



VMware LabManager 3 Technical Deep Dive

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VMware Lab Manager Overview

VMware Lab Manager is the industry-standard virtual lab automation system

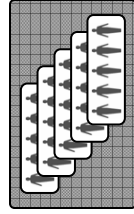
How are customers using VMware Lab Manager?

- ❑ **Application Development and Test**
 - ❑ Self-service portal for development and test configurations
 - ❑ Automated test and build execution
- ❑ **Support and Helpdesk Operations**
 - ❑ Capture customer environments to troubleshoot and resolve defects
 - ❑ Quick access to library of released images
- ❑ **Training and Education**
 - ❑ Virtual machines images for hands-on exercises
- ❑ **IT Operations**
 - ❑ Testing of OS patches and application updates
- ❑ **Demos**
 - ❑ On-demand provisioning of demo environments

Design Goals of VMware Lab Manager 3.0



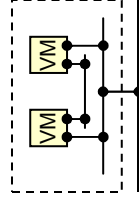
- More tightly integrate with VMware VirtualCenter and the VMware Infrastructure platform



- Support multiple teams, projects and sites with a single installation



- Provide configurable user roles and access rights



- Enable powerful new use cases with advanced system and network configurations



- Add various platform improvements

New Features in VMware Lab Manager 3.0

VirtualCenter Integration

- ❑ DRS, VMotion, HA support
- ❑ Leverage Resource Pools
- ❑ Auto-install of Agent
- ❑ Easy import of VMs from VC

Multiple Organizations

- ❑ Roles and Rights
- ❑ LDAP Group Support
- ❑ Improved Sharing Model
- ❑ Org-aware Notifications and Alerts

Platform Improvements

- ❑ “Gold Master” Library
- ❑ Forced Deployment Modes
- ❑ Storage Utility

Multiple Networks

- ❑ Multiple NICs, Nets, Subnets
- ❑ Multiple Physical Nets and VLANs
- ❑ Configuration Combining, Splitting, and Selective Deployment
- ❑ Directed Deployment

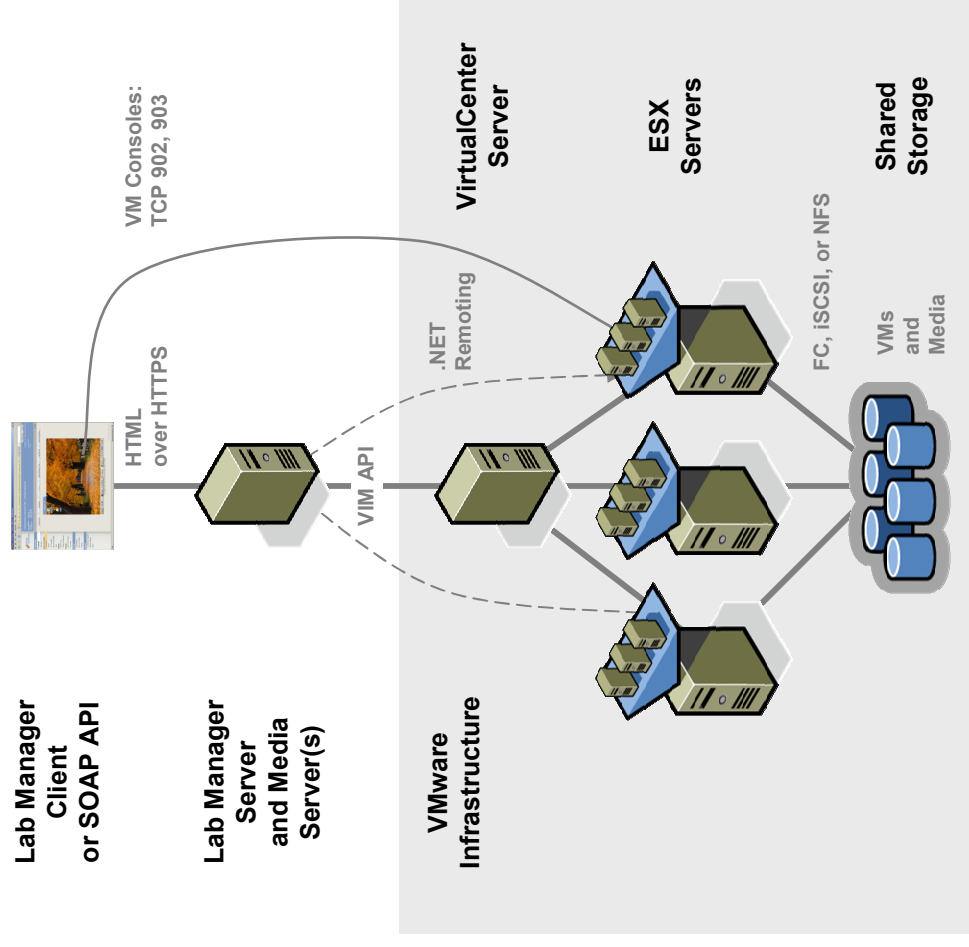
Infrastructure Improvements

- ❑ AJAX interface
- ❑ Guest Personalization
- ❑ Full Clone VMs
- ❑ BEA LiquidVM Guests
- ❑ Upgrade path from LM 2.4, 2.5
- ❑ SOAP API

