



## Virtual Enterprise – *Doing More With Less*

### Challenge:

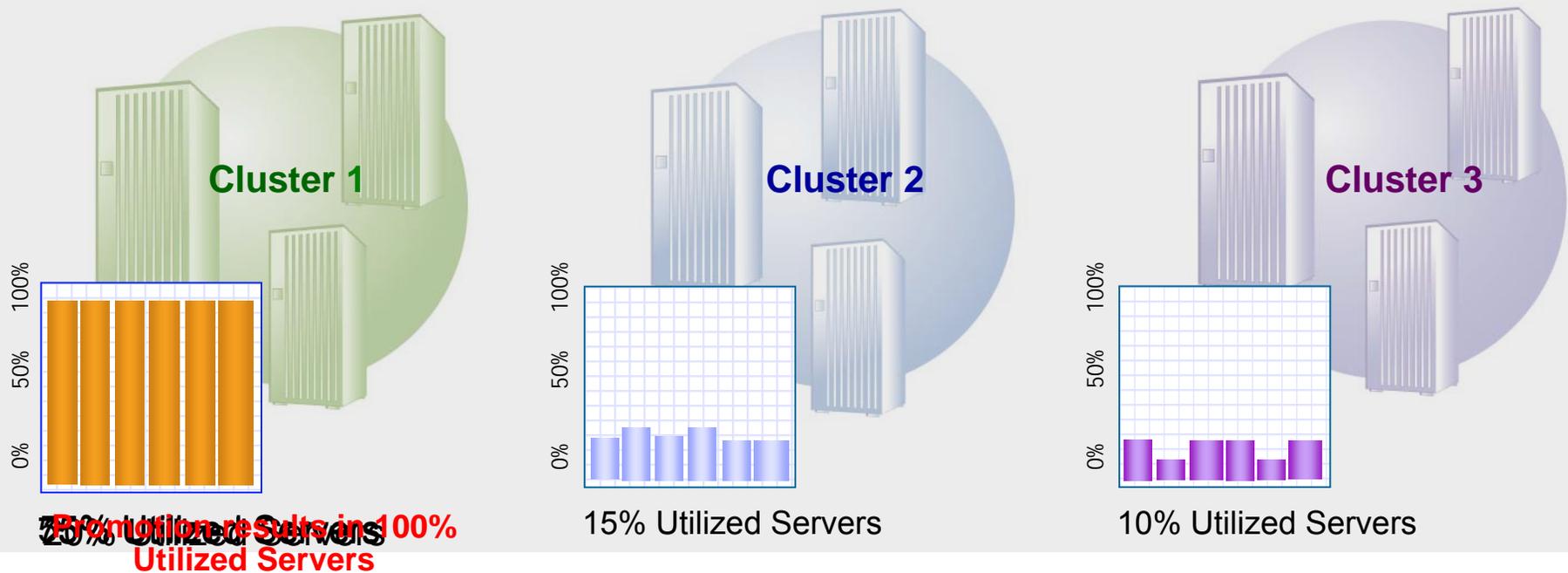
- ◇ Increase server utilization and scalability so that I can optimize my capital & administration costs
- ◇ Ensure my most important applications are given priority according to my business and IT policies
- ◇ Flexibly respond to unforeseen application demand
- ◇ Provide high availability and redundancy for my business-critical applications

*WebSphere Virtual Enterprise allows organizations to optimize their infrastructure investment and to prioritize their applications in a mission-critical manner*



# Resource Optimization: An Example

An ad campaign or promotion results in a huge increase in insurance quotes ...



Quote Processing

Auto Insurance

Home Insurance



Quote processing time increases ...  
Customers grow tired of waiting ...  
Lost Revenue.

# Resource Optimization: An Example

*WebSphere Virtual Enterprise maximizes utilization and improves responsiveness!*



**55% Utilized Servers**



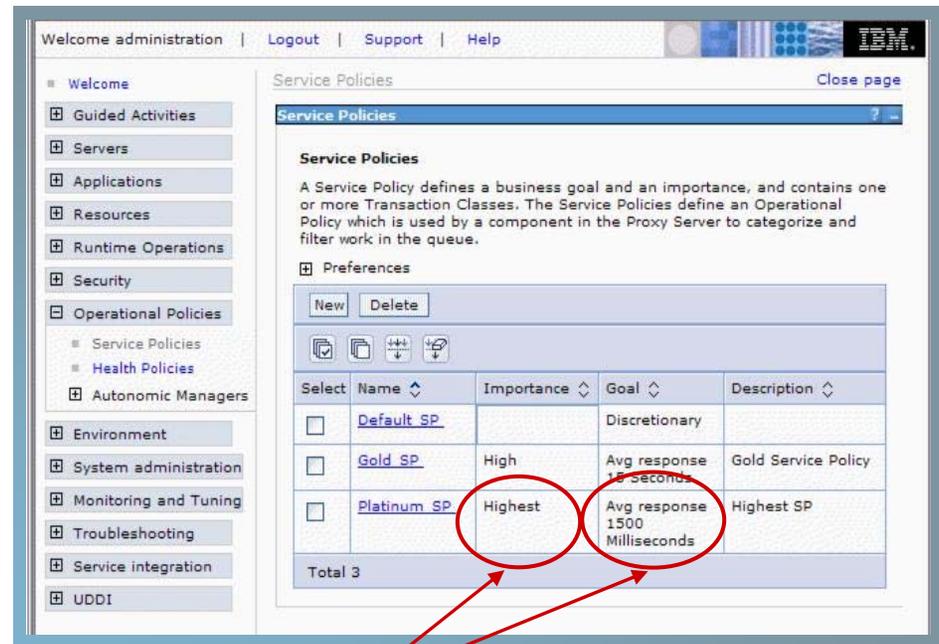
\* Hypothetical, for illustrative purposes only



