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# NetApp Rapid Cloning Utility (RCU)

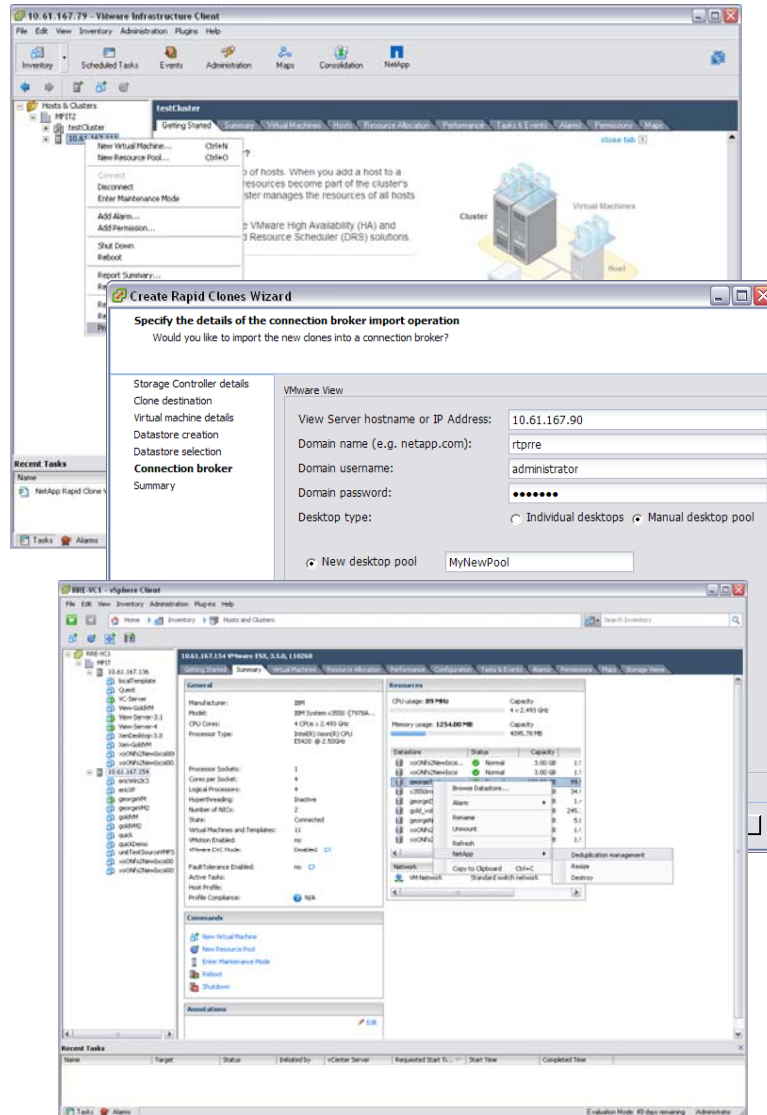
Internal Training

August, 2009





# Overview – Rapid Cloning Utility (RCU) 2.1



- Integrated cloning utility for VMware® virtual machines
- vCenter plugin
- Requires FlexClone license - utility is provided free of charge
- Key new features in version 2.1
  - iSCSI & FC support (in addition to NFS)
  - Datastore provisioning wizard and resizing
  - Incorporate deduplication – option to enable dedupe on datastores
  - Automated import wizard into View Manager
  - XenDesktop import
- Additional key features
  - File-level, LUN-level and Volume-level FlexClone for efficient and rapid cloning
  - Automatic guest customization
- All FAS, V-Series, and N-Series



# Highlights NetApp Value Propositions

## Storage Efficiency

- Spend 50% less on storage

## Operational Agility

- Provision 1000's of VMs and storage rapidly from a single pane of glass

## Performance

- Speed up virtual machines with dedupe aware controller cache

## Data Protection

- Maintain continuous access to VMs and applications



# Bridging the Gap

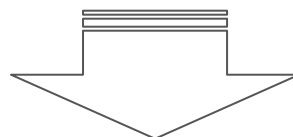
## vCenter Full Clones

- ↑ Management of cloning integrated into vCenter
- ↓ Traditional VMware cloning does full copies

Vs

## NetApp Clones

- ↑ FlexClone is efficient
- ↓ Requires scripting, and not integrated into vCenter workflow



