VM Applications Overview

Last updated by | Yuri Ohno | Feb 16, 2023 at 9:24 AM PST

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Overview

VM Applications is a resource type in Azure Compute Gallery that simplifies management, sharing and global distribution of application packages.

Feature Details

While you can create an image of a VM with apps pre-installed, you would need to update your image each time you have application changes. Separating your application installation from your VM images means there's no need to publish a new image for every line of code change.

- Application packages provide benefits over other deployment and packaging methods:
- Grouping and versioning of your packages
- VM applications can be globally replicated to be closer to your infrastructure, so you don't need to use AzCopy or other storage copy mechanisms to copy the bits across Azure regions.
- Sharing with other users through Azure Role Based Access Control (RBAC)
- Support for virtual machines, and both flexible and uniform scale sets
- If you have Network Security Group (NSG) rules applied on your VM or scale set, downloading the packages from an internet repository might not be possible. And with storage accounts, downloading packages onto locked-down VMs would require setting up private links.

- VM applications can be used with the DeployIfNotExists policy.

With VM Applications application pacakages can be replicated closer to the infrastructure, so customers do not needs to use aZCopy or other storage copy mechanisms to copy the bits across Azure regions.

Concepts

- Gallery Resource

Same as Gallery for VM Images today, this is a container resource, which provides some metadata, and a first-class concept of a privately shared gallery. Users can share the gallery resource and all the child resources will be shared automatically. The gallery name must be unique per subscription. For example, you may have one gallery to store all your Linux applications and another gallery to store all your Windows applications.

