



Exploring Pure Application System Patterns

What does it take to maximize your investment?

WebSphere User Group, March 2013

Ewan Withers
Senior Consultant, Icon Solutions

Complexity simplified



Agenda

Slides

- Pure Systems
- VSPs and VAPs
- VSP construction
- VAP construction
- Pattern-readiness

Demo

- Deploy
- ... check ...
- ... check ...
- ... check ...
- ... check ...
- Execute

icon Demo

Deploy: pick a number



... running on a VPDK...^{*} a virtual virtualization architecture!

* Virtual Pattern Development Kit



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VAP construction

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Deploy

... check ...

... check ...

... check ...

... check ...

Execute

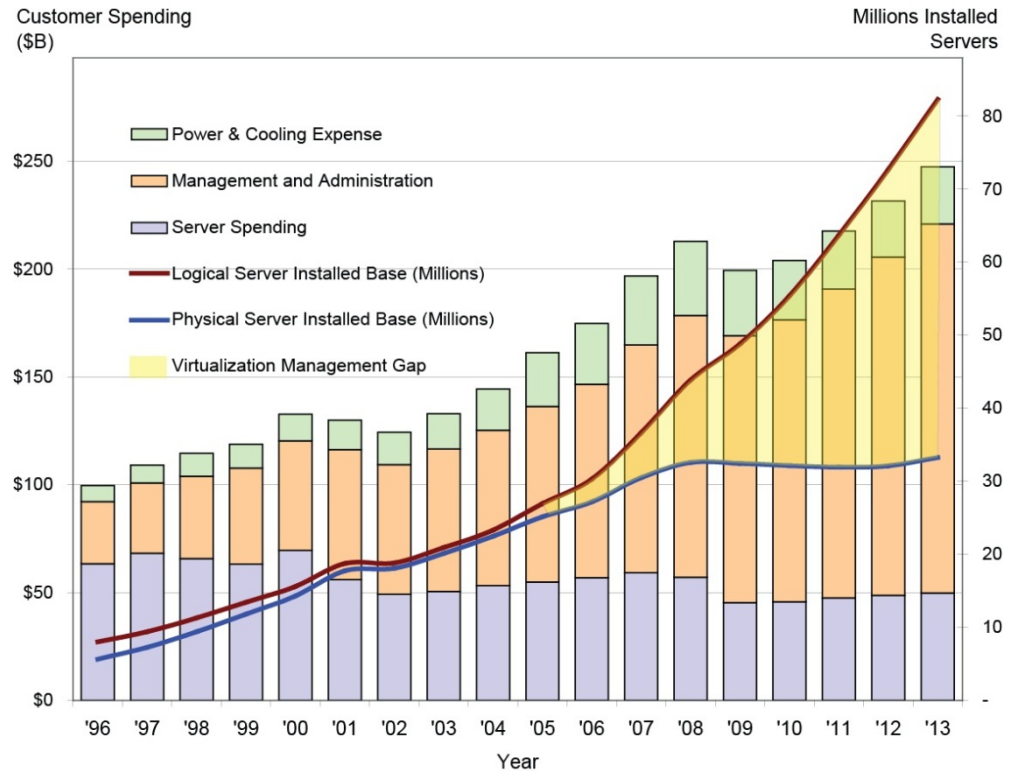
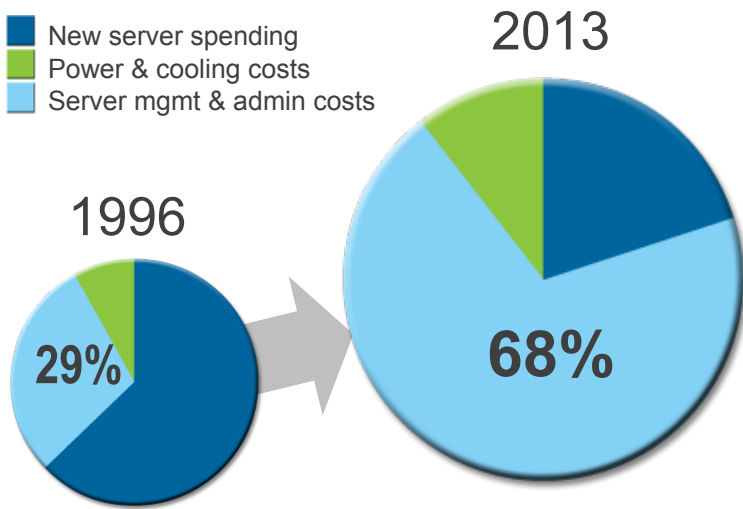


Do you have a cost code?

By end 2013, 68% of IT operating costs will be management and admin

Source: IDC report

- New server spending
- Power & cooling costs
- Server mgmt & admin costs



Expert Integrated Systems

Flexible, Elastic and Simple (built for Cloud)

Capturing and automating what experts do: from hardware to apps



Deeply integrating and tuning hardware and software

Making the IT lifecycle easier: integrated management of the entire system

icon Benefits

- Massively accelerated deployment: **30 minutes from 3 months**
 - Spin up new systems on demand, jettison them just as quickly
- Standardised deployment of complex multi-system solutions
 - Optimises and simplifies the entire solution stack
 - Direct support for *most* IBM middleware (including software version)
 - Identical repeatable deployments: much lower risk
 - **"A SysPlex for solutions on distributed platforms"**
- Cost and management time down by 30-35% *[IBM stat]*
 - One-click deployment
 - Source control of deployment artefacts
 - Scales (manually or automatically) to meet business demand
 - **"One management platform to conquer all"**: hardware, OS, middleware and application monitoring and maintenance in one console



PureSystems Variants

PureFlex



Infrastructure

Delivering Infrastructure Services

PureApplication



Application Platform

Delivering Platform Services

PureData



Data Platform

Delivering Data Services

icon Demo

■ Check status... once...





