



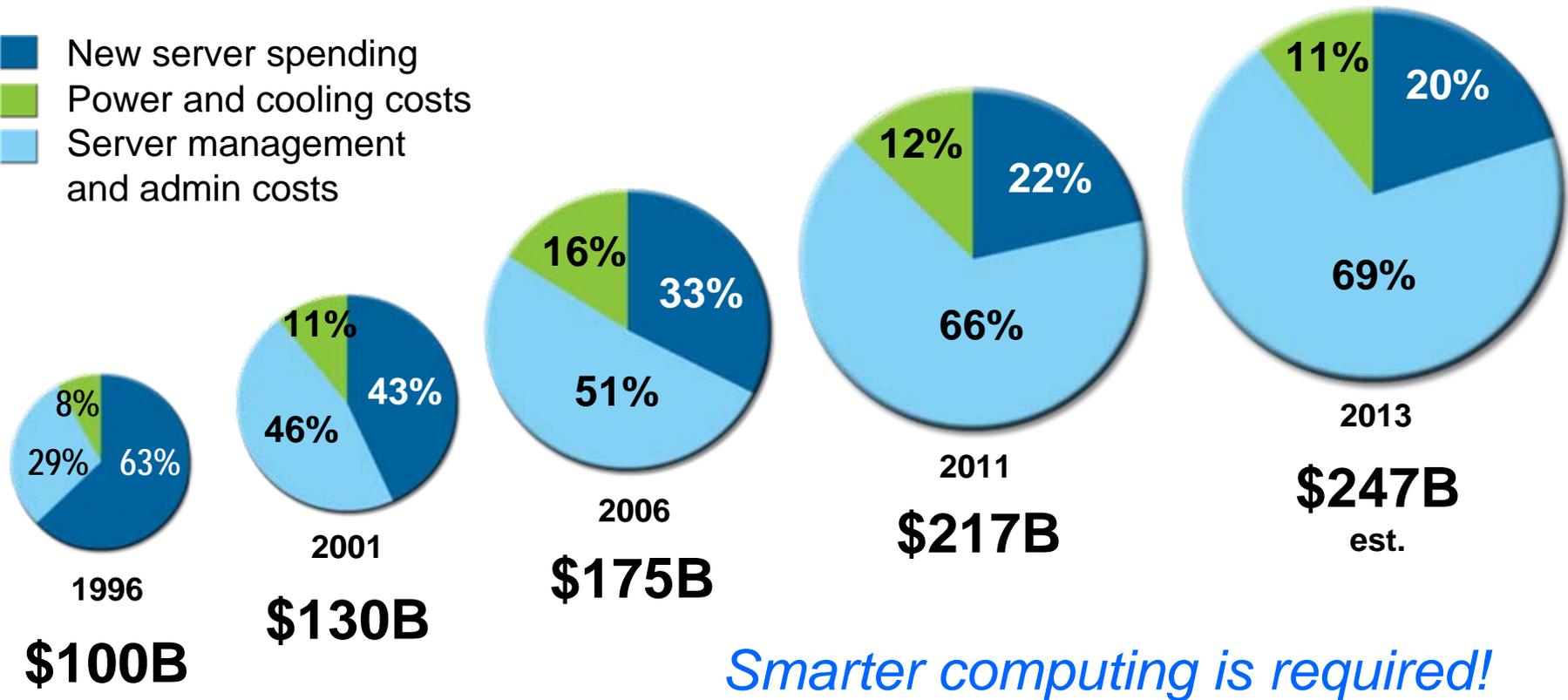
WebSphere's Advanced Technology Improves Business

Reduce The Cost Of Deploying
Your Applications

Businesses Are Spending More Money To Deploy And Manage Solutions

Worldwide IT Spending on Servers, Power, Cooling and Management Administration

- New server spending
- Power and cooling costs
- Server management and admin costs



Smarter computing is required!

Source: IDC, 2012

IBM's New PureApplication™ System Reduces The Time And Cost To Deploy Applications

Deploying and managing our web workloads is too complex and expensive. We want to simplify our environment and lower our costs.



**Service Oriented Finance
CIO**

IBM's New PureApplication System can make your web workload deployment simple and fast, AND dramatically cut down your costs!



