Pure Patterns for MQ & IIB components

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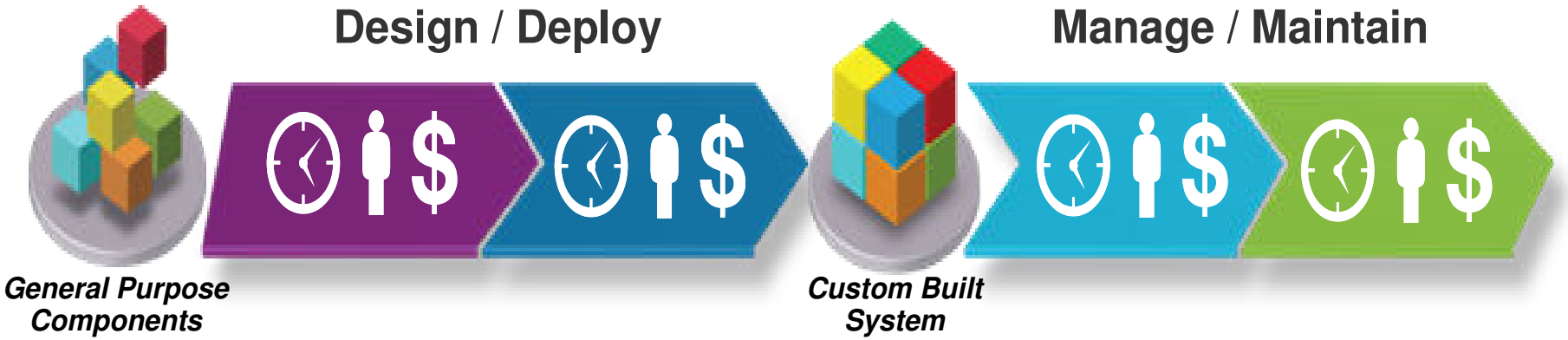
Solution Architect

Prolifics

Agenda

- **Traditional Infrastructure & Applications deployments**
  - What is slowing you down .. Operational Management.
  - Project delays further inhibit.
  - Enterprise Deployment is complex.
- **Advantages of Pure Applications.**
  - How Does the Pure Application System.
  - What can I run on Pure Applications.
  - Build your expertise at each level.
  - Pure Application + Patterns as a catalyst in cost savings.
  - Pattern middleware Cost Reductions.
  - Pure Pattern Types
- **Pure Pattern development and Implementation**
  - IBM ICCT
  - Plug-in Development Kit
  - Pure Application : Virtual Pattern Builder
  - MQ v8.0.0.3/8.0.0.2 & IIB 10.0.0.1 Patterns
  - Virtual System Pattern Management.
- **Video Demo**
  - Prolifics MQ & IIB Pattern Deployment Demo
  - Summary

What is slowing you down… Operational Management



Lifecycle Spend includes:

- Design Activities
- Resource/Capacity Planning
- Build
- Deployment
- Testing and Verification
- Operational Management
- System Maintenance
- These Activities *RECUR IN EVERY PHASE*.

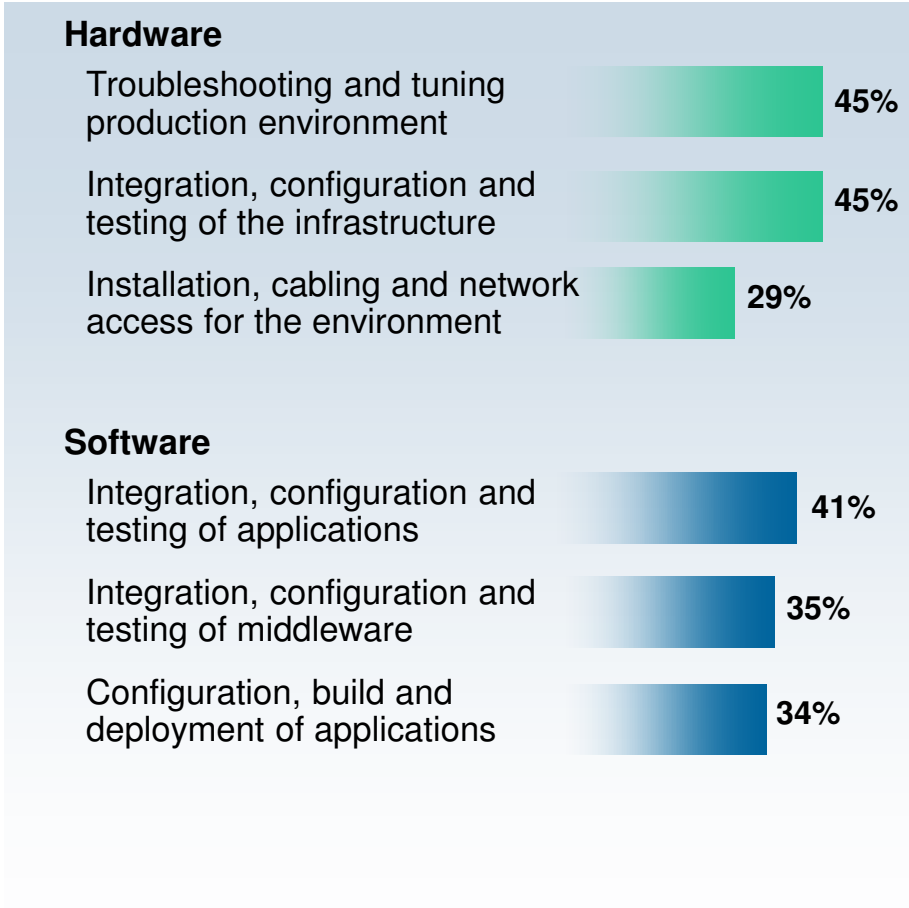
Operational Management is complex, time consuming and EXPENSIVE!

Project delays further inhibit…

Typical IT Project Time and Budget

Phase	Time (days)	Budget
Specify/design	73 - 96	14% - 16%
Procure	57 - 112	19% - 21%
Implement	74 – 93	12%
Configure/test	74 – 80	10% - 11%
Cluster & HA	66 – 104	11% - 12%
Backup	44 – 108	10%
Tune	89 – 98	9% - 10%
Management	67 – 110	9 – 10%

Top Causes of Project Delays



34% *of new IT projects (US)* ***deploy late***

Enterprise Deployment is Complex
For Example, If deploying a MQ & IIB – here are

Actions

- **Infrastructure**
  - Request, Procure, Provision Hardware
  - Install OS on destined hardware
  - Prepare OS with latest security patches
- **Platform**
  - Install middleware (MQ & IIB)
  - Configure and tune MQ & IIB server.
  - Install Middleware patches (MQ & IIB) .
  - Create and Configure Clusters.
  - Create Custom Configurations.(WSRR , DP , SSL , Global Cache)
- **Capacity**
  - Plan, configure for additional capacity for scaling needs
- **Developers, multiple environments, Build and Release, and more…**

Complexity – a lot of it !!!

How long in your for organization?

How do you maintain it?

How do you grow it?

Results

- **Months** before the application is deployed
- On-going proprietary maintenance of **complex** hardware, software and application lifecycle

How does the Pure Application System help?