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- Deploy

- ... check ...

- ... check ...

- ... check ...

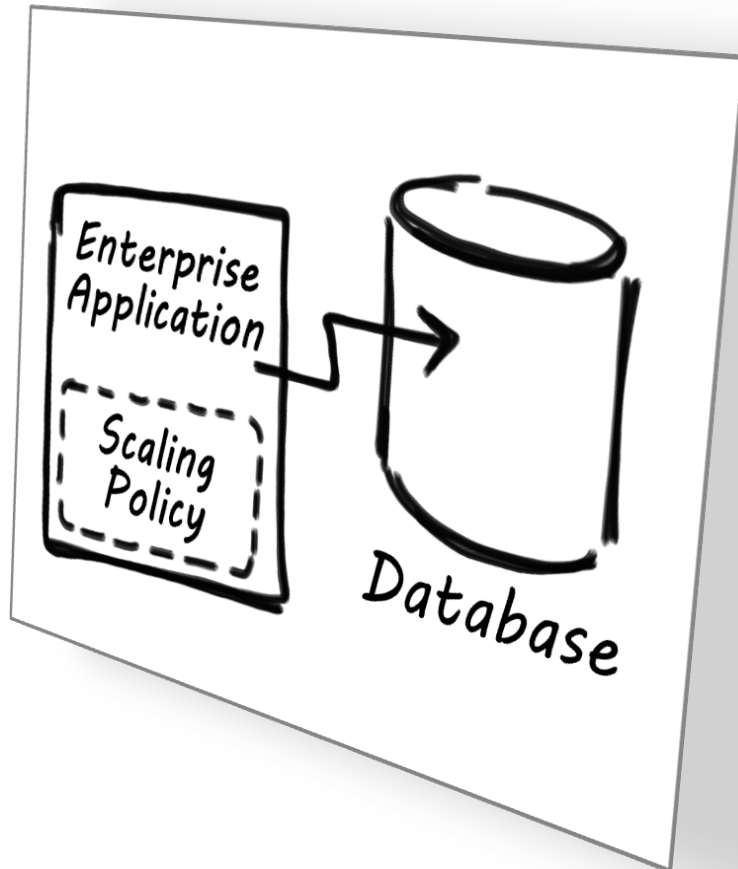
- ... check ...

- Execute

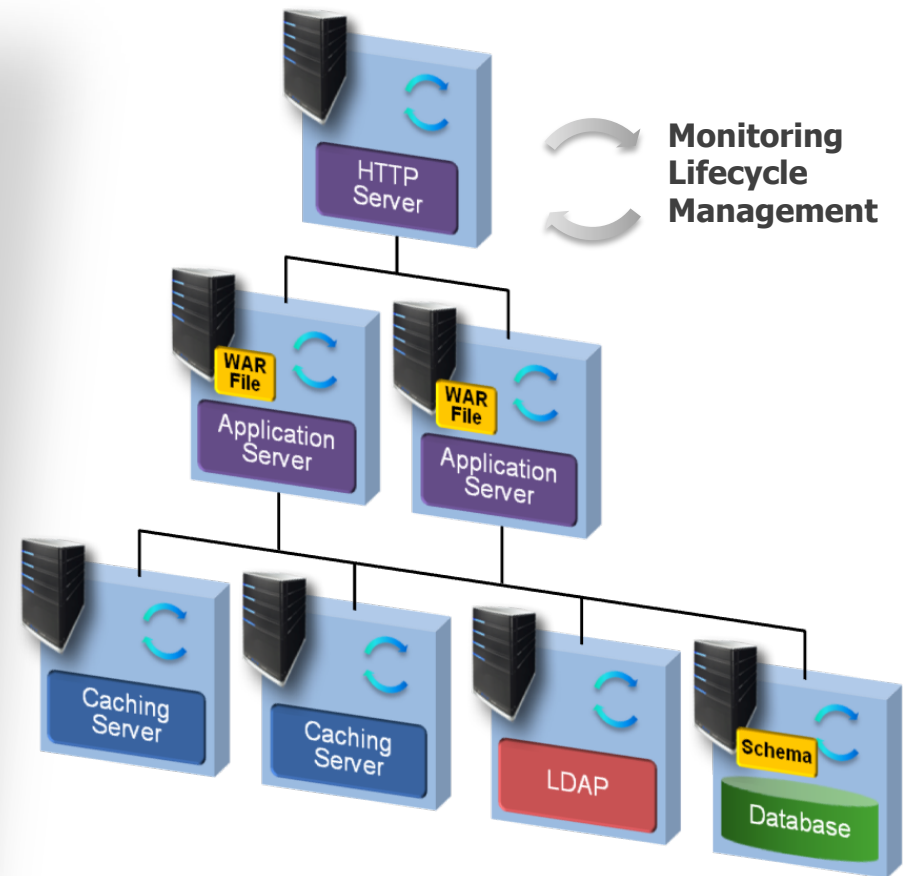


What is a Pattern?

