



Professional Expertise Distilled

IBM WebSphere Portal 8: Web Experience Factory and the Cloud

Build a comprehensive web portal for your company with a complete coverage of all the project lifecycle stages

*Foreword by Joey Bernal, Chief Technology Officer, Element Blue, LLC
Former Chief Programmer – IBM Intelligent Operations Center*

Chelis Camargo

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BIRMINGHAM - MUMBAI

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Foreword

When I joined IBM in early 2001, WebSphere Portal was little more than an idea. But some believed this was going to be the future of web technology. When WebSphere Portal v1 was released later in that same year, spending the time required to cobble together the components needed to make it run, was an exercise in patience and persistence. But it did run; and it got better, until eventually it evolved into the robust enterprise platform that is the focus of this book.

The emphasis on the word 'Enterprise' within the content of this book is no mistake. Portal projects within an organization are generally enterprise-level projects. Of course, there are smaller and more focused portal implementations that lean toward a specific value proposition; but generally, a portal's strength lies in integrating an organization's content, processes, and systems in new, productive ways. This allows the portal to provide one-stop access across the entire organization. These types of large projects can bring out the best and worst of a company's internal processes and systems. In some ways, they can be the most challenging projects on the planning board.

Why is that? A portal can provide an integration and aggregation point for all of your existing systems. This allows you to expose deep hidden knowledge and information, providing immediate potential benefit. However, this can also expose weaknesses in those systems, due to integration complexity, scalability, security issues, or other lurking problems. It can also force an organization to reevaluate the way it does business. Processes need to be documented, reviewed, or reinvented, if maximum benefit is to be gained by the effort.

This book is all about providing guidance, expert advice, and counsel to the reader, and is the culmination of years of knowledge and best practices in the industry. By bringing together their own extensive knowledge combined with the knowledge of other practitioners, consultants, developers, and customers and then distilling the good bits, Chelis and Helmar have provided a new look at the industry, which is both welcome and long overdue. One thing I love about this book is its appeal to many types of different readers.

The book begins with a focus on identifying and defining your project, giving business owners and project managers the tools and information they need, to make the right decisions from the start. It then provides an update on some of the latest approaches for delivering projects in the most efficient way possible, and with the quickest return on investment. These could save many project teams from having to learn some things the hard way.

Starting with *Chapter 7, Introduction to Web Experience Factory*, the book takes a more developer-focused turn, providing readers with advice and examples for building the application functionality a project requires. This includes guiding the developer into the world of the Web Experience Factory and teaching him/her how to use it effectively to deliver results. The chapters build the reader's knowledge level, to go quickly from building simple applications to more advanced capabilities, such as profiling users, and providing customized views for mobile devices. Finally, *Chapter 18, Portal Troubleshooting* and the next chapters will appeal to anyone focused on administration and management. This is especially important for those who are challenged with the goal of making an environment run efficiently and effectively.

While different areas of this book focus on the goals and responsibilities of different stakeholders within an organization, this does not imply that these sections within the book are mutually exclusive. In fact, it implies just the opposite; while some chapters have more technical details, others are more focused on the overall business experience, providing benefit to everyone involved in the project. I can attest to this from personal experience; in reviewing this book I have read it from cover to cover, and I have learned much, much more than what my feedback to the authors has provided.

We all know that technology moves in cycles, and I have found that the same is true for the technical community. Hard-won knowledge and best practices are learned, gathered, and shared until everyone seems to be well educated. Eventually, a new crop of customers and users emerge and technology evolves just enough that best practices, once thought to be old news, are new again. This knowledge is shared across the community and a new cycle of learning begins. In that light, this book will help all of us learn, review, and continue this cycle. In some ways, the knowledge in this book can be considered timeless. Some best practices of this nature really never go out of style, and this book is packed with them.

But more than that, Chelis and Helmar have opened up a whole new approach to both portal and non-portal projects for the reader. If you are still looking for what you will learn, consider the following key themes that are covered:

- Helping us learn about the capability and capacity of hosted solutions in the cloud
- Helping us to understand which reusable industry assets are readily available
- Providing instruction and guidance on how to use the latest tools for quickly delivering custom applications

Armed with this knowledge, portal solutions can be delivered to provide business value quicker and easier than ever before. The resulting applications can scale better, run cheaper, and be more easily managed than their predecessors. This in itself makes it more than worth the price of the book.

To the authors, I say "Thanks guys", and to the reader I simply say, "Enjoy!"

Joey Bernal

Chief Technology Officer, Element Blue, LLC

Former Chief Programmer - IBM Intelligent Operations Center

About the Authors

Chelis Camargo has over 25 years of experience in IT consulting. He is a self-taught technology enthusiast and patent-awarded performance SME.

With over 10 years of portal experience as a Senior Lead Architect, he has led many large-scale, cross-domain, business-critical portal efforts with multimillion budgets. From proposals to business analysis to delivery, he has managed relations from the top executive business to the very technical level. Chelis has worked for the IBM Portals practice, and consulted for many IBM software divisions and business partners.

In his free time, his interests range from artificial intelligence to robotics, astronomy, Tesla, and quantum physics. Occasionally, he plays some "rare" percussion instruments, such as Cuíca (or "kweeca") and Berimbau (or beÉ¼Ä©Ë^baw) . Above all, he enjoys spending quality time with his family, teaching, and playing with his son. More about him can be found on LinkedIn.

Helmar Martens holds a degree in Economics from Mackenzie Presbyterian University, located in Sao Paulo, Brazil.

Helmar has been working with WebSphere Portal and WEF (formerly WPF) since 2000, when he joined Bowstreet, the company which originally created WEF. Helmar has also worked for IBM in several capacities including that of Lead Support Engineer, Technical Sales Specialist, and IT Specialist.

As a Senior WEF Specialist and Portal Architect, Helmar has worked in projects for clients such as NASA, Citibank, New York City Department of Education, Swiss Reinsurance, and other customers in US, Europe, and Asia.

Currently, Helmar lives in Texas, where he enjoys a wonderful Texan social and cultural atmosphere.

I want to thank God for the blessing of writing this book, as well as for the gift of eternal life through his son, Jesus Christ.

I also want to thank my beloved wife, Simone Martens, who has been an inspiration and is my greatest motivator, not only to write this book, but above all, in life.

About the Reviewers

Joey Bernal is a Managing Partner and Chief Technology Officer of Element Blue, LLC, an award winning IBM business partner. Joey is a leader and veteran of IBM software and solutions, and was formally the Chief Programmer of IBM's Intelligent Operations Center (IOC). His extensive background in portal architecture, and development and enterprise application architecture was applied to leading the IOC design and development. Prior to that, Joey was a Technical Leader for the WebSphere Portal Software Services team for IBM. He has assisted in many technical areas, especially IBM cross-brand opportunities with WebSphere and WebSphere Portal solutions within an enterprise context.

He is the author of many popular books and articles including, *Web 2.0 and Social Networking for the Enterprise*, *Application Architecture for WebSphere*, and *Programming Portlets*. Joey has a B.Sc. in Computer Sciences from the University of Montana and is completing his Masters at Regis University.