- ↑ RCU 2.1 is a management tool for FlexClone
- ↑ Leverages VMware APIs to closely integrate cloning into vCenter
- ↑ Best of vCenter cloning and NetApp cloning
- ↑ Additional features to enhance management of VMs



## RCU 2.1 Functionalities

- Create rapid virtual machine clones
- Provision iSCSI, FCP and NFS datastores (NEW)
- Resize NFS datastores (NEW)
- Manage deduplication (NEW)
- Display current capacity savings (NEW)
- Programmable API (NEW)
- Destroy VMs, datastores, and storage objects
- Wizard to import virtual machines into VMware View and Citrix XenDesktop (ENHANCED)
- Supports MetroCluster (NEW)



# Demos

- There are four RCU 2.1 demos located at :

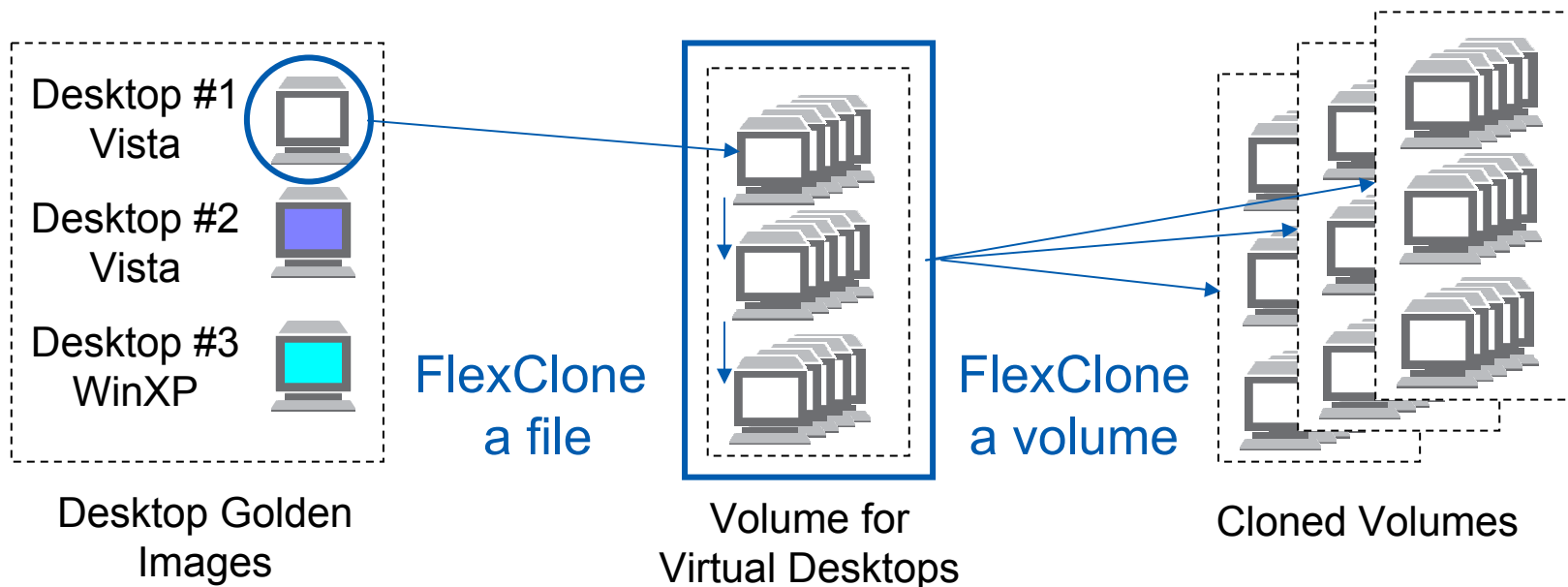
<http://ngs->

[web.corp.netapp.com/service\\_readiness/product\\_ready/products/rcu/rcu\\_2.1\\_npi\\_page.htm#TRAINING](http://ngs-web.corp.netapp.com/service_readiness/product_ready/products/rcu/rcu_2.1_npi_page.htm#TRAINING)

- The four Camtasia videos demonstrate how to :
  - Add and Configure NetApp Storage Controllers
  - Use the datastore provisioning features
  - Use the datastore management features
  - Use the cloning feature



