



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

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Mobility
+
Gateway



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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)

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

T-F100

SCRAP RATE: 20%

OPEN QUANTITY: 44%

COMPLETE: 56%

“ Maintenance to check out value 17 on Work Center 000, had issues with opening and closing. ”

60004501

2012-10-08 16:10:36





Whats the plan?



Platform



Prerequisites



SDLC

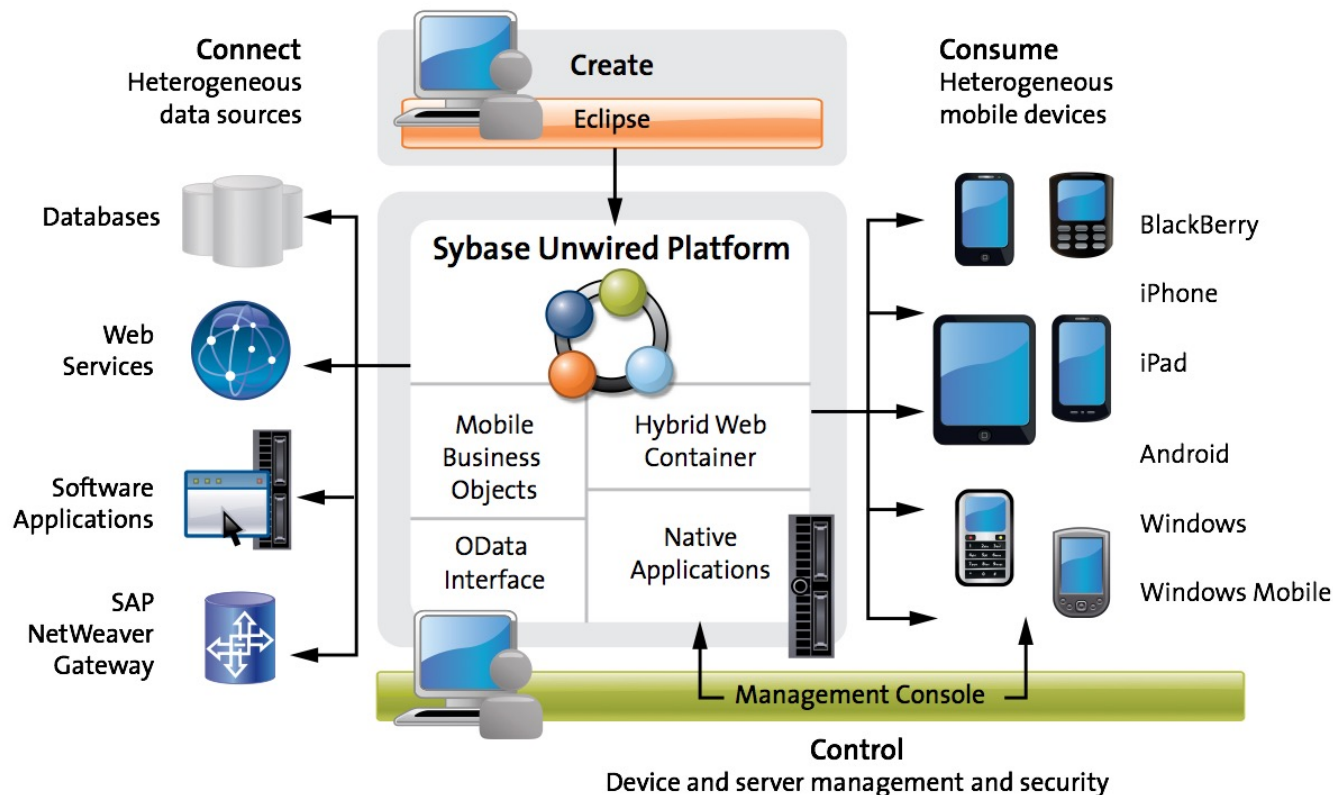


Summary



- 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





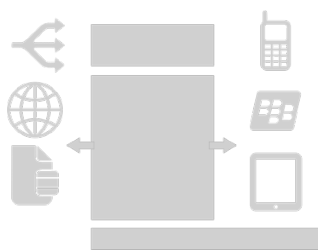
Platform

Prerequisites

SDLC



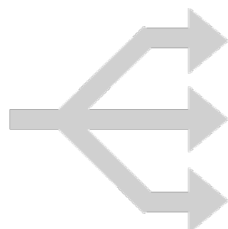
Mobile apps can be powered by:



Sup + Gateway



BSP/HTML



Gateway only



Custom



SOAP

Platform

Prerequisites

SDLC



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



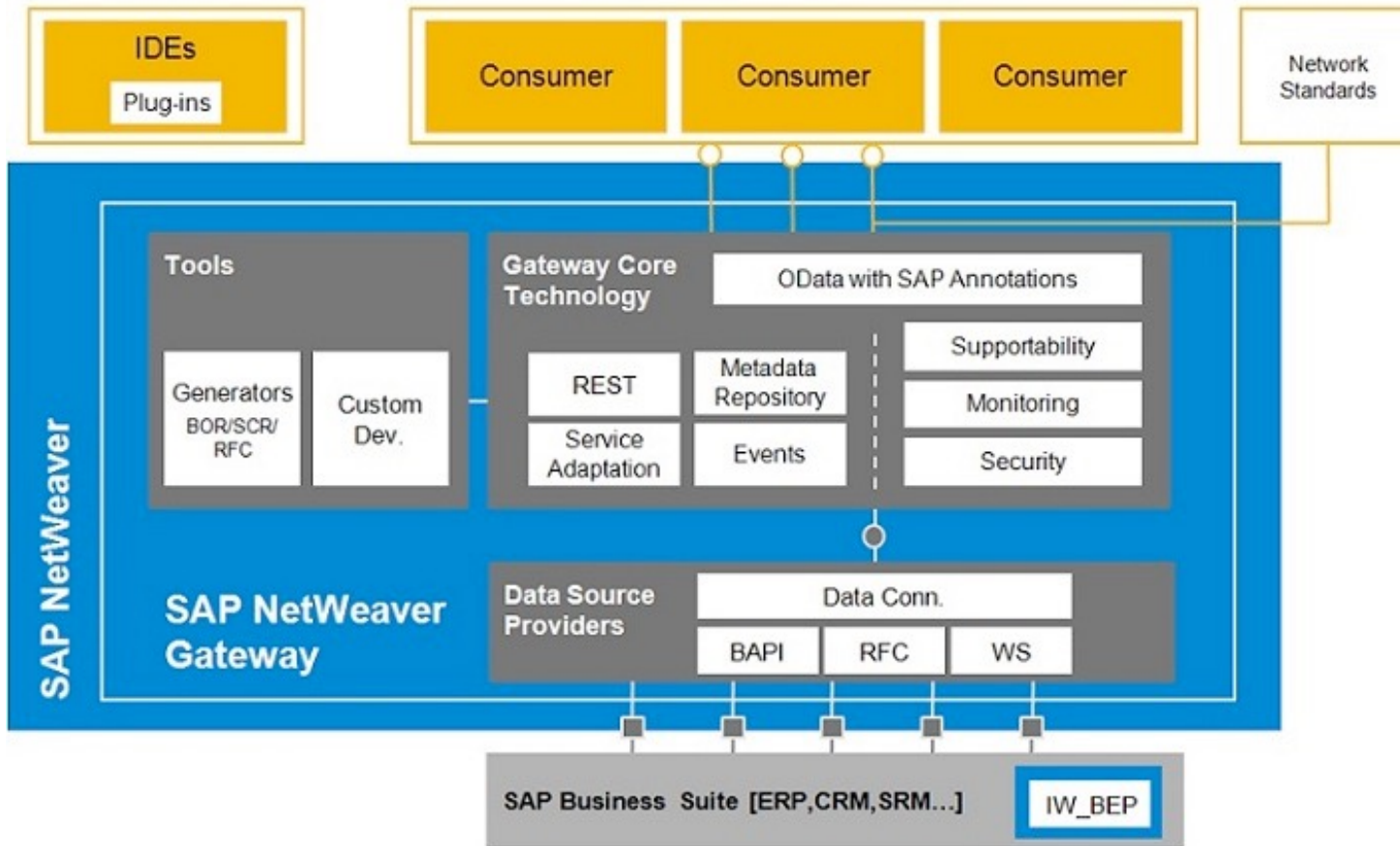
SAP Netweaver Gateway is not ...

