

# PureApplication

System, Service, Software

*Building a Cloud Infrastructure  
on Premise*

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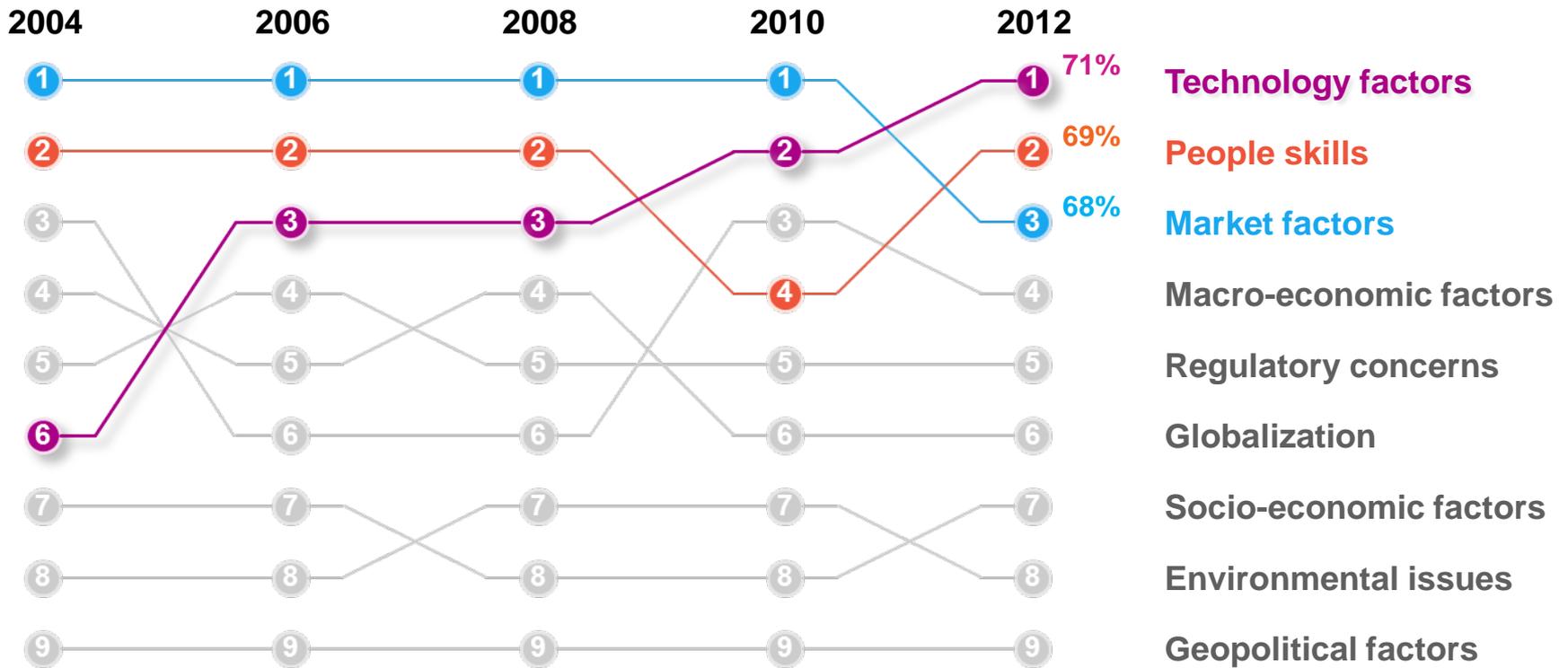


## Agenda

- PureApplication Systems Introduction
- Hybrid Cloud with PureApplication System & Service
- IBM Cloud Strategy and PureApplication

# CEOs identify technology as the most important external force impacting their organizations

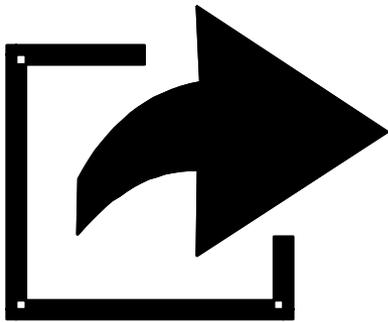
External forces that will impact the organization



Source: Q1 "What are the most important external forces that will impact your organization over the next 3 to 5 years?"