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Mark was referenced in the book, *Lotus Notes Developer Toolbox: Tips for Rapid and Successful Deployment*, by Mark Elliott, which was published on October 10, 2006 at IBM Press. You can find more information about this book at <http://www.ibmpressbooks.com/bookstore/product.asp?isbn=0132214482>.

Mark has also written several articles for IBM developerWorks, which can be found at (<http://www.ibm.com/developerworks/>).

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Table of Contents

Preface	1
Chapter 1: Portal Assessment	9
IBM WebSphere Portal (WP), IBM Web Experience Factory (WEF), and the cloud	10
SaaS/IaaS/PaaS cloud engagement models	11
Getting started – case study	12
Step 1 – background, objective, and approach	13
Step 2 – business need and portal alignment:	14
Business value alignment	14
Business drivers and current state	15
Current state – pain points and how portal capabilities can fill the gap	15
Step 3 – A "Day-in-the-Life" demonstration	17
Step 4 – the financial case	17
Step 5 – recommendations and next steps—POV	18
Cloud use cases applied	19
Cloud approach with IBM enterprise SmartCloud – initial high-level tasks	20
Cloud approach with Amazon Elastic Compute Cloud (EC2) – initial high-level tasks	21
Portal and Cludonomics sense	23
Summary	26
Chapter 2: Portal Governance: Adopting the Mantra of Business Performance through IT Execution	27
Social and technical evolution	28
Five steps to governance	29
Establish a sense of urgency	30
A2Z Bullion Bank action	30
Create the guiding coalition	30
A2Z Bullion Bank action	31

Develop a vision strategy	31
A2Z Bullion Bank action	32
Communicate the changed vision	32
A2Z Bullion Bank action	32
Empower broad-based action	33
A2Z Bullion Bank action	33
Portal governance—best practices	34
Formulate a portal governance committee	34
A2Z Bullion Bank action	34
Obtain Executive Sponsorship	34
A2Z Bullion Bank action	34
Establish a Portal Center of Excellence	35
A2Z Bullion Bank action	35
Develop governance effectiveness metrics	35
A2Z Bullion Bank action	36
Time to develop and release new portal artifacts – A2Z Bullion Bank action	36
Adopt and adapt portal governance	36
A2Z Bullion Bank action	36
Adopting virtual portals – A2Z Bullion Bank action	37
Typical portal roles	38
Value interests	41
Summary	42
Chapter 3: Portal Requirements Engineering	43
The discipline of requirements and requirements as a discipline	44
List users, existing systems, and functional requirements	47
Derive actors and use cases to create the use case model	51
Storyboard or wireframes	52
Inventory-large reusable assets	52
Identify delta use cases	53
Document nonfunctional requirements	54
Portal call center channel	55
Portal self-service (core banking) channel	55
Workload distribution	56
Validate requirements with the customer	57
Summary	57
Chapter 4: Portal Architecture: Analysis and Design	59
Cloud architectural model	60
Portal architectural decisions	60
Information architecture – wireframes and storyboards	61
Portlet	66
Portlet view	66
Transition data	66

POM and service design conceptual overview	68
Service to data design overview – best practice artifacts	70
Enterprise reference architecture – simplifying complexity with DataPower and all handlers	71
A2Z banking reference and portal application architecture	73
A2Z call center reference and portal application architecture	74
Cloud as the fabric for resilient architecture	75
Architecting for nonfunctional requirements	76
Summary	78
Chapter 5: Portal Golden and Cloud Architecture	79
Reusable architecture assets and IBM Portal Accelerators	80
IBM Accelerators for IBM WebSphere Portal	82
IBM Retail Banking Template for WebSphere Portal (v2.0)	82
IBM Mobile Portal Accelerator	83
IBM Dashboard Accelerator	84
IBM Collaboration Accelerator	84
IBM Content Accelerator	84
Portlet Catalog and Lotus Greenhouse	85
Cloud execution environment and architectural model for cloud computing – IBM cloud reference architecture	85
Highly available portal golden and SOA reference architecture	87
Virtual portals, realms, and cluster partitioning	90
Portal collaboration, pervasive, and voice runtime architectures	91
Portal security architecture	93
Single Sign-On (SSO) – patterns	95
Portal architecture and performance modeling – cloud and traditional paradigms	96
Portal operational model and workload analysis	97
IBM lab tools – mainframe and distributed	98
IBM zCP3000	98
IBM Automatic Model Building using InferENCE (AMBIENCE)	98
Commercial solutions and tools – mainframe and distributed	99
CA HyPerformix	99
BMC	100
Cloud capacity planning – IBM SmartCloud Monthly Cost Estimator	100
Cloud capacity planning – Amazon Monthly Calculator	104
Test architecture and test data governance	105
Architecture assessment and operational technical readiness review	105
Summary	105

Chapter 6: Portal Build, Deployment, and Release Management	107
Portal build, deployment, and release management	108
Best practices and Jazz-enabled staging	109
Portal tools	110
XMLAccess	111
ReleaseBuilder	112
Site management tool	113
Subsequent releases	113
Release scenarios	113
Portal scripting	114
Manual steps prior to using ReleaseBuilder	114
WEF and WP environment – high-level release steps	115
Step 1 – Initial release – preparing the source environment	116
Step 2 – building the release	116
Step 3 – preparing the target environment	116
Step 4 – importing the release	117
Step 5 – post-transfer actions	117
Building a portlet WAR for production	120
Excluding files from a published WAR	121
Publishing to the JSR 286 portal container	122
Portlet deployment	123
Checklist for portal artifacts	125
Checklist for WEF-related JARs	125
web.xml processing and templates	126
web.xml template files	126
The WEB-INF\web.xml file	126
web.xml processing at project creation and publishing	127
Other things that impact web.xml	127
Themes and skins deployment	127
Portal resources management via policies	128
Publishing to a remote AMI instance on the Amazon Cloud	128
Cloud-enabled environment provisioning, deployment, and release management with IBM Workload Deployer	129
Summary	129
Chapter 7: Introduction to Web Experience Factory	131
What is Web Experience Factory?	131
Key benefits of using Web Experience Factory for portlet development	132
The development environment	132

Key components of WEF—builders, models, and profiles	136
Builders	137
Simple and complex builders	137
The face of builders	138
Builder artifacts	139
Inspecting content created by builders	142
Models	144
Modeling	145
Code generation versus software automation	146
Profiles	146
Regeneration engine	147
Creating a WEF project	149
Creating your first Portlet	152
Executing your portlet from the designer	154
Deploying your portlet	154
Summary	155
Chapter 8: Service Layers	157
<hr/>	
The Service Consumer and Service Provider patterns in WEF	157
Service builders	159
Creating a service model	160
Explaining the Service Definition builder inputs	162
Creating sample data for the Service Provider model	163
Explanation about Simple Schema Generator builder inputs	164
Emulating the data retrieval	164
Creating a service operation	167
Testing the Service Provider models	169
Revisiting the Logical Operations	170
Invoking the Service Provider model from the Service	
Consumer model	170
Summary	173
Chapter 9: Invoking Web Services	175
<hr/>	
Portal projects leveraging web services	176
The Web Service Call builder	177
General	178
Request Parameters	178
Request SOAP Header	178
Service Information	178
WS-Security	178
Advanced	179