- 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 **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 received over an HTTP(S) connection



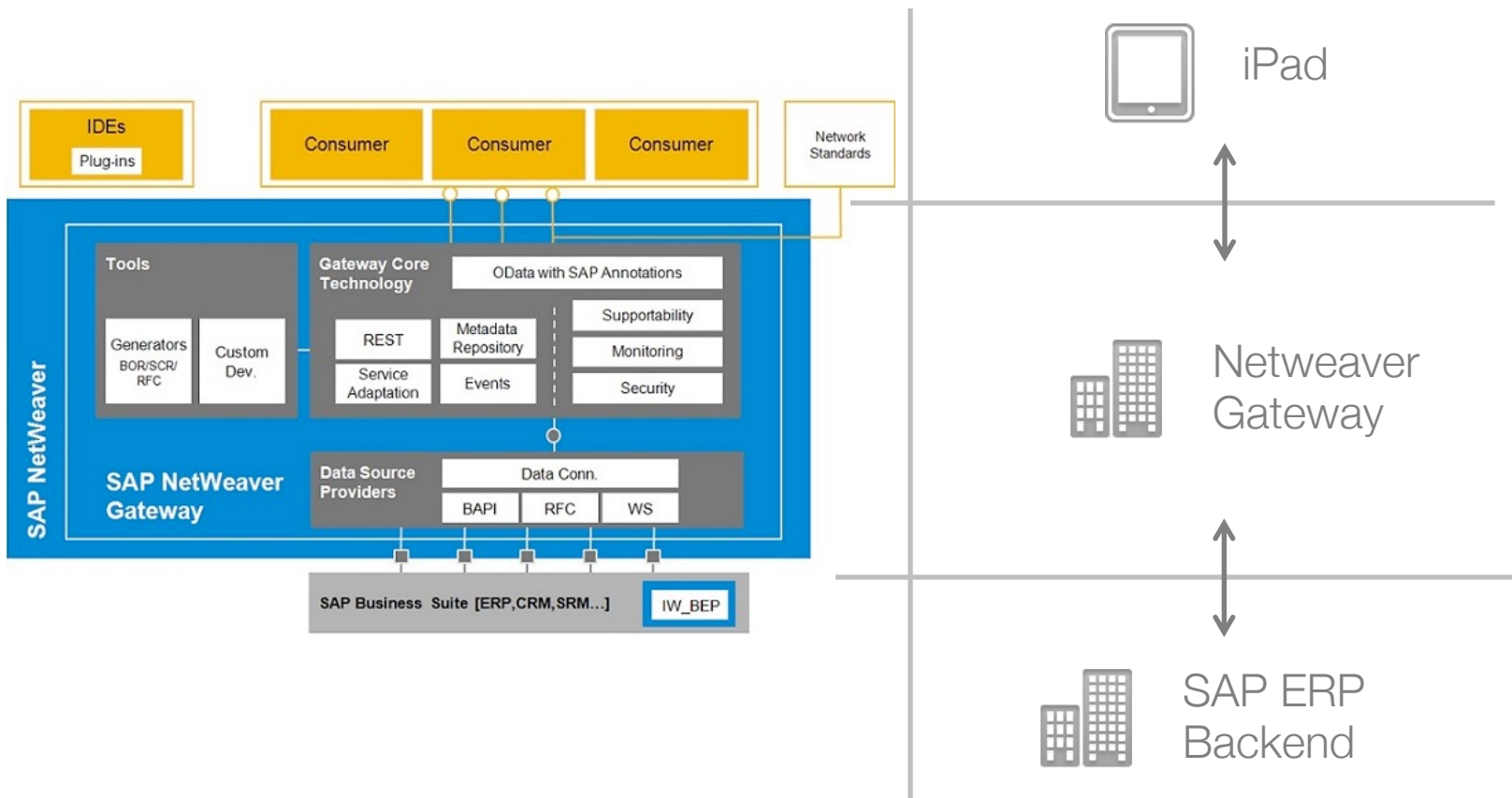


Platform

Prerequisites

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- 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)

