



# IBM SolutionsConnect 2014

A New Era of Smart

6 March 2014 | Malaysia



# IBM SolutionsConnect 2014

A New Era of Smart

6 March 2014 | Malaysia

## IBM Innovations for the Most Demanding Workloads

Jaric Sng  
PureApplication Technical Sales  
IBM Software Group - Asean  
[www.ibm.com/puresystems](http://www.ibm.com/puresystems)





# LANDSCAPE



# Technology is reshaping industries



Mobile



Social



Big Data



Who are your developers?

Anyone



What is an application?

Anything



Who can access your information?

Everyone



Who is influencing your business?

Anyone



Where do transactions happen?

Everywhere





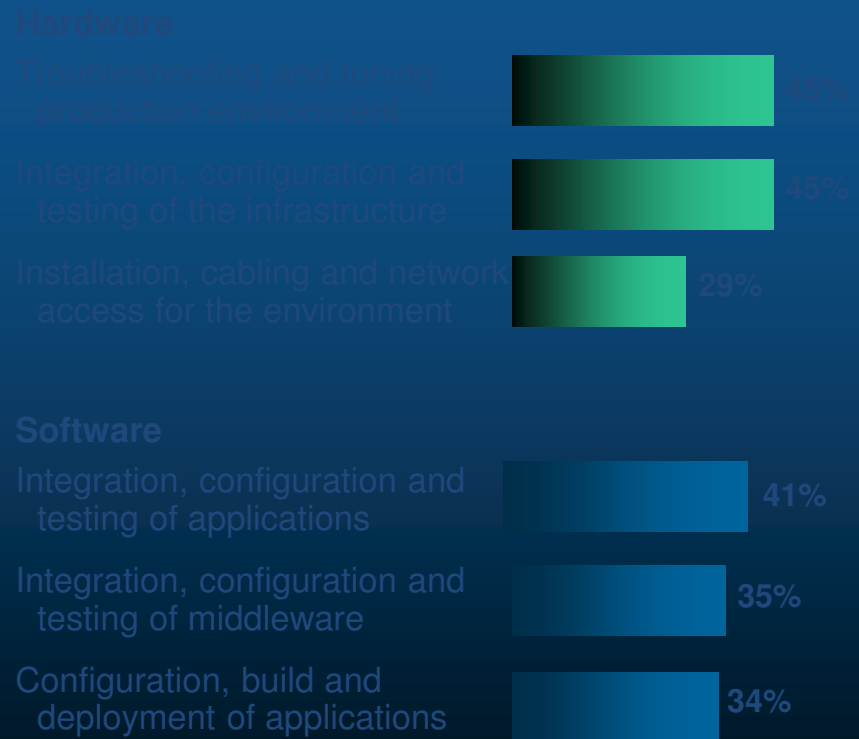
# Clients struggle to overcome barriers of time, cost and risk

## 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%

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

## Top Causes of Project Delays



From a commissioned study conducted by Forrester Consulting on behalf of IBM



## Leveraging the Transformational Power of Cloud Computing ...

**Improves the agility & dexterity of business**

**Speeds delivery of product & service innovation**

**Delivers IT without boundaries**

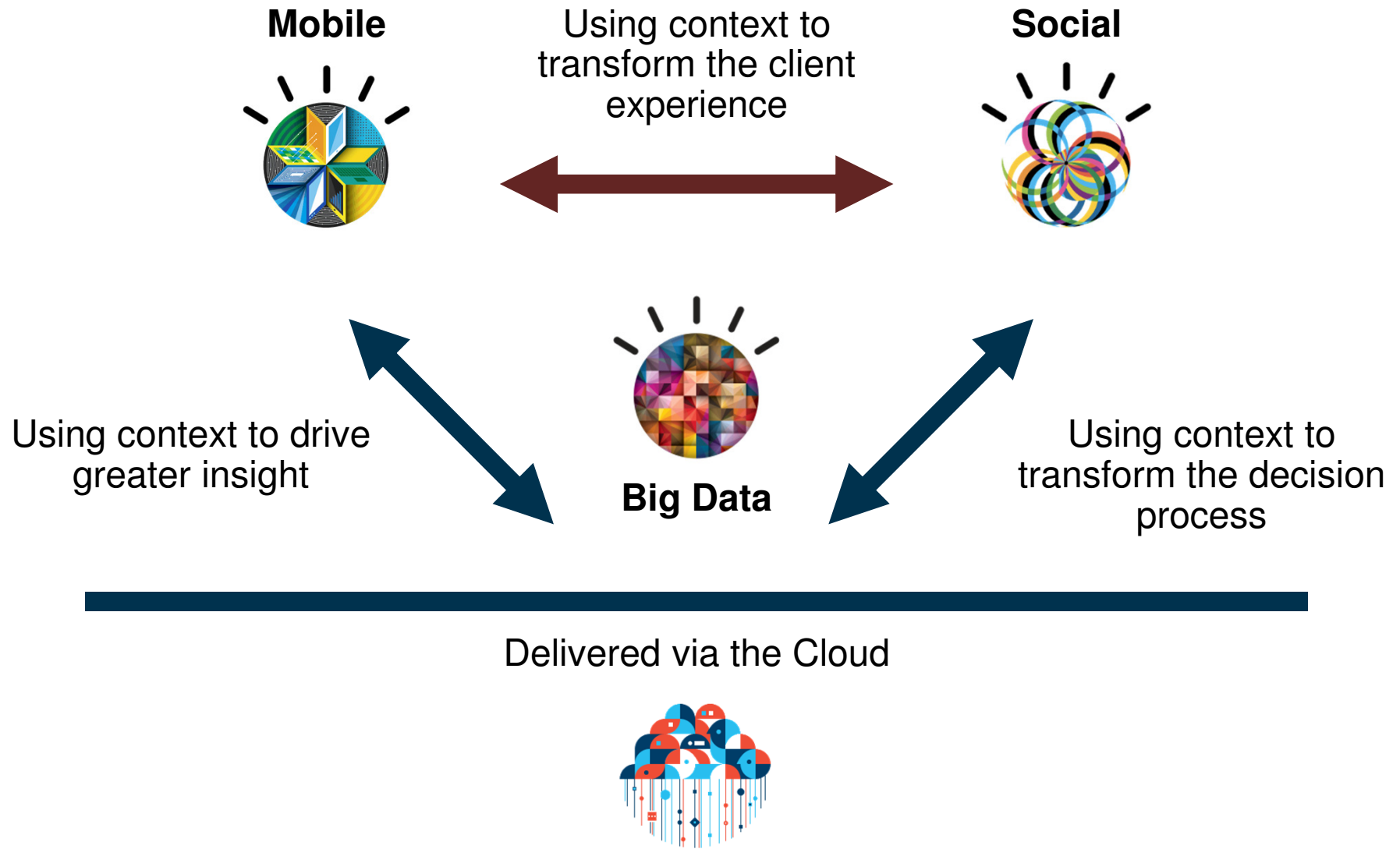
**Enables new business models & client relationships**