What the business asks for:



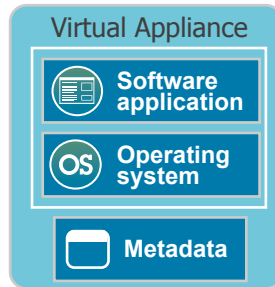
What the business needs:





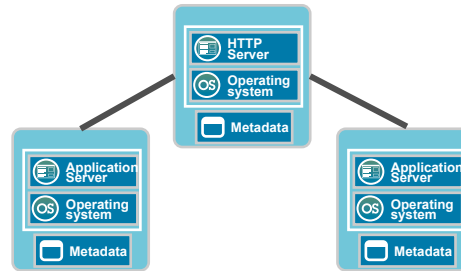
Pattern Variants

[Virtual Appliances]



- Standard software configuration on OS; extend/capture images
- Manual infrastructure-driven elasticity
- Traditional administration and management model
- **Existing apps: existing TCO**

Virtual Systems



- Automated deployment of middleware topologies
- Manual application and infrastructure-driven elasticity
- Traditional administration and management model
- **Virtualized apps: improved TCO**

Virtual Applications



- Highly automated deploys (expert patterns)
- Automatic business policy-driven elasticity, using workload management data
- Built for the cloud environment
- **Cloud apps: best TCO**

Application maturity needs to increase

icon Demo

■ Check status... twice...





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- ... check ...

- ... check ...

- ... check ...

- Execute

VSP Construction

VSP components

-  Parts
-  Script packages

Demo application

-  Purpose
-  Architecture

Build a VSP



VSP Components

Parts

- Effectively VAs: hypervisors, or images extended using ICCT (Image Construction and Composition Tool)
- Software version drop-down for ease of maintenance / upgrade

Parametric references for Parts

- Variables which are exposed at Pattern level
- Used to connect the application fragments together
- Found in `/etc/virtualimage.properties` on a running VA

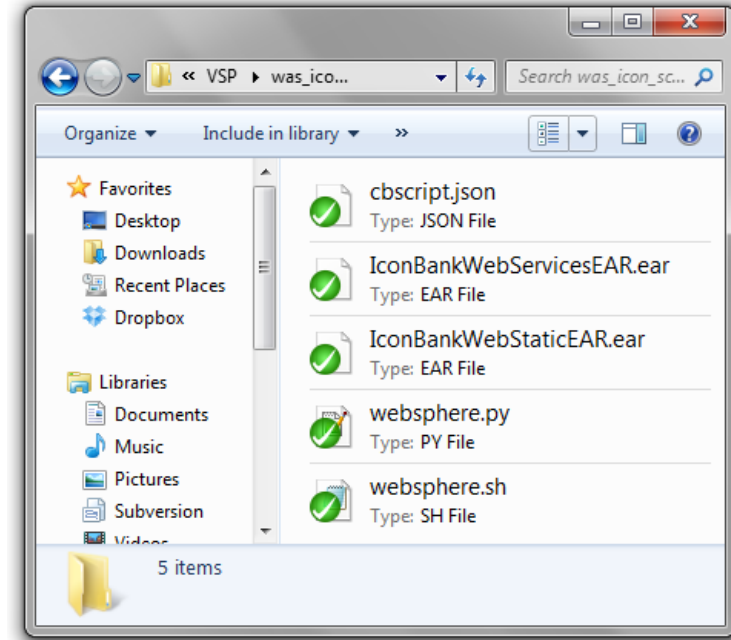
Script packages

- The bundled fragment of the application running on a Part (e.g. an EAR file plus its wsadmin deployment scripts)
- `cbscript.json`



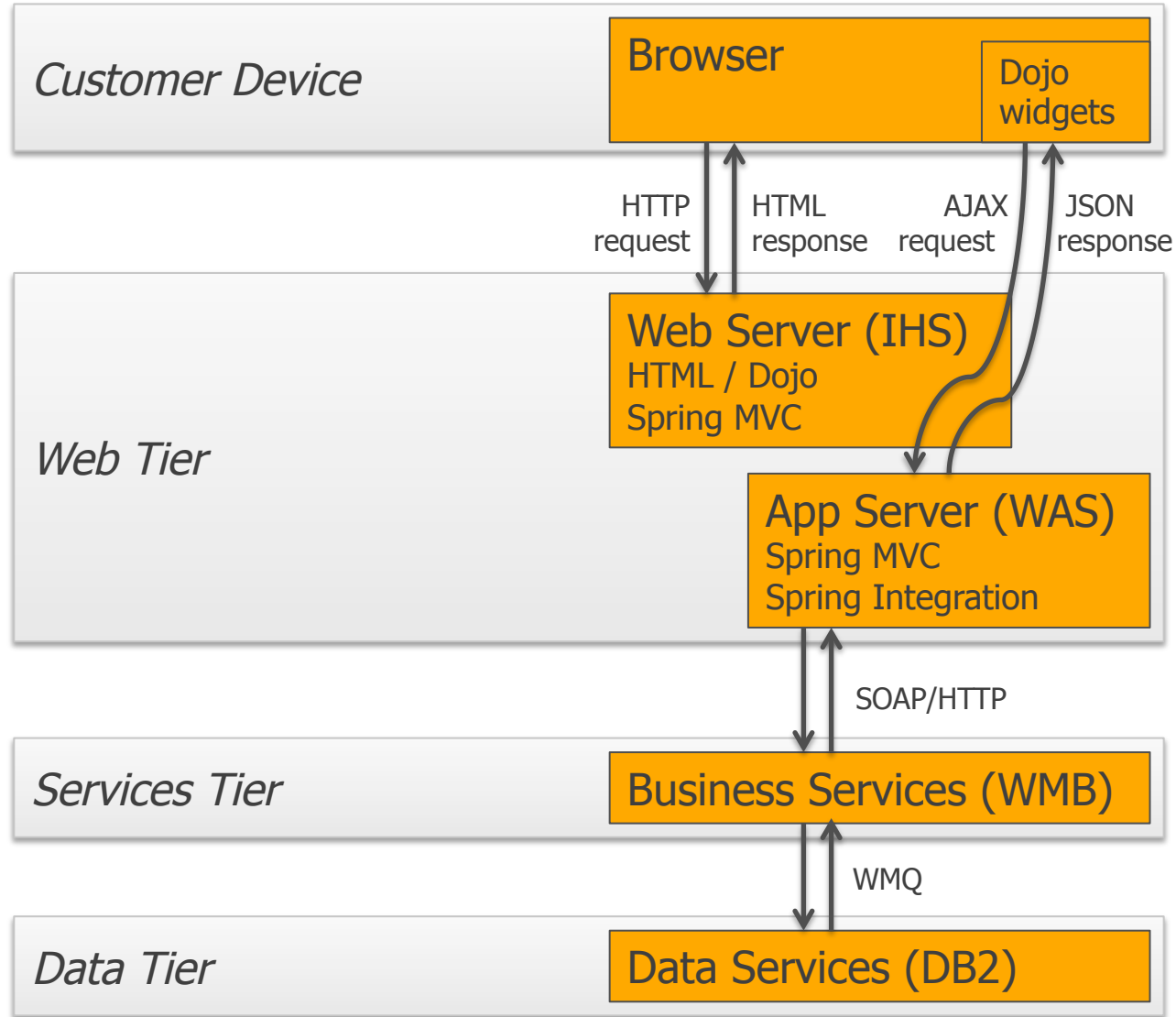
VSP Script: *cbscript.json*

```
{
  "name": "Configure WebSphere",
  "version": "1.0.0",
  "description": "BANK VSP: WAS general script package",
  "command": "sh /tmp/BANK_VSP/websphere.sh",
  "log": "/tmp/BANK_VSP",
  "location": "/tmp/BANK_VSP",
  "timeout": "0",
  "keys":
  [
    {
      "scriptkey": "SERVER_NAME",
      "scriptvalue": "server1",
      "scriptdefaultvalue": "server1"
    },
    {
      "scriptkey": "WEB_SVR_NAME",
      "scriptvalue": "webserver1",
      "scriptdefaultvalue": "webserver1"
    },
    {
      "scriptkey": "WMB_SRV_HOST",
      "scriptvalue": "${AdvancedPart.hostname}.${AdvancedPart.domain}:7800/",
      "scriptdefaultvalue": "${AdvancedPart.hostname}.${AdvancedPart.domain}:7800/"
    },
    {
      "scriptkey": "WEB_SVR_HOST",
      "scriptvalue": "${IHSPart.hostname}.${IHSPart.domain}",
      "scriptdefaultvalue": "${IHSPart.hostname}.${IHSPart.domain}"
    }
  ]
}
```





