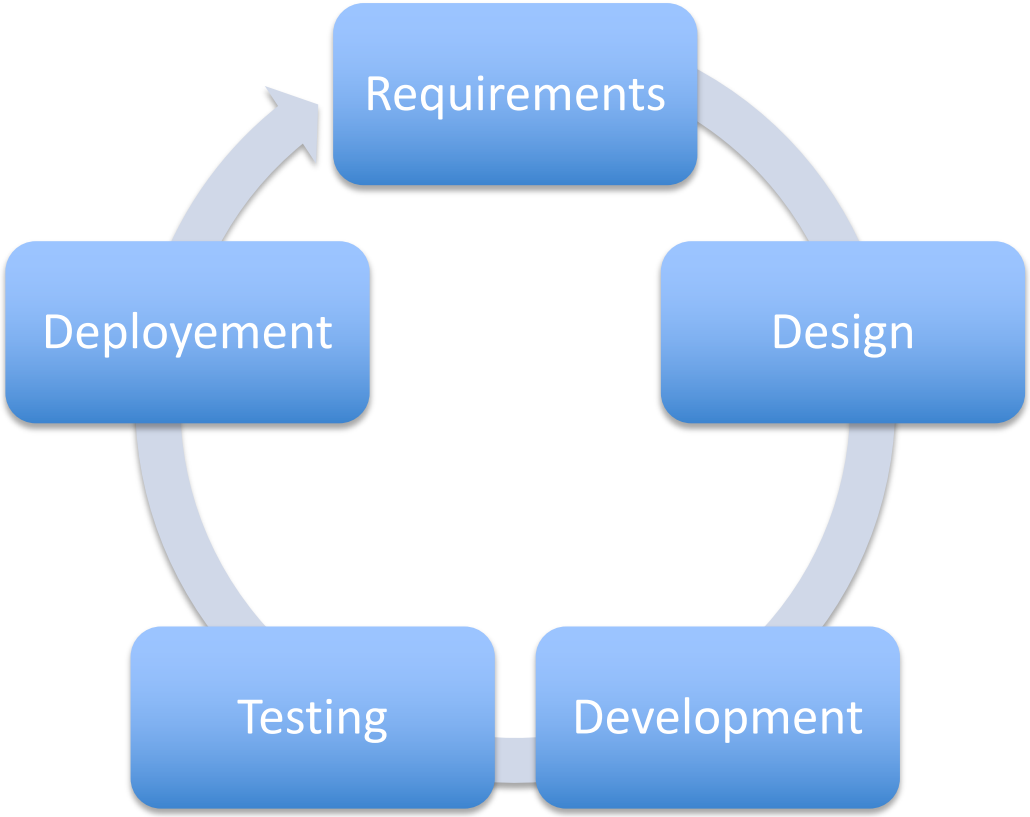
Prerequisites

- Software
  - Development IDE
    - Native
      - Xcode (Free)
    - HTML5/Javascript
      - Sencha Touch (Free) + Architect ($399)
      - Appcelerator Titanium (Free)
      - Adobe Phone Gap (Free)