# Three Market Shifts Are Driving IT Change

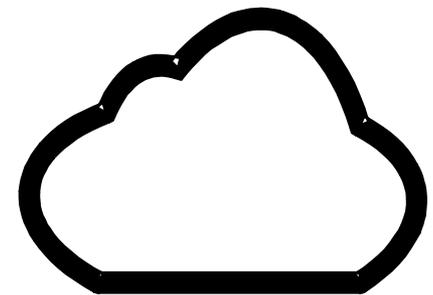
**Application** cycle time is shrinking



**Social, Mobile, Analytics and Big Data** applications emerge as required



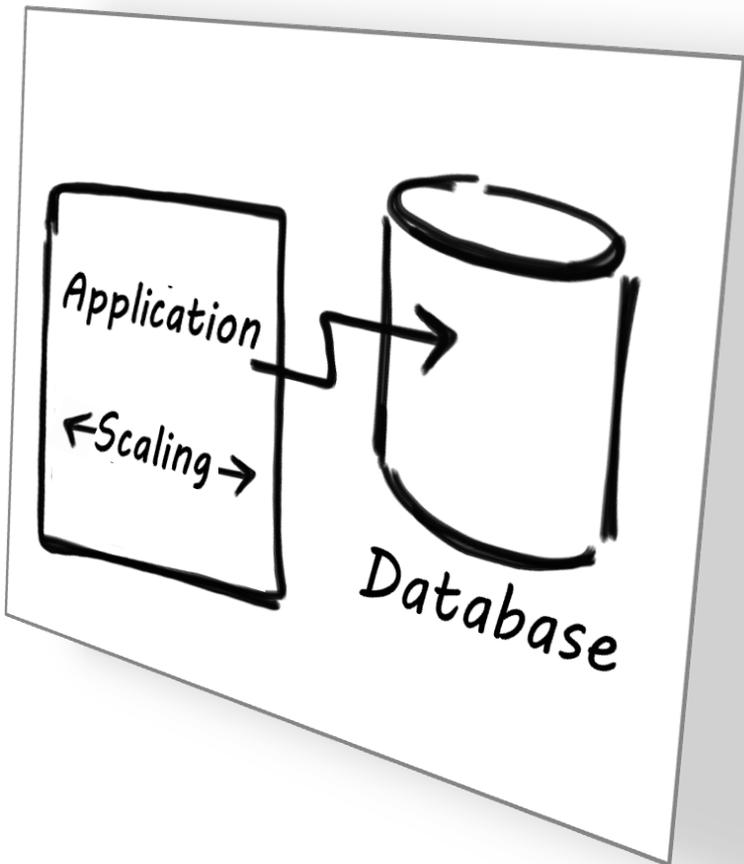
**Cloud** is the new delivery model



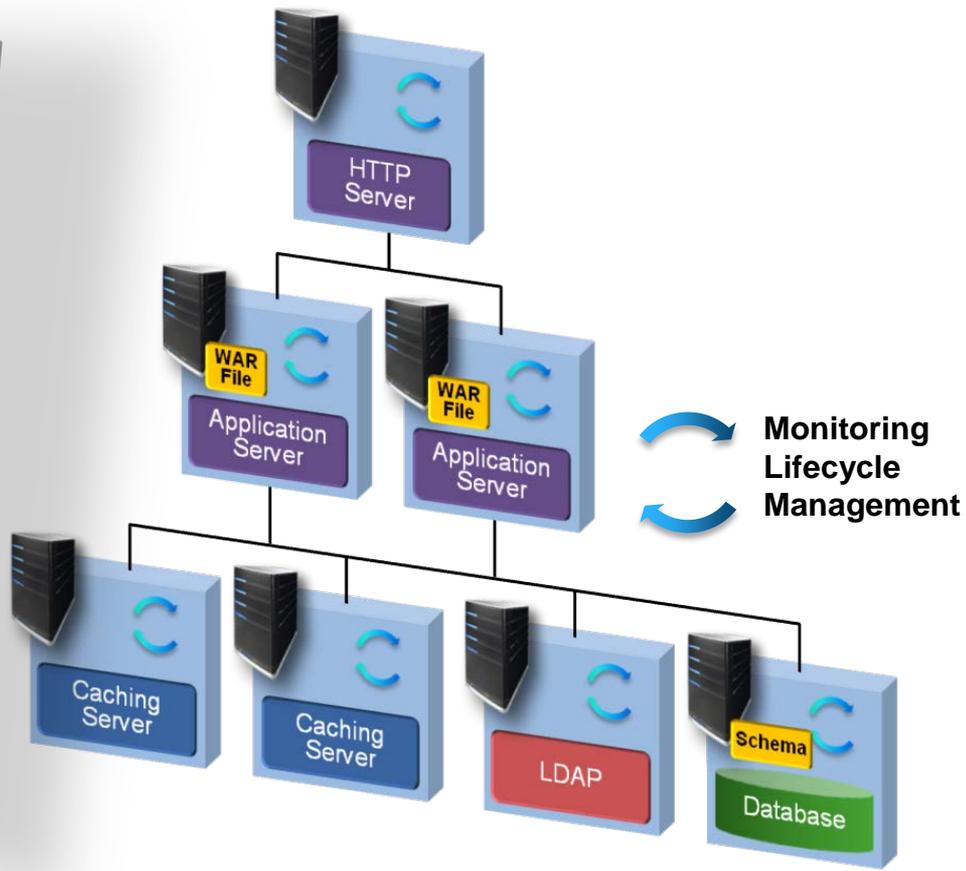
Increasing the need for  
**Speed**

- Very short cycle times
- Rapid iteration
- Real-time access
- Faster insight
- Immediate context
- Rapid scaling for unpredictable demand and large volume

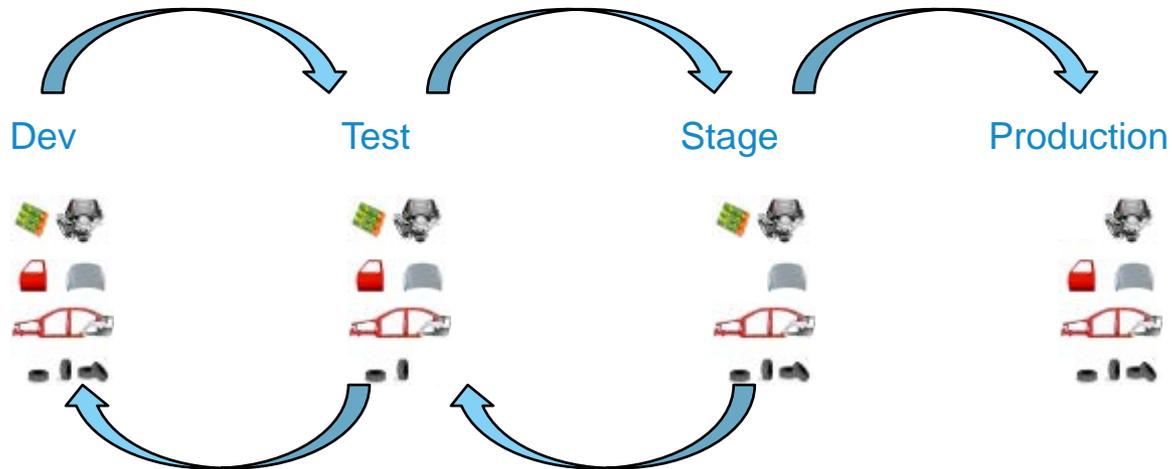
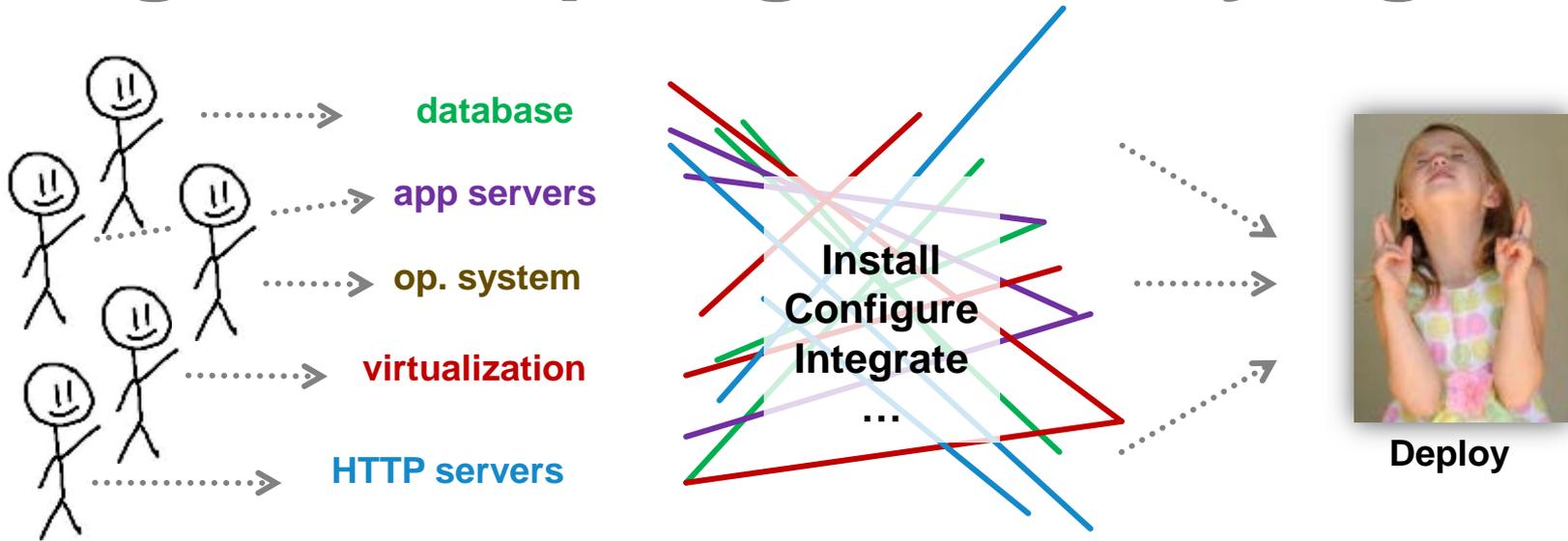
What the business wants...



