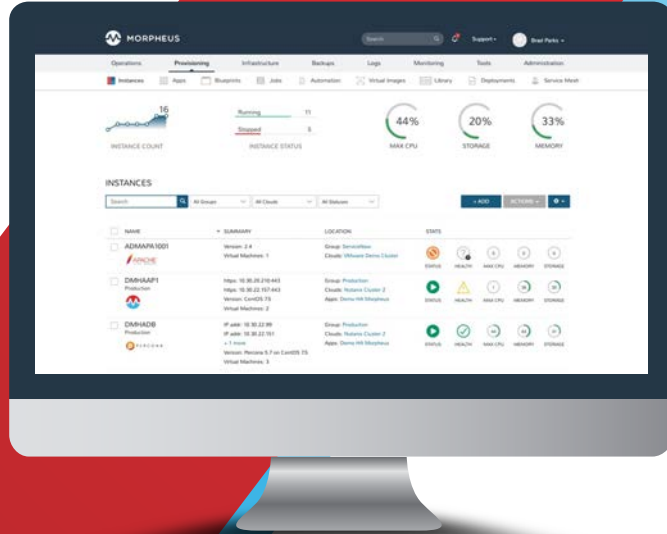




MORPHEUS



# Morpheus 6.0 LTS

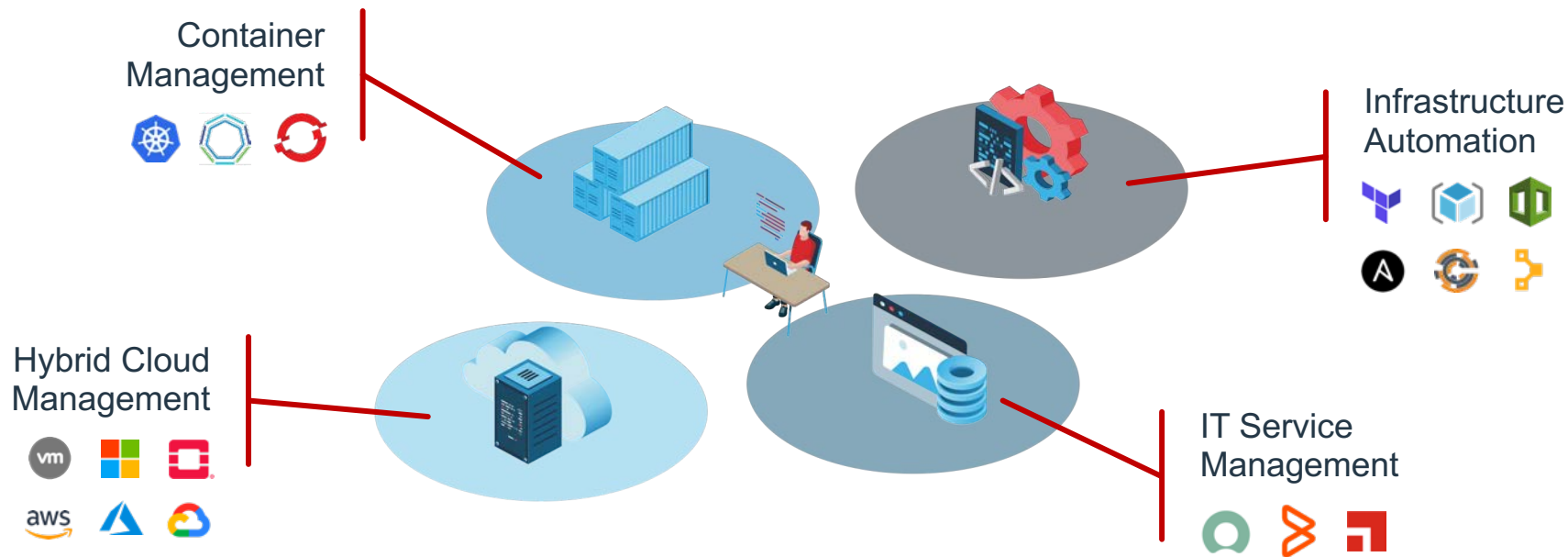
What's New Overview – May 2023



Morpheus Data, LLC, 2023

# IT Complexity slows down workload provisioning

Home grown self-service platforms end up being brittle and hard to maintain at enterprise scale



# Self-Service is what defines Cloud, DevOps ... and Morpheus

## Provision any service into any cloud

From single VM/OS to complex multi-tier applications with clustered layouts and cloud-native PaaS services.

## Build, manage, and consume Kubernetes

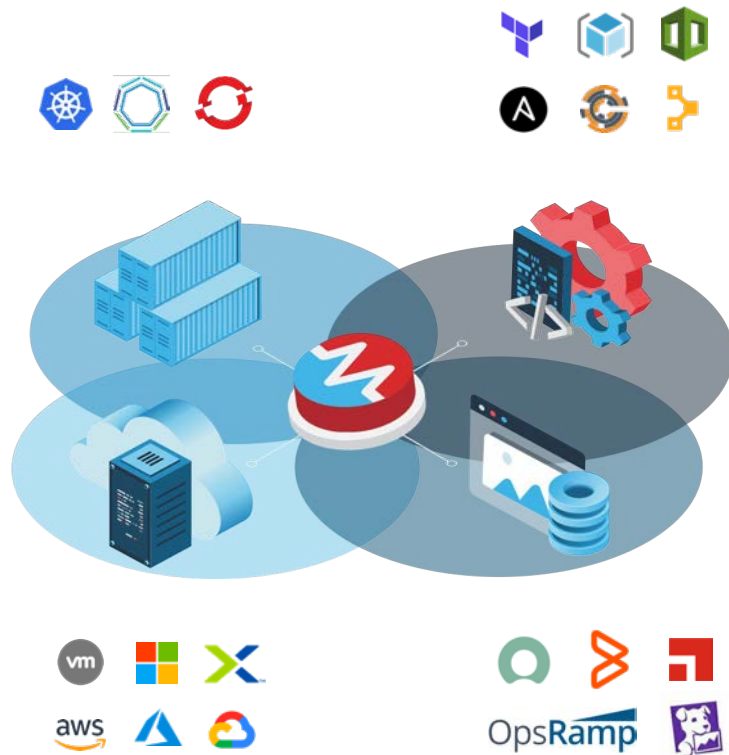
Use Morpheus K8s, provision EKS/AKS/GKE, deploy OpenShift, Tanzu, Rancher, etc., or connect brownfield.