VirtualCenter Integration

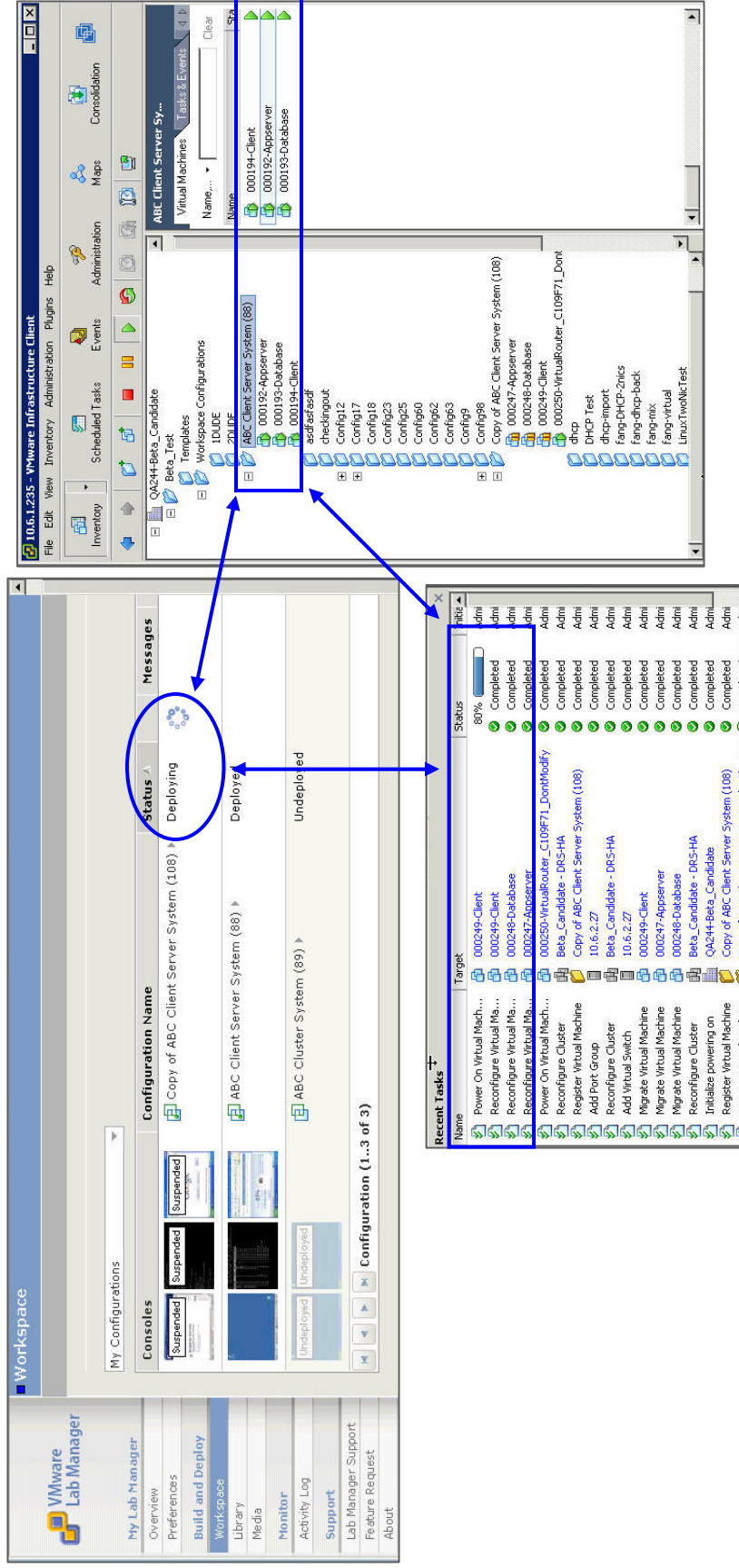
All Lab Manager 3 activity is registered in VirtualCenter

- ❑ Leverage resource pools that are DRS, HA, and VMotion enabled
- ❑ Lab Manager VMs are organized appropriately in VirtualCenter
- ❑ Agent is auto-installed by LM and VC
- ❑ Lab Manager can import VC VMs directly