Built in Expertise ("Patterns")

- MQ & IIB
- WebSphere Application Server
- Business Process management
- Web experience (Portal)
- A large number of ISV busines applications

Application Management Layer

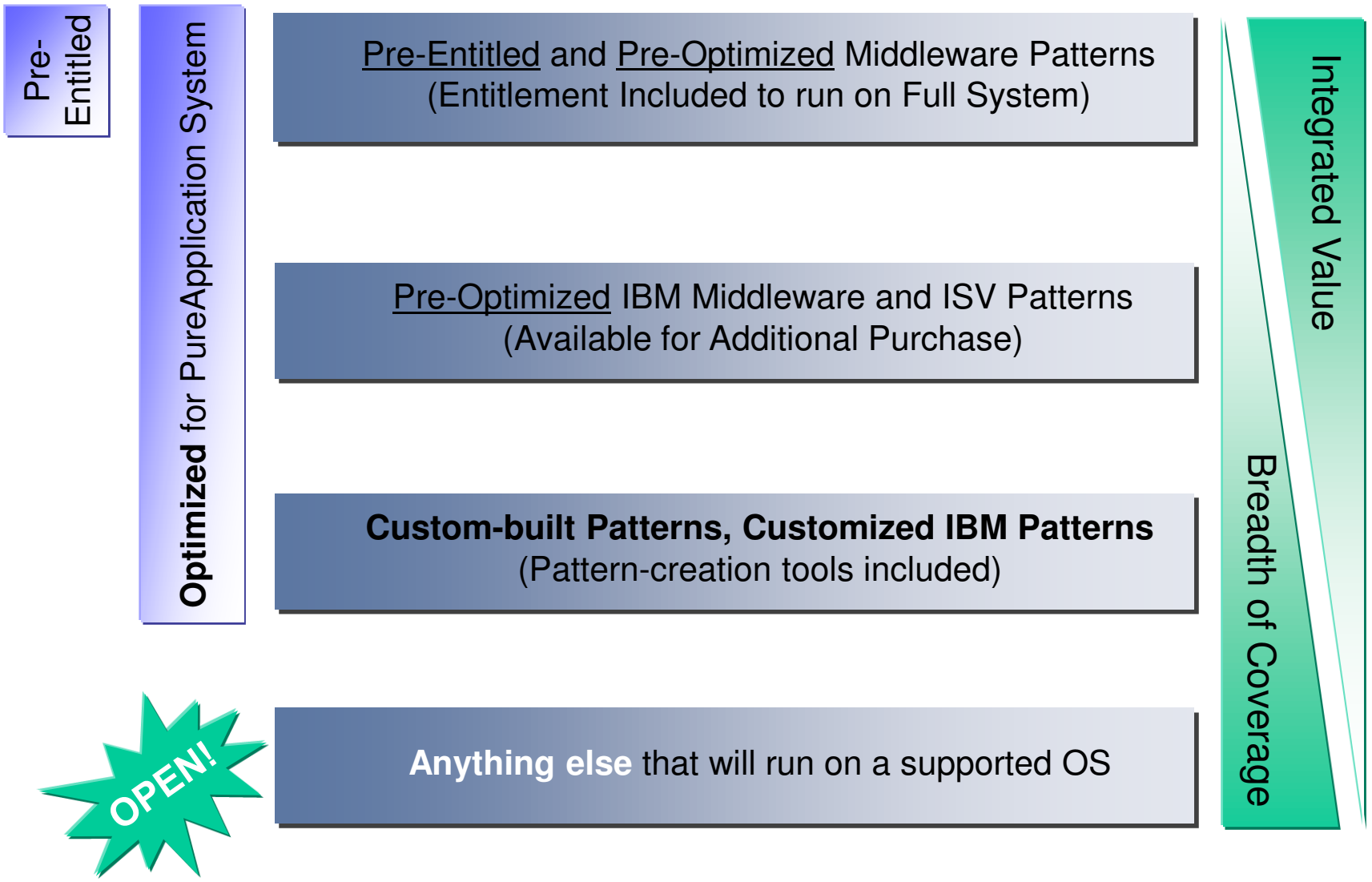
- Application Optimization
- System wide Management
- Automation & Scaling
- Caching & Elasticity
- Application Centric Provisioning
- Usage Metering
- Security
- Monitoring
- App. Lifecycle Mgmt
- License Management
- Self-service
- Data management

System Infrastructure

- Integrated Server, Storage, Network
- Power Management
- Storage & VM Optimization
- Virtualization
- Integrated System Mgmt
- Provisioning
- Security
- Monitoring
- IT Lifecycle Management
- System design

Pure Application Systems is the operational shift from reactive to **Proactive**.

What Can I Run on Pure Applications?



Build In Your Expertise at Each Layer

Workload-Aware Management

(e.g. Pure Application System)

- Configure middleware
- Connect middleware components in multi-server topology
- Configure high availability
- Policy-based elasticity
- Ongoing lifecycle management
- Middleware-level monitoring
- **….all without scripting**!

- **Deep value** out of the box with no scripting through patterns
- Environment is “modeled” by pattern creators, not “scripted” by users
- Patterns available in PureSystems Centre **for select IBM, ISV, and 3rd party products**

General Purpose Management

(e.g. PureFlex System)

- Provision storage, VMs, VLANs, etc.
- Runbook automation (scripts)
- Infrastructure level monitoring

- Represents “commodity deployment” capability
- Requires user to implement scripts, own part of the process
- **Broad coverage**: handles the “everything else”

Most clients will need a mix of both

Pure Application + Patterns as a catalyst for drastic cost savings.

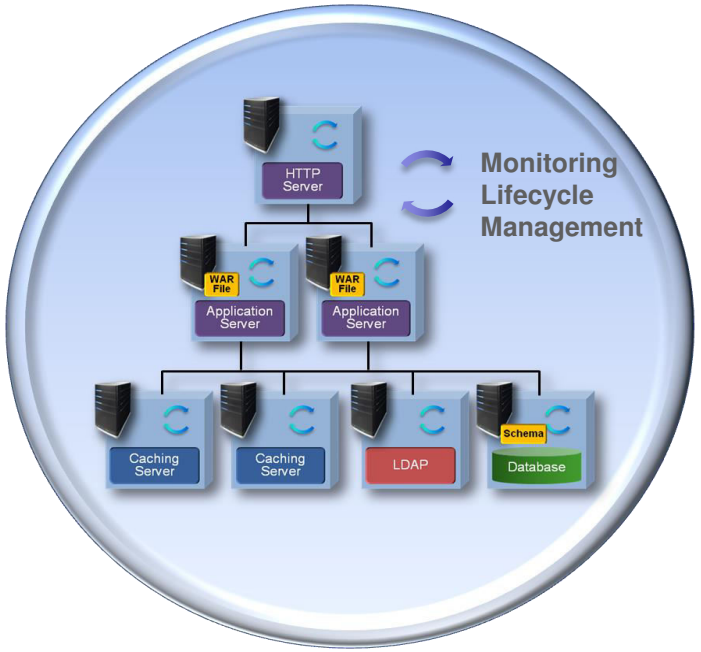
- **Look beyond PaaS and Patterns alone.**
  - We foresee almost every customer wanting patterns that automate multiple products for load balancing, monitoring, access control, and integration. So custom patterns will be a must-have.
  - This provides a way to deliver continuous build, continuous deploy, continuous test, in a efficient and effective way.
  - Application stability can be further enhanced though the use for phoenix servers, test servers that are torn down and recreated clean with each new deploy.
  - Enabling a move to a DevOps model where Development and Operations have a closer working relationship and we remove the over the wall mentality.

Patterns Middleware cost reduction

Patterns of Expertise: Proven best practices and expertise for complex tasks learned from decades of client and partner engagements that are captured, lab tested and optimized ***into a deployable form .***

- Pre-defined application architecture for each part of the application (MQ,IIB , Database, web server, etc)
  - Pre-installation on an operating system
  - Pre-integration across components
  - Pre-configured & tuned
  - Pre-configured Monitoring
  - Pre-configured Security
  - Lifecycle Management

- In a **deployable form**, resulting in **repeatable deployment** with **full lifecycle management**
- **Delivers** superior results:
  - **Speed:** Faster time to setup, configure
  - **Agility:** Less time required to adapt to changes
  - **Efficiency:** Reduced costs and resources
  - **Simplicity:** Simpler skills requirements
  - **Elasticity:** Scale up or down as needed
  - **Repeatability/Control:** Lower risk and errors



Focus on your application, while Pure Application automates application lifecycle