Web service inputs from other builders	179
Sample model	179
Data transformation and manipulation of service response	188
The transform builders	189
IXml Java interface	190
Summary	190
Chapter 10: Building the Application User Interface	191
Choosing the right builders to create the UI	192
Understanding how WEF builds UI	195
Data-driven development approach	195
Modifying the content created by WEF	195
High-level and low-level builders	197
Data Service User Interface builder	198
Creating a simple database Service Provider model	198
Working with the Data Services User Interface builder	203
Data Services User Interface overview	203
Building the Data Services User Interface sample model	204
General	205
List Page Settings	205
Settings for the Create and Update Page	205
Page to Page Navigation	205
Label Translation Settings	206
Paging	206
Table	207
Update	207
Modifying the generated application	207
Design panel	208
Rich Data Definition builder	211
Theme builder	213
Modifier builders	213
HTML Templates in WEF	217
Summary	218
Chapter 11: The Dojo Builders and Ajax	219
What is Dojo and Ajax	219
The problem	220
The solution	220
The benefits of using Dojo and Ajax in portal development	220
The Dojo and Ajax related builders	221
Dojo Rich Text Editor sample	223
Creating the model	224
Adding the builders	224
Adding the variables	226

Adding the Dojo builders	226
Adding the Text builders	228
Adding the processing section	228
Testing the model	230
Implementing Post-Action for partial page refresh	231
Dojo Tree builder sample	234
Client Event Handler	237
Summary	239
Chapter 12: WEF Profiling	241
<hr/>	
Profiling	242
Defining some WEF profiling terms	243
Profile selection handler	243
Profile set editor	244
The Manage Profiles tab	245
The Entries tab	245
Select handler	246
Profiling sample	247
Sample portlet – exposing profiles through the portal's	
 Configure option	247
Creating a profile set	252
Profile-enabling builder inputs	253
Providing values to profile entries	255
Testing profiling from the designer	256
Testing the sample portlet in the designer	256
The Portlet Adapter builder	257
Creating a portal page	259
Placing the portlet on the Sales page	260
Exposing the individual values in portal	261
Role-based profiling	261
Building portlet for role-based profiling	262
Profile set for role-based profiling	263
WebSphere Portal configuration for role-based profiling	265
Endless possibilities with profiling	265
Summary	266
Chapter 13: Types of Models	267
<hr/>	
One portlet, many models	268
Summary of the model types	268
Model types demystified	270
User interface models	270
The Rule of 50	270
The Portlet Adapter builder	271

Service models	271
Imported models	272
Sample scenario for imported model	274
Base models	277
Configuring imported models through profiling	277
Model container	278
Linked models	280
Summary	281
Chapter 14: WEF and Mobile Web Applications	283
Mobile devices	284
Desktop applications versus mobile web applications	285
WEF handling of mobile web applications	285
Mobile web application sample	287
A2Z web mobile strategy	287
Requirements	288
Expected outcome	288
Multichannel web application sample	289
Adding variables to your application	290
Adding pages to your application	292
Adding profile set to your application	295
Adding more builders to your application	298
Testing your application	299
Adding header and links	300
Adding the Data Page and Data Layout builders to your application	302
Testing the final version of your application	304
Testing your application on an iPhone simulator	305
Expanding the sample model	305
Summary	306
Chapter 15: How to Implement a Successful Portal Project with WEF	307
Planning for success	308
Required skills for developing a portlet with WEF	309
Difference between a portal project and a JEE project	309
Successful WEF project requires experienced WEF developers	310
Training and mentoring	310
Hiring or contracting an experienced portal architect/WEF developer	311
Development environment	311
WebSphere Portal Server installation	311
WebSphere Portal Server Community Edition – WAS CE	312
Development IDE	312
WEF on Eclipse	312
WEF on RAD	313

Source control with WEF	314
Avoiding merging of model files	314
XMLAccess scripts	315
Roles, permissions, access level	316
Authentication versus authorization	317
Portal resources versus portlet resources	317
Portlet resources and WEF	318
Development of POCs or prototypes	320
Benefits to the product management and business analysis teams	321
Benefits to the portal architecture and development teams	321
WEF project folder structure	322
Folder structure for the servable content	323
Folder structure for the nonservable content	325
Summary	326
Chapter 16: Portlet and Portal Testing	329
Test strategy and plan	329
Functional/nonfunctional test tools and automation	331
Functional Testing Automation	332
Nonfunctional testing	332
Test environment and test data	336
Overall test metrics	337
Response time	338
Java Virtual Machine	339
JDBC pool	339
Thread pool	340
Session size	340
Elapsed time	340
CPU	341
Parallel Portlet Rendering	341
Caching	342
Portal testing	345
Benchmarking portal – validating NFRs via load testing	345
Portlet testing – time to walk the walk	347
WEF testing	348
Comparator	349
Threshold	349
Message	349
flushImmediately	349
Security testing	355

Performance anti-patterns	356
Summary	356
Other references:	356
Chapter 17: Portal and Portlet Performance Monitoring	357
Business and technology monitoring	358
APM as a discipline – choose your weapons	358
Portal server monitoring with ITCAM for WebSphere	360
Problem determination – memory diagnostics	360
The Memory Leak Diagnosis view	361
The Server view	362
The Portal view	362
Monitoring slowest portlets	363
Monitoring contentions and locks	363
Setting traps and alerts based on performance thresholds	364
Code performance monitoring via Java profiling	365
PMI is your best friend	365
Web analytics	366
Cloud monitoring	371
Green Data Center monitoring	371
Summary	371
Chapter 18: Portal Troubleshooting	373
Problem determination and troubleshooting	373
Divide and conquer	374
Project lifecycle interdisciplines	374
Use case	375
Skills and tools level	376
IBM Support Assistant – general tools	376
ISA for WebSphere Portal	379
DIR – Download, install, and run	379
Choose Problem Type	380
Enable Split-Second (if needed)	381
View output and open case with IBM	382
Troubleshooting in WebSphere Application Server v8	382
Trace level – debug with ARM turned on	385
Splunk engine	386
Summary	389
Chapter 19: Portal, WEF, and Portlet Tuning	391
Tuning – strategy and knowledge	391
Tuning lifecycle	392

Tuning candidates and test cases	394
Bottleneck 1 – broker services – registration services – 7 seconds of response time results with a 4-second max goal to achieve	397
Bottleneck 2 – broker services – lease rate services – tuning for response time	400
Bottleneck 3 – call center services – softphone incoming call and live call portal – tuning for throughput	404
Performance tuning — a deep dive into WEF	410
Performance best practices	411
Addressing memory consumption	412
Size of result sets	413
Stateless services	413
Paging data	413
Cache Control builder and caching strategy	413
Caching strategy	414
Performance-related log files	415
Model Actions log file	415
Server Stats log file	417
Session Size log file	418
Enabling session size tracing	418
Analyzing the session size log file	419
Summary	421
Chapter 20: Portal Post-production	423
A2Z Bank business and technical monitoring	423
Measuring portal and cloud success	424
Training users and support	425
Enabling impersonation	425
Summary	427
Index	429

Preface

IBM WebSphere® Portal is a cost-effective, scalable, and proven solution for the portal enterprise space. Given the depth and the breadth of WebSphere Portal and the challenges of developing a portal project, you need a book that covers all the nuances of the entire portal project lifecycle. This book accomplishes just that.