VirtualCenter Integration in Action

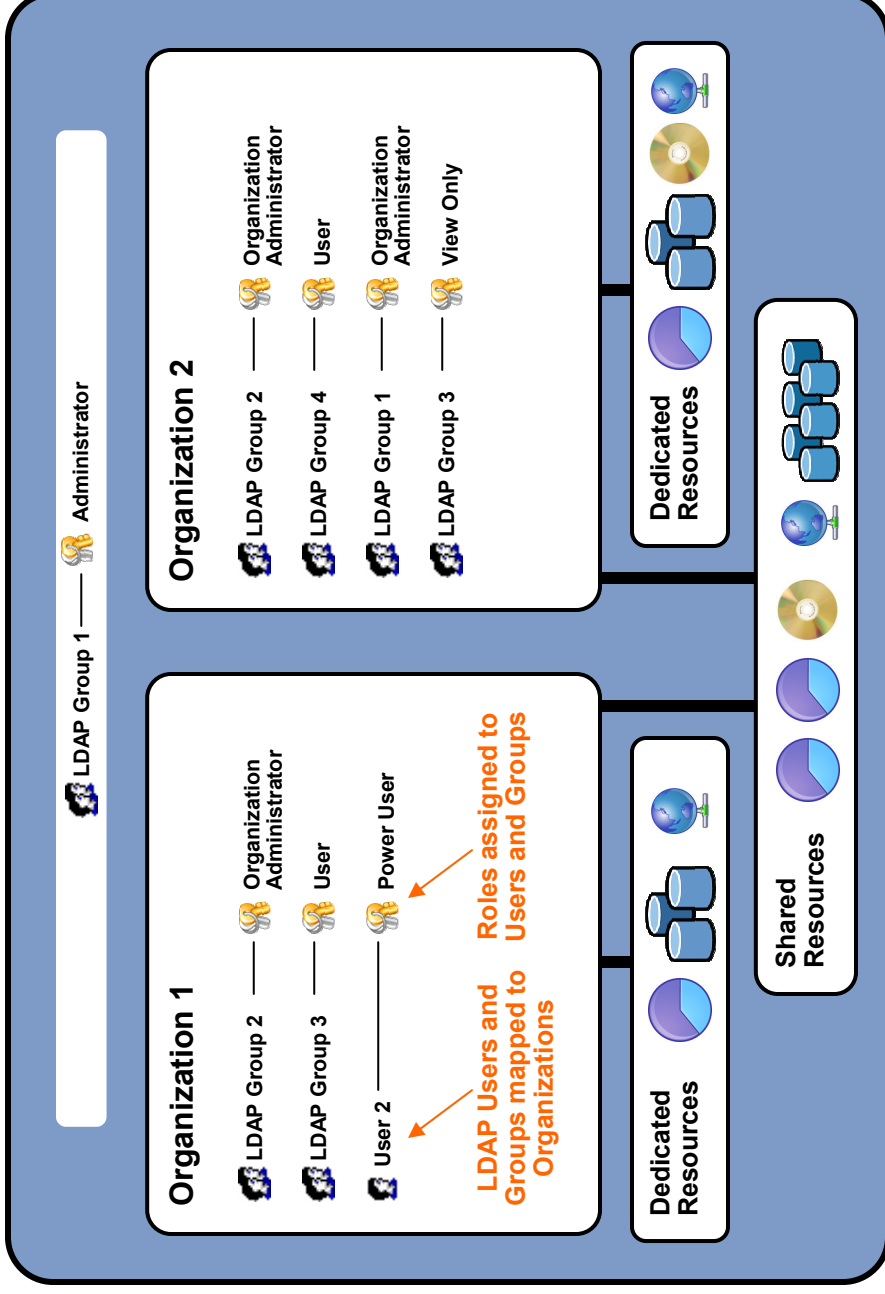
Lab Manager configurations are displayed as VirtualCenter folders, and Lab Manager operations are visible in the VirtualCenter task list.



Multiple Organizations

Allow multiple groups to use the same Lab Manager installation and have separation of entities and resources

Lab Manager Installation



LDAP Directory

- User 1
- User 2
- User 3
- User 4
- User 5
- LDAP Group 1
- LDAP Group 2
- LDAP Group 3
- LDAP Group 4