Demo Application Architecture





Build a VSP

- Construct a VSP around the demo application
 - Script package upload
 - Pattern construction
 - Pattern configuration
 - Pattern deployment

- Cut to web UI...

icon Demo

Check status... for the third time...





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- ... check ...
- ... check ...
- ... check ...
- Execute



VAP Construction

- Application Pattern Builder
 - Same as VPDK and IWD
- Direct support for EARs, databases, etc
 - Dynamic policies: scaling, routing, JVM, etc...
- Cut to web UI...
- ***Sara's presentation*** (next in the Cloud track) will have much more detail on VAPs

icon Demo

■ Check status... this is getting tedious now...





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Is your application VSP-ready?

- Map your application to parts (nodes)
 - Need scripts to support deployment of application fragments
 - Remove infrastructure dependencies (e.g. IP addresses)
 - Application may need some tinkering... (e.g. same-origin policy)
- Application architect's role must expand
 - Easy to apply maintenance to a pattern... still needs testing
 - Must evangelise new software design standards
 - You still need clever folks to own the application and its pattern(s)
- VSPs can be tested and debugged in situ
 - Port the application fragments to new middleware versions, e.g. WAS 8.5: spin it up and go and play!
 - Test new parts of the app itself
 - Why not build and maintain patterns for "unit" testing specifically?



Is your application VAP-ready?

- Put another way: is your application *Cloud*-ready?
- Forces much more rigorous application design and implementation standards; application may require a complete rebuild
 - Possibly quite a significant development investment
- Application becomes far more opaque
 - Must expose the correct amount of configuration / points of variability
 - VAs running underneath are not accessible (no WAS admin, no WMQ logs)
 - Application must therefore expose a meaningful admin UI with debug capabilities
- Application must react appropriately to error conditions
 - Everything from “queue has filled up” to “application agent has seg-faulted”)
 - Alert generation – what’s the alerting / monitoring medium?
 - Expose error handling through application externals
- Message Broker VAP support... *pleeeeeease...*

- ***Sara’s presentation*** (next in the Cloud track) will have much more detail about building a plugin for a specific VAP constituent



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- Deploy
- ... check ...
- ... check ...
- ... check ...
- ... check ...
- Execute

icon Demo

- Walkthrough of running VSP instance
 - Deployment history
 - Script output
 - Node access
- Execute
 - [check C:\Windows\System32\drivers\etc\hosts for hostname]
- Four virtual nodes, running different IBM stack products, plus the configured application
 - **Deployed in ~30 minutes**
 - Repeat on-demand with one click (almost)
 - Compare that with the traditional model: 6-8 weeks at least, with many different resources / teams needed
- Caveat: “transformative technology” drives fundamental business changes and challenges
 - Internal cross-charging, procurement, resource management

icon Summary

Summary:

- Pure Systems: introduction and value proposition
- Patterns: VSPs and VAPs, construction
- Application maturity and pattern-readiness
- Icon Bank VSP Demo

Questions?

