VM Deployment, Configuration, and Migration (vSphere)

Overview

This project documents the end-to-end lifecycle of a virtual machine in a VMware vSphere environment, from initial deployment through operating system installation, system configuration, asset documentation, and live migration.

Workflow Summary

Deployed a virtual machine from a template using standardized naming and placement

Configured compute, storage, networking, and compatibility settings

Installed CentOS Stream 9 and verified successful boot

Applied post-install system configuration, including hostname and network cleanup

Validated VM state and resource usage in vSphere

Documented the system in AssetTiger for inventory tracking

Performed a compute-only vMotion migration and confirmed successful placement

Result

The virtual machine was successfully deployed, configured, documented, and migrated without downtime, demonstrating practical experience with enterprise virtualization workflows and Linux system administration.

This screenshot shows the vSphere Client Summary page for an ESXi host in a production sandbox environment. The view provides a high-level overview of host hardware, status, and resource utilization.

What's Shown

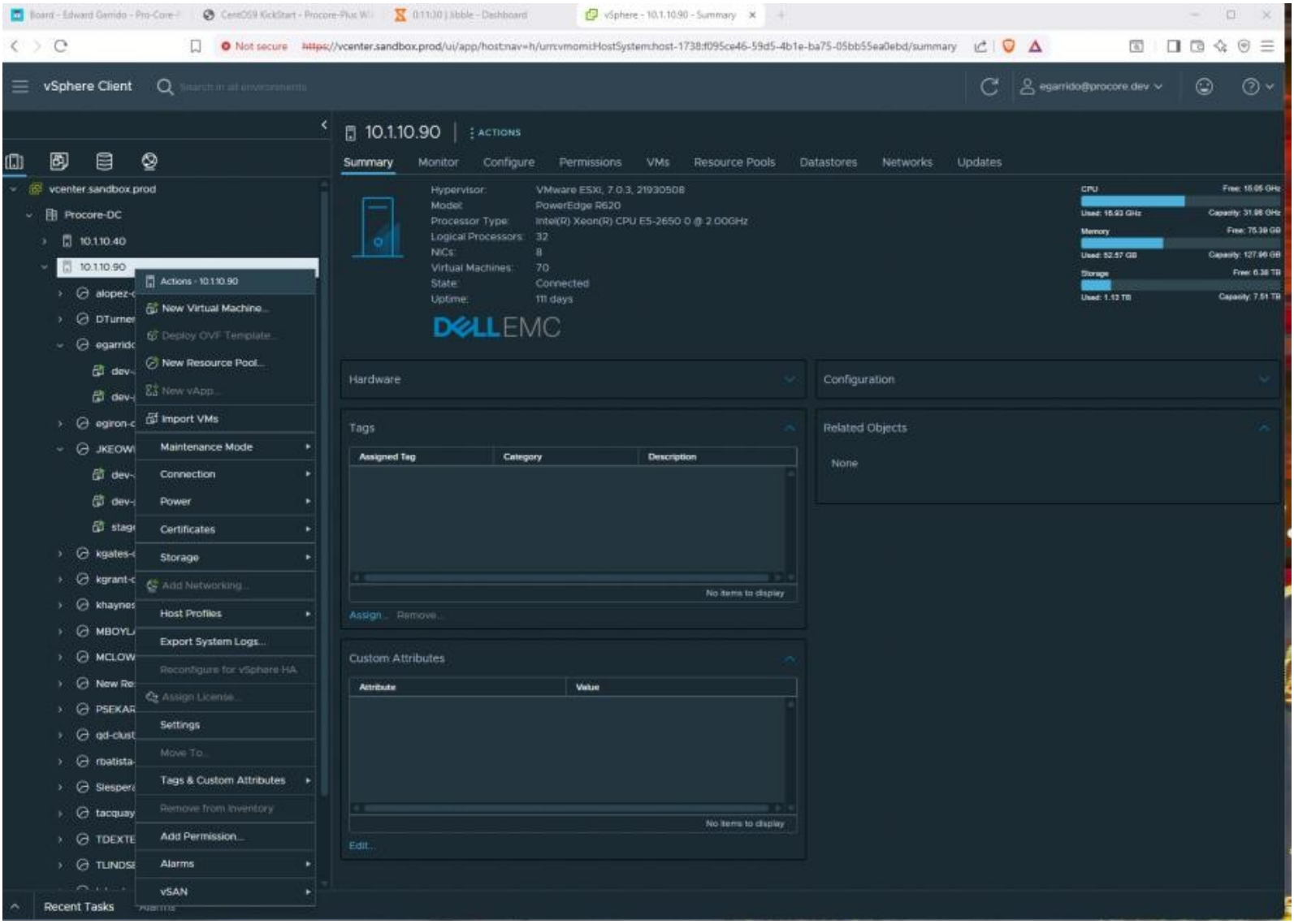
Hypervisor: VMware ESXi (Dell EMC host)

Host State: Connected and operational

Uptime: Continuous runtime without interruption

Hardware Details: CPU model, logical processors, and system memory

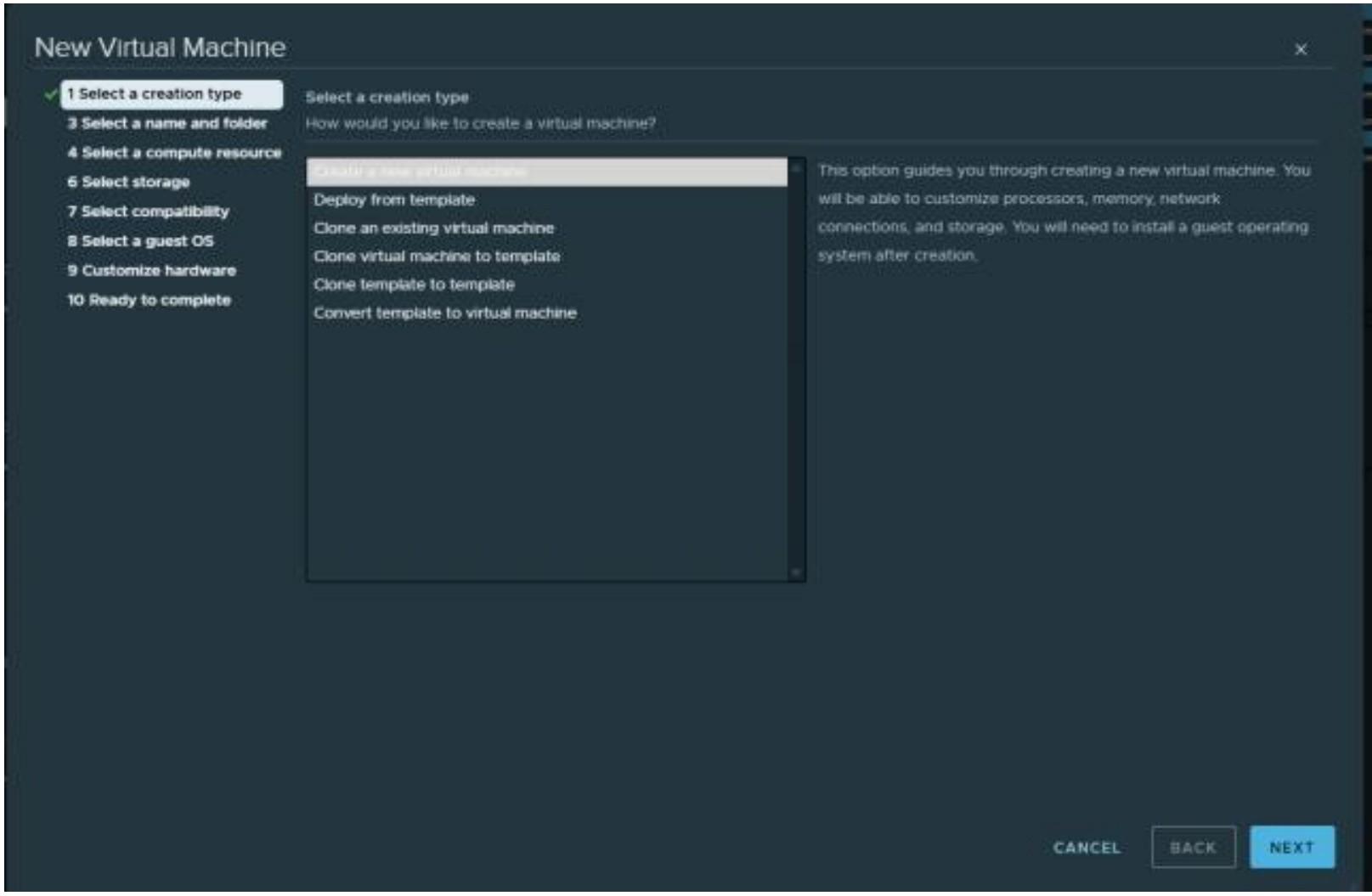
Resource Usage: Real-time CPU, memory, and storage capacity metrics



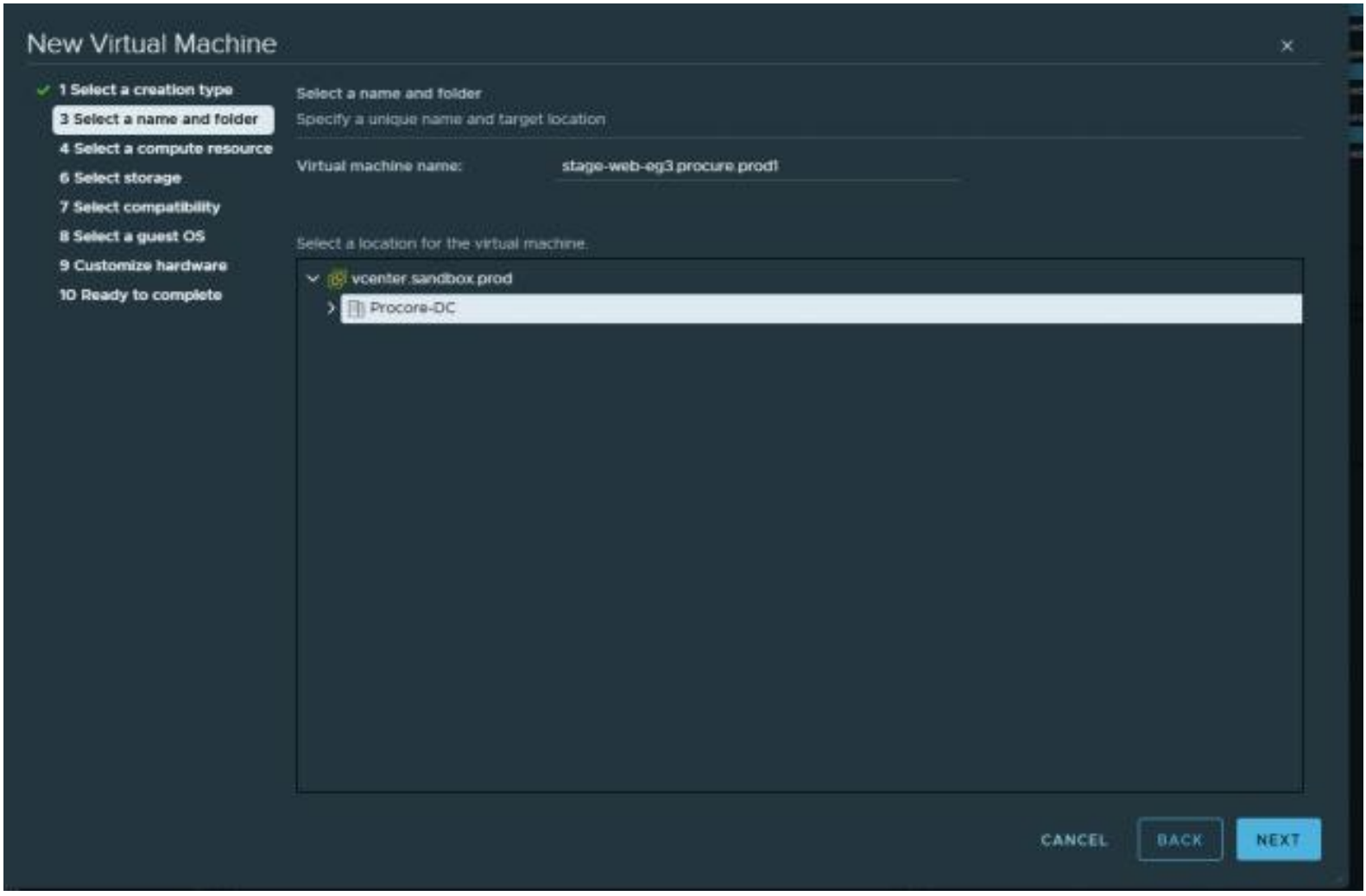
This screen shows the vSphere New Virtual Machine wizard at the stage where the VM creation method is selected. The Deploy from template option is chosen to create a new virtual machine based on a preconfigured template.

Purpose

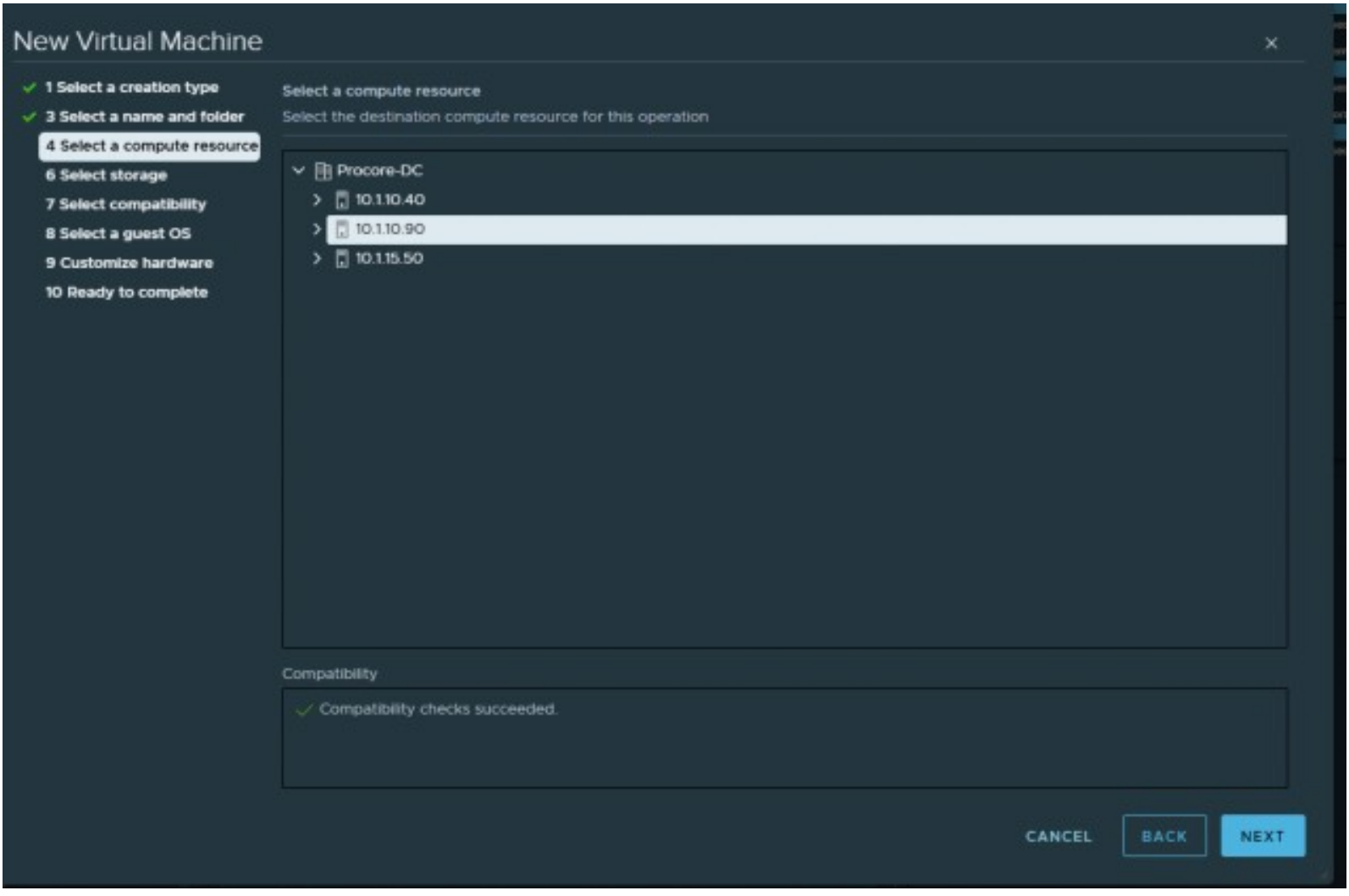
Using a template allows for faster, standardized VM provisioning by reusing an existing OS configuration, reducing setup time and ensuring consistency across environments.



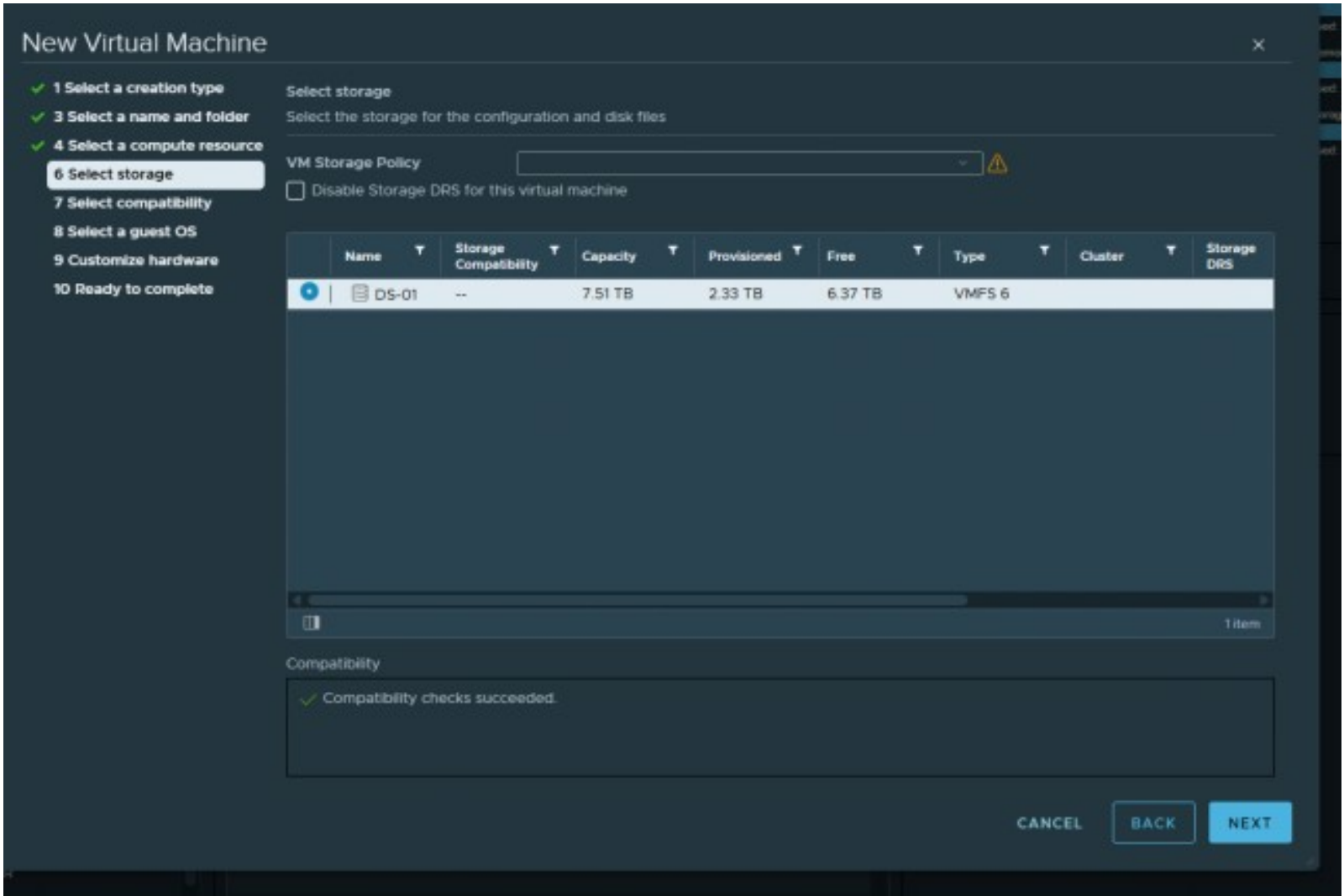
Defines the virtual machine name and selects the appropriate vCenter inventory location, ensuring the VM is clearly identified and placed in the correct datacenter before deployment.