From: MANUAL

Roll Your Own

MANUAL
- Provisioning
- Monitoring
- Maintenance
- SW Scaling
- HW Scaling

On-Prem

OS

Off-Prem

MANUAL
- Provisioning
- Monitoring
- Maintenance
- SW Scaling

AUTOMATED
- HW Scaling

To: AUTOMATED

Time to Value, Simplicity & Lower TCO

On-Prem

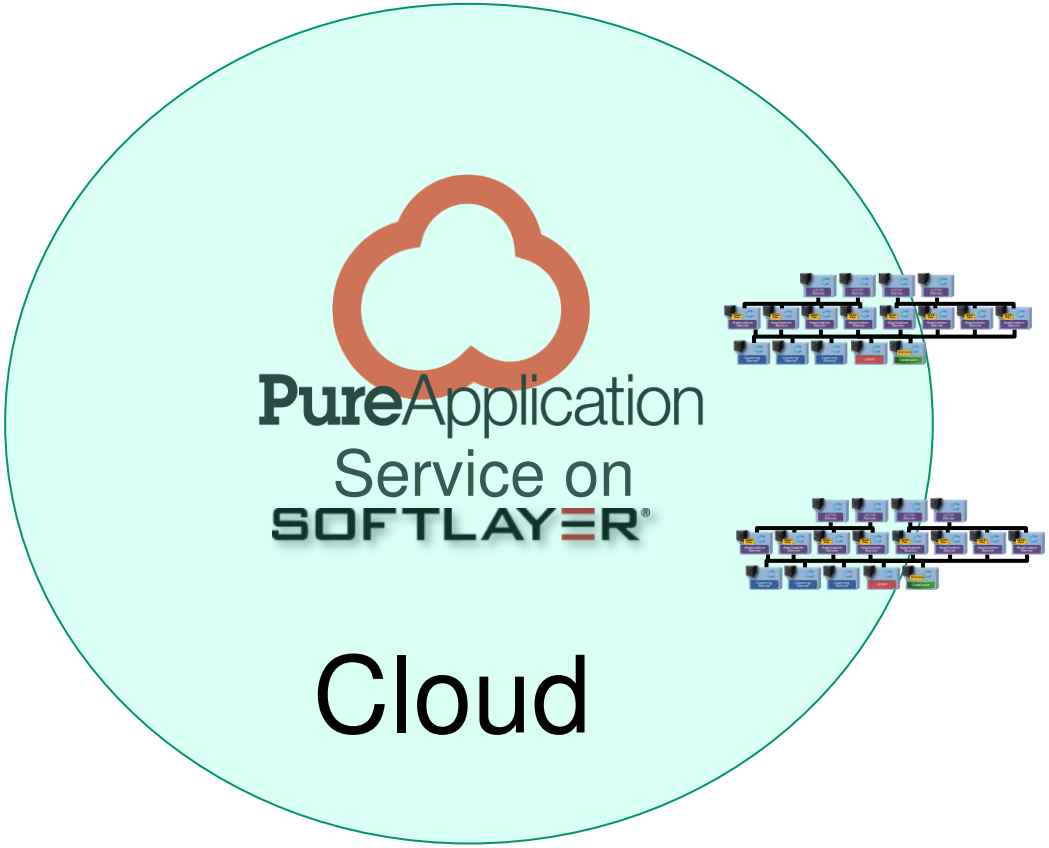
PureApplication System

AUTOMATED
- Provisioning
- Monitoring
- Maintenance
- SW Scaling
- HW Scaling

Off-Prem

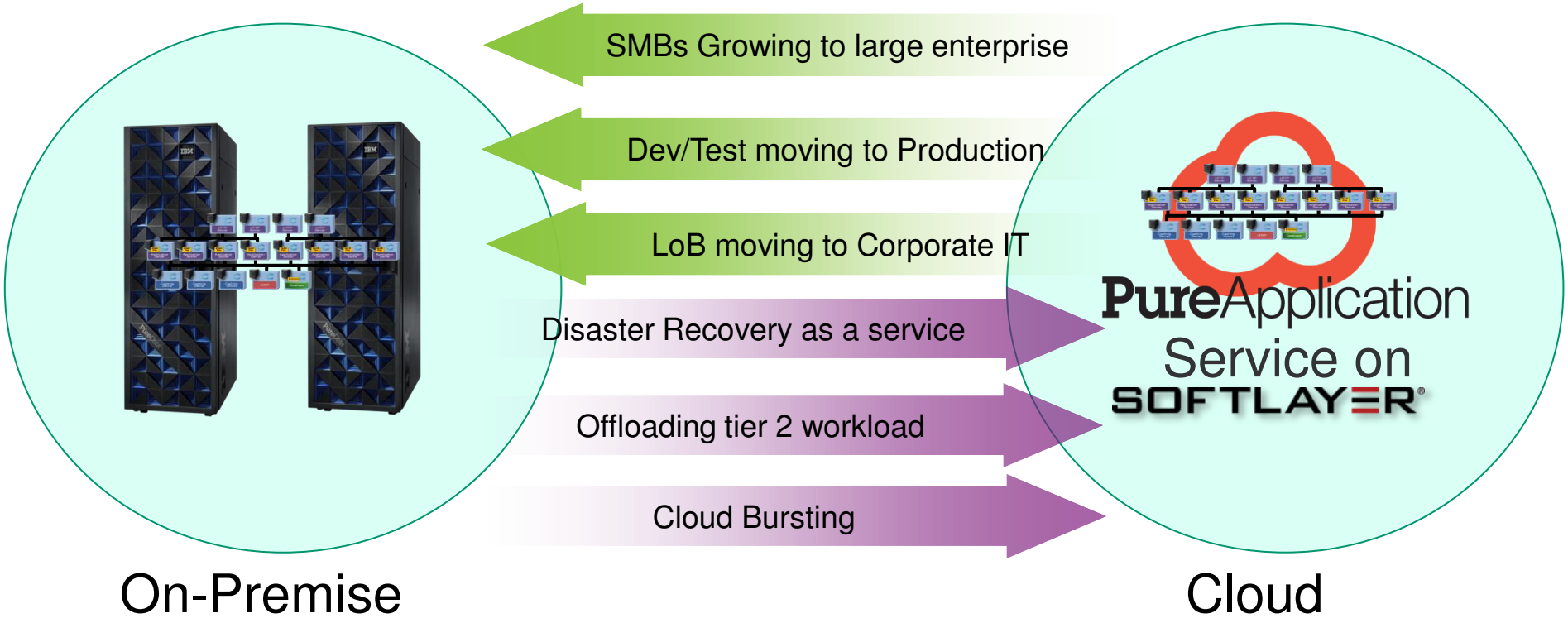
PureApplication Service (SoftLayer)

Patterns: Cloud Strategy Realized



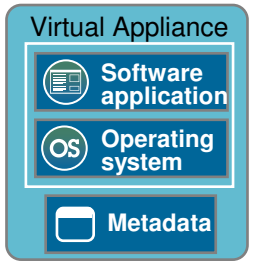
PureApplication Service on SoftLayer is an environment allowing users to deploy and manage **patterns** with **rental economics** of public cloud and **isolation** of private cloud. Potential use for Development, and other Use Cases

Patterns/Application Cloud Strategy Realized



Combine **PureApplication Service on SoftLayer** with Pure Applications systems to realize new deployment capabilities

Multiple Types of Patterns

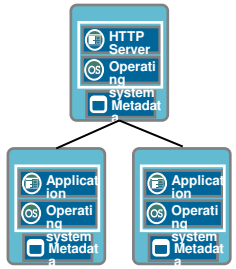


Virtual Appliances

- Standard software installation and configuration on OS
- Images created through extend/capture
- Traditional administration and management model
- Infrastructure driven elasticity

Virtual Appliances

Standard TCO
existing applications



Virtual System Patterns

- Automated deployment of middleware topologies
- Traditional administration and management model
- Application and infrastruture driven elasticity

