

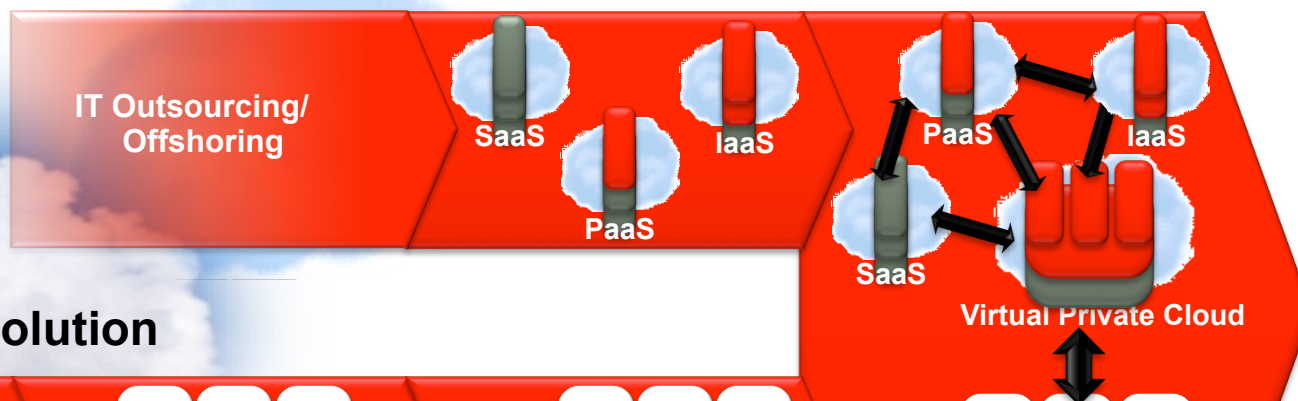


**ORACLE®**

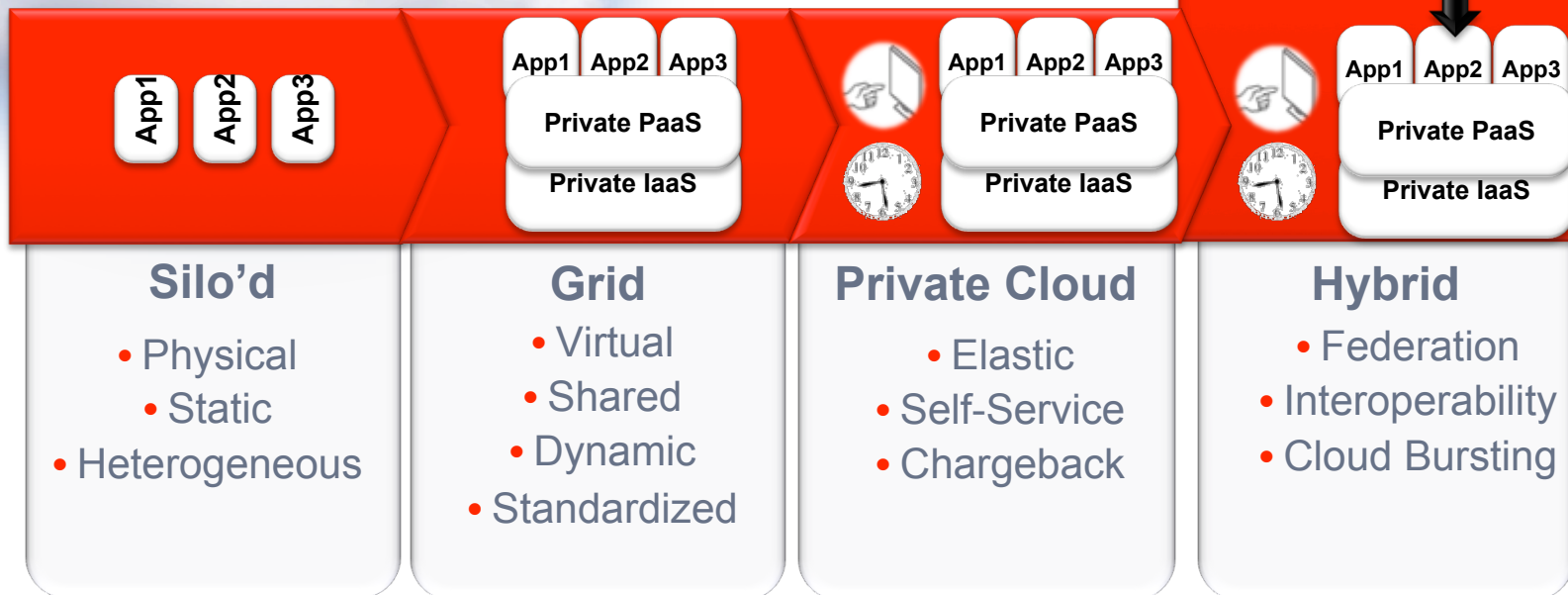
**Virtualizing the Application Grid to Enable Cloud Computing**