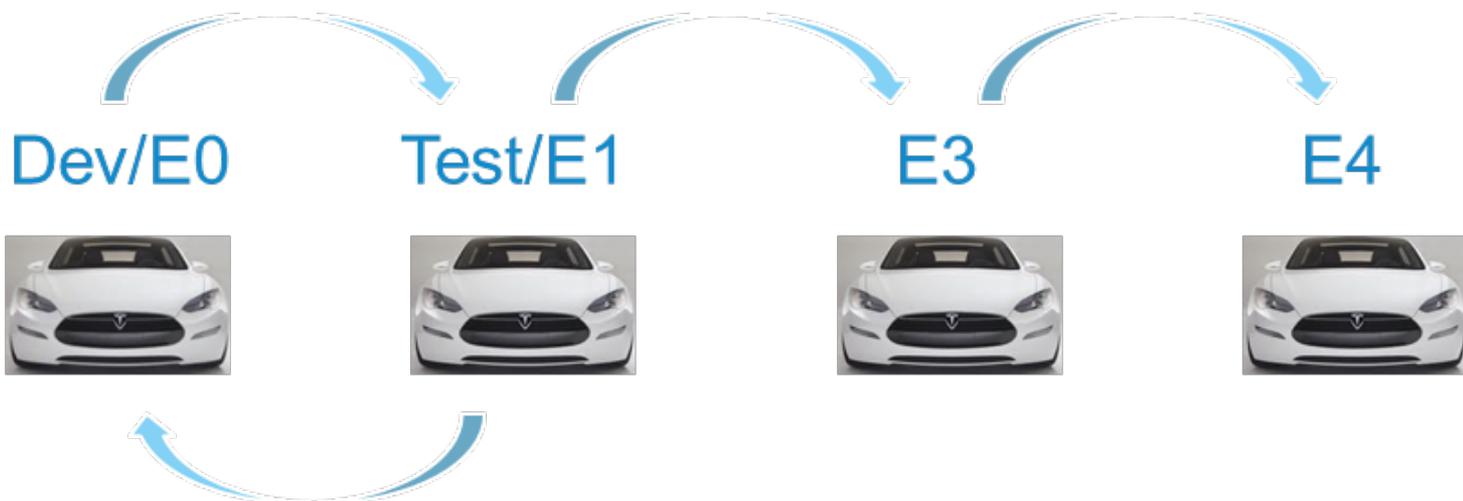
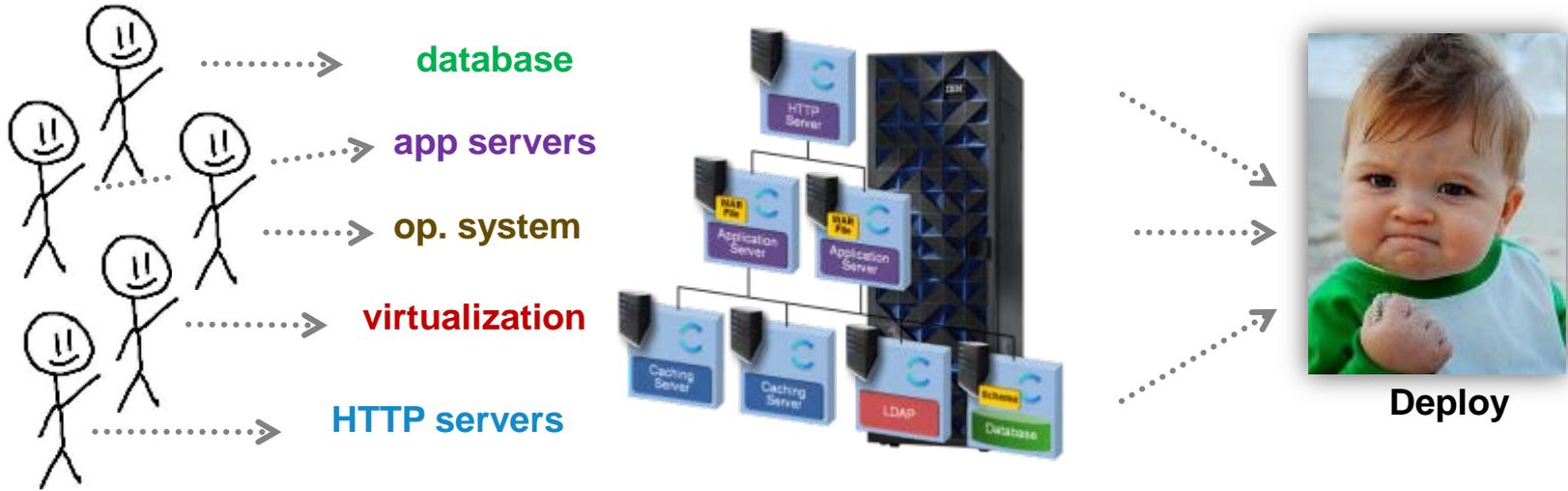
What's required...



# Images, Scripting and Praying

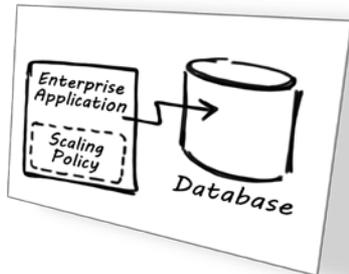


# Repeatable deployments

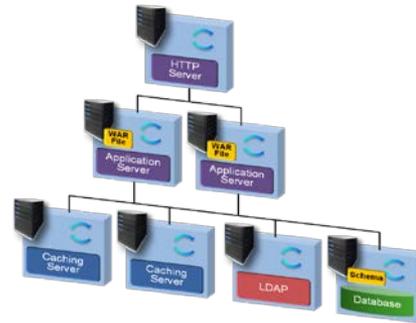


## Driving built-in expertise with IBM's patterns of expertise

*What the business wants...*



*What's required...*

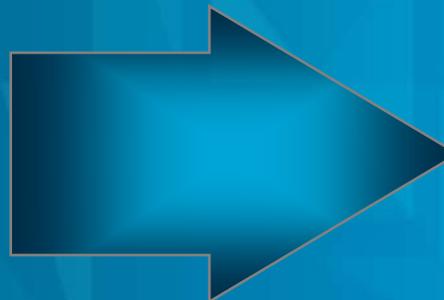


*What a pattern automates...*



Patterns include:

- Application topology
- Pre-integrated across components
- Pre-configured & tuned
- Pre-configured monitoring & security
- Pre-installed on an operating system
- Lifecycle Management



- Expertise
- Repeatability
- Simplicity
- Agility
- Governance
- Elasticity
- Efficiency

## Patterns Make Deploying Scalable Web Application - Simple

**IBM PureApplication System - Virtual Application Builder**

Diagram | List View | Source | Jason's Sample Java EE Web application | Pattern Type: Web Application Pattern Type 2.0

Save | Save As | Layout | Undo | Redo | Hints

**Assets**

Asset name

- Application Components
- Database Components
  - Data Studio web console
  - Database DB2
  - Existing Database DB2
  - Existing Database Informix
  - Existing Database Oracle
  - Existing IMS Database
  - Existing MySQL
- Messaging Components
  - Existing Messaging Service WebSphere MQ
  - Messaging Service WebSphere MQ
  - Queue WebSphere MQ
  - Topic WebSphere MQ
- OSGi Components
- Transaction Processing Components