IBM

IBM PureApplication System Is Built To Better Deliver Web Workloads



IBM PureApplication System

- **Fast setup** - Factory integrated and optimized hardware and software in one ready-to-go system
- **Easy deployment** – Innovative patterns enable quicker deployment
- **Simple Management** - Single management console for the entire solution, from silicon to applications
- **Optimal cost per workload** - Superior web application performance and lower acquisition costs

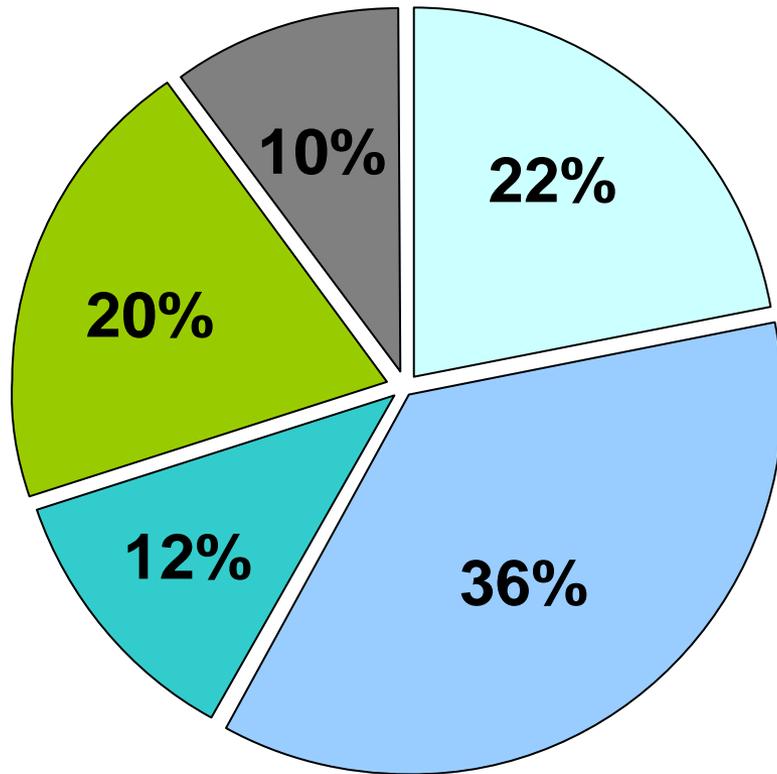
IBM's PureApplication Systems Reduce The Labor Costs Of Deploying Applications

Let's see how much labor you can save with PureApplication!



IBM

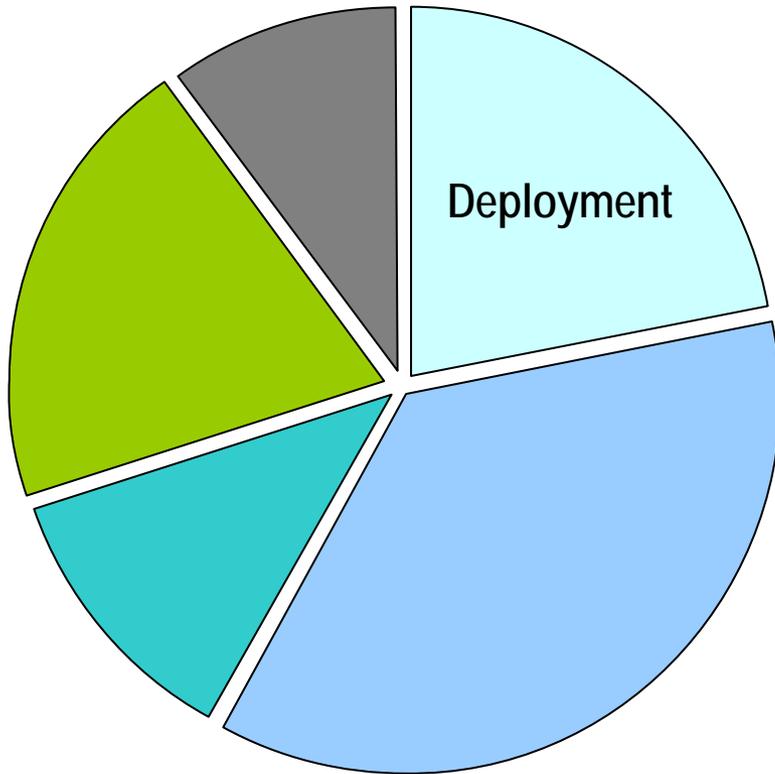
Infrastructure Administration Consists Of Five Key IT Processes



Typical percentage of time spent on each task category

- Deployment Management**
– Hardware set-up and software deployment
- Incident/Capacity Management**
– Monitor and respond automatically
- Asset Management**
– Hardware and software asset tracking
- Security Management**
– Access control
- Change Management**
– Hardware and software changes