## Centralize IaC and Config. Management

Provide execution and governance of a heterogeneous mix of Terraform, Ansible, Chef, Puppet, Salt, vRO, etc.

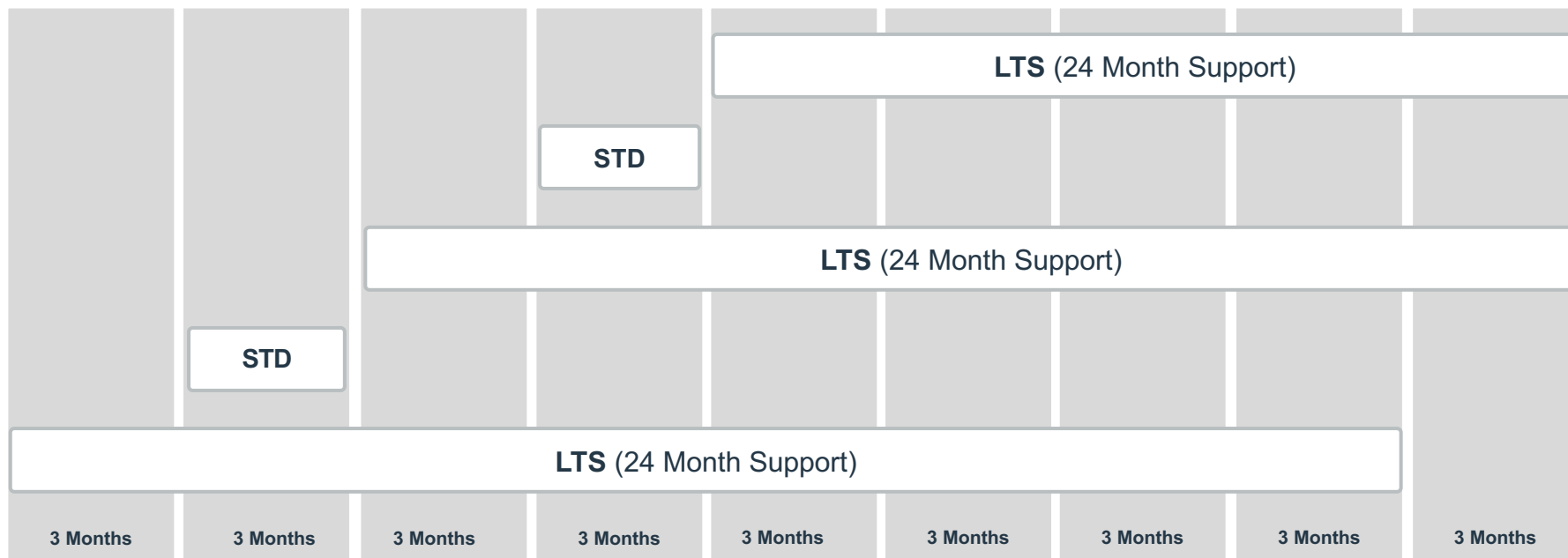
## Discover and manage services across clouds

Visualize resources and optimize costs, update CMDBs, monitor incidents, and automate remediation.



# Morpheus Release Cycle

Understanding the changes to the Morpheus release cycle



<https://support.morpheusdata.com/s/article/How-do-Morpheus-version-numbers-work>



# Core Platform



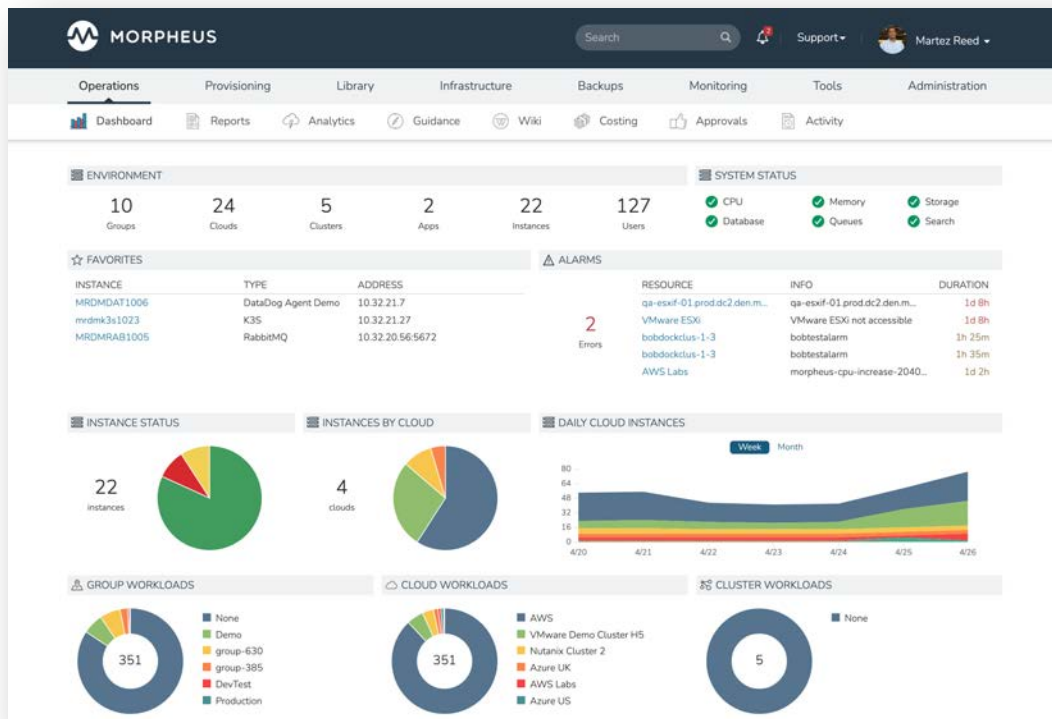
# Core Platform Updates

The foundation for delivering self-service workload management and automation

**New Default Dashboard:** The default Morpheus dashboard has been updated with a new look and feel that includes new visualizations and data.