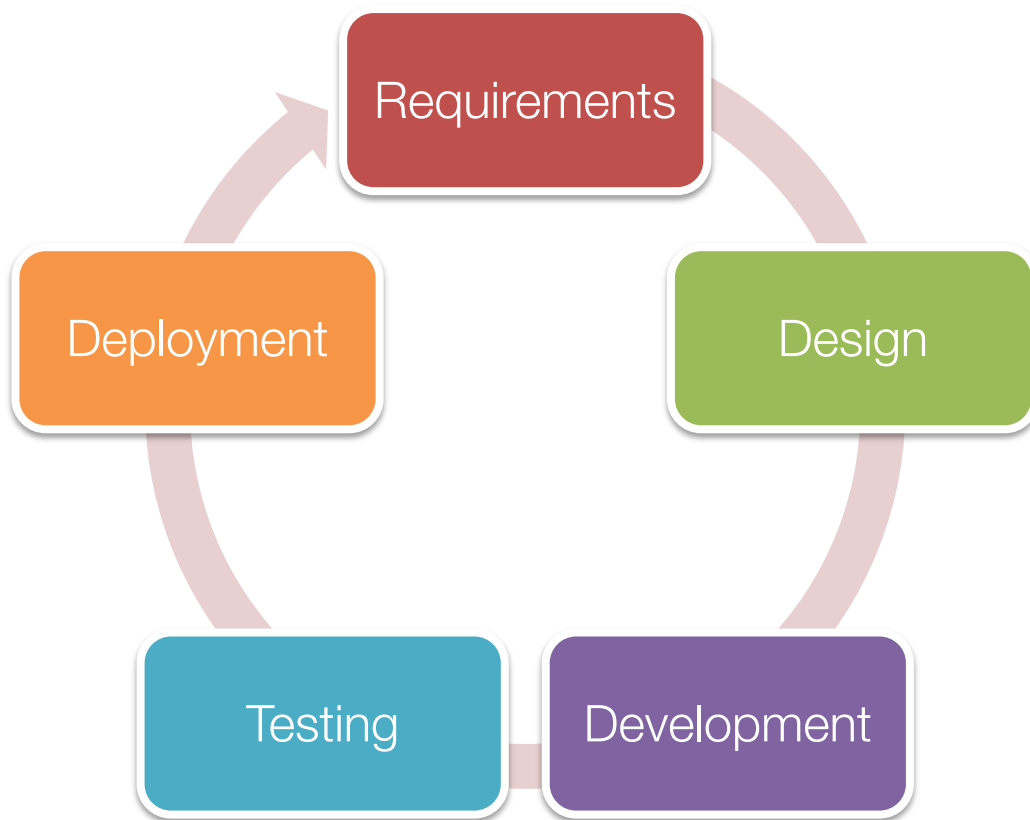
- GIMP (Free)

- Firefox

- RESTClient

- SQLite Manager





Platform

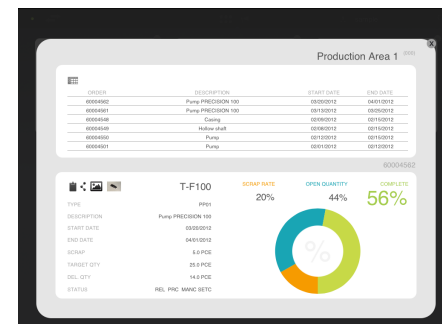
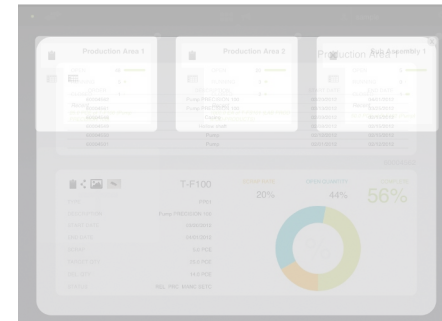
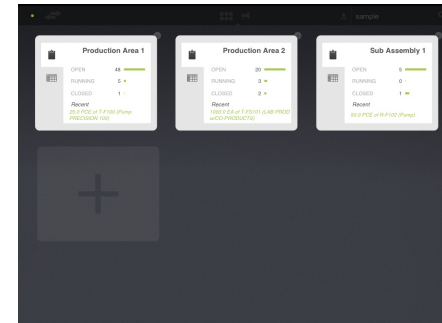
Prerequisites