Thank you

Ewan Withers
Senior Consultant



ewan.withers@iconsolutions.com
www.iconsolutions.com

 **@iconsolutions**

 **Icon Solutions (UK) Ltd**



Appendix 1: VSP Screenshots

1. Script package
2. VSP creation
3. VSP nodes
4. VSP scripts
5. VSP node configuration
6. VSP script configuration
7. VSP deployment
8. Deployment initialisation
9. Deployment completion
10. Deployment history
11. Deployed nodes
12. Running application



1. Script package

The screenshot shows the IBM Virtual Pattern Development Kit web interface. The browser address bar shows the URL `https://192.168.170.180/dashboard/catalog/scripts/#92`. The page title is "IBM Virtual Pattern Development Kit". The navigation menu includes "Welcome", "Instances", "Patterns", "Catalog", "Reports", "Cloud", and "System". The "Catalog" menu is active, showing a list of script packages. The selected package is "01 BANK WEB TIER".

Script Packages

- 01 BANK DATA TIER
- 01 BANK SERVICES TIER
- 01 BANK WEB TIER**
- Add IBM HTTP Server node
- WMB: Configure MQ Clustering
- WMB: Create Configurable Service
- WMB: Create Execution Group (Advanced)
- WMB: Create Execution Group (Basic)
- WMB: Deploy Bar Files
- WMB: Run MQSC Scripts
- WMB: mqsichangeproperties
- WMB: ...

01 BANK WEB TIER [Refresh] [Clone] [Lock] [Delete]

Description: BANK VSP: WAS general script package

Created on: Mar 19, 2013 10:14:15 PM

Current status: Draft

Updated on: Mar 19, 2013 10:14:16 PM

Script package files:

The script package is in was_icon_script_package.zip. [Download](#)

Environment:

- WMB_SRV_HOST = \${AdvancedPart.hostname}.\${AdvancedPart.domain}:7800/ [remove]
- WEB_SVR_HOST = \${IHSPart.hostname}.\${IHSPart.domain} [remove]
- SERVER_NAME = server1 [remove]
- WEB_SVR_NAME = webserver1 [remove]

Add variable =

Working directory: /tmp/BANK_VSP

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22:15 19/03/2013



2. VSP creation

The screenshot shows a web browser window displaying the IBM Virtual Pattern Development Kit interface. The browser's address bar shows the URL `https://192.168.170.180/dashboard/design/patterns/`. The page title is "IBM Virtual Pattern Development Kit". The navigation menu includes "Welcome", "Instances", "Patterns", "Catalog", "Reports", "Cloud", and "System". The "Patterns" section is active, showing a search bar and a list of patterns:

- WebSphere Message Broker 8.0.0.1 Advanced
- WebSphere Message Broker 8.0.0.1 Basic

A large text box on the right side of the page contains the instruction: "Select an item from the list for details and options, or create a new one if there is none".

At the bottom of the browser window, the footer text reads: "© Copyright IBM Corporation 2012. All Rights Reserved." and "3.1.0.2-20120627213645 / 20120627-2133-154".

The Windows taskbar at the bottom shows several open applications: "IBM Virtual Patter...", "Inbox - ewan.with...", "WUG_IPAS.pptx - ...", and "script.jpg - Paint". The system tray shows a battery level of 99% and the date/time "22:16 19/03/2013".

icon 3. VSP nodes

The screenshot displays the IBM Virtual Pattern Development Kit (VSP) interface in a Firefox browser window. The address bar shows the URL `https://192.168.170.180/dashboard/design/patterns/editor/?id=13`. The page title is "IBM Virtual Pattern Development Kit" and the user is logged in as "Administrator".

The main interface is titled "Pattern Editor" and is currently editing a pattern named "01 BANK DEMO". The left sidebar contains a search bar and a list of parts for ESX:

- Parts (19/19)
 - DB2 Enterprise 9.7.5.0 (9.7.5.0, ESX, RedHat Enterprise Linux 64-Bit 6 (RHEL x64))
 - DB2 Enterprise HADR Standby (DB2 Enterprise 10.1.0.0 (10.1.0.0, ESX, RedHat Enterprise Linux 64-Bit 6 (RHEL x64)))
 - DB2 Enterprise HADR Standby (DB2 Enterprise 9.7.5.0 (9.7.5.0, ESX, RedHat Enterprise Linux 64-Bit 6 (RHEL x64)))
 - DB2 Enterprise (DB2 Enterprise 10.1.0.0 (10.1.0.0, ESX, RedHat Enterprise Linux 64-Bit 6 (RHEL x64)))
 - DB2 Enterprise (DB2 Enterprise 9.7.5.0 (9.7.5.0, ESX, RedHat Enterprise Linux 64-Bit 6 (RHEL x64)))
- Scripts (13/13)
- Add-Ons (4/4)

The main workspace shows a diagram of the pattern components:

- Appliance Standalone server 7.0.0.15
- Appliance IBM HTTP servers 7.0.0.15
- DB2 Enterprise 9.7.5.0
- WebSphere Message Broker Advanced 8.0.0.1

Arrows indicate dependencies: the DB2 Enterprise node depends on the Standalone server, and the IBM HTTP servers node depends on the Standalone server. The IBM HTTP servers node is highlighted with a green border and a lock icon.

The bottom of the browser window shows the Windows taskbar with several open applications: "IBM Virtual Patter...", "Inbox - ewan.with...", "WUG_IPAS.pptx - ...", and "vsp1.jpg - Paint". The system tray shows a battery level of 99% and the date/time: 22:17 19/03/2013.

icon 4. VSP scripts

The screenshot displays the IBM Virtual Pattern Development Kit (VSP) web interface. The browser window shows the URL `https://192.168.170.180/dashboard/design/patterns/editor/?id=13`. The application header includes the title "IBM Virtual Pattern Development Kit" and user information "Administrator | Help | About | Logout".

The main navigation bar contains the following menu items: Welcome, Instances, **Patterns**, Catalog, Reports, Cloud, and System. The "Patterns" menu is currently selected.

