How to Evaluate Micro Focus PlateSpin Migrate

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MICRO FOCUS

About This Guide

This document is intended to assist with the installation, configuration and evaluation of PlateSpin Migrate for its most common use-case, the migration of virtual or physical Windows servers onto VMware ESXi using the PlateSpin Migrate Web Interface.

Much of the information in this guide is, however, also relevant for migrations onto other platforms such as Hyper-V, Azure and physical hardware.

What You Need

1. One or more physical or virtual Windows or Linux source servers on which to perform test migrations
2. A VMware host or cluster onto which to migrate the source server(s)
3. A Windows server on which to install PlateSpin Migrate, typically a virtual machine

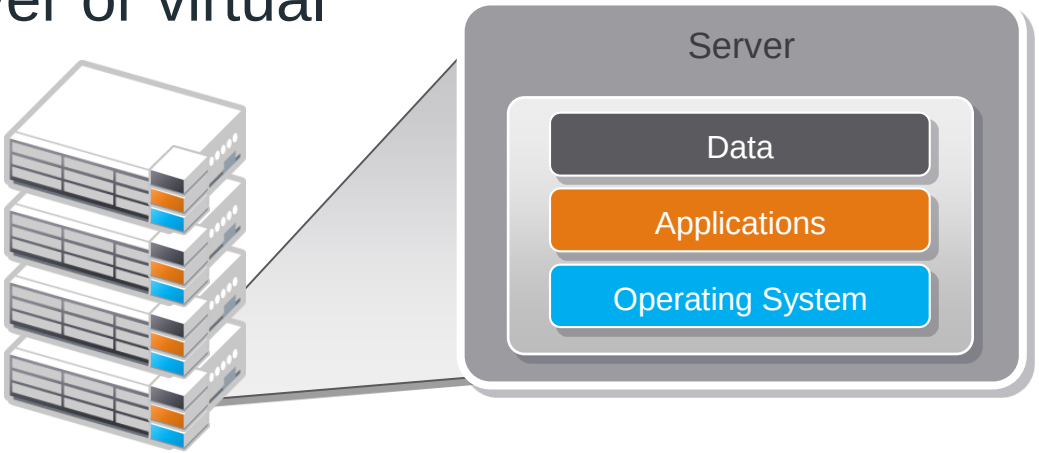
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1. Introduction to workload migration

What is a Workload?

- A workload is the operating system, applications, data and configuration that reside on a physical server or virtual machine.
- Portable between physical, virtual and cloud platforms



What is Workload Migration?

Workload migration means moving a server workload from one location or platform to another.

What it Is

- ✓ Physical to Virtual
- ✓ Physical to Physical
- ✓ Physical to Cloud
- ✓ Virtual to Physical
- ✓ Virtual to Virtual
- ✓ Virtual to Cloud
- ✓ Cloud to Physical
- ✓ Cloud to Virtual

What it Isn't

- ✗ Operating System Upgrades
  - Windows 2003 to Windows 2012
  - 32-bit to 64-bit upgrades
- ✗ Application Upgrades
- ✗ Unix to Linux Migrations
- ✗ Application Migrations
- ✗ Mainframe Migrations
- ✗ Hypervisor / SAN migrations

PlateSpin Migrate Use Cases

Migration

- Upgrading to new server models
- Switching to new server vendor

Virtual-to-Virtual

- VMware upgrades
- Changing virtualization platforms (typically VMware to Hyper-V)

Server Consolidation

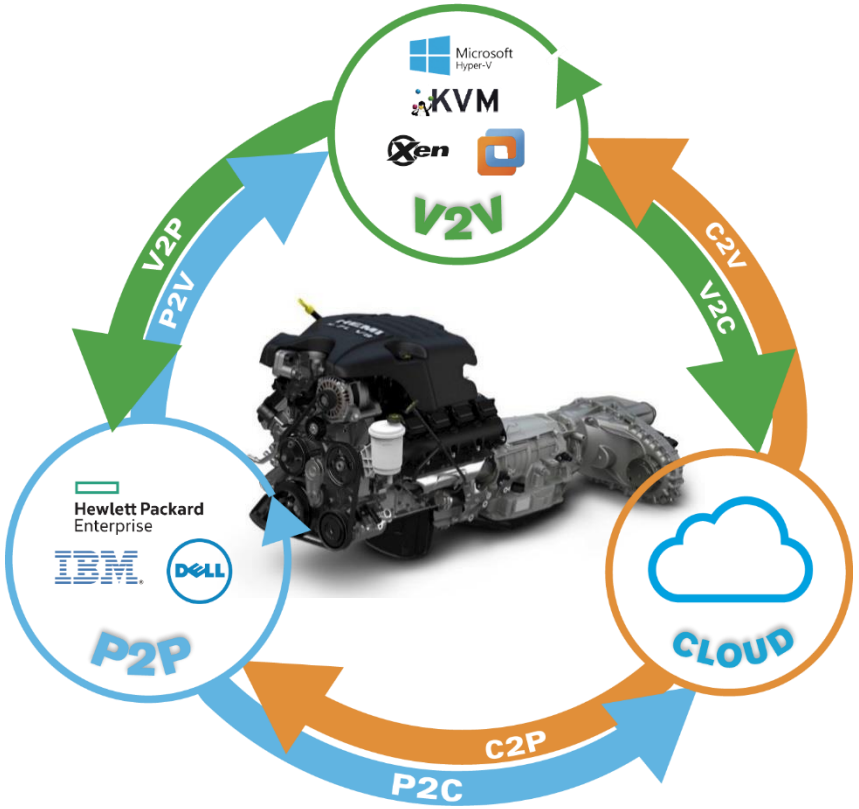
- Converting physical servers to virtual machines
- Combining multiple workloads on a single virtual host

Cloud Migration

- Moving workloads to a public cloud environment
- Moving workloads to a managed service provider (private/hybrid cloud)

PlateSpin Migrate

Fast, scalable and automated, anywhere-to-anywhere workload migration for Windows and Linux workloads



PlateSpin Migration Process

1 Initial Workload Copy



2 Test & Verify



3 Incremental Sync



4 Cutover



Why Use PlateSpin Migrate?

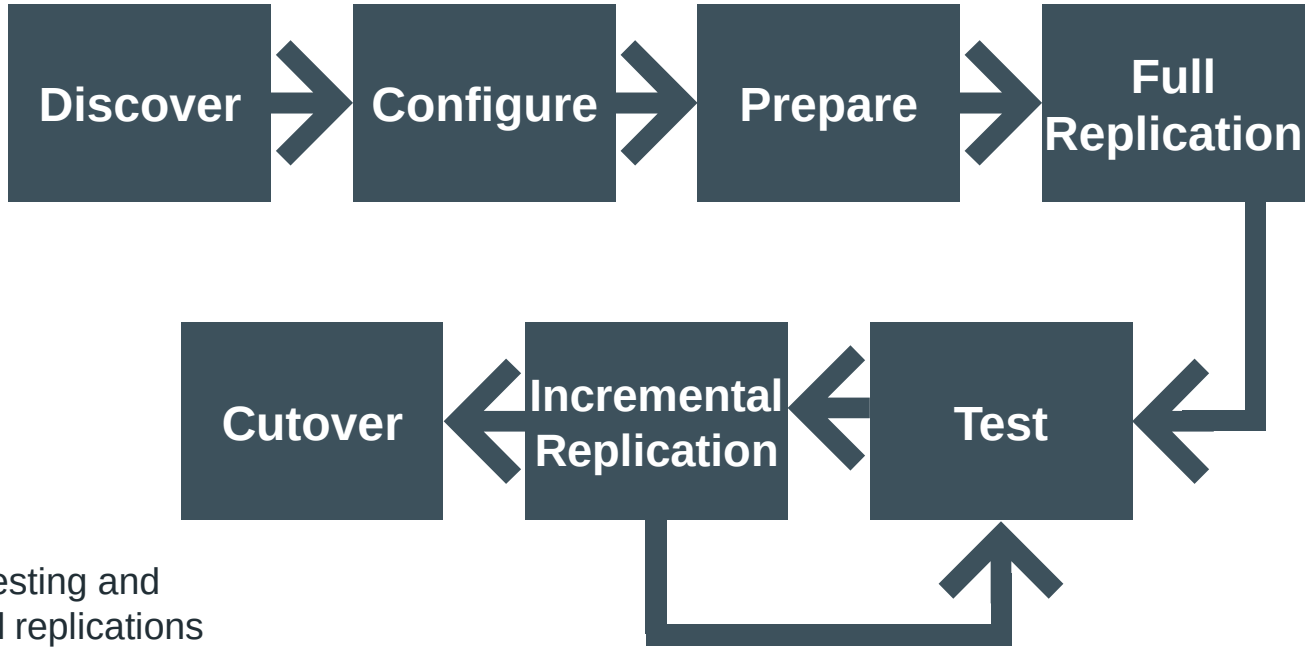
PlateSpin Migrate is designed to **minimise**