Virtual System Patterns

Improved TCO
virtualized applications

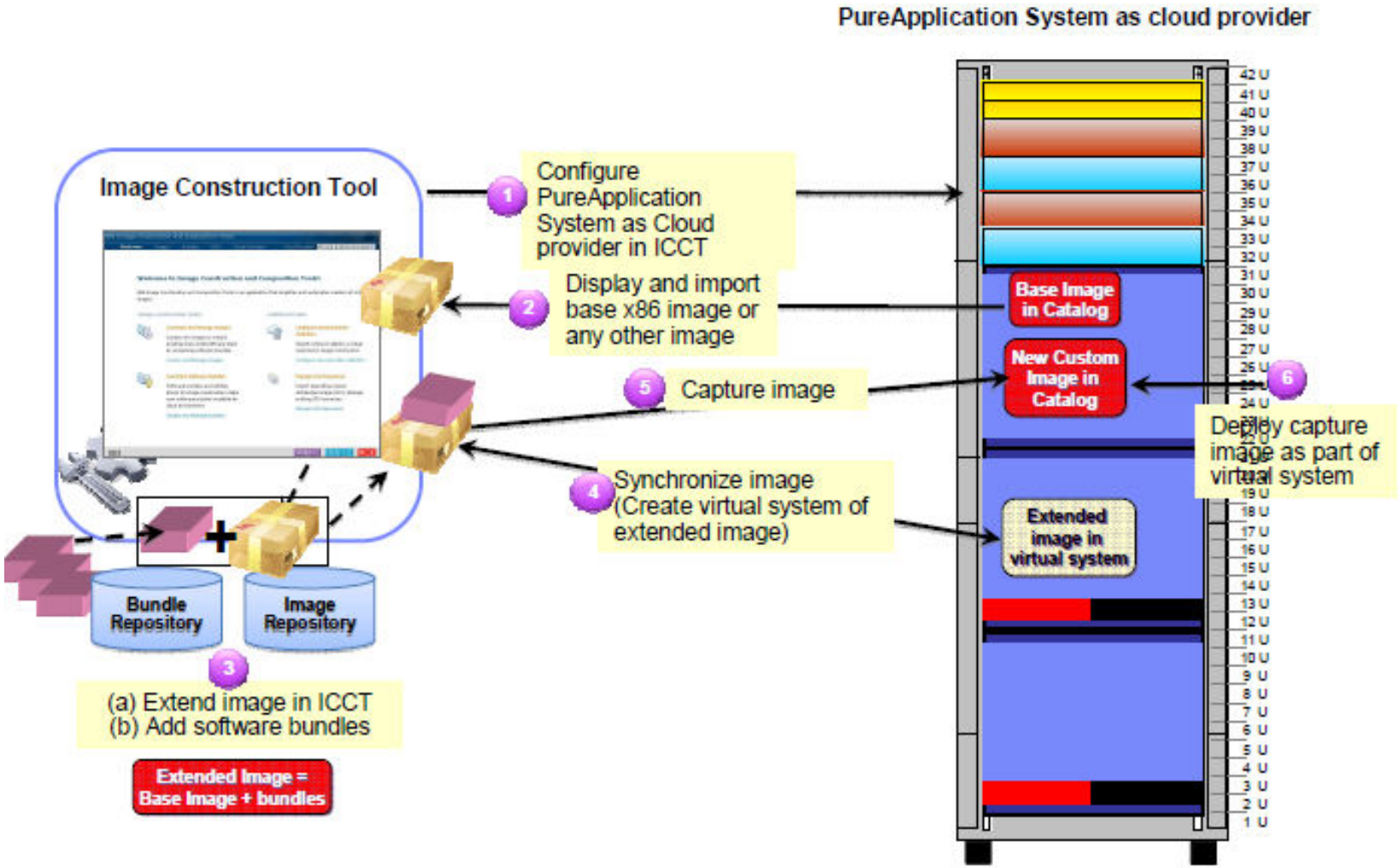
Virtual Application Patterns

- Highly automated deployments using expert patterns
- Business policy driven elasticity
- Built for the cloud environment
- Leverages elastic workload management services

Virtual Application Patterns

Best TCO
cloud applications

IBM Image Construction & Composition Tool



IBM Image Construction & Composition Tool

Traditional infrastructure setup

– Create a virtual machine
– Install and configure software on the virtual machine
– Requires knowledge of the software
– Test the virtual machine and software
– Develop scripts and edit the image metadata as needed.
– Requires skill in virtualization technology
– Save the disk image
– Test the image configuration

IBM Image Construction & Composition Tool

Features of ICCT

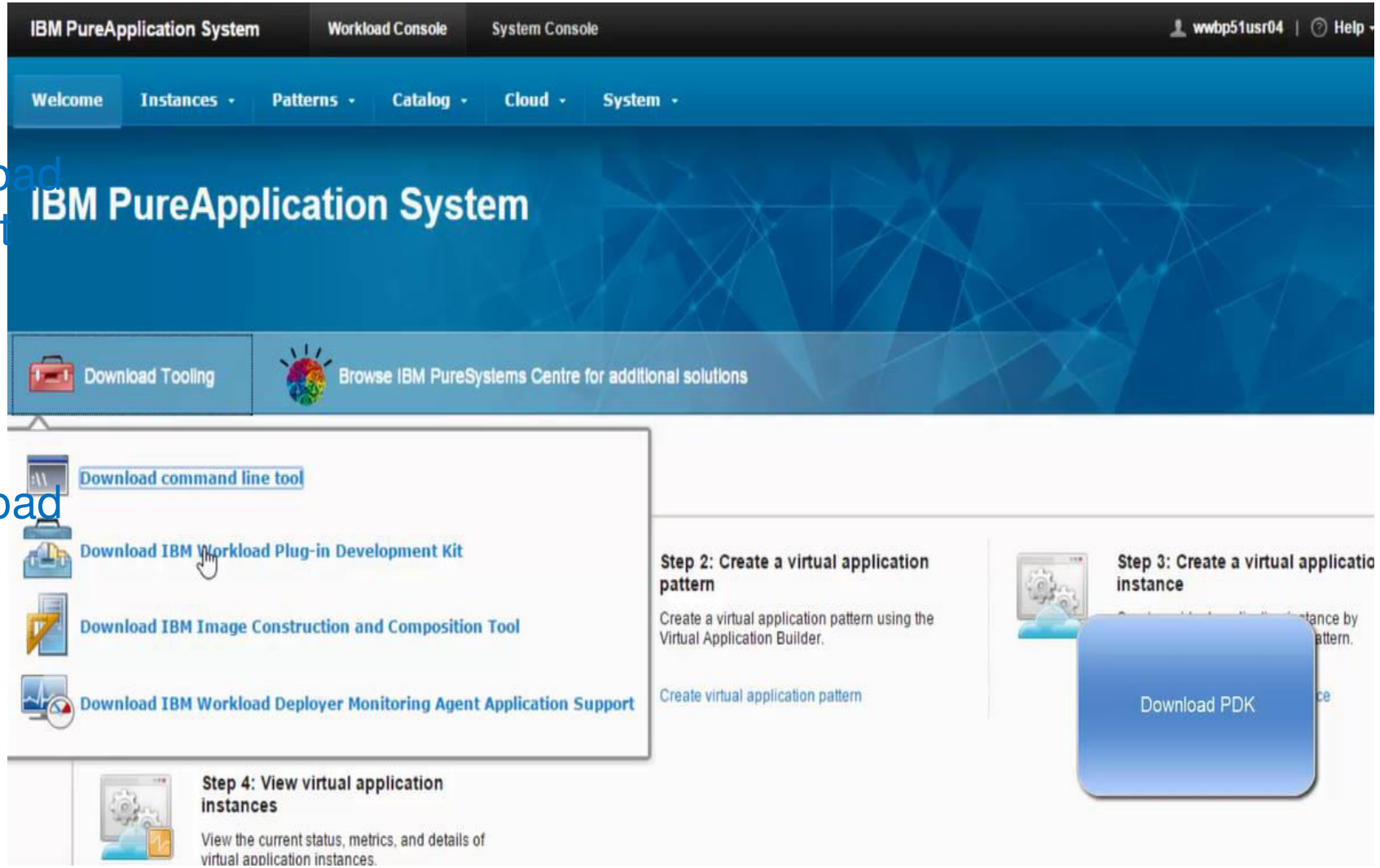
- ICCT tool, no special knowledge is needed:
- Choose a base image
- Add a predefined software bundle
- ICCT automatically saves the image, installs and configures the software bundle .
 -Test the image

Extend/capture is a very simple way to add additional content to an image .
 - Extend / capture process automated and repeatable
 - Add deploy-time parameters for your bundles