**Delivers Simplicity, Lowers Complexity, Increases Speed & Changes the Economics of IT**

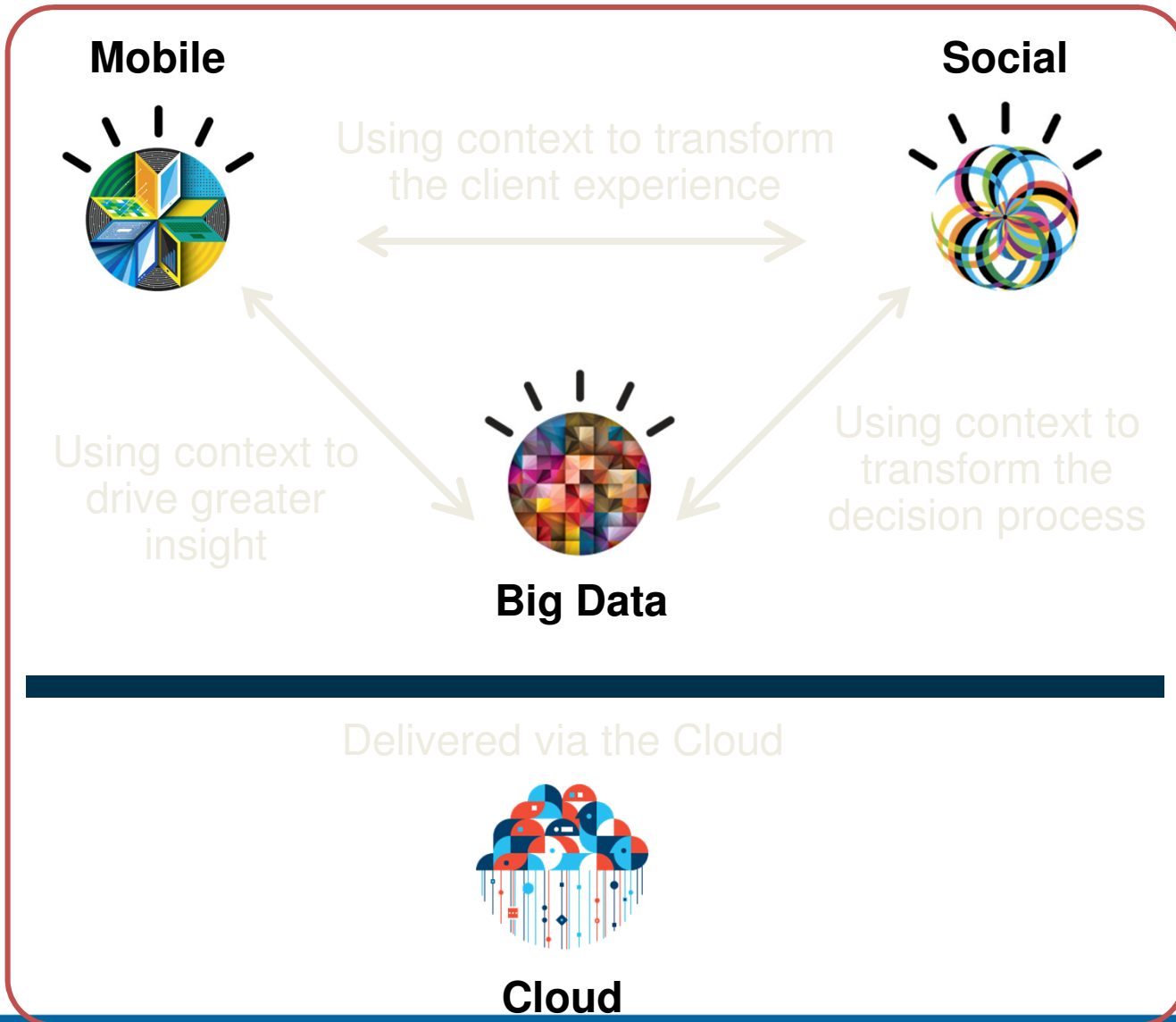


These trends also drive more engaging applications





# These Trends Drive new Systems of Engagement...But...



BUT...Current IT approaches hinder client **Agility** and **Responsiveness** to new opportunities enabled through Systems of Engagement



PureSystems can help IT leaders shift the balance of their investments to Innovation, helping drive Business Agility & Market Responsiveness for their business

## Innovation



- Focus on systems of engagement - mobile, intelligent infrastructure
- Align IT with needs of the CMO

## Optimization



- Focus on consolidation, virtualization, cost cutting
- Align IT with needs of the CFO





PureSystems - IBM Innovations for the Most Demanding Workloads

# IBM APPROACH

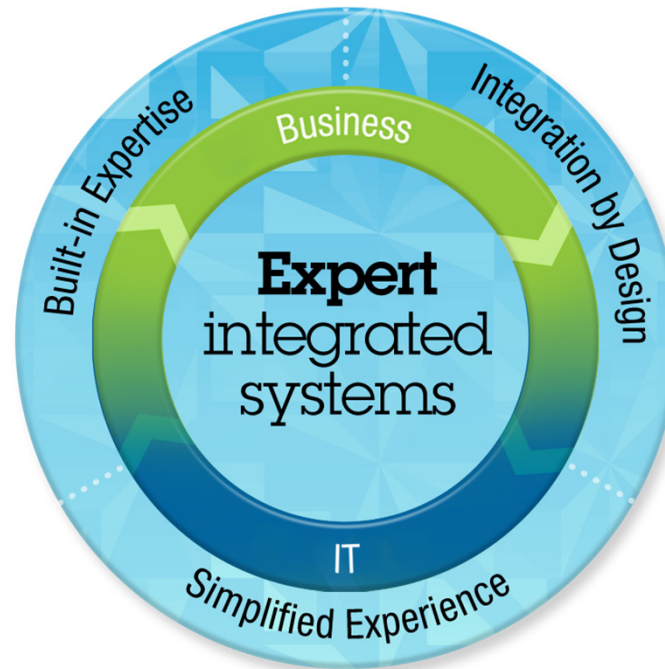


# PureSystems

*Systems with integrated expertise and built for cloud*

## Built-in Expertise

***Capturing and automating what experts do*** – from the infrastructure patterns to the application patterns



## Integration by Design

***Deeply integrating and tuning hardware and software*** – in a ready-to-go workload optimized system

## Simplified Experience

***Making every part of the IT lifecycle easier*** - with integrated management of the entire system and a broad open ecosystem of optimized solutions

*Over \$2B in R&D and acquisitions over 3 years  
Millions of development hours across 37 labs in 17 countries*