PureApplication Systems Reduce Hardware And Management Deployment Costs



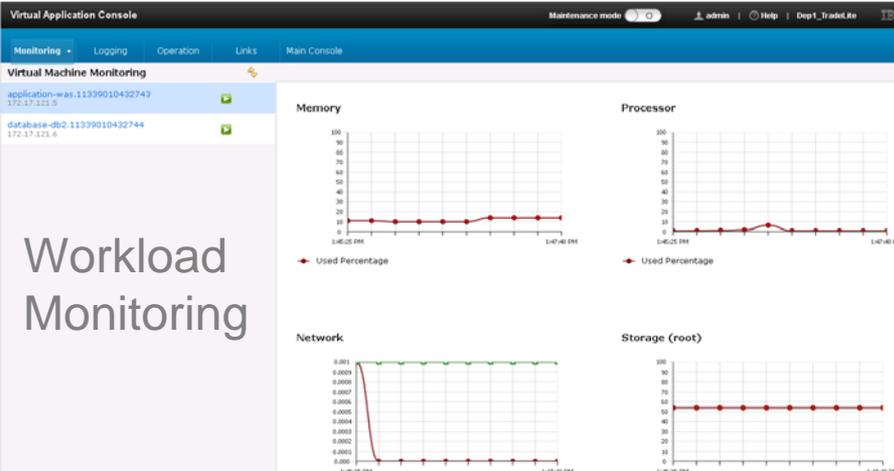
- IBM performs physical set up
 - ▶ IBM Team sets up hardware and hypervisors in less than 4 hours
 - ▶ No additional cost
- Infrastructure and management software set up in a ready-to-go integrated system

Application Lifecycle Management Is Now A Simplified Experience

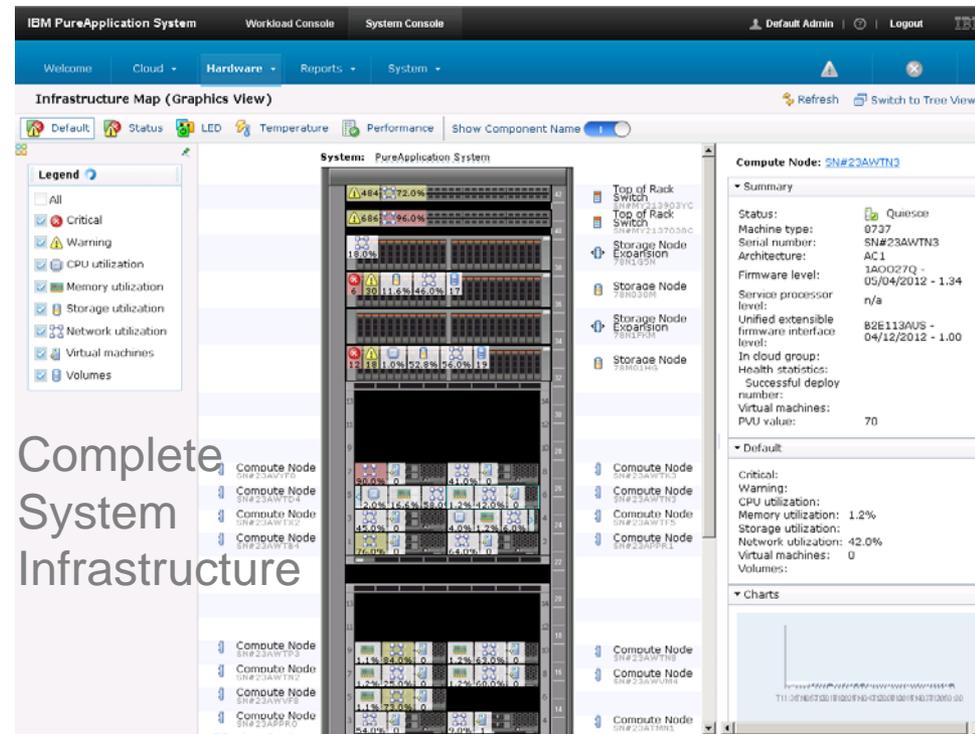
“Single Pane of Glass” for Workload & System Management

All managed with a single, integrated interface instead of individual tools

- Integrated Management Console for Workload and System Management
- Simplified Workload creation, deployment and monitoring
- Simplified Infrastructure configuration, management, monitoring and maintenance