Downtime	Incremental replication keeps cutover times to a minimum
Risk	Test target systems as often as you wish prior to cutover
Effort	High levels of automation significantly reduce manual effort
Time	Migrate multiple workloads simultaneously quickly and reliably
Complexity	One tool for any migration: Windows and Linux, anywhere to anywhere



Migrate Process Flow (Web Interface)

“One-click” testing and cutover, and scheduled replication



Unlimited testing and incremental replications

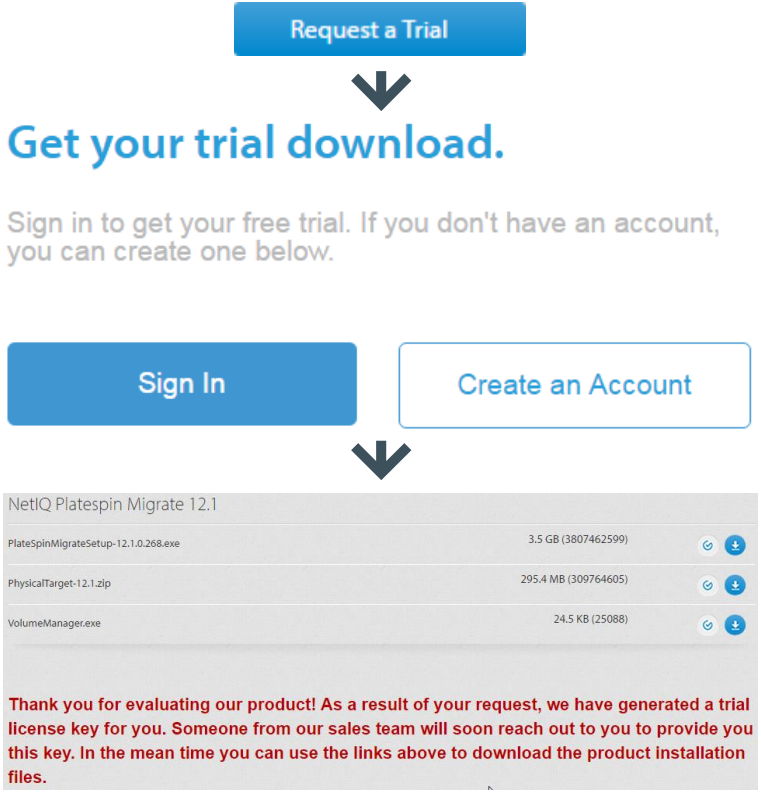
PlateSpin Migrate Tasks

Task	Description
Discover workload	Retrieves detailed inventory information necessary to determine the machine's use and to properly configure a migration task.
Configure migration	Allows you to configure the settings required for migrating the workload. Settings are configured in advance to enable other tasks to be performed with just a few clicks
Prepare migration	Installs the required data transfer software on the source and creates a target virtual machine on the target VMware environment in preparation for the workload replication
Run migration	Starts replicating the workload according to specified settings
Test cutover	Boots and configures the target workload for testing purposes
Run cutover	Boots and configures the target workload to complete the migration cycle

2. Download software and obtain an evaluation license

Migrate Download and Evaluation Key

- PlateSpin Migrate may be downloaded from www.netiq.com/products/migrate
- Also check the website for patches
- A Micro Focus representative will provide an evaluation license key which must be activated before the software may be used
  - It may be installed without the key



3. Install and activate PlateSpin Migrate

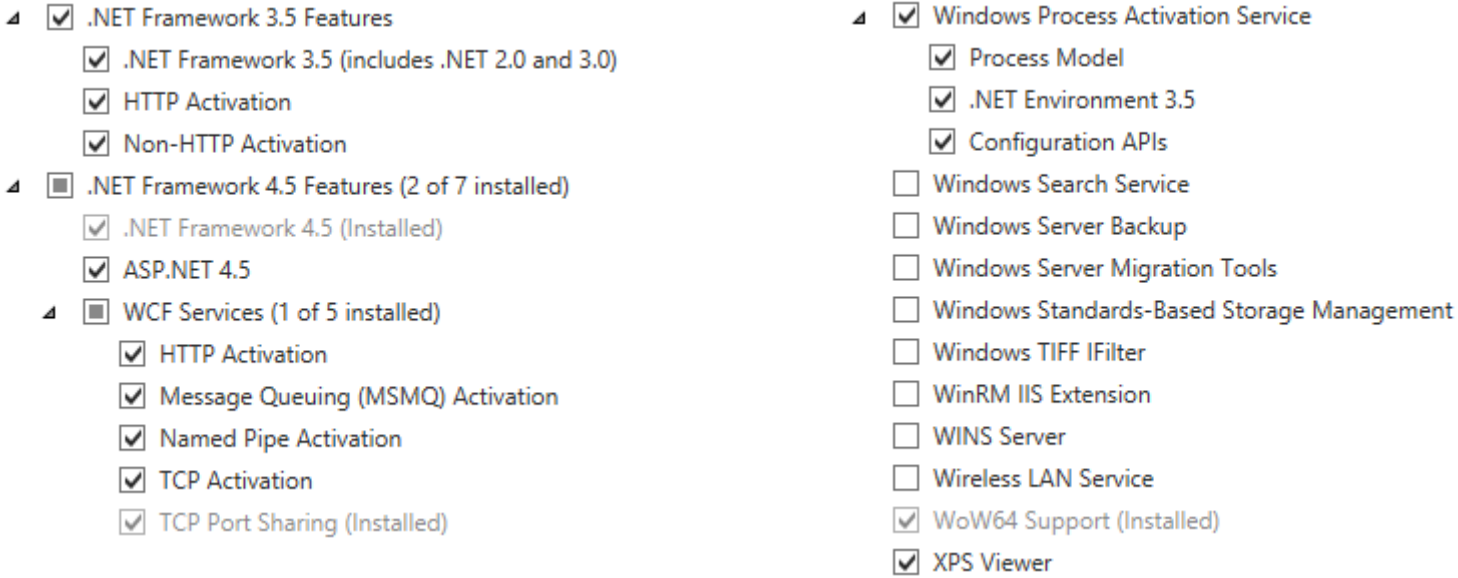
Migrate Server Pre-requisites for Evaluation