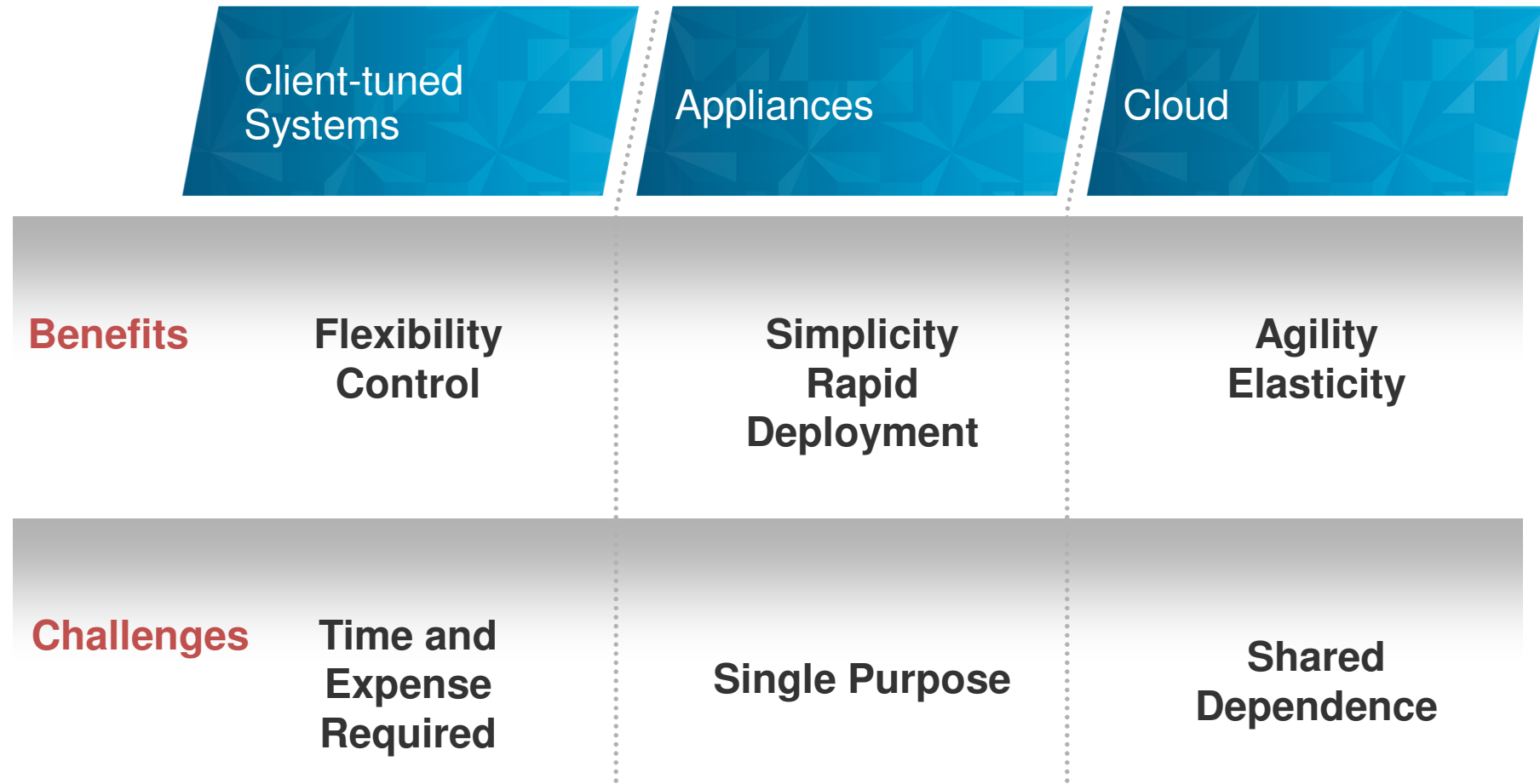


New announcements for the PureSystems family that change the economics of IT and accelerate time to value

<h2>PureFlex</h2>  <p>Infrastructure</p> <hr/> <p><i>Delivering Infrastructure Services</i></p>	<h2>PureApplication</h2>  <p>Application Platform</p> <hr/> <p><i>Delivering Platform Services</i></p>	<h2>PureData</h2>  <p>Data Platform</p> <hr/> <p><i>Delivering Data Services</i></p>
---	---	--



Clients have tried various approaches to close the gap



*What if you could have the best of all three?*



IBM PureApplication System

# PURESYSTEMS





# Demanding workload

- Handling unpredictable spike
- Ease of replicating the workload environment
- Ease of maintaining the workload environment
- Ease of DR infrastructure setup



## PureApplication System is...

- A pre-integrated **cloud application platform**
- Shipped **ready to run**
- Designed to be **simple**

Broad, open, and extensible ecosystem of available **pattern content**

Enterprise-class **cloud application platform** with integrated **pattern engine**

Fault tolerant **hardware infrastructure**



Small rack  
(25U)

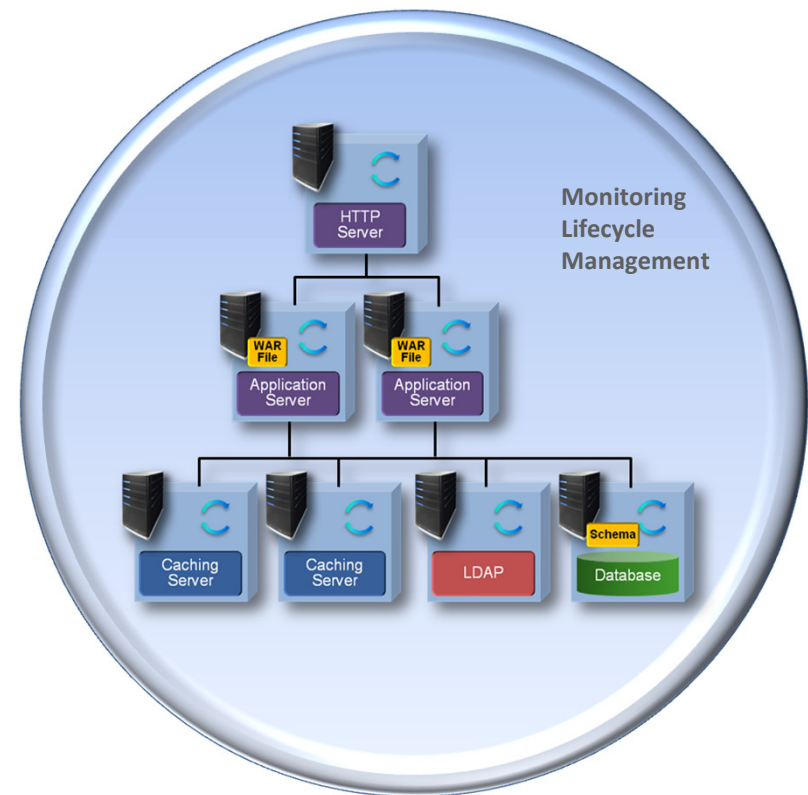
Large rack  
(42U)



**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*

**What is a Pattern?**

- The pre-defined architecture of an application
- For each component of the application (i.e. 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**
- **Delivering** superior results:
  - **Simplicity:** Simpler skills requirements
  - **Agility:** Faster time-to-value
  - **Control:** Lower risk and errors
  - **Efficiency:** Reduced costs and resources





# What is PureApplication System?

Application patterns from IBM and partners

## Patterns of Expertise

- 100+ ISV business applications
- Business intelligence
- Business process management
- Web experience (Portal)

Integrates an application platform optimized for enterprise applications

## Application Platform

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

Inherits the capabilities of **PureFlex System**

## System Infrastructure

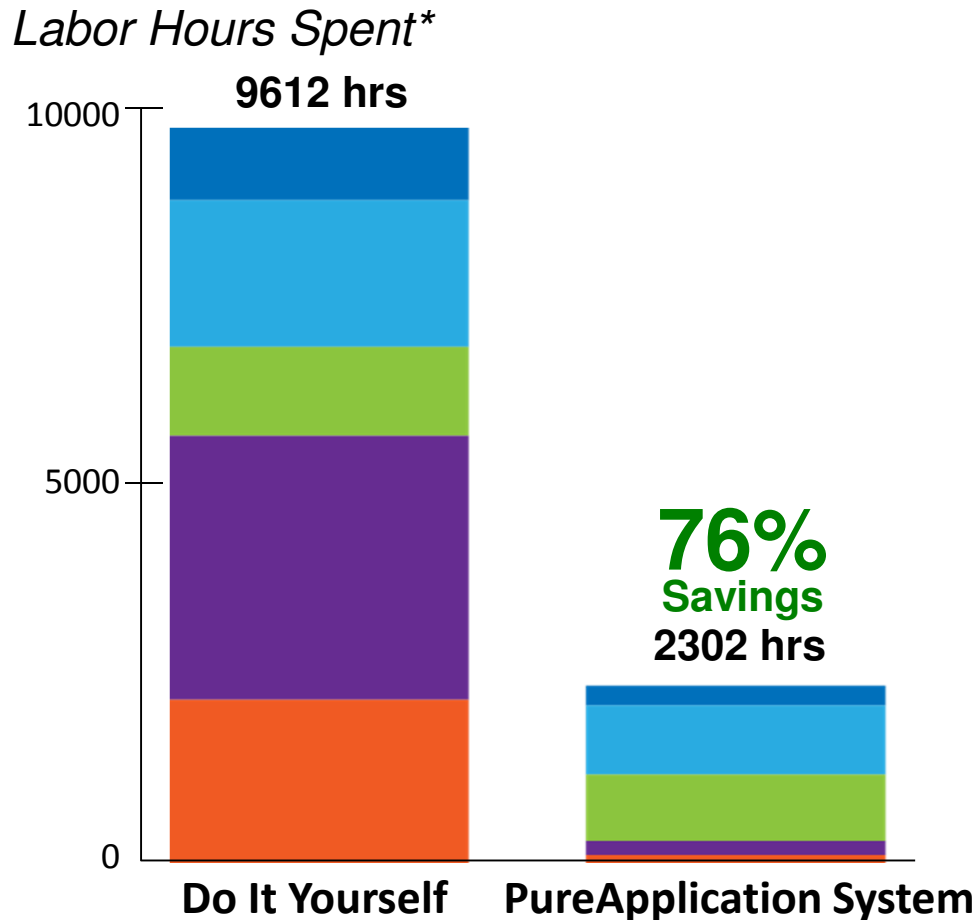
- Integrated Server, Storage, Network
- Power Management
- Storage & VM Optimization
- Virtualization
- Integrated System Management
- Provisioning
- Security
- Monitoring
- IT Lifecycle Management
- System design



PureApplication System adds deep application-aware value to its PureFlex foundation!