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Use Cases

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



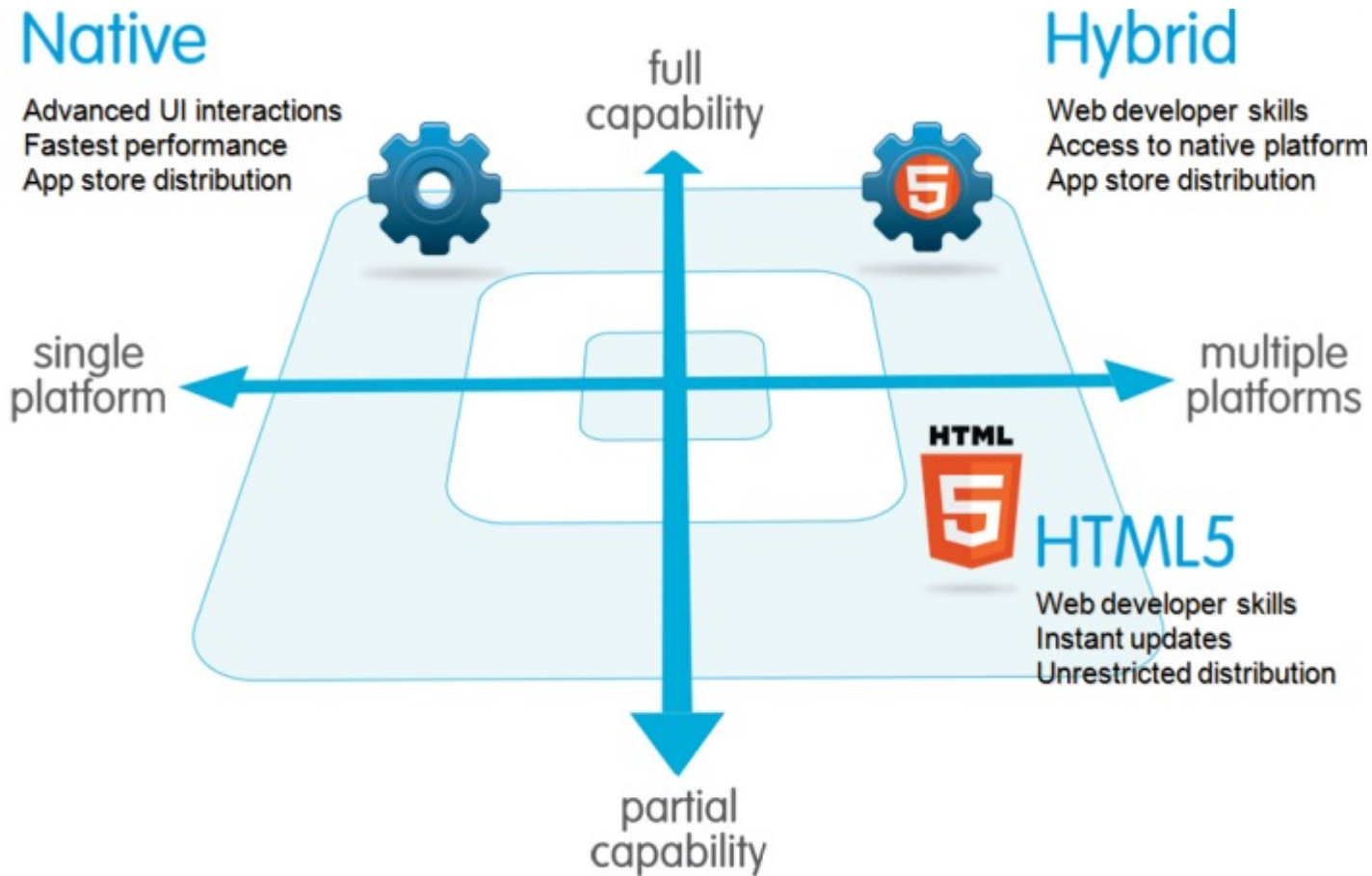
Platform

Prerequisites

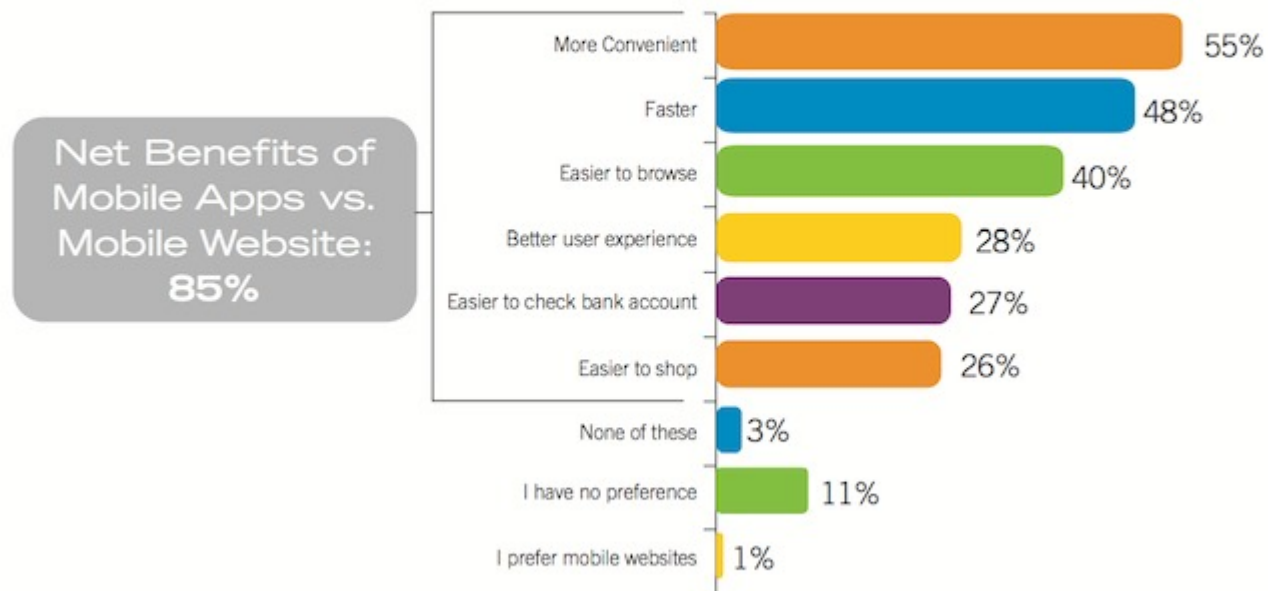
SDLC



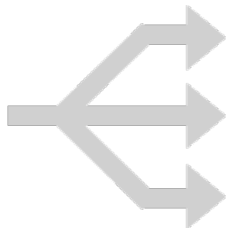




Mobile Apps vs. Mobile Websites



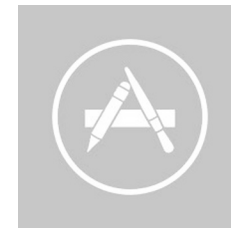
1. Start with the data model keeping the requirements in mind
2. Design the UI
3. Develop the application



Datasource

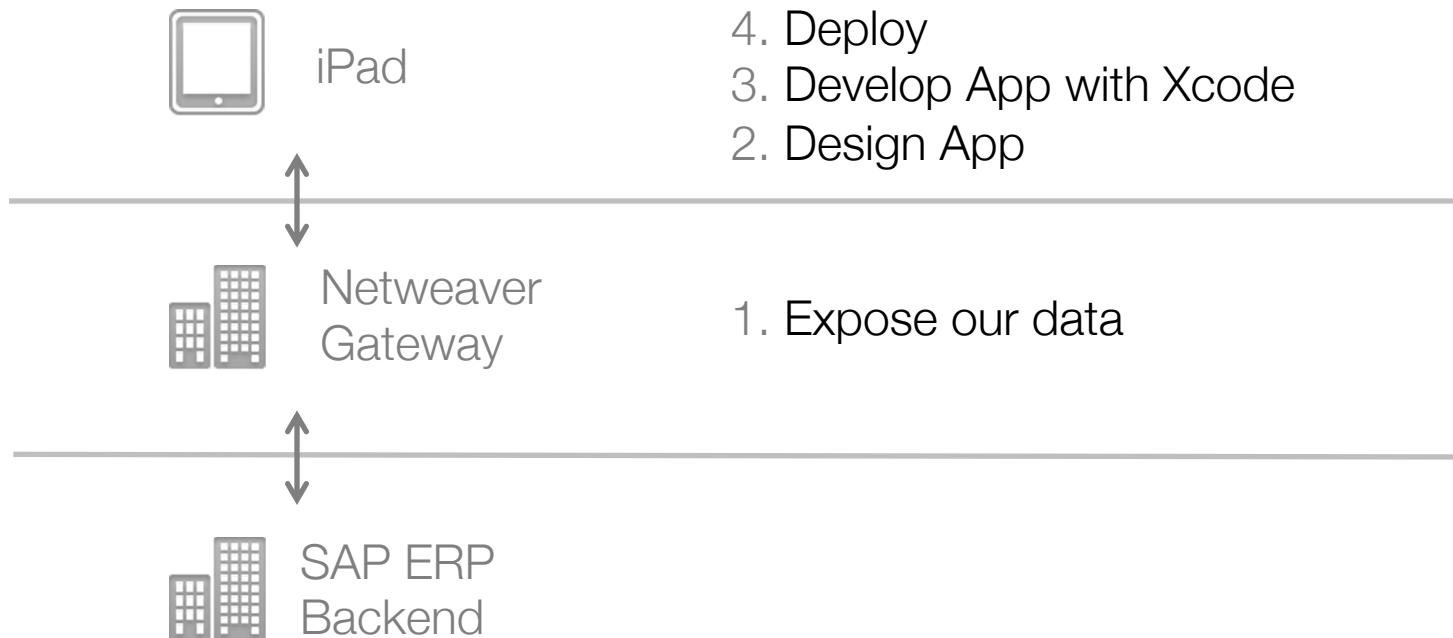


UI



App





Platform

Prerequisites

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- 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](http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_LIST/z_prod_ordersCollection?$format=json)