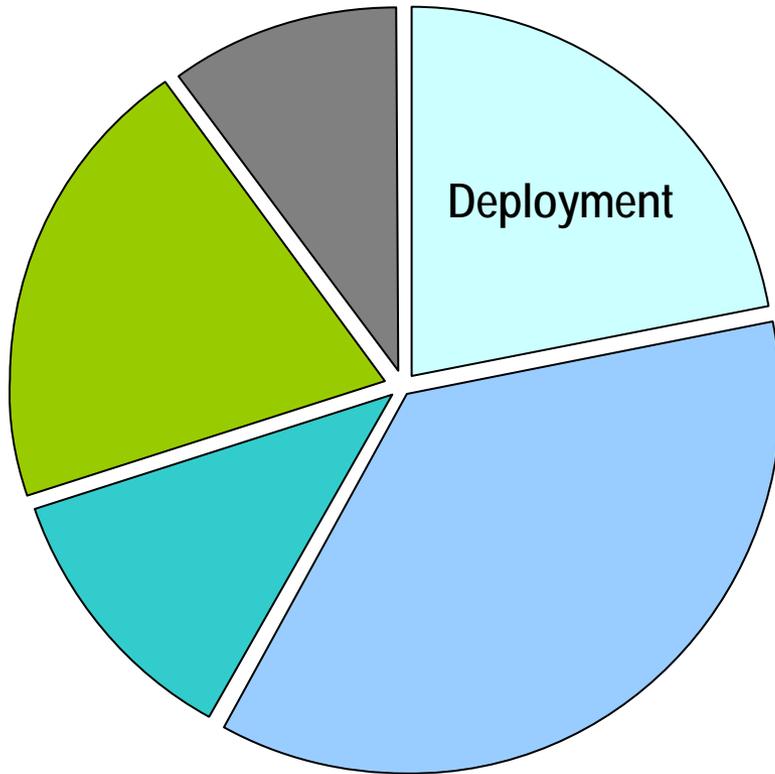


Workload Monitoring



Complete System Infrastructure

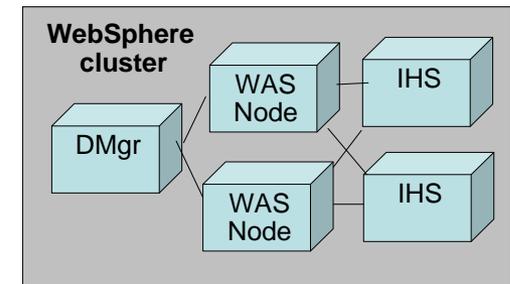
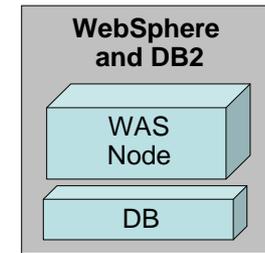
PureApplication Systems Reduce The Costs Of Software Deployment



- Pre-loaded best practice images and patterns for quick-starts
- Self-service console to request workload provisioning
- Drag and drop tooling to create new images or patterns
- Intelligent placement algorithm to map workloads to physical servers

PureApplication System Features Patterns, An Innovative Approach To Deployment

- Different web workloads require many of the same components, such as WebSphere Application Server and DB2
- A combination of these components when reused can be considered a “pattern”
- PureApplication Systems include a catalog of common patterns, each of which captures IBM’s experience and best practices
- Deploying pre-built patterns saves time and is less error prone than creating them from scratch



Patterns Available From Both IBM And Its Partners On IBM PureSystems Centre

New IBM PureSystems Centre:

- Gain access to a broad community of IBM and certified partner expertise
- Download optimized, deployable application patterns from 100+ leading ISV partners
- Search by solution area, industry or system
- Download fixes and patches
- Access to developer community



PureApplication System Patterns **By IBM**

Web and SOA Applications

- IBM **Web Application Pattern**
- IBM **WebSphere Application Server** Hypervisor Edition for RHEL
- IBM Web Experience Patterns for **WebSphere Portal Server** for Red Hat Enterprise Linux
- IBM Web Experience Patterns for **Web Content Manager** for Red Hat Enterprise Linux
- IBM **SOA Policy** Pattern
- IBM **SOA Policy Gateway** Pattern for Red Hat

Connecting Your World

- IBM **Connections** Hypervisor Edition
- IBM **WebSphere Message Broker** Hypervisor Edition for Red Hat Enterprise Linux Server
- **WebSphere MQ** Hypervisor Edition V7.5 for Red Hat Enterprise Linux
- IBM **Messaging Extension** for Web Application Pattern
- IBM **WebSphere Transformation Extender** with Launcher Hypervisor Edition
- IBM PureApplication System virtual application for **SAP CRM**

Processes and Decisions

- IBM **BPM** Pattern (Process Center Hypervisor Edition on RHEL)
- IBM **BPM** Pattern (Process Server Hypervisor Edition on RHEL)
- IBM **Operational Decision Manager** Pattern (Decision Center Hypervisor Edition on RHEL)
- IBM **Operational Decision Manager** Pattern (Decision Server Hypervisor Edition on RHEL)

Business Intelligence and Analytics

- IBM Business Intelligence Pattern (**Cognos**)
- IBM **InfoSphere Information Server** for production
- IBM **InfoSphere Information Server** for non production environments

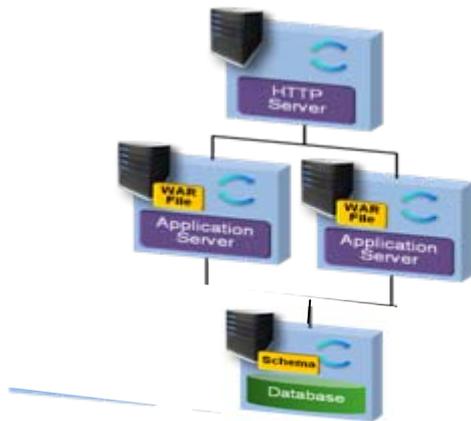
Data and Transactions

- IBM **DB2** Enterprise Server Edition
- IBM **Transactional Database** Pattern
- IBM **Data Mart** Pattern
- IBM **Informix** Hypervisor Edition