In this book, we cover topics that range from portal assessment, governance, and architecture, to design and development. These topics are covered not only within these traditional areas, but also within the cloud environment context. Keeping both contexts in mind, several chapters are dedicated to portal and portlet testing, troubleshooting, performance monitoring, best practices, and tuning. The cloud option is also analyzed and discussed for hosting, developing, and publishing portal applications.

We also cover **Web Experience Factory (WEF)** as the tool of choice for portlet development. We take you from the introduction to the development of advanced portlets in an intuitive and efficient manner. We cover not only common topics, such as builders, models, and user interface development, but also advanced topics, such as Dojo builders, Ajax techniques, and WEF performance.

Within the WEF space, we cover other topics, which have never been covered before by any other competing book. You will learn how to develop multichannel applications, including web mobile applications, and you will learn about the model types available for portlet development, including when and how to utilize them. We also present and discuss numerous aspects and facets of implementing a WEF project and what it takes to successfully deliver them.

The richness and the profundity of the topics combined with an intuitive and well-structured presentation of the chapters will provide you with all the information you need to master your skills with the IBM WebSphere Portal project lifecycle and Web Experience Factory.

What this book covers

Chapter 1, Portal Assessment, covers the initial assessment of a portal project to a proof of value or concept exercise. It looks at the cloud as a possible paradigm for portal applications. It ends up with a case study that leverages the IBM Toolbox and Portal Accelerator Banking template to illustrate it in a step-by-step way.

Chapter 2, Portal Governance: Adopting the Mantra of Business Performance through IT Execution, covers the importance of portal governance and the best practices aligned with management and processes, to support at the enterprise level. It looks at steps to formulate and implement a portal governance committee and its associated roles.

Chapter 3, Portal Requirements Engineering, covers requirements engineering in the context of application lifecycle management. It provides step-by-step guidelines for functional and nonfunctional lifecycles, from requirements gathering to validation.

Chapter 4, Portal Architecture: Analysis and Design, covers another iterative step in a development lifecycle. It is time to take the requirements and exercise architectural analysis and design for both the functional and nonfunctional aspects, as they are mapped to portal capabilities.

Chapter 5, Portal Golden and Cloud Architecture, covers the best practices in building portal environments for high availability, and delivering the operationalization of the business models. In the context of traditional and cloud-hosted environments. It also looks at the best practices of modeling for portal capacity planning and sizing.

Chapter 6, Portal Build, Deployment, and Release Management, covers the interdisciplinary aspect of build, deploy, and release management in the context of traditional and cloud environments. It covers best practices for build and release management, portal tools and provides a high-level step-by-step release process for WEF and WP.

Chapter 7, Introduction to Web Experience Factory, will introduce **Web Experience Factory (WEF)** along with its main concepts—model, builder, and profile. We also cover the concept of regeneration of WEF applications and the details of its development environment. We finish this chapter by demonstrating how to create a WEF project and how a portlet can be deployed to WebSphere Portal directly from the development environment.

Chapter 8, Service Layers, covers WEF features to support the service-oriented development pattern. We explain the Service Consumer/Provider development pattern, and at the same time, we discuss the list of builders available to implement such a pattern. We also develop two sample models to demonstrate the utilization of this approach.

Chapter 9, Invoking Web Service, shows you how to implement Service Provider models, which can access web services. We cover the powerful and versatile Web Service builder call in detail, and explain how you can build a Service Provider model, which retrieves data through a web service. We also cover the WEF mechanisms available to transform and manipulate response data. A sample model is developed to demonstrate the utilization of this builder.

Chapter 10, Building the Application User Interface, focuses on how WEF builds user interface models. We explain in detail how WEF builds the application user interface. We cover a multitude of UI development-related topics, such as the data-driven development approach, high-level and low-level builders, design pane, and the Rich Data Definition builder call. We also develop a sample model to demonstrate the utilization of the new and incredible Data Service User Interface builder call.

Chapter 11, The Dojo Builders and Ajax, takes you to a journey into the incredible world of Dojo and Ajax. We demonstrate how WEF uses these technologies to provide cutting-edge builders and techniques that will make your applications not only look like, but also behave like the latest Web 2.0 applications. We also explain the performance benefits associated with the utilization of Dojo Builder calls and Ajax techniques. Two sample models enable you to get hands-on experience with both Dojo and Ajax.

Chapter 12, WEF Profiling, covers one of the pillars of WEF technology – profiling. We explain what profiling is, how it works, and how you can take advantage of this powerful technology to provide variability to your application. In addition to covering a profile set and profile, we dissect the profile set editor and all of its elements and nuances. We finish this chapter by working on an extensive sample, which illustrates the richness of profiling, and the numerous manners in which it can enhance your application, addresses requirement challenges, and reduces development costs.

Chapter 13, Types of Models, identifies and discusses the different model types a developer can use in order to develop an efficient application. No other WEF book has ever presented this topic. We demonstrate why it is important to use different model types to develop an application. We then clearly define when and how each of the available model types can be efficiently used to develop reusable, well-organized, and well-structured applications.

Chapter 14, WEF and Mobile Web Applications, addresses the development of web applications not only for mobile devices, but also, above all, for multichannel applications. It analyzes the differences between the development of traditional and mobile web applications. This chapter presents the builders and the framework provided by WEF to develop multichannel applications. We also develop a sample application, which can be invoked from multiple devices, including mobile devices.

Chapter 15, How to Implement a Successful Portal Project with WEF, completes the WEF coverage in this book. We put together a rich set of observations and recommendations that should be followed by any portal project. These recommendations are the result of many years of experience working with WEF. We cover topics that range from the required skills to successfully implement a portal project with WEF, to the type of training and mentoring required, to the proper handling of source control all the way to the development of POCs and prototypes with WEF.

Chapter 16, Portlet and Portal Testing, covers some of the best practices in portal and portlet testing. The test-driven approach is discussed along with some of the techniques used for validating the compliance to a portal's functional and nonfunctional goals via testing.

Chapter 17, Portal and Portlet Performance Monitoring, covers the subject of monitoring, which allows one to measure the success of the portal based on the established criteria. Both business and technical monitoring are much needed capabilities to ensure the right visibility, which allows for the tracking of goals and KPIs. It also covers the tools and metrics to be used during this process.

Chapter 18, Portal Troubleshooting, covers the main approaches for classifying, isolating, and resolving portal problems via troubleshooting and problem determination. It also covers tooling and the best practices applied to troubleshooting.

Chapter 19, Portal, WEF, and Portlet Tuning, covers mature processes for tuning lifecycles and test cases. It covers aspects related to the response time, throughput, and bottleneck resolution. It gives real samples of common bottlenecks and how to tune them.

Chapter 20, Portal Post-production, covers post-production of the main areas of APM, training, impersonation, and the potential benefits of a cloud-based solution. It provides an insight into the continuing support and processes around portal maintenance after the first production deployment.

What you need for this book

This book is comprised of two complementing segments. One segment covers the numerous aspects of implementing an IBM WebSphere Portal project and all its nuances. The other segment addresses the development of portlets using Web Experience Factory.