RESTClient

[-] Request

Method GET URL http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_LIST/z_prod_ordersCollection?\$filter

Body

Request Body

[-] Response

Response Headers Response Body (Raw) Response Body (Highlight) Response Body (Preview)

```

1. <?xml version="1.0" encoding="utf-8"?>
2. <feed xmlns:base="http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_LIST/" xmlns:"http://www.w3.org/2005/Atom"
3. xmlns:s="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata" xmlns:d="http://schemas.microsoft.com/ado/2007
4. /08/dataservices">
5. <id="http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_LIST/z_prod_ordersCollection">
6. <title type="text">z_prod_ordersCollection</title>
7. <updated>2013-03-27T15:37:48Z</updated>
8. </author>
9. <name/>
10. <link href="z_prod_ordersCollection" rel="self" title="z_prod_ordersCollection"/>
11. <entry>
12. <id="http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_LIST/z_prod_ordersCollection('000060003965')">
13. <title type="text">z_prod_ordersCollection('000060003965')</title>
14. <updated>2013-03-27T15:37:48Z</updated>
15. <category term="Z_PROD_LIST/z_prod_orders" scheme="http://schemas.microsoft.com/ado/2007/08/dataservices"
16. <link href="z_prod_ordersCollection('000060003965')" rel="self" title="z_prod_orders"/>
17. <content type="application/xml">
18. <properties>
19. <unit_iso>MOM</unit_iso>
20. <order_number>000060003965</order_number>
21. <int_obj_no/>
22. <production_start_date m:null="true"/>
23. <actual_release_date m:null="true"/>
24. <sales_order_item/>
25. <material>CPF10104</material>
26. <target_quantity>100.000</target_quantity>
27. <order_seq_no/>
28. <sched_release_date m:null="true"/>
29. <enter_date m:null="true"/>
30. <finish_time>PT00H00M00S</finish_time>
31. <production_schedulers>10</production_schedulers>
32. <finish_date>2012-05-15T00:00:00</finish_date>
33. <int/>
34. <routing_no/>
35. <material_version/>
36. <exp_date m:null="true"/>
37. <actual_start_time>PT00H00M00S</actual_start_time>
38. <system_status>REL PRT PRC BCQD MNC OPNG SETC</system_status>
39. <collective_order/>
40. <conf_no/>
41. <confirmed_quantity>0.000</confirmed_quantity>
42. <order_type>PP01</order_type>
43. <material_external/>
44. <plan_plant/>
45. <deletion_flag/>
46. <material_guid/>

```

RESTClient

[-] Request

Method GET URL http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_CONF/z_prod_confCollection?\$filter=orderId eq '00000004756'&format=json

Body

Request Body

[-] Response

Response Headers Response Body (Raw) Response Body (Highlight) Response Body (Preview)

```

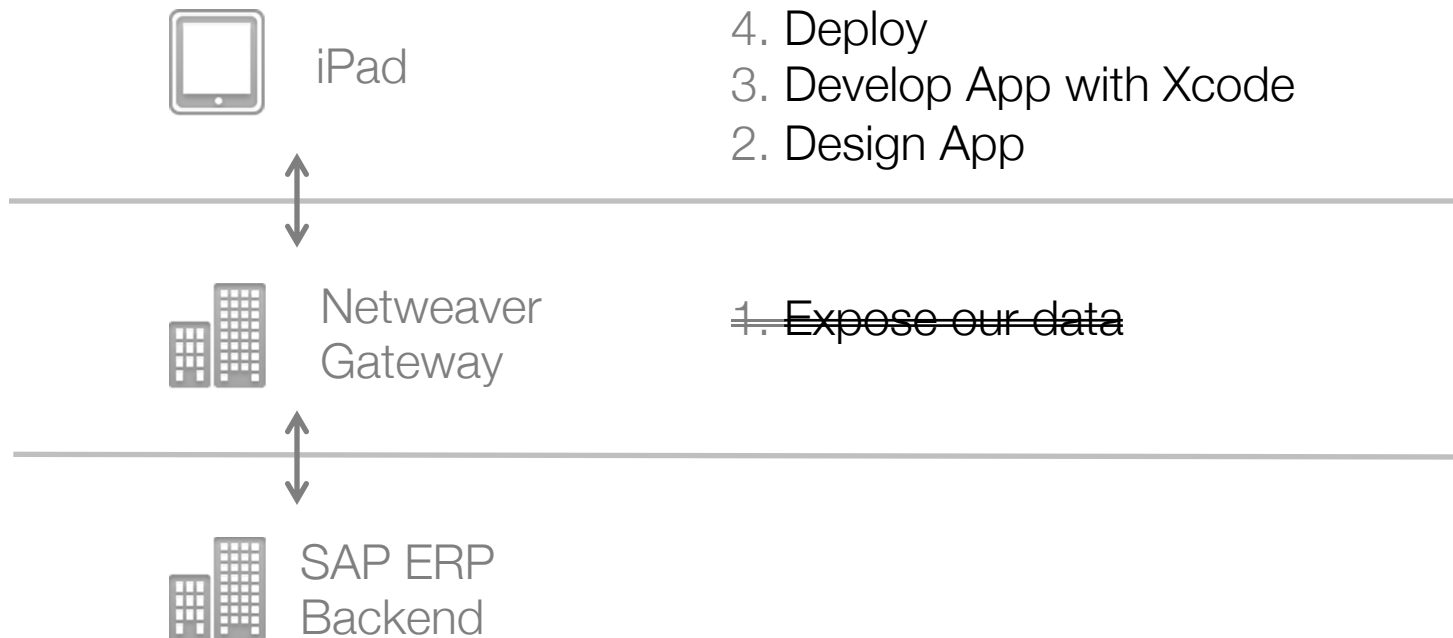
1. {
2.   "id":
3.     "http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_CONF/z_prod_confCollection('000014894')",
4.   "results":
5.     [
6.       {
7.         "__metadata":
8.           {
9.             "uri": "http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_CONF
10. /z_prod_confCollection('000014894')",
11.             "type": "Z_PROD_CONF_z_prod_conf"
12.           },
13.         "ex_id": "00000000000000000000000000000000",
14.         "created_time": "PT04H20M52S",
15.         "created_date": "Date(134576440000)",
16.         "conf_no": "000014894",
17.         "operation": "",
18.         "conf_text": "",
19.         "rev_conf_cnt": "L20",
20.         "suboperation": "",
21.         "created_by": "P06679",
22.         "conf_cnt": "00000001",
23.         "order_id": "00000004756",
24.         "fin_conf": "",
25.         "reverseopt": "",
26.         "sequence": ""
27.       }
28.     ],
29.   "__metadata":
30.     {
31.       "uri": "http://107.21.103.252:8000/sap/opu/odata/sap/Z_PROD_CONF
32. /z_prod_confCollection('000014894')",
33.       "type": "Z_PROD_CONF_z_prod_conf"
34.     },
35.   "ex_id": "00000000000000000000000000000000",
36.   "created_time": "PT04H30M35S",
37.   "created_date": "Date(134576440000)",
38.   "conf_no": "000014894",
39.   "operation": "",
40.   "conf_text": "",
41.   "rev_conf_cnt": "L20",
42.   "suboperation": "",
43.   "created_by": "P06679",
44.   "conf_cnt": "00000001",
45.   "order_id": "00000004756",
46.   "fin_conf": "",
47.   "reverseopt": "",
48.   "sequence": ""
49. }