**Object Labels:** Organize and filter Morpheus objects (tasks, spec templates, instance types, etc.) using metadata associated with the object.

**MySQL 8 Support:** MySQL 8 can now be used as the underlying database for the Morpheus platform.



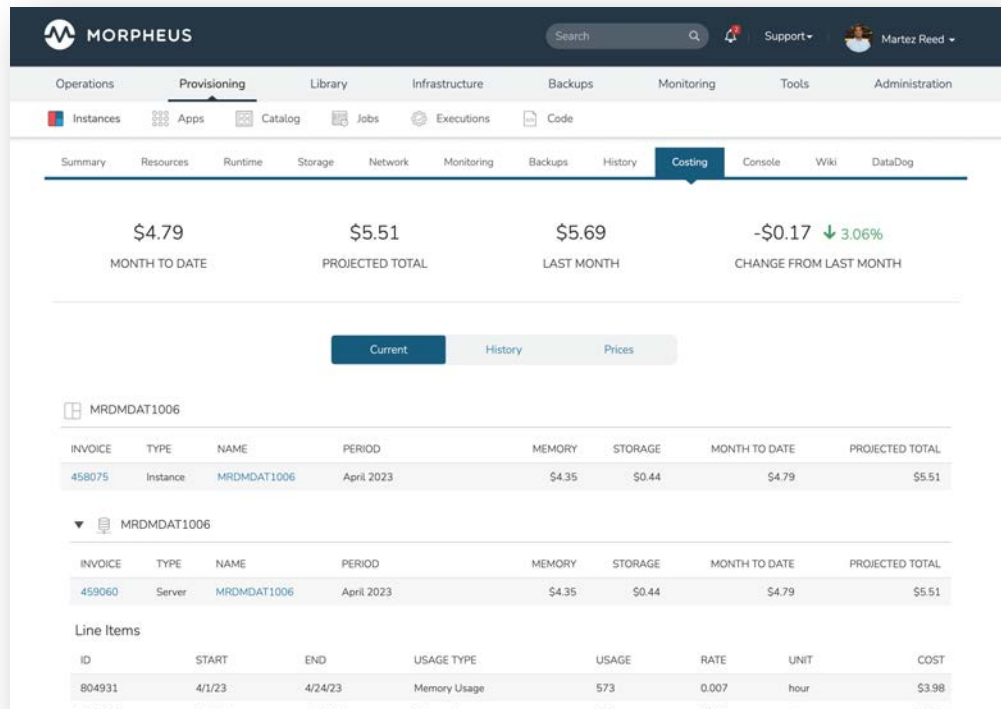
# Core Platform Updates

The foundation for delivering self-service workload management and automation

**Instance Detail UI Updates:** The instance details page has been updated with new visualizations for performance metrics, a new costing breakdown, and a software inventory.

**IPv6 IP Pools:** IPv6 IP address pools can now be managed with the platform in addition to IPv4 IP addresses.

**Regex Based Input Validation:** Input validation can now be added to text and text area inputs using regex-based validation.



# Core Platform Updates

The foundation for delivering self-service workload management and automation

## RBAC UI/UX Enhancements:

Management of role permissions has been simplified in the UI with the addition of feature permissions categories, category level permission settings, and the ability to search features.

## Granular Instance RBAC Permissions:

New granular permissions have been added to further tailor the level of access users are given to perform operations in a self-service fashion against instances.

## Subtenant Role Management:

Management of roles in subtenants has been enhanced to allow the roles be updated from the master tenant.

**MORPHEUS**

Search 🔍 Support 🗨️ Martez Reed 👤

Operations Provisioning Library Infrastructure Backups Monitoring Tools Administration

Tenants Plans & Pricing Roles Users Integrations Policies Health Settings

▼ LIFECYCLE Choose Access ▼

NAME	DESCRIPTION	ACCESS
Environment Variables	Allows for an instance's environment variables to be changed or adjusted.	Full ▼
Power Control	Provisioning > Power Control allows for the stopping/starting/restarting/suspending of Instances and/or Servers.	Full ▼
Reconfigure	Permission for resizing instances/servers	Full ▼
Reconfigure: Change Plan	Allows a user to change the selected Service Plan on an instance/server during reconfigure	Full ▼
Reconfigure: Disk Add	Allows a user to add a disk on an instance/server during reconfigure	Full ▼
Reconfigure: Disk Change Type	Allows a user to change a disk type on an instance/server during reconfigure	Full ▼
Reconfigure: Disk Modify	Allows a user to change a disk on an instance/server during reconfigure	Full ▼
Reconfigure: Disk Remove	Allows a user to remove a disk on an instance/server during reconfigure	Full ▼
Reconfigure: Network Add	Allows a user to add a network adapter on an instance/server during reconfigure	Full ▼
Reconfigure: Network Modify	Allows a user to change a network on an instance/server during reconfigure	Full ▼
Reconfigure: Network Remove	Allows a user to remove a network adapter on an instance/server during reconfigure	Full ▼