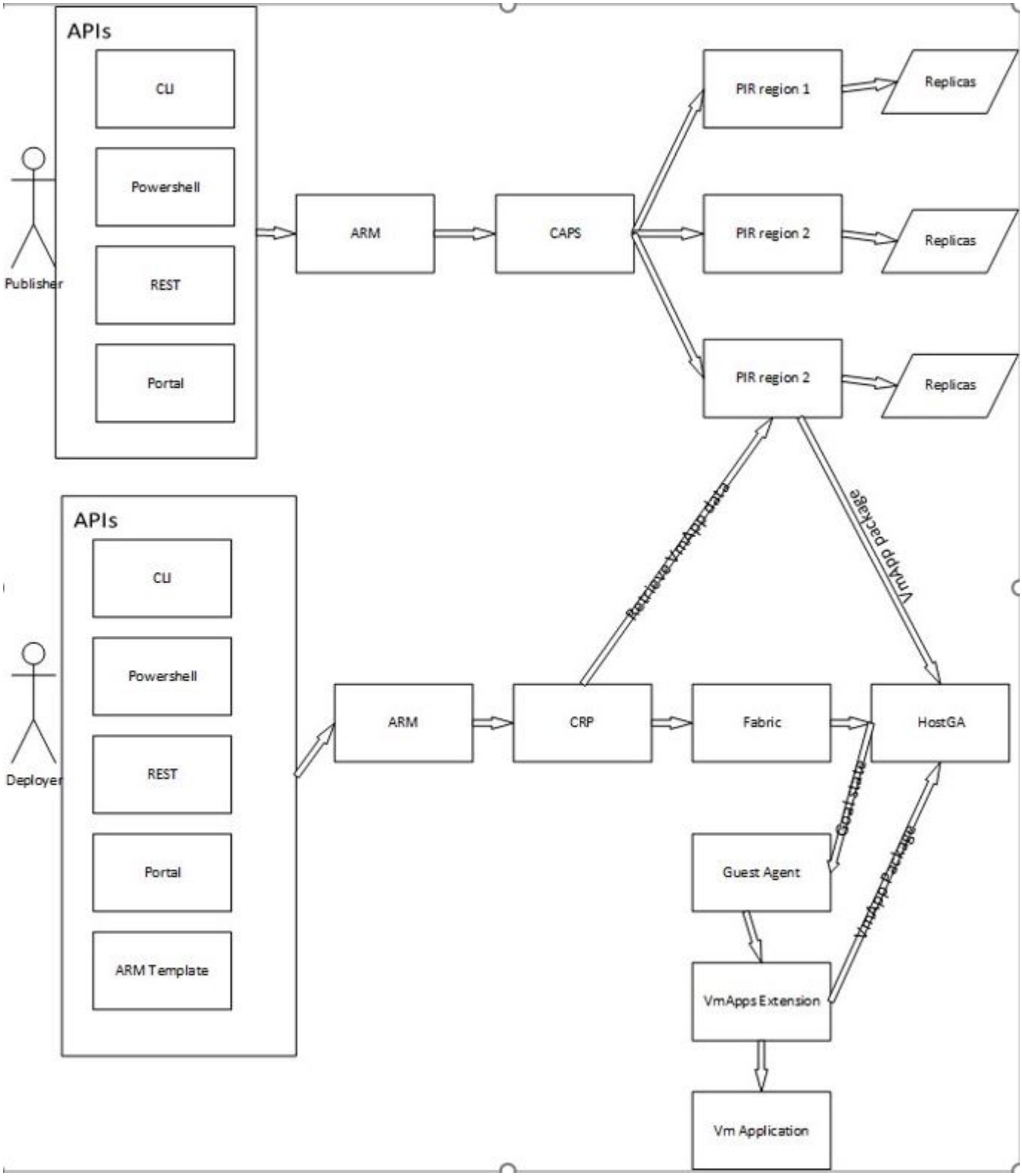
- VM Application

This is the gallery application resource, which represents an application object, which can be versioned independent of other resources in the gallery. This is a logical resource that stores the common metadata for all the versions under it. For example, you may have an application definition for Apache Tomcat and have multiple versions within it.

- VM Application Version

This is the deployable version of the VM Application Definition. This is a multi-regional, independently scalable resource. Users may choose to globally replicate their application versions to target regions closer to their VM infrastructure. The VM Application Version must be replicated to a region before it may be deployed on a VM in that region.

How it Works



There are two roles of customers which can be same or different customers.

- **Publishing**

  Publisher of the application creates the packages and defines what is installed.Defines what actions are possible.

  Publisher calls CAPS through ARM (PowerShell,CLI or Portal).

CAPS calls PIR for each region specified.

PIR creates 1-3 replicas per region.

- **Deploying**

  Deployer uses the application created by the Publisher. Deployer can make configurations changes and run predefined custom actions.

  Deployer calls CRP via ARM(PowerShell, CLI or Portal)

  CRP automatically adds the VMApp Extension as necessary

  - Package uris and install/update /remove actions sent via Fabric.
  - Apps to install and custome actions sent via the goal state.

  VmApp extension calls HostGA to retrieve metadata and the packages.

  - Actual Sas url for package cannot be seen by the VM.

Brownbags

- Feature Walkthrough
- Feature Brownbag

Public documentation

- Overview of Vm applications
- Create and deploy VM applications

Support Boundaries

This is supported by Azure VM team. For escalations, please reach out to the below SME channels depending on the issue.

1. Extensions - For any issues related to VmApp extension. Install/remove extensions and app deployment.

   Teams Channel

2. Shared Image Gallery - For any issues related to publishing of the application to shared image Gallery.

   Teams Channel

Current Limitations

- No more than 3 replicas per VM Application version

  When creating a VM Application version, the maximum number of supported replicas per region is three. There are no current plans to increase it.

- Retrying failed installations

Currently, the only way to retry a failed installation is to remove the application from the profile, then add it back. We are seeking feedback on how practical this is for our customers.

- Only 5 applications supported per VM

  No more than 5 applications may be deployed to a VM at any point.

- 1GB Application size

  The maximum file size of an application version is 1GB. We do not plan to increase this in the future.