```

Platform
Prerequisites
SDLC



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Platform

Prerequisites

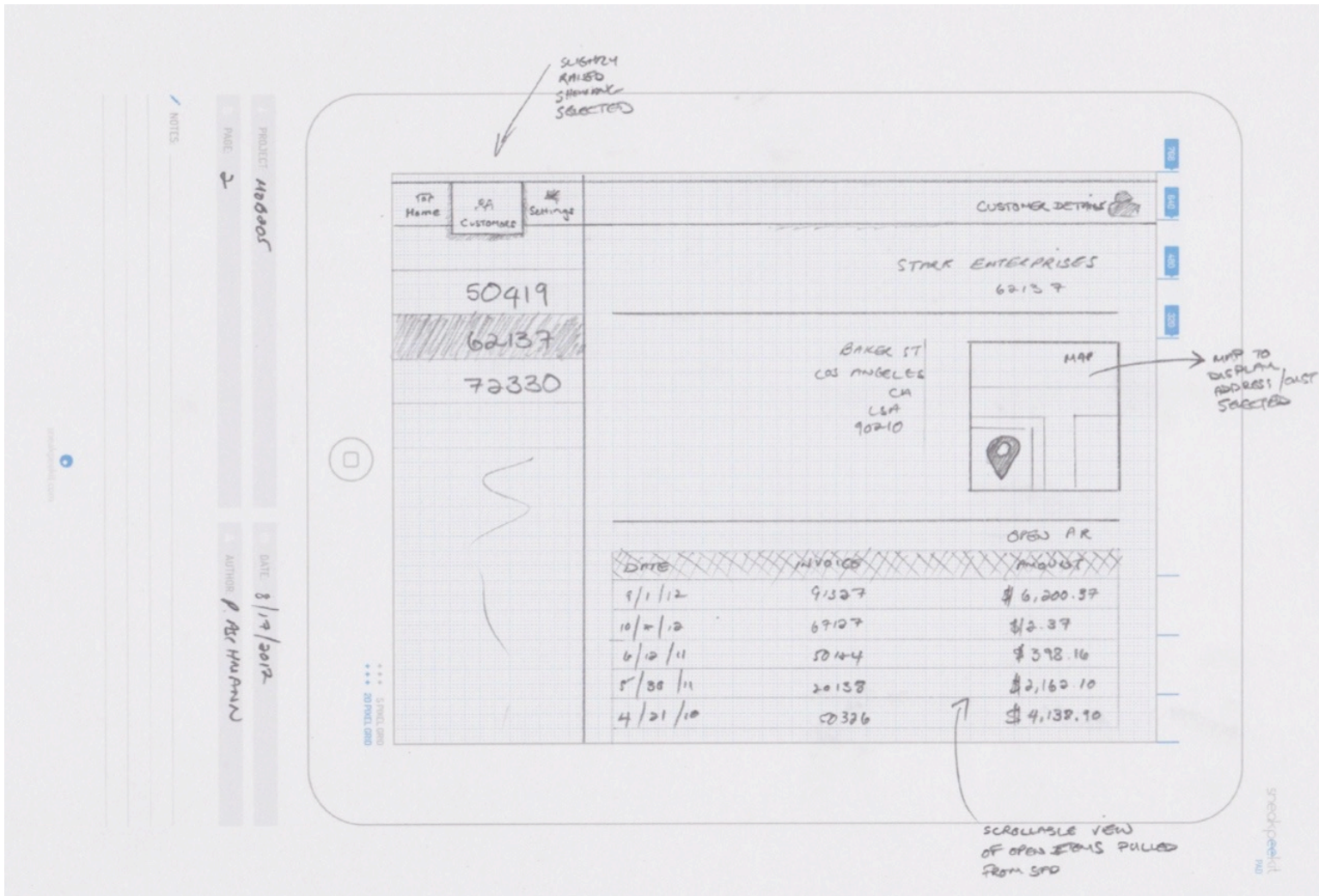
SDLC





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



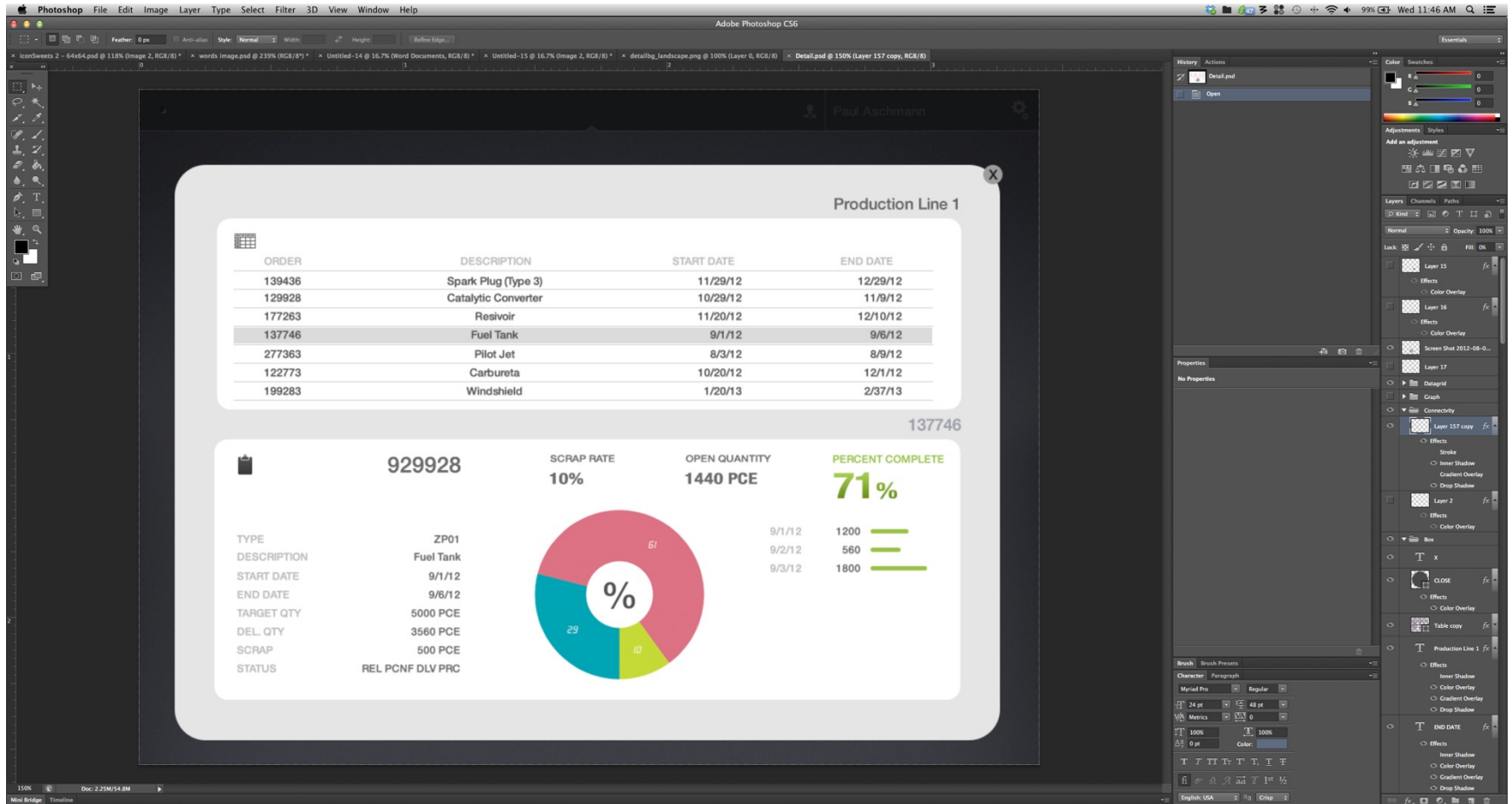


Platform

Prerequisites

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Platform
Prerequisites
SDLC



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The screenshot displays the Xcode IDE environment for an iPad 6.1 Simulator. The main workspace shows a 'Work Center' app interface with the following components:

- Table:** A table with columns: ORDER, DESCRIPTION, START DATE, END DATE.
- Material Number:** A section with a trash icon, a UI icon, and the text 'Material Number'.
- Metrics:**
 - SCRAP RATE: 100%
 - OPEN QUANTITY: 100%
 - COMPLETE: 100%
- Pie Chart:** A pie chart representing the completion status.
- Table Data:**

TYPE	REL PCNF DLV PRC
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