The central workspace is titled "Editing 01 BANK DEMO" and features a search bar on the left. The workspace contains several pattern components:

- 7.0.0.15** (top center): A component containing "01 BANK WEB TIER".
- IBM HTTP servers 7.0.0.15** (top right): A component containing "7.0.0.15".
- DB2 Enterprise 9.7.5.0** (middle): A component containing "01 BANK DATA TIER".
- WebSphere Message Broker Advanced 8.0.0.1** (bottom left): A component containing "01 BANK SERVICES".

On the left sidebar, there are sections for "Parts (19/19)", "Scripts (13/13)", and "Add-Ons (4/4)". The "Scripts" section lists the following items:

- 01 BANK DATA TIER
- 01 BANK SERVICES TIER
- 01 BANK WEB TIER
- Add IBM HTTP Server node
- WebSphere Application Server Samples
- WMB: Configure MQ Clustering
- WMB: Create Configurable Service
- WMB: Create Execution Group (Advanced)
- WMB: Create Execution Group (Basic)
- WMB: Deploy Bar Files
- WMB: mqsichangeproperties
- WMB: mqsisetdbparms
- WMB: Run MQSC Scripts

The footer of the application shows the copyright notice "© Copyright IBM Corporation 2012. All Rights Reserved." and the version information "3.1.0.2-20120627213645 / 20120627-2133-154". The Windows taskbar at the bottom displays the system tray with a 99% battery level and the date "19/03/2013".



5. VSP node configuration

The screenshot displays the IBM Virtual Pattern Development Kit (VSP) interface in a Firefox browser window. The main window title is "IBM Virtual Pattern Development Kit" and the URL is "https://192.168.170.180/dashboard/design/patterns/editor/?id=13". The interface includes a navigation menu with options like "Welcome", "Instances", "Patterns", "Catalog", "Reports", "Cloud", and "System". The "Patterns" section is active, showing a "Pattern Editor" with a search bar and a list of parts and scripts. A modal dialog titled "Properties for part Standalone server (StandalonePart)" is open, displaying the following configuration options:

- Name: StandalonePart
- Virtual CPUs: 1
- Memory size (MB): 2048
- Reserve physical CPUs: False
- Cell name: CloudBurstCell
- Node name: CloudBurstNode
- Feature packs: none, batch, cea

The dialog has "OK" and "Cancel" buttons at the bottom. The background interface shows a "Parts (19/19)" list with items like "01 BANK DATA TIER" and "01 BANK SERVICES TIER". A "Scripts (13/13)" list includes "01 BANK WEB TIER" and "Add IBM HTTP Server node". The "Add-Ons (4/4)" section shows "01 BANK DATA TIER". The bottom status bar indicates "© Copyright IBM Corporation 2012. All Rights Reserved." and "3.1.0.2-20120627213645 / 20120627-2133-154". The system tray shows a battery level of 99% and the date/time "22:20 19/03/2013".



6. VSP script configuration

The screenshot displays the IBM Virtual Pattern Development Kit (VSP) interface in a Firefox browser window. The main window title is "IBM Virtual Pattern Development Kit" and the URL is "https://192.168.170.180/dashboard/design/patterns/editor/?id=13". The interface includes a navigation menu with "Welcome", "Instances", "Patterns", "Catalog", "Reports", "Cloud", and "System". The "Patterns" section is active, showing "Editing 01 BANK DEMO". A modal dialog box titled "Parameters for script 01 BANK WEB TIER" is open, containing the following configuration parameters:

- WMB_SRV_HOST: `${AdvancedPart.hostname}.${AdvancedPart.c`
- WEB_SVR_HOST: `${IHSPart_.hostname}.${IHSPart_.domain}`
- SERVER_NAME: `server1`
- WEB_SVR_NAME: `webserver1`

Buttons for "OK" and "Cancel" are visible at the bottom of the dialog. In the background, the main editor shows a search bar, a list of parts and scripts, and a configuration area for "DB2 Enterprise" (version 9.7.5.0) and "01 BANK DATA TIER". The system tray at the bottom shows the date and time as 22:21 on 19/03/2013.



7. VSP deployment

The screenshot displays the IBM Virtual Pattern Development Kit (VSP) web interface. The browser address bar shows the URL `https://192.168.170.180/dashboard/design/patterns/#13`. The page title is "IBM Virtual Pattern Development Kit" and the user is logged in as "Administrator".

The main navigation menu includes "Welcome", "Instances", "Patterns", "Catalog", "Reports", "Cloud", and "System". The "Patterns" menu is currently selected, showing a list of "Virtual System Patterns":

- 01 BANK DEMO
- WebSphere Message Broker 8.0.0.1 Advanced
- WebSphere Message Broker 8.0.0.1 Basic

The "01 BANK DEMO" pattern is selected, and its details are shown on the right. A modal dialog box is open, titled "Describe the virtual system you want to deploy." The dialog contains the following fields and options:

- Virtual system name:
- Choose environment
- Schedule deployment
- Configure virtual parts

The dialog has "OK" and "Cancel" buttons at the bottom. The background interface shows a topology diagram with two appliance nodes: "Appliance Standalone server 7.0.0.15" and "Appliance IBM HTTP servers 7.0.0.15".

At the bottom of the screen, the Windows taskbar is visible, showing the system tray with a 99% battery level and the date/time: 22:23 19/03/2013.



8. Deployment initialisation

The screenshot shows the IBM Virtual Pattern Development Kit dashboard in a Firefox browser window. The URL is <https://192.168.170.180/dashboard/virtual/#57>. The user is logged in as Administrator. The dashboard has a navigation menu with options: Welcome, Instances, Patterns, Catalog, Reports, Cloud, and System. The main content area is titled "Virtual System Instances" and shows a list of instances. The instance "01 BANK" is selected and its details are displayed in a modal window.