# Evolution of Public and Private Cloud

## Public Cloud Evolution



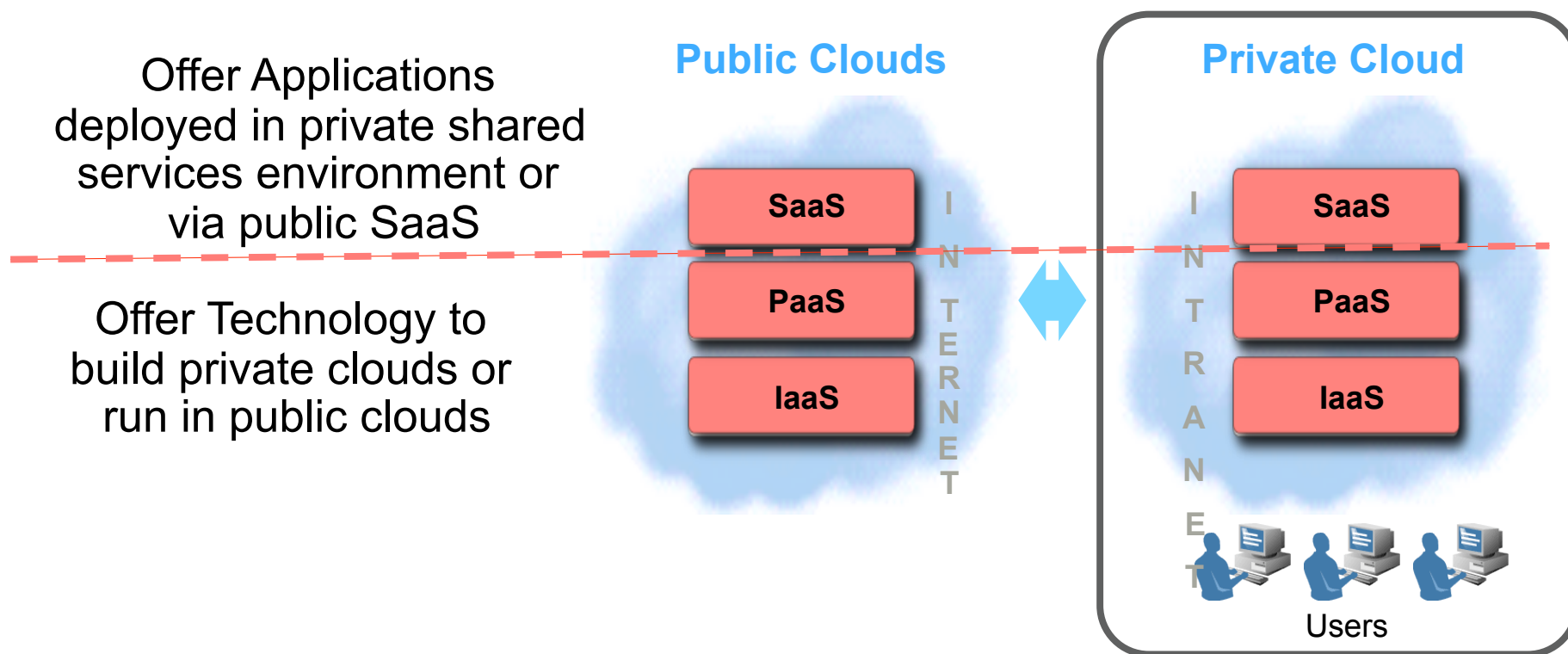
## Private Cloud Evolution



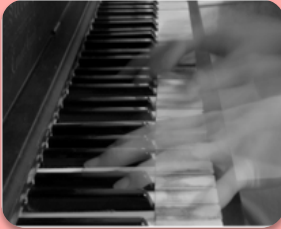
# Oracle Cloud Computing Strategy

## Our objectives:

- Ensure that cloud computing is fully enterprise grade
- Support both public and private cloud computing – give customers choice



# Customer Requirements as Part of Virtualization Adoption



## Operational Efficiency

- Simplified Self-Service Access
- Programmatic Configuration



## Deployment Efficiency

- Standardized Building Blocks
- Automated Provisioning



## Runtime Efficiency

- Improved Performance
- Lower Cost

**Oracle VM**



# Evolving Data Center Needs & Virtualization Requirements Now Beyond “Just” Consolidation

- Virtualization for server consolidation is no longer sufficient
  - Saves capital expenses, but does not adequately reduce operational cost and complexity
  - Insufficient application insight to ensure service levels are met
  - Does not “package” / reuse full stack knowledge
  - Large, manual customization effort remains up the stack
- Users are now looking for a “cloud” experience from IT:
  - Rapid service (not just OS) provisioning...
- Objective: “Start browser, start using requested software”
- **Now: Virtualization’s capabilities need to be integrated to facilitate deployment and management of complete stacks**



# Why the Virtualization Choice Matters: It's Increasingly About Application Knowledge

- The goal is not “virtualization” itself
- The goal is to make deployment of complete environments faster, easier, and more efficient
  - Increasing the efficiency of the business for end-users
- Virtualization must enable the entire stack to be..
  - Easier to **DEPLOY**
  - Easier to **MANAGE**
  - Easier to **SUPPORT**
- Doing this well means VMs can no longer be “black-boxes” to the virtualization and management
  - Integration of application awareness becoming critical