# IBM PureApplication System provides savings across the IT lifecycle



- Deployment**
  - Fully assembled and configured
  - Pre-installed management software
  - Fast pattern-based deployment
- Incident/capacity management**
  - Centrally monitor and resolve issues
  - Automatic scaling
- Asset management**
  - Track license usage of products
- Security management**
  - Centralized access control
- Change management**
  - Visibility into relationships of virtual images in a workload
  - Automatically apply changes to desired virtual servers

\*Note: Do It yourself used 9 blades (144 cores). IBM PureApplication System used 3 nodes (96 cores). Each system has the capacity to run 72 workloads where each workload can sustain a peak throughput of 1720 page elements per second.

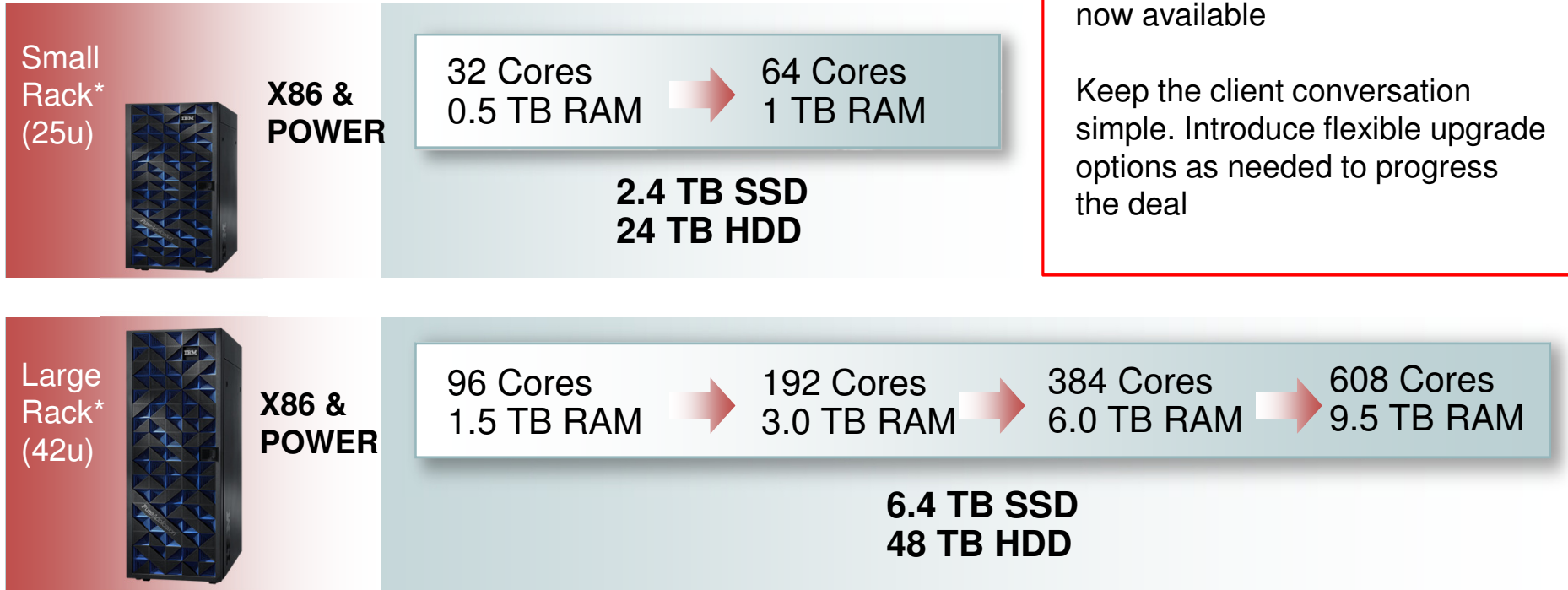




## PureApplication System Configurations

\* Additional 32 core upgrades are now available

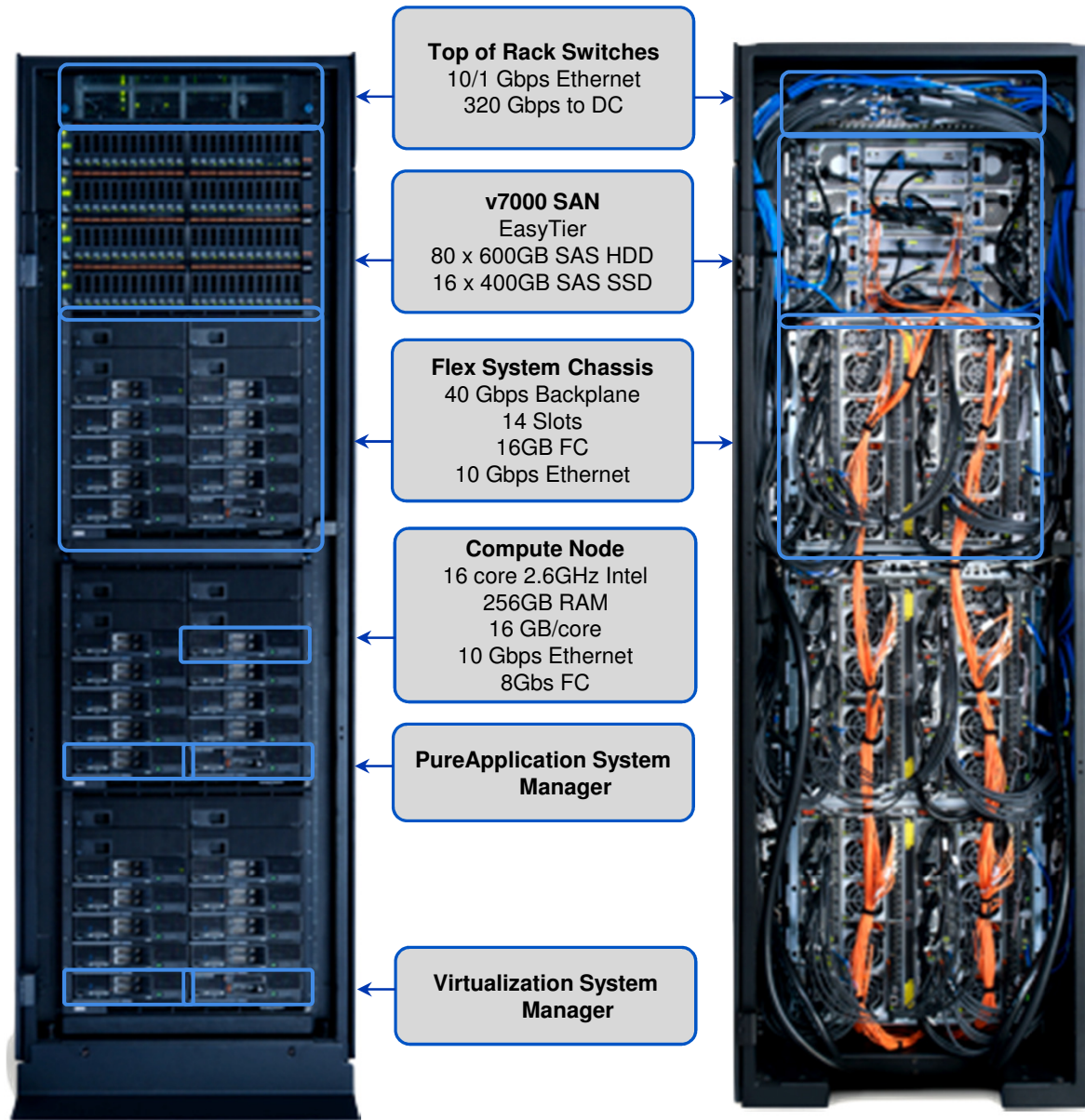
Keep the client conversation simple. Introduce flexible upgrade options as needed to progress the deal