For the segment related to portal projects, no prior knowledge or experience with the portal is required. Of course, you will benefit even more from reading this segment if you have been exposed to the portal technology.

Equally, for the WEF segment, no prior experience is required. However, if you have not been exposed to WEF development before, we recommend you read and complete a couple of introductory WEF tutorials to maximize your understanding of the material and the exercises we develop. The standard installation of WEF offers a couple of useful tutorials that can provide you with the initial foundation on WEF.

While portal knowledge is not required, some basic knowledge of IBM WebSphere Portal is desirable. This basic knowledge can then be leveraged and advanced towards understanding how WEF powerfully and cooperatively works with IBM WebSphere Portal.

For the WEF chapters, access to a running installation of IBM WebSphere Portal Version 7 is required. An instance of WEF should also be installed on the same machine along with WebSphere Portal. WEF 7.0.0 will suffice for all chapters except for *Chapter 14, WEF and Mobile Web Applications*. For this chapter, you need at least version 7.0.1.

Who this book is for

This book is for portal architects, specialists, developers, WEF architects, testers, project managers, and business owners as well. Because it covers business and technical aspects, it can be applicable to any portal business or technical stakeholder.

Conventions

In this book, you will find a number of styles of text that distinguish between different kinds of information. Here are some examples of these styles, and an explanation of their meaning.

Code words in text are shown as follows: " Move the .war files to portal and deploy portlets."

A block of code is set as follows:



```
<html>
  <body>
    <form name="RTE_Form" method="post">
      <div name="PageTitle"
```



```
        style="font:12pt Arial; font-weight:
            bold;color: #336699;">
    </div><br>
    <table>
      <tr>
        <td >
          <div name="refreshMessageArea">
            <span name="inputText_RTE"></span><br>
            <div name="DjContainer">
              <span name="messageEntry_TXT"></span>
            </div>
          </div>
        </td>
      </tr>
    </table>
    <div style="padding:20px;">
      <span name="append_BTN" ></span>
      <span name="replace_BTN" ></span>
    </div>
  </form>
</body>
</html>
```

Any command-line input or output is written as follows:

```
../bin/releasebuilder.sh -inNew todays_release_dir/exported_
ExportRelease.xml
-inOld previous_release_dir/exported_ExportRelease.xml -out
todays_release_dir/Release.xml
```

New terms and **important words** are shown in bold. Words that you see on the screen, in menus or dialog boxes for example, appear in the text like this: "These include **Broker Services** view where the **Customer Vault**, **Account Info**, **Transfer Info**, **Vault Feature**, **Deposit**, and **Vault Loan** processes can be managed and operated on, as shown in the following screenshot."

 Warnings or important notes appear in a box like this. 

 Tips and tricks appear like this. 

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1

Portal Assessment

This chapter covers the initial portal assessment leading to a **Proof of Value (POV)**, which needs to be executed for portal engagements at program and/or project levels. One of the main assessment goals is to capture the business drivers for choosing this technology and evaluate the business value to be added with a portal solution. The outcome of the business assessment is a current and future state gap analysis and subsequently a mapping of the business drivers to portal capabilities. The assessment covers business and technology aspects. It helps drive the next discussion of the need for portal governance, process, and organizational changes that a portal project can bring as a requirement to an enterprise moving to the portal paradigm. This chapter will provide orientation to get started with assessing and looking at options for a portal POV; and how the cloud plays an important role in the enablement. By the time we are done, we will have looked at the following topics:

- **IBM WebSphere Portal (WP), IBM Web Experience Factory (WEF), and the cloud**
- Cloud service models – SaaS/IaaS/PaaS
- A case study
- Cloud use cases applied



Downloading the example code

You can download the example code files for all Packt books you have purchased from your account at <http://www.PacktPub.com>. If you purchased this book elsewhere, you can visit <http://www.PacktPub.com/support> and register to have the files e-mailed directly to you.

IBM WebSphere Portal (WP), IBM Web Experience Factory (WEF), and the cloud

Portals are single point of access for information, knowledge, business services, and transactions; providing aggregation and role-based access to **Business to Business (B2B)**, **Business to Consumer (B2C)**, **Business to Employee (B2E)**; along with vertical and horizontal domain support. Portals also allow for that data to be served on a variety of devices, anytime, anywhere. From an architectural viewpoint, a **portal** is an architectural pattern implemented and realized via a product with out-of-the-box integration potentials and capabilities. From a technology standpoint, the IBM WebSphere Portal is a J2EE application with its engine being compliant with portal-specific APIs, such as JSR 168, JSR 286, and WSRP. So what is the cloud and how can it help you with your WP and WEF related initiatives? Let's first start with some basic definitions.

Cloud is a delivery model that uses virtualization to build, provision, deploy, and enable environments, resources, and services. More precisely, its canonical definition according to the working definition of cloud computing published by the U.S. Government's **National Institute of Standards and Technology (NIST)** is as follows:

Cloud computing can be described as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (for example, networks, servers, storage, applications, and services) that can be rapidly provisioned, and released with minimal management effort or service provider interaction.

To complement it, IBM defines cloud computing as follows:

Cloud computing changes the way we think about technology. Cloud is a computing model providing web-based software, middleware, and computing resources on demand. By deploying technology as a service, you give users access only to the resources they need for a particular task. This prevents you from paying for idle computing resources. Cloud computing can also go beyond cost savings by allowing your users to access the latest software and infrastructure offerings to foster business innovation.

SaaS/IaaS/PaaS cloud engagement models

For almost every new technology and trend in business and technology initiatives, there are standards developed around it. Along with the Open Cloud Manifesto, there are some use cases for cloud computing defined in a white paper entitled *Cloud Computing Use Cases 2.0* pioneered by the Cloud Computing Use Case group. Let's now take a look at cloud NIST definitions as for the three major cloud service models. Because, whenever the cloud topic is involved, it is in the context of these services models, which are **Software as a Service (SaaS)**, **Platform as a Service (PaaS)**, and **Infrastructure as a Service (IaaS)**. Let's break them down and look at their defining characteristics:

- **SaaS:** SaaS is related to an application that is served and consumed over the wire, where the consumer itself has no control over the runnable software in terms of the operating system, network infrastructure, and hardware; so it is more like a black box for the consumer. The consumer only uses the service provided but does not control nor have knowledge of the behind-the-scenes mechanics.
- **PaaS:** PaaS is related to the consumer having a little bit of control over the hosting environment for the application it consumes and runs. So the platform can be an application framework; but still the consumer does not have any control over the hardware, network, storage, and operating system for that hosting environment.
- **IaaS:** IaaS is related to the consumer having control over the deployed resources as a whole in terms of storage, operating system, hardware in general, and in some cases even networking.

How WP and WEF in the cloud can help your initiative, and the value added will vary depending on what phase of the **Systems Development Life Cycle (SDLC)** you are addressing. Regardless, if you are planning a new infrastructure or portal migration, or a POV, the level of value the cloud brings can vary. However, the **return on investment (ROI)** can be achieved in all phases of the SDLC.