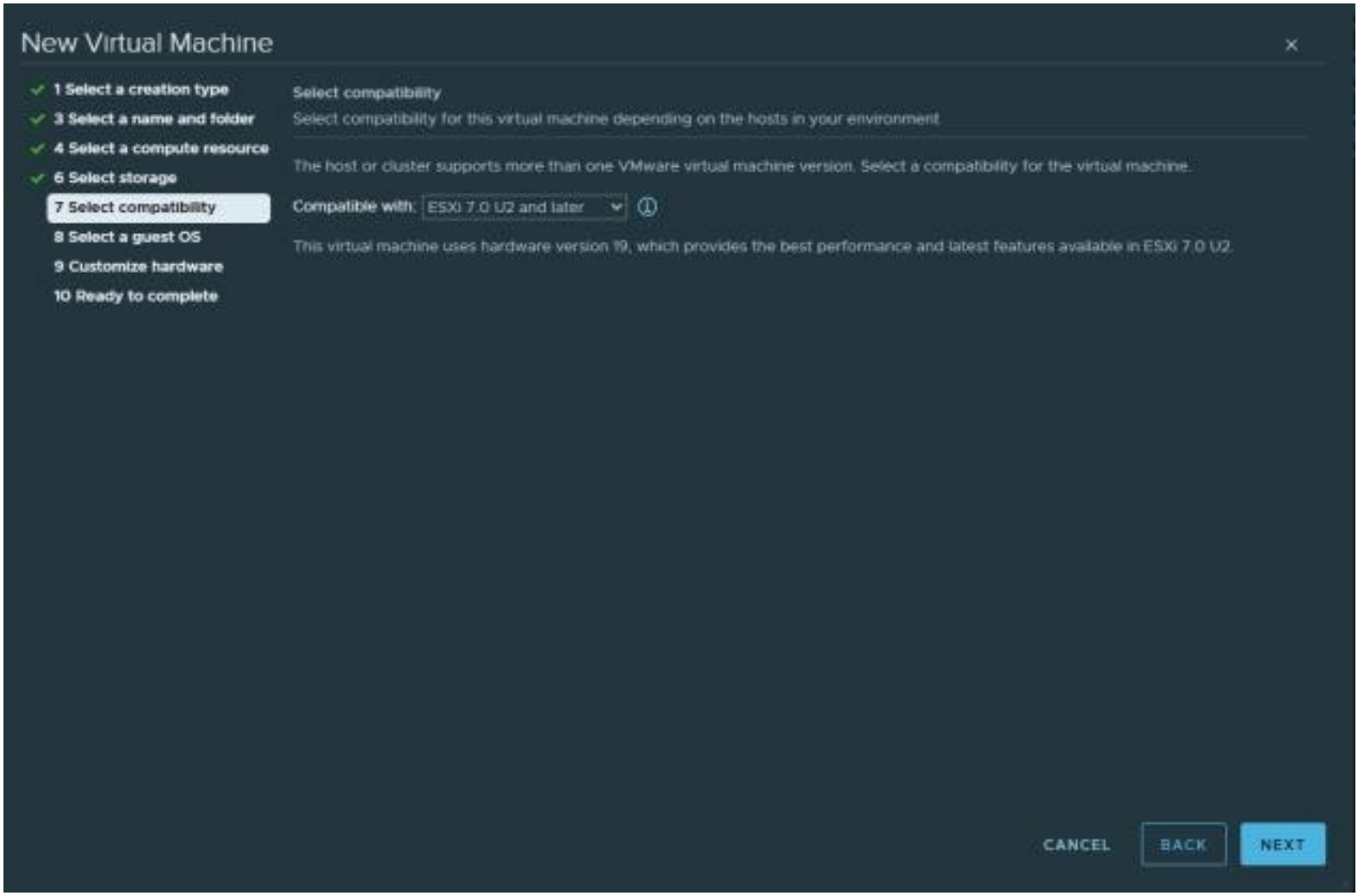
Selects the destination ESXi host as the compute resource for the virtual machine and confirms compatibility checks before proceeding with deployment.



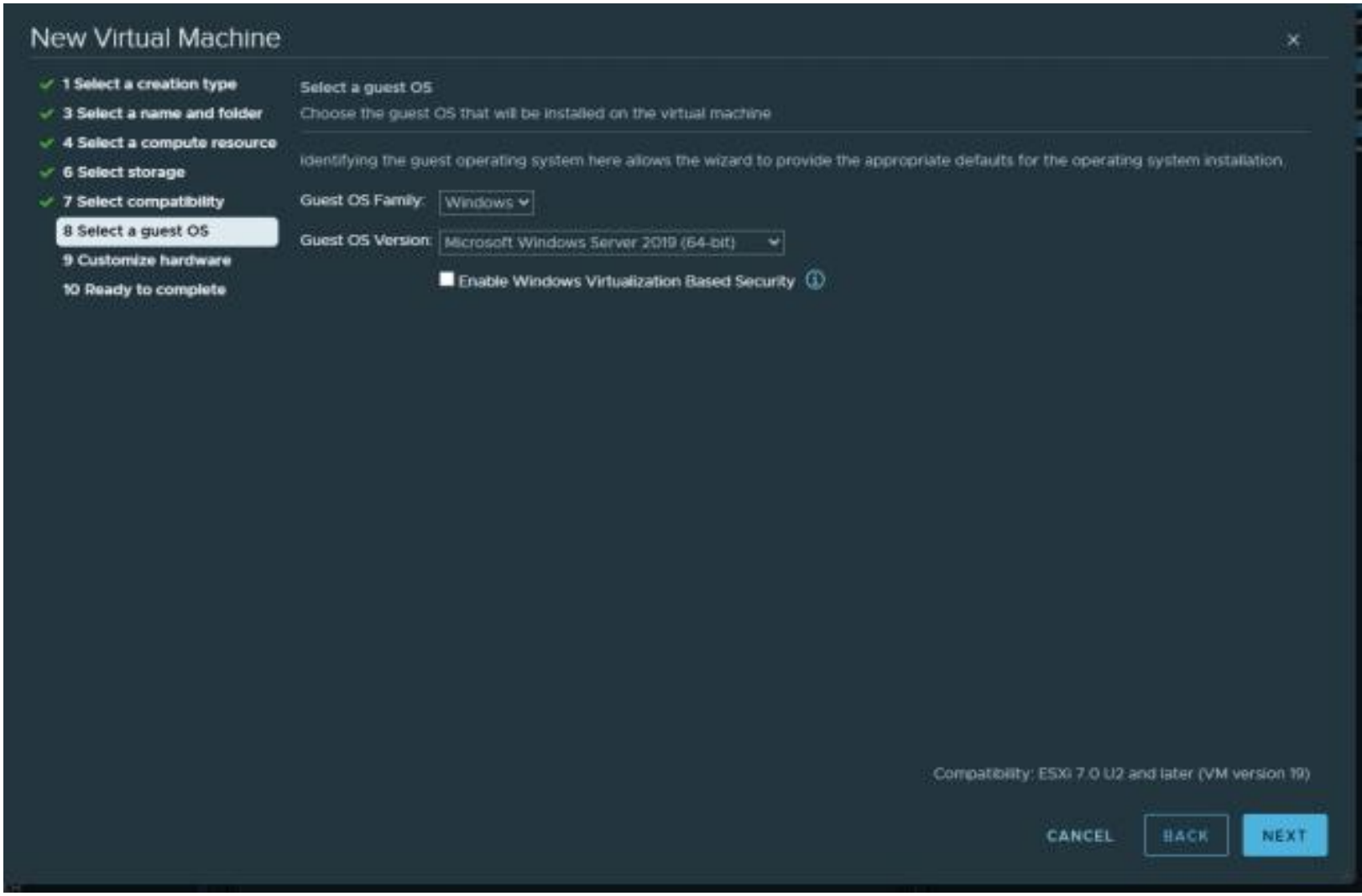
Selects the datastore for the virtual machine’s configuration and disk files, verifying sufficient capacity and successful compatibility checks before continuing.



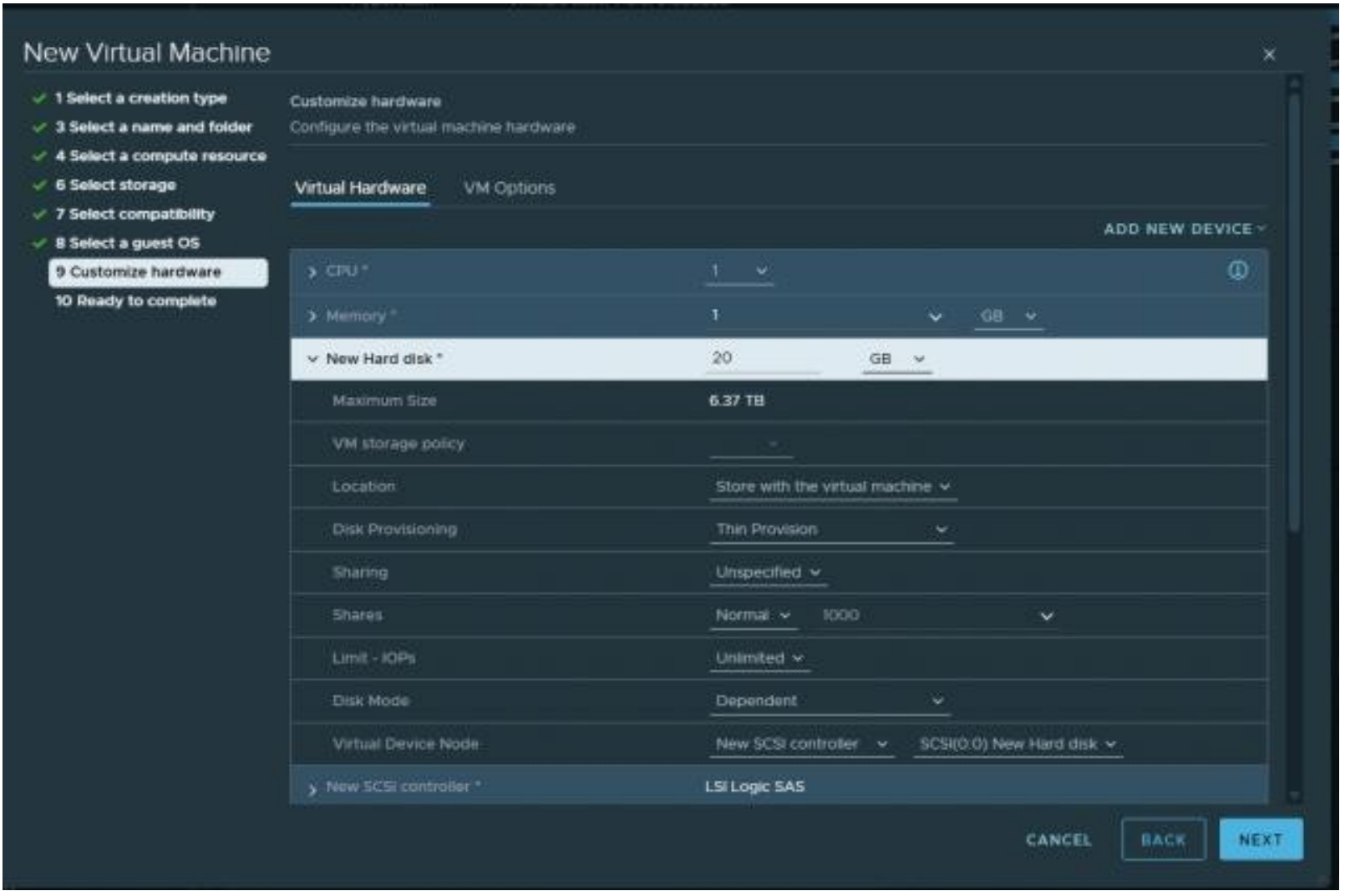
Selects the virtual machine hardware compatibility level (ESXi 7.0 U2 and later), ensuring the VM uses the appropriate hardware version for optimal performance and feature support.



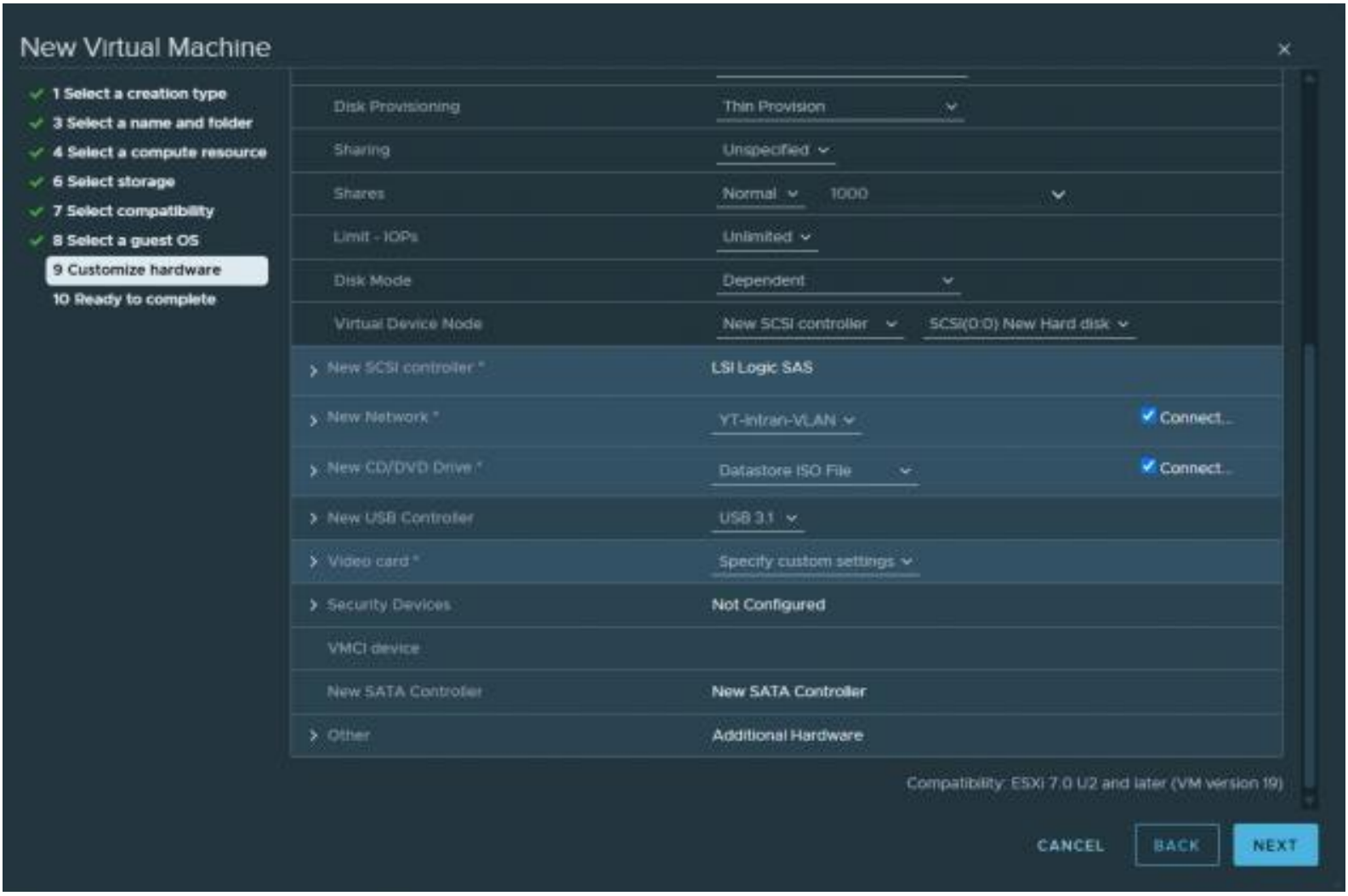
Selects the guest operating system for the virtual machine, specifying Microsoft Windows Server 2019 (64-bit) so vSphere can apply the correct defaults and compatibility settings for the OS installation.



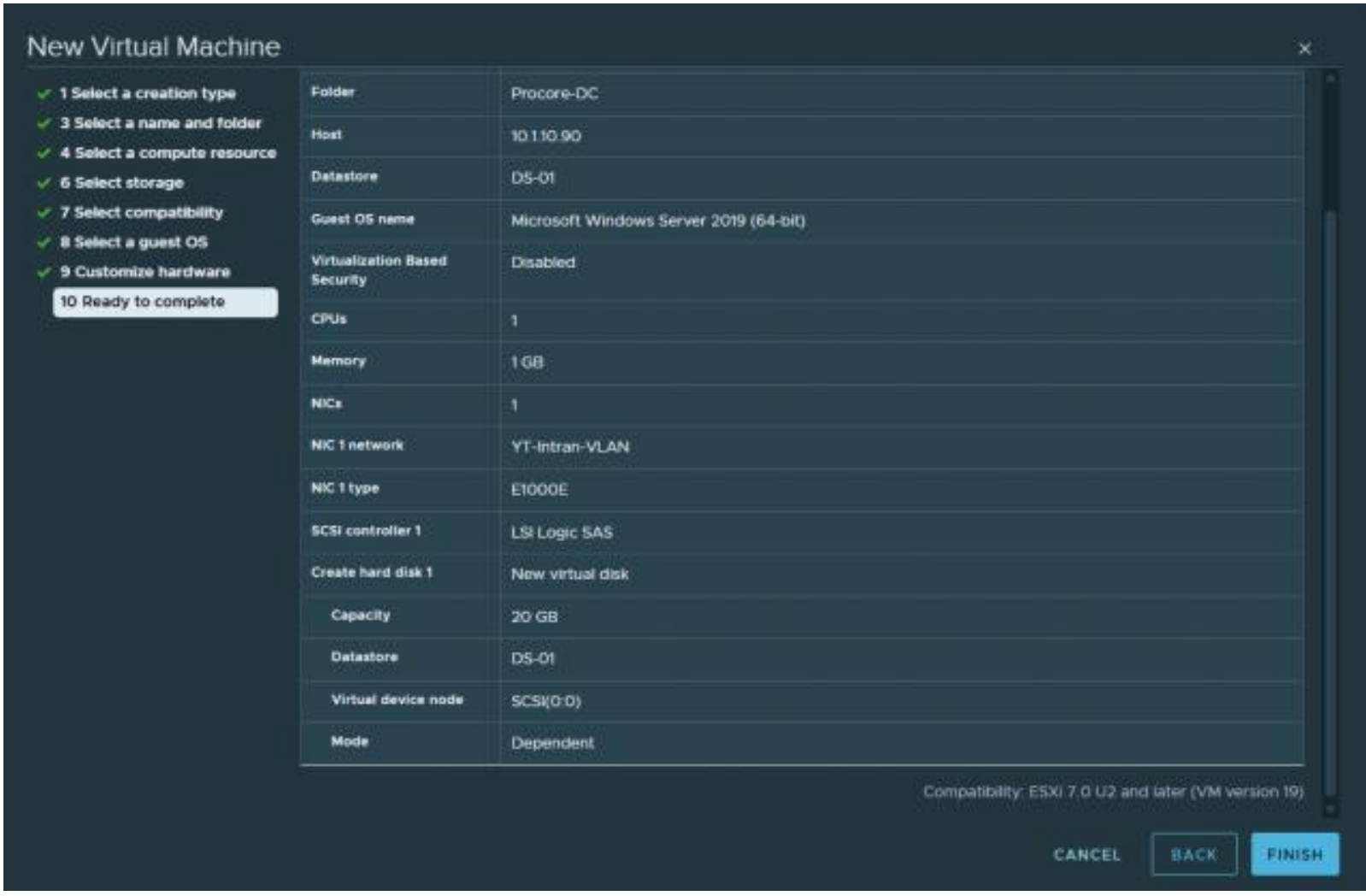
Customizes the virtual machine hardware by defining CPU, memory, and disk settings, including allocating a 20 GB virtual disk with thin provisioning and default controller options before deployment.