**All configurations include:**

- **Rack, Chassis, PDUs**
- **Networking** (Top of Rack, Chassis & Fibre)
- **Pre-integrated software entitled for full capacity of configuration:** OS, Hypervisor, application server, database, Java runtime, cloud provisioning, management and full stack monitoring

→ Upgrade configurations **without taking an outage**





## PureApplication System's key differentiating, value-add capabilities go beyond resource pooling

- **Rapid and reliable provisioning** of pattern-based application environments
  - Self-service provisioning of the most complex environments
  - Reusable to save time, reduce costs and risk
- **Improved, accelerated application development** lifecycles
  - Enables test environments to be deployed and deleted as needed
  - Eliminates expensive, difficult-to-control “just in case” test environments and images
- **Single pane of glass management** (including software license usage and enforcement) simplifies administration, reduces cost
- **Automated monitoring** and management of application policies, SLAs, and system performance
  - Automatically adjusts and optimizes resources as needed
  - Migrates and/or provisions resources automatically to avoid incidents; identifies and isolates problems to facilitate resolution
- **Automated patching and updates** – use of pre-integrated and pre-tested downloads simplifies upgrades, reduces cost; applicable across both hardware and software components





## Shift from providing individual infrastructure components to delivering software patterns

Software Patterns: Proven best practices and expertise learned from decades of client and partner engagements

- **Pre-defined architecture** of an application or Cloud service
- **Captures best practices** for complex tasks
- Optimized into **a repeatable deployable form with full lifecycle management**



Three ways to get the value of patterns of expertise

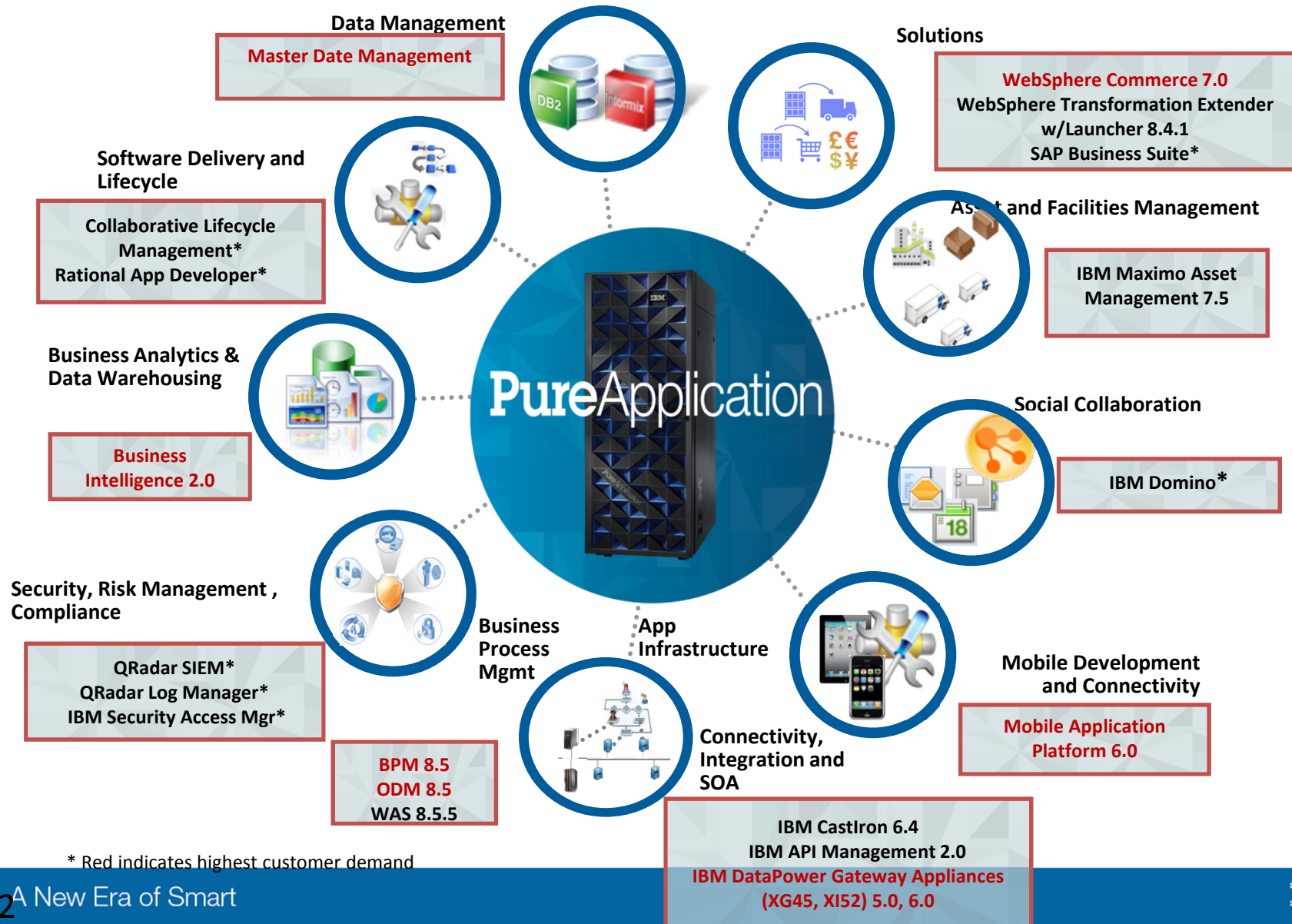
- Use **IBM** patterns of expertise throughout the system
- Patterns Add **third-party** application patterns of expertise
- Capture **your own** expertise







# IBM Patterns of Expertise Optimize Leading Software Capabilities



\* Red indicates highest customer demand

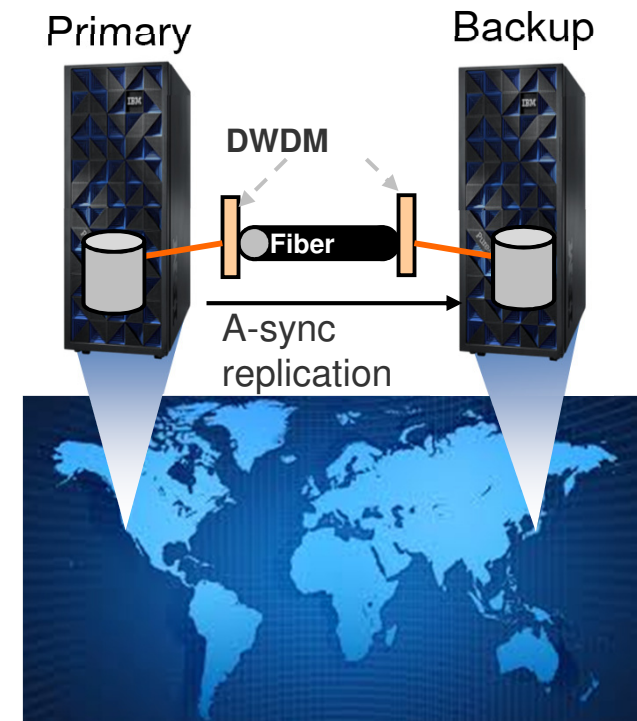




## Does IPAS support disaster recovery (DR)?

Delivering easy-to-use **cross-site disaster recovery** for applications - setup **in just 5 clicks!**

