# Comparison of Traditional VM Deployment vs. Golden Image Method in Azure

## 1. Introduction

In Azure environments, Virtual Machines (VMs) are typically deployed using different approaches. Two common methods are:  
1️⃣ Traditional Method – Deploying a raw VM without pre-installed software, followed by software installation using SCCM (for Windows) and Ansible (for Linux).  
2️⃣ Golden Image Method – Using a pre-built VM image with all required software already installed, reducing post-deployment configuration time.  
This document compares these methods based on deployment time, automation, efficiency, and scalability.

## 2. Overview of Both Methods

### 2.1 Traditional VM Deployment Method

This method involves creating a basic VM in Azure and then installing necessary software separately. The process is as follows:  
✅ Step 1: Deploy a raw VM in Azure (without software).  
✅ Step 2: For Windows VMs, use SCCM (System Center Configuration Manager) to install software.  
✅ Step 3: For Linux VMs, use Ansible pipelines for software configuration.

⏳ Time Taken (Traditional Method)  
- VM Creation Time: ~2 minutes 25 seconds (Linux + Windows)  
- Windows Software Installation (via SCCM): ~30 minutes  
- Linux Software Installation (via Ansible): ~2 minutes  
- Total Time: ~34 minutes 25 seconds

🔹 Pros:

* ✔️ Can be customized for each VM.
* ✔️ Works well if software requirements change frequently.
* ✔️ Allows dynamic software selection per VM.

🔸 Cons:

* ❌ Time-consuming, especially for Windows software installation.
* ❌ Requires SCCM/Ansible setup and maintenance.
* ❌ More manual approvals/interventions needed.

### 2.2 Golden Image-Based VM Deployment

A Golden Image is a pre-configured VM image with all necessary software and settings, reducing post-deployment effort. The process is as follows:  
✅ Step 1: Create a Golden Image with pre-installed software.  
✅ Step 2: Deploy the Golden Image VM in Azure.  
✅ Step 3: Minimal post-deployment tasks (if needed).

⏳ Time Taken (Golden Image Method)  
- VM Creation + Pre-installed Software: ~4 minutes 57 seconds  
- Total Time: ~4 minutes 57 seconds (No additional software installation needed)

🔹 Pros:

* ✔️ Faster deployment as software is pre-installed.
* ✔️ More reliable – ensures all VMs have consistent configurations.
* ✔️ Reduces errors – no need for manual software installation.
* ✔️ Easier scaling – can deploy multiple VMs with identical configurations.

🔸 Cons:

* ❌ Requires maintenance of Golden Image versions.
* ❌ Updates require creating a new image version.
* ❌ Less flexibility – every VM gets the same configuration unless a new image is built.

## 3. Comparison Table

|  |  |  |
| --- | --- | --- |
| Criteria | Traditional Method | Golden Image Method |
| VM Creation Time | 2 min 25 sec | 4 min 57 sec |
| Software Installation (Windows via SCCM) | ~30 min | Pre-installed |
| Software Installation (Linux via Ansible) | ~2 min | Pre-installed |
| Total Deployment Time | ~34 min 25 sec | ~4 min 57 sec |
| Consistency Across VMs | May vary | 100% consistent |
| Scalability | Slower for mass deployments | Faster & scalable |
| Ease of Maintenance | SCCM/Ansible needed for updates | Requires image updates |
| Flexibility | Can install different software per VM | Every VM has the same base image |
| Best For | Dynamic environments where each VM may need different software | Large-scale, standardized deployments |

## 4. Best Practices for Golden Image Management

* 🔹 Maintain Versioning: Use a version-based approach (Golden Image V1, V2, V3) to track updates.
* 🔹 Automate Image Updates: When new software updates are available, create a new Golden Image version and update existing VMs accordingly.
* 🔹 Use Terraform for Deployment: Ensure Terraform references the latest Golden Image version for new VM deployments.
* 🔹 Update Old VMs: Existing VMs using older images should be updated before shifting to the latest Golden Image version.

## 5. Conclusion

The Golden Image method significantly reduces deployment time, making it ideal for large-scale deployments where consistency and speed are crucial. However, if frequent software changes are required, the traditional method with SCCM and Ansible may still be preferable for dynamic environments.

✅ Use the Golden Image method for: Standardized deployments, DR environments, and large-scale rollouts.

✅ Use the Traditional method for: Situations where each VM may need different software configurations.