Download PDK & IBM ICCT

Download PDK kit

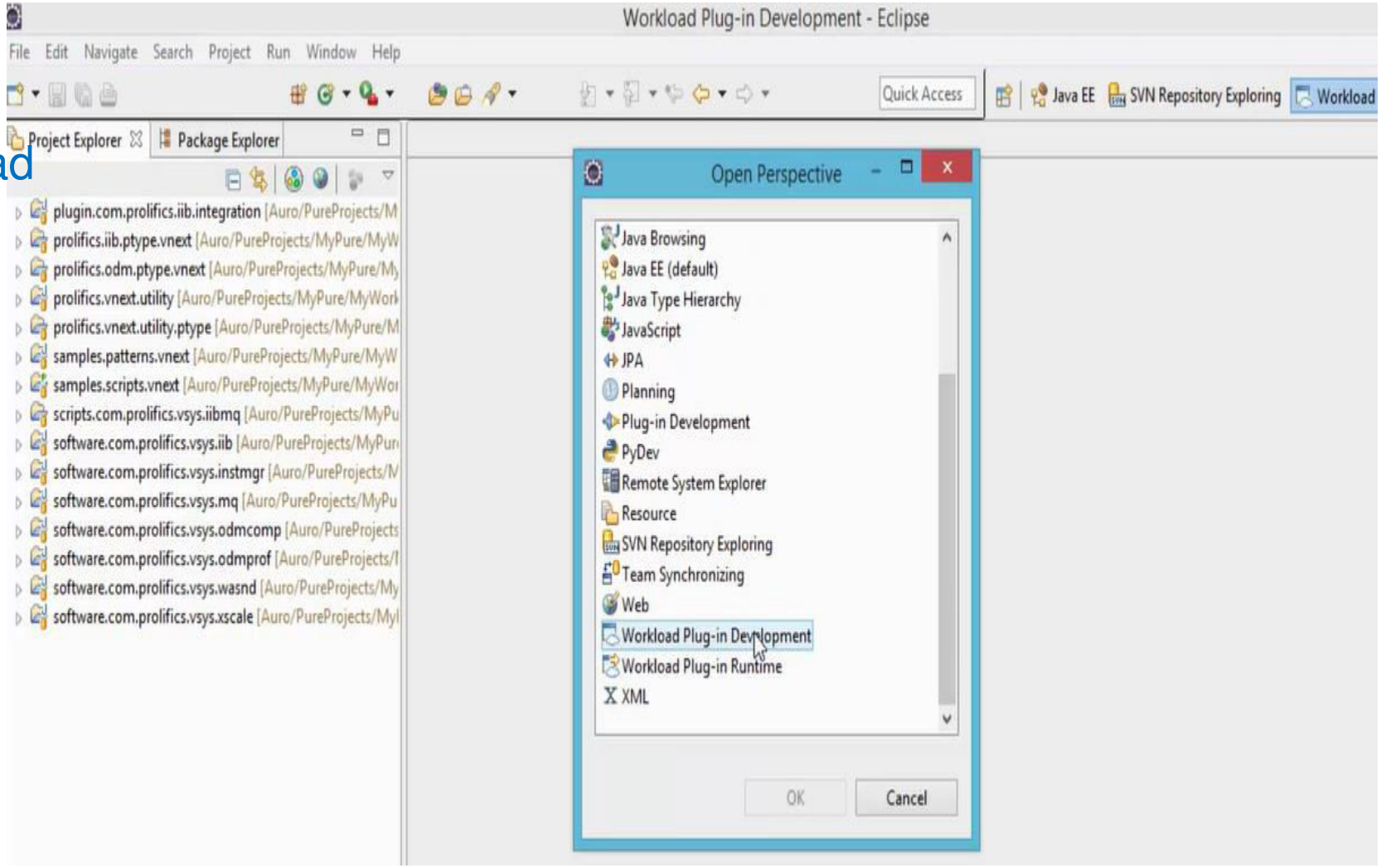
Download ICCT



Pure App: Plug-in Development Kit

Download PDK plugin

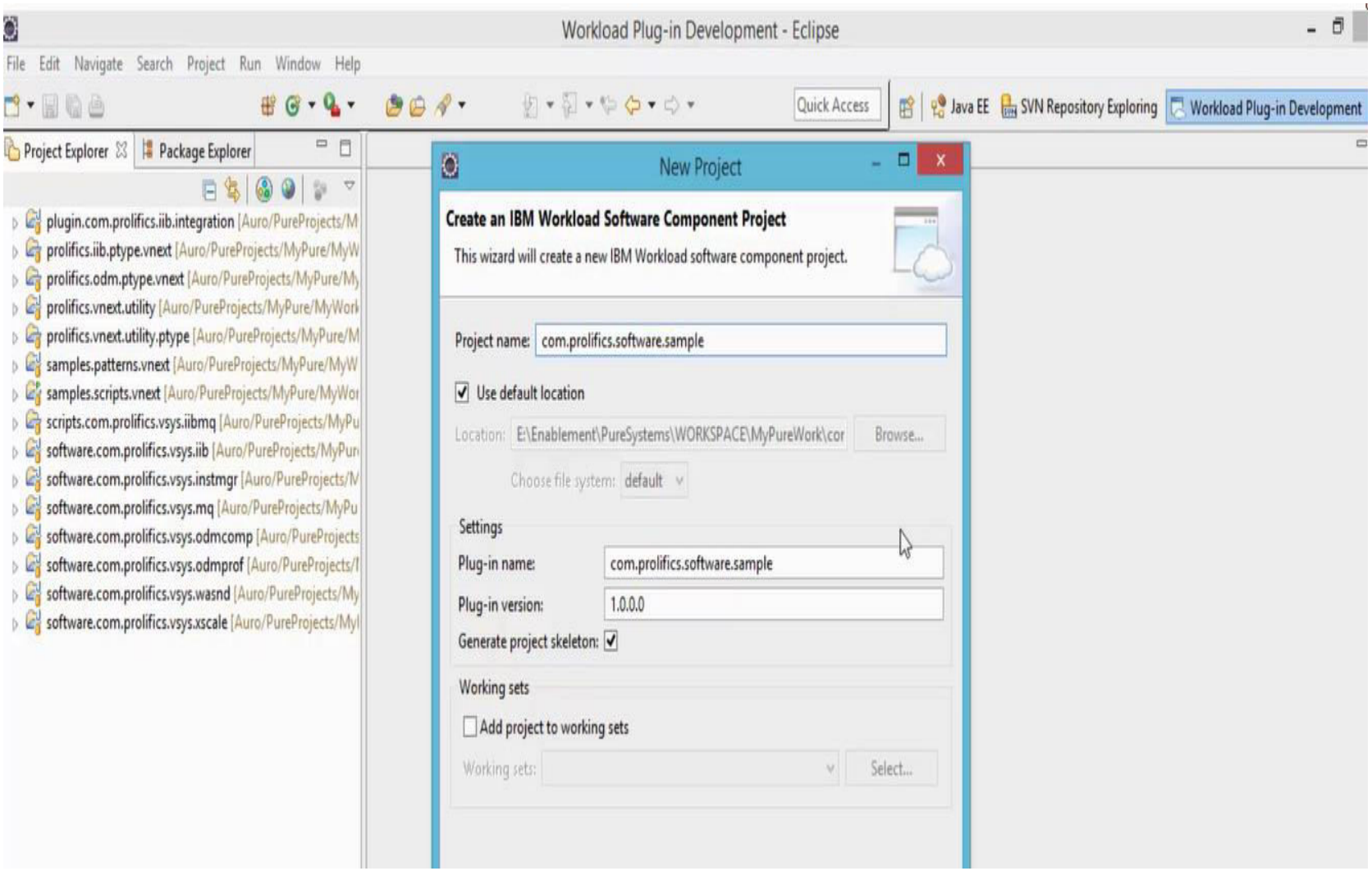
Upload PDK to eclipse



Plug-in Development kit – New project

Create Project

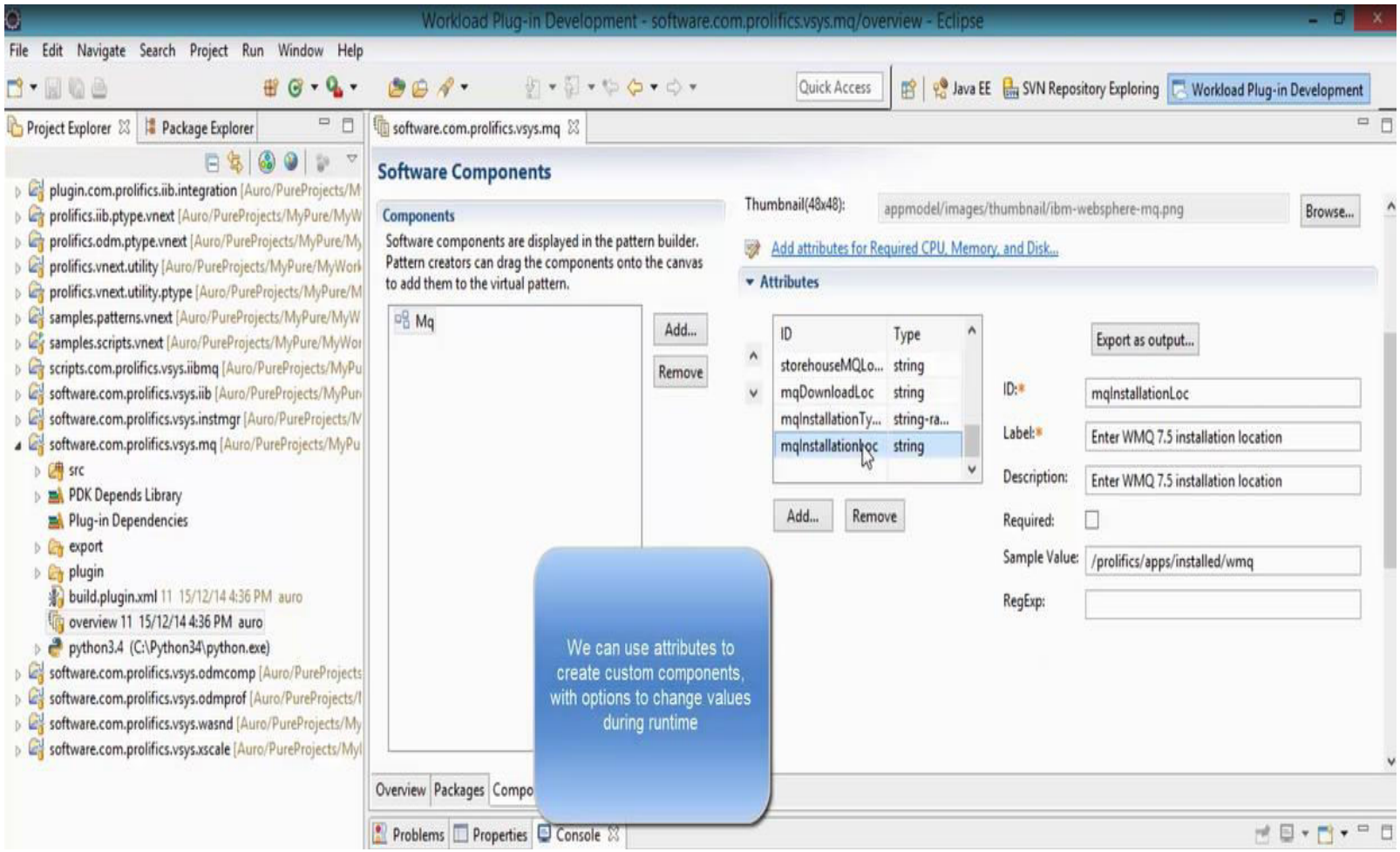
Update python code & flow.