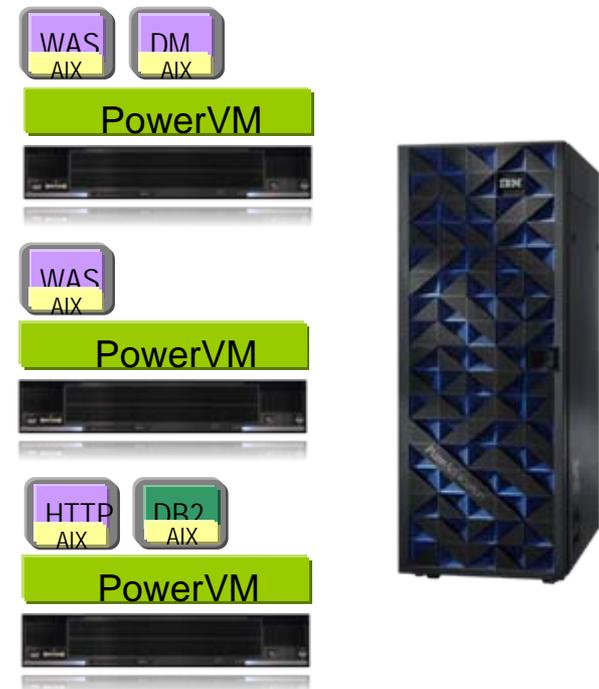
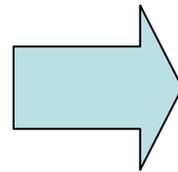
DEMO: Virtual System Patterns Speed Up Workload Deployment

- Application middleware automatically deployed and configured
- Gives full control of the deployment topology
- Full control in configuration via scripting

Select Virtual System Pattern



Describes virtual machines, network connections, software stacks and configurations

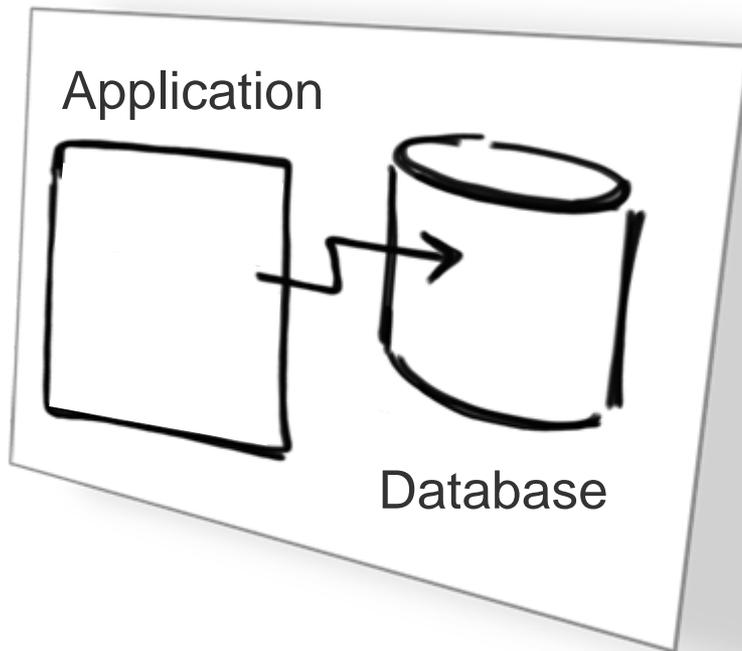


PureApplication Manager
deploys virtual machine
images



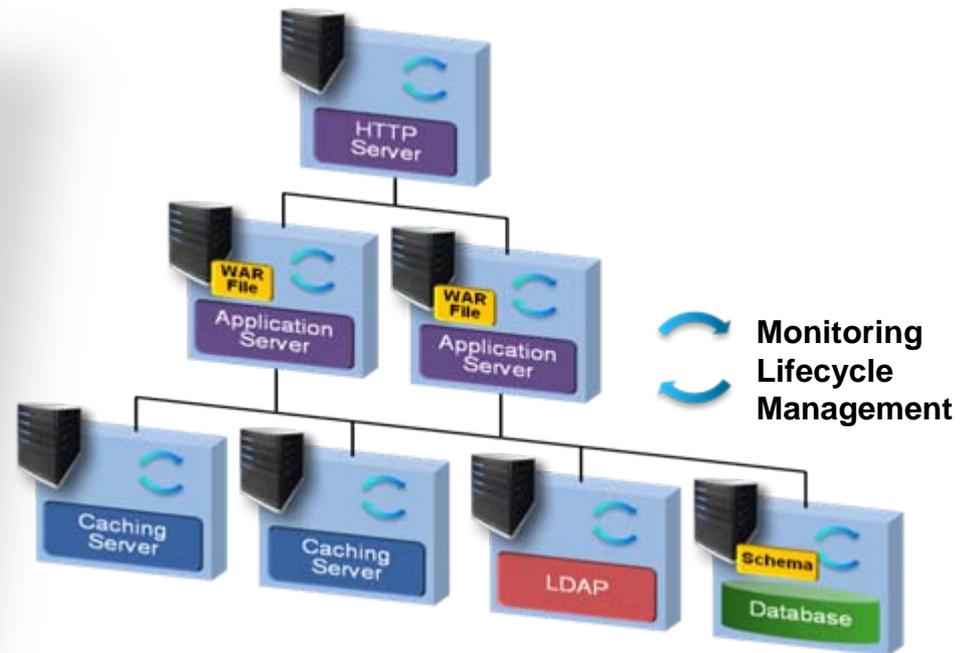
Built-in Virtual Application Pattern Further Simplifies Workload Management