- Windows Server 2008 R2 or 2012 R2
  - OS must be activated
  - UAC must be disabled
  - Static IP address
- 2 virtual processors / cores
- 8GB RAM
- 20GB disk space minimum
- Microsoft SQL Server 2008 R2 or higher
  - SQL Server 2014 Express is included in the binaries
- .NET Framework 3.5SP1 & 4.5
- IIS 7 or 8
- Server may be located in either source or target data centre

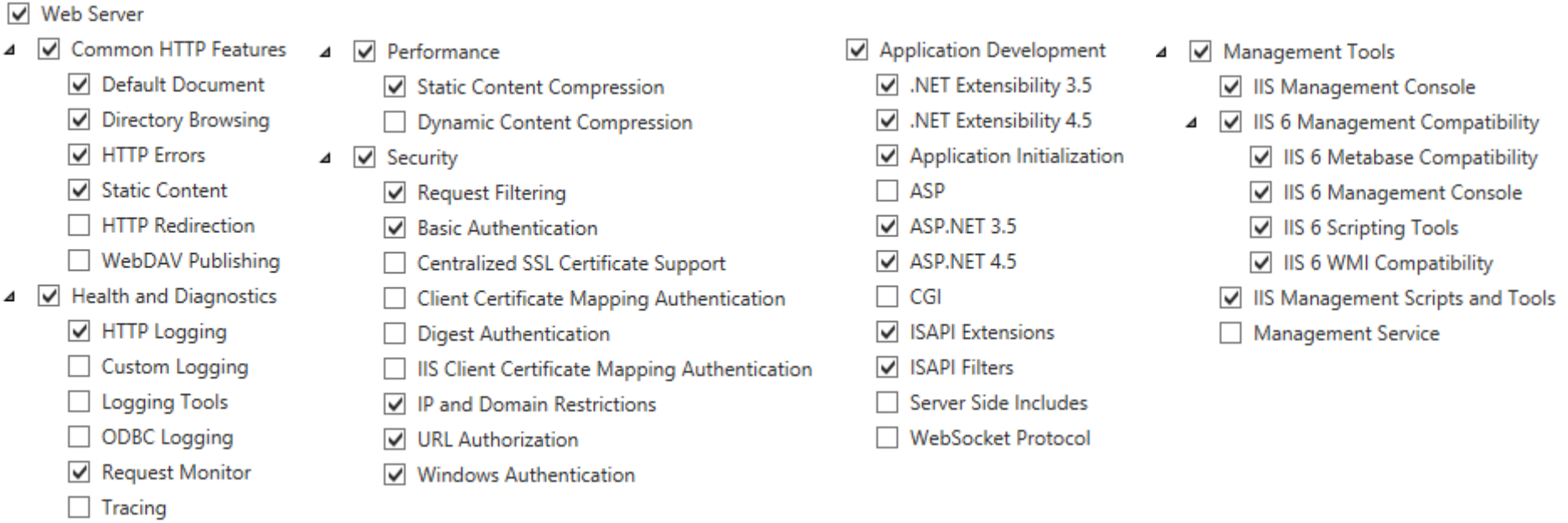
Tips for Successful Installation

- The Migrate Server installation will fail if any required Roles or Features are missing, so review them carefully
- Do not install the Migrate Server on a server with other applications or roles, or that is to be migrated
- If the Windows language and regional language settings differ then the installation may fail
- The installer must be able to create local users & groups, and modify local Administrator group membership
- The SQL Server silent installation fails on rare occasions but manual installation will work too
  - In which case, recommended to create a named SQL Instance (PLATESPINDB) and enable mixed mode authentication

Migrate Server Required Features



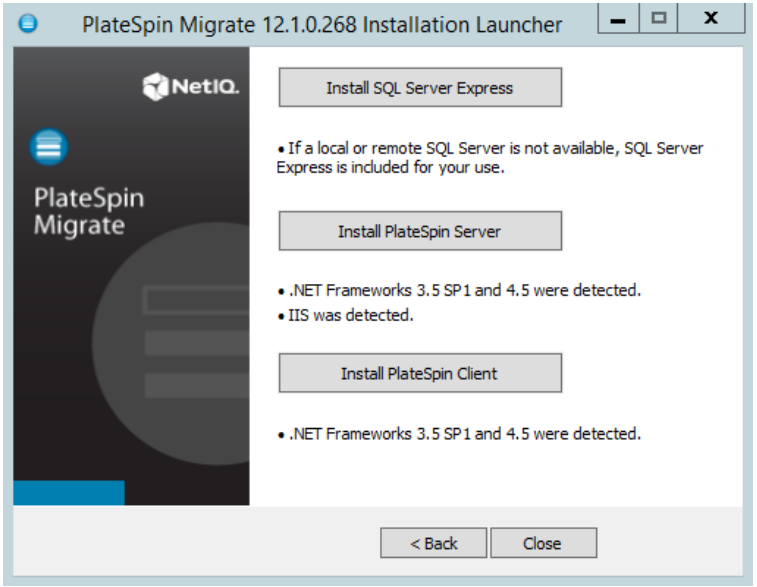
Migrate Server Required IIS Role Features



Migrate Server Installation

If you followed the pre-requisites then Migrate installation is very simple - just follow the on-screen prompts:

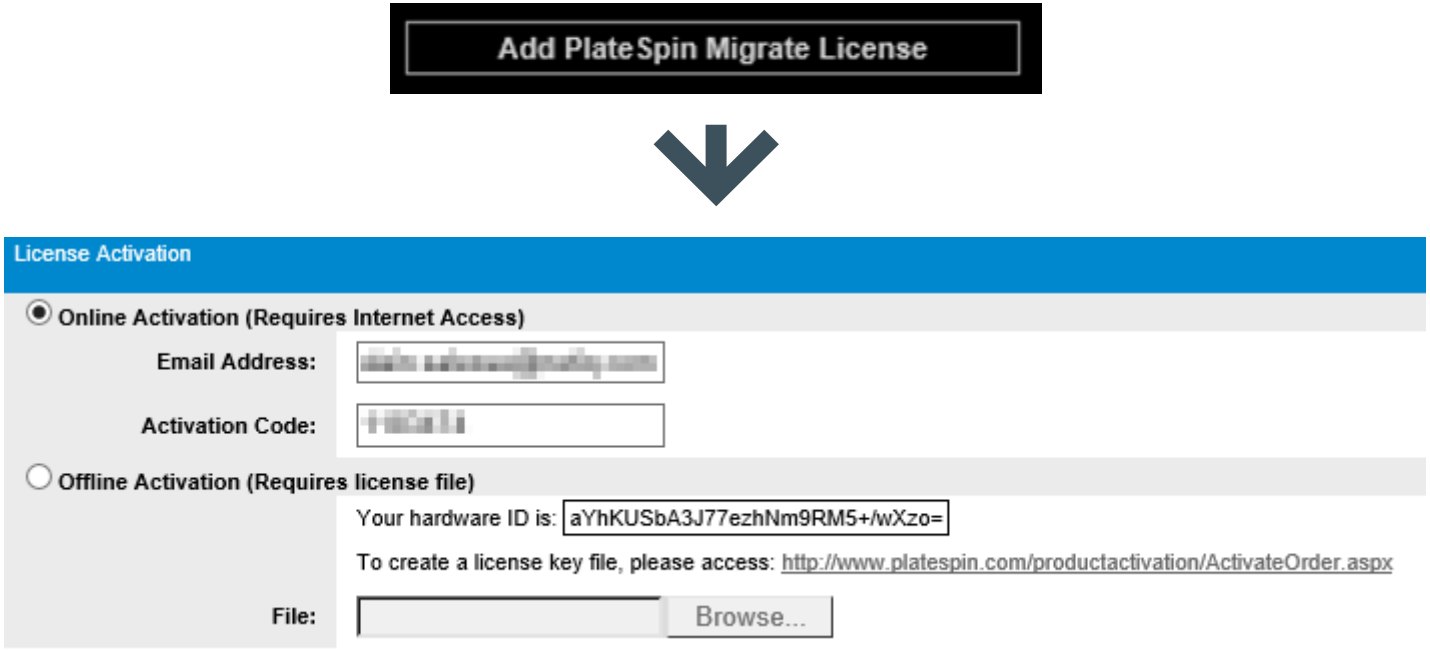
1. Install SQL Server Express
2. Install PlateSpin Server
   - Permit HTTP communication if no SSL Certificate
   - If failure check the Roles & Features!
3. Optionally install PlateSpin Client
   - Not required for performing migrations onto VMware or Azure
   - Required for migrations onto other platforms and for the Command Line Interface
4. Also check the website for patches and install as per instructions