PDK – Pattern Next Custom Components

Create Attributes

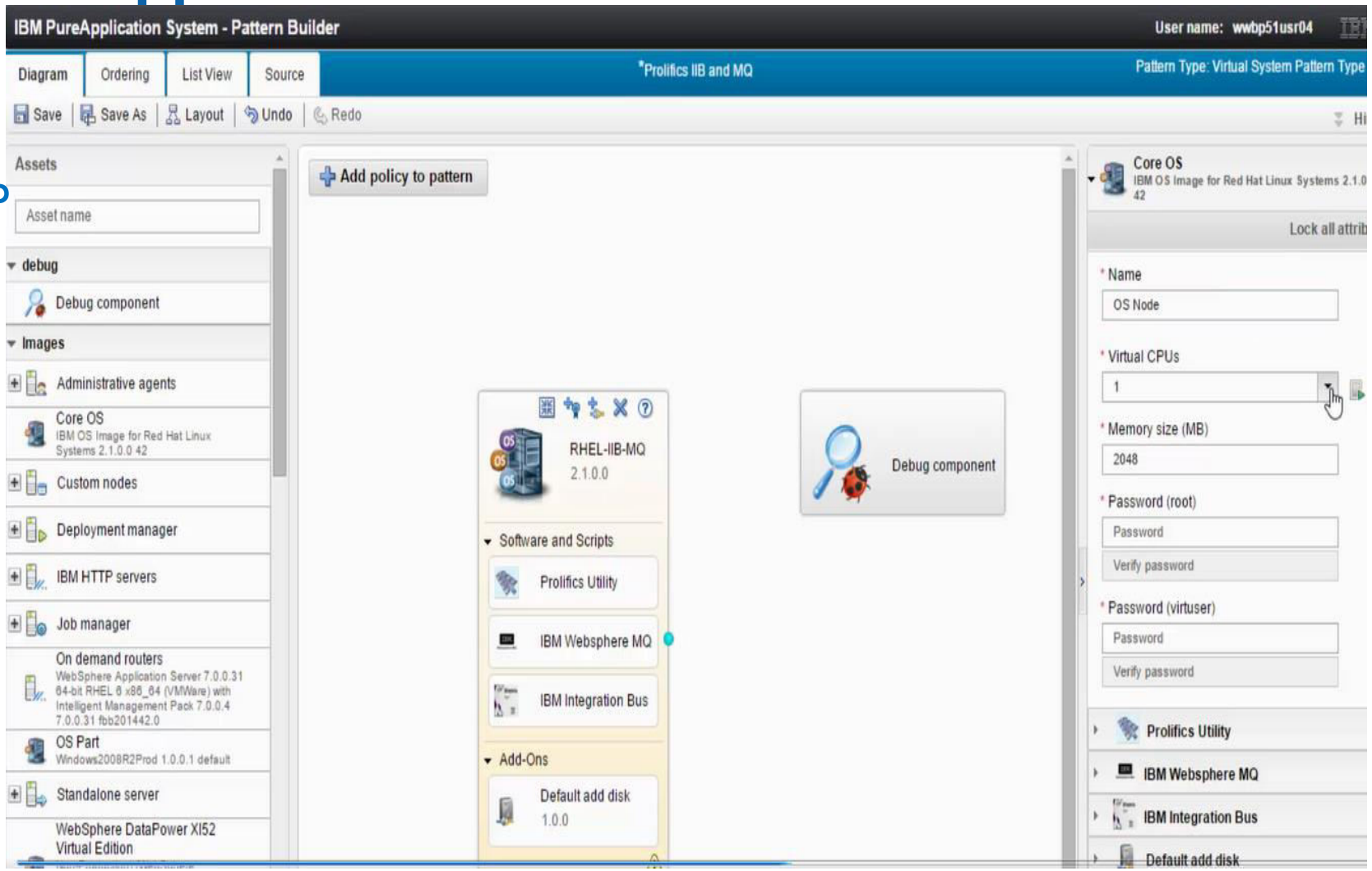
Save& Deploy



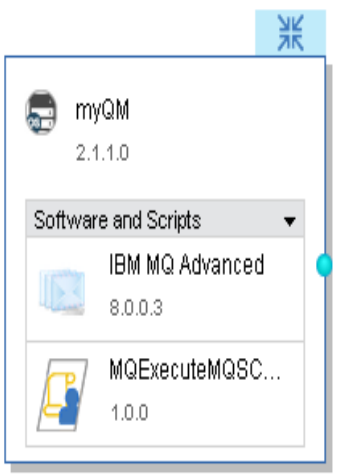
Pure App: Virtual Pattern Builder

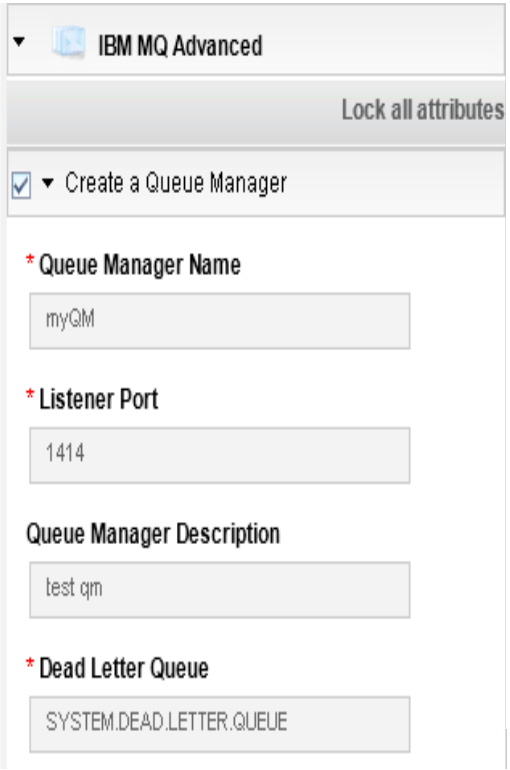
Create new VSP

Drag, Drop, Config & Deploy

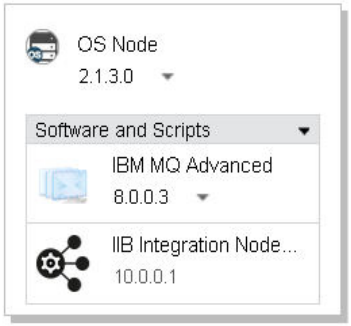


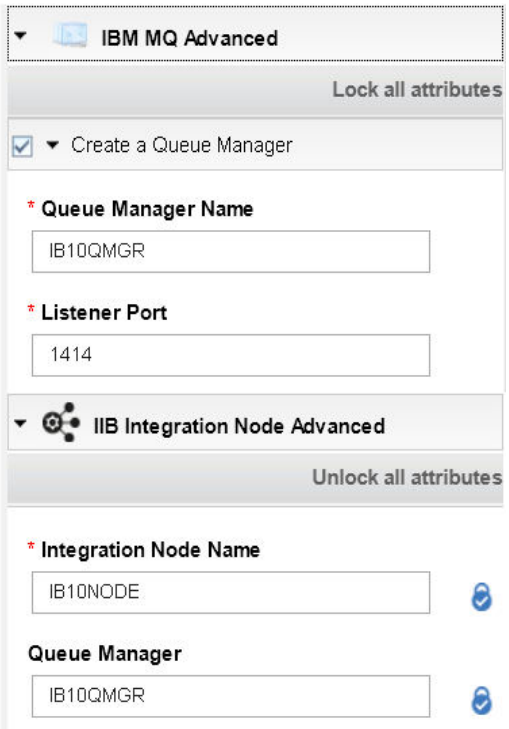
Pure App: MQ 8 & IIB 10 Virtual System Pattern