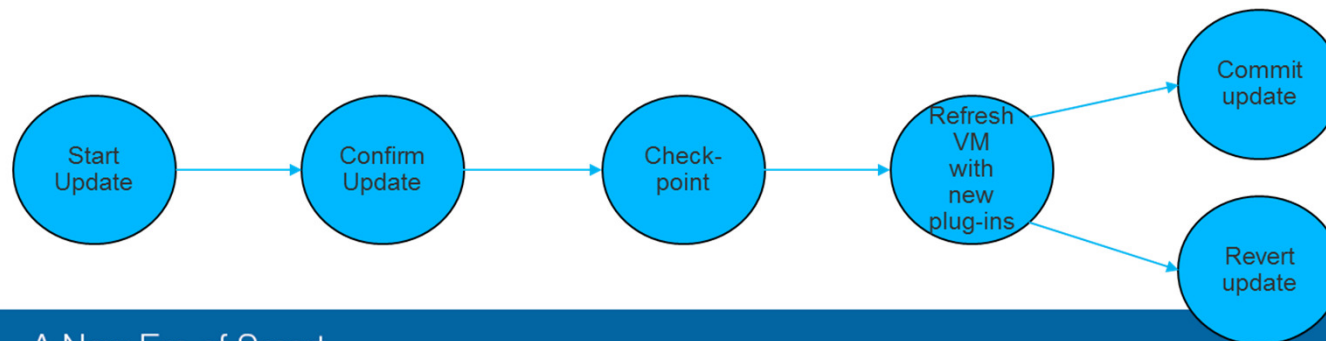
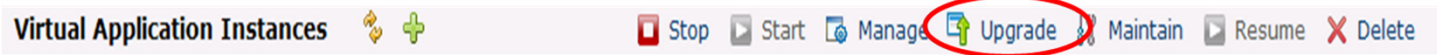
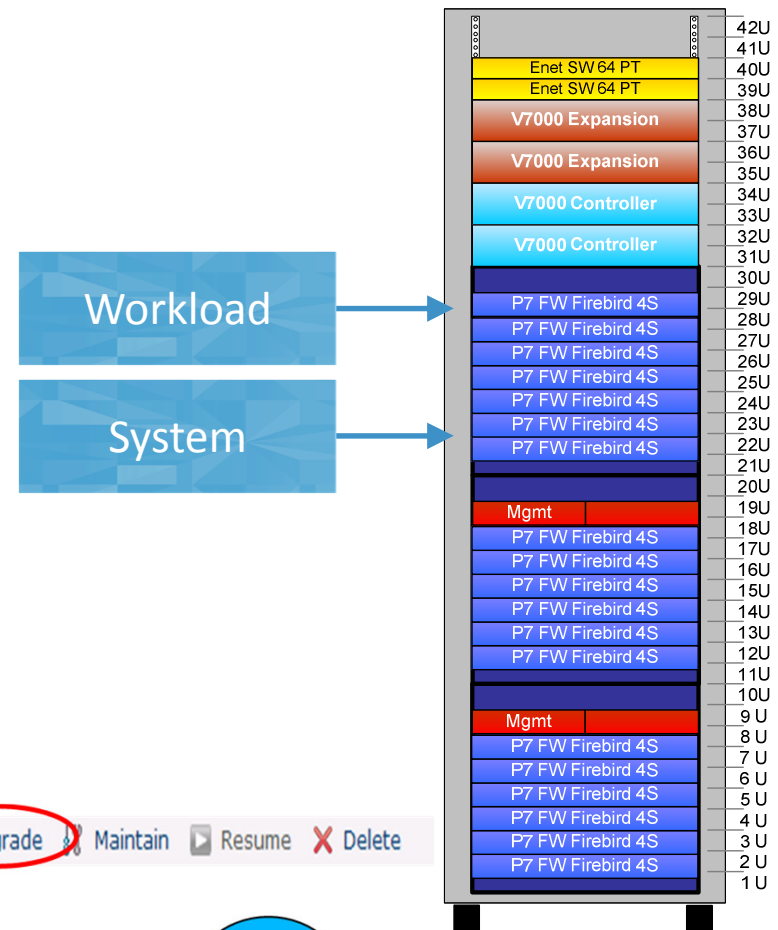
- Active/passive replication DR solution setup **in just 5 clicks** on each system!
- Achieve business continuity for **all applications** running on the system
- Begin recovery from planned or unplanned failures with two clicks
- Up to 8,000 km between systems
  - Uses asynchronous replication for improved performance
- Recovery Point Objectives (RPOs):
  - Planned failover: **zero** data loss
  - Unplanned failover: **near zero** data loss
- Recovery Time Objectives (RTOs) vary on application startup time, between 2-8 hours





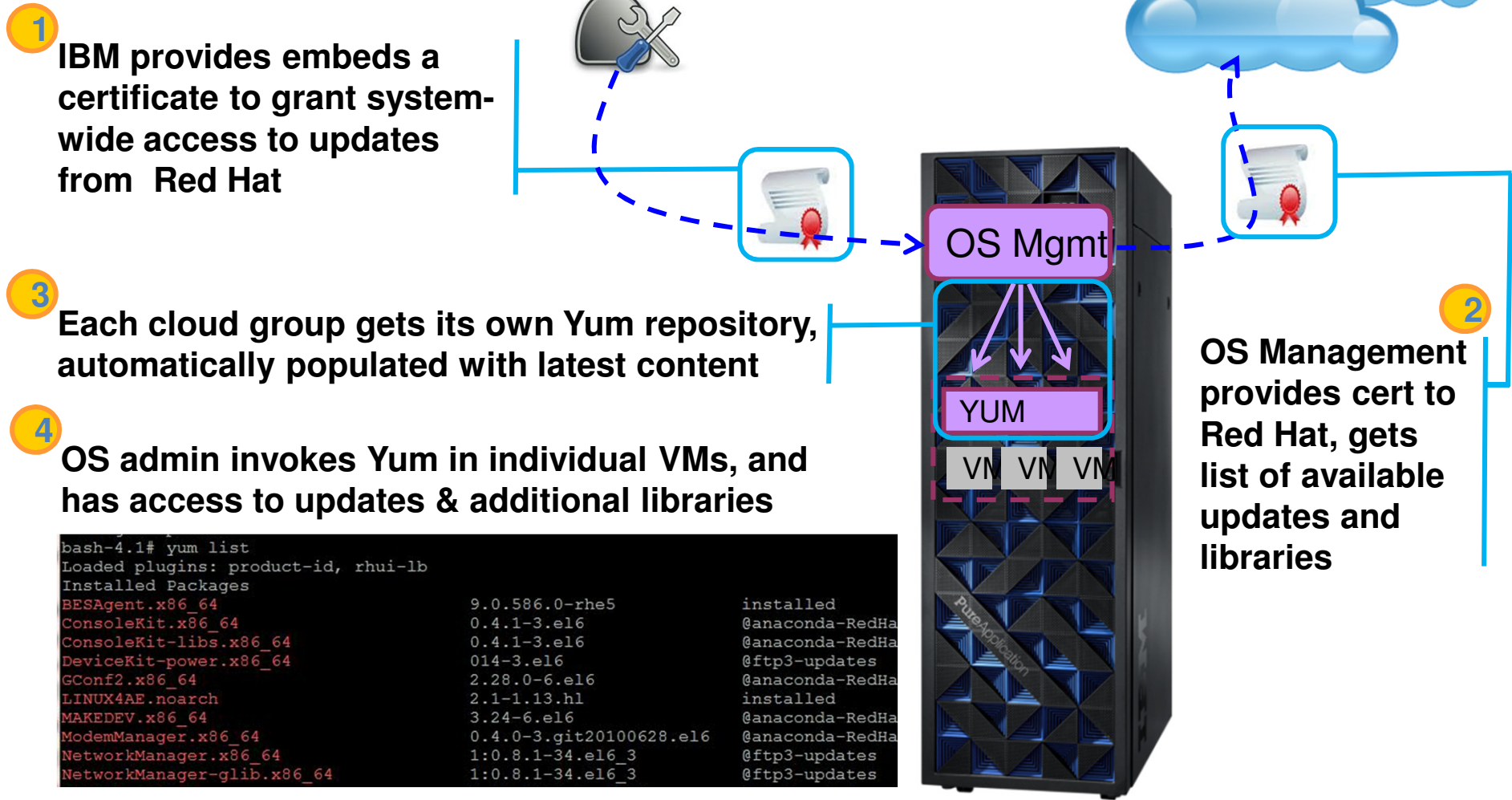
## How do I maintain the system?