Virtual System Instances

Search...

01 BANK

01 BANK Refresh Start Stop Store Service Delete

Created on: Mar 19, 2013 10:24:01 PM

From pattern: 01 BANK DEMO

Using Environment profile: None provided

Current status: Reserving cloud resources

Updated on: Mar 19, 2013 10:24:13 PM

Access granted to: Administrator [owner]
Add more...

Snapshot: (none)
Create

History: Reserving cloud resources

Virtual machines: 4 total - 4 inactive

Comments: There are no comments yet

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Taskbar: IBM Virtual Patter..., Inbox - ewan.with..., WUG_IPAS.pptx - ..., vsp6.jpg - Paint, 100%, 22:24 19/03/2013



9. Deployment completion

The screenshot shows the IBM Virtual Pattern Development Kit dashboard in a Firefox browser window. The URL is <https://192.168.170.180/dashboard/runtime/virtual/#60>. The user is logged in as Administrator. The main navigation bar includes Welcome, Instances (selected), Patterns, Catalog, Reports, Cloud, and System. The 'Virtual System Instances' section shows a search bar and a list of instances. The '01 BANK' instance is selected, and its details are displayed on the right. The instance is in a 'Deployed' state, created on Mar 20, 2013 at 6:36:45 AM, and updated on Mar 20, 2013 at 7:10:05 AM. The access is granted to Administrator [owner]. The snapshot is (none). The history shows 'The virtual system has been deployed'. There are 4 virtual machines total, all started. There are no comments yet.

Virtual System Instances	01 BANK
Created on:	Mar 20, 2013 6:36:45 AM
From pattern:	01 BANK DEMO
Using Environment profile:	None provided
Current status:	The virtual system has been deployed
Updated on:	Mar 20, 2013 7:10:05 AM
Access granted to:	Administrator [owner] <input type="text" value="Add more..."/>
Snapshot:	(none) <input type="button" value="Create"/>
History	The virtual system has been deployed
Virtual machines	4 total - 4 started
Comments	There are no comments yet

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08:12 20/03/2013



10. Deployment history

The screenshot shows the IBM Virtual Pattern Development Kit interface. The main content area displays the deployment history for a virtual system named '01 BANK'. The history is presented as a list of events with their corresponding timestamps. At the bottom of the history list, it indicates that 4 virtual machines were started out of a total of 4.

Event	Timestamp
The virtual system has been deployed	Mar 20, 2013 7:10:00 AM
Executing script package 01 BANK WEB TIER on virtual machine ibmvcloud09-Standalone-01 BANK-	Mar 20, 2013 7:02:52 AM
Executing script package 01 BANK SERVICES TIER on virtual machine ibmvcloud10-AdvancedPart1360919	Mar 20, 2013 7:02:00 AM
Executing script package 01 BANK DATA TIER on virtual machine ibmvcloud08-DB2_ESE-01 BANK-216	Mar 20, 2013 7:00:45 AM
Starting virtual machine ibmvcloud09-Standalone-01 BANK-	Mar 20, 2013 6:53:28 AM
Starting virtual machine ibmvcloud07-IHS Only Node-01 BA	Mar 20, 2013 6:49:42 AM
Starting virtual machine ibmvcloud10-AdvancedPart1360919	Mar 20, 2013 6:47:07 AM
Starting virtual machine ibmvcloud08-DB2_ESE-01 BANK-216	Mar 20, 2013 6:40:45 AM
Starting virtual machines in virtual system 01 BANK.	Mar 20, 2013 6:40:45 AM
Registering virtual system 01 BANK	Mar 20, 2013 6:39:35 AM
Transferring virtual images to hypervisors	Mar 20, 2013 6:39:20 AM
Generating model for topology and network	Mar 20, 2013 6:38:25 AM
Reserving cloud resources	Mar 20, 2013 6:36:55 AM
Deployment has been queued	Mar 20, 2013 6:36:47 AM

Virtual machines: 4 total - 4 started

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11. Deployed nodes

The screenshot shows the IBM Virtual Pattern Development Kit dashboard. The main content area displays the 'Virtual System Instances' for '01 BANK'. The dashboard includes a navigation menu with 'Instances' selected, and a toolbar with actions like Refresh, Start, Stop, Store, Service, and Delete. The 'Virtual machines' section shows a table of 4 total - 4 started nodes.

Name	CPU	Memory	SSH	Actions	Group Actions
ibmvcloud10-AdvancedPart1360919	9%	9%	Login	Manage	
ibmvcloud09-Standalone-01 BANK-	9%	13%	Login	Manage	
ibmvcloud08-DB2_ESE-01 BANK-216	7%	11%	Login	Manage	
ibmvcloud07-IHS Only Node-01 BA	11%	11%	Login	Manage	

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08:12 20/03/2013



12. Running application

The screenshot shows a Firefox browser window displaying the 'iconbank' website. The address bar shows the URL: `http://ibmvcloud07.icon.local/IconBankWebStatic/user/IB1234567890/`. The browser's search bar contains 'ibm partnerworld'. The website's navigation bar includes links for 'Personal', 'Business', 'Search', 'Internet Banking', 'Register', and 'Logout'. Below this, the 'iconbank' logo is followed by service categories: 'Everyday banking (Accounts & Services)', 'Borrowing (Loans & Mortgages)', 'Investing (Products & Analysis)', 'Insurance (Property & Family)', and 'Planning (for now & the future)'. The main content area is divided into several sections:

- My Accounts**: A sidebar menu with links for 'Balance Summaries', 'Change my log on details', 'Mortgage options', 'Security', 'Investments', and 'Financial planning centre'.
- My accounts**: A central section with a sub-header 'Savings accounts' and a table of account balances. Below it is a sub-header 'Day to day banking' with another table of account balances.
- My Messages**: A notification box stating 'You have 4 new messages'.
- My Details & Preferences**: A box containing contact information: Home: 02081243287, Work: 07796345653, Mobile: 07712345653, Email: dave.andrews@wi..., and Postcode: IG10 4EG.