# Oracle VM Manager

## Virtualization Management: Included

- **Oracle VM Manager**

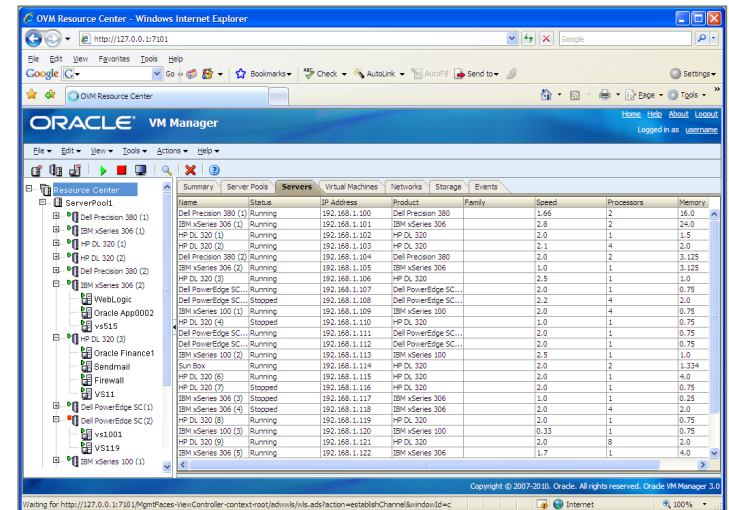
- Centralized, web browser-based console
- Advanced virtualization management for x86/x64 environments including

- VM Live Migration
- HA / auto-restart
- Load balancing...

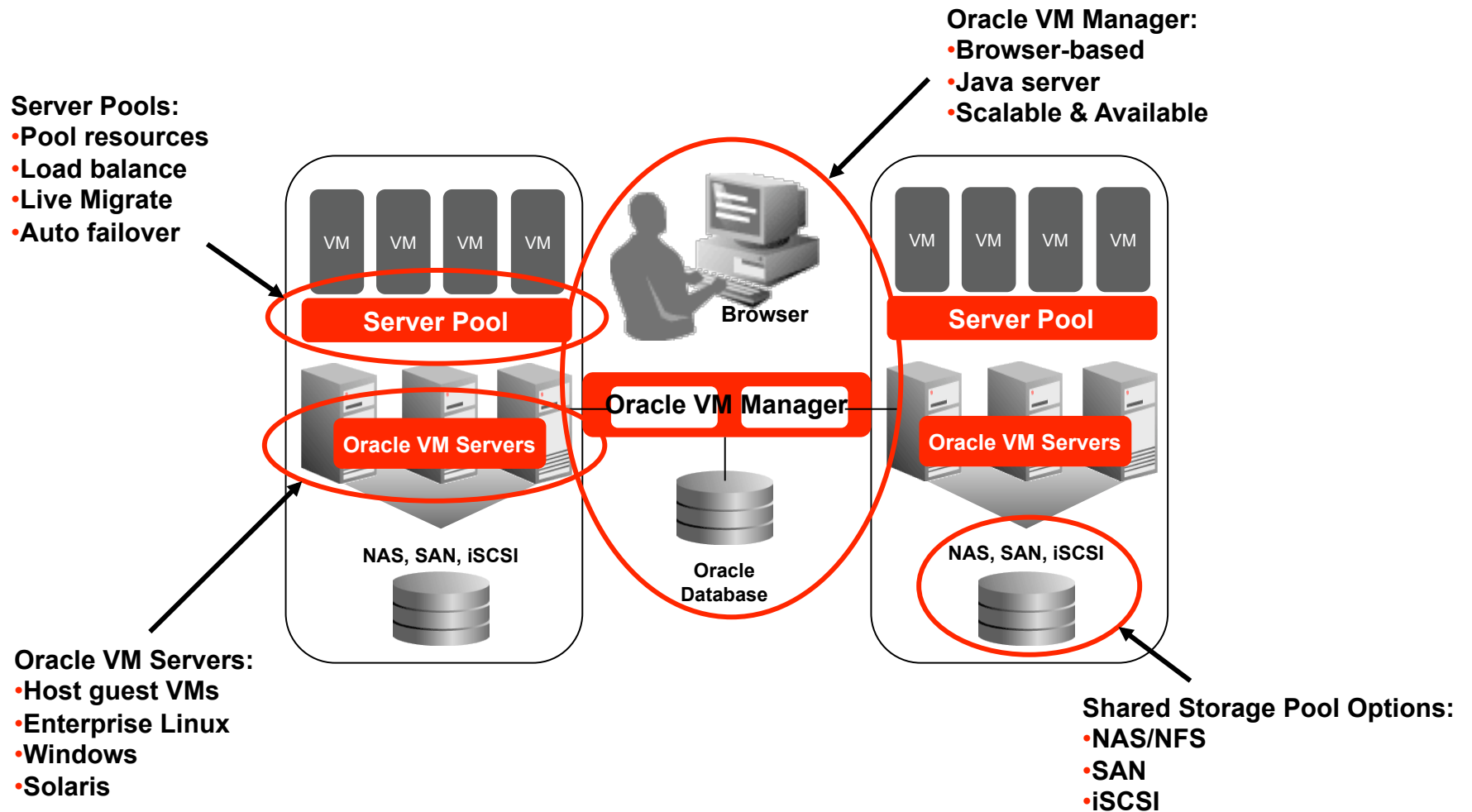
- Available stand-alone or as an integrated Enterprise Manager Pack

- **Oracle VM Server**

- Installs on “bare-metal” servers in about a minute
- Supports Linux, Windows and Solaris virtual machines



# Oracle VM: Concepts Overview



# Oracle: Application Aware Virtualization

## Full Stack Data Center Virtualization



- Most comprehensive
- Fully tested with applications
- Designed for full stack deployments
- Integrated, full stack management
- Integrated support

Taking you beyond consolidation...