Prerequisites

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

SDLC Overview



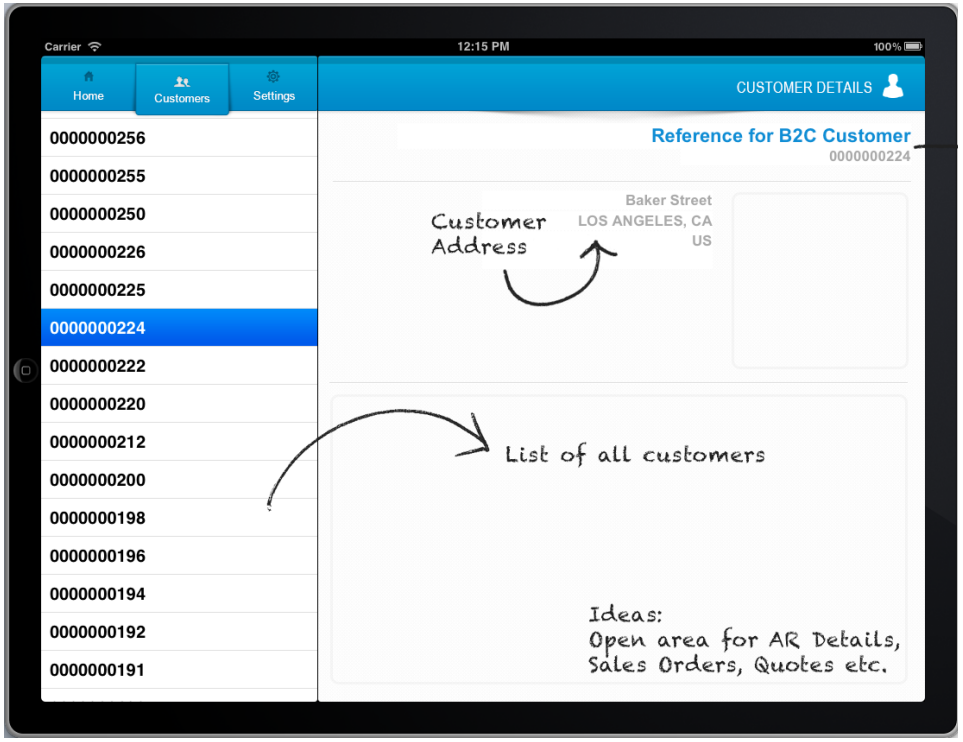
SDLC - Requirements

- Use Cases
  - Accounts Receivable Analyst: Weekly sales review meeting, review open items by customer
  - Sales Manager: On the road and would like to get list of his customers and their details.

Mobile app which can display a list of customers, selecting one could show us further details about the customer or relevant information.

SDLC - Requirements

The customer list should be displayed and should show the customer number



The details of the customer should include their address.

SDLC – Design

- Start with the data model keeping the requirements in mind
- Develop the data model first and proof out the access before designing UI and app.

Datasource -> UI -> App

SDLC – Design


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

SDLC – Design Datasource

- Using 2 BAPI's
  - BAPI_CUSTOMER_GETLIST (Query)
  - BAPI_CUSTOMER_GETDETAIL (Read)

- 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

SDLC – Design Datasource

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

1. Create GW Data Model -> Tcode: SE80
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

SDLC – Test Datasource

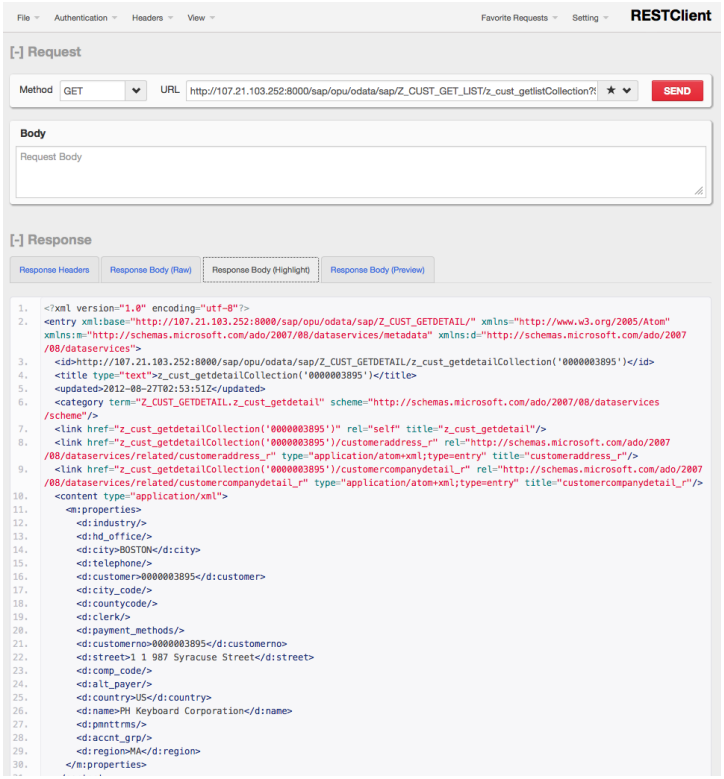
- Using RESTClient for Firefox:

- Get List
- http://yoururl:port/sap/opu/odata/sap/Z_CUST_GET_LIST/z_cust_getlistCollection?$format=xml&$filter=customer lt ’0000000003'&customer gt ’0000000001’

- Get Detail
- http://yoururl:port/sap/opu/odata/sap/Z_CUST_GETDETAIL/z_cust_getdetailCollection('0000003895’)