- No guarantees on reboots in your script

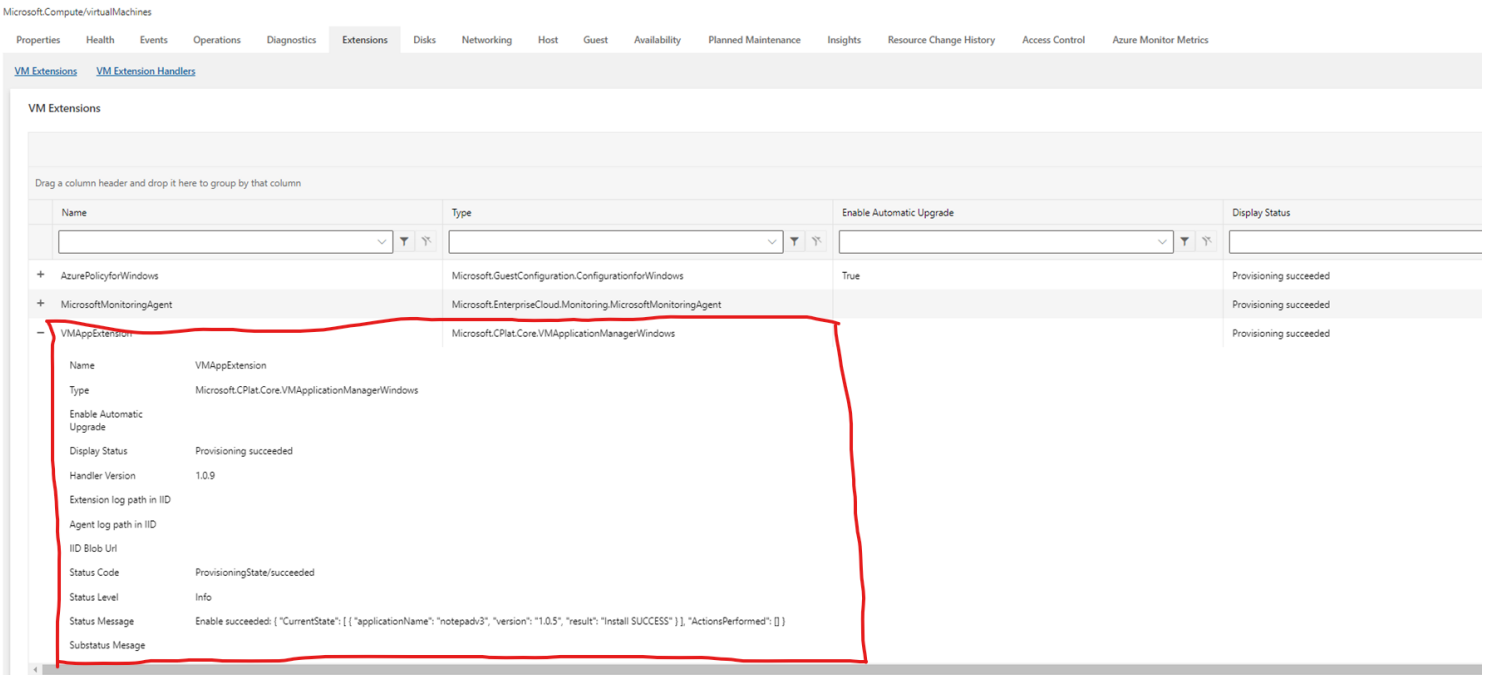
  If your script requires a reboot, the recommendation is to place that application last during deployment. While the code attempts to handle reboots, this support is not complete.

- Requires a VM Agent The VM agent must exist on the VM and be able to receive goal states.

- Not available in Azure Gov and sovereign clouds yet These are in progress

ASC Integration

The Application details will show up under the VMAppExtension.



FAQs

1. What are the key benefits of using VM Applications?

    1. Grouping and versioning your packages
    2. Global replication
    3. Share packages with other users using Azure Role Based Access Control
    4. VM/VMSS/VMSS-Flex support .

2. What is the download location for application package on the VM?

```
Linux: /var/lib/waagent/Microsoft.CPlat.Core.VMApplicationManagerLinux/<appname>/<app version>
Windows: C:\Packages\Plugins\Microsoft.CPlat.Core.VMApplicationManagerWindows\1.0.4\Downloads\<appname>\<

The install/update/remove commands should be written assuming the application package and the configurati
```

3. What type of workloads are suitable for VM