- Maintenance consists of applying single update package
  - System Update
  - Content update
- Updates can be
  - Cumulative
  - Emergency fixes
- Packaging
  - Single monolithic package for system
  - Separate upgrades for content or single package





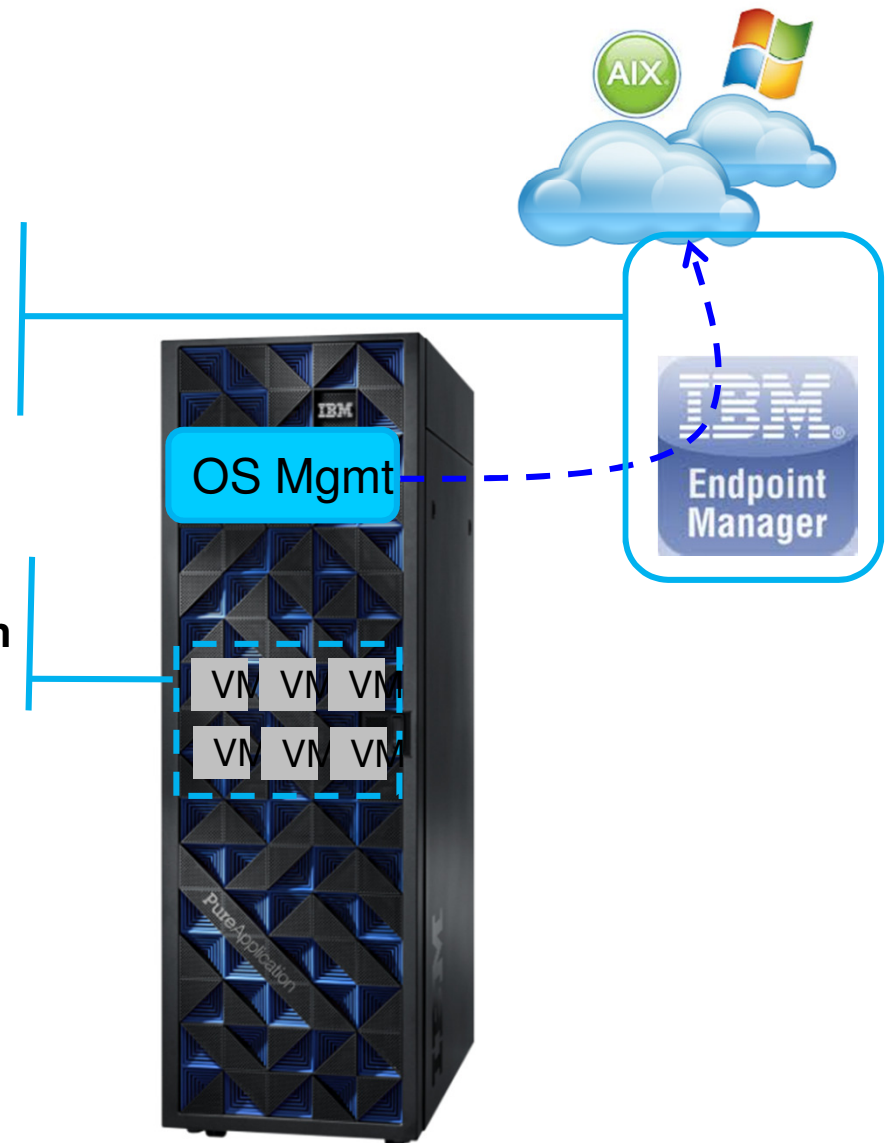
# Getting Updates and Additional Libraries for Linux





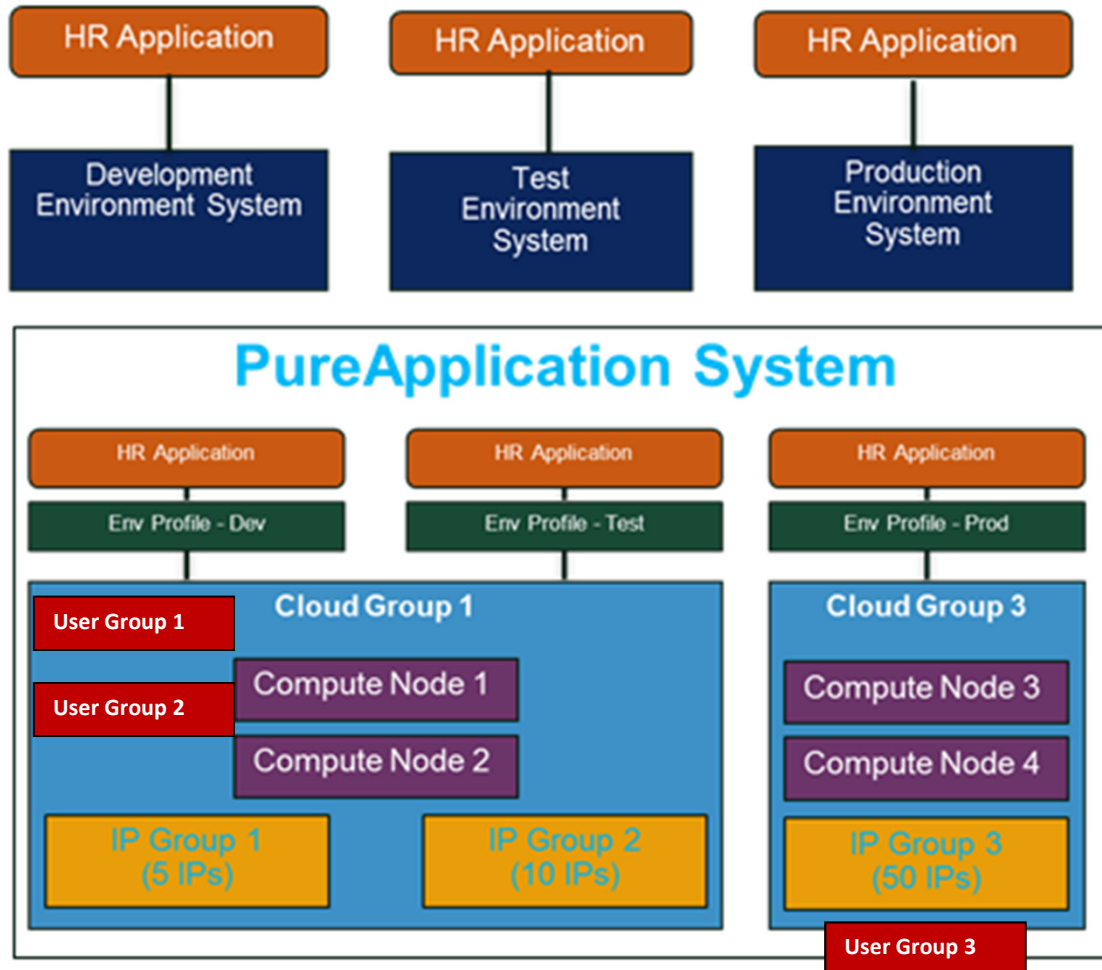
## Getting Updates for Windows & AIX

- 1 **Connect to an existing external IBM Endpoint Manager (IEM) Server. IEM knows how to connect to existing IBM AIX and Microsoft Windows update repositories**
- 2 **Each cloud group gets its own IBM Endpoint Manager Relay, and each VM is deployed with an IBM Endpoint Manager client inside**
- 3 **OS admin drives updates & installation of additional libraries through IEM**