# How Rapid Cloning is Achieved...



- Instant cloning at file and volume granularity
- Flexclone technology minimizes storage use to a single copy



# Different Desktops for Different Workers



## Semi-Customizable Desktops

- VMware – Non-Persistent
- Citrix - Pooled

- ↑ Ease of management (e.g. patch)
- ↑ Lower storage requirement
- ↓ Limited user flexibility

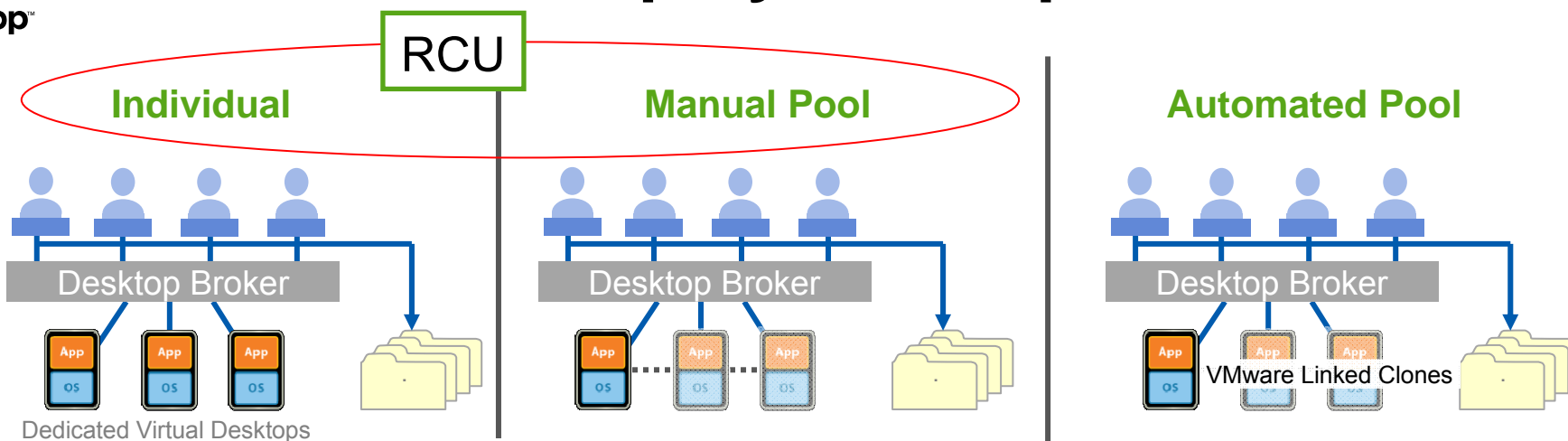
## Customizable Desktops

- VMware – Individual, Persistent
- Citrix - Assigned

- ↑ More freedom for users
- ↓ More storage requirement
- ↓ Patch management more difficult