How are WP and WEF represented in the IBM business SmartCloud and Amazon Cloud? For those interested in the new cloud delivery model of provisioning portal development, integration, system test (user acceptance and performance), and production environments, the IBM SmartCloud has a plausible and viable solution. Based on the starting guide, we will walk you through the whole process. For the purposes and scope of this chapter, we will focus on the development environment only.

Getting started – case study

In this book, we will base all of our case study examples on a fictitious bank client named A2Z Bullion Bank that has, as a business driver, the need for modernization of its call center operations. Another major driver is the need to revamp and rebrand some of the banking operations via the consolidation and integration of a lot of application functionality, previously available in **Customer Information Control System (CICS)**. Even though this client belongs to the financial sector, all the examples in this book can be easily correlated and translated to several other industry domains.

At a high level, the A2Z Bullion Bank, which has been providing other commercial banks with Bullion Vault services, uses 3270 terminals for its offshore call center operations. It uses CICS and a relational backend for its many frontend applications, all of which need to be consolidated via Portal. So far, the bank had only interfaced with other bullion or central banks, but it is now opening its operations to other corporate broker consumers interested in Bullion Vault services. The Vault services allow users to store physical bullion metal bars (gold, platinum, palladium, and silver) in the Vaults. Transfers from fiat currencies and loans are also services aligned with Vault services. Furthermore, users can forecast and trend their future Vault performance based on future metal spot prices. The bank stakeholders have decided on the need to have a self-service consumer-oriented channel for this new activity.

The goal of the bank is to understand how portal and the cloud would be able to help in the modernization process to be able to gauge the value added and ROI.

Let's start with our case study and the **Business Value Assessment (BVA)**. IBM BVA is an IBM-driven methodology and should be applied with the help of IBM consultants and business partners. The generic steps of a portal BVA are cited and illustrated as follows:

1. One of the main goals of the assessment is to capture the business drivers for choosing this technology and evaluate the business value to be added with portal. The outcome of the business assessment is a current and future state gap analysis and subsequently a mapping of the business drivers and requirements to portal capabilities. The assessment covers business and technological aspects, and helps drive the next discussion of the need for portal governance, process, and organizational changes that a portal project can bring as a requirement to an organization new to portal. First, we cover in a workshop-like format with active interviewing of stakeholders per module target background, objectives, and defined approach. The output of these first items serves as an input to feed the next exercise. The business need and portal solution align together via the particular business and technical drivers and the current state of the business assessed. This initial portal assessment needs to be done for every portal engagement at a project and ideally at the program level. Next, we will cover the main steps in the BVA cycle – background, objective, and approach.
2. Business need and portal alignment.
3. A "Day-in-the-Life" demonstration.
4. Financial case.
5. Recommendations and next steps – POV.

Step 1 – background, objective, and approach

IBM consultants and partners have many ways to explore a BVA methodology.

This direction was chosen because the BVA methodology can help to do the following:

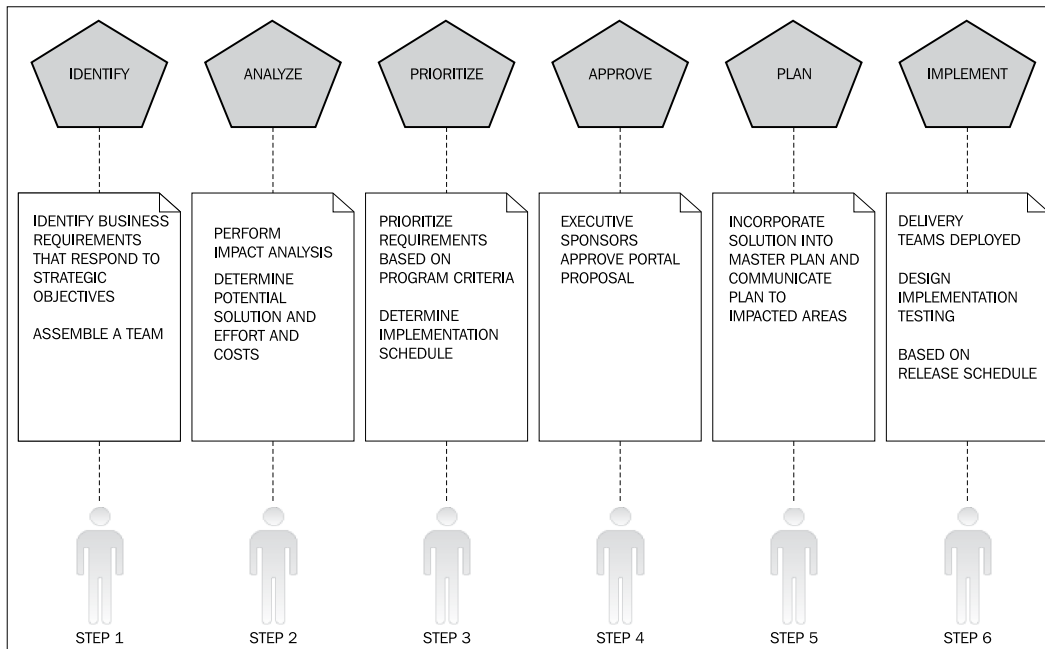
- It aligns **Line of Business (LOB)** and IT management with a common and prioritized set of capabilities for your portal.
- It provides you with a vision of the portal when it's complete.
- It gives you a high-level cost and benefit analysis to define the value of a portal solution in financial terms. The corporate positioning helps to set the stage for defining the vision, the strategy, and the execution.

Step 2 – business need and portal alignment:

In order to get to the road map and future state, the IBM consultant and portal architect had to go over a few workshops to gather the required data.

Business value alignment

It starts with the million dollar question – "What should our organization do with a portal and workplace to solve their current pain points and address the need for the future and new business demands?" We will not go into any details of this approach in this book, but we will give you the pain points to make our lifecycle story complete and give you a frame of reference for your own portal initiatives. The following diagram will provide the high-level phases to get the portal off the ground. Any portal engagement would have to apply a similar level of analysis in order to realize the portal value.



Business drivers and current state

The A2Z Bank has funded a program with PMO support to facilitate the need for governance around the portal initiative. They are in the process of being educated on the value of having such infrastructure support around the new initiatives. They want to have a POV done quickly to show how the portal value can be added within a short time to market. The major business drivers were the need for modernization and the new line of business and self-service customer channel to support. A series of workshops was done with several lines of business stake holders to cover the preceding aspects.