Layers

+ Add policy for application

**Enterprise Application**  
WebSphere Application Server

**Name:**  
My Application

**EAR file:**  
artifacts/tradelite.ear Edit Delete

**Total transaction lifetime timeout (seconds):**  
[ ]

**Async response timeout (seconds):**  
[ ]

**Client inactivity timeout (seconds):**  
[ ]

**Maximum transaction timeout (seconds):**  
[ ]

**Interim fixes URL:**  
Click select button to update  
[ Select ]

**Ignore inapplicable ifx updates:**

**Maximum Session Count:**  
[ ]

**Routing Policy** ?

**Scaling Policy**  
Web/Enterprise Application ?

**Enable session caching:**

**Maximum Session Cache Grid Size:**  
[ ]

Drag ... Drop ... Deploy

# Setup Dynamic Auto-Scaling for Applications – in just few seconds

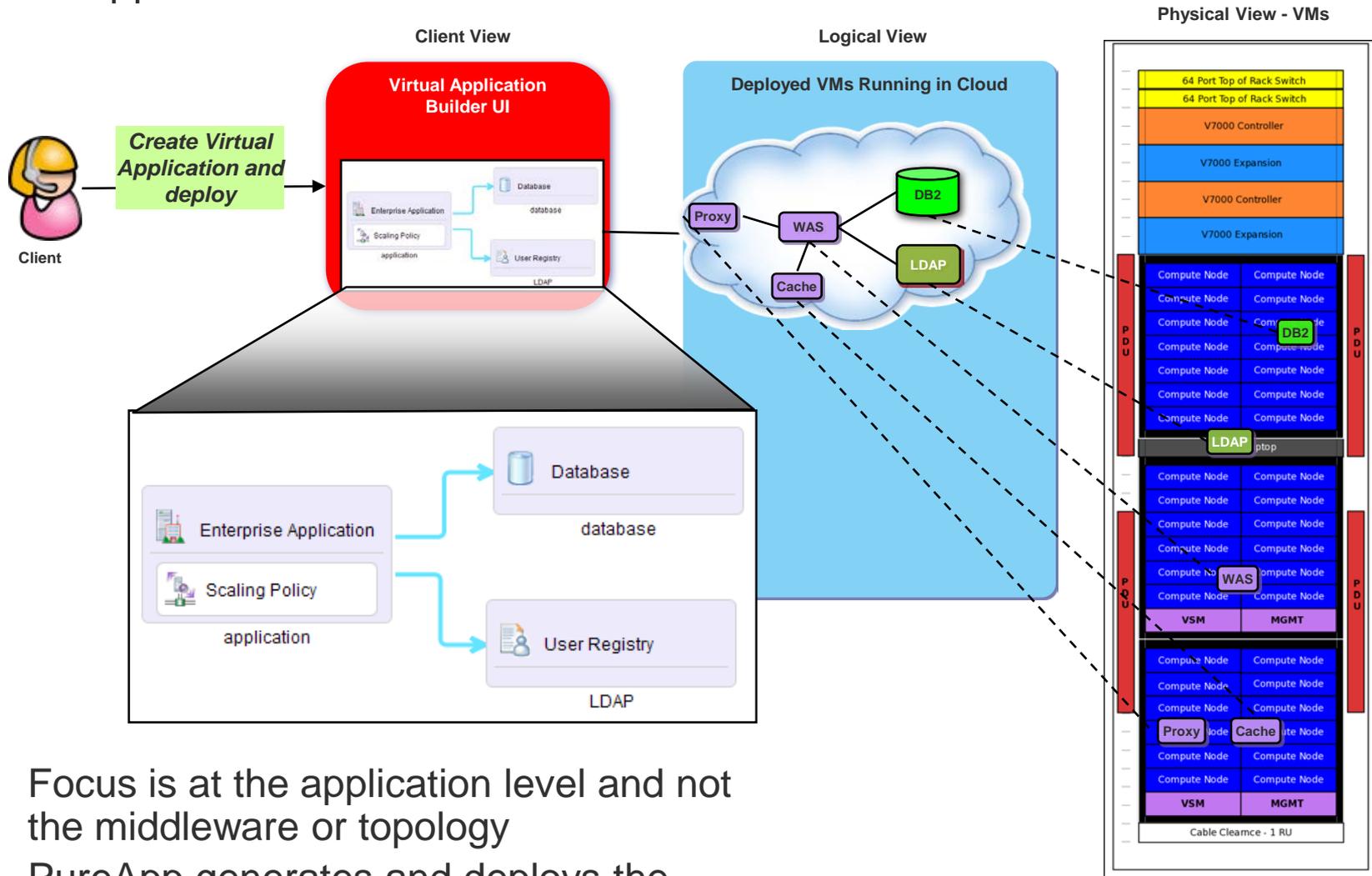
The screenshot displays the IBM PureApplication System - Virtual Application Builder interface. The main window shows a diagram of 'Jason's Sample Java EE Web application' with a 'Scaling Policy' component highlighted. A detailed configuration panel for the 'Scaling Policy' is shown, including the following settings:

- Enable session caching:**
- Maximum Session Cache Grid Size:** UNCAPPED
- Instance number range of scaling in/out:** Range: 3 - 10
- Scaling Type:** Response Time Based
- Scaling in and out when Web response time is out of threshold range(ms):** Range: 1000 - 5000
- \* Minimum time (seconds) to trigger add or remove:** 300

The interface also shows a list of assets on the left, including Application Components, Database Components, and Messaging Components. A 'Routing Policy' is also visible in the diagram.

OR.... choose to write 100s of lines of proprietary code + incur CapEx for unused capacity reserved for peak loads

## Virtual Application Views



Focus is at the application level and not the middleware or topology

PureApp generates and deploys the topology needed to run the application

**“Mini” – Intel & Power**  
32, 64, 96, 128 cores

Top of Rack  
Switches  
320 Gbps to DC

42U Rack

Storage:  

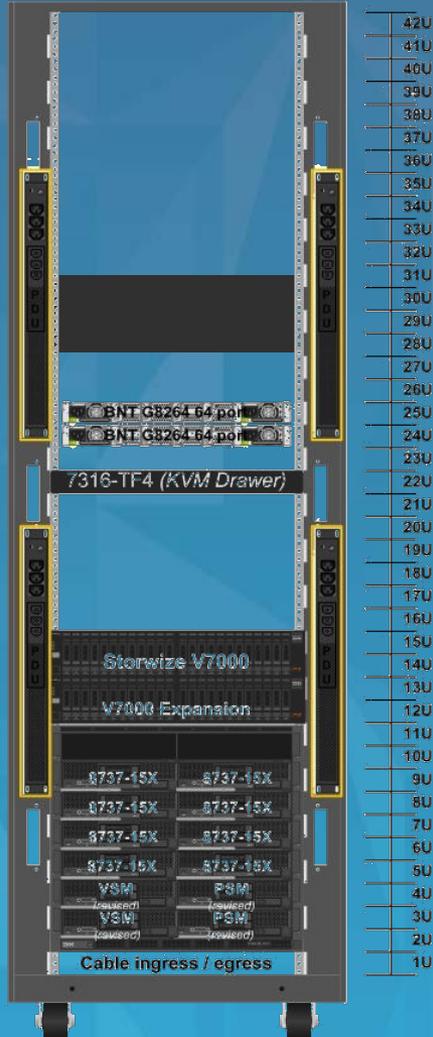
- V7000
- 2.4 TB SDD
- 24 TB HDD

PDU:  

- 4x30A 1ph

Compute:  