SDLC – Test Datasource

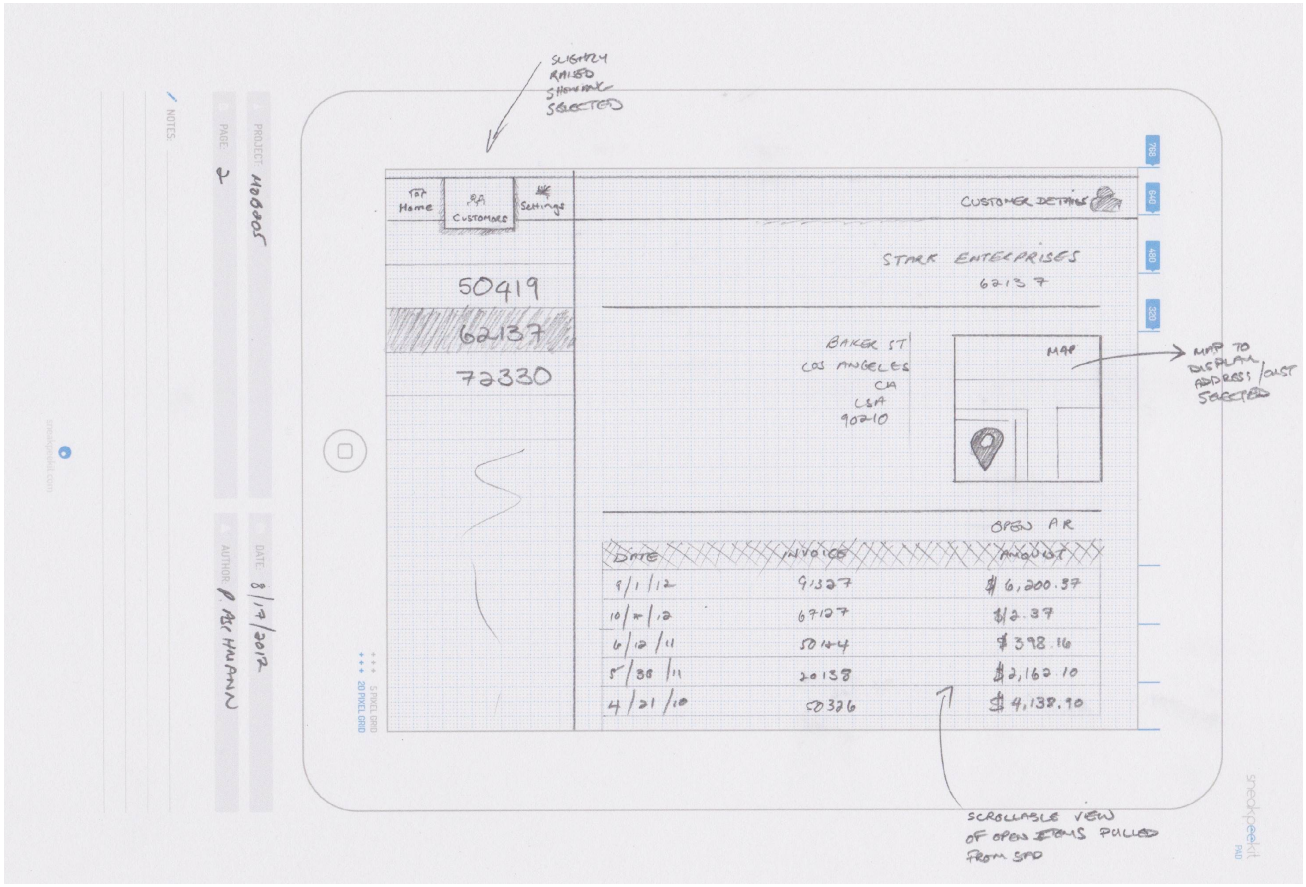
- Using RESTClient for Firefox:



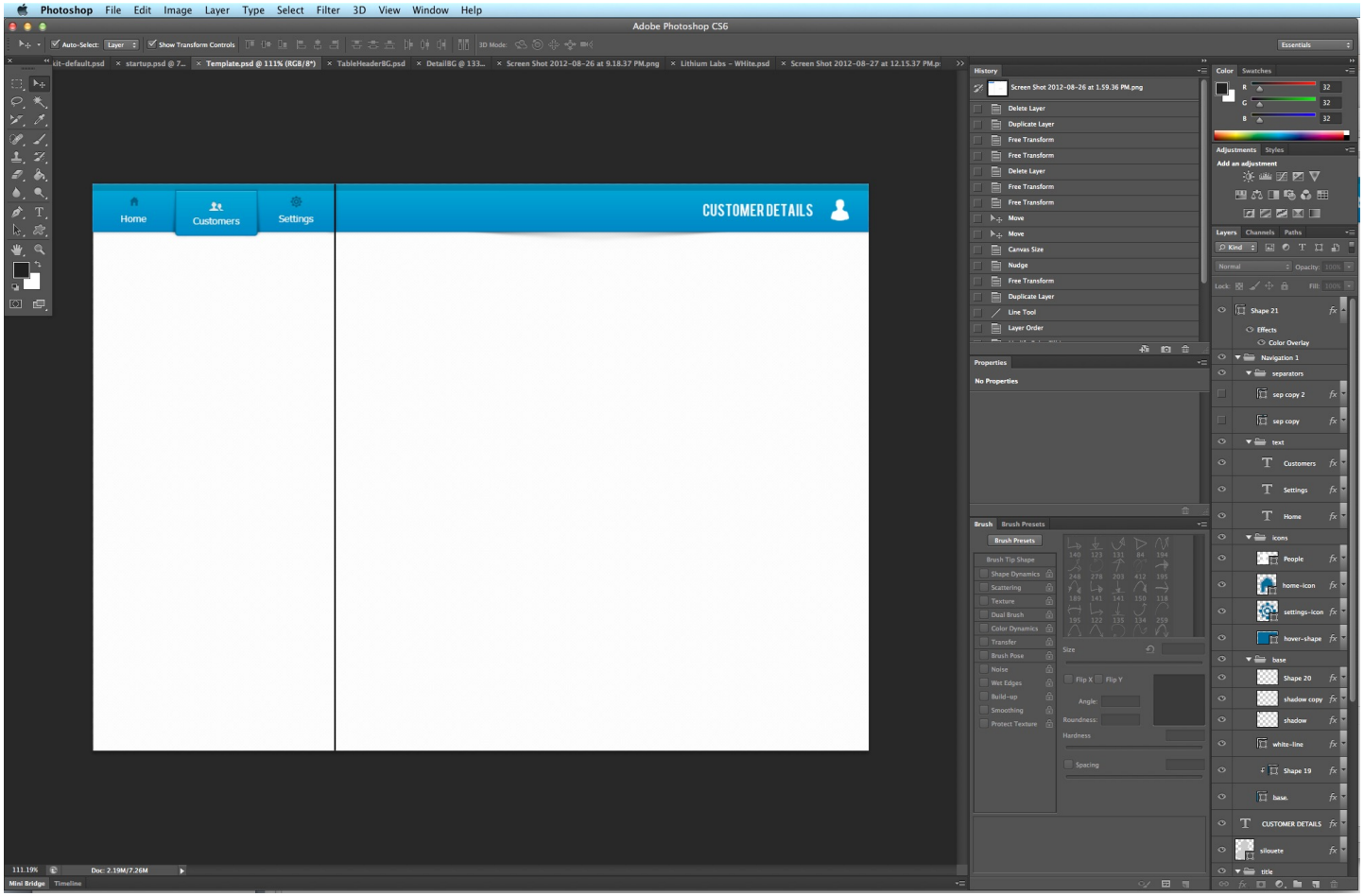
<d:customer>0000003895</d:customer>

SDLC – Checkpoint

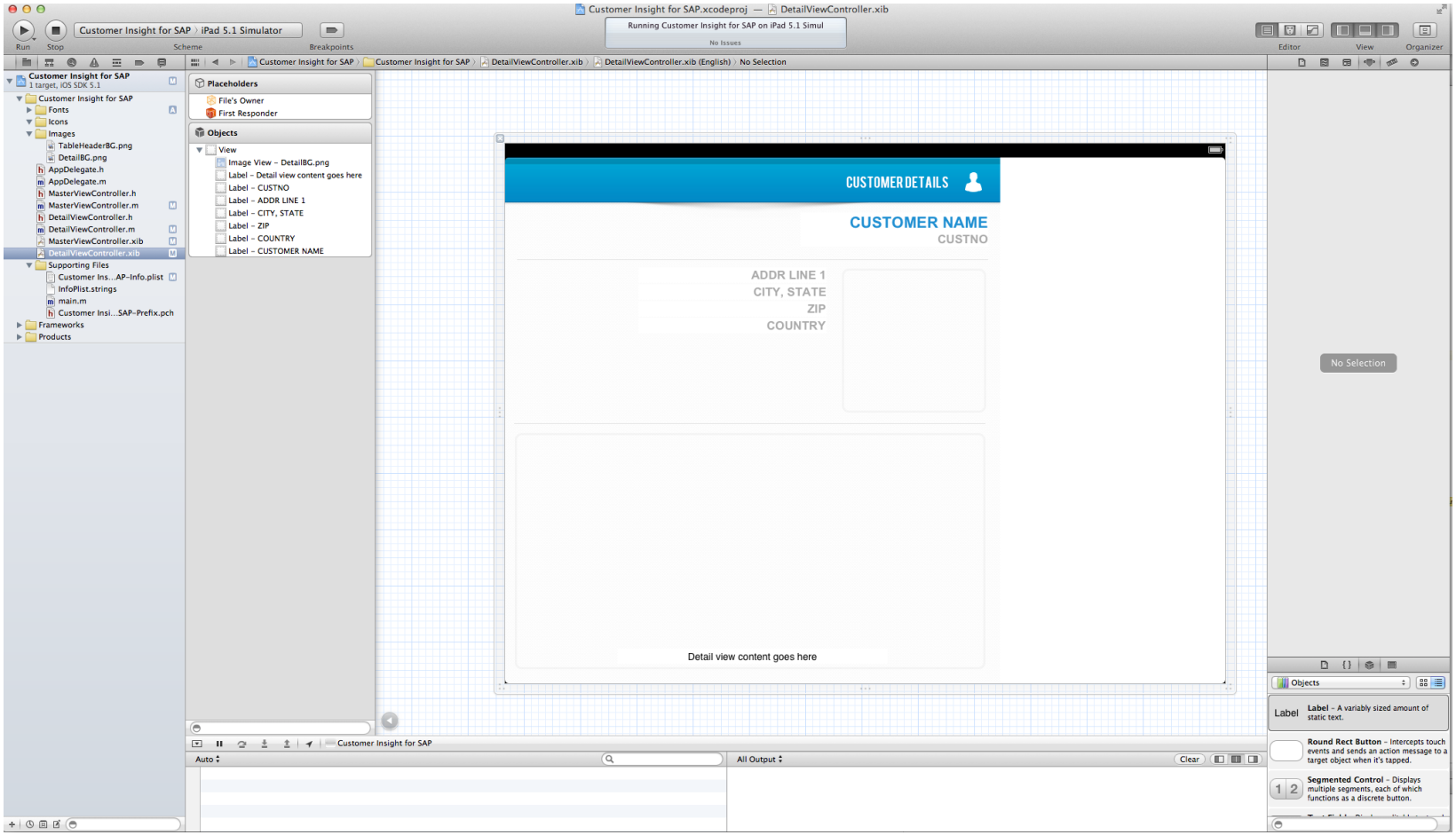
SDLC – Design UI



SDLC - Design


Photoshop File Edit Image Layer Type Select Filter 3D View Window Help
Adobe Photoshop CS6
Home
Customers
Settings
CUSTOMER DETAILS

SDLC - Design


Customer Insight for SAP.xcodeproj — DetailViewController.xib
Customer Insight for SAP › iPad 5.1 Simulator
Running Customer Insight for SAP on iPad 5.1 Simul
Customer Insight for SAP
Fonts
Icons
Images
TableHeaderBG.png
DetailBG.png
AppDelegate.h
AppDelegate.m
MasterViewController.h
MasterViewController.m
DetailViewController.h
DetailViewController.m
MasterViewController.xib
DetailViewController.xib
Supporting Files
InfoPlist.strings
main.m
Frameworks
Products
Placeholders
File's Owner
First Responder
Objects
View
Image View – DetailBG.png
Label – Detail view content goes here
Label – CUSTNO
Label – ADDR LINE 1
Label – CITY, STATE
Label – ZIP
Label – COUNTRY
Label – CUSTOMER NAME
CUSTOMER DETAILS
CUSTOMER NAME
CUSTNO
ADDR LINE 1
CITY, STATE
ZIP
COUNTRY
Detail view content goes here
No Selection
Label – A variably sized amount of static text.
Round Rect Button – Intercepts touch events and sends an action message to a target object when it's tapped.
Segmented Control – Displays multiple segments, each of which functions as a discrete button.