What the business wants...



Just provide application code, DDL,
and specify policies

What's required...



PureApplication Manager constructs and
deploys this pattern

Constructed Patterns Include Container-Like Management Functions

Full Functions Proxy service, Web cluster with failover, database, data grid, external connections

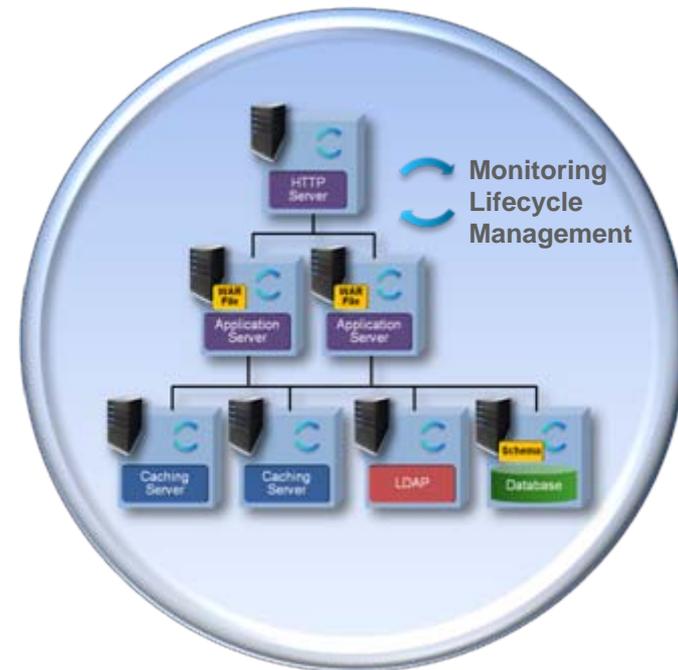
Load Balancing Web requests are automatically load balanced across multiple virtual application servers

Monitoring All components of virtual application environments are monitored by PureApplication System

Auto Scaling Managed environments scale up and down based upon business policies you specify

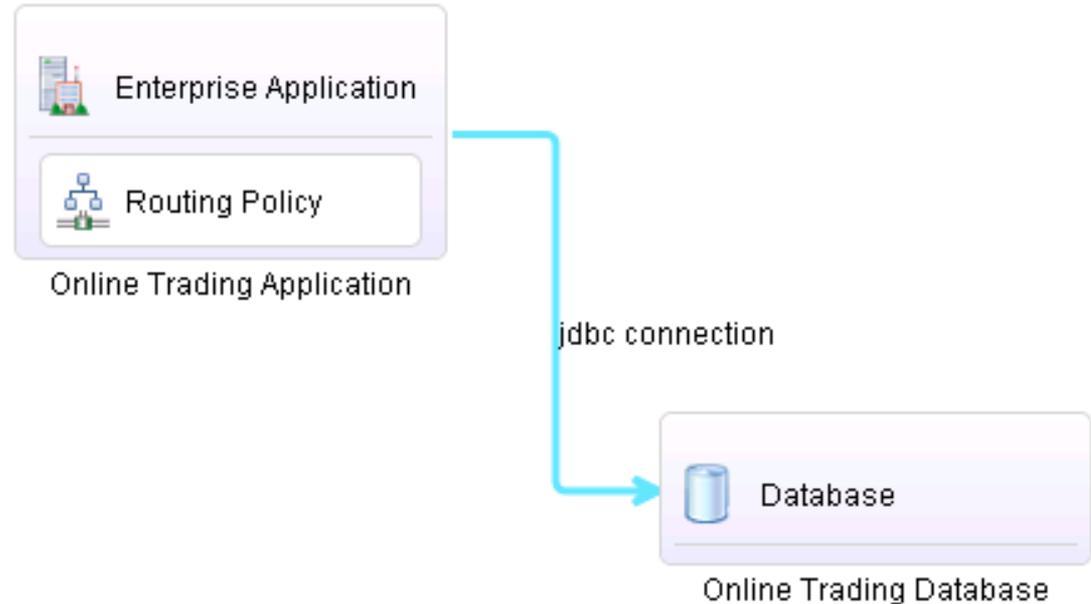
Resiliency Failed virtual machines are replaced with new VMs which are configured with the old VMs identity