Current state, future state, and a road map

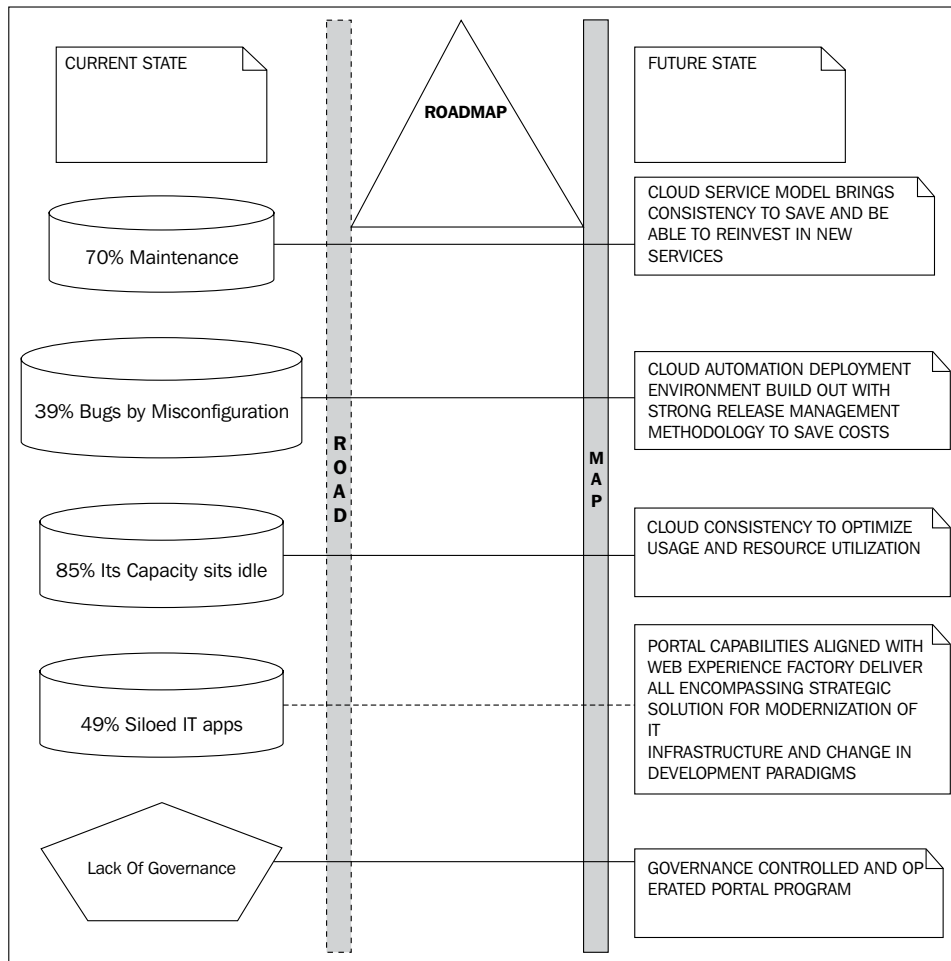
One of the main focuses of capturing current state is to capture the current organization processes in place at the enterprise level and understand how they can be positioned to a future state and enterprise road map that has portal capabilities in its critical path. From there, a future state can be mapped out and a demonstration can be done at a more generic level with the "Day-in-the-Life" demonstration for vertical markets. Then a POV using stubbed data from real data and service models can be used to further illustrate and demonstrate quick business-driven development with the IBM SmartCloud, WP, and WEF patterns.

Current state – pain points and how portal capabilities can fill the gap

Once the workshop and interviews that focus on documenting current internal processes, governance maturity level, and so on are all done, there is a mapping to portal and cloud capabilities, along with the demand for fast application development and value to market. The outcome of this exercise will allow the value of portal to be illustrated and imagined. The next step is to map out the demonstration of financial case to the "prospects" executive sponsors.

The following list consists of a high-level road map potential with a few critical points identified and their recommended solution provided:

- According to the BVA, 70 percent of the A2Z IT budget goes into maintenance of current applications
- According to the BVA, 39 percent of A2Z bugs in the system are due to misconfiguration
- According to the BVA, 85 percent of its IT capacity sits idle
- According to the BVA, 49 percent of the A2Z enterprise applications are not integrated but working in large IT silos and without any governance oversight



Step 3 – A "Day-in-the-Life" demonstration

In order to make the business case and demonstrate, some of the added value with portal and the cloud, a series of presentations were made available to top decision makers and stakeholders. These dynamic demonstrations are not just static PowerPoint presentations. They are full-fledged, interactive demonstrations presented via a web browser. It allows for stakeholders to relate to and anticipate that their business goals would be positively changed by portal capabilities. These are necessary steps in bringing the road map vision closer to the business case. Take your time to watch them and look at a sample that matches the industry domain for which you work. After these presentations were shown, that was a general consensus that the portal initiative would have A2Z Bullion Bank on the right road to the future. The next step was to create a financial case to show the financial gains of adopting both portal and the cloud as the new paradigms for A2Z Bullion Bank Infrastructure Technology.

Here are some links where you can read articles and watch videos, and learn more about the following topics:

- IBM Industry Toolboxes for WebSphere Portal at <http://www-01.ibm.com/software/websphere/portal/industry/>
- WebSphere Portal Web 2.0 for Banking at <http://www.youtube.com/watch?v=uR3FU18Jqws>
- WebSphere Portal works for Banking – Part 1 at http://www.youtube.com/watch?v=X4_vqk2qpCE&feature=related
- WebSphere Portal works for Banking – Part 2 at <http://www.youtube.com/watch?v=jVsRaeF1U80&feature=related>

Step 4 – the financial case

IBM consultants, software sales experts, and business partners can help build a financial case for an enterprise. In this case, A2Z Bullion Bank utilized the services of an IBM business partner for most of its modernization efforts. The financial case was built and shown to the CFO and his teams, along with other important executive players, such as the CTO and his teams. The financial case is an important module in the BVA exercise, as it plays the role of the major decision-maker item in a value proposition. Besides the huge financial gains, this cloud-enabled portal initiative (with fast time to market value proposition as one of the main criterion) and major pain points with which the current IT infrastructure deals and struggles with, were going to be addressed.

Stakeholders also watched online banking, multichannel banking, and payment presentations, and were highly impressed with all the capabilities that portal could bring to the table as a way to allow A2Z Bank to move into the future.

Step 5 – recommendations and next steps—POV

The next steps were laid out and agreed upon.

A POV was approved by the stakeholders, and a full project schedule and resource support allocated and dedicated to make it come to fruition.

In our sample, we will perform the following steps:

1. Use a cloud provider to quickly provision the development environment dedicated to the POV.
2. Use the WP and WEF cloud patterns to expedite the development and integration phases along with IBM Industry Toolbox.
3. Use the feedback from the BVA to drive the use cases for the POV with the assistance of a portal architect and WEF specialist.
4. Have the scope and use cases for the POV, and implementation plan reviewed and approved before moving to implementation. In this case, the POV was going to be focused on the banking channel only using data mostly from the banking template, but add some customization, and serve as a functional development sandbox for portal-related development efforts.

With a POV funded and ordered to be delivered within a timeframe, the decision was made to use the IBM development and test cloud. After that, a private cloud would be used to jump-start the physical infrastructure for the entire portal initiative lifecycle.

A program-level road map was designed and agreed upon in the following circumstances:

1. Where first phase would transfer and/or integrate some of the foundational functionality into portal information architecture for both the banking channel and the call center. It would use the new IBM X150 DataPower appliance to mediate the data entry points and functional layers via SOA reference architecture; along with the Master Data Management reference architecture.

2. Second phase would deal with portal areas such as **Business Process Management (BPM)**, content management, **Single Sign-On (SSO)**, and custom search. The entire program would have strong governance, **Application Performance Management (APM)**, and business intelligence (via analytics) support. This initiative would take advantage of the cloud capabilities for its plan of business success via IT execution. Cloud patterns would be reused to expedite the environment build-out and time to market via IBM Workload Deployer (second phase BPM, SSO, search topics will be fully covered in the next edition).