The Xcode interface also shows the project structure on the left, the object library in the middle, and the interface builder on the right.

Platform
Prerequisites
SDLC



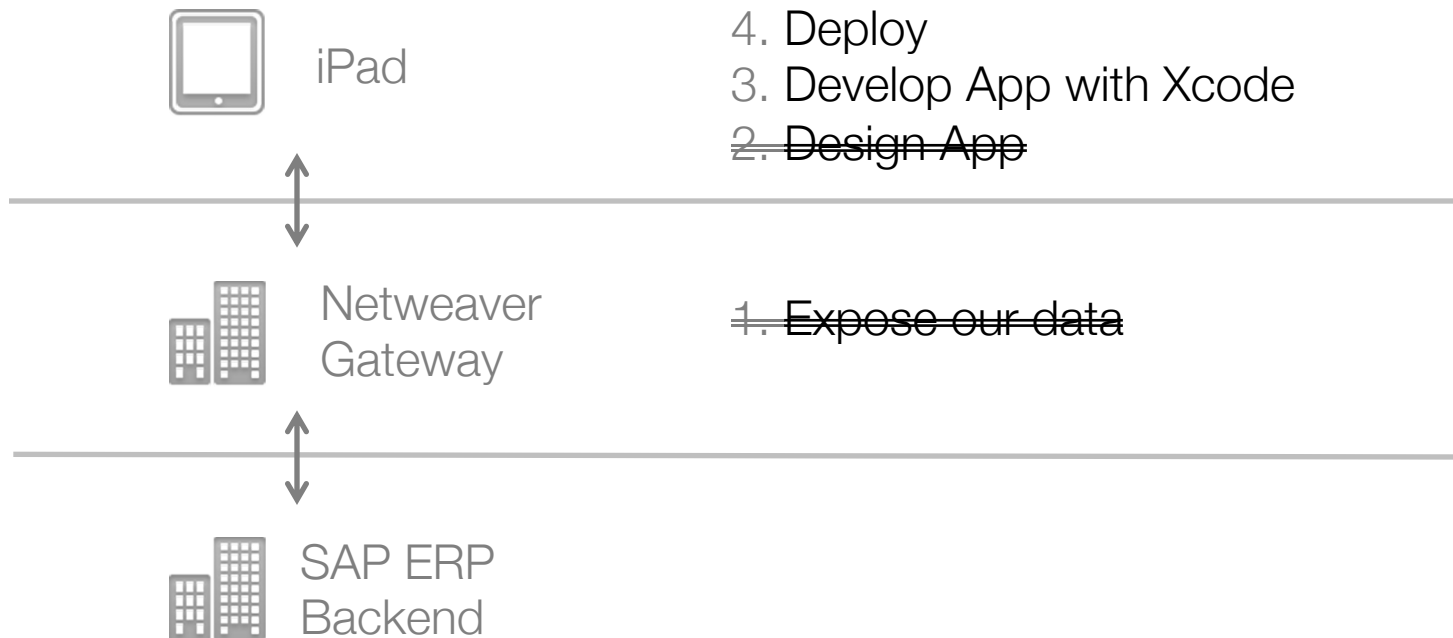
- Open Source Packages

JSONKit – reading JSON data sources

AFNetworking – Handling connectivity

github
SOCIAL CODE HOSTING





Platform

Prerequisites

SDLC



The screenshot displays the Xcode development environment. At the top, there's a simulator window for 'ProdOrders' on an iPad 6.1. The main workspace is divided into three panes: a Project Navigator on the left showing the file hierarchy, a central Source Code Editor with Objective-C code for a downloadUpdates method, and a right-hand sidebar with tool panels. The code in the editor includes network requests, database operations, and JSON parsing. The sidebar panels show file name 'ViewController.m', localization settings, target membership for 'ProdOrders', and text settings like encoding and line endings.