# Application Prioritization: Doing What's Important to You

VE easily allows an administrator to specify the relative importance of applications; VE then manages to it

- **Service policies** are used to define application service level goals
- Allow workloads to be classified, prioritized and intelligently routed
- Enables application performance monitoring
- Resource adjustments are made if needed to consistently achieve service policies



***Service Policies define the relative importance and response time goals of application services; defined in terms the end user result the customer wishes to achieve***

# Streamlining Deployment of Applications and Services Leads to “Always On” Infrastructure

## What is Application Edition Management?

- Upgrade applications without interruption
- Deploy new applications without jeopardizing application or service availability
- Coordinate activation of application versions & routing of requests to the application
- Test final pre-production level of an application version with a select group of users

## Results In

- Easy validation of new versions of applications & services
- Support “rolling” upgrades – no planned downtime
- Ability to roll-back with one click – minimize unplanned downtime
- More agile and flexible application & service deployment



## Key Capability: Health Management

### What is Health Management?

- Proactively deal with application and application infrastructure issues *before* they become acute problems ... automatically
- Health conditions and associated corrective actions
- Requires application and infrastructure insight!
- **Requires application knowledge!**



### Results In

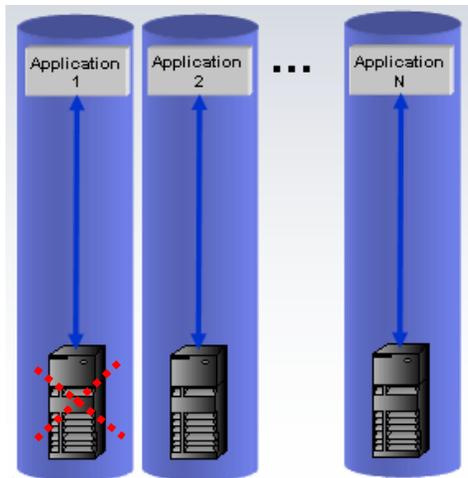
- Better availability
- Less administration required
- Satisfied end users



# High Availability

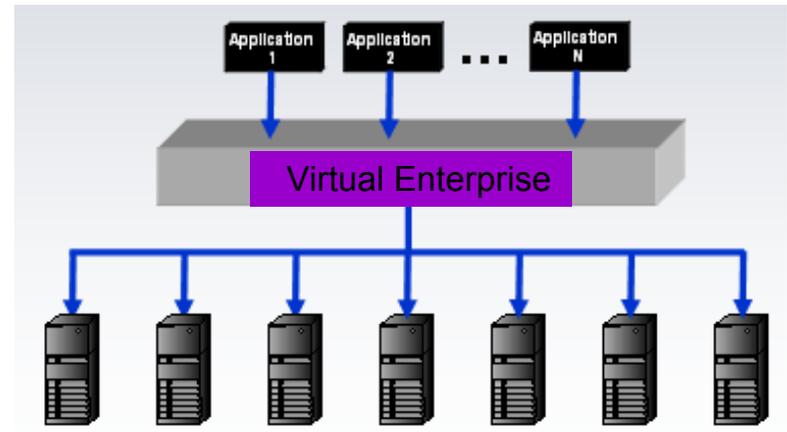
By running applications across a pool of resources, applications become inherently highly available; if a server fails, VE moves the work to other servers

## Siloed Applications & Resources



By tying applications to a small set of servers, application availability can be compromised!

## Single Pool of Resources



Applications can run anywhere; add more servers, applications can run on them.

# Levels of Virtualization



## Application Infrastructure Virtualization

- Coordinate, schedule and manage workload across a pool of resources
- Schedulers, workload managers, etc.



## Application Virtualization

- Running an application within a VM

Application Virtualization

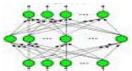


## Server Virtualization

- Partitioning / Hypervisors



## Virtual Memory



## Network Virtualization

- Virtual LANs (VLANs)
- Virtual Private Networks (VPNs)



## Microprocessor Virtualization

- Multi / Hyper Threading
- Hardware assisted virtualization (Intel, AMD)

## Application Virtualization & Server Virtualization

If I'm using server virtualization, do I really need WebSphere Virtual Enterprise?



- What's going on in that black box?
- Are you managing at the black box level?
- Isn't what's going on inside really important?
- Can you get inside?

The virtual machine is running ... but is your application or service available?

## Application Virtualization & Server Virtualization

- WebSphere Virtual Enterprise adds value to WebSphere (WAS ND) Virtualized Environments
  - WVE increases WebSphere efficiency
  - Increase in throughput and decrease in response time
  - More balanced allocation of available resources
- VMware dynamic CPU allocation added no benefit to dedicated WebSphere instances and it degraded the performance of WAS ND clusters
- **WVE performance much better than WAS ND + VMware dynamic CPU allocation**
  - **2X the throughput**
  - **50% lower response time**

## Large US Airline



### **Problem**

- Key customer applications experienced spiky CPU utilization and irregular response times
- Application updates required a site outage and result in lost revenue

### **Solution**

- WebSphere VE's work load management dynamically adjusts server weights and evens out CPU utilization and response times
- WebSphere VE's Application Edition Management allows application update with continuous availability

### **Key VE Features / Benefits**

- Application updates with no lost revenue
- Better customer experience by monitoring/managing to response times
- Future use of service policies for differentiated quality of service