Security Access Control Lists for application sharing and management access; LDAP integration for application security



DEMO: Using A Virtual Application Pattern To Build And Deploy A Web Application

- Simpler to create and deploy
- Application middleware automatically deployed and configured
- No scripting skill required
- Provides High Availability and Scaling for the application



PureApplication System's Deployment Methods Offer A Range Of Flexibility And Effort Required

Virtual Appliance (Single VM image)

- Single virtual machine image with software
- IBM supplies Hypervisor Editions
- Automated deployment

Virtual System Patterns

- Multiple virtual machines with software
- Explicit topologies
- IBM supplies pre-defined, best practice patterns
- Automated deployment of pattern

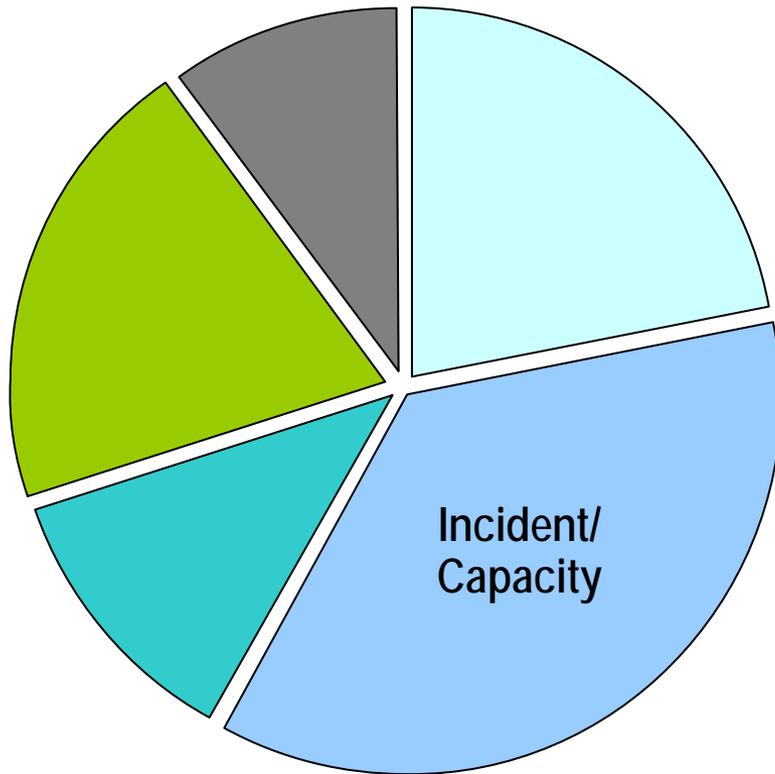
Virtual Application Patterns

- Define workload policies
- Implicit topologies are automatically generated and deployed based on defined policies
- Container-like services at run time

Configuration flexibility
Skills required
More labor

Easiest to use
Less skills required
Administrator productivity

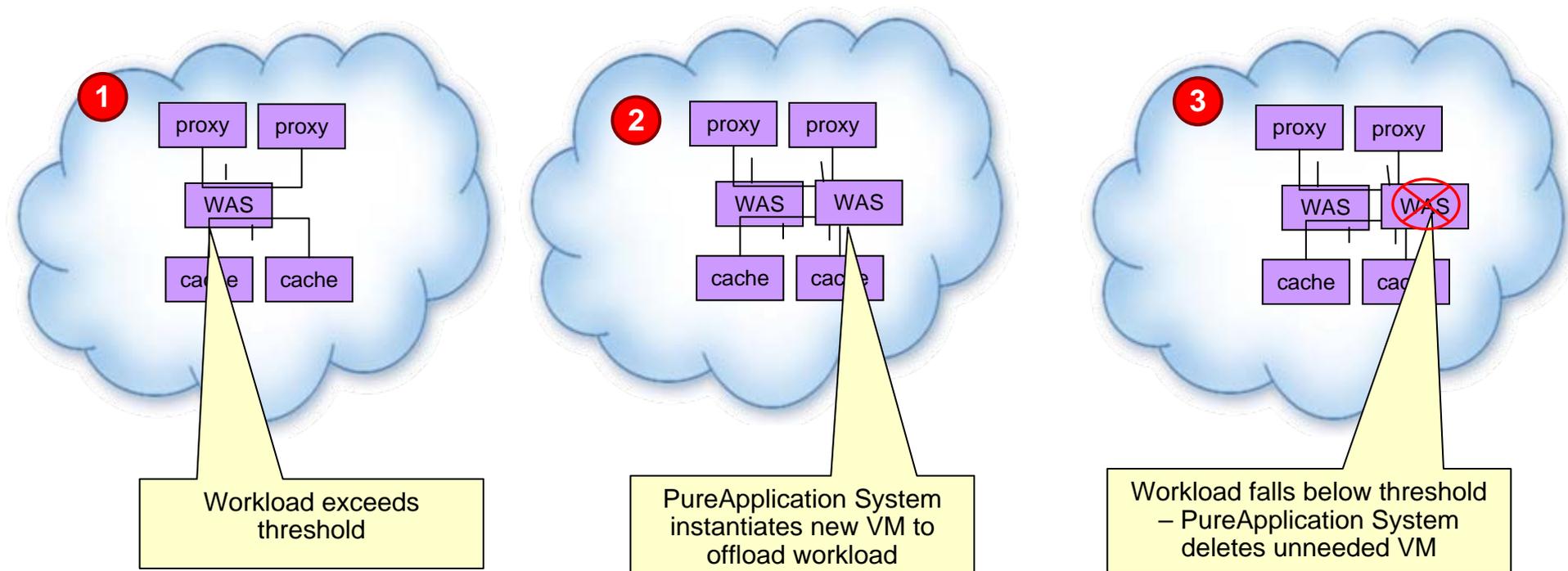
PureApplication System Reduces Incident And Capacity Management Costs