Oracle provides a more **COMPLETE** solution

**Oracle Virtual  
Assembly Builder**

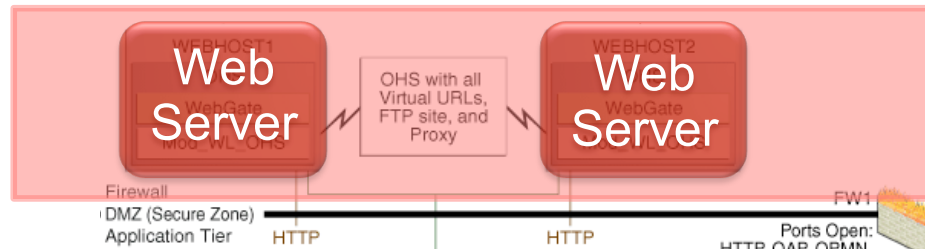


## Some Target Use Cases for Virtualized Deployment

- Development Farm
  - Developers require access to their own environment
    - E.g. SOA Suite, Service Bus, DB
  - Setup requires corporate standard configuration
  - Repeatedly configure dozens such environments into VMs
- Shared Services Environment
  - Application teams require custom platform environments
    - WebLogic Server, BPM, SOA Suite, etc.
  - IT prescribes corporate std. components and configurations
  - Deployment topology scaled to different sizes (S – M – L) as collection of VMs

# Typical Deployment Topology for Oracle SOA Suite

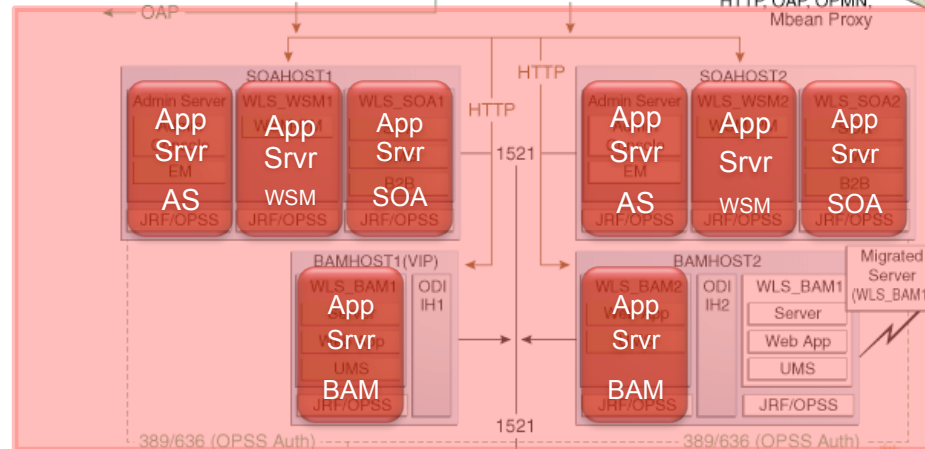
Web Tier



2 nodes

+

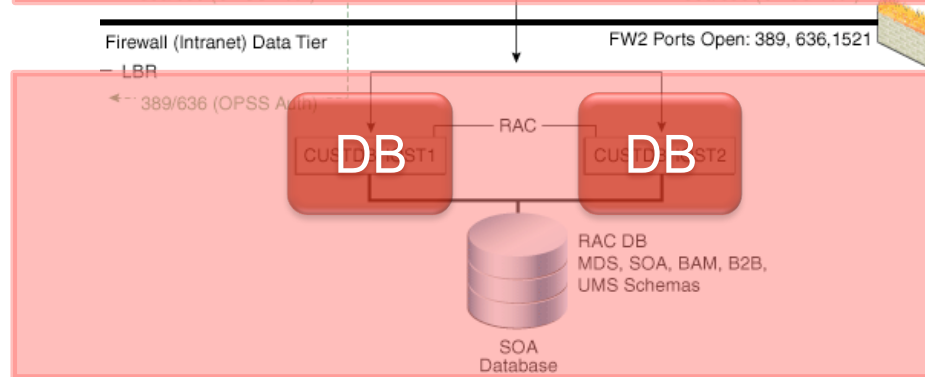
Application Tier



8 nodes

+

Data Tier



2 nodes

---

12 nodes

# Challenges in Configuring and Deploying New Application into Virtualized Environment

1 to 3 weeks



Provision virtualized resources

Install & configure OS and all platform software

Create / customize OS to "automate" process

Use scripts or manually configure all software components to create platform environment