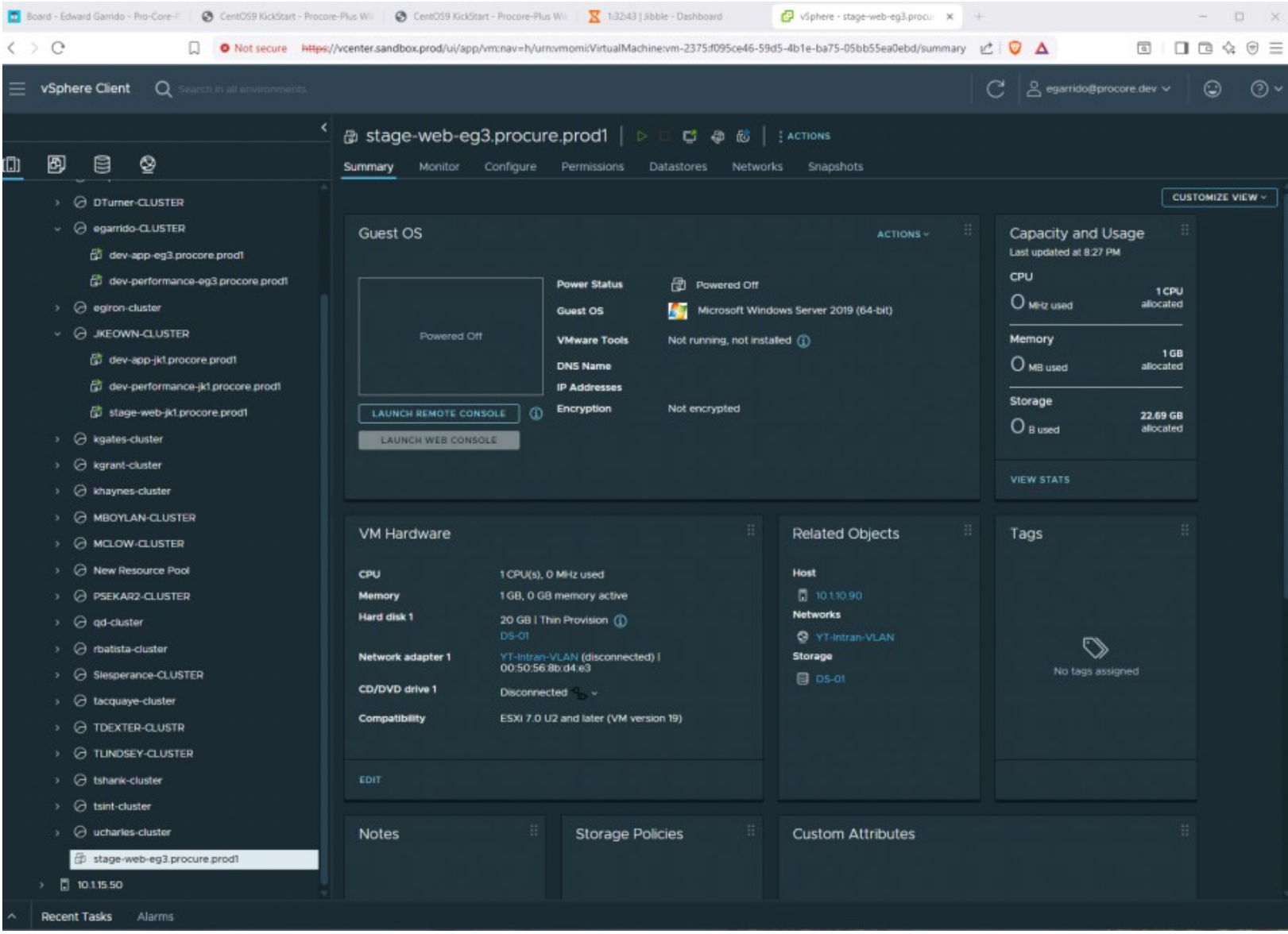
Configures additional virtual machine hardware settings, including network connectivity, ISO attachment, controllers, and device options, ensuring the VM is fully prepared for installation and initial boot.



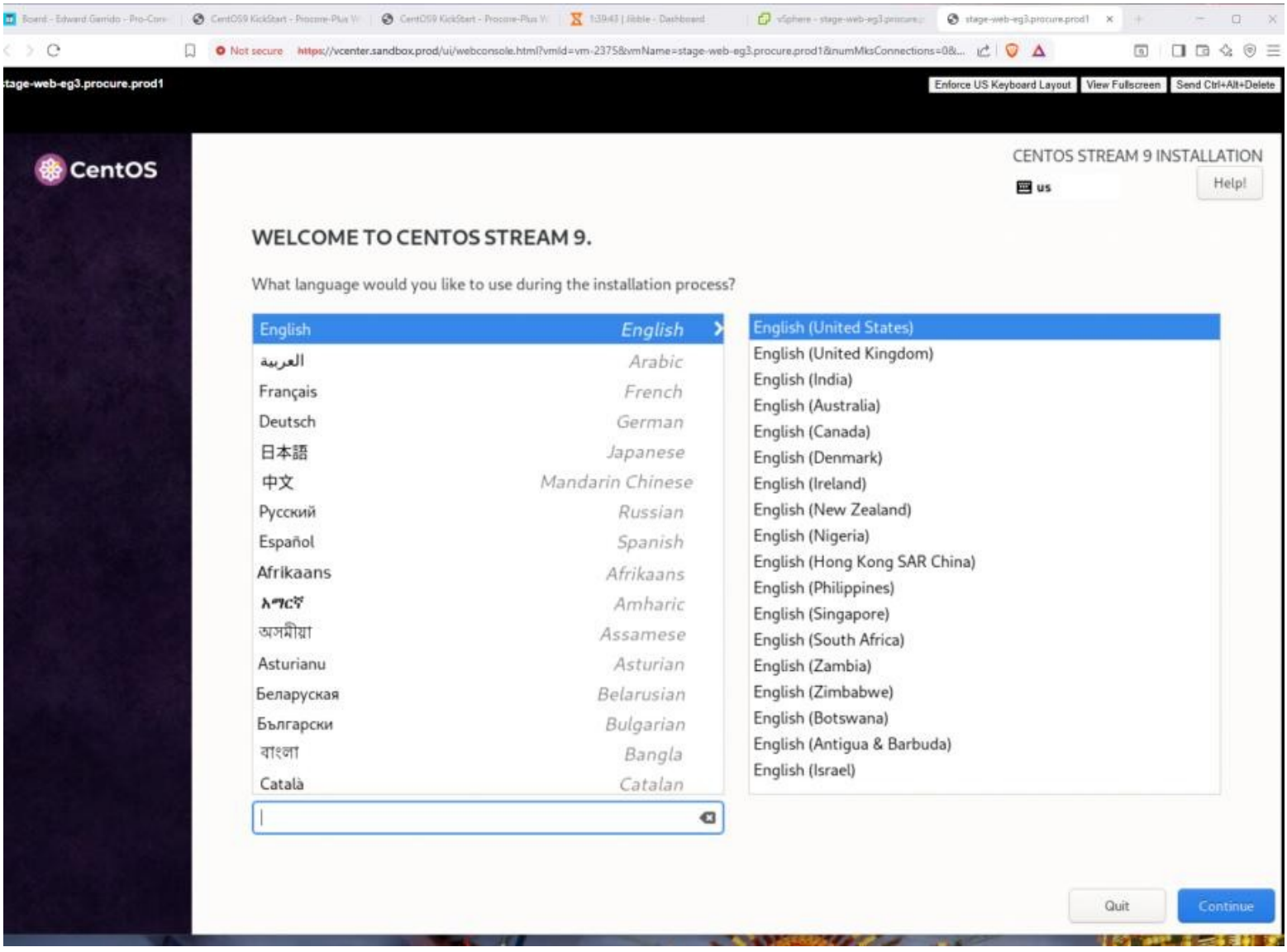
Reviews and confirms all virtual machine configuration settings, including compute, storage, networking, and guest OS details, before finalizing and creating the virtual machine.



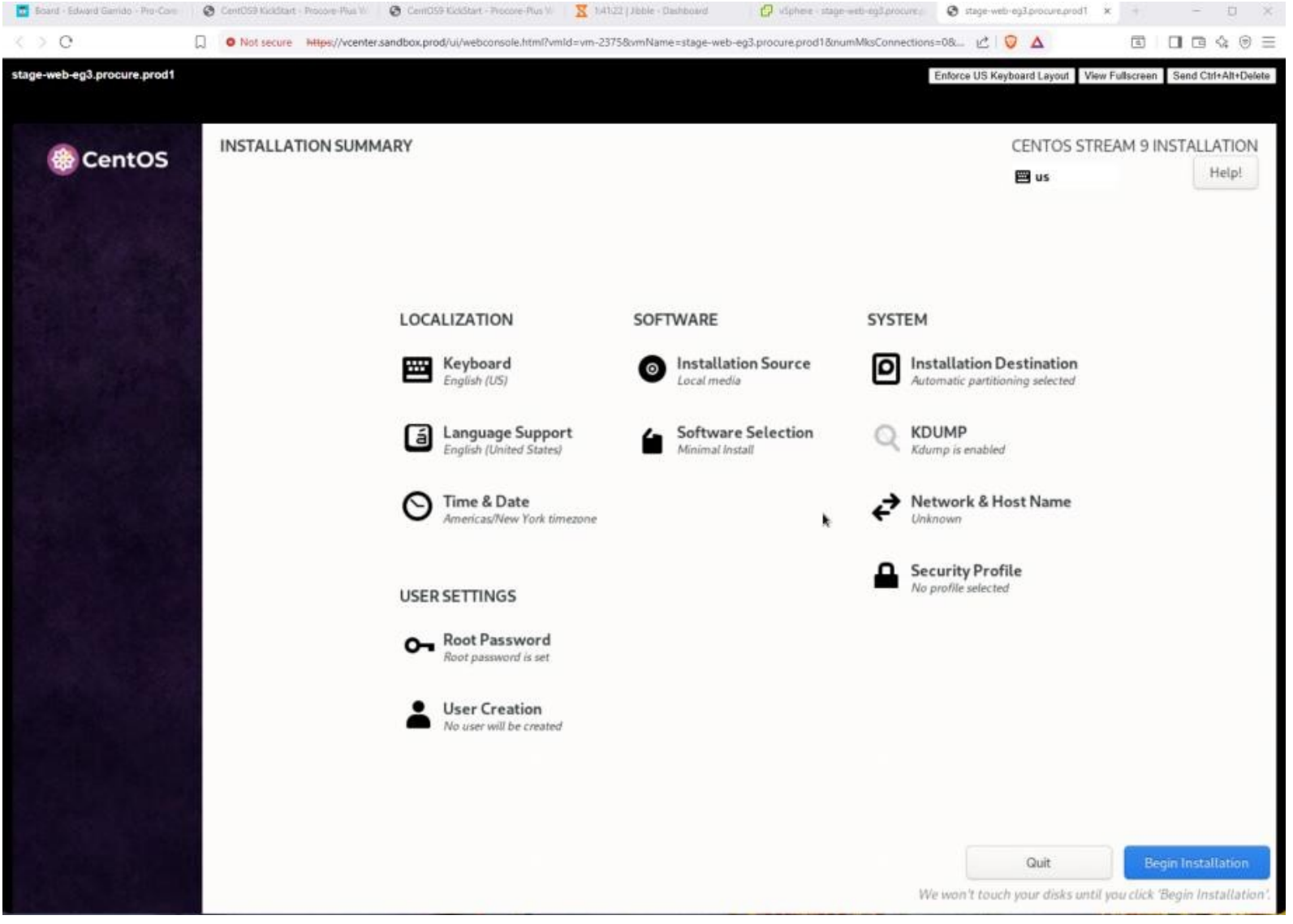
Confirms successful creation of the virtual machine in vSphere, showing its current powered-off state, assigned resources, guest OS configuration, and network/storage associations in the Summary view.



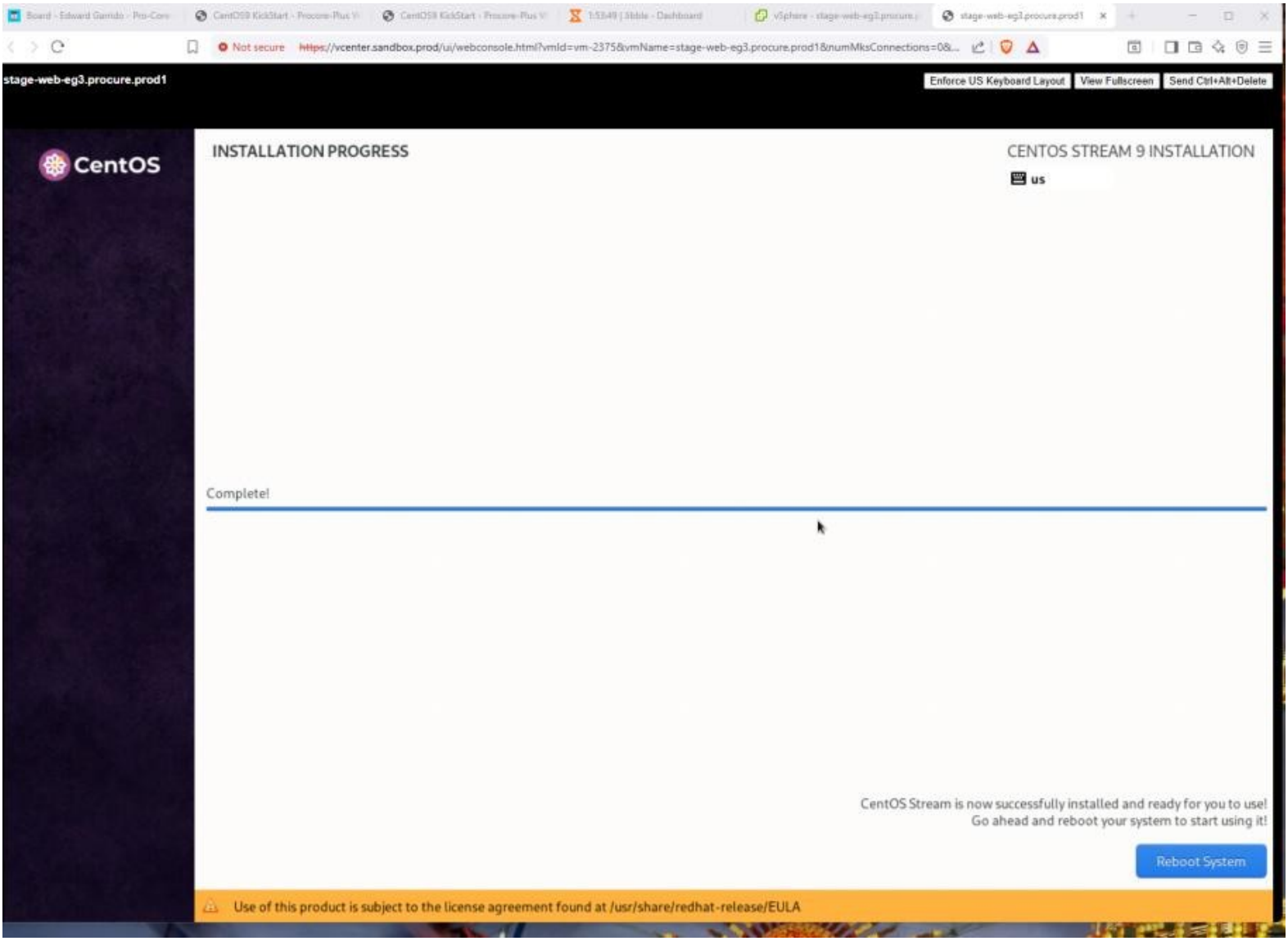
Launches the CentOS Stream 9 installer via the VM console and begins the operating system installation by selecting the installation language and locale.