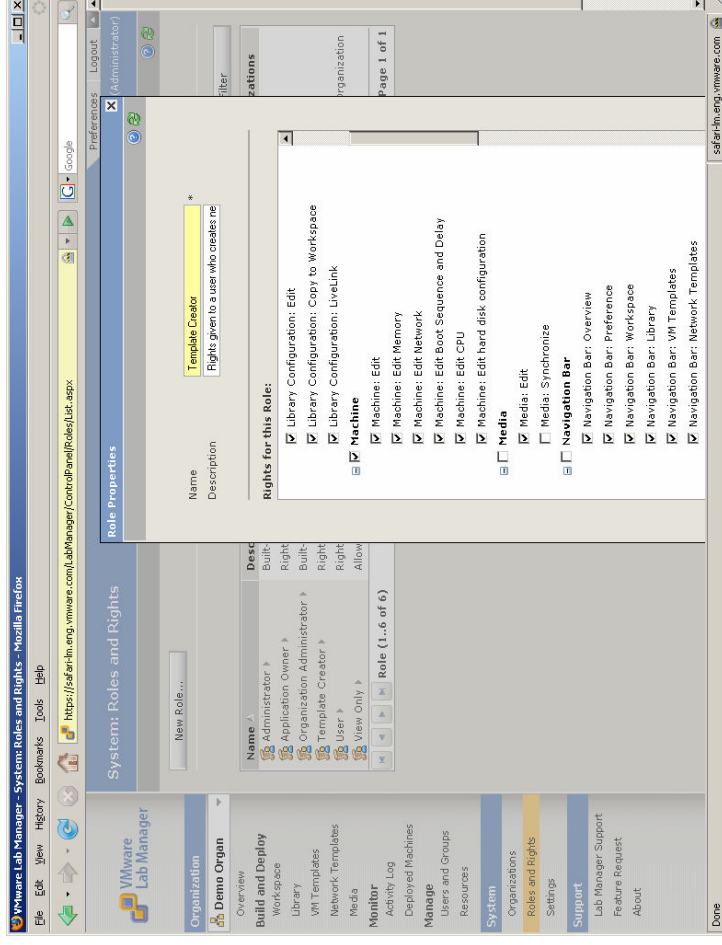
Roles and Rights

Pre-defined Roles

- Administrator
- Organization Administrator
- Application Owner
- Template Creator
- User
- View Only

Roles are a basket of Rights

- Over 50 rights
- View Create, Edit, Delete on objects and their properties

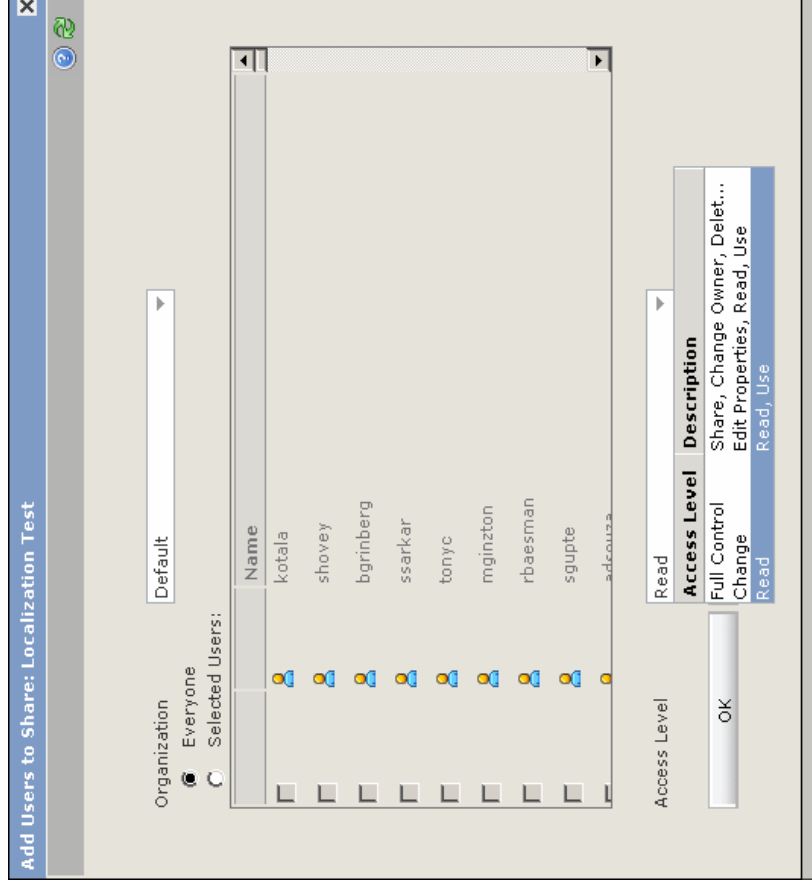


Sharing Model

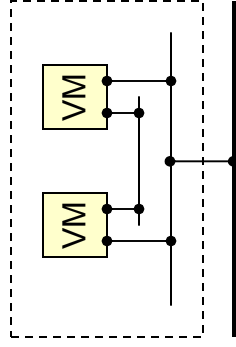
- More granular sharing
 - One or more users
 - One or more organizations
 - The entire installation