## Multiple teams can be isolated yet share pooled cloud resources



- **Cloud groups** provide isolated multi-tenancy
  - *Dedicated mode*: 1-1 relationship between vCPU and pCPU with dedicated memory
  - *Average mode*: many-1 relationship and no dedicated memory
- Automated rebalancing based on priority and policy
- Internal networks (**IP groups**) are isolated between cloud groups
- **User groups** actualize role based authorizations





# IBM PureApplication System integration by design



## Optimizes the complete solution stack:

- All hardware and software components factory integrated and optimized
- Virtualized across the stack for efficiency
- Unified management, monitoring & maintenance
- Integrated and elastic application and data runtimes
- Application patterns allocate system and application resources for optimal performance, security and reliability



1. How long will it take you to setup an environment for Rules engine?
2. How do you ensure it can grow and shrink for optimize use of resources and meet user's expectation?
3. How long will it take to setup a database HA?

## DEMO





# Result

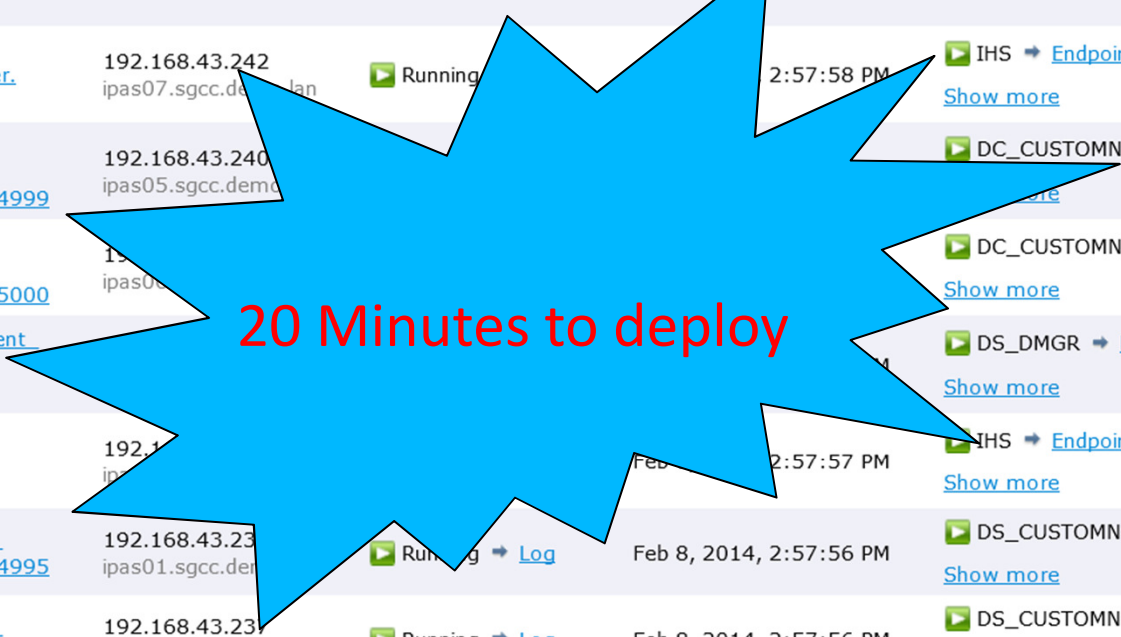
1. How long will it take you to setup an environment for Rules engine?
2. How do you ensure it can grow and shrink for optimize use of resources and meet user's expectation?
3. How long will it take to setup a database HA?



# How long will it take you to setup an

Virtual machine perspective (9 in total)

Name	Public IP	VM Status	Started on	Middleware Status	Action
<a href="#">Decision_Center-Deployment_Manager.11391842624998</a>	192.168.43.239 ipas04.sgcc.demo.lan	Running → <a href="#">Log</a>	Feb 8, 2014, 2:57:57 PM	DC_DMGR → <a href="#">Endpoint</a> <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">Decision_Center-HTTP_Server.11391842625001</a>	192.168.43.242 ipas07.sgcc.demo.lan	Running	Feb 8, 2014, 2:57:58 PM	IHS → <a href="#">Endpoint</a> <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">Decision_Center-Instance_Node.11391842624999</a>	192.168.43.240 ipas05.sgcc.demo.lan	Running	Feb 8, 2014, 2:57:57 PM	DC_CUSTOMNODE <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">Decision_Center-Instance_Node.21391842625000</a>	192.168.43.239 ipas06.sgcc.demo.lan	Running	Feb 8, 2014, 2:57:57 PM	DC_CUSTOMNODE <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">Decisions-Deployment_Manager.11391842624994</a>	192.168.43.239 ipas01.sgcc.demo.lan	Running	Feb 8, 2014, 2:57:56 PM	DS_DMGR → <a href="#">Endpoint</a> <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">Decisions-HTTP_Server.11391842624997</a>	192.168.43.239 ipas02.sgcc.demo.lan	Running	Feb 8, 2014, 2:57:57 PM	IHS → <a href="#">Endpoint</a> <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">Decisions-Instance_Node.11391842624995</a>	192.168.43.239 ipas01.sgcc.demo.lan	Running → <a href="#">Log</a>	Feb 8, 2014, 2:57:56 PM	DS_CUSTOMNODE <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">Decisions-Instance_Node.21391842624996</a>	192.168.43.239 ipas02.sgcc.demo.lan	Running → <a href="#">Log</a>	Feb 8, 2014, 2:57:56 PM	DS_CUSTOMNODE <a href="#">Show more</a>	<a href="#">View</a>
<a href="#">IBM_ODM_Database-db2.11391842625002</a>	192.168.43.243 ipas08.sgcc.demo.lan	Running → <a href="#">Log</a>	Feb 8, 2014, 2:57:58 PM	DB2 → <a href="#">Endpoint</a> <a href="#">Show more</a>	<a href="#">View</a>



20 Minutes to deploy



How do you ensure it can grow and shrink for optimize use of resources and meet user's expectation?

**Scaling Policy**

\* Maximum vCPU count per instance:  
2 8  
Value: 8

\* When CPU usage exceeds these thresholds (%):  
0% 100%  
Range: 15% - 85%

\* and when thresholds are exceeded for the period (seconds):  
300

\* then scale by:  
 adding vCPU  
 adding or removing nodes  
 both of above but adding vCPU first

Easily defined in the UI to support scaling for horizontal or vertical or both.



# How long will it take to setup a database HA?

**IBM ODM Database**

\* Name:  
IBM ODM Database

\* Virtual CPU count for database virtual machine:  
2

\* Memory size for database virtual machine (MB):  
4096

\* Database storage size (GB):  
30

Enable HADR:

At the check of a box, HA is enabled !

**Database Scaling Policy**

\* Maximum vCPU count for database virtual machine:  
2 8  
Value: 8

\* Scale up when CPU usage exceeds these thresholds (%):  
0% 100%  
Value: 85%

\* and when thresholds are exceeded for the period (seconds):  
300

Scaling the DB server CPU based on SLA



**IBM SolutionsConnect 2014**

A New Era of Smart



**Thank You**