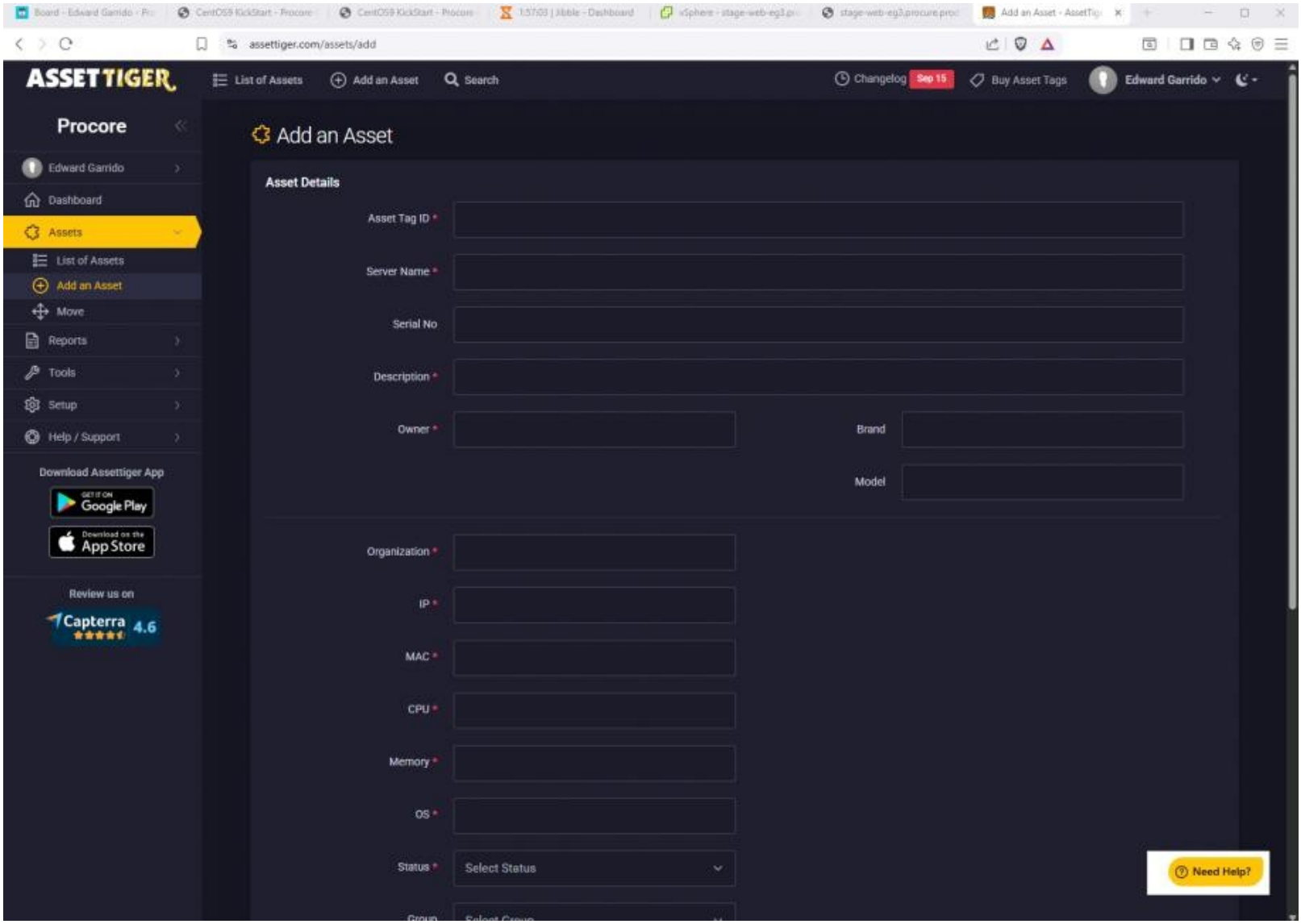
Reviews the CentOS Stream 9 installation summary, confirming localization, software selection, storage configuration, and system settings before beginning the operating system installation.



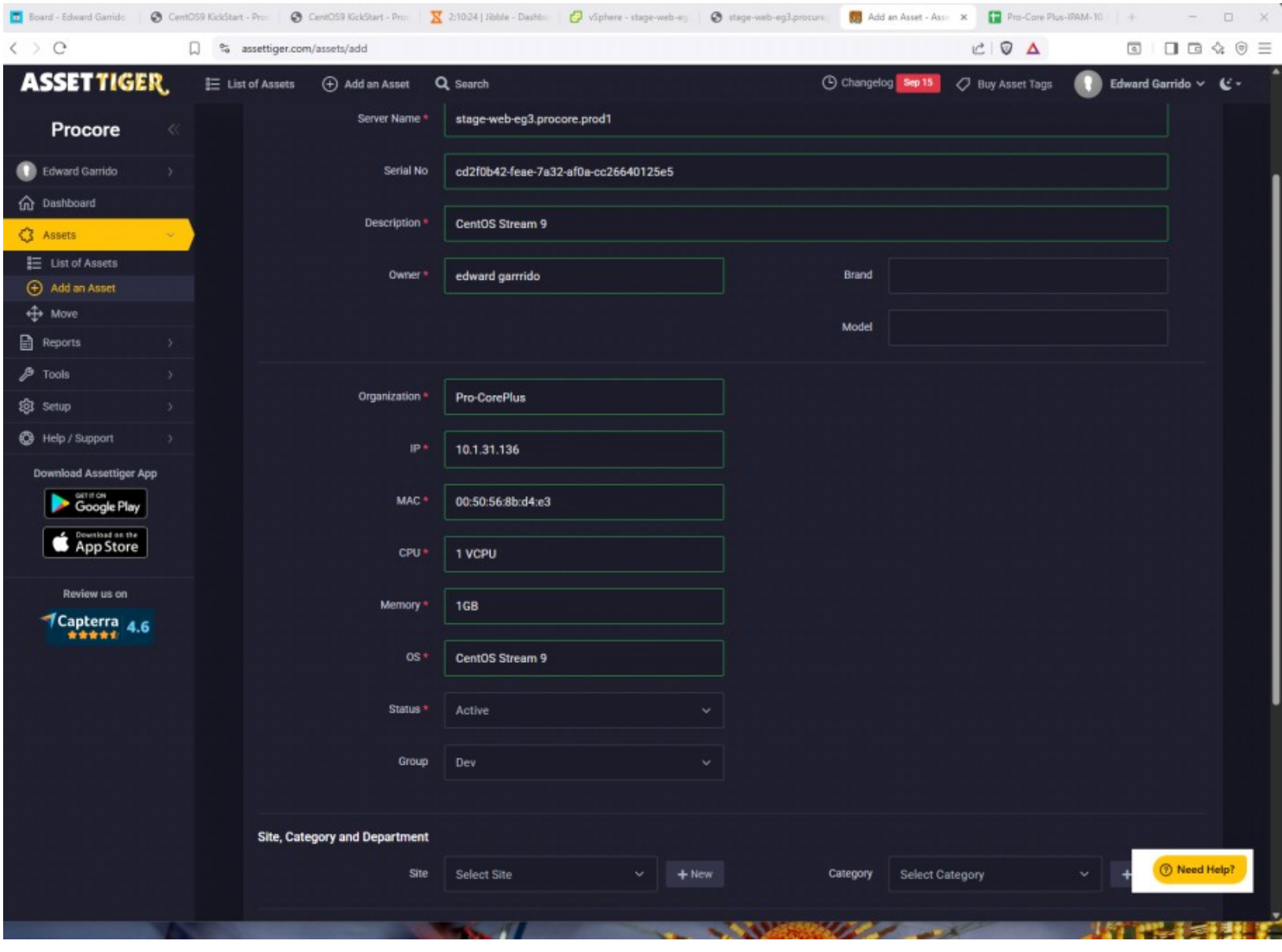
Completes the CentOS Stream 9 installation, confirming a successful install and prompting for a system reboot to begin using the newly configured virtual machine.



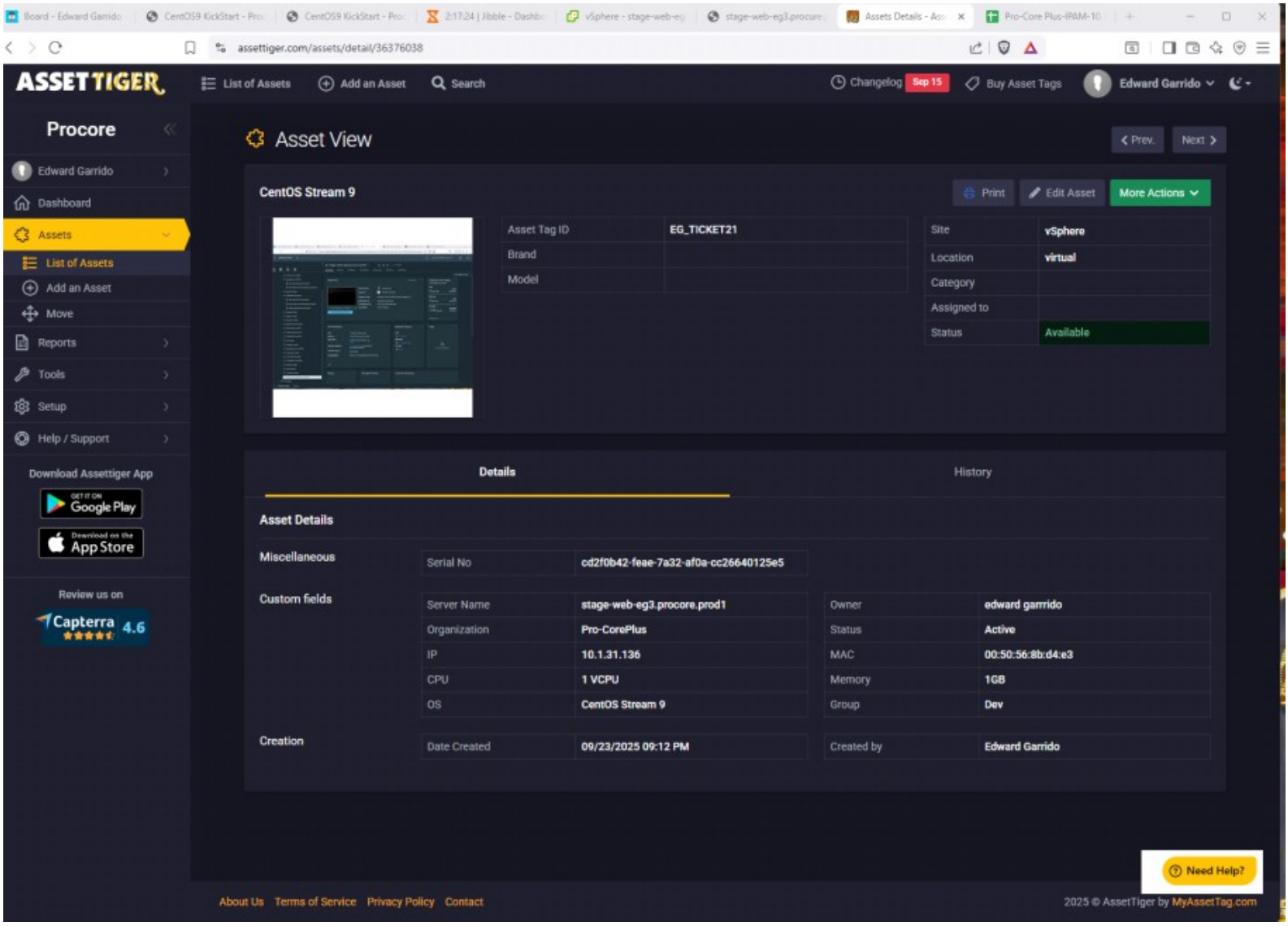
Begins asset registration by opening the Add an Asset form in AssetTiger, preparing to document server details such as hostname, hardware specs, network information, OS, and ownership for inventory tracking.



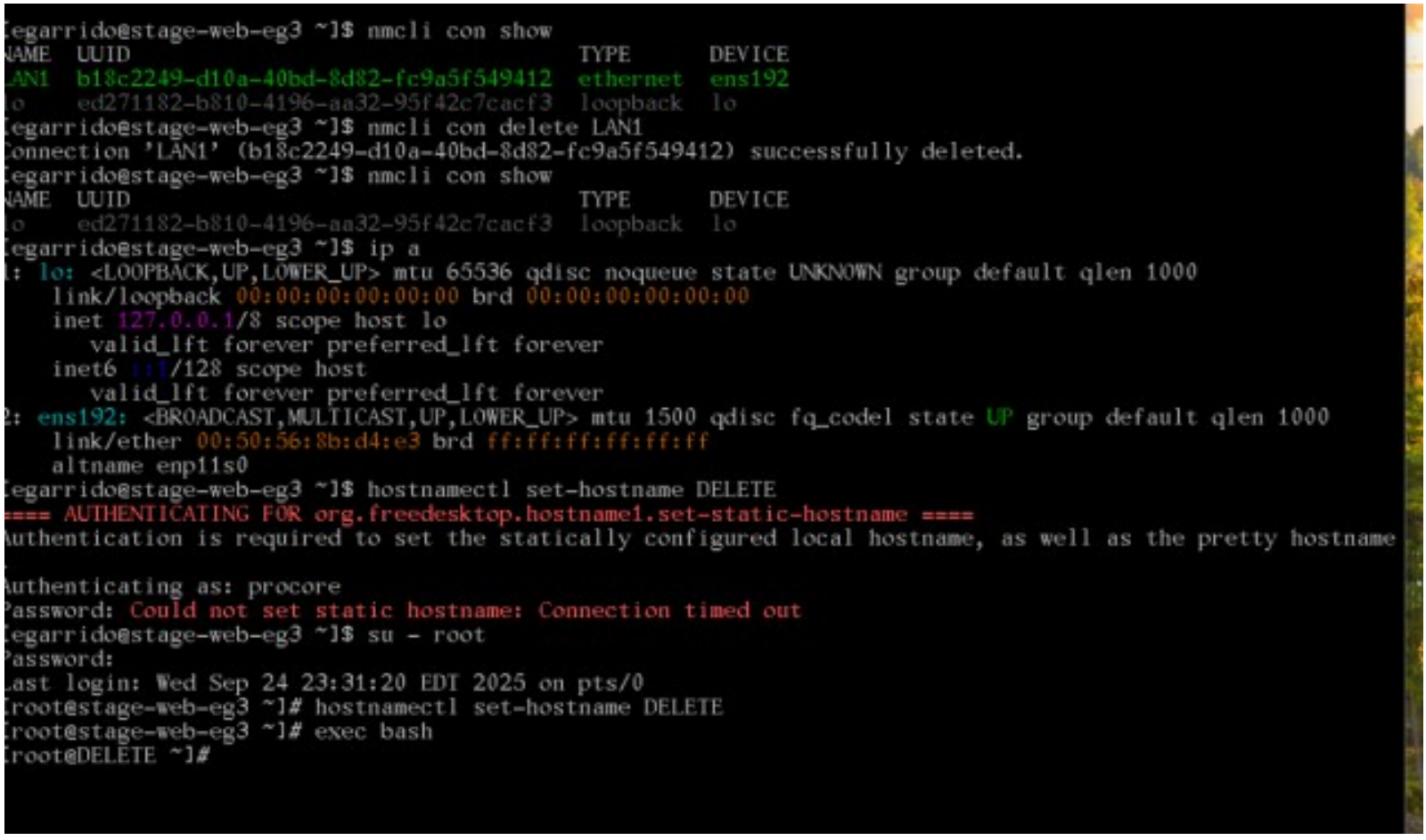
Populates the AssetTiger asset record with the virtual machine’s details, including hostname, OS, IP address, MAC address, CPU, memory, ownership, and environment, completing inventory documentation for the newly deployed server.



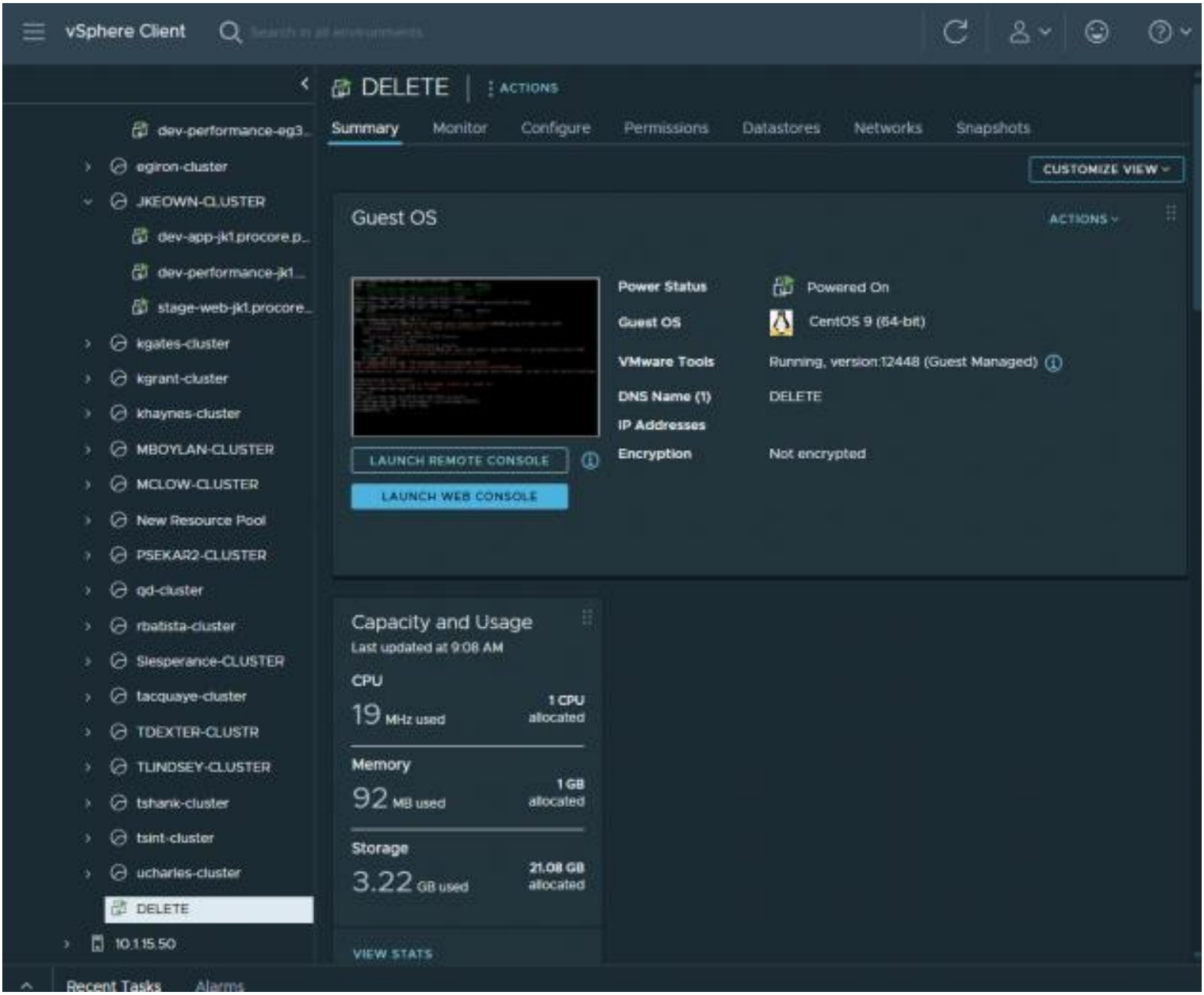
Verifies the completed asset record in AssetTiger, confirming that the virtual machine details—hostname, OS, IP, MAC, CPU, memory, ownership, and status—are accurately recorded and available for inventory tracking.