- Intel Ivy Bridge 2.6 GHz and
- Power 7+ 4.1 GHz
- Memory: 16 GB / core



**“Enterprise” – Intel & Power**  
32, 64, 96, 128, 160, 192, 224, 320, 384 cores

Top of Rack  
Switches  
320 Gbps to DC

42U Rack

Storage:  

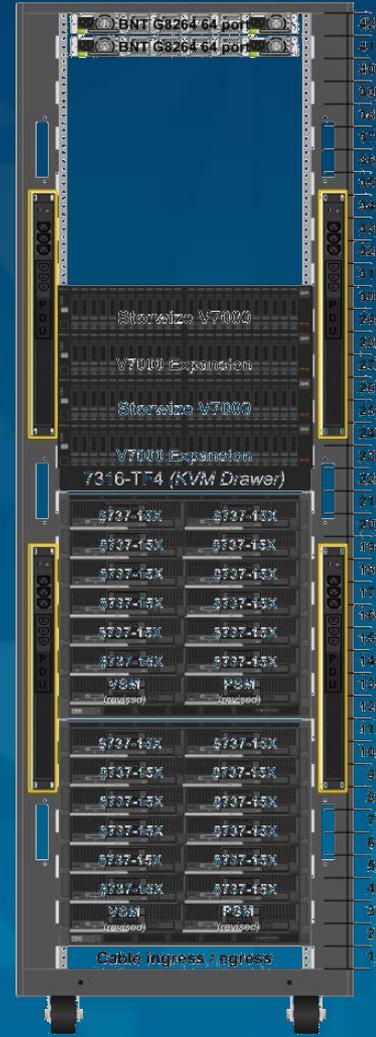
- V7000
- 6.4 TB SDD
- 48 TB HDD

PDU:  

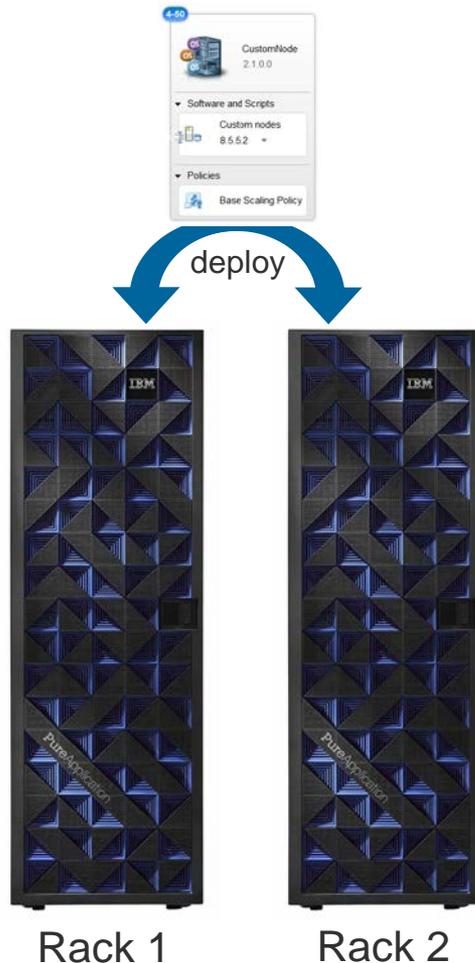
- 4x60A 1ph or 4x60A 3ph

Compute:  

- Intel Ivy Bridge 2.6 GHz and
- Power 7+ 4.1 GHz
- Memory 32 GB / core



## Achieve **high availability** for key applications by deploying **across multiple systems**



**1**

Build a pattern on any rack

**2**

Deploy the pattern across the racks, choosing where each image within the pattern should run

**3**

Consolidated view of pattern artifacts across the racks

**4**

A single view to monitor the status of the deployed pattern across the racks

**5**

Greater cost efficiency through finer grained replication on a workload by workload basis

## Application Instance Dashboard – Monitor links and status

The screenshot displays the 'Virtual Application Instances' dashboard. On the left, a list of instances includes 'DTLite' and 'WebAppNoMon'. The main area shows details for 'DTLite', including its name, creator, start time, access permissions, and instance ID. It also lists referenced shared services like 'PureApplication System Monitoring' and 'Database Performance Monitoring'. Underneath, there are sections for 'Middleware perspective' and 'Virtual machine perspective'. The 'Virtual machine perspective' contains a table with columns for Name, Public IP, VM Status, Started on, and Role Status. The table lists two VMs: 'application-was.11329849920836' and 'database-db2.11329849920837', both in a 'Running' state with associated 'Log' and 'Monitor' links.

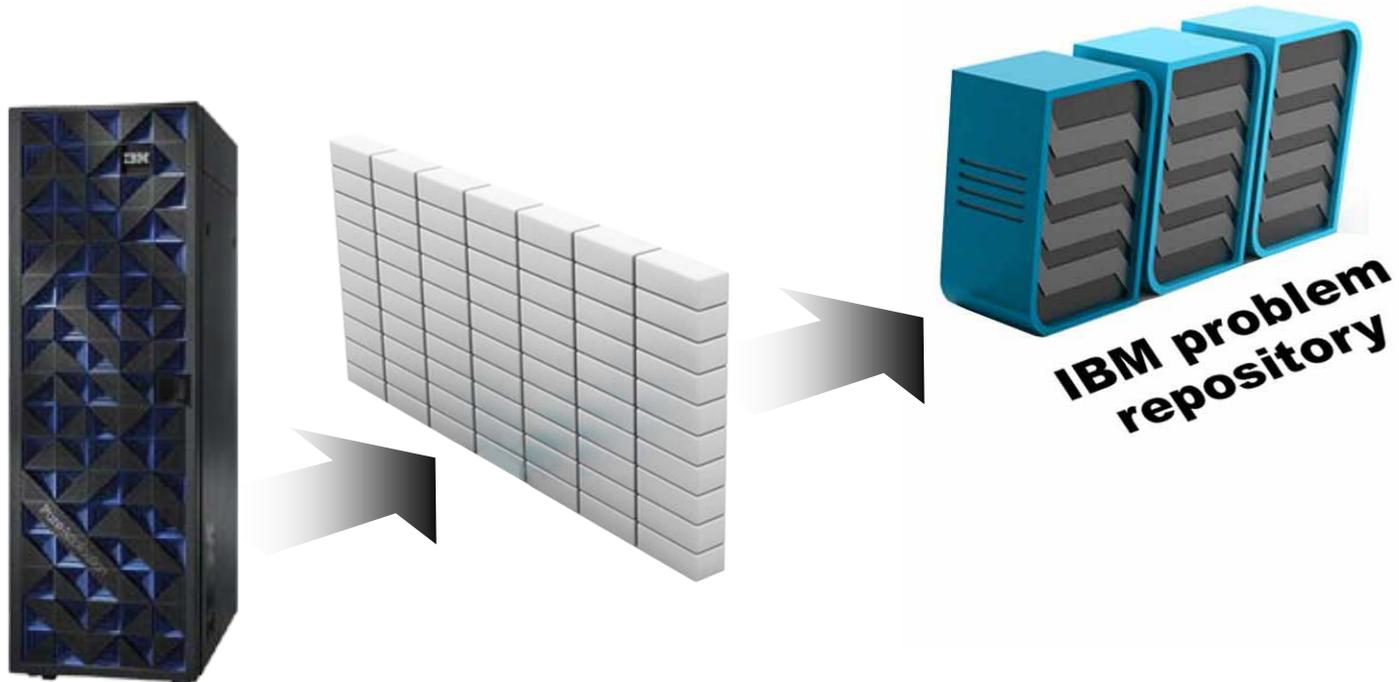
**Annotations:**

- OS and Role status from individual VMs are aggregated to create Deployment status'**: Points to the 'Status' field (Running) and the 'Role Status' column in the VM table.
- Context sensitive links assist in navigation to other perspectives**: Points to the 'Endpoint' links in the 'Middleware perspective' and 'Virtual machine perspective' sections.
- List of required shared services**: Points to the 'Referenced shared services' section.
- VMs listed by Role Type**: Points to the 'Virtual machine perspective' section.
- Flat list of deployment VMs with status**: Points to the VM table.