# VMware View Deployment Options



- Pre-created and populated in vCenter
- Imported into VMware View Manager

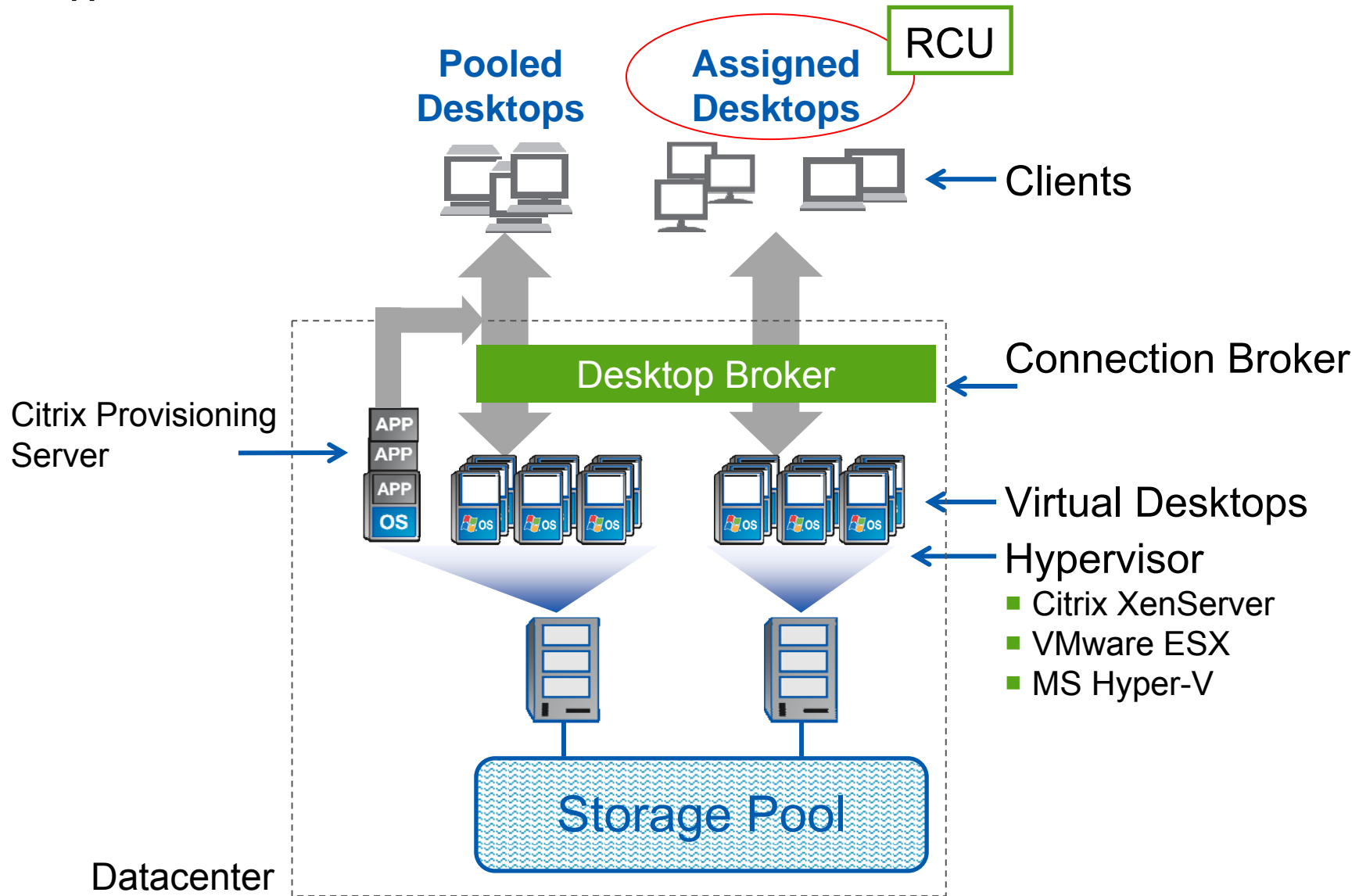
- Pre-assigned to 1 or more users
- 1 active user at a time
- Customizable

- Dynamically created via VMware full or Linked Clones – add'l \$\$

- Assigned at log-in
- Persistent Desktops: 1 VM to 1 user, customizable
- Non-Persistent Desktops: 1 VM to n users (1 active user at a time), non-customizable