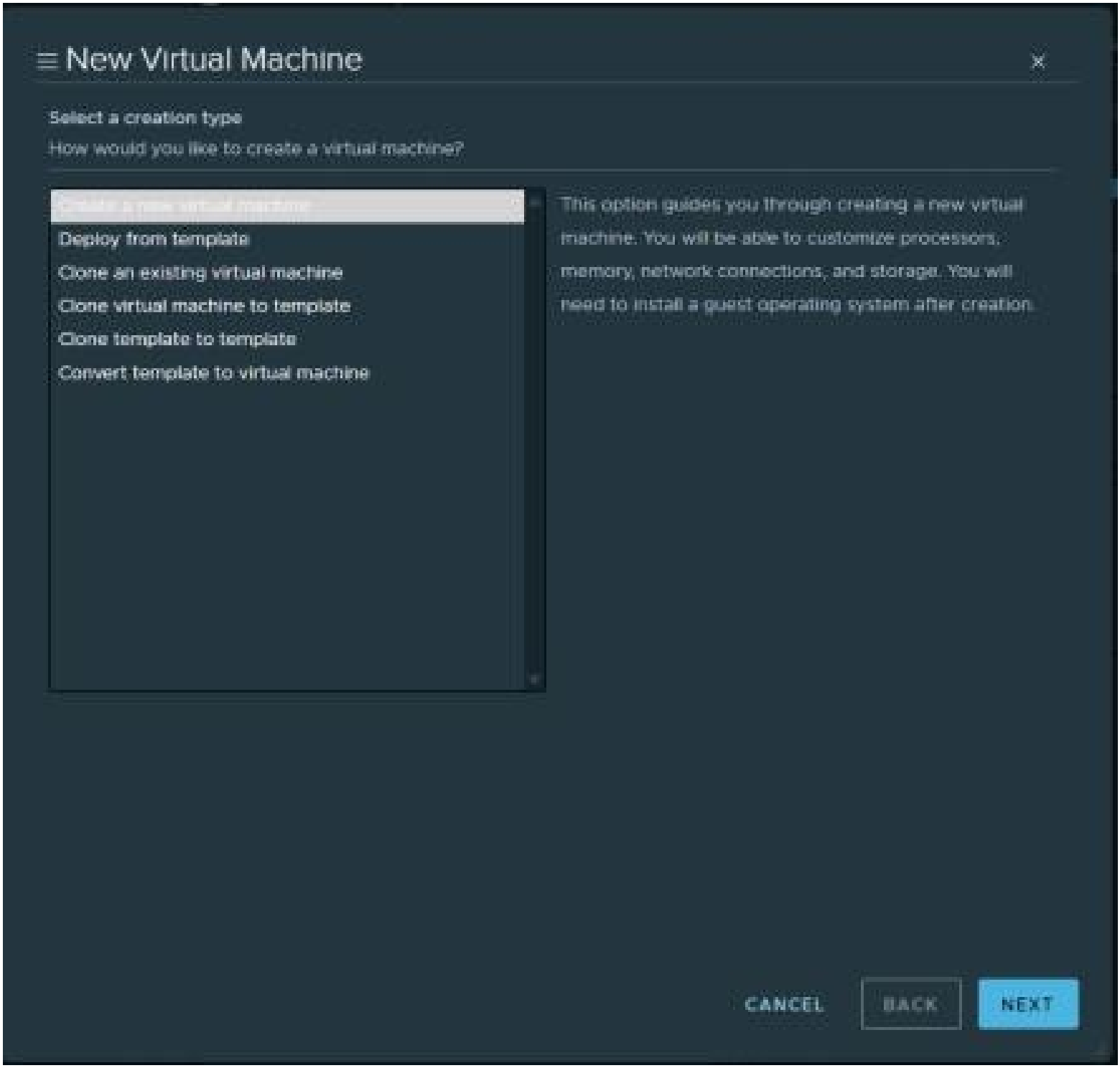
Removes an unused network connection, verifies active network interfaces, and updates the system hostname using elevated privileges after resolving permission and authentication requirements.



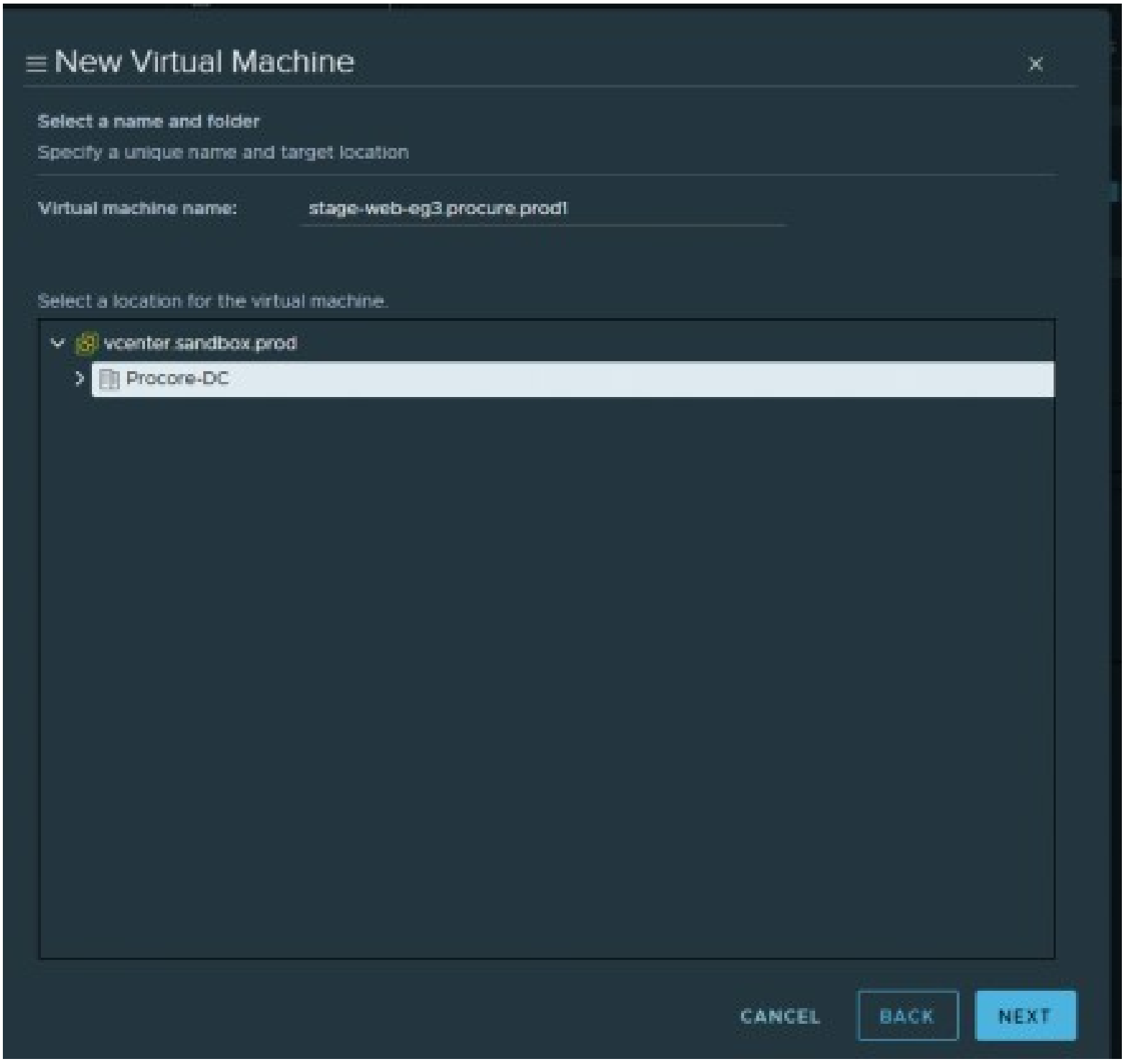
Confirms the virtual machine is powered on in vSphere with CentOS 9 installed, displaying updated hostname, IP address, and active resource usage in the Summary view after post-install configuration.



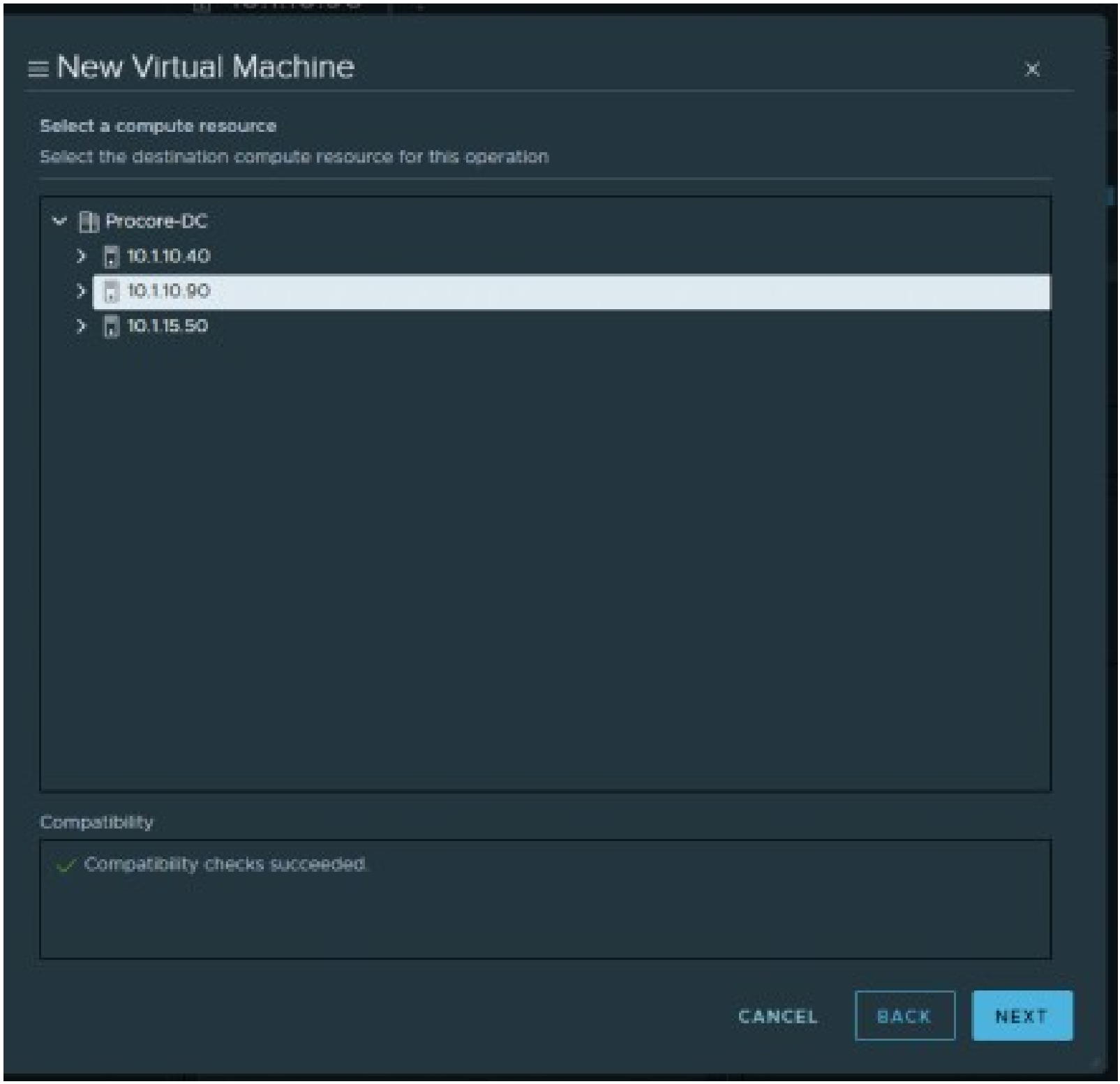
Selects Deploy from template as the virtual machine creation method, enabling standardized and efficient VM provisioning using a preconfigured template.



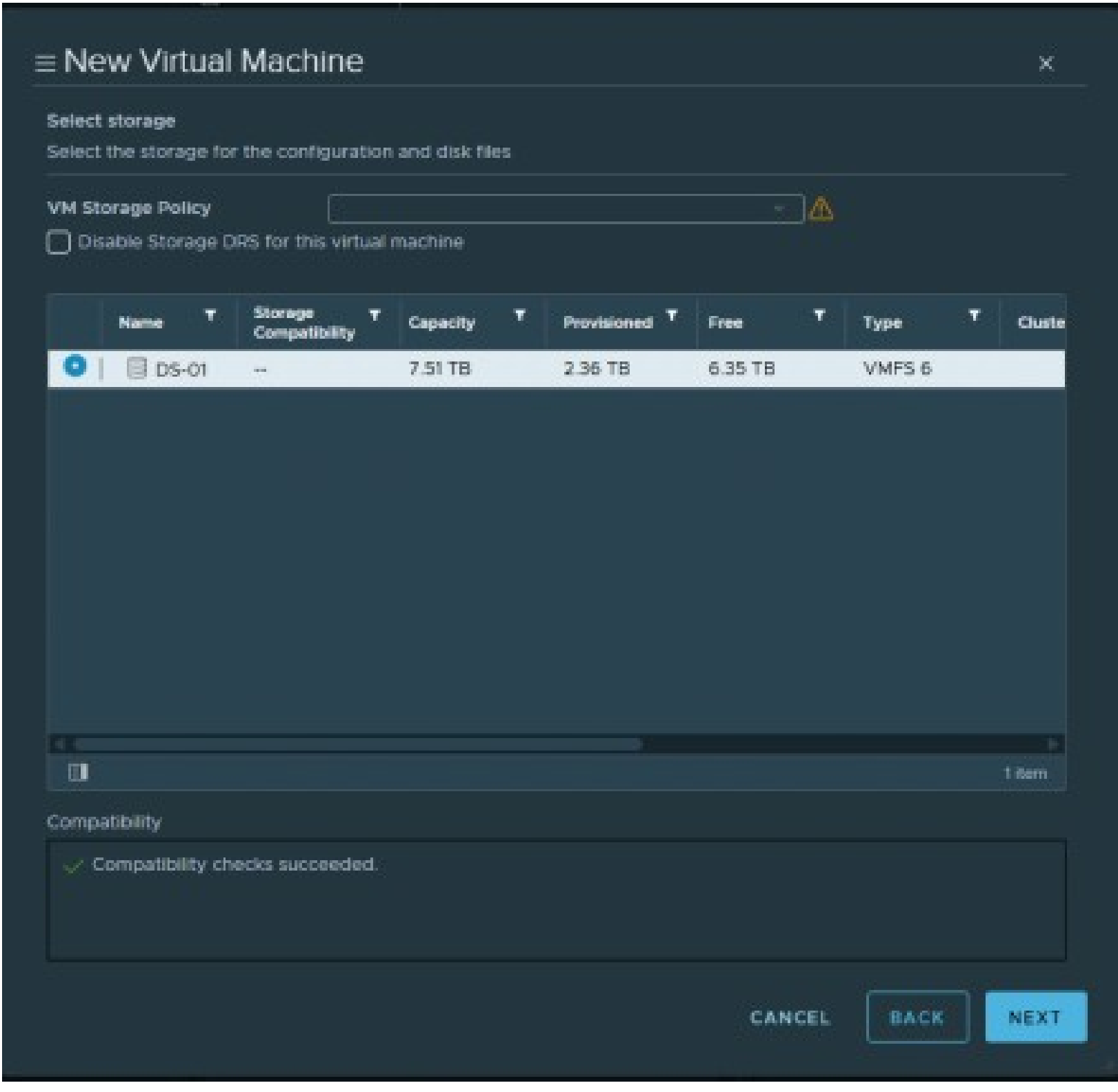
Assigns the virtual machine name and selects the appropriate vCenter datacenter and folder, ensuring proper identification and placement before deployment.



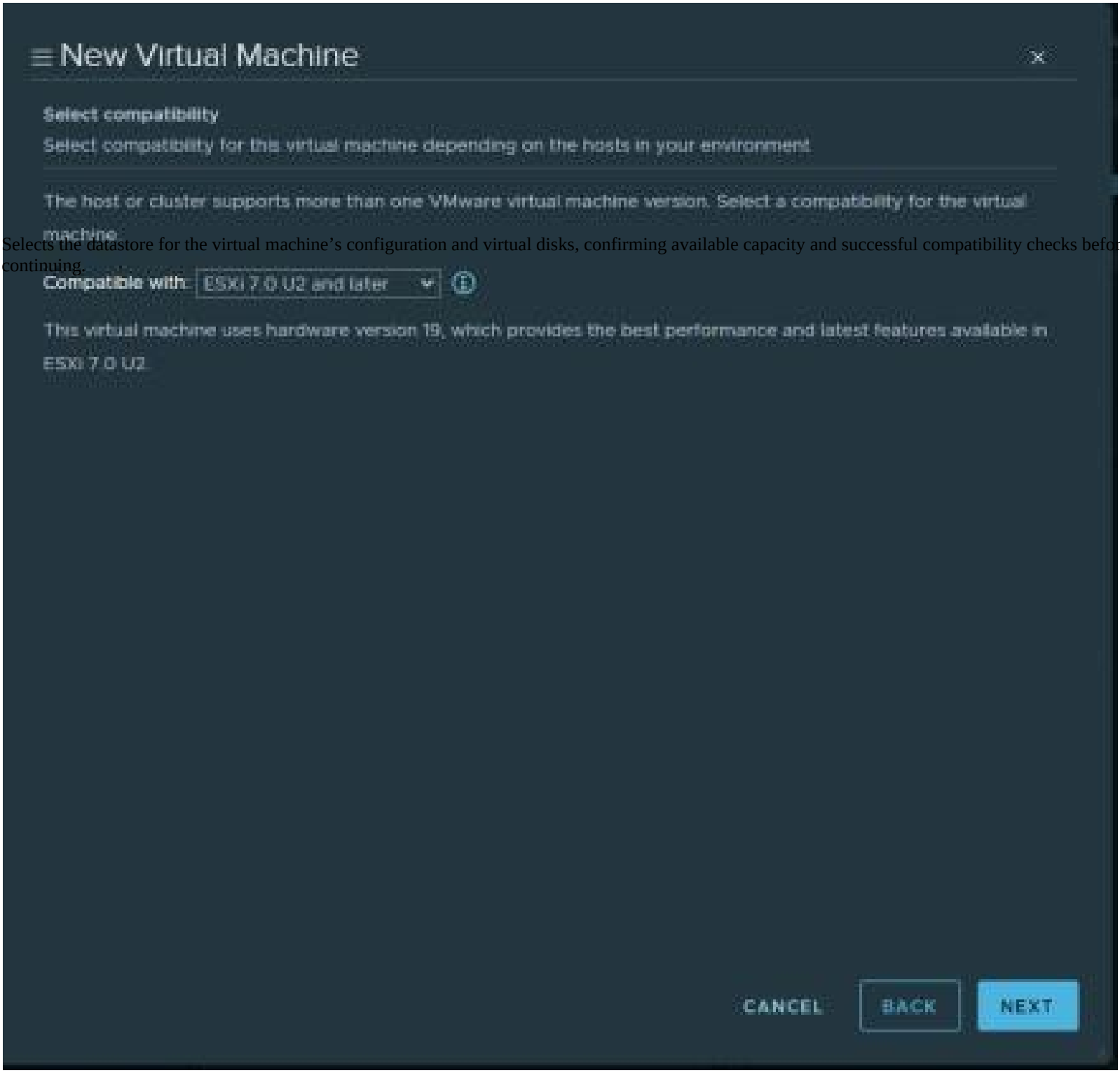
Selects the destination ESXi host as the compute resource for the virtual machine and confirms compatibility before proceeding with deployment.



Selects the datastore for the virtual machine’s configuration and virtual disks, confirming available capacity and successful compatibility checks before continuing.