Sharing Access Levels

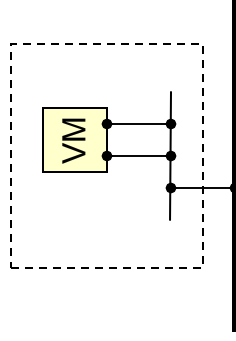
- Read
- Change
- Full Control



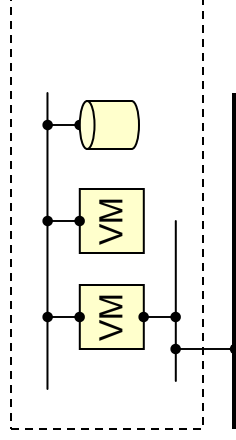
Multiple NICs, Networks, Subnets



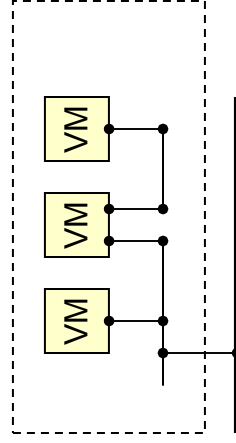
Cluster Heartbeat



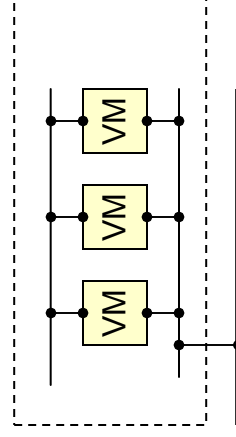
Failover NIC



Backup over a backup network



Firewall Testing



Load Balancing

Configuration Diagram

Visualize networks and network connections

The screenshot displays the VMware Lab Manager interface. The browser address bar shows the URL: <https://safari-lm.eng.vmware.com/LabManager/ControlPanel/Configurations/ConfigurationDetail/Overview.aspx?id=1069>. The page title is "Configuration: Version 2.3- Cluster" and the last job is "Deployed Configuration Version 2.3- Cluster (1069)(7/18/2008 8:12:42 AM)".

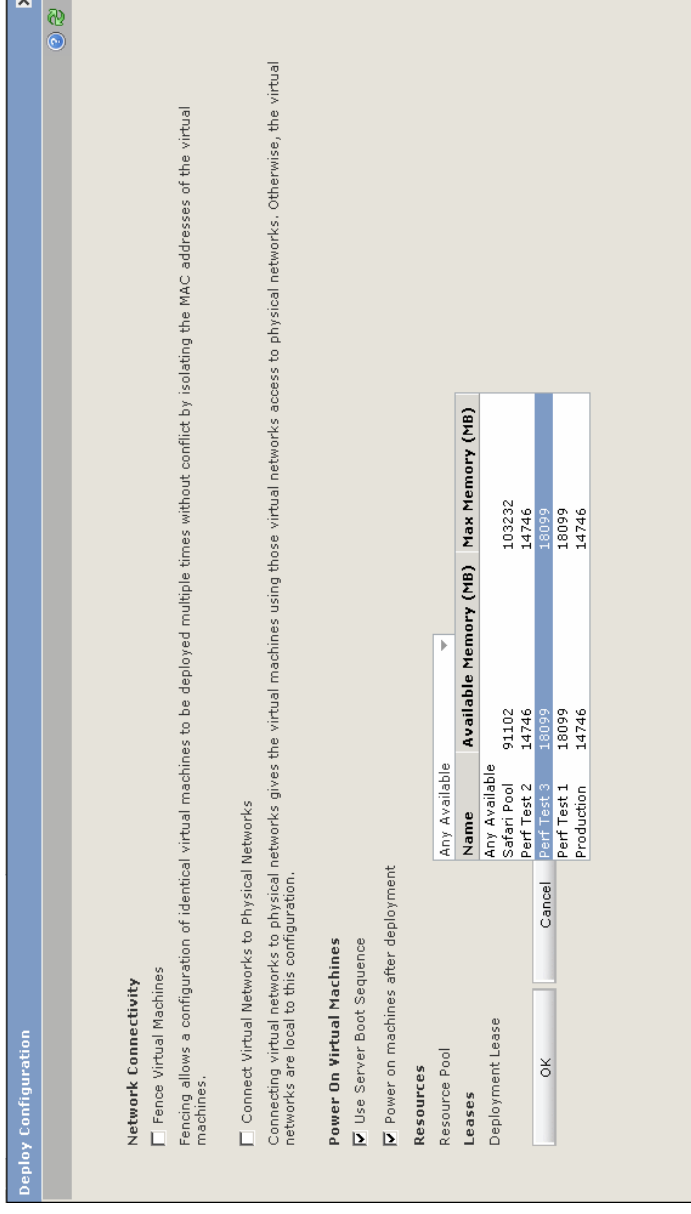
The main content area shows a "Configuration Diagram" for "Version 2.3- Cluster - Unfenced". The diagram illustrates a cluster of three servers: "Client", "Server-1", and "Server-2". Each server is connected to two networks: "Heartbeat Network" (green line) and "Lab Network" (blue line). The connections are as follows:

- Client is connected to both Heartbeat Network and Lab Network.
- Server-1 is connected to both Heartbeat Network and Lab Network.
- Server-2 is connected to both Heartbeat Network and Lab Network.