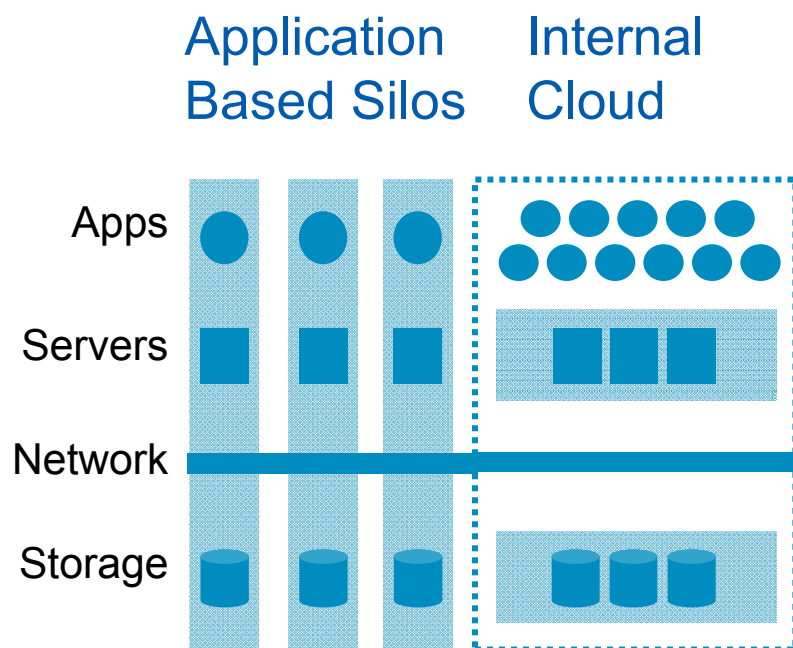


# Citrix XenDesktop Deployment Options





# RCU as a Cloud Enablement Service



- Historically, IT infrastructure built on application-centric silos
- Virtualization technology enables a shared and service-oriented infrastructure
- Manage Servers and Storage using vCenter with the Rapid Cloning Utility
- Manage Servers and Storage using the RCU API



# Positioning RCU 2.1 against EMC's Tool

The screenshot displays the 'EMC VDI Deployment' interface. On the left, a menu lists several actions: 'Provision New Storage', 'Extend Existing Storage', 'Create Virtual Desktops', 'Remove Virtual Desktops', 'Refresh Virtual Desktops', and 'Logout'. The 'Create Virtual Desktops' dialog box is open, showing the following fields and options:

- Source Host: rtps01384.vdi2.rtp.dg.com
- Golden Image Virtual Machine: Master\_VM\_Clone\_Source
- Virtual Desktop Prefix: VirtualDesktop\_
- Preview: VirtualDesktop\_00001
- Number of Virtual Desktops: 10 (Max Desktops: 241)
- Destination Cluster: ViewComposer
- Automatically power on Virtual Machines
- VDM Pool Info:
  - Create New VDM Pool: VDM Pool Name: VDMPool\_1
  - Use Existing VDM Pool: VDM Pool Name: [dropdown]

Buttons at the bottom of the dialog include 'OK', 'Back', and 'Refresh'.

- EMC has released its own VMware VDI Deployment plug-in for Celerra
  - Based on its Temporary Writable Snapshots (1 VM per LUN only)
- Its scope, functionality and usability are very limited compared to RCU



# NetApp vs. EMC

	NetApp	EMC
Scope	<ul style="list-style-type: none"><li>• Desktops and servers</li><li>• Compatible with View + others</li><li>• FAS, V-Series, N-Series</li><li>• NFS, FC, iSCSI</li></ul>	<ul style="list-style-type: none"><li>• Desktops only</li><li>• View only (must have)</li><li>• Celerra only</li><li>• iSCSI only</li></ul>
Efficiency	<ul style="list-style-type: none"><li>• Create and maintain thin clones using FlexClone, deduplication</li><li>• Display current storage savings</li></ul>	<ul style="list-style-type: none"><li>• Create thin clones only using writable snapshots</li><li>• None</li></ul>
Scalability	<ul style="list-style-type: none"><li>• Unlimited</li><li>• Up to 2,000-3,000 VMs per cluster</li></ul>	<ul style="list-style-type: none"><li>• 1 VM per datastore</li><li>• 254 VMs per cluster</li></ul>
Usability	<ul style="list-style-type: none"><li>• Automated guest customization</li><li>• vCenter look and feel</li><li>• Datastore provisioning and resizing</li><li>• Import into View and XenDesktop</li></ul>	<ul style="list-style-type: none"><li>• None</li><li>• None</li><li>• None</li><li>• Automated import into View</li></ul>



## Reference Material

- Product Download and User Documentation
  - <http://now.netapp.com/NOW/cgi-bin/software>
- RCU FAQ and Additional VDI material on Field Portal
  - Search keyword “RCU”
- Best Practice TRs
  - TR3705: [NetApp and VMware VDI Best Practices](#)
  - TR3428: [NetApp and VMware Virtual Infrastructure 3 Storage Best Practices](#)
- Public Frequently Asked Questions
  - <http://communities.netapp.com/docs/DOC-2774>



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- Any questions / comments
  - [http://communities.netapp.com/community/products\\_and\\_solutions/virtualization](http://communities.netapp.com/community/products_and_solutions/virtualization)