Integrate and test complete end-to-end platform environment

Deploy application

1-5 days

1-2 days

1-5 days

.5 day

1-2 days

.5 day



# Slash Total Configuration and Deployment Time

## Separate One Time Actions from Repeated Actions

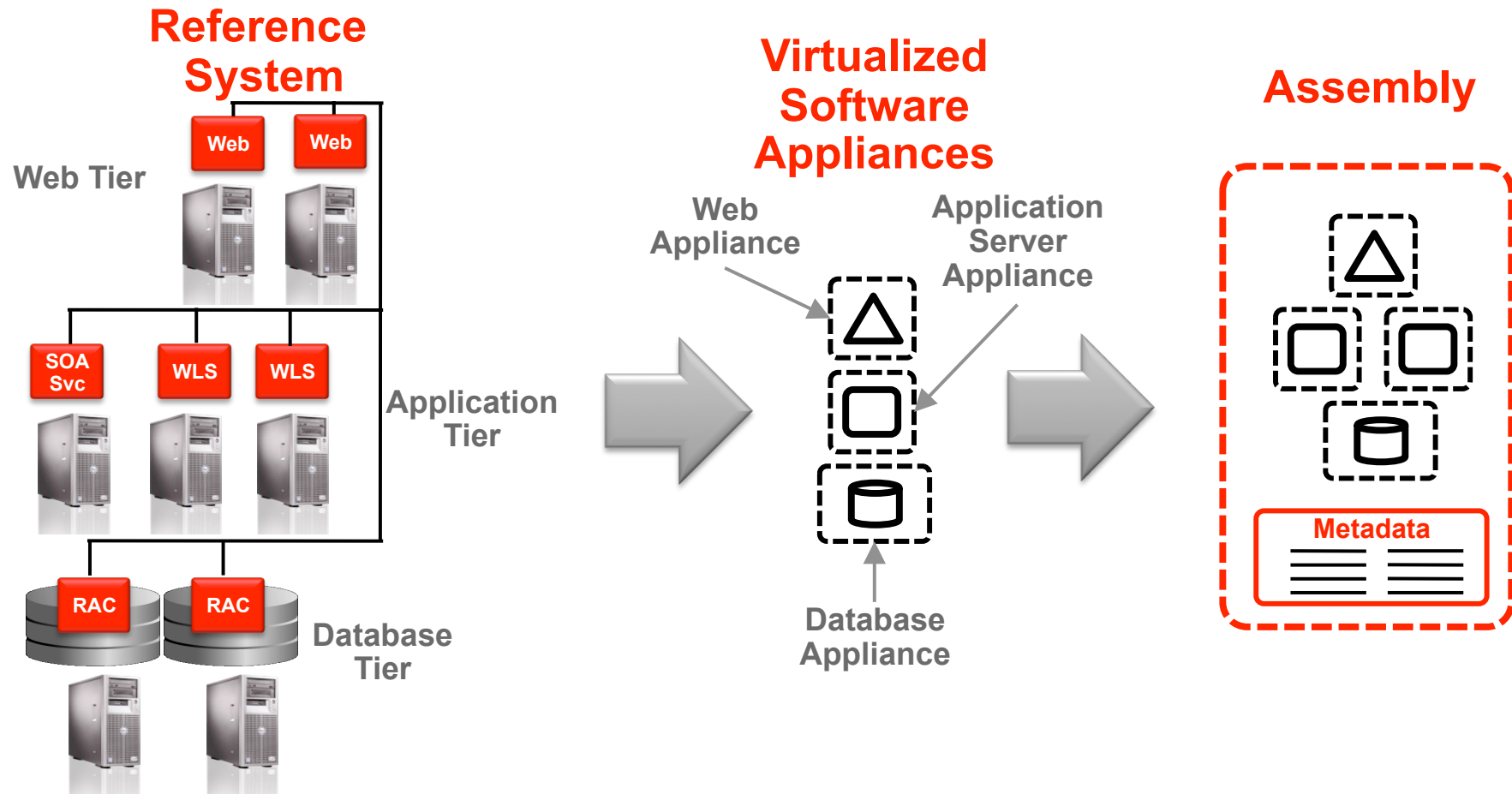
### One Time Effort

- **Standardize**
  - Create self-contained software appliances
  - Eliminate customized one-offs and configuration errors
- **Templatize**
  - Create configurable blueprints for entire application topology
  - Simplify repeatable process for predictable outcomes