► MONITORING Choose Access ▼





# Core Platform Updates

The foundation for delivering self-service workload management and automation

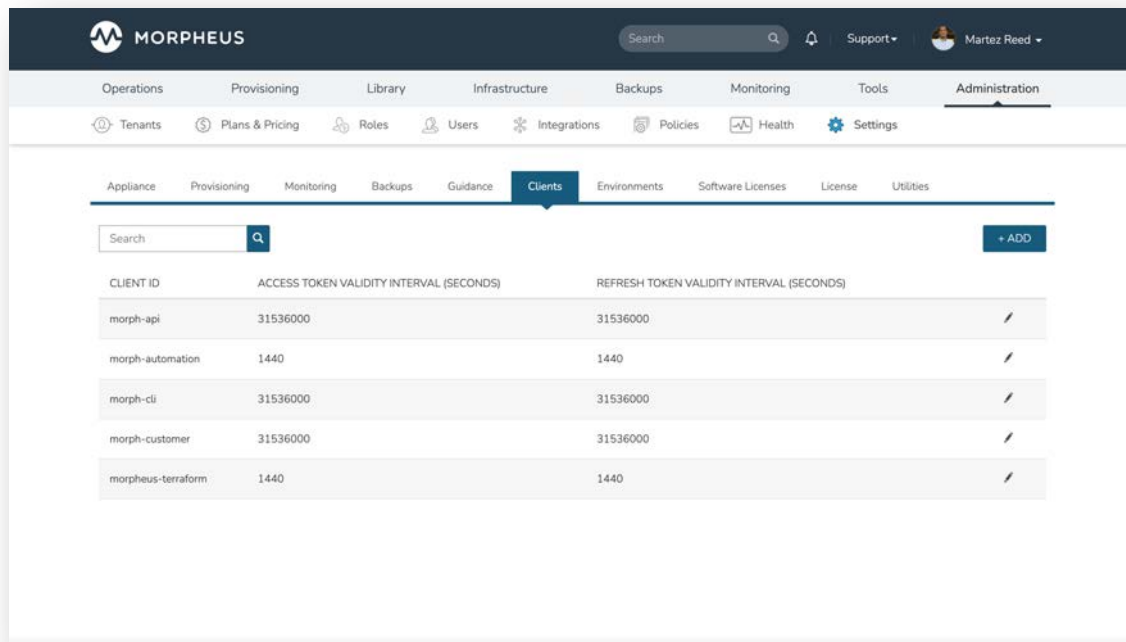
## Credential Store Integration Support:

Centralized credential management with the Morpheus credential store has been expanded to integrations such as IPAM, DNS, and more.

**HashiCorp Vault Integration:** Integrate Morpheus with HashiCorp Vault to allow Morpheus to reference Vault when accessing credentials.

**CyberArk Conjur Integration:** Integrate Morpheus with CyberArk Conjur to allow Morpheus to reference CyberArk Conjur when accessing credentials.

**Configurable API Token Lifetime:** Define the token lifetime of new and existing OAuth clients for API tokens.



The screenshot displays the Morpheus Administration interface. The top navigation bar includes the Morpheus logo, a search bar, a notification bell, a 'Support' link, and a user profile for 'Martez Reed'. Below this is a secondary navigation bar with tabs for Operations, Provisioning, Library, Infrastructure, Backups, Monitoring, Tools, and Administration (which is selected). Under the Administration tab, there are sub-tabs: Tenants, Plans & Pricing, Roles, Users, Integrations, Policies, Health, Settings, and Clients (which is selected). The Clients sub-tab shows a table with columns for Client ID, Access Token Validity Interval (Seconds), and Refresh Token Validity Interval (Seconds). The table lists six clients: morph-api, morph-automation, morph-cli, morph-customer, and morpheus-terraform. Each row has an edit icon (pencil) in the rightmost column. A '+ ADD' button is located in the top right corner of the table area.

CLIENT ID	ACCESS TOKEN VALIDITY INTERVAL (SECONDS)	REFRESH TOKEN VALIDITY INTERVAL (SECONDS)	
morph-api	31536000	31536000	/
morph-automation	1440	1440	/
morph-cli	31536000	31536000	/
morph-customer	31536000	31536000	/
morpheus-terraform	1440	1440	/

# Core Platform Updates

The foundation for delivering self-service workload management and automation

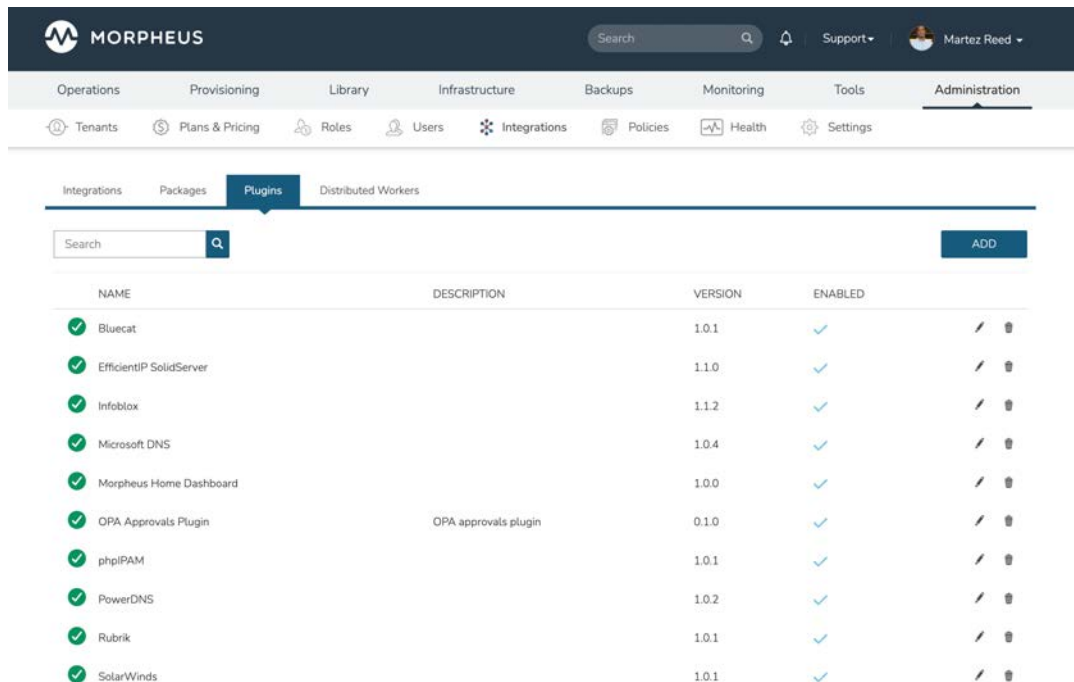
## Native Integration Plugin Migration:

Multiple native codeless integrations have been migrated to utilize the Morpheus plugin architecture.