## Call-home delivers **simplified system troubleshooting**

### ■ Problem reporting

- Automatic PMR generation based upon hardware events (compute nodes, network, storage, power & cooling)
- Automatic log collection and upload
- Collection of system configuration information
- Report showing PMRs generated by call-home



## Security enhancements

- More granular access for administrating cloud and hardware resources at individual resource level
  - Security administrators can provide more granular access control for cloud and hardware resources
  - Allows limit on administrator access to only those resources that need to be managed at a particular time
  - Provides better separation of duties & responsibilities
  - Various access level (read, write, all, none) can be assigned to specific resources.
  
- Enhanced account policies for local user account (password length, expiration, etc.)

- Cloud group administration
- System level administration
  - View all cloud resources (Read-only)
  - Manage cloud resources (Full permission)

Resource level administration

IP groups Filter

all None Remove All

Resource Name	Status	Permission
VirtualManagement Subnet	Unavailable	None
Shared MGMT	Available	None
ggroup	Available	All

Total: 3 Selected: 0

- Hardware administration
- System level administration
  - View all hardware resources (Read-only)
  - Manage hardware resources (Full permission)

Resource level administration

Compute Nodes Filter

all None Remove All

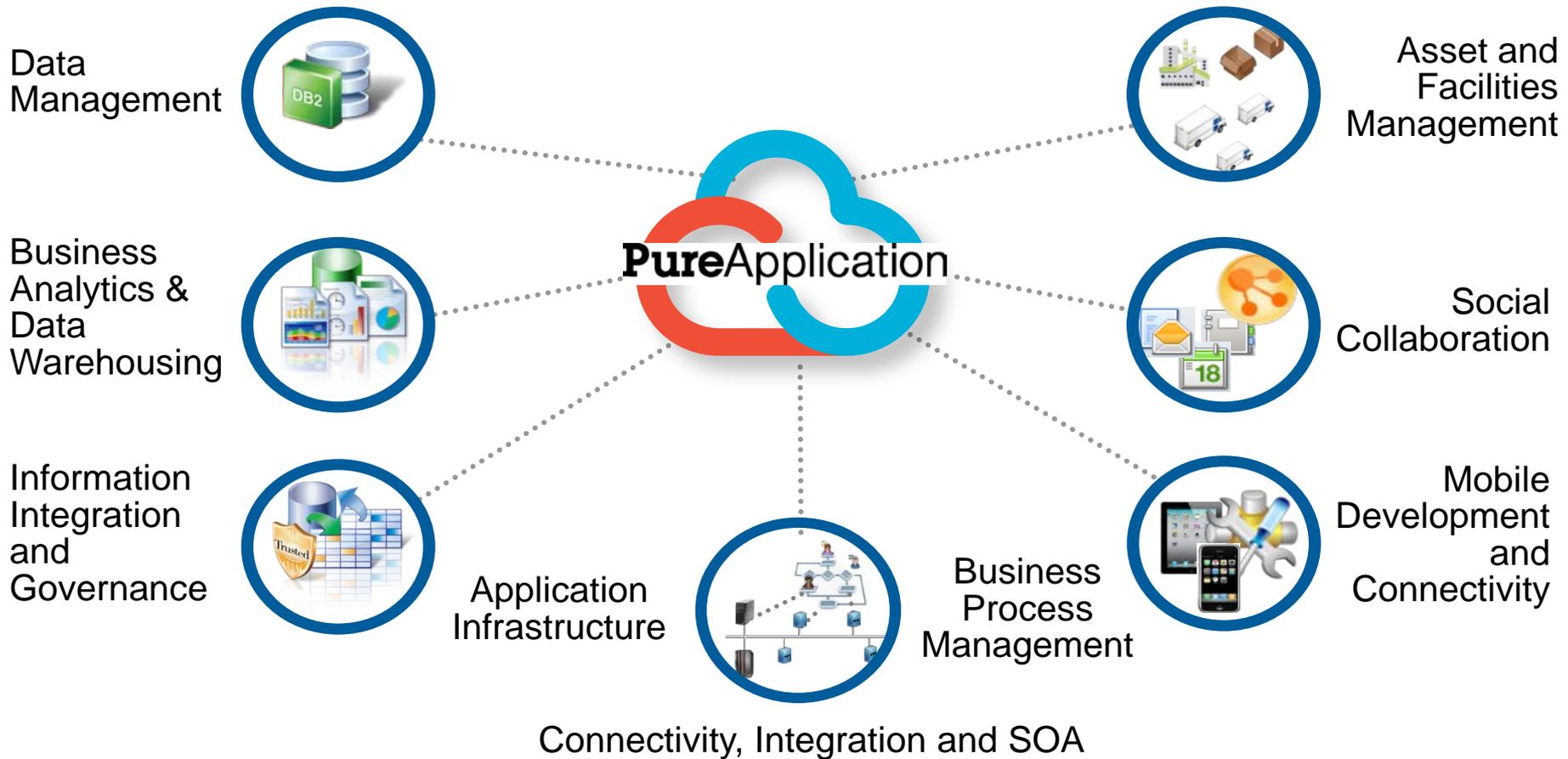
Resource Name	Status	Permission
SN#108031B	Available	None
SN#108033B	Available	None
SN#108035B	Available	None

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# Application Deployment and Management Made Easy

*More than 130 leading ISVs have optimized more than 155 applications as IBM PureApplication  
"Patterns of Expertise" to automate deployment, simplify management, and accelerate time to value*