### Repeated Activity

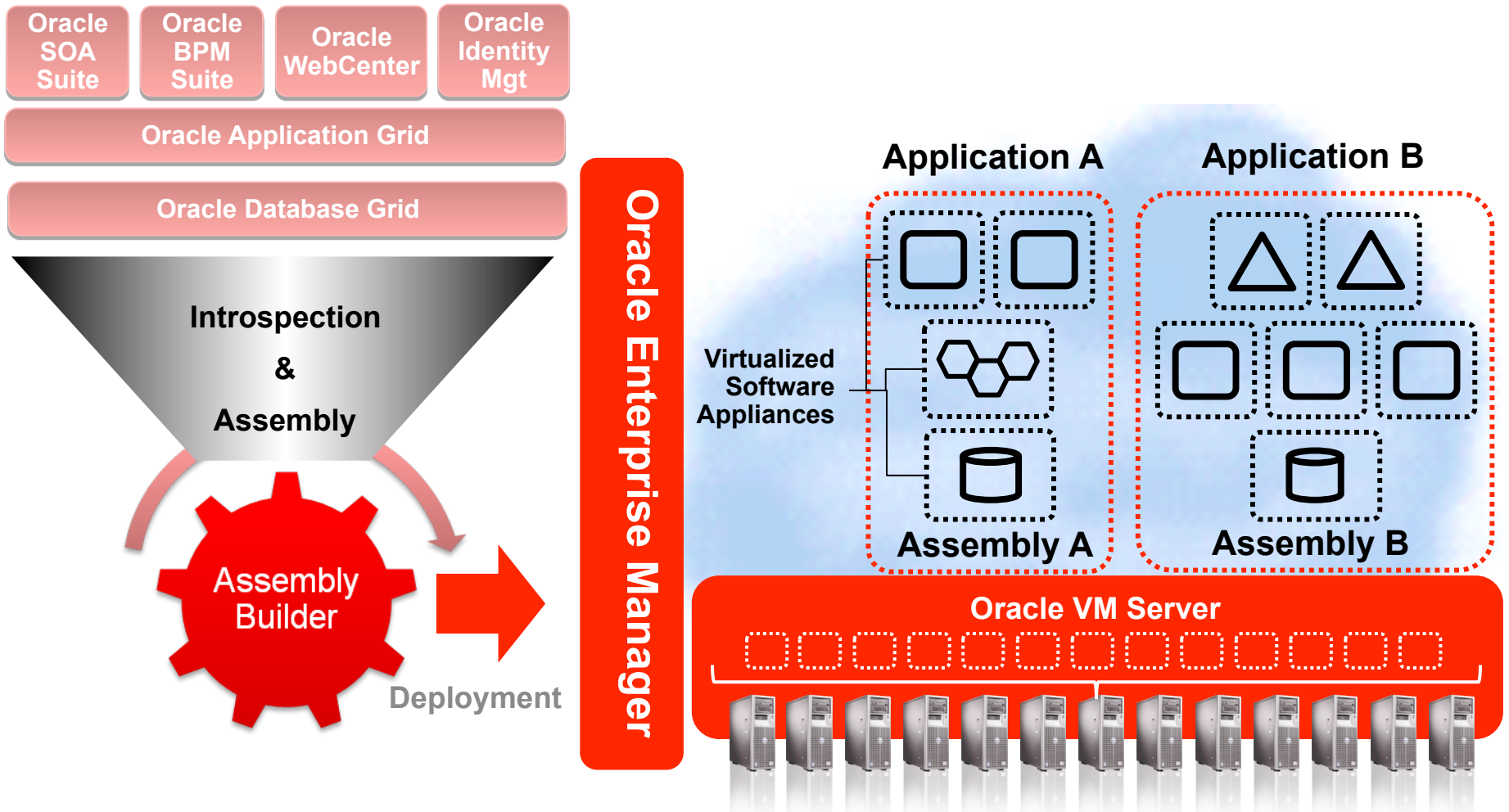
- **Automate**
  - Orchestrate deployment and configuration of all components
  - Reduce manual oversight and expert administration