The VMware Lab Manager navigation menu includes: Overview, Build and Deploy, Workspace, Library, Media, Monitor, Activity Log, Support, Lab Manager Support, Feature Request, and About.

Directed Deployment

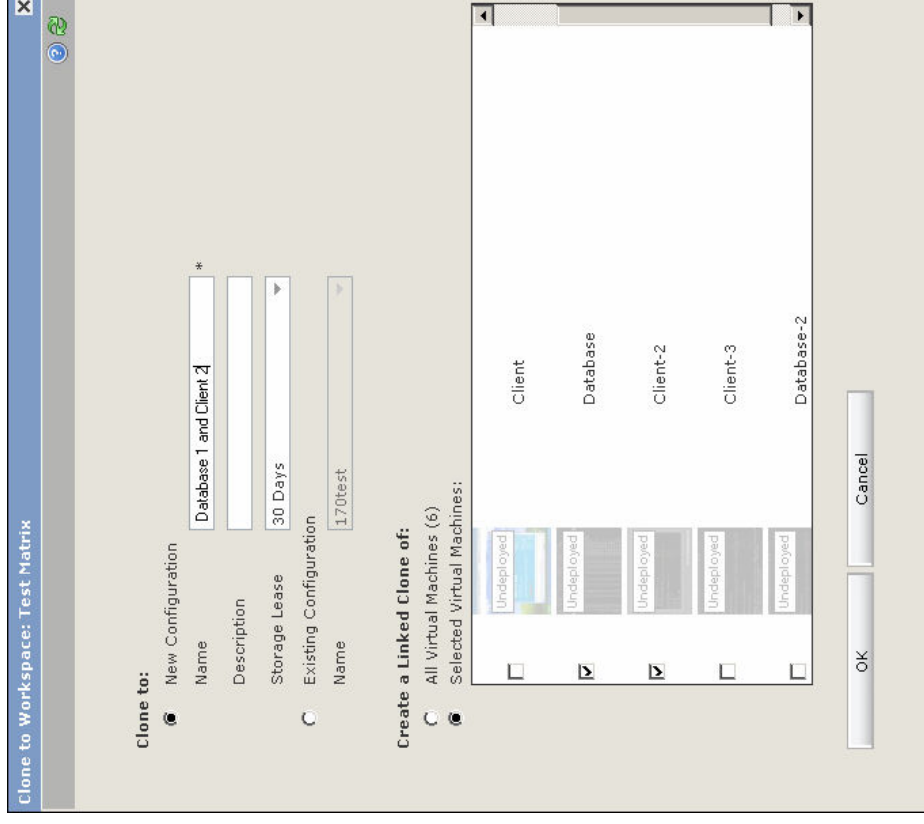
You can now direct machines to specific resource pools for performance testing, hardware dependencies, or other reasons



Selective Deployment

The library can now store a set of statically IP'd machines intended to work together, and you can deploy a subset of those machines.

Allows efficient creation of test matrices in Lab Manager



Configuration Combining and Splitting

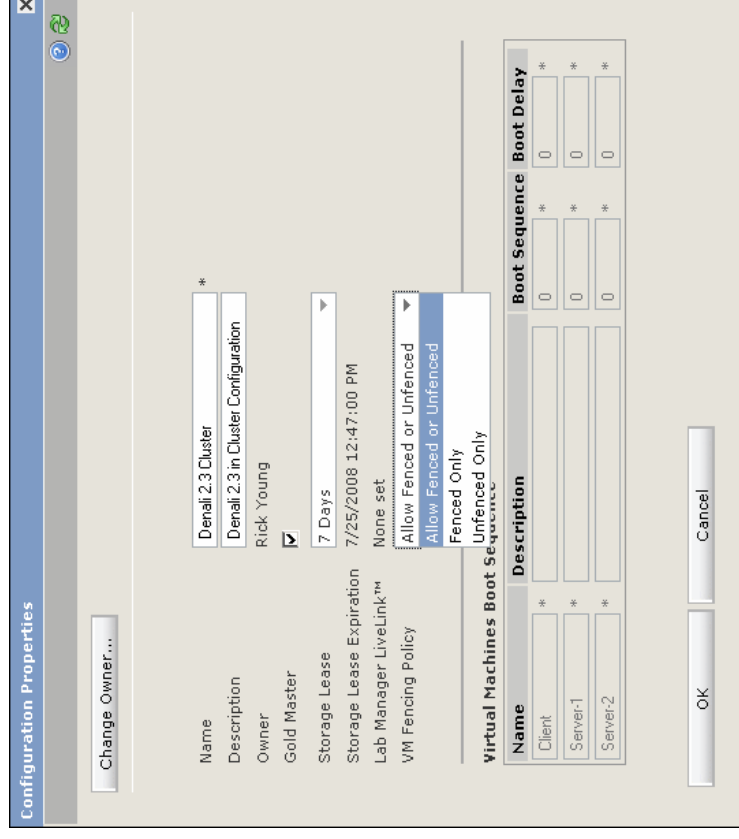
The library can be used to combine and split configurations.