MQ v8 Pure Patterns



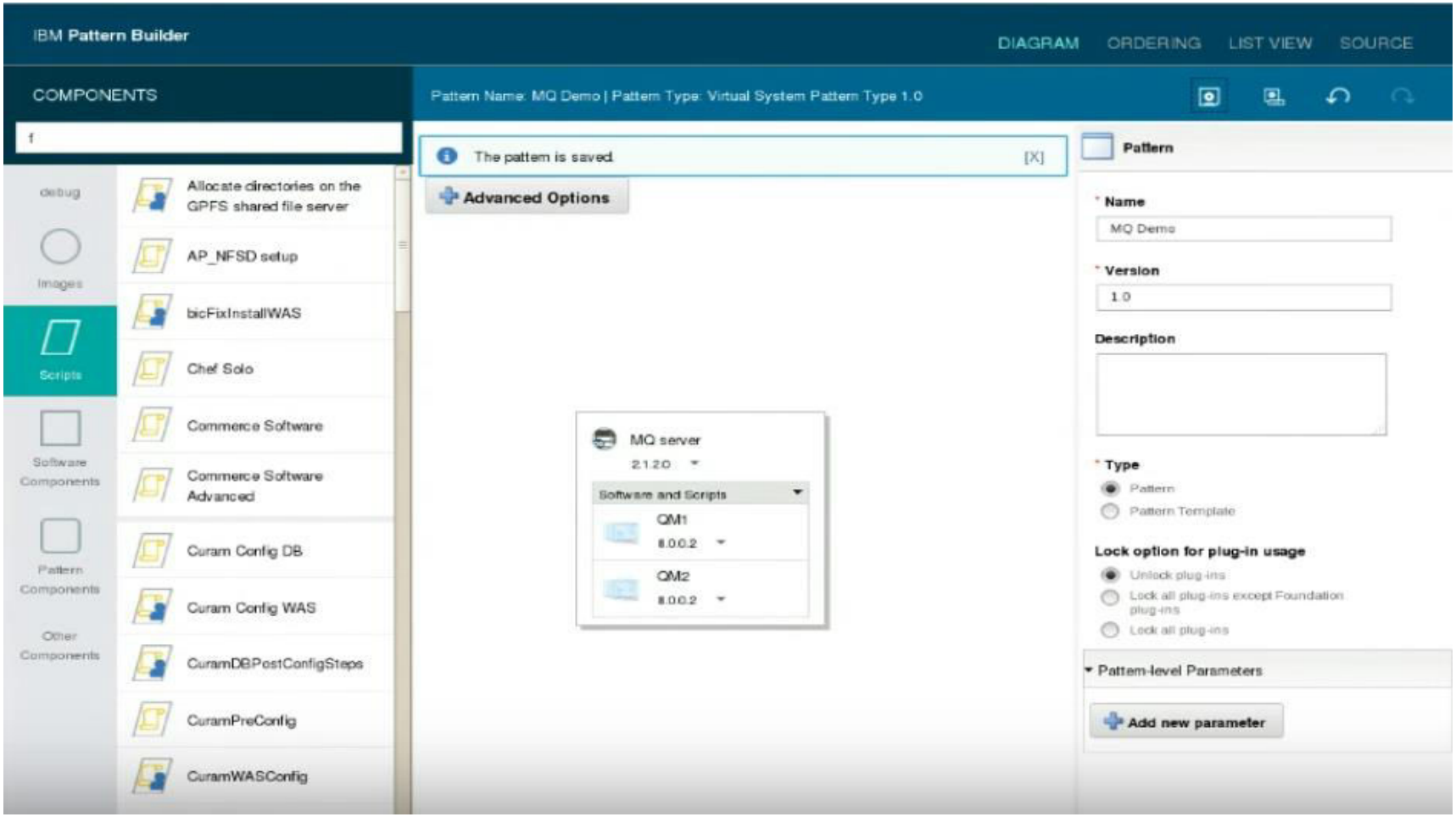


MQ v8 & IIB 10 Pure Patterns

Pure App:VSP Builder MQ 8.0.03/8.0.0.2

VSP Pattern Builder

Drag, Drop, Deploy



Pure App:Virtual Pattern Ops Management

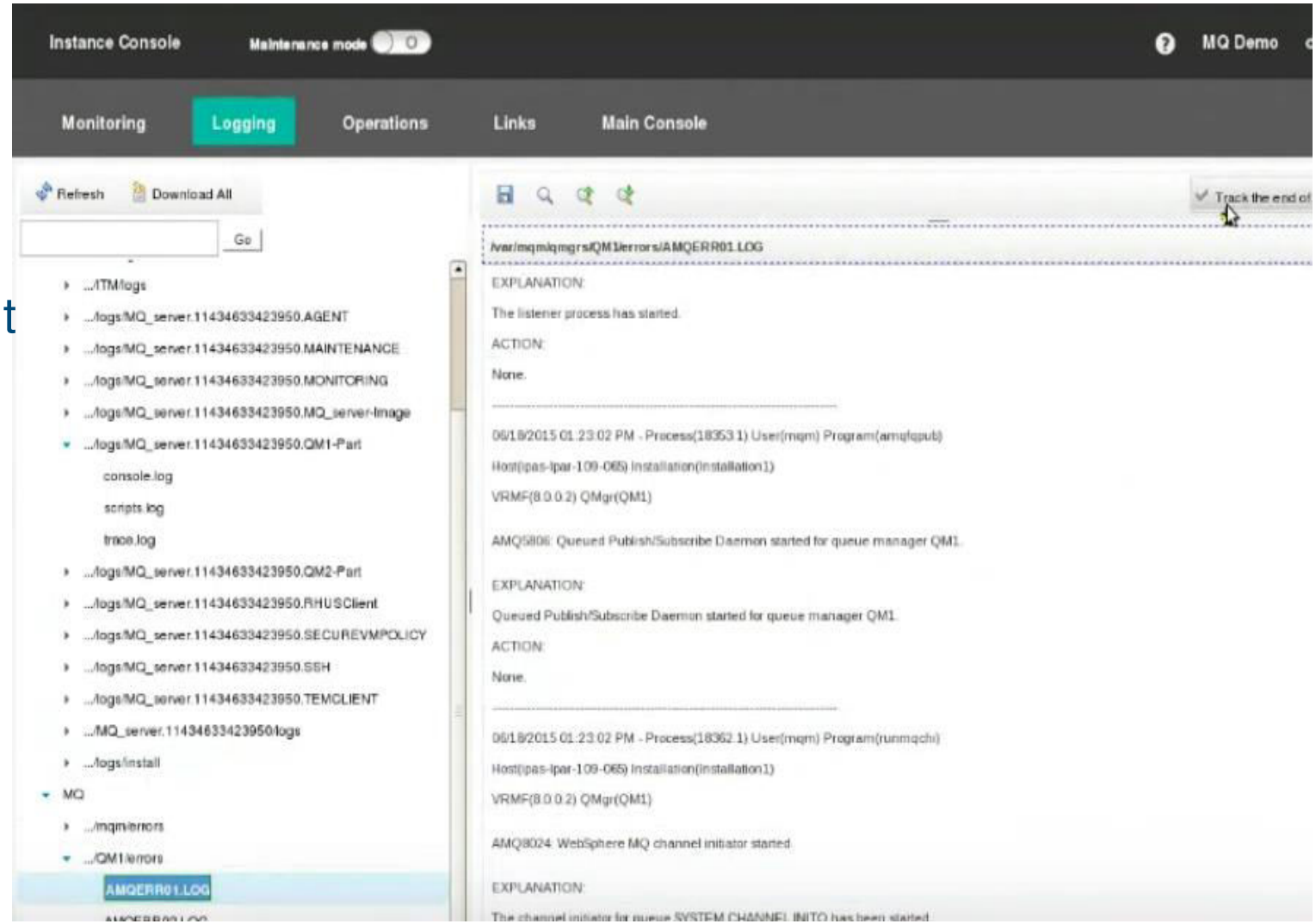
Pattern runtime Management

Monitoring

Logging

Operations

Main Console



Video Demo

Let’s Continue the Conversation….

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Backup Slides

PureApplication System W1500		W1500-32	W1500-64	W1500-96	W1500-192	W1500-384	W1500-608
Compute	Processor	8 core, 2.6GHz Intel Sandy Bridge EP processor, 115 W					
	Compute Node	Dual Processor, 16-core, 256GB memory					
	Memory/Compute Node	256GB (8 2x16GB, 1333 MHz, DDR3, LP RDIMMS(1.35V))					
	Network cards/Compute Node	1 x EN4054 – 4 port 10Gb Ethernet Mezz Adapter					
	Fibre cards/Compute Node	1 x FC 3172 - 2 port 8Gb Fibre Channel Mezz Adapter					
	# Compute nodes	2	4	6	12	24	38
	# Cores	32	64	96	192	384	608
	Memory	512 GB	1 TB	1.5 TB	3.1 TB	6.1 TB	9.7 TB
Storage	Solid State Drive (SSD)	6 x 400GB 2.5 in. SSD (E-MLC)		16 x 400GB 2.5 in. SSD (E-MLC)			
	Hard Disk Drive (HDD)	40 x 600 GB 2.5 in. 10k HDD		80 x 600 GB 2.5 in. 10k HDD			
	Storage Controller	1 x IBM Storwize V7000 Disk System		2 x IBM Storwize V7000 Disk System			
	Storage Expansion	1 x IBM Storwise V700 Storage Drawer		2 x IBM Storwise V700 Storage Drawer			
	Total Storage SSD	2.4 TB unformatted / 1.6 TB usable		6.4 TB unformatted / 4.8 TB usable			
	Total Storage HDD	24.0 TB unformatted / 21.6 TB usable		48.0 TB unformatted / 43.2 TB usable			
Network	Top of Rack Switches (TOR)	BLADE Network Technologies TOR G8264 switches for Customer Data Center & Rack to Rack communications					
	Transceivers	Choice of: 10GbE Fibre, 1GbE Fibre, 1GbE Copper, Direct Attach Cabling (DAC / Twinax)					
Chassis	Network / Chassis	2 x EN4093 – BNT 10GbE					
	Fibre / Chassis	2 x FC5022– Brocade 48 16GbFC					
	Chassis	1 x Accipiter Chassis		3 x Accipiter Chassis			
Power	Power Distribution Unit (PDU)	4 x 60A 1ph - North America 4 x 32A 1ph - International		4 x 60A 3ph - North America 4 x 32A 3ph - International			
Mmgt Node		2 x PureSystems Manager (PSM) 2 x Virtualization System Manager (VSM)					
Rack	Rack	1.3 M 19” Enterprise Rack		2.0 M 19” Enterprise Rack			
Specs	Weight	365.6 Kg (815 lb)	385.6 Kg (850 lb)	936 Kg (2027 lb)	953 Kg (2095 lb)	1016 Kg (2232 lb)	1088 Kg (2391 lb)