Platform

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```
// This is a function to build the URL using the various parameters.
// TODO: Generally this would be from NSPrefs and Keychain 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: @"?$filter=customer%20lt%20'0000000300'&customer%20gt%20'000000001'"];
    strURL = [strURL stringByAppendingString: @"&$format=json"];

    return strURL;
}
```



```

- (void) downloadUpdates{
    // Start the small spinning wheel (network activity 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];

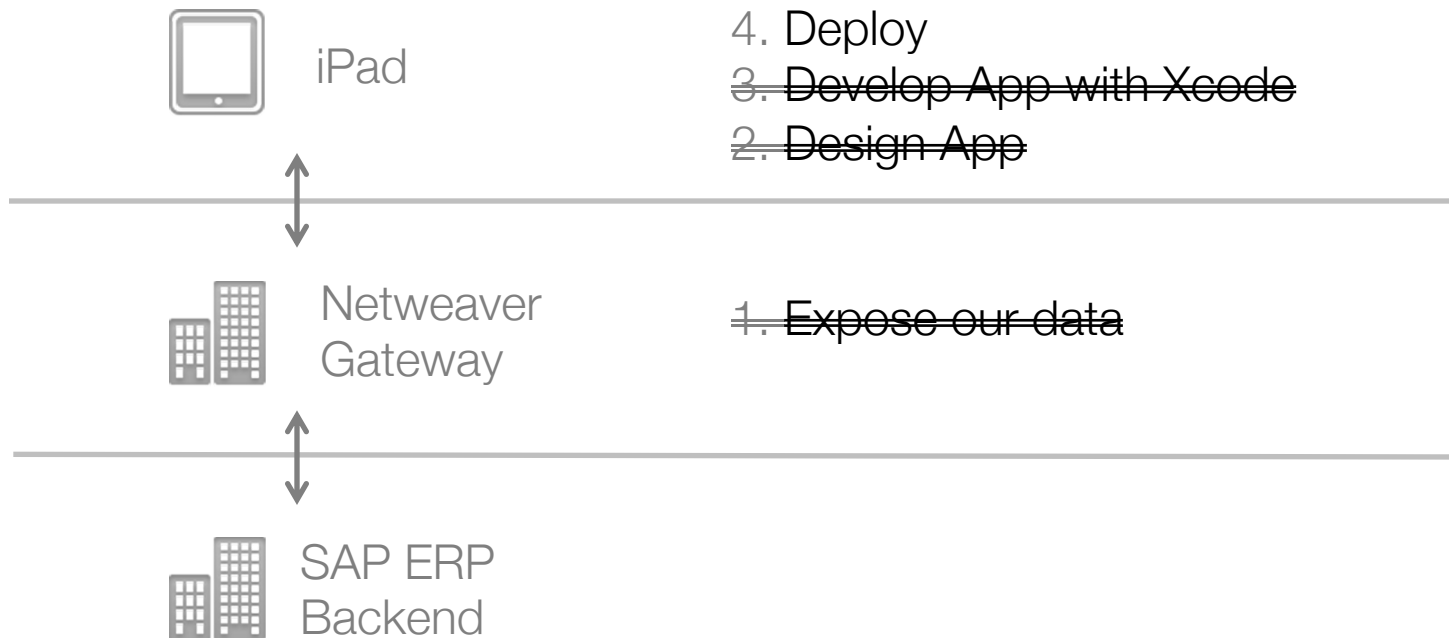
        // In the event an error occurs, display a error message as well as the error response from the call.
        NSLog(@"%@", error);
        UIAlertView *message = [[UIAlertView alloc] initWithTitle:@"Connection Error"
            message:@"Please check your connection and the Server, Username and Password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

        [message show];
    }];

    [operation start];
}

```





Platform

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Demo

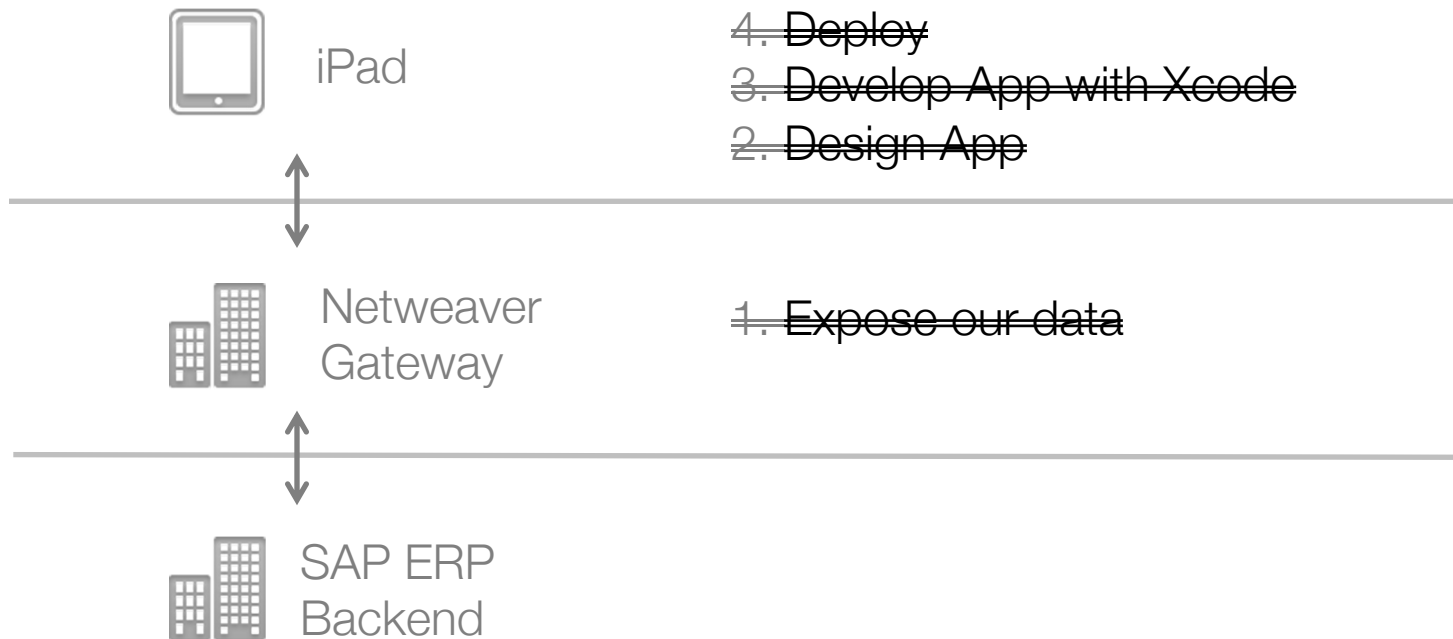
Platform

Prerequisites

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



- 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



Hours

8	4	110	8
Requirements	Services	Development	Testing

=

Files

40	159	16	5
Images	Files	“Forms”	OS

=



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



- [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



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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.