In this way, you can easily mix and match VMs that are stored in the library to put a development VM in a configuration or a new version of an application in with an old client...

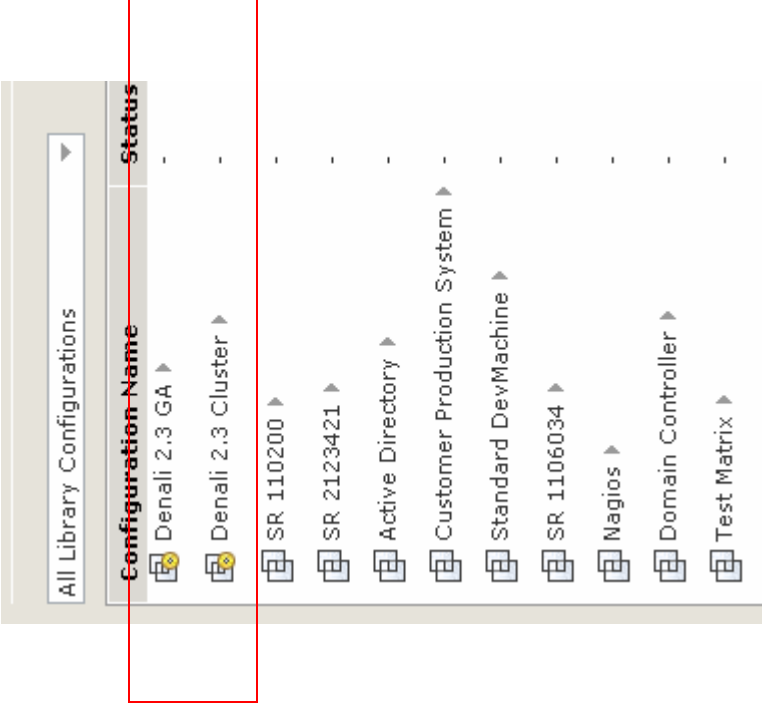


Forced Deployment Modes

Users with appropriate rights can now force a configuration to be deployed either fenced or unfenced.



Gold Master Library



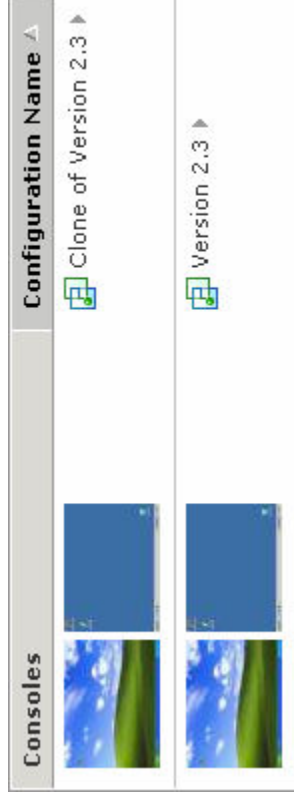
Configuration Name	Status
Denali 2.3 GA ▶	-
Denali 2.3 Cluster ▶	-
SR 110200 ▶	-
SR 2123421 ▶	-
Active Directory ▶	-
Customer Production System ▶	-
Standard DevMachine ▶	-
SR 1106034 ▶	-
Magios ▶	-
Domain Controller ▶	-
Test Matrix ▶	-

Gold Master library entries help users determine reference configurations and reduce system maintenance

Linked Clones or Full Clones

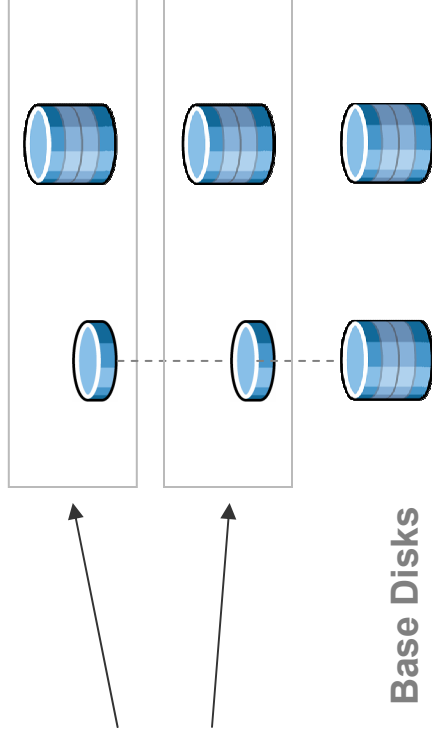
Lab Manager now allows creation of VMs using either linked clones or full clones allowing appropriate choice for differing use cases (time/resource savings vs. better sustained write and compatibility with things like VCB)