**Backup Provider:** Develop custom backup integrations using the new backup integration plugin provider.

**Load Balancer Provider:** Develop custom load balancer integrations using the new load balancer integration plugin provider.

**Custom Dashboard Provider:** Develop custom dashboards with the new dashboard board provider using HTML, CSS, and JavaScript.



The screenshot shows the Morpheus web interface. The top navigation bar includes the Morpheus logo, a search bar, a notification bell, a 'Support' link, and a user profile for 'Martez Reed'. Below this is a secondary navigation bar with tabs for Operations, Provisioning, Library, Infrastructure, Backups, Monitoring, Tools, and Administration. The 'Administration' tab is active, and within it, the 'Plugins' sub-tab is selected. The main content area displays a table of installed plugins. The table has columns for NAME, DESCRIPTION, VERSION, and ENABLED. Each row also includes a green checkmark icon and edit/delete icons. The 'ADD' button is visible in the top right corner of the table area.

NAME	DESCRIPTION	VERSION	ENABLED
Bluecat		1.0.1	✓
EfficientIP SolidServer		1.1.0	✓
Infoblox		1.1.2	✓
Microsoft DNS		1.0.4	✓
Morpheus Home Dashboard		1.0.0	✓
OPA Approvals Plugin	OPA approvals plugin	0.1.0	✓
phpIPAM		1.0.1	✓
PowerDNS		1.0.2	✓
Rubrik		1.0.1	✓
SolarWinds		1.0.1	✓



# Core Platform Updates

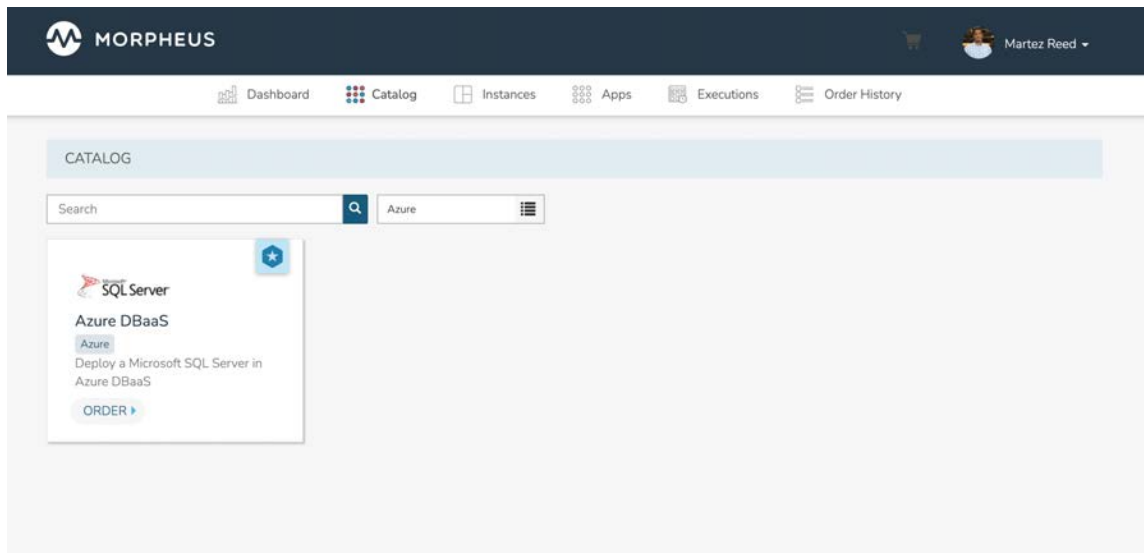
The foundation for delivering self-service workload management and automation

**Service Catalog Categories:** Catalog items can now be added to categories to allow service catalog users to filter the catalog using customer defined categories.

**Order History:** View the history of catalog items that have been previously ordered as well as the ability to re-order available items.

**Service Catalog Persona Permissions:** Manage the full lifecycle of instances and apps with the service catalog persona.

**Service Catalog Item Quantity:** Order multiple instances of a service catalog item with the new quantity functionality.





# Hybrid Cloud



# Hybrid Cloud Updates

Enabling hybrid cloud management at scale with a centralized self-service platform

**Zone Pool Groups:** Deploy workloads with greater intelligence (round-robin or capacity based) to the dozens of clouds supported by the Morpheus platform.

**Custom Icons:** Configure custom icons for cloud integrations to white label the underlying cloud technology delivered to customers.

**AWS Orphaned Volumes Guidance:** Reduce cloud spend with the new guidance recommendation that's been added for orphaned or unattached AWS EBS volumes.

The screenshot shows the Morpheus user interface with a 'CREATE POOL GROUP' modal dialog open. The dialog has a dark header with the Morpheus logo and a close button. The main content area is titled 'Group Info' and contains several input fields: 'NAME' (filled with 'Zone Pool Group'), 'DESCRIPTION' (empty), and 'MODE' (a dropdown menu showing 'Round-Robin' as the selected option, with 'Available Capacity' as an alternative). Below these fields is a 'Pools' section with a search bar and a list of two items: 'Demo (VMware Demo Cluster H5)' and 'DevTest (VMware Demo Cluster H5)', each with a delete icon. At the bottom of the dialog are expandable sections for 'Group Access' and 'Tenant Permissions', and a 'SAVE CHANGES' button.