The Windows taskbar at the bottom shows the system clock at 08:11 on 20/03/2013, along with icons for Mozilla Firefox, a presentation application (WUG_IPAS.pptx), and a system tray with a battery indicator at 3:13.



Appendix 2: VAP Screenshots

1. VAP creation
2. VAP policy addition
3. VAP policies



1. VAP creation

The screenshot displays the IBM Virtual Pattern Development Kit (VAP) interface within a Firefox browser window. The browser address bar shows the URL: `https://192.168.170.180/tooling/index.gt?isNew=true&appId=a-b0e0af93-1a4a-452c-98ba-ac024195c118#editorTab`. The application title bar reads "IBM Virtual Pattern Development Kit - [Pattern Type: Web Application Pattern Type 2.0]" and "Virtual Application Builder - [untitled]".

The interface includes a menu bar with "Diagram", "List View", and "Source" tabs, and a toolbar with "Save", "Save As", "Layout", "Undo", and "Redo" options. On the left, the "Assets" panel lists various components such as "Application Components", "Enterprise Application", "Existing Web Service Provider Endpoint", "Policy set", and "Web Application". Below this is the "Layers" panel.

The central workspace shows a diagram with two nodes: "Web Application" (labeled "application") and "Database" (labeled "database"). A blue arrow points from the Web Application to the Database, with a yellow warning triangle on the arrow. A button labeled "Add policy for application" is positioned above the diagram.

On the right, the "Virtual Application" properties panel is visible, containing the following fields:

- Name:** untitled
- Description:** Application template for simple Java EE Web application including WAS and DB2
- Type:** Application (selected), Template
- Locked pattern type:**

The Windows taskbar at the bottom shows the system tray with a battery level of 83%, the date 20/03/2013, and the time 22:49. Several application icons are visible in the taskbar, including "Virtual Applicatio...", "Inbox - ewan.with...", "Initiative - Pure Sy...", and "WUG_IPAS.pptx - ...".



2. VAP policy addition

The screenshot displays the IBM Virtual Pattern Development Kit (VPDK) interface for adding a policy to a Virtual Application Pattern (VAP). The browser window shows the URL `https://192.168.170.180/tooling/index.gt?isNew=true&appId=a-b0e0af93-1a4a-452c-98ba-ac024195c118#editorTab`. The application title is "Virtual Application Builder 'untitled'".

The main workspace is titled "Virtual Application Builder - [untitled] *". It features a "Diagram" view showing a flow from a "Web Application" component (labeled "application") to a "Database" component (labeled "database"). A blue arrow with a yellow warning icon indicates a dependency or policy point.

On the left, the "Assets" panel lists various components, including "Enterprise Application" (WebSphere Application Server) and "Web Application" (WebSphere Application Server). A button "Add policy for application" is visible at the top of the diagram area.

A context menu is open over the "Enterprise Application" component, listing the following policies to be added:

- Routing Policy
- Log Policy
- JVM Policy
- Scaling Policy

The "Scaling Policy" is currently selected. A tooltip for "Scaling Policy(Web/Enterprise Application)" shows the "fix updates" checkbox is checked. Below the diagram, the "Enterprise Application" configuration panel is visible, showing fields for:

- Name: Enterprise Application
- EAR file: [field] [Edit](#)
- Total transaction lifetime timeout (seconds): 120
- Async response timeout (seconds): 120
- Client inactivity timeout (seconds): 60
- Maximum transaction timeout (seconds): 300
- Interim fixes URL: [Click select button to update](#)
- maximum session count: [field]

The Windows taskbar at the bottom shows the system tray with a battery level of 85% and the date/time 22:51 on 20/03/2013.



3. VAP policies

The screenshot displays the IBM Virtual Pattern Development Kit (VPDK) interface. The main workspace shows a diagram with two components: a 'Web Application' (labeled 'application') and a 'Database' (labeled 'database'), connected by a blue arrow. A yellow warning icon is present on the arrow. A 'Policy palette' is visible below the diagram, containing an 'Enterprise Application' icon, a 'Scaling Policy' icon (with a red 'X' and a question mark), and a 'JVM Policy' icon (with a yellow warning icon).

The left sidebar contains an 'Assets' panel with a search field and a tree view of components:

- Application Components
 - Additional archive file
 - Enterprise Application (WebSphere Application Server)
 - Existing Web Service Provider Endpoint
 - Policy set
 - Web Application (WebSphere Application Server)
- Database Components
- Messaging Components
- OSGi Components
- Transaction Processing Components
- User Registry Components
- Other Components

The right sidebar shows configuration panels for 'Scaling Policy' and 'JVM Policy'.

Scaling Policy Configuration:

- Enable session caching:
- Maximum Session Cache Grid Size: UNCAPPED
- Scaling Type: Static
- * Number of Instances: 2

JVM Policy Configuration:

- * Enable debug:
- Debug port: 7777
- Client (IP or IP/netmask):
- * Enable Health Center:
- Health Center port: 1972
- Health Center Client (IP or IP/netmask):
- * Enable Verbose Garbage Collection:
- Generic JVM arguments:

The bottom of the screen shows the Windows taskbar with several open applications: 'Virtual Applicatio...', 'Inbox - ewan.with...', 'Initiative - Pure Sy...', 'WUG_IPAS.pptx - ...', and 'vap3.jpg - Paint'. The system tray shows a battery level of 94% and the date/time: 23:10, 20/03/2013.