# Transform Complex Multi-Tier Applications into Templated Building Blocks



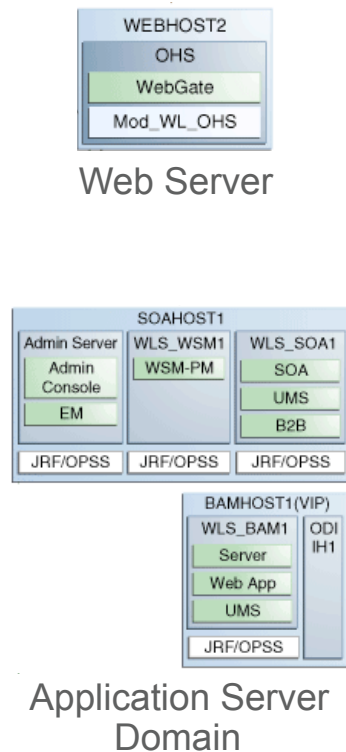
# Oracle Virtual Assembly Builder

## Package Multi-Tier Applications

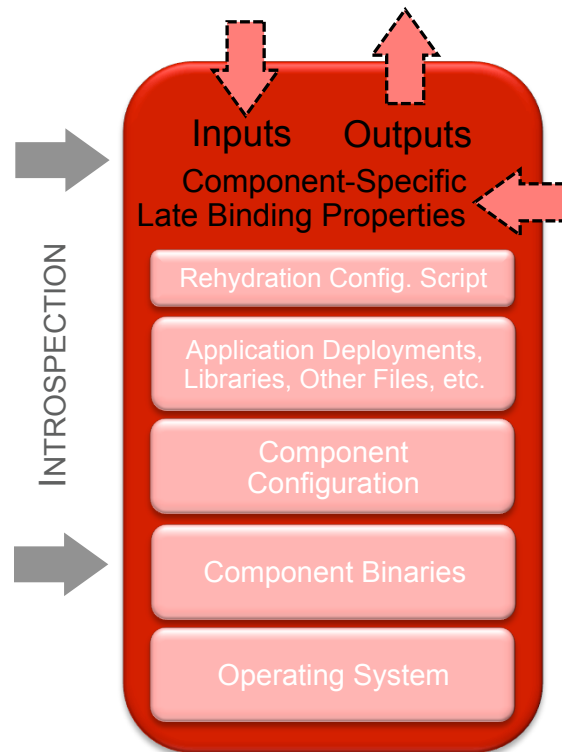


# STANDARDIZE: Appliances

## Reference Installation

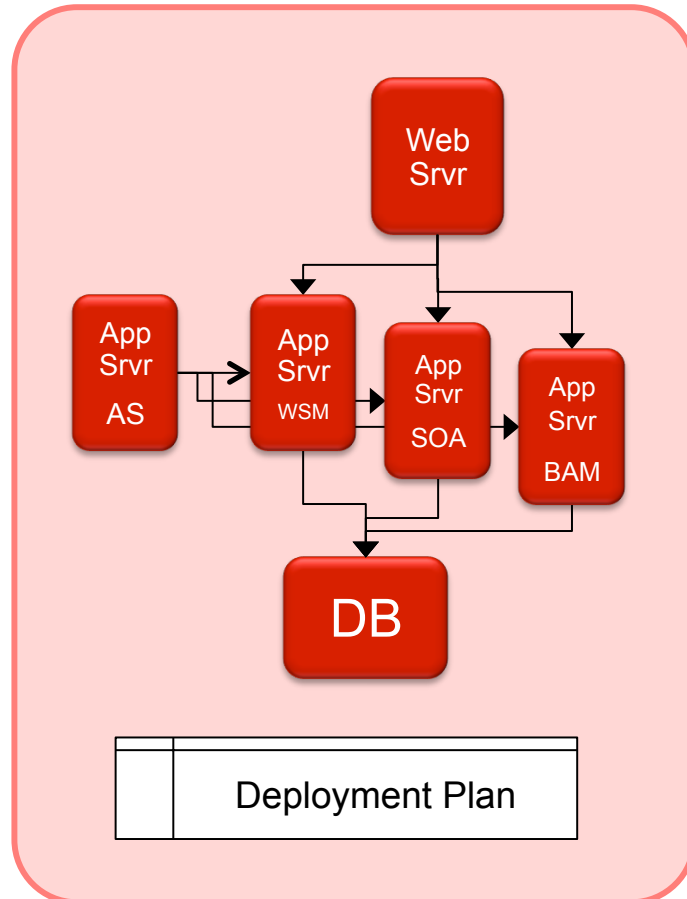


## Appliances



- Application-aware P2V
- Self-contained virtual disk images with all s/w to run single instance of a single component
- Customize base OS distrib.
- Component configuration and libraries from reference system captured during introspection
- Configurable properties set at deployment time
- Automatically packaged for target virtual platform

## TEMPLATIZE: Assemblies



- Blueprint describing complete multi-tier application topology
- Collection of all interrelated appliances
- Start-order dependencies
- Allow connection to external resources from appliances (e.g. DB, LDAP server, mail server, web services endpoints, etc.)
- Customize deployment properties for all appliances using Deployment Plan
- Treated as a single deployment unit

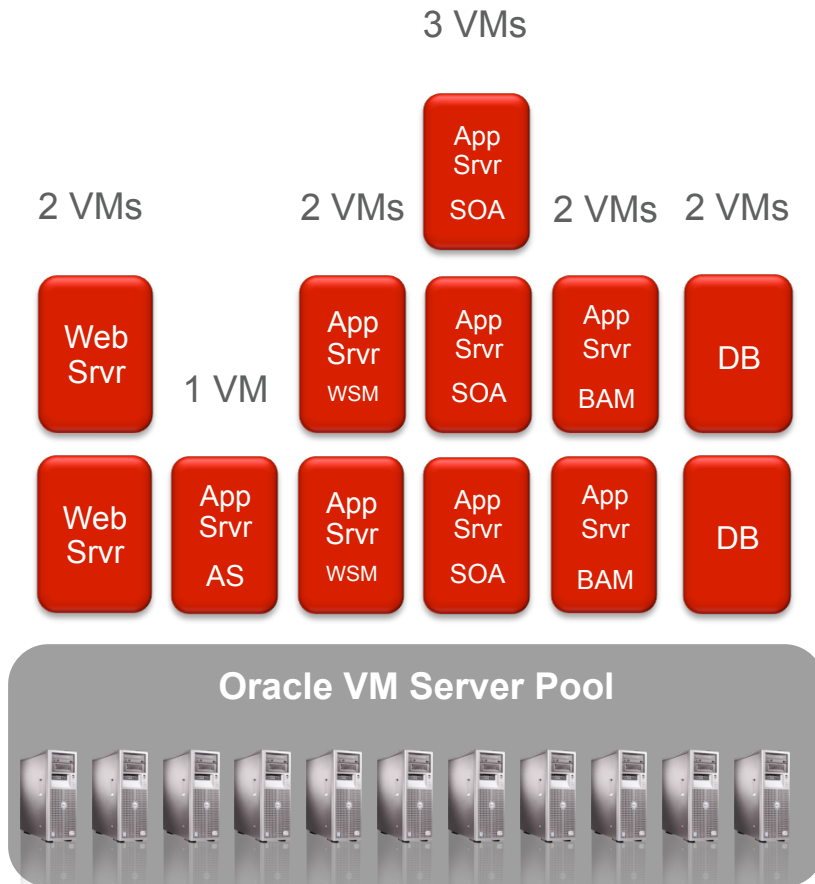


## TEMPLATIZE: Deployment Plans

	<p>Appliances</p> <ul style="list-style-type: none"><li>• Scaling<ul style="list-style-type: none"><li>• Min, Max, Initial</li></ul></li><li>• VM Properties<ul style="list-style-type: none"><li>• CPU, Memory</li></ul></li><li>• Component Properties<ul style="list-style-type: none"><li>• JDBC, etc.</li></ul></li><li>• Networking Properties<ul style="list-style-type: none"><li>• IP address</li></ul></li><li>• User Properties<ul style="list-style-type: none"><li>• Login, Passwords</li></ul></li></ul>