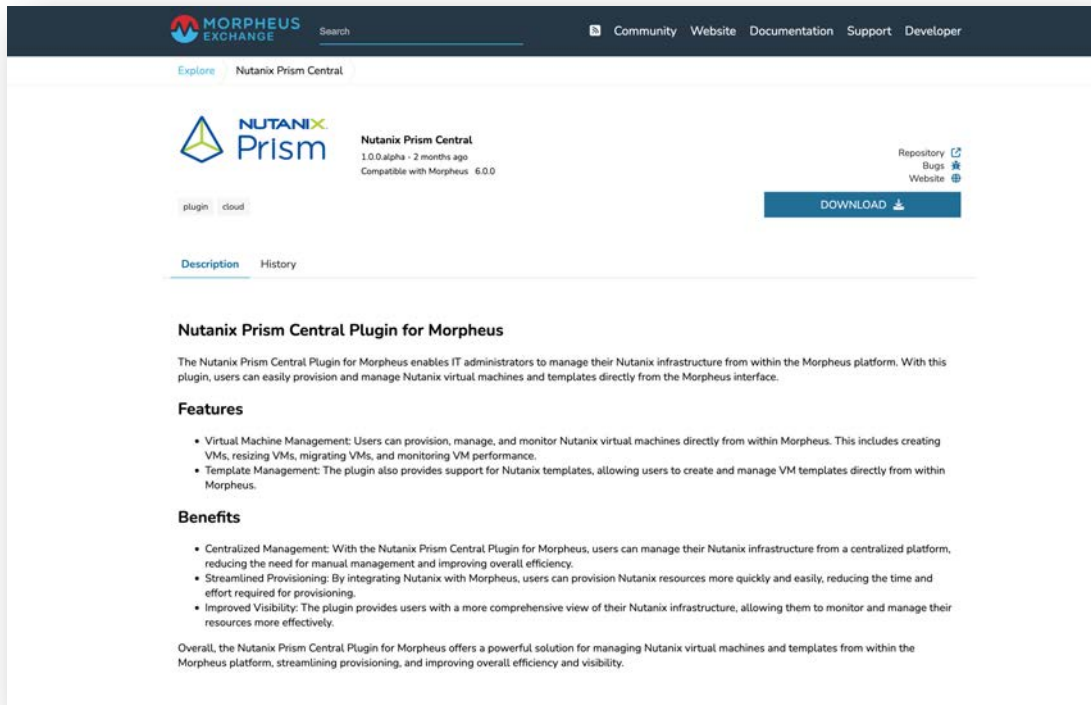
# Hybrid Cloud Updates

Enabling hybrid cloud management at scale with a centralized self-service platform

**Azure Agentless Guidance:** Azure guidance recommendation can now be surfaced in Morpheus without the need to have the Morpheus agent installed.

**Azure Boot Diagnostics Custom Storage:** Select a custom Azure storage account during the provisioning of Azure workloads for storing boot diagnostic data.

**Nutanix Prism Central Alpha Support:** The Nutanix Prism Central cloud plugin has reach alpha status and is ready for testing and evaluation.



The screenshot displays the Morpheus Exchange website interface. At the top, the Morpheus Exchange logo is visible alongside a search bar and navigation links for Community, Website, Documentation, Support, and Developer. Below the header, the 'Explore' tab is active, showing the 'Nutanix Prism Central' plugin. The plugin card features the Nutanix Prism logo, the text 'Nutanix Prism Central', and version information: '1.0.0.alpha - 2 months ago' and 'Compatible with Morpheus 6.0.0'. A 'DOWNLOAD' button is present. Below the plugin card, the 'Description' tab is selected, showing the title 'Nutanix Prism Central Plugin for Morpheus'. The description states: 'The Nutanix Prism Central Plugin for Morpheus enables IT administrators to manage their Nutanix infrastructure from within the Morpheus platform. With this plugin, users can easily provision and manage Nutanix virtual machines and templates directly from the Morpheus interface.' The 'Features' section lists: Virtual Machine Management (provision, manage, monitor VMs), Streamlined Provisioning (integrating Nutanix with Morpheus), and Improved Visibility (comprehensive view of Nutanix infrastructure). The 'Benefits' section lists: Centralized Management (manage Nutanix infrastructure from a centralized platform), Streamlined Provisioning (reducing time and effort), and Improved Visibility (monitor and manage resources effectively). The overall summary states: 'Overall, the Nutanix Prism Central Plugin for Morpheus offers a powerful solution for managing Nutanix virtual machines and templates from within the Morpheus platform, streamlining provisioning, and improving overall efficiency and visibility.'

# Hybrid Cloud Updates

Enabling hybrid cloud management at scale with a centralized self-service platform

**GCP Terraform Mapping:** Terraform mapping support has been added for GCP to the Morpheus platform.

**GCP Custom Machine Types:** Provision and discover GCP virtual machines using custom hardware specifications available with custom machine types.

**GCP Public Virtual Machine Images:** Provision GCP instances using public virtual machine images to quickly get started with GCP.

The screenshot displays the 'CREATE INSTANCE' window in the Morpheus platform, specifically the 'CONFIGURE' tab. The interface is divided into a sidebar on the left and a main configuration area. The sidebar includes a search bar and a list of instances, with 'vmdemo0 Production' and 'vmw...' visible. The main area contains the following configuration options:

- LAYOUT:** Google VM
- PLAN:** n2-custom (Cores: 2, Memory: 14 GB, Price: \$94.2722 / Month)
- GOOGLE ZONE:** us-central1-a
- RESOURCE POOL:** My First Project
- VOLUMES:** root (10 GB, standard)
- CORE COUNT:** 2
- MEMORY:** 14 GB
- NETWORKS:** default - default (10.128.0.0/20) with DHCP
- IMAGE TYPE:** Public Image (selected), Private Image, Local Image
- IMAGE:** centos-stream-9-v20230203
- NETWORK TAGS:** (empty field)

The top of the window shows the 'MORPHEUS' logo and the user 'Martez Reed'. The right sidebar shows a '10% MEMORY' gauge and an 'Administration' link.