SDLC - Design

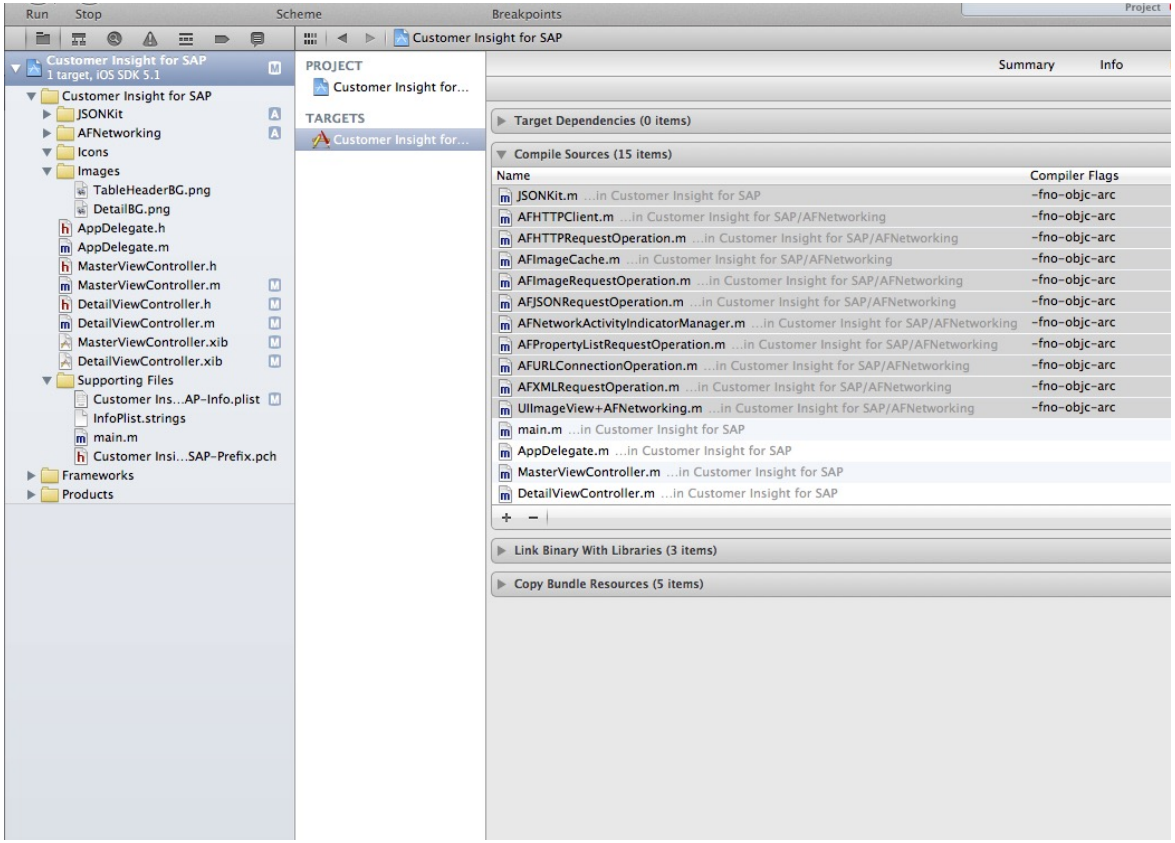
- Using 2 Open Source Packages
  - JSONKit – reading JSON data sources
  - AFNetworking – Handling connectivity