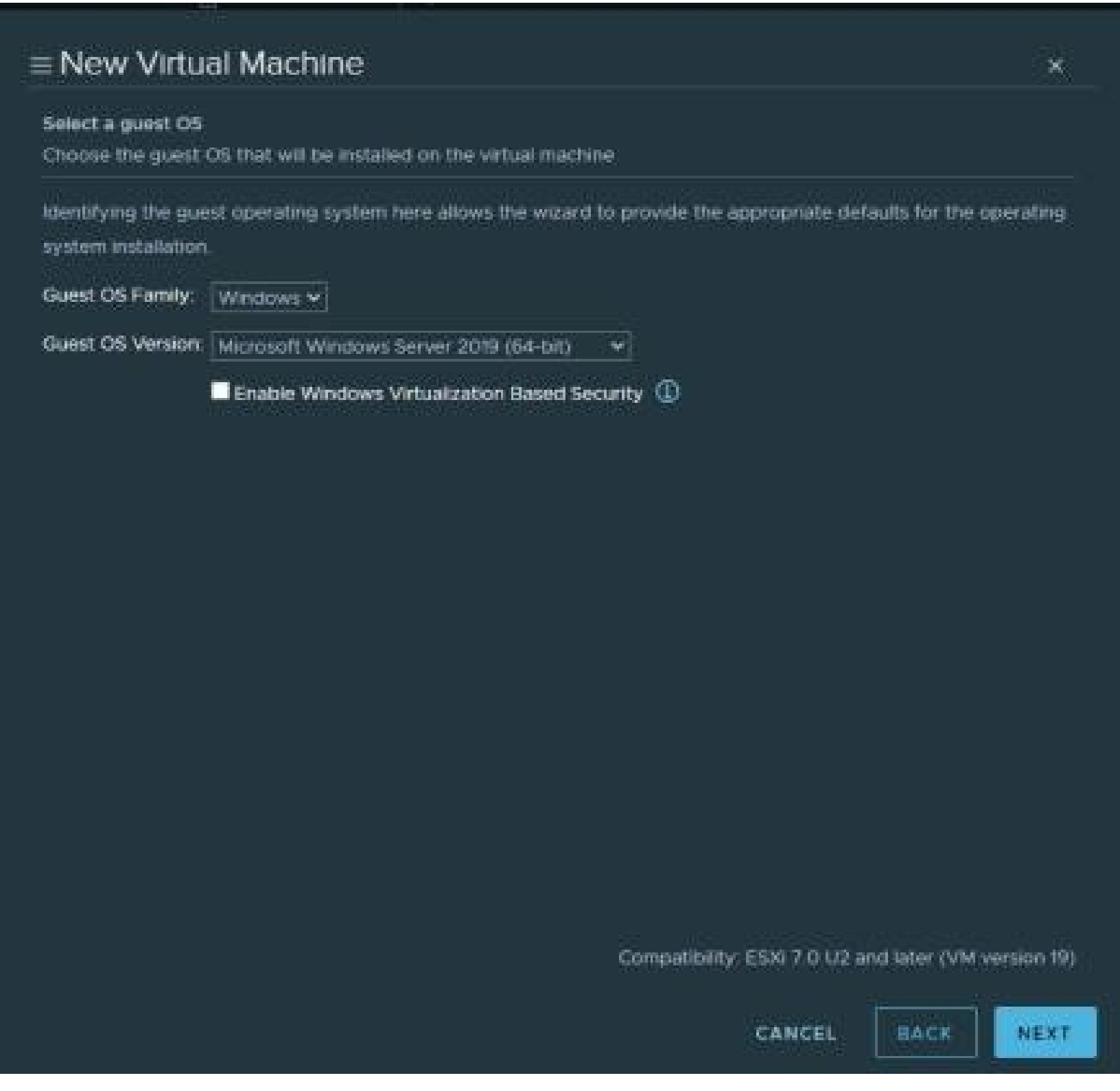


Selects the virtual machine hardware compatibility level (ESXi 7.0 U2 and later) to ensure optimal performance and feature support for the VM.

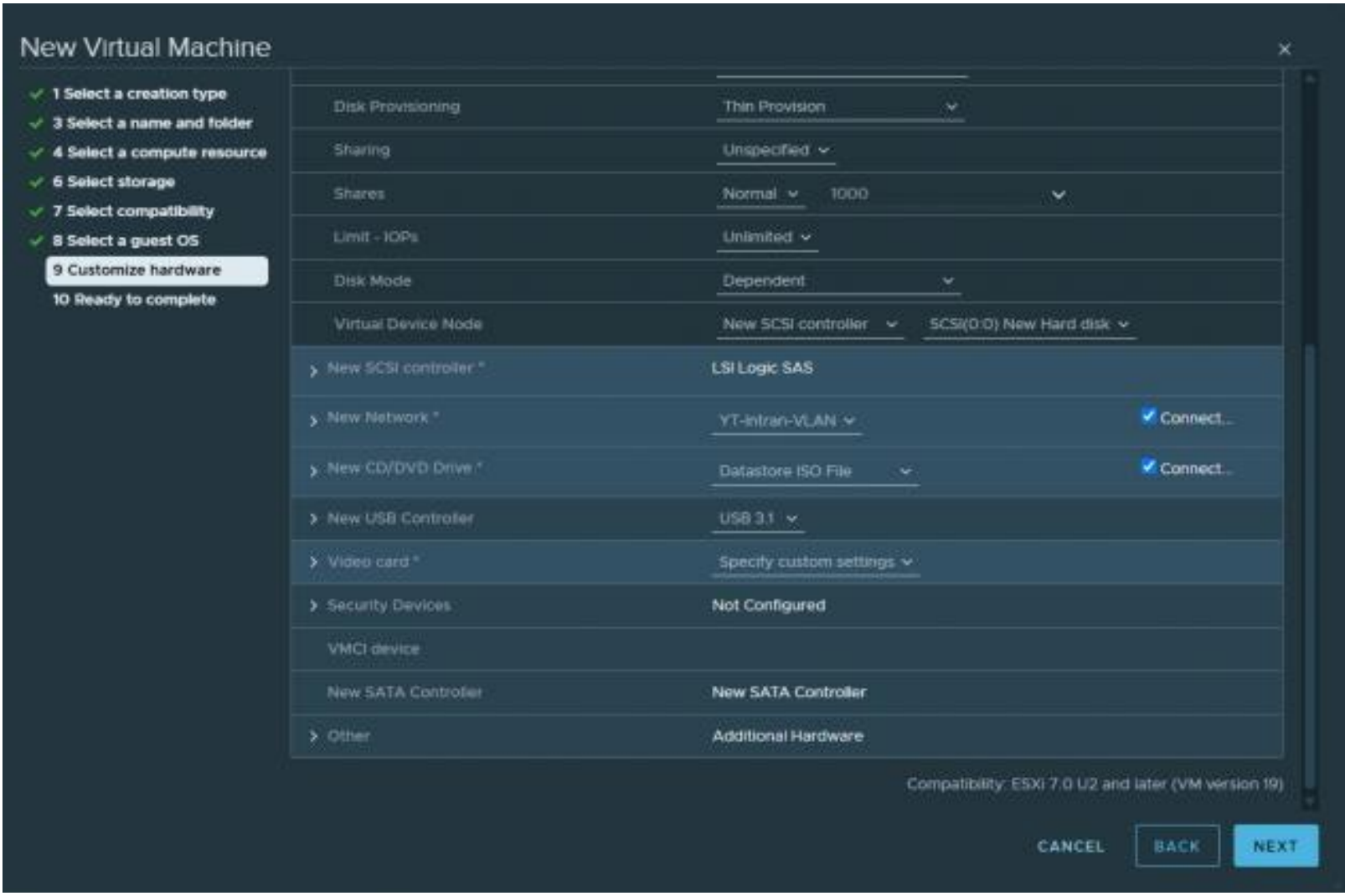


Selects the datastore for the virtual machine’s configuration and virtual disks, confirming available capacity and successful compatibility checks before continuing.

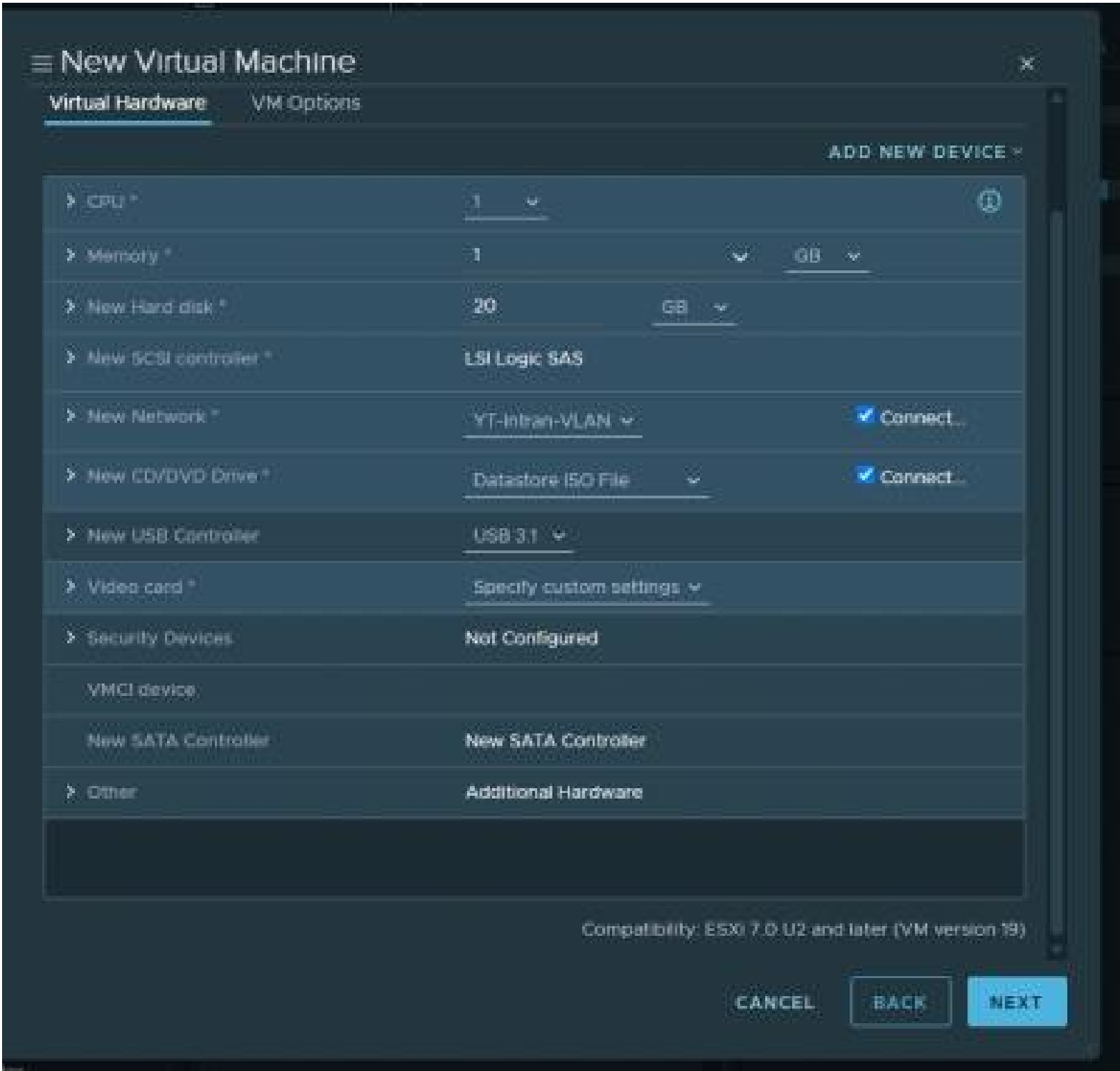
Selects the guest operating system type and version (Microsoft Windows Server 2019, 64-bit), allowing vSphere to apply the correct defaults and compatibility settings for the virtual machine.



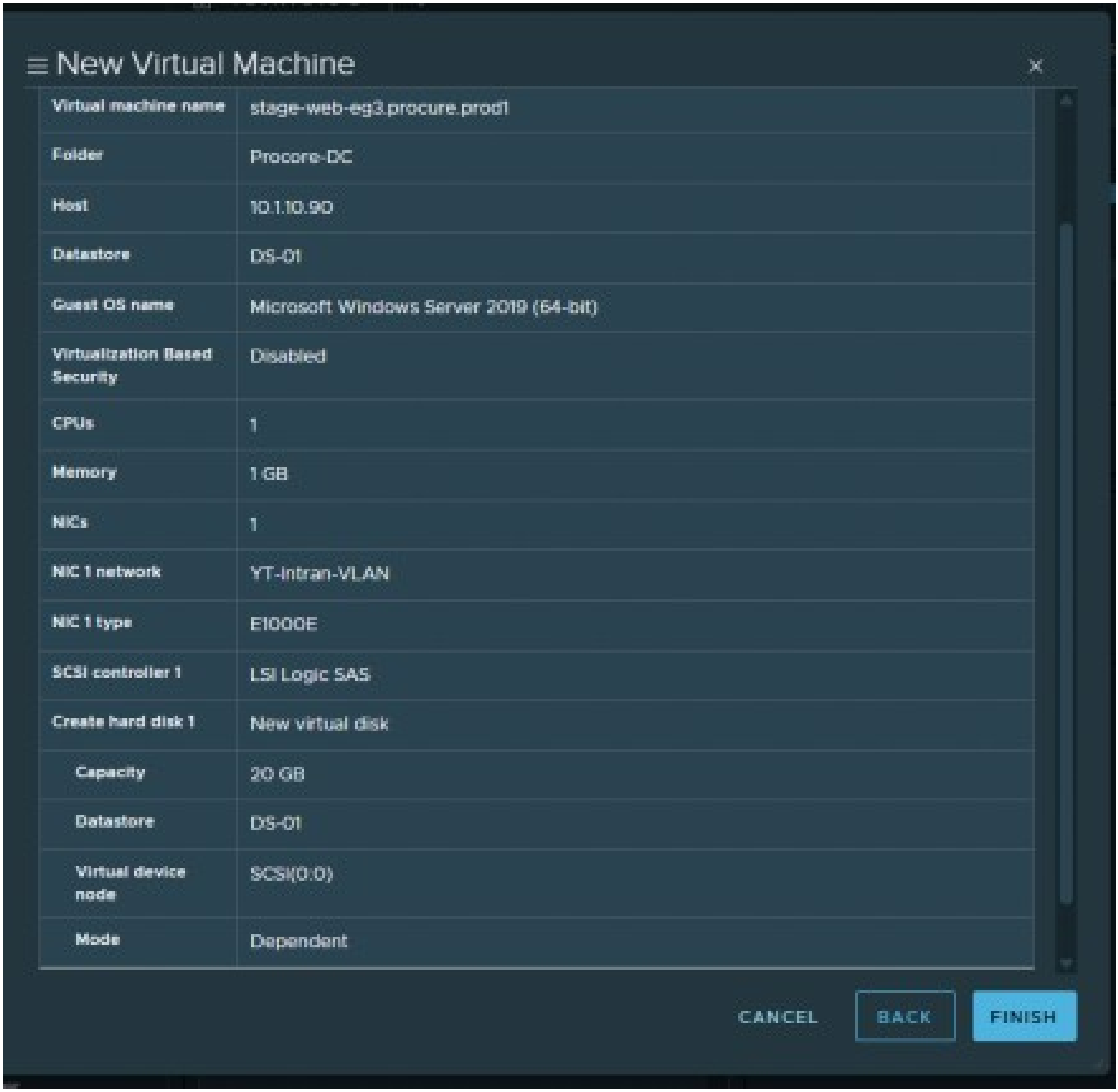
Configures the remaining virtual machine hardware settings, including disk provisioning, network connectivity, ISO attachment, and controller options, ensuring the VM is fully prepared for installation.



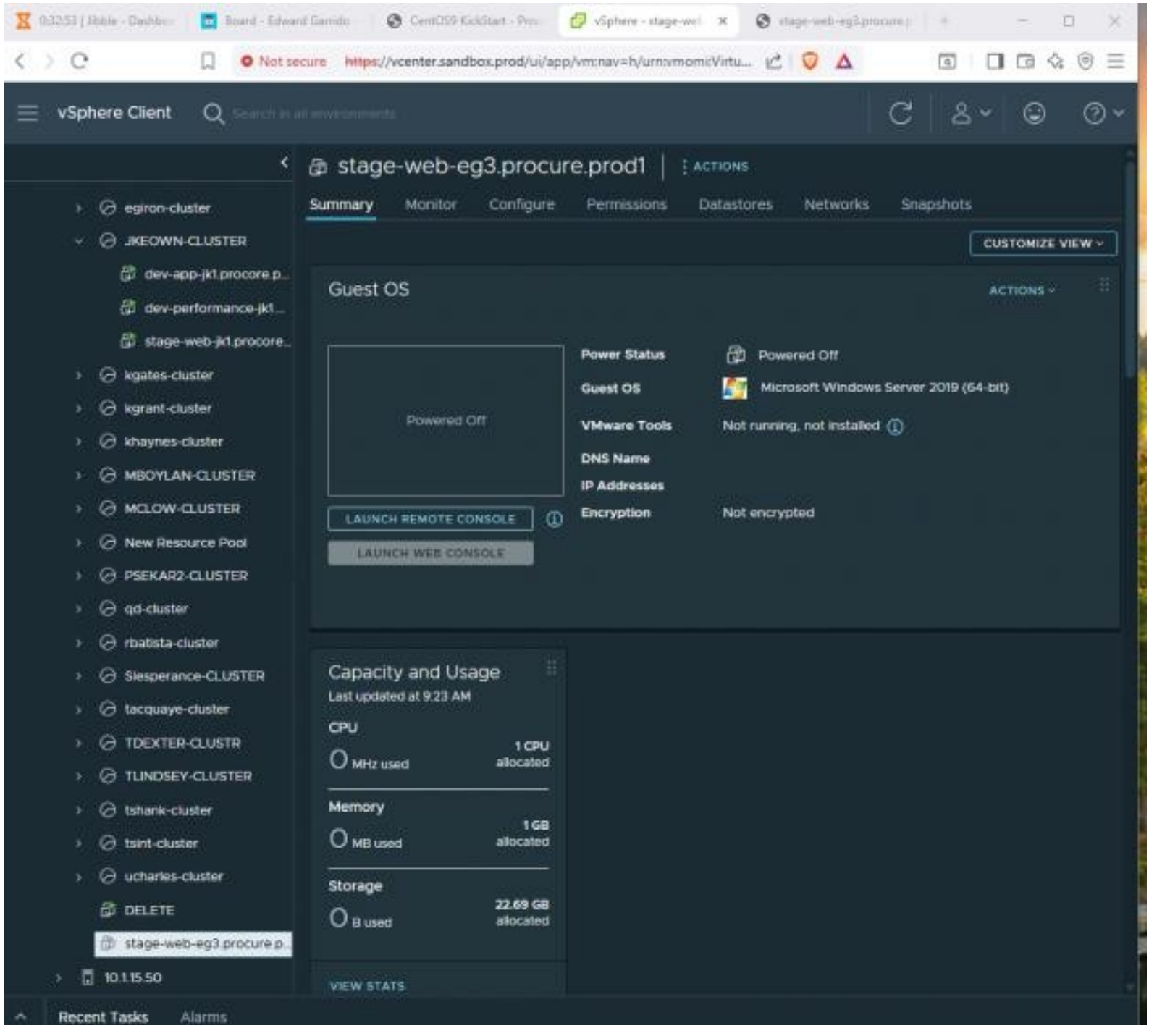
Customizes core virtual machine hardware by setting CPU, memory, disk size, network, and installation media, finalizing the VM configuration before creation.