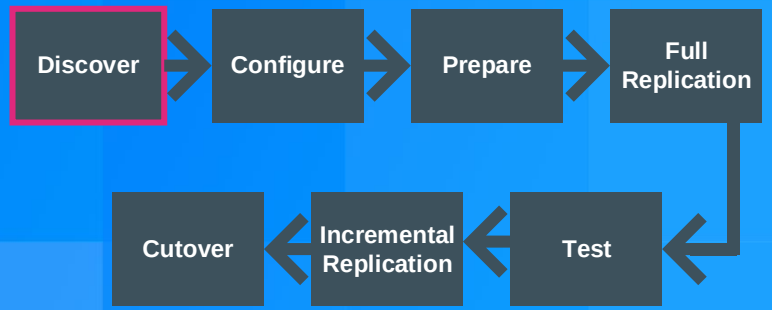
Activating the Migrate Server

- Access the Web Interface at http(s)://<Migrate Server>/migrate
- Enable the Migrate Server for internet access
  - Alternatively perform an offline activation from another machine
- Enter the 7-digit evaluation key and its associated email address
  - Valid for 30 days
  - Permits up to 5 migration activities on up to 3 workloads
  - If you require additional migrations or time to evaluate the product then contact your account manager **before** you activate the key
- The evaluation key includes technical support 8x5
  - Submit service requests via the Customer Centre website

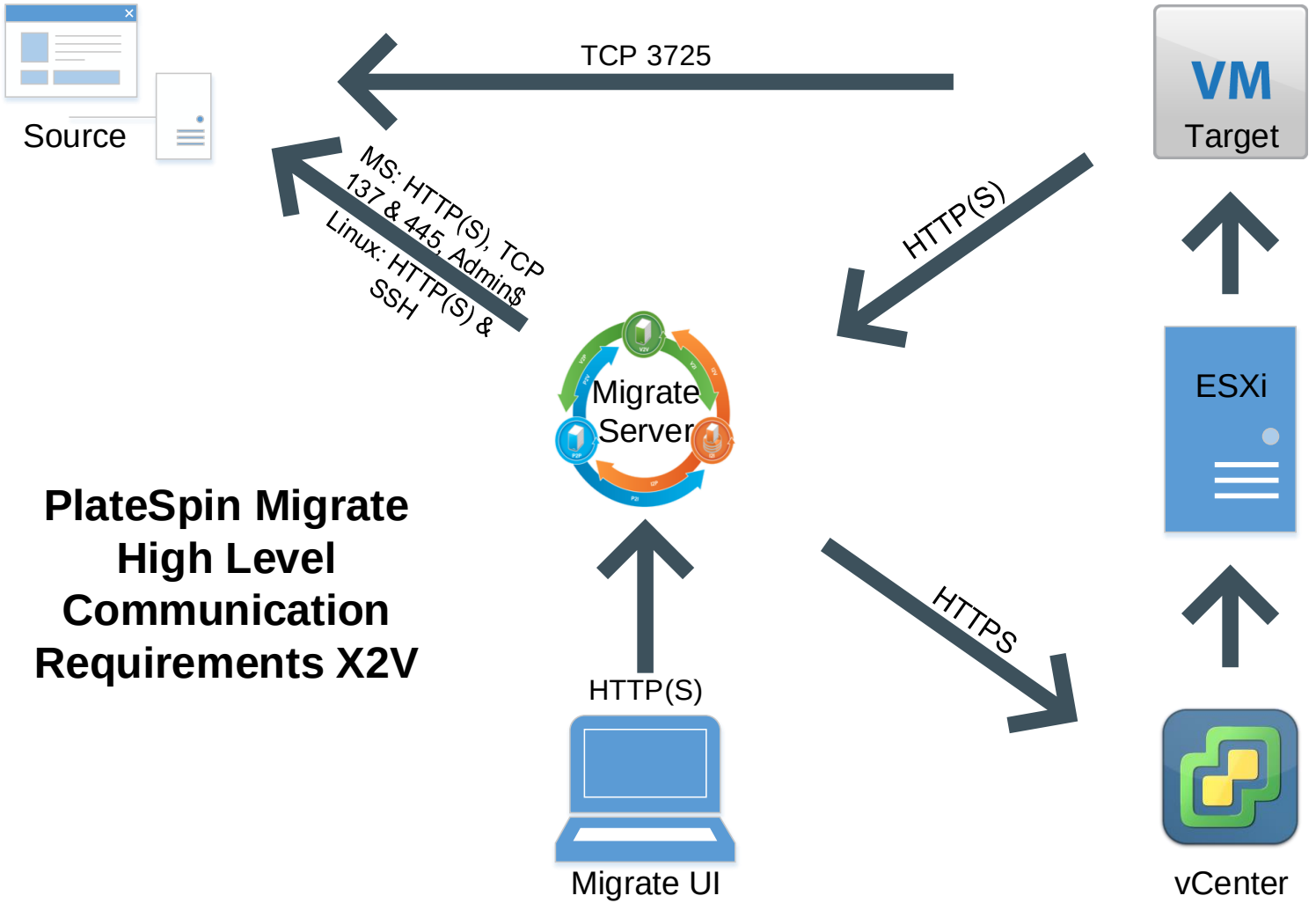
PlateSpin Migrate Activation



4. Discover target VMware environment



PlateSpin Migrate High Level Communication Requirements X2V

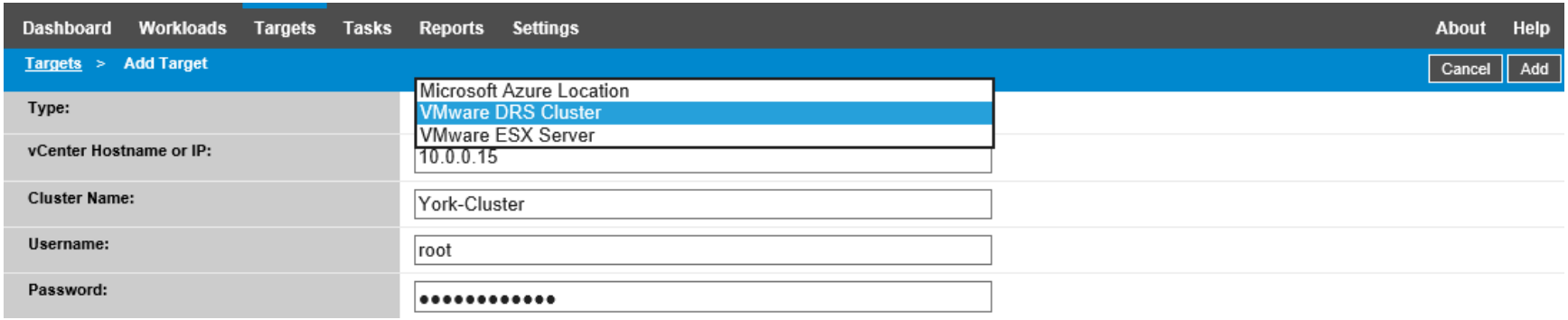


Target VMware Discovery

- Requirements
  - A paid-for VMware license
  - vCenter & ESXi 4.1 or later
  - Administrator credentials for vCenter or ESXi hosts
  - VMware Web services API and File management API
- Discovery
  - Targets > Add Target
  - Add a DRS Cluster or individual host. For performance reasons do not discover a large cluster – add host(s) instead