	Power	Max: 5.5 kW Typical: 4.68 kW	Max: 6.5 kW Typical: 5.52 kW	Max: 7.9 kW Typical: 5.9kW Label: 14kW	Max: 10.4 kW Typical: 7.8 kW Label: 17.4 kW	Max: 15.4 kW Typical: 11.6 kW Label: 24.3 kW	Max: 21.2 kW Typ.: 15.9 kW Label: 31.1 kW
	Dimensions	Height: 1240 mm (49 in) / Depth: 1000		Height: 2.015 m (79.3 in) / Depth: 1.098 m (43.3 in) /			

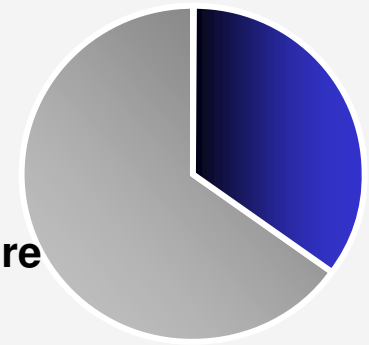
Technology Evolution in IT Operations

Least efficient data centers

Use of new technology:

43% first and fast technology adoption
1% move virtual machines to meet desired outcomes
21% use storage virtualization
3% use a storage service catalog (tiered storage)

Results:



Maintaining existing infrastructure

65%

New projects

35%

Most efficient data centers

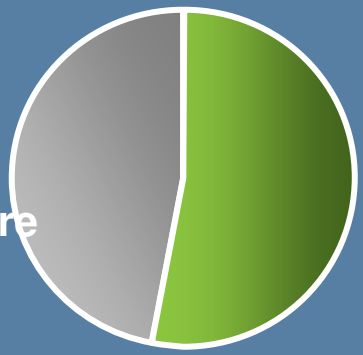
Use of new technology:

86% first and fast technology adoption
58% move virtual machines to meet desired outcomes
93% use storage virtualization
87% use a storage service catalog (tiered storage)

Results

Maintaining existing infrastructure

47%



New projects

53%

- According to Gartner's analysis worldwide IT spending in 2013 was about $3.7T
- IBM's 2012 Data Center Study showed that only 1 in 5 organizations allocate more than half their IT budget to new projects and innovation

~ $2T in IT annual spend in Operations

Pre-Optimized and Pre-Entitled Middleware

- Clients have entitlement to run the following software on the full capacity of the System
  - Virtual System Patterns:
    - IBM OS Image for Red Hat Linux Systems v1 (RHEL 64-bit v6.2)
    - IBM WebSphere Application Server Hypervisor Edition v7 (WAS 7.0.0.21)
    - IBM WebSphere Application Server Hypervisor Edition v8 (WAS 8.0.0.2)
    - IBM WebSphere Application Server Hypervisor Edition v8.5 (WAS 8.5.0.0)
    - IBM WebSphere Application Server Hypervisor Edition v8.5 (WAS 8.5.5.0)
    - IBM Data Mart Pattern 1.1.0.8 (with DB2 BLU Acceleration)
    - IBM DB2 (9.7 FP5, 10.1, 10.5 with BLU Acceleration)
    - Automation Framework HV (for migrating applications)
  - Virtual Application Patterns:
    - IBM Application Pattern for Java 1.0
    - IBM Workload Deployer Pattern for Web Applications v1 (with WAS v7)
    - IBM Web Application Pattern 1.0, 2.0 (with WAS v8)
    - IBM Transactional Database for Cloud v1.1 (with DB2 9.7 FP5)
    - IBM Data Mart for Cloud v1.1 (with DB2 9.7 FP5)

- Any other software that clients run on PureApplication System is traditionally licensed (i.e. PVUs) on a sub-capacity basis