SDLC – Checkpoint

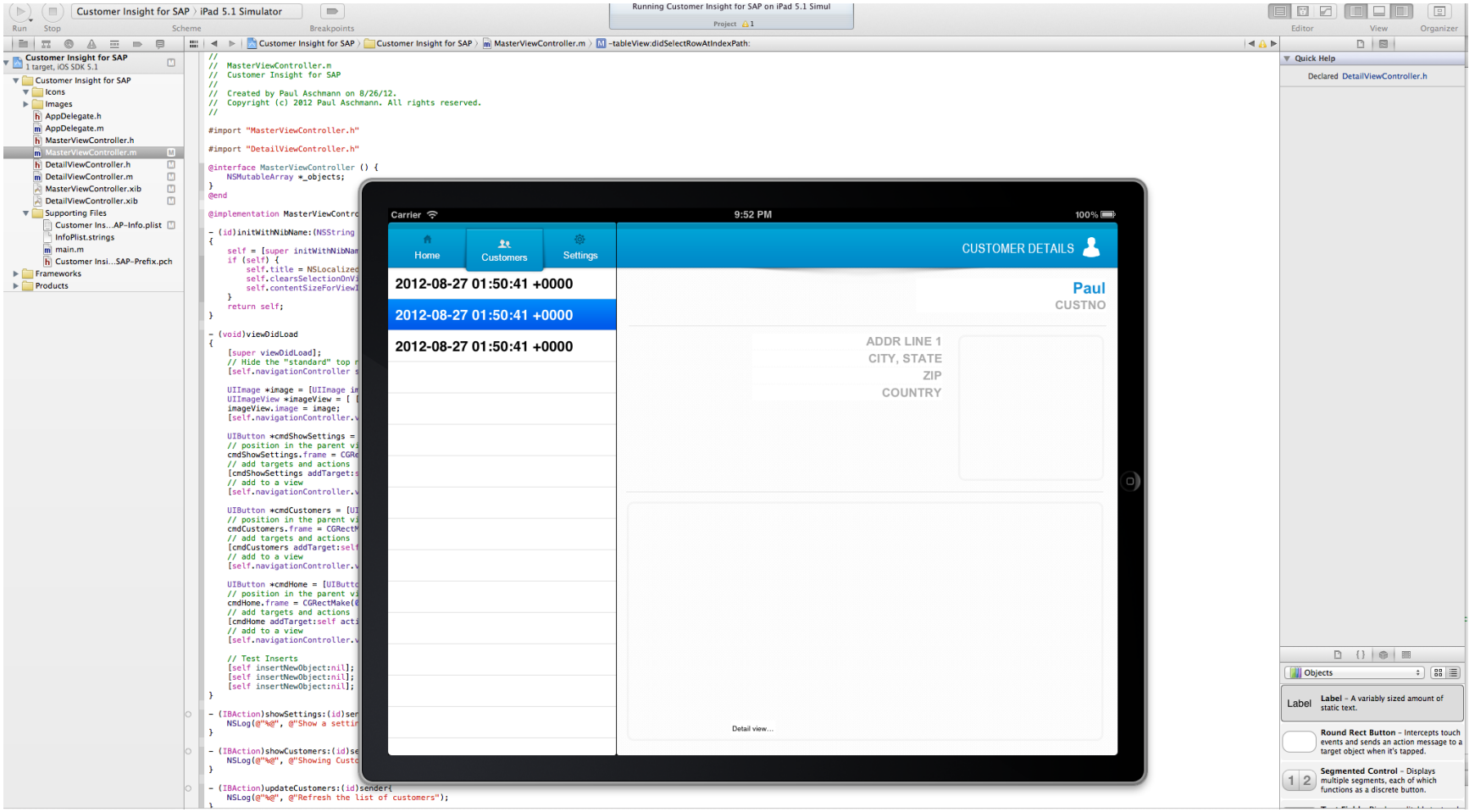
SDLC - Development

Xcode Project

1. Create new Master Detail Project
2. Add resources JSONKit (non-ARC)
3. Add AFNetworking (non-ARC)
4. You might need to add them to the compilation list