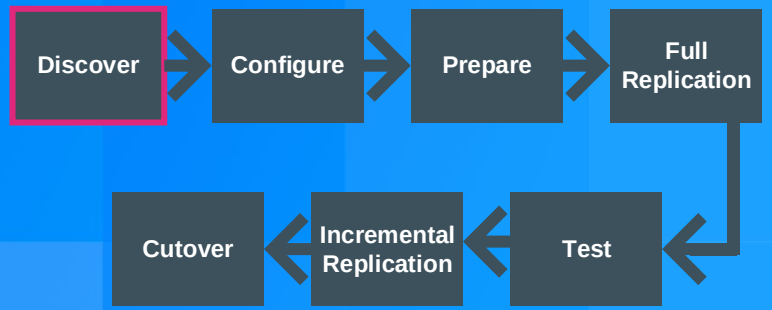
VMware Discovery

- When discovering a cluster, Migrate shows each host in that cluster in the UI



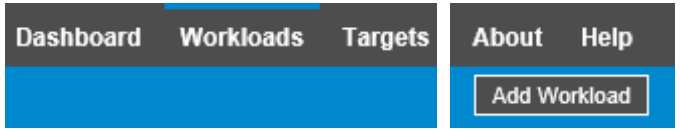
Name	Operating System	CPU	Memory	Free Space	Last Refresh	
UKYOESX01	VMware ESXi Server 5.5.0.2068190	8 x Intel(R) Core(TM) i7-4810MQ CPU @ 2.80GHz	64.0 GB	167.7 GB	8 Day(s) ago	Remove
UKYOESX02	VMware ESXi Server 5.5.0.2068190	8 x Intel(R) Core(TM) i7-4810MQ CPU @ 2.80GHz	64.0 GB	167.7 GB	8 Day(s) ago	Remove

5. Discover source workloads



Source Workload Requirements: Windows

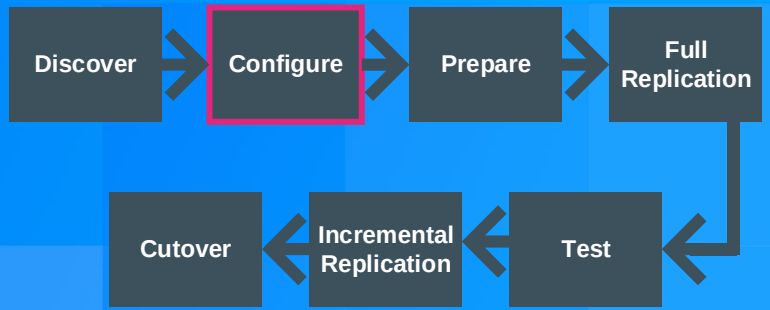
- Windows Server 2003 SP1 or later with .NET Framework 3.5 installed
  - Windows Server 2000 SP4 with .NET 2 also supported
  - Minimum 10% free disk space for VSS snapshots
  - Note additional requirements for Microsoft Cluster, refer to User Guide for details
- Communication requirements
  - File & Printer sharing enabled in the Windows firewall, or specific inbound rules
    - As a minimum, SMB-in (TCP 445) & NB-Name-In (TCP 137)
    - And equivalent ports opened for other firewalls
  - HTTP or HTTPS inbound from Migrate Server
  - TCP 3725 inbound from target
  - Administrative shares must be enabled
  - Note, additional ports may be required for other migration types, refer to User Guide



Source Workload Requirements: Linux

- Supported distributions:
  - SLES, RHEL, CentOS, and Oracle Enterprise Linux
- SSH access & root or sudo account
- Minimum 10% free disk space for LVM snapshots
- If a blkwatch module has not been created for the specific kernel, refer to the Knowledge Base for instructions

6. Configure Migration Settings



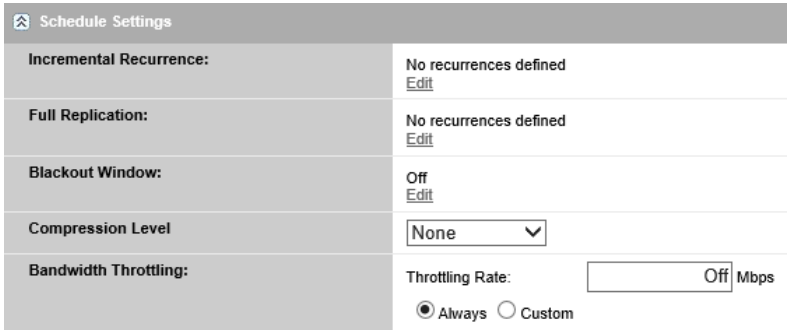
Initial Transfer Method

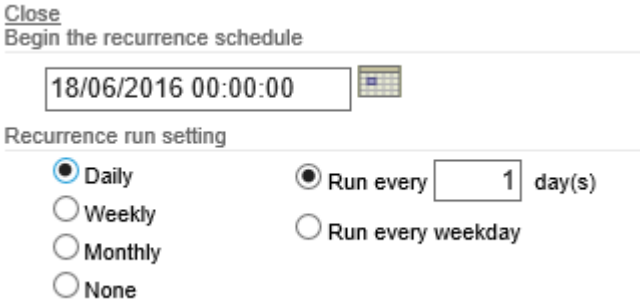
- Select Full Replication if you wish Migrate to create the target VM automatically
- Select Incremental Replication to use an existing VM as the target – must be the same OS & SP as source



Schedule Settings

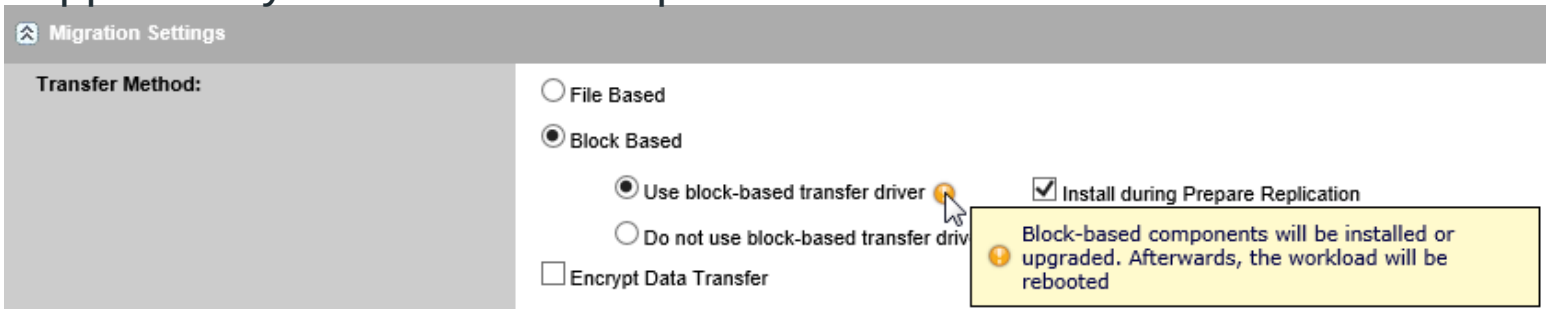
- Define how often an incremental replication will be performed
- Full Replication enables the initial copy to be scheduled in the future
- Blackout Window calendar is to prevent conflict with other VSS applications
- Compressing data may significantly reduce transfer times