## We're Partnering across Key Industries to Bring Critical Applications onto PureSystems

**IBM Big Data**  
 Data Management  
 Business Analytics & Data Warehousing  
 Information Integration & Governance

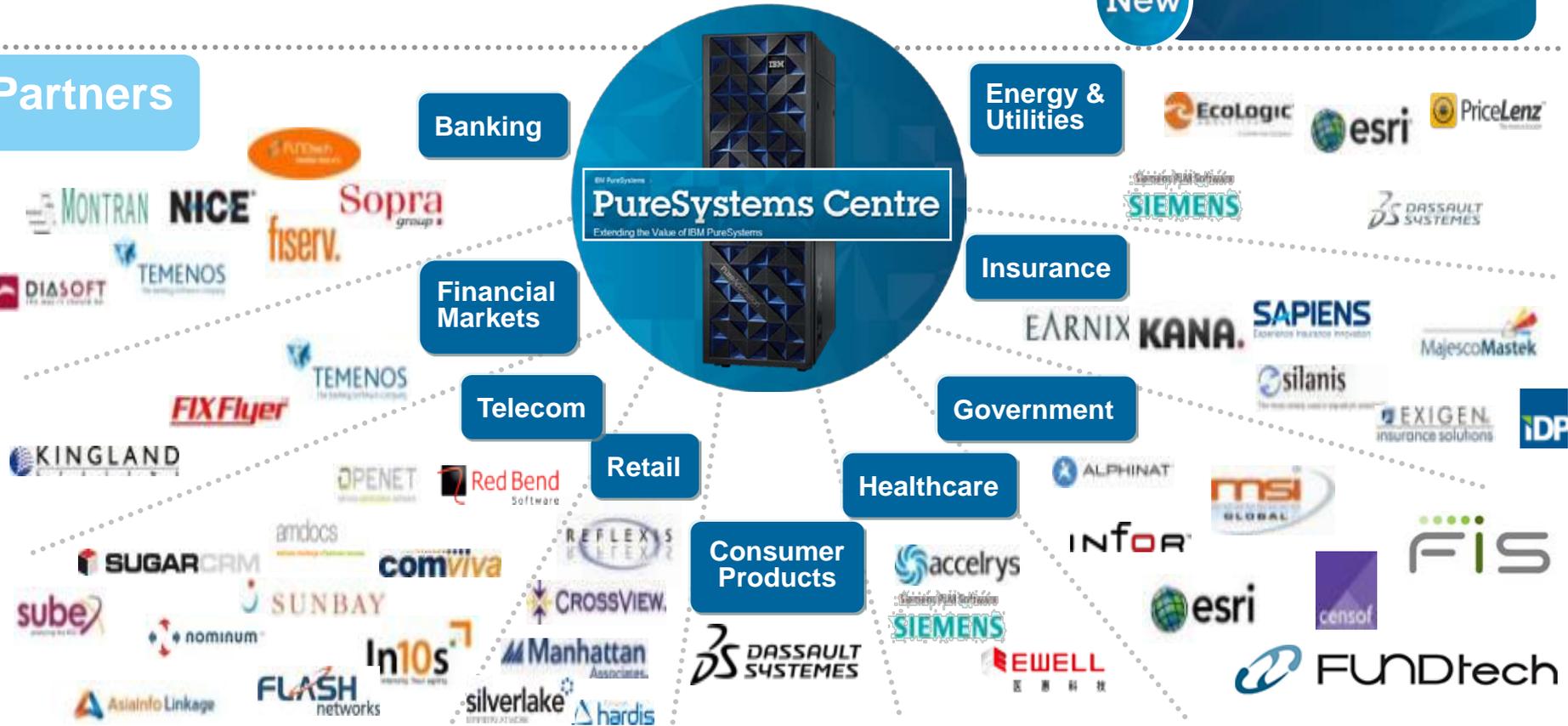
**Mobile**  
 Mobile Development  
 and Connectivity

**Social**  
 Collaboration  
 Web Experience

- Smarter Process
- DB2 with BLU Acceleration
- Mobility

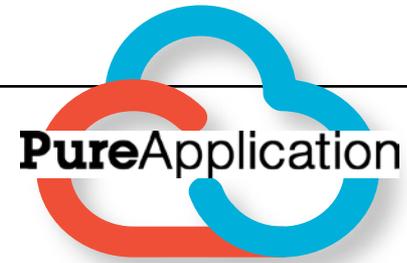
New

### Partners



150+ Patterns available on PureSystems Centre

## Hybrid Cloud Innovation



Investing in **PureApplication** capabilities **across a hybrid cloud** environment to help clients easily leverage and extend enterprise application investments



## SoftLayer at a Glance

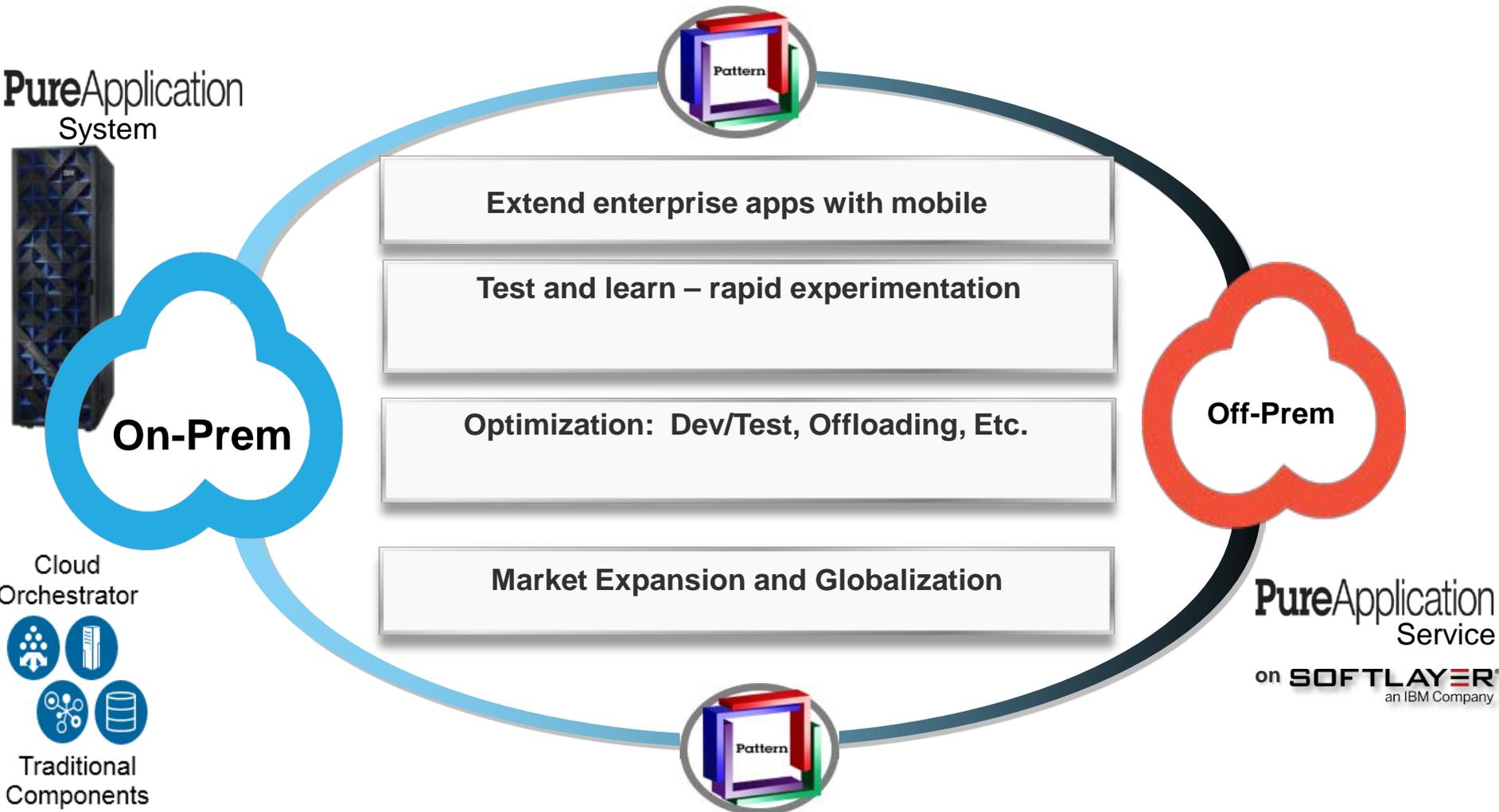


Global Leader		Unified architecture with common management and programming interfaces
Customers	21,000 in 140 Countries	<ul style="list-style-type: none"> <li>• Robust, unified command-and-control interface</li> <li>• Combine bare-metal servers, public cloud instances and private cloud deployments into distributed hybrid architectures and manage from either single control pane and API</li> <li>• All deployed on-demand and provisioned in real time</li> <li>• Ideally suited to big data deployments, high I/O and latency-sensitive apps and broad spectrum of applications</li> </ul>
Devices	100,000	
Data Centers	13	
Network PoPs	19	