Lab Manager



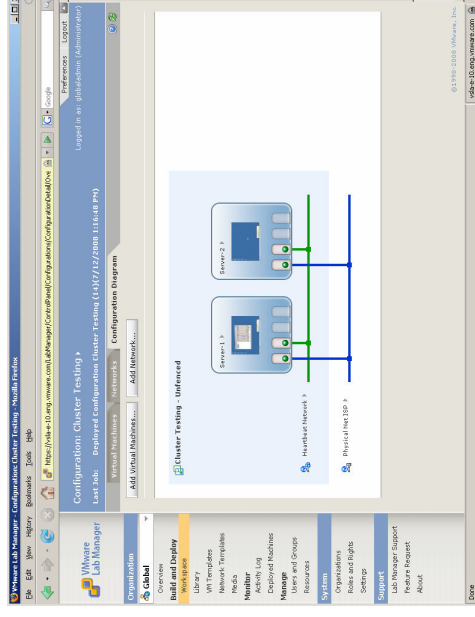
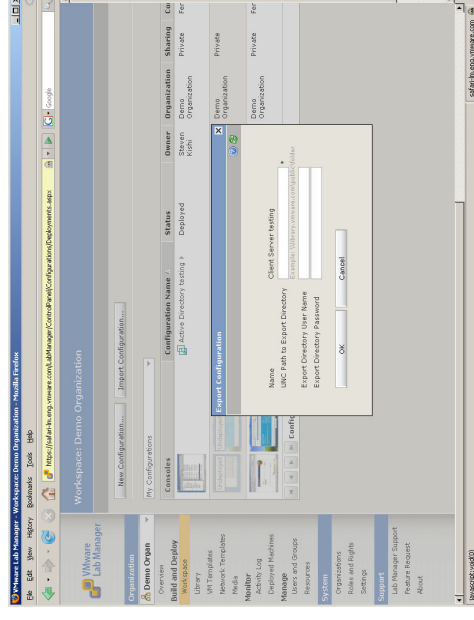
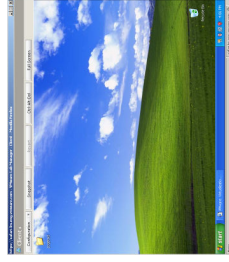
VMDK Files

Linked Clone Full Clone



Improved User Interface

- ❑ AJAX provides a more interactive and sophisticated user interface
- ❑ Configuration Diagram allows visualization of network topology
- ❑ Pop-out/ Full-Screen Consoles



LM2 to LM3: VirtualCenter Integration

	Lab Manager 2	Lab Manager 3
Unit of Management	ESX host	Resource Pool
Modification of LM VMs in VirtualCenter	No	Yes
VirtualCenter Folder View	No	Installation and configuration level folders
VM Distribution Routine	LM only	LM or DRS
VM Availability	Redeploy (lose state)	HA
Maintenance	Redeploy All	Redeploy All or VMotion
Agent Install	Manual	Auto-Installed
Ability to import from VirtualCenter inventory	No	Yes

LM2 to LM3: Organizations, LDAP, Security

	Lab Manager 2	Lab Manager 3
Organizations (resource partitioning, user partitioning)	One	One or more
Authentication Directory and Granularity	Active Directory	Active Directory Open LDAP LDAPS
Authorization	LDAP User Non-LDAP User	LDAP User LDAP Group Non-LDAP User
Sharing	Admin or User	6 Default Roles/ Custom Roles Over 50 Rights
	Private or Public	Sharing With: - Installation - Organization - User Access Levels: - Full Control - Change - Read

LM2 to LM3: Networking

	Lab Manager 2	Lab Manager 3
NIC count per VM	1	0 up to 4
Physical Network	1	zero or more
IP Pool	1	one per network
Virtual Network	Not supported	zero or more
NIC connectivity	<ul style="list-style-type: none">- Direct to physical- Fenced	<ul style="list-style-type: none">- Direct to physical- Fenced- Configuration Local- Virtual to Physical- None (no network)
NIC state	Always connected	Allow connect/disconnect
Network settings	User-supplied	Supplied by network
Customization	On first deploy	On any deploy when settings have changed or at will

LM2 to LM3: Supported Infrastructure

	Lab Manager 2	Lab Manager 3
Managed Servers	ESX 3.0.x, ESX 3.5	ESX 3.5 U1/ VC 2.5 U1
Media Servers	SMB, NFS	NFS, VMFS
Storage	VMFS, NFS, iSCSI	Same
Network	One physical network	Any number of physical networks, VLANs
Server OS	Microsoft Windows Server 2003	Same
Database	MSDE	Microsoft SQL Server 2005 Express
Guest Personalization	Through Guest OS user space (LM Tools)	Through VMware Tools service (most OSses) Through Guest OS user space (legacy OSses)