# Hybrid Cloud Updates

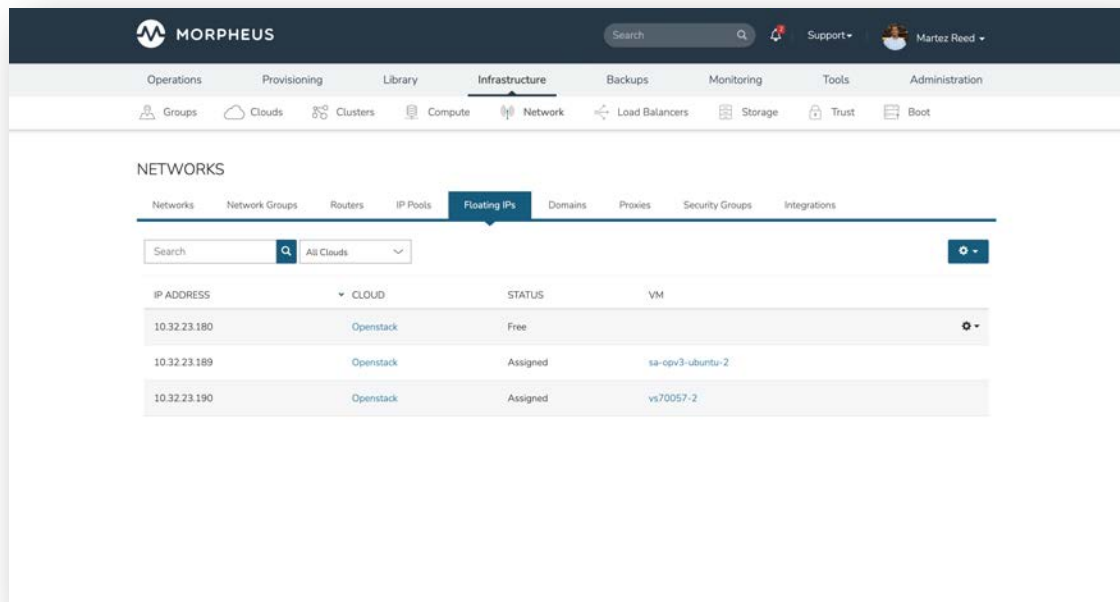
Enabling hybrid cloud management at scale with a centralized self-service platform

**Floating IP Management:** Support has been added for managing floating IP address.


## OpenStack Terraform Mapping:

Terraform mapping support has been added for OpenStack to the Morpheus platform.

**Oracle Cloud Full Tag Sync:** Tags are now bi-directionally synced between Oracle Cloud and Morpheus.







# Infrastructure Automation



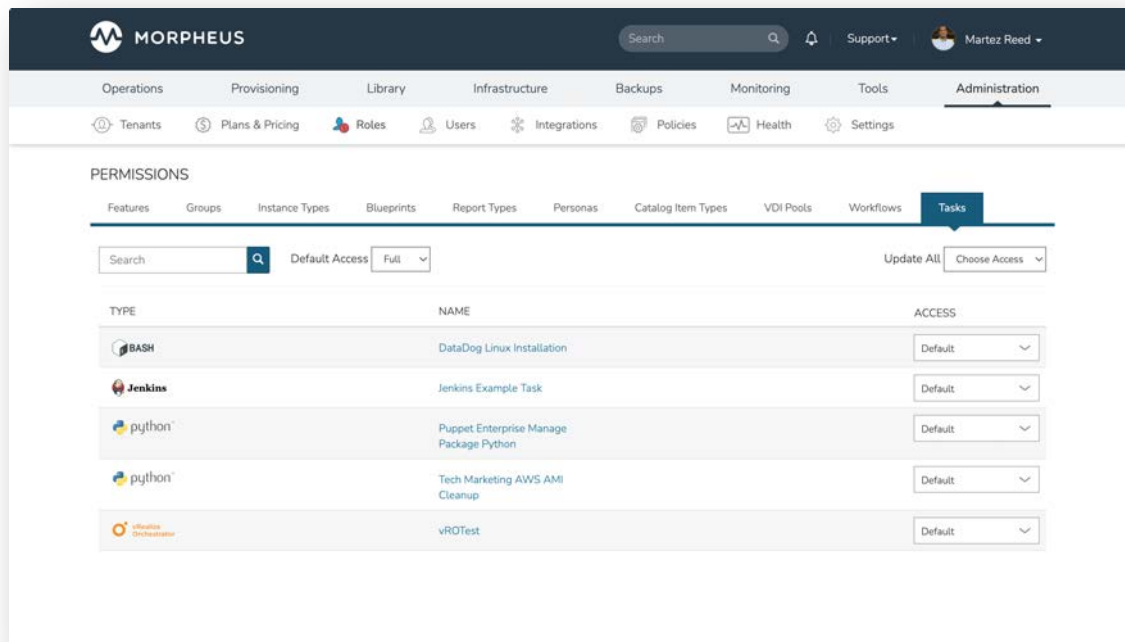
# Infrastructure Automation Updates

Enabling automation at scale through integrations and self-service

**Task & Workflow RBAC:** Restrict access to automation tasks and workflows using the new task and workflow level role permissions.

**UX Enhancements:** The drop-down lists used to select automation tasks and workflows throughout the UI have been changed to typeaheads to provide a better user experience.

**Nested Workflows:** Support has been added for adding an automation workflow to another workflow with the new nested workflow task type.



# Infrastructure Automation Updates

Enabling automation at scale through integrations and self-service

**Operational Workflow Approvals:** Scale self-service automation while maintaining the appropriate controls by requiring an approval prior to the execution of an automation workflow.

**Jenkins Task Type:** Integrate Morpheus with the Jenkins CI server using the new Jenkins task type available at [share.morpheusdata.com](https://share.morpheusdata.com) to trigger the execution of a Jenkins job from Morpheus.

**Automation Retry:** Retry failed automation tasks using the new retry button. This enables workflows with a failing task to automatically continue once the failing task has been fixed.