**IBM commits \$1.2B to expand global cloud footprint**

IBM building massive network of local cloud hubs for businesses worldwide with 40 data centers across five continents

## Patterns: Create Once – Deploy Anywhere



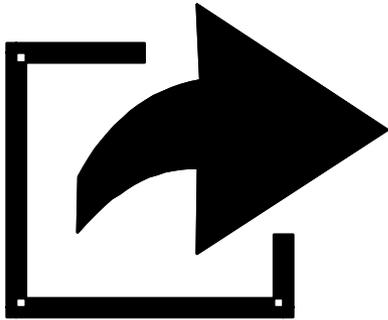
*Today – seamlessly export / import with no change*  
*Tomorrow – seamlessly manage*

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# Three Market Shifts Are Driving IT Change

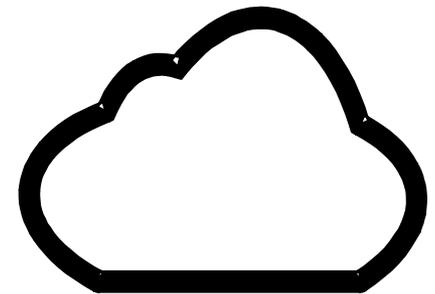
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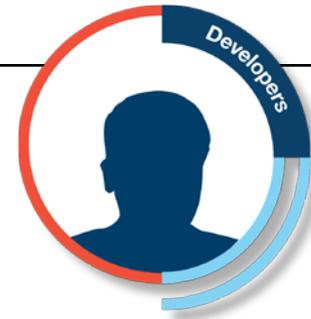
**Cloud** is the new delivery model



Increasing the need for  
**Speed**

- Very short cycle times
- Rapid iteration
- Real-time access
- Faster insight
- Immediate context
- Rapid scaling for unpredictable demand and large volume

## A True Composable Business Requires Multiple Services



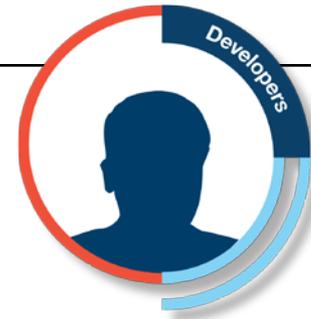
**Infrastructure  
Services**

**Defined Patterns  
Services**

**Composable  
Services**

**Business  
Services**

## A True Composable Business Requires Multiple Services



**Infrastructure Services**

**Defined Patterns Services**

**Composable Services**

**Business Services**

**SOFTLAYER®**

**PureApplication**

**BlueMix**

**SaaS**

# The Future is a Composable Business Facilitated by Cloud

## Systems of Record

- Traditional focus of Internal IT
- Highly available, scalable, and managed transactional systems
- Apps and DBs that store business records and automate standardized processes (e.g. HR, CRM)
- Less agile and extensible

## Systems of Engagement

- Complement and unite Systems of Record
- Typically add context via social and mobile components
- Adaptable to changing requirements
- Offer an engaging user experience
- Development process is usually agile and iterative with a quick time to value



Data & Transaction Integrity

Smarter Devices & Assets



On premise

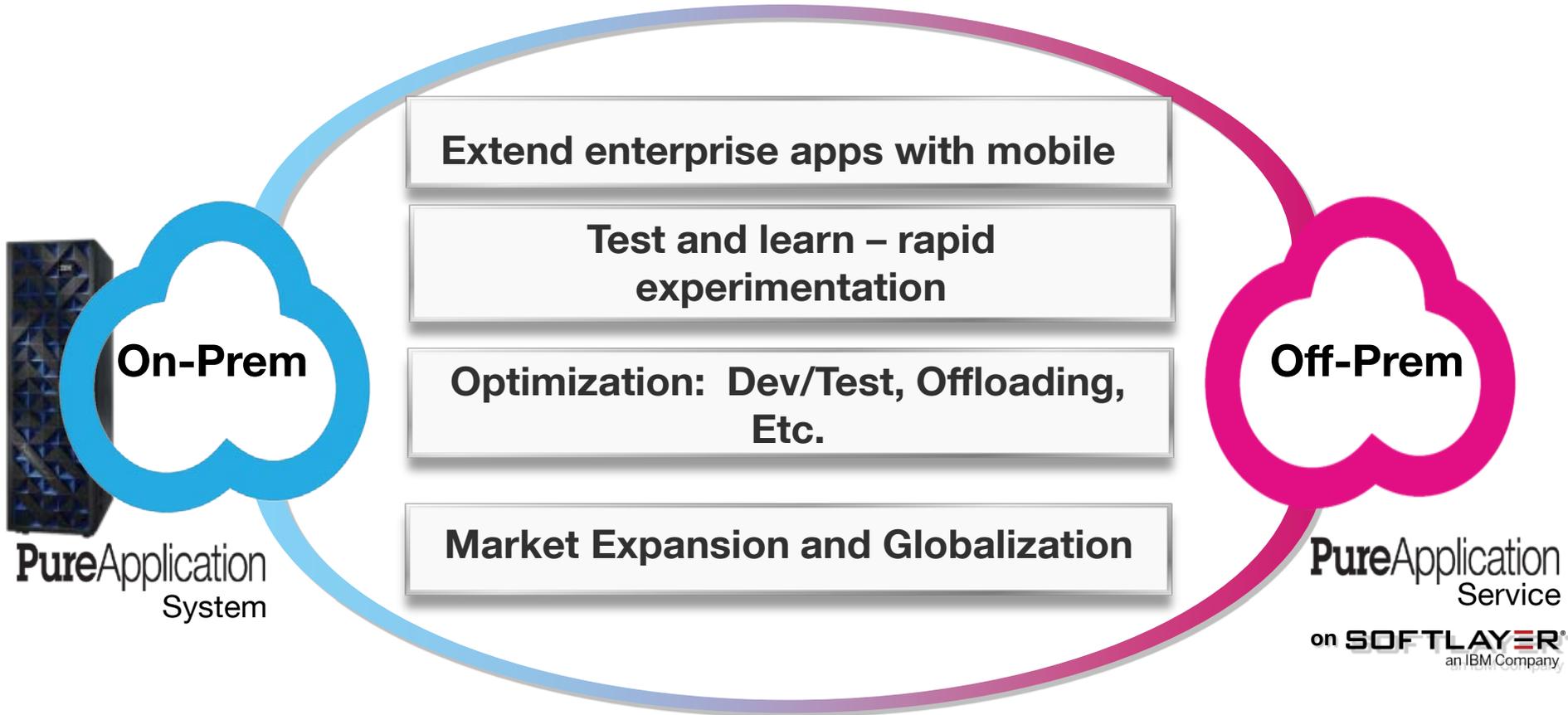


Delivered by Hybrid Cloud



On or off Premise  
(may be public)

# Using Hybrid Cloud Options Together Strategically



## Video



Thank You