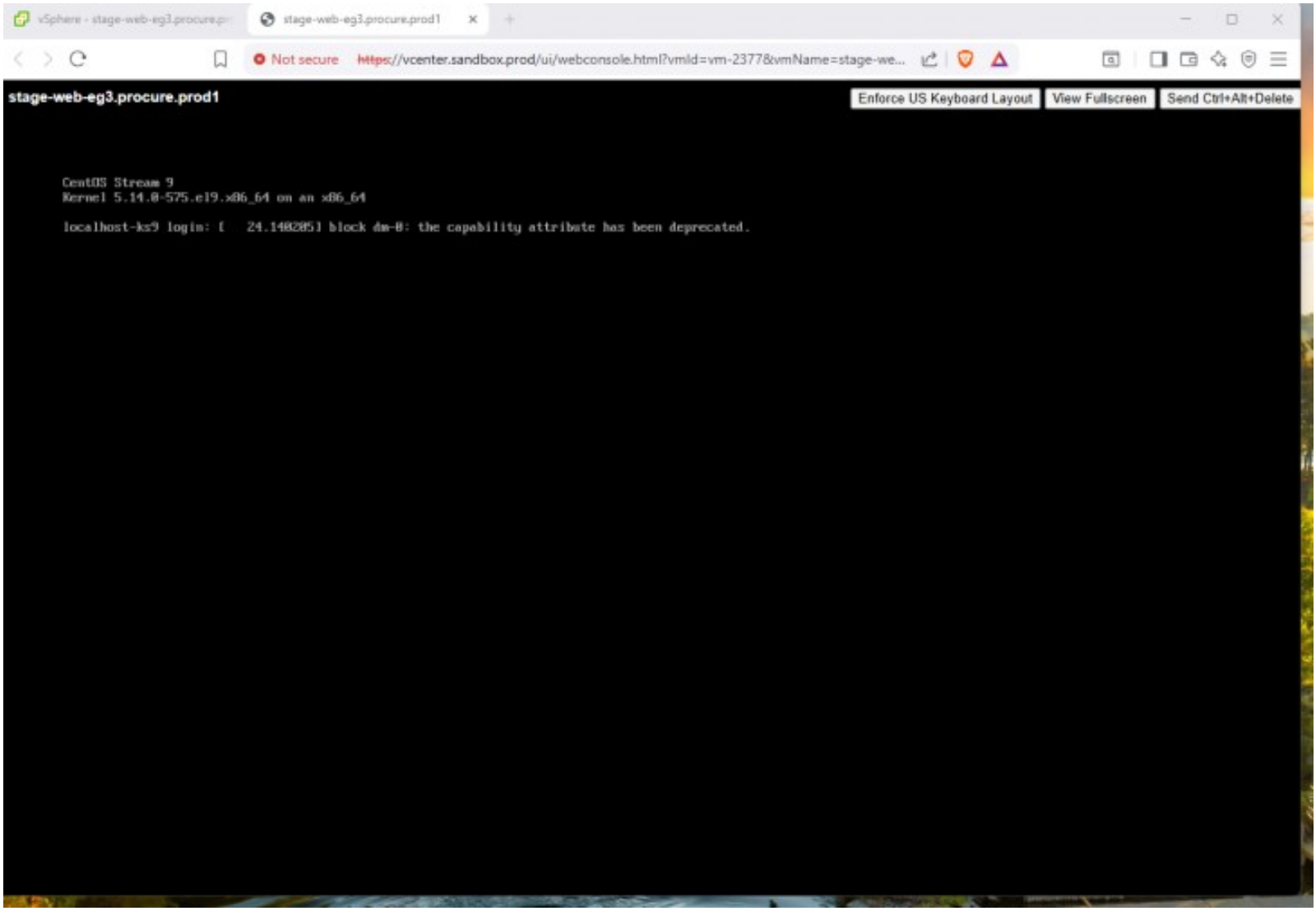
Reviews and confirms all virtual machine settings—including compute, storage, networking, and guest OS—before finalizing and creating the virtual machine.



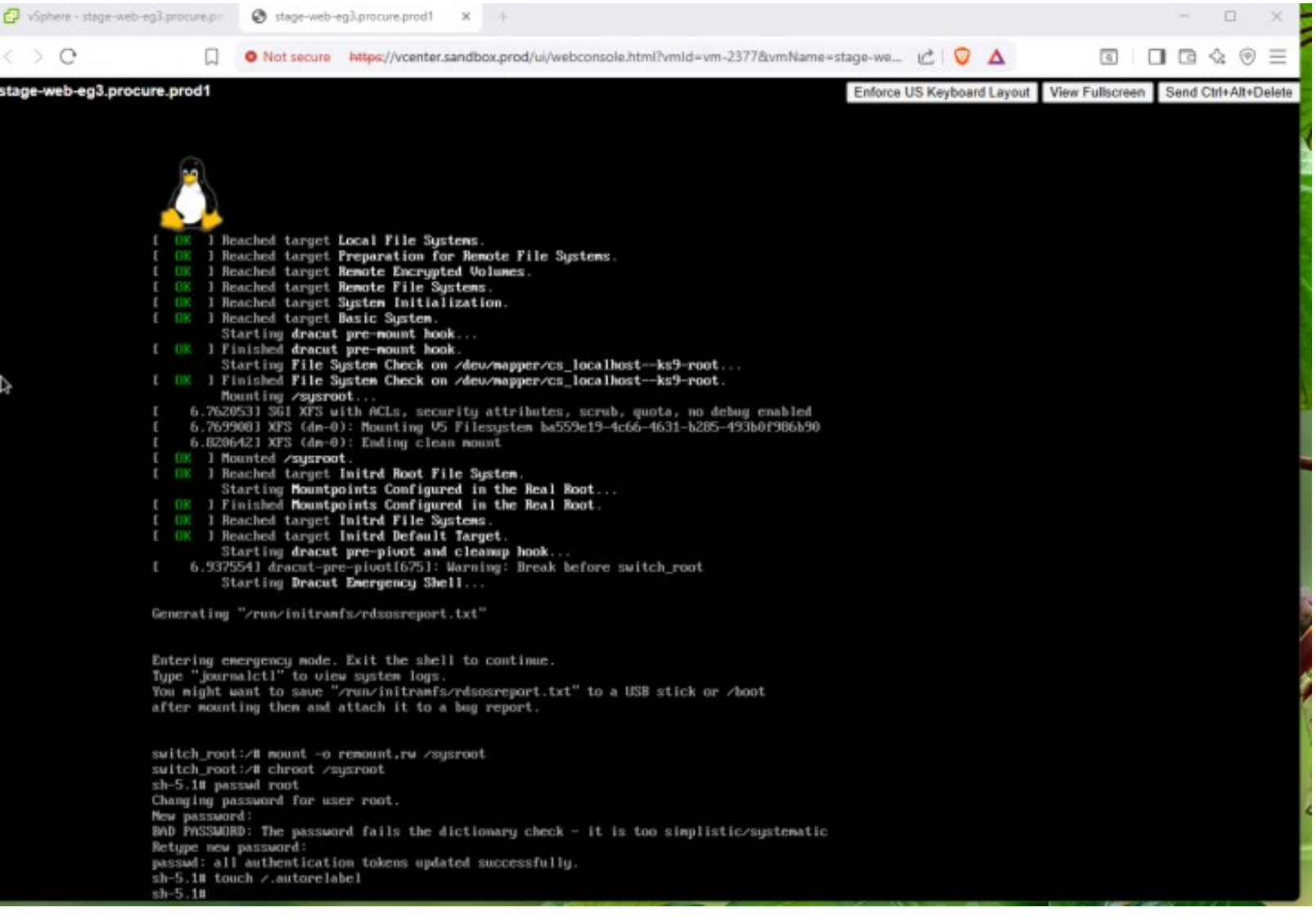
Confirms the newly created virtual machine appears in vSphere with the assigned configuration, showing its initial powered-off state and allocated resources prior to operating system installation.



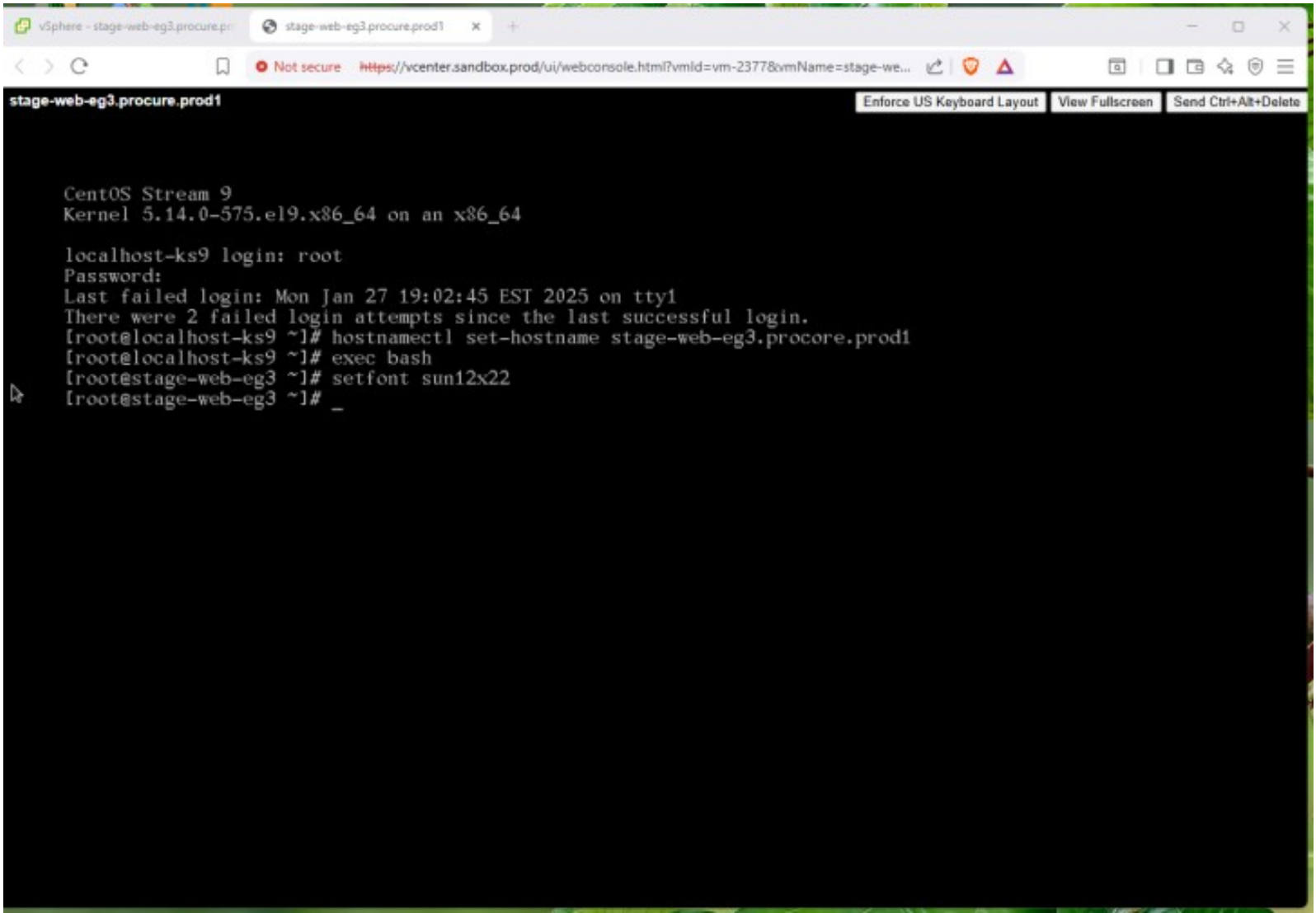
Displays the CentOS Stream 9 console login screen after VM creation, confirming the operating system has booted successfully and is ready for initial configuration and user login.



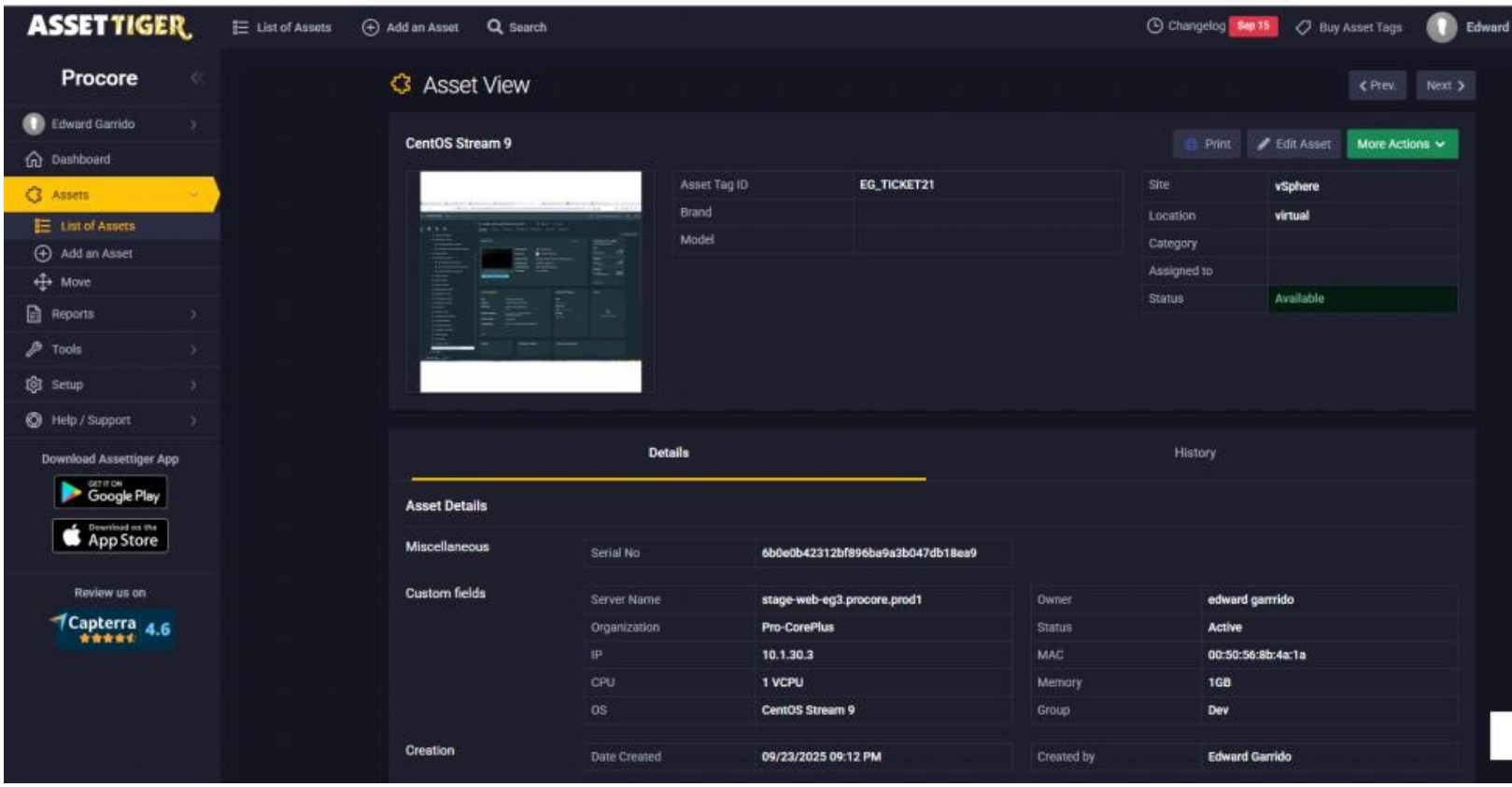
Shows the CentOS Stream 9 boot process entering emergency mode, displaying system initialization messages and filesystem checks while prompting for root authentication to perform recovery or corrective actions.



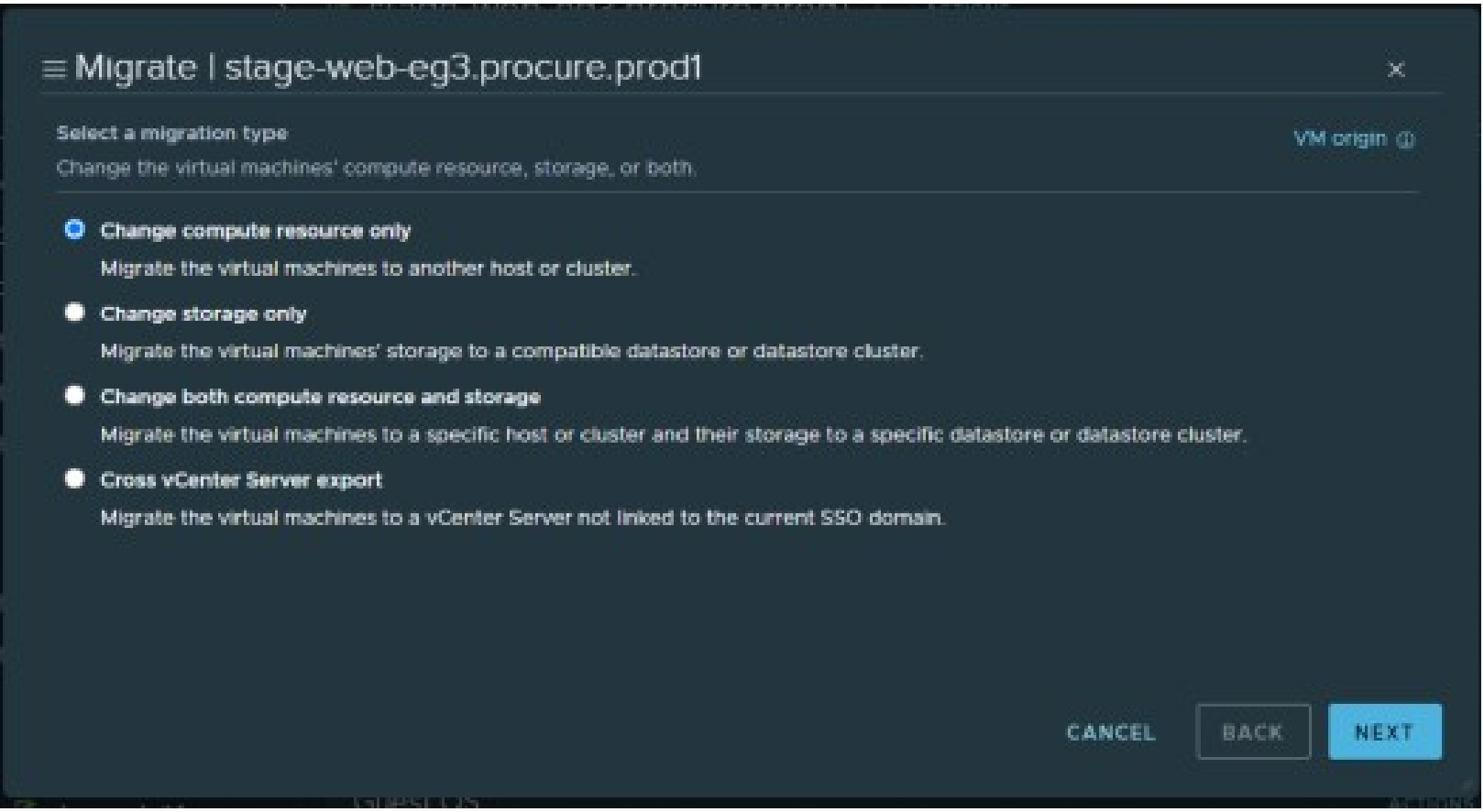
Logs in as root on the CentOS Stream 9 system, updates the hostname to the standardized server name, and applies console font settings to complete initial post-install configuration.