**MORPHEUS**

Operations Provisioning  
Tenants Plans & Pricing

**POLICIES**

Search [Q] TYPE: All

**NEW POLICY**

TYPE: Approve Workflow Execute

NAME: Operational Workflow Approval

DESCRIPTION:

☒ ENABLED

Config

APPROVAL INTEGRATION: Internal Approvals

Filter

SCOPE: Global

TENANTS: Search

SAVE CHANGES

Accounts: A Tenant, Gekko & Co., Morpheus, All, All, All, All, All, All, All, All

Instance Naming: Fixed Name - pattern: \${userInitials.toLowerCase()}dm\${type.take(3).toLowerCase()}\${sequence+1000}



# Infrastructure Automation Updates

Enabling automation at scale through integrations and self-service

**Task Multi-Tenancy:** Automation tasks from the master tenant can now be shared with subtenants using the new visibility setting for automation tasks.

**Provisioning Workflow Pricing Phase:** Generate or override a workload's price dynamically using an automation task that has been added to the new provisioning workflow pricing phase.

**Dynamic Automation Targets:** Execute ad-hoc or scheduled automation against workloads based upon target metadata (labels).

**Workflow Cancellation:** Cancel an actively running workflow. Stops the workflow execution once the current task has completed.

The screenshot displays the Morpheus user interface with a 'NEW JOB' modal window open. The modal has three tabs: 'SETUP', 'CONFIGURE', and 'REVIEW', with 'CONFIGURE' currently selected. The configuration is divided into two sections: 'Job Configuration' and 'Execution Config'. In the 'Job Configuration' section, the 'TASK' dropdown is set to 'System Patching'. In the 'Execution Config' section, the 'SCHEDULE' dropdown is set to 'Weekly On Sunday At Midnight', the 'RUN NOW' checkbox is unchecked, the 'CONTEXT TYPE' dropdown is set to 'Instance Label', and the 'LABEL' text field contains 'linux production'. At the bottom of the modal are 'PREVIOUS' and 'NEXT' buttons. The background interface shows the 'Provisioning' tab with 'Instances' and 'Apps' sub-tabs, and a 'DAILY JOB STATUS' summary on the right showing 0 completed and 0 failed jobs.



# Container Management



# Container Management Updates

Enabling Docker and Kubernetes clusters management at scale

**Cluster Approval Policy:** Approval policies have been extended to Docker, KVM, and Kubernetes clusters. Require approvals for provisioning, modifications, and deletions.

**MKS Cluster Upgrades:** Upgrading an MKS cluster can now be performed in an automated fashion using the UI or the REST API.

**MKS K8s 1.26 layout:** Support has been added for provisioning MKS Kubernetes clusters running Kubernetes 1.26.

The screenshot shows the 'CREATE CLUSTER' dialog in the Morpheus UI, specifically the 'CONFIGURE' tab. The dialog has a dark header with the Morpheus logo and the title 'CREATE CLUSTER'. Below the header is a navigation bar with tabs: 'GROUP', 'NAME', 'CONFIGURE' (active), 'AUTOMATION', and 'REVIEW'. The main content area is titled 'Configuration Options' and contains several configuration fields:

- LAYOUT:** A dropdown menu showing 'MKS Kubernetes 1.26 Cluster on Ubuntu 20.04'.
- PLAN:** A dropdown menu showing '2 CPU, 8GB Memory'. Below it, the plan details are listed: 'Cores: 2 Memory: 8 GB Price: \$108.00 / Month'.
- VOLUMES:** A section with a table-like structure. It has a 'root' volume with a size of '80' GB, 'Standard' storage type, and 'Auto - Datastore' provisioning. There is a '+' button to add more volumes.
- NETWORKS:** A section with a table-like structure. It has a 'VM Network' with 'VMXNET 3' adapter and 'GRT' network type. There is a '+' button to add more networks. Below this, a note states: 'Adding an interface attaches the network adapters in the cloud services and does not configure the network in the guest operating system.'
- HOST:** A dropdown menu showing 'Auto'.
- FOLDER:** A dropdown menu showing '/'.
- POD CIDR:** A text input field containing '172.20.0.0/16'.
- SERVICE CIDR:** A text input field containing '172.30.0.0/16'.

At the bottom of the dialog, there is a 'User Config' section with a right-pointing arrow.



# IT Service Management (ITSM)



# IT Service Management Updates

Enabling self-service and automation at scale while aligning with ITSM processes

**ServiceNow OAuth 2.0 Auth:** OAuth 2.0 is now available as authentication method when configuring the ServiceNow integration in Morpheus.

## **ServiceNow Approval Metadata:**

Additional metadata (custom options) is passed from Morpheus to ServiceNow approval workflows when ServiceNow is used for Morpheus approvals.

## **ServiceNow Catalog Instance Metadata:**

Instances provisioned using the catalog integration now include the RITM number from ServiceNow on the instance in Morpheus.

**MORPHEUS**

Operations Provisioning  
Tenants Plans & Pricing

Integrations Packages Plugins

STATUS NAME

✗	git	1wheeler
✓	ACI	ACI Cisco
✓	CHEF	AizyCh
✓	GitHub	alahoud
✓	servicenow	Ansh D
✓	ANSIBLE	Ansible
✗	git	Ansible
✓	ANSIBLE TOWER	Ansible
✓	amazon Route 53	AWS
✓	amazon Route 53	AWS Ch
✓	amazon Route 53	AWS La
✓	git	azure-qu

**CREATE SERVICENOW INTEGRATION**

NAME

☒ ENABLED

SERVICENOW HOST

Warning! Using HTTP URLs are insecure and not recommended.

☐ IGNORE CERT ERRORS

API PROXY

CREDENTIALS

SECRET STORE

GRANT TYPE

CLIENT ID

SCOPE

CLIENT AUTHENTICATION

CMDB CUSTOM MAPPING

CMDB CLASS MAPPING

Define the mapping between Morpheus server types and





# Thank you!

[www.morpheusdata.com](http://www.morpheusdata.com)