Migration Settings: Transfer Method (Windows)

- Use File Based transfer to resize volumes
- Block-Based Transfer (BBT) driver is much more efficient than driverless method but requires the source to be rebooted
  - May be installed manually in advance. Note do not use on MS Clusters
  - Migrate will reboot the source if Install during Prepare is selected
  - Applies only to incremental replications and Windows workloads



Block Based Transfer Driver Manual Installation

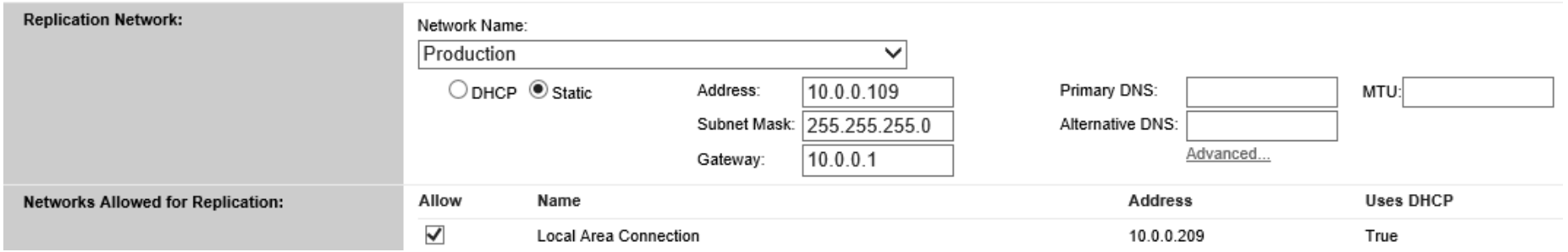
- Copy MigrateAgent.zip from the Migrate Server to the source workload
  - C:\Program Files\PlateSpin Migrate Server\bin
- Extract to temporary directory
- From Administrator Command Prompt, run command

```
MigrateAgent.cli.exe din
```

- Reboot the server
- Refer to User Guide for further details

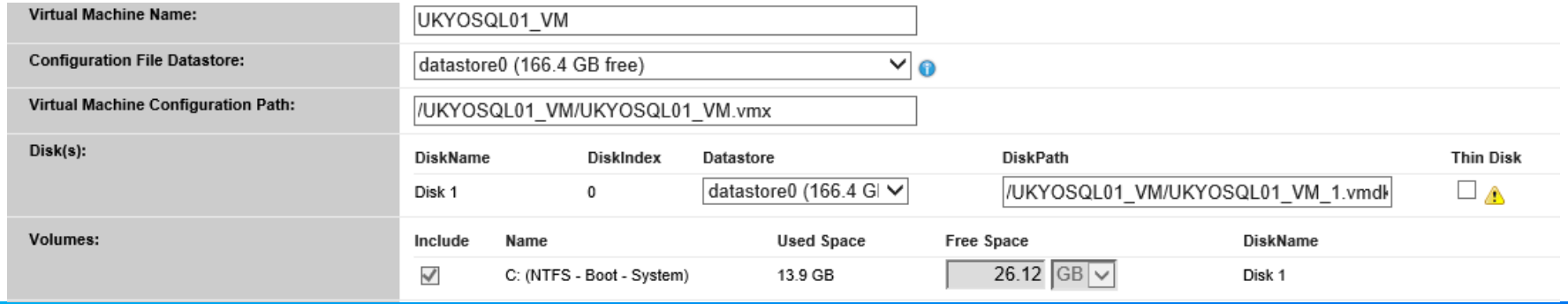
Migration Settings: Replication Network

- Configure the temporary target VLAN and IP configuration, and the source NIC that will be used for replication
  - Must have connectivity to the Migrate Server & the source workload
  - Does not need to be the same as the target's final settings



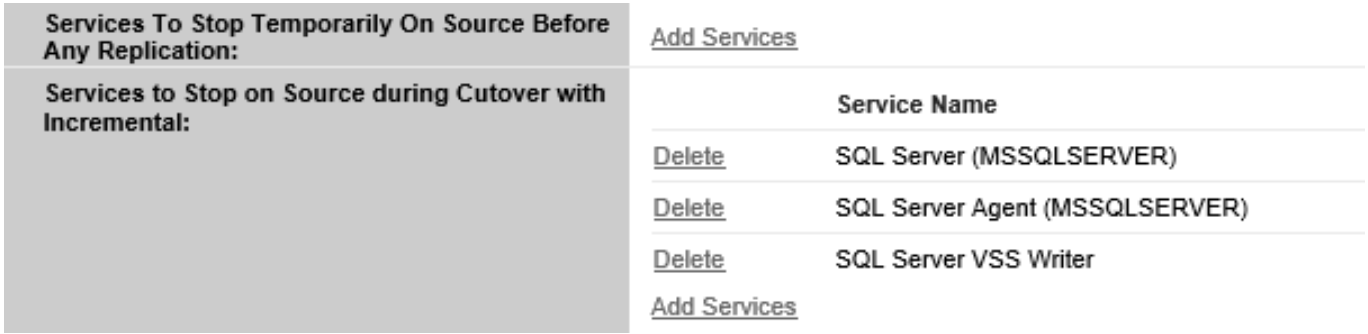
Migration Settings: VMware configuration

- Define the name and location of VMX & VMDK files
- Default values may be changed
- The OS volume must always be replicated, data volumes are optional



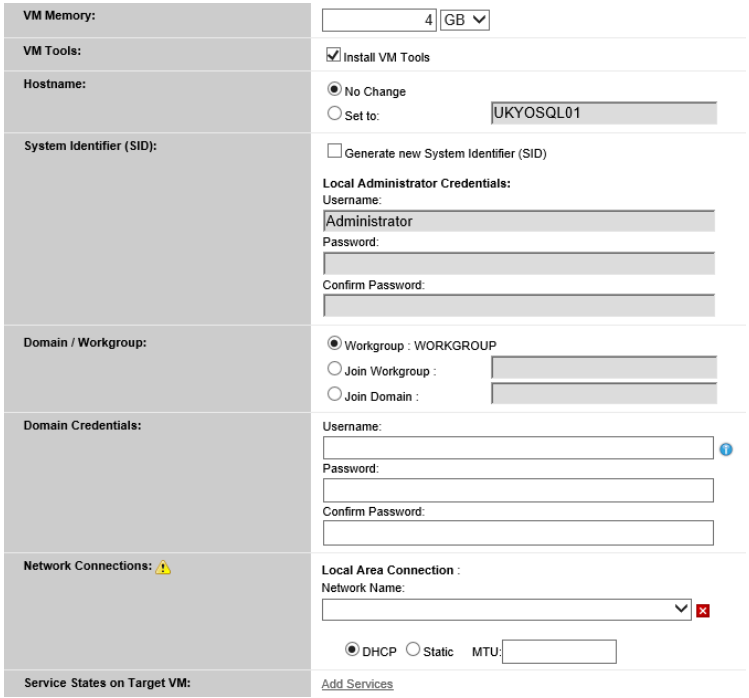
Migration Settings: Services Configuration