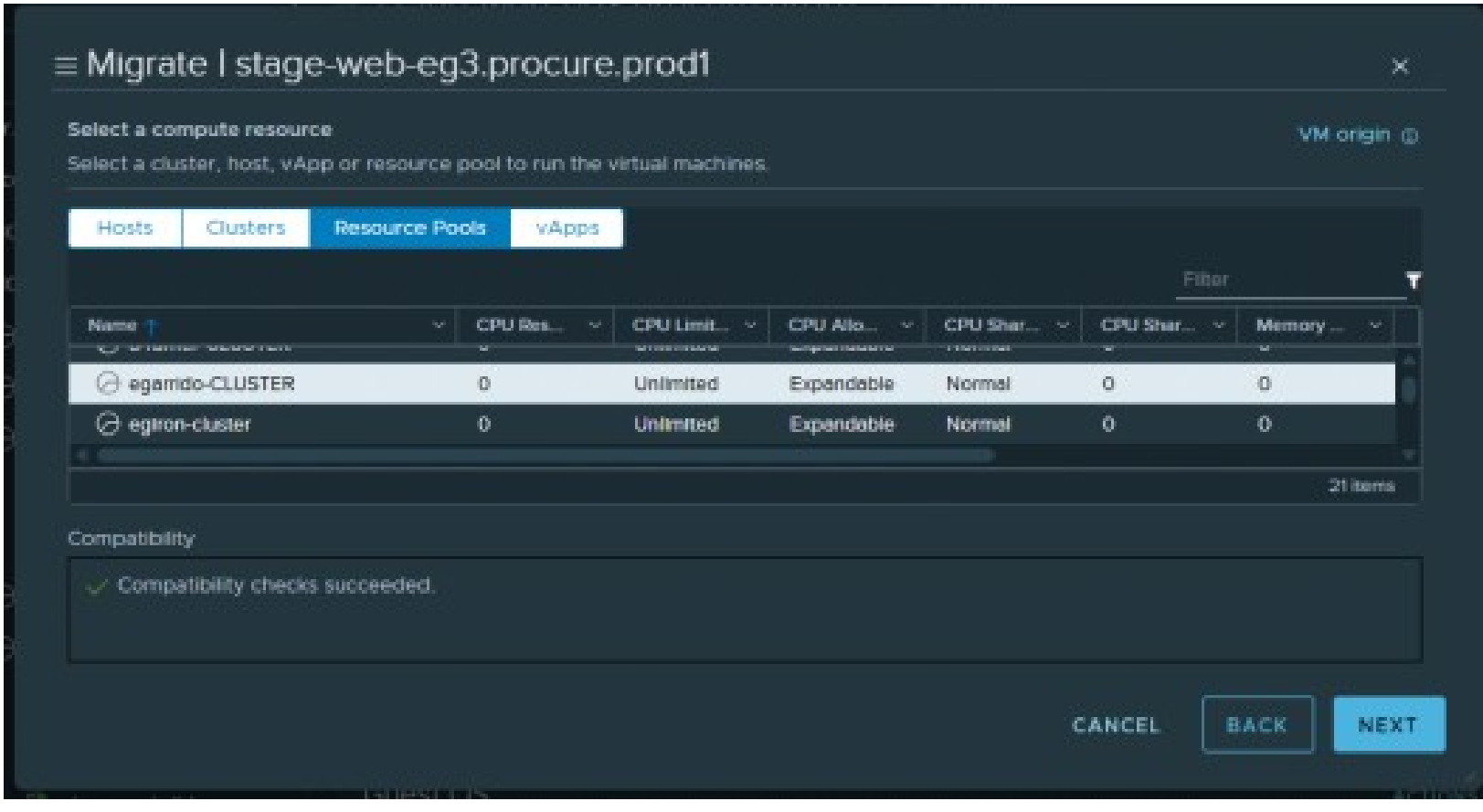
Confirms the AssetTiger record reflects the finalized CentOS Stream 9 virtual machine, validating updated hostname, IP address, hardware resources, ownership, and active status for accurate asset inventory tracking.



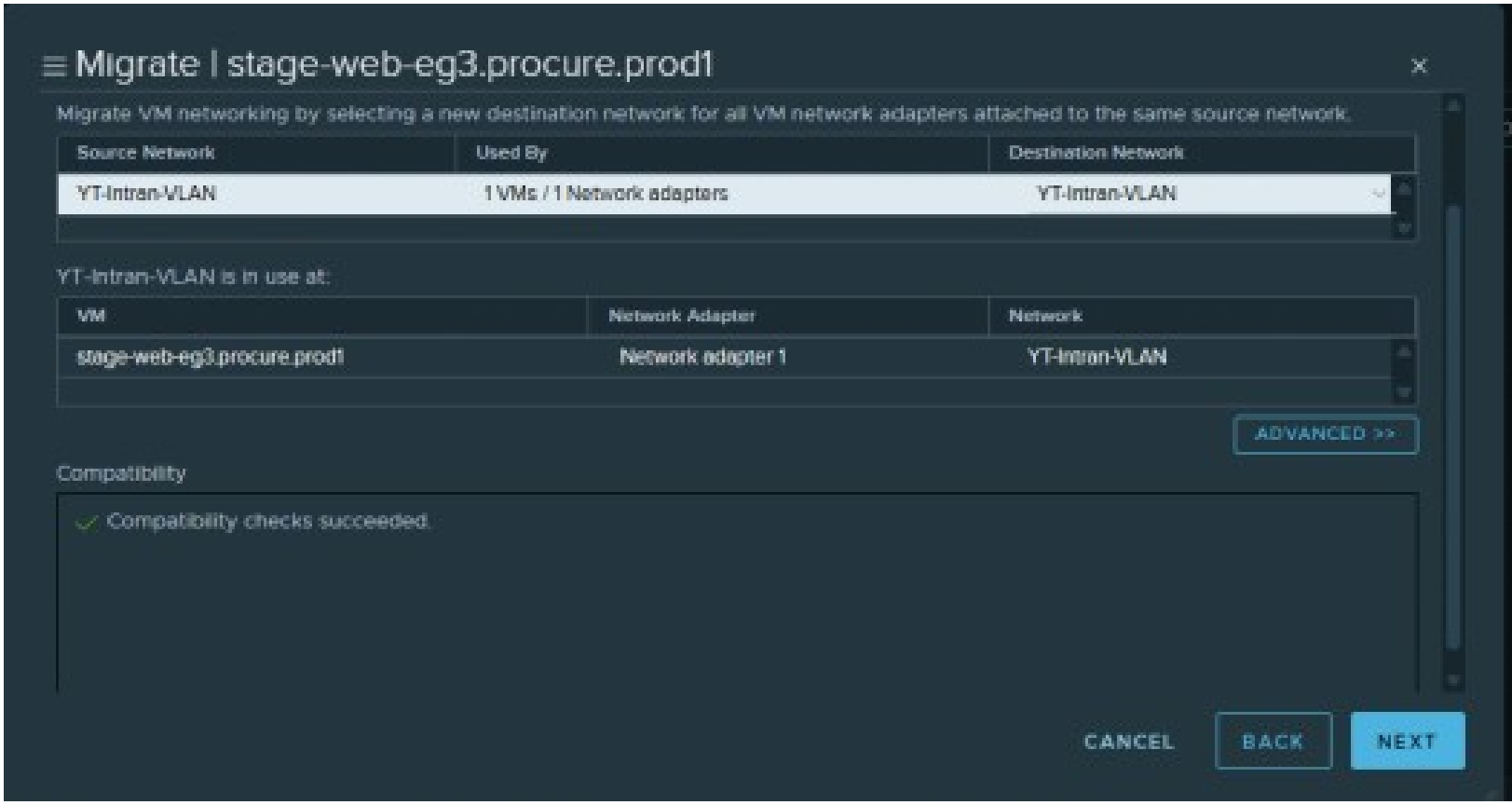
Selects Change compute resource only to migrate the virtual machine to a different ESXi host while keeping its existing storage unchanged.



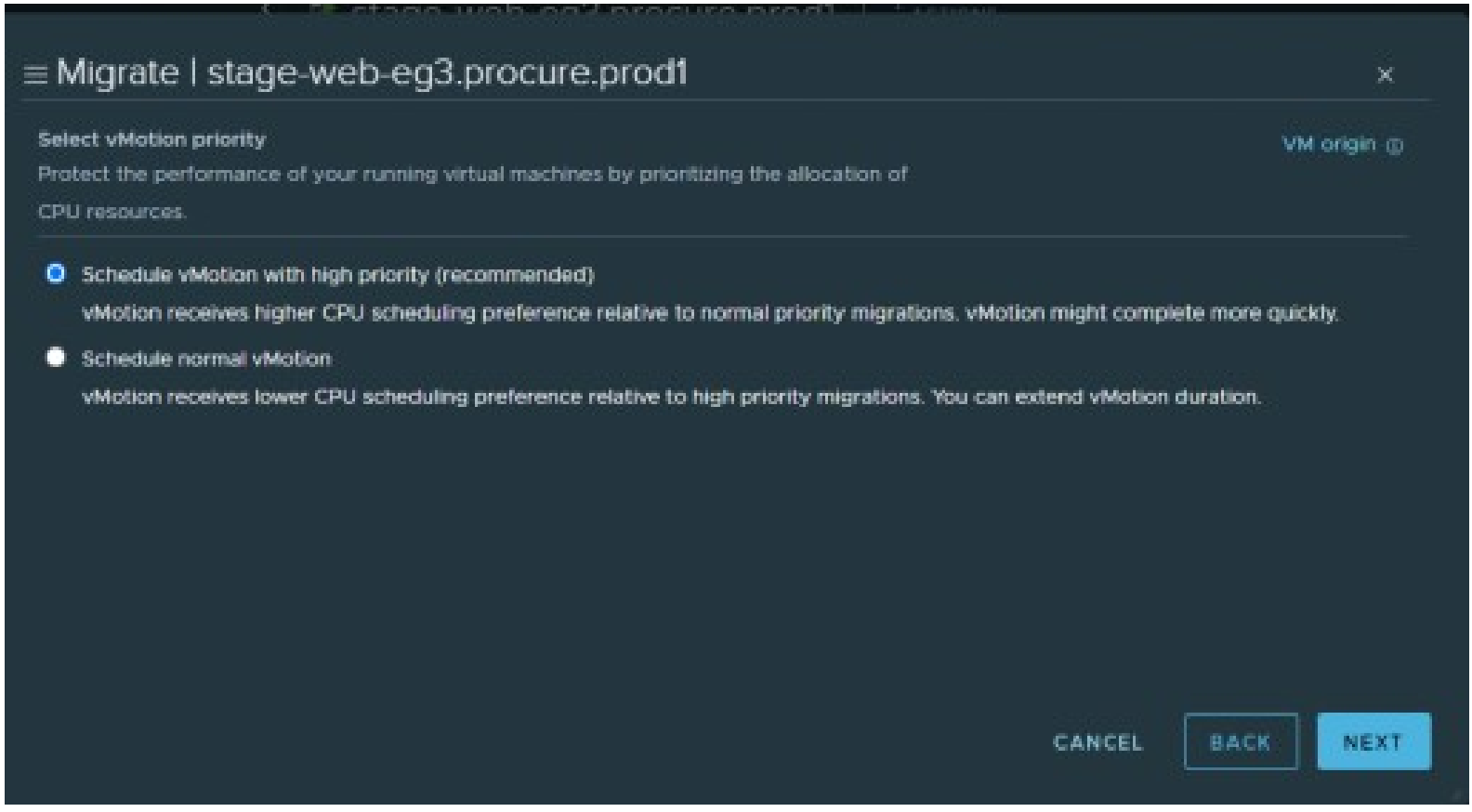
Selects the destination cluster or host as the new compute resource for the virtual machine migration, confirming compatibility before proceeding.



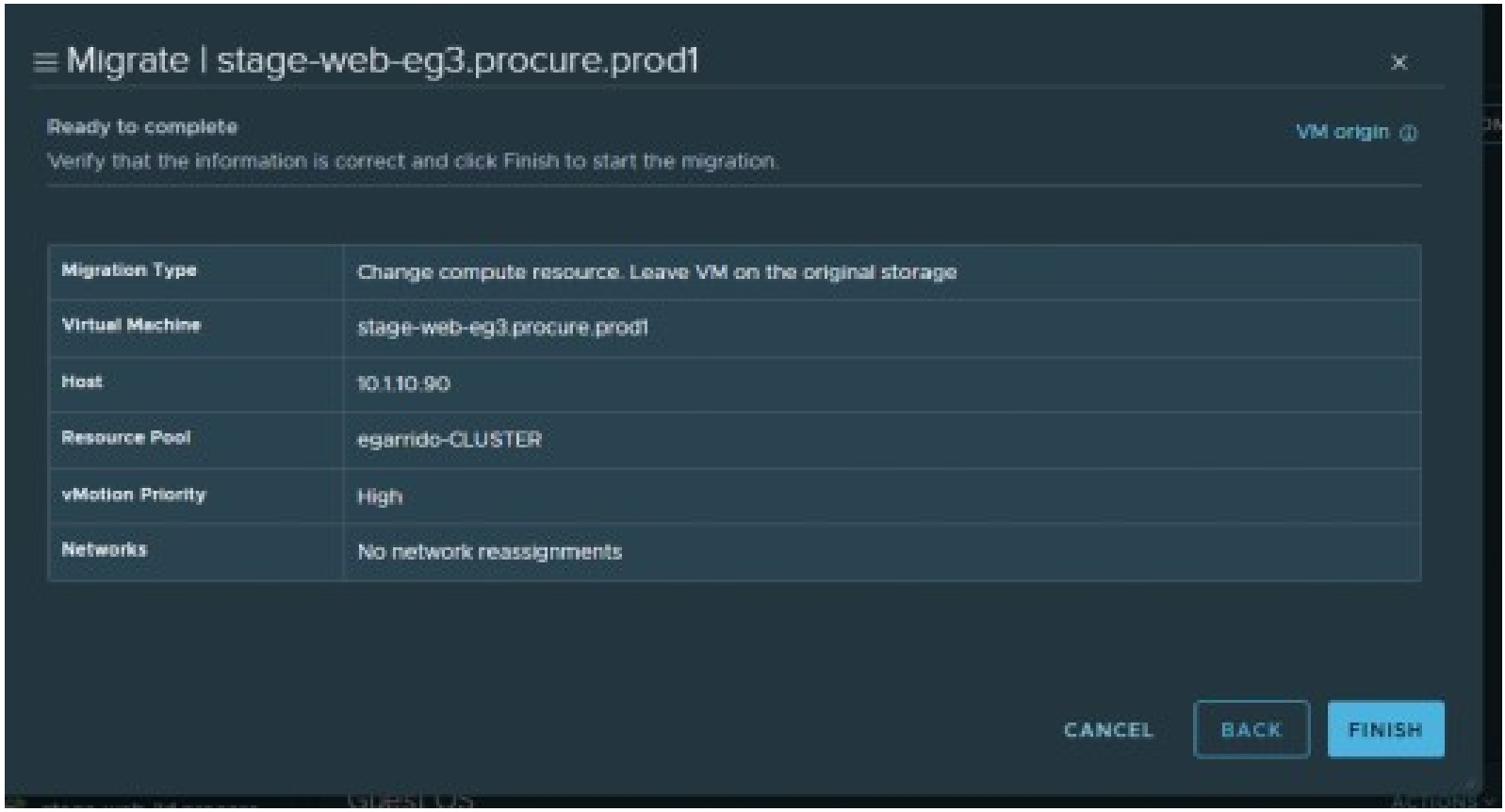
Verifies the destination network mapping for the virtual machine during migration, ensuring the network adapter remains connected to the correct VLAN with successful compatibility checks.



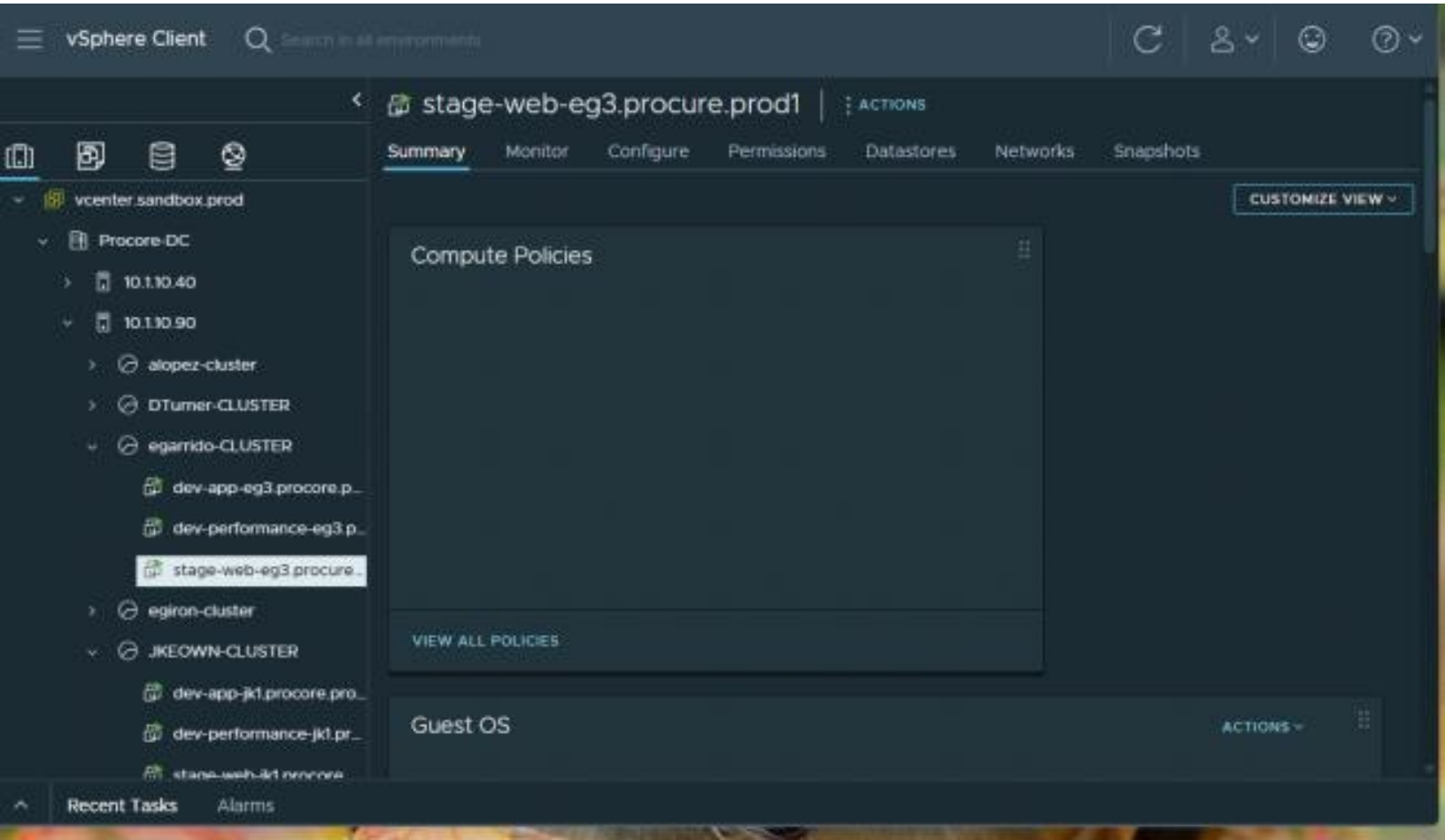
Selects a high-priority vMotion setting to prioritize CPU resources during the virtual machine migration, helping ensure faster and smoother completion of the move.



Reviews and confirms the vMotion migration details—including target host, resource pool, priority, and network settings—before finalizing and starting the virtual machine migration.



Confirms the virtual machine is present and accessible in vSphere after migration, indicating successful placement on the target host and readiness for normal operations.



Summary:

A virtual machine was deployed and configured in a VMware vSphere environment, including OS installation with CentOS Stream 9, post-install system setup, asset documentation, and a compute-only vMotion migration. The workflow demonstrates standardized VM provisioning, Linux system administration, and successful live migration with minimal impact.