- Monitor from a single-pane of glass to quickly isolate issues with hardware and workloads running on multiple virtual servers
- Automatic resource adjustments for workloads to meet performance goals

PureApplication Dynamically Meets Workload Performance Goals With Auto-scaling Policy

- User defines auto-scaling policy for the virtual application pattern
- PureApplication automatically scales the WebSphere application platform up/down as the load changes according to policies defined



DEMO: Setting Auto-scaling Policy To Quickly Respond To Workload Changes

- **Scaling policy:** defines how your application scales up and down in response to load
 - ▶ Must have a routing policy; proxy service must be running
 - ▶ To enable session caching, cache service must be running

Scaling Policy
Web/Enterprise Application

Enable session caching:

Scaling Type
CPU Based

Scaling in/out when CPU usage is out of threshold range(%):
1% 100%
Range: 20% - 80%

Instance number range of scaling in/out:
1 50
Range: 1 - 10

Minimum time (sec) to trigger add/remove:
120

Scaling Policy
Web/Enterprise Application

Enable session caching:

Scaling Type
Response Time Based

Scaling in/out when web response time is out of threshold range(ms):
0 10000
Range: 1000 - 5000

Instance number range of scaling in/out:
1 50
Range: 1 - 10

Minimum time (sec) to trigger add/remove:
120

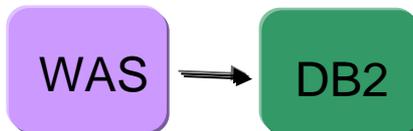


PureApplication Reduces Time To Setup Development Environments

- 99 person development team



- Web+DB application under development



- 2 virtual machines

- Automated daily build process



- Isolated development environment for each developer with latest daily build by 9 AM each morning

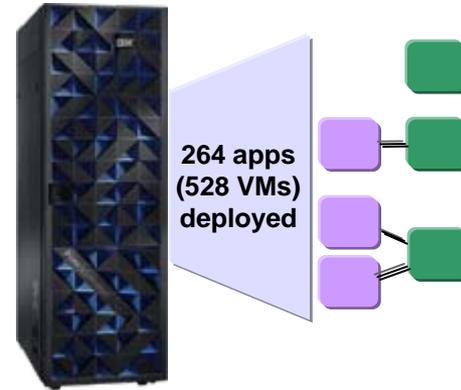


- Deployment rate of ~11 deployments per hour or 22 VM's per hour
- Start deployments at 12 AM finish 99 deployment (198 VM's) by 9 AM

* Using VAP deployment data

PureApplication Reduces Time To Re-Create Hosted Workloads Following Disaster Recovery

- Hosted cloud environment has 264 applications deployed
 - ▶ 528 VM's running



- Fire in datacenter



- Need to recreate hosted cloud environment within 24 hours



- Can deploy ~11 deployments per hour or 22 VM's per hour
- Within 24 hours all 264 deployments (528 VM's) can be operational.

* Using VAP deployment data

PureApplication System Delivers The Lowest Cost Per Workload

With all of our budget concerns and the high volume of workloads, we need more cost efficient systems.



**Service Oriented Finance
Data Center Manager**

PureApplication System delivers the lowest cost per workload, with lower acquisition cost and superior performance.



IBM

Discover For Yourself The Benefits Of IBM's New PureApplication System

PureApplication System



- ✓ Deploys applications 100 times faster than Do-It-Yourself solutions
- ✓ Reduces lifetime labor to one quarter
- ✓ Reduces up to three quarters the cost per transaction over the competition
- ✓ Setup and run with minimal time and skills