- Migrate can stop services temporarily before taking a VSS snapshot, for example anti-virus applications
  - Some AV applications are known to interfere with the migration process
- To prevent application data loss during the cutover phase, application services must be configured to be stopped prior to the final sync



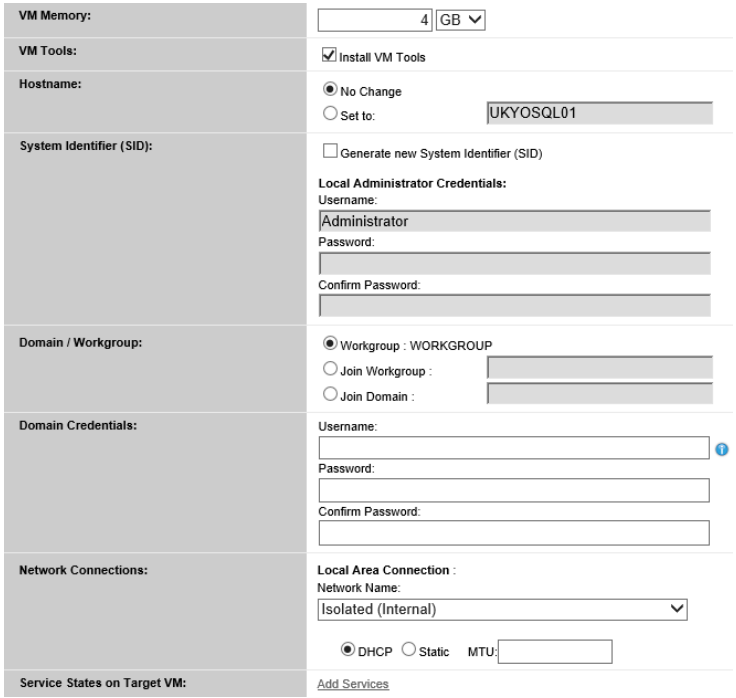
Target Workload Settings

- Defines the configuration of the target VM post-replication
- VMware tools are removed and reinstalled as appropriate
- Workload identity does not have to be the same as the original
- Service States changes the service start mode on the target, e.g. hardware agents on a VM



Target Workload Test Settings

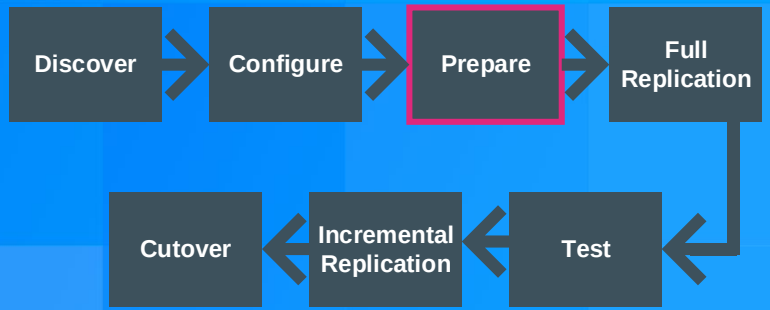
- Enables the target workload to be tested prior to cutover, if required
- Settings are usually the same as the final configuration except for the VLAN which must be isolated from the source
- Testing may require several systems, e.g. AD, DNS, db



Configuration Best Practices

- Use the block-based transfer driver for incremental sync
- Enable data compression to reduce replication times
- Ensure that Replication network settings allow communications to the source workload and Migrate server
- Configure Workload Test settings such that no communication is possible between source and target environments, e.g. use isolated VLANs
- Configure Anti-Virus services to be disabled during each replication
- For P2V migrations disable hardware agent services on the target

7. Prepare Migration



Preparation Phase

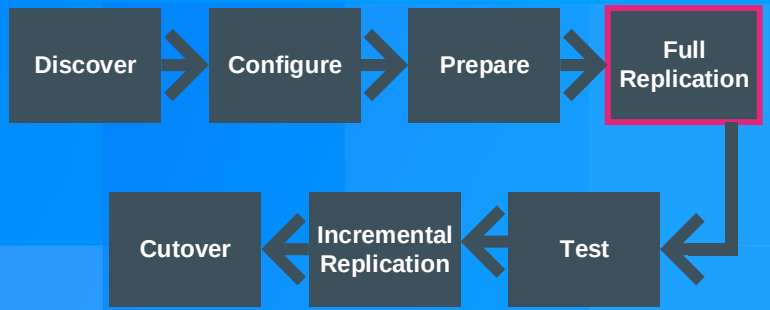
Prepares source and target systems for migration

1. Refresh target discovery
2. Install source agent (aka OFX controller)
3. If required, install BBT driver and reboot source
4. Create target VM

Event	Details	User	Date
Workload configuration completed		system	17/06/2016 16:14
Completed			
17/06/2016 16:06			
17/06/2016 16:14			
7m 34s			

Step	Status	Start Time	End Time	Duration	Diagnostics
Install block-based components	Completed	17/06/2016 16:06	17/06/2016 16:11	4m 31s	17/06/2016 16:14
Refresh target	Completed	17/06/2016 16:11	17/06/2016 16:11	45s	17/06/2016 16:14
Create cutover VM	Completed	17/06/2016 16:11	17/06/2016 16:14	2m 15s	17/06/2016 16:14

8. Perform Full Replication



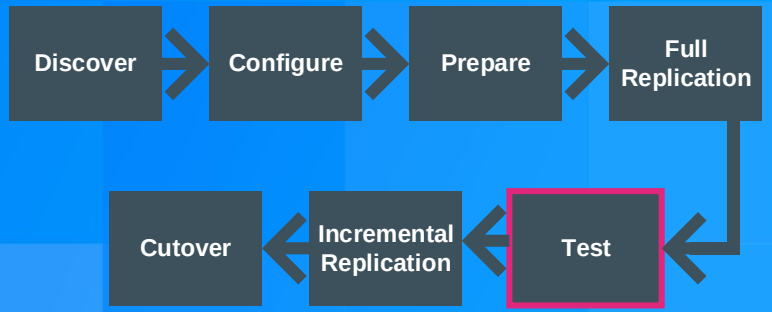
Full Replication

Performs the initial copy of the workload

- May be performed well in advance of planned cutover
- Virtually no impact on source

1. Boot target VM using PlateSpin Linux RAM Disk (LRD)
2. Register target VM with the Migrate Server
3. Copy volumes directly from source to target using Volume Shadow Copy Service (VSS)
4. Boot target into its own OS to perform configuration activities
5. Shutdown target and take VMware snapshot

9. Perform Test Cutover



Test Cutover

Enables the target to be tested prior to cutover

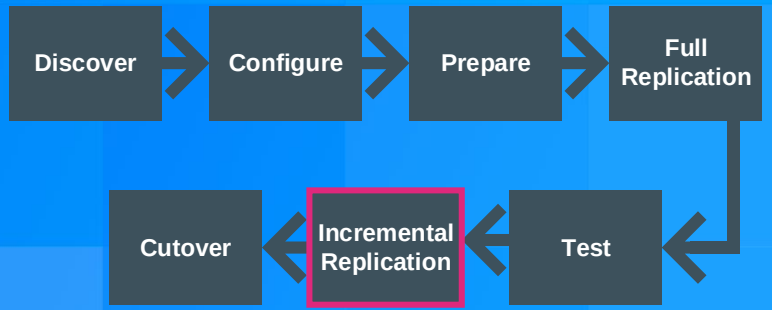
1. Revert target to snapshot and reconfigure OS
2. Install VMware Tools and reboot target ready for testing
3. After testing, there is no need to undo changes or shutdown the target – just mark as success or failure

Important Notes



- Test settings must prevent communications between source and target
- Application testing may require additional systems in the isolated environment, e.g. Active Directory, DNS and other application components
- Multiple tests may be performed if required