Cloud use cases applied

The BVA covered a lot of ground and provided a road map for the future.

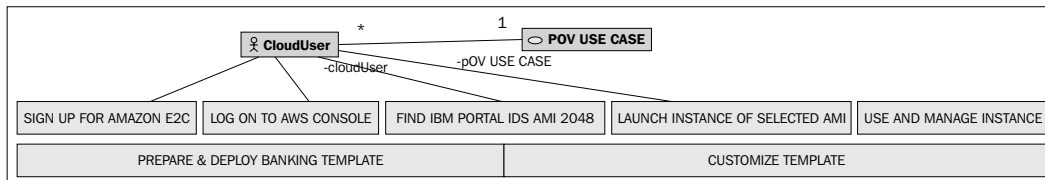
The generic outcome of the BVA concerning cloud-related aspects was that:

- IaaS would be adopted for this transformation effort (as a consumer) saving costs
- PaaS would be adopted for this transformation effort (as a consumer) saving costs
- SaaS would be a service model on which the bank would start capitalizing via its call center and self-service channels (as a cloud provider); thus generating profits

A decision was made to start the prototype effort using a cloud provider. Both the Amazon and IBM SmartCloud are great options, which provide both development and test micro images that can be easily and quickly deployed. They both offer the elasticity and standardization on top of virtualization and the value of central monitoring, and quick environment build-out is added along with the other advantages. In this chapter, we will share how to get started with both cloud providers. In the real world, one would choose one cloud provider, but for informational purposes, we will show both of them for the prototype and POV goals. Let's first start with IBM SmartCloud. This next section will demonstrate how to log in, choose, create, manage, and deploy both the portal run-time environments and the WEF development environment in IBM SmartCloud, Amazon Cloud, or on a standalone virtual image machine.


Cloud approach with Amazon Elastic Compute Cloud (EC2) – initial high-level tasks

The following diagram illustrates the basic steps in getting your Amazon EC2 Cloud up and running, and then using the banking template:



To get your Amazon EC2 Cloud up and running, perform the following steps:

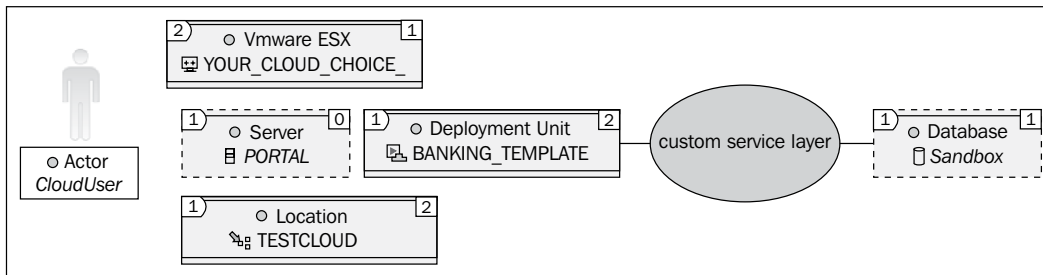
1. Sign up for Amazon Service.
2. We register and create a login ID and log on to the console.
3. We then choose an AMI pattern topology based on the needs and scope of this environment. Go to <http://aws.amazon.com/amis/2048> for the standard development **Amazon Machine Image (AMI)** for portal.
4. Initialize a new instance and add necessary topology artifacts and launch it (start and stop portal server, start and stop HTTP server). Start WEF locally and get your Hello portlet up and running. For more information on how to boot and manage your portal image, please read *IBM Websphere Portal and Lotus WebSphere Content Management Amazon Machine Image Get Started Guide* located at http://public.dhe.ibm.com/software/dw/cloud/wps-wcme/Get_Started_Lotus_AMI.pdf.
5. Create a test project on WEF and download the WebSphere Portal Solution Installer. Consult the IBM WebSphere Portal Solution Installer – User Guide for any questions related to the Portal Solution Installer. Move the .war files to portal and deploy portlets and pages to the cloud (or to a standalone virtual machine from VMware). Smoke test the banking portlets' functionality.


 For a great advanced demonstration on how to manage Amazon images, please watch the multimedia presentation by Andrew Glover in the IBM developerWorks article – *Cloud computing with Amazon EC2*. It can be found at <http://www.ibm.com/developerworks/offers/lp/demos/summary/j-cloudamazonec2.html>.

6. Prepare and deploy the banking template and create necessary portal pages to host the portlets based on the wire frames identified and proposed during the BVA.
7. Customize the template with the bank data model (captured, documented, and stub developed during the BVA) and the desired corporate branding.

The next steps are common to either cloud provider. They are as follows:

1. Prepare the environment for the portlets using IBM Toolbox banking portlet. Follow this article and read the instructions on how to do so. In this case study, we use the IBM Toolbox banking portlets to jump-start the development for the financial domain. We look at the real banking data model and document it with the labor resources allocated to the POV.



2. Prepare the environment (either cloud or a private standalone virtual machine mentioned in cloud vendor choice steps).
3. Configure the banking portlet database along with authentication, and run a verification test to make sure the containers are up and running with the expected container and application-level connectivity. Create a test project on WEF, and download the WebSphere Portal Solution Installer. Consult the IBM WebSphere Portal Solution Installer User Guide for any questions related to the Portal Solution Installer. Move the .war files to portal and deploy portlets and pages to the cloud (or to a standalone machine). Smoke test the banking portlets' functionality.

4. Prepare and deploy necessary custom test stub data. Create a custom data or stub a service layer and implement it for the POV. In case of A2Z Bank, a service layer was created to map to the data layer as part of the POV requirement to have a fully functional portal. In this case, the SQL provided to build the data model for the banking template was architecturally converted into web services definitions with the proper operations to the data layer, as part of the POV project scope. The following link provides the documented data model, which was converted into XML and then created as service interfaces:

http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Introduction_to_the_IBM_Banking_template_for_WebSphere_Portal_bnk_2.0.0

These steps require the collaboration of a portal, service, and data architect.

Once your Portal sandbox environment is operational, (regardless of the cloud vendor or if you create a standalone virtual machine) and you have some stub data to play with, perform the following steps:

1. Configure and customize look and feel, and align it with corporate branding strategy.
2. Officially demonstrate and prove the value of WEF and WP aligned with a cloud.

After the POV was done and its success was acknowledged, the next steps were laid out for the full-blown portal initiative to be kicked off. It was decided that while the banking template would speed up time to market on the self-service channel, the Web Experience Factory would allow for fast development of custom code for the center effort. Both of them would benefit from the advantages of using a cloud service and delivery model.

Portal and Clouconomics sense

We hope we have given the reader the tools to look into the various possible adoptions of cloud computing in relation to portal initiatives. There are ways to look into the pain versus gain and cost benefit of such claim that "cloud computing can be viewed as a means of reducing cost, increasing revenue, improving business agility, and enhancing the total customer experience". Joe Weinman from www.clouconomics.com coined the term "Clouconomics" and laid out 10 laws and formulae to contextualize the value created by cloud computing. They could be used to look at your own portal and gauge the benefits of cloud computing.