SDLC - Development



SDLC - Development

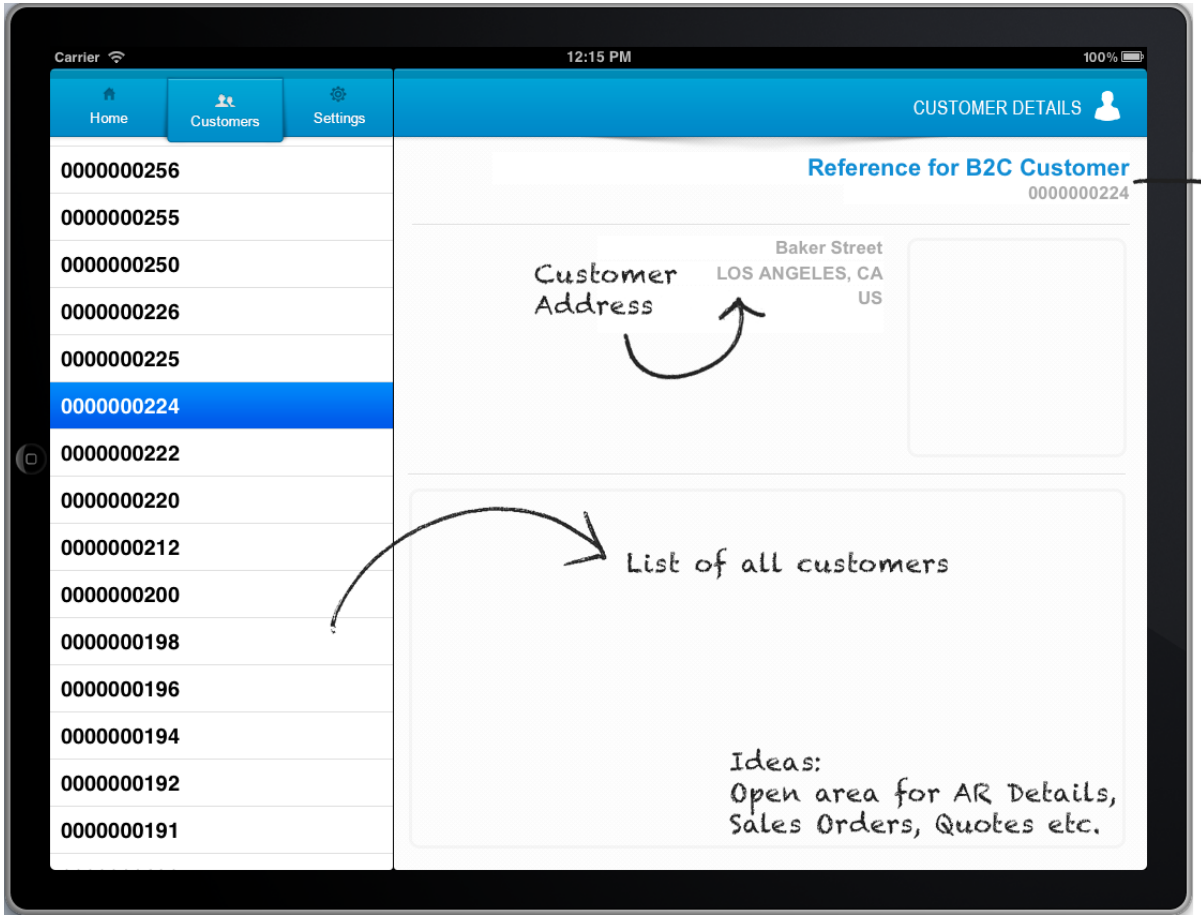
```
// This is a function to build the URL using the various parameters.
// TODO: Generally this would be from NSPrefs and Keychanin for security purposes, modify this below.
- (NSString *) getServiceURL{
    NSString *username1 = @"xxxxx";
    NSString *password = @"xxxxxx";
    NSString *servername = @"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



SDLC – Certification/Deployment

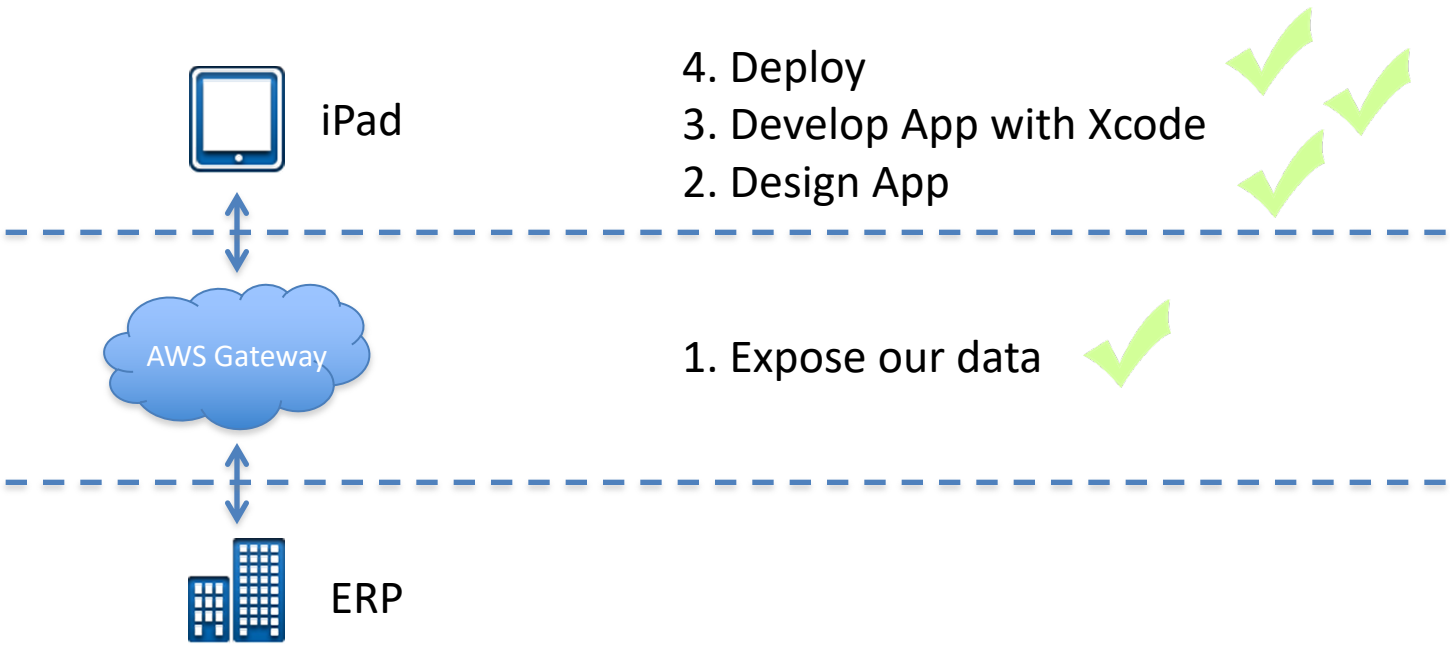
- Apple App Store
- Apple Requirements (+- 2 weeks)

- 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

SDLC – Checkpoint

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



Helpful Links

- Coding
  - Download the app here
  - JSONKit
  - AFNetworking
  - Gateway Master Install Guide
  - CRUD Operations with RFC

Helpful Links

- SAP Odata SDK for iOS
  - Handles Single sign on etc.
- SAP Netweaver Gateway Tool for Xcode
  - Quick and easy starting point
- URL Encoding in XCode
- iPhone/iPad Notepad Template
- Cocoacontrols.com