- Overrides for configurable properties for all appliances
- Multiple deployment plans for same assembly
- Use CLI commands to script assembly deployment with different deployment plans

# AUTOMATE: Orchestrated Deployment

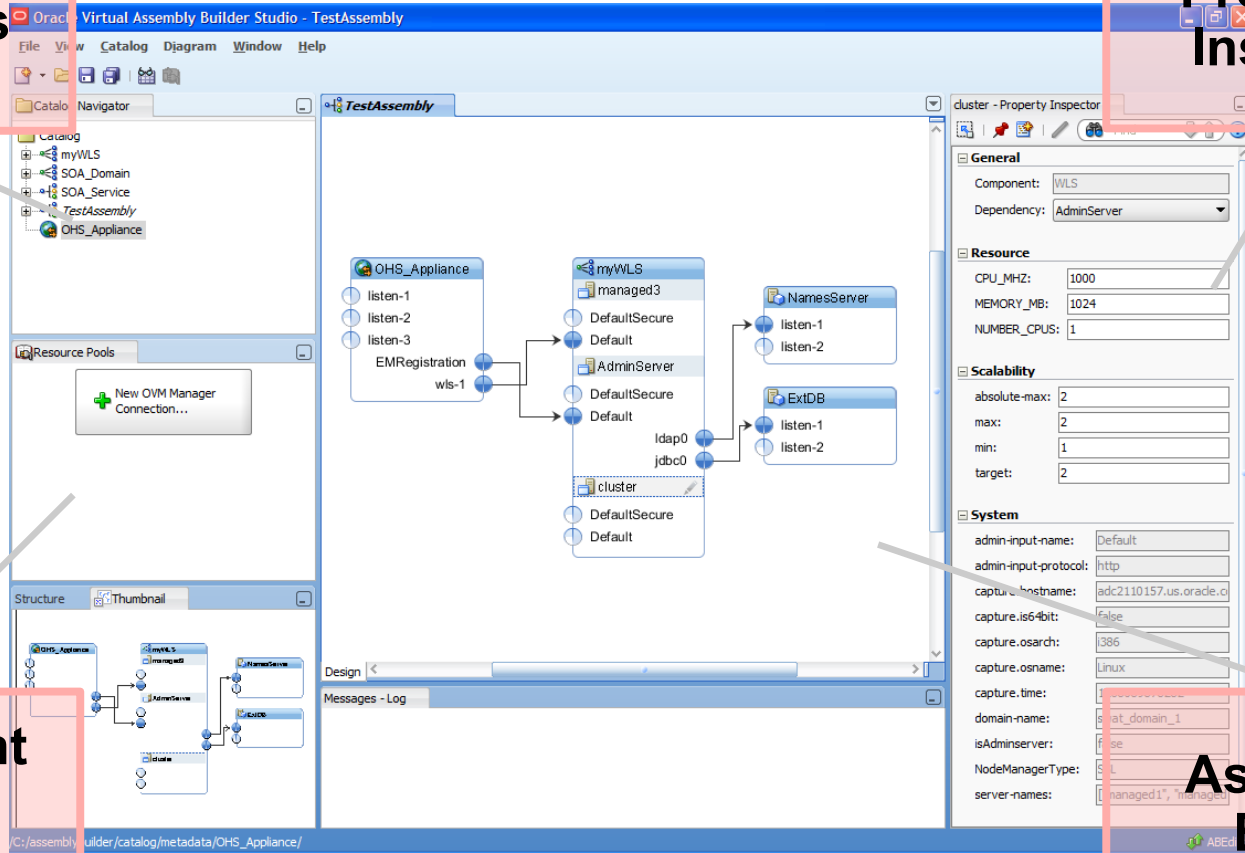


- Deploy and configure collection all VM instances within assembly with single command
  - Start specified number of instances for all appliances
  - Establish defined relationships between appliances
- VM lifecycle
  - Stage → Prepare → Start
- Software lifecycle within each VM
  - Use properties from Deployment Plan
  - Start OS → Configure OS → Configure networking
  - Start component → Configure component
  - Apply properties picked up from other appliances
  - Listen for component-specific “ready metric”

# Oracle Virtual Assembly Builder Studio

Assemblies,  
Appliances  
Catalog

Properties  
Inspector



Deployment  
Resource  
Pools

Assembly  
Editor

**Summary**



## Summary

- Server virtualization provides flexibility and resource efficiency... but it's not enough
- Improve operations efficiency by creating standardized building blocks for application components
- Create a repeatable process for configuring and deploying complete application infrastructure
- Automate the process

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**SOFTWARE. HARDWARE. COMPLETE.**