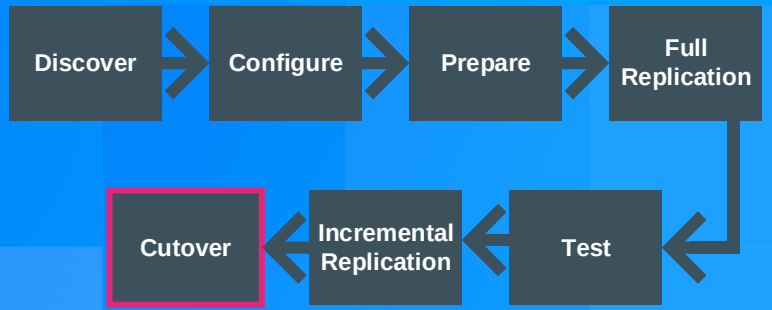
10. Perform Incremental Replication



Incremental Replication

- Replicates changes from source to target
  - BBT driver tracks changed volume blocks in real-time, so is much more efficient than the checksum-based agentless method
  - Reduces cutover time by minimising the data to be transferred
- Runs on a schedule or executed manually
- Unlimited syncs may be performed prior to cutover
  - Target VM is always reverted to snapshot first
- Best practice is to perform an incremental immediately before commencing cutover

11. Perform Cutover

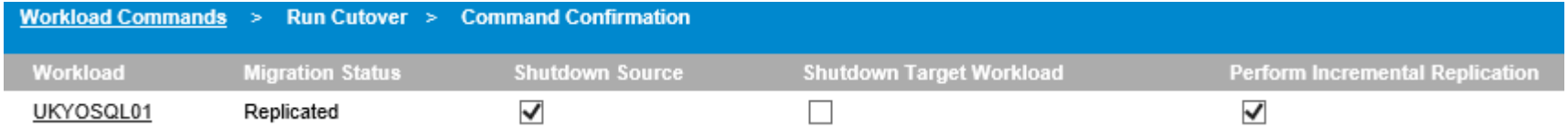


Cutover Phase

Switches from source to target with minimum downtime

1. Stop source application and perform incremental sync
2. Shut down source workload
3. Reconfigure target OS and install VMware tools
4. Reboot target, cutover is now complete

No further workload configuration should be necessary post-cutover



11. Where to Get Help

Migrate Client vs Web Interface

Task	Client	Web UI
Workload migration workflow	✗	✓
Scheduled incremental sync	✗	✓
Windows workload migration using block-based transfer driver	✗	✓
Migrating a VM to a folder inside a resource pool	✗	✓
Workload tags	✗	✓
Workload migration detailed reports	✗	✓
Security groups	✗	✓
Migration to Azure target	✗	✓
Migration to VMware target	✓	✓
VMware target discovery	✓	✓
Discovery of Windows or Linux workloads	✓	✓
Live migrations	✓	✓
Linux workload migration using block-based transfer driver	✓	✓
Windows workload migration using file-based or driverless block-based transfer	✓	✓

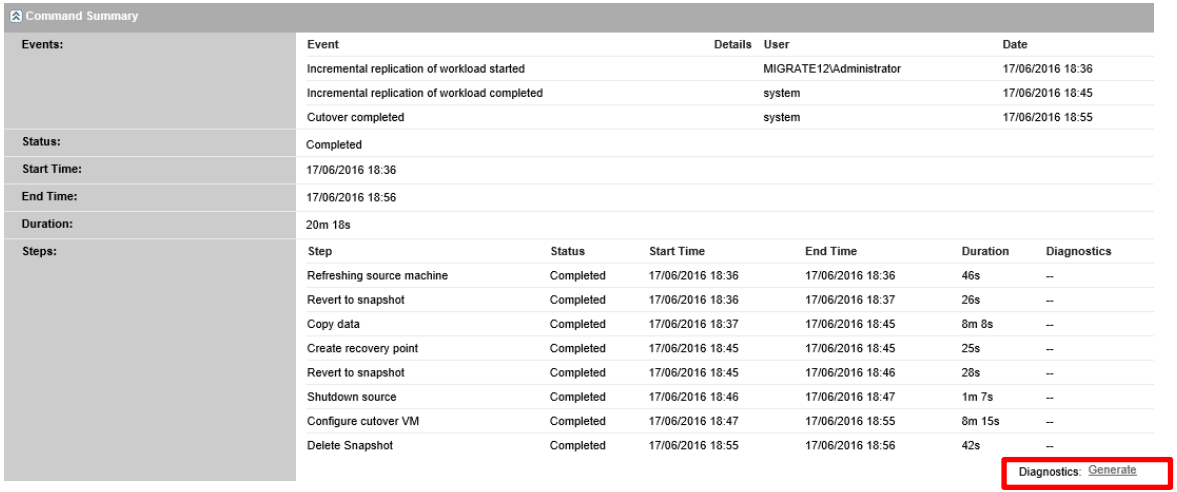
Task	Client	Web UI
Moving a VM to a resource pool	✓	✓
Define compression level	✓	✓
Bandwidth throttling	✓	✓
Encrypt data transfer	✓	✓
License management	✓	✓
License status check	✓	✓
Staged migrations via image	✓	✓
Run post-migration action	✓	✗
Add new disks during migration	✓	✗
Change disk volume mappings for target	✓	✗
Migration to target other than VMware or Azure	✓	✗
Discovery of Hyper-V container	✓	✗
Offline workload migration	✓	✗
Linux workload migration using file-based transfer	✓	✗

Enablement Resources

Resource	Location
Documentation	https://www.netiq.com/documentation/platespin-migrate-12-1/
Software Download	https://www.netiq.com/products/migrate/download/
Demos & Videos	https://www.youtube.com/playlist?list=PL783C2CFFBB2CDDAD
Customer Forum	https://forums.novell.com/forumdisplay.php/1337-Platespin-Migrate
Technical Support (available office hours during evaluation)	1. Web: www.netiq.com/customercenter 2. Email: support@platespin.com 3. Phone: +420 28 408 4051 (Europe) or +1 800 858 4000 (US)
And your account management team	

If Something Goes Wrong

- Generate Diagnostics and send to Technical Support along with a screenshot of target workload console



Command Summary

Events:	**Event**	**Details**	**User**	**Date**
	Incremental replication of workload started		MIGRATE12\Administrator	17/06/2016 18:36
	Incremental replication of workload completed		system	17/06/2016 18:45
	Cutover completed		system	17/06/2016 18:55
Status:	Completed			
Start Time:	17/06/2016 18:36			
End Time:	17/06/2016 18:56			
Duration:	20m 18s			

Steps:	**Step**	**Status**	**Start Time**	**End Time**	**Duration**	**Diagnostics**
	Refreshing source machine	Completed	17/06/2016 18:36	17/06/2016 18:36	46s	--
	Revert to snapshot	Completed	17/06/2016 18:36	17/06/2016 18:37	26s	--
	Copy data	Completed	17/06/2016 18:37	17/06/2016 18:45	8m 8s	--
	Create recovery point	Completed	17/06/2016 18:45	17/06/2016 18:45	25s	--
	Revert to snapshot	Completed	17/06/2016 18:45	17/06/2016 18:46	28s	--
	Shutdown source	Completed	17/06/2016 18:46	17/06/2016 18:47	1m 7s	--
	Configure cutover VM	Completed	17/06/2016 18:47	17/06/2016 18:55	8m 15s	--
	Delete Snapshot	Completed	17/06/2016 18:55	17/06/2016 18:56	42s	--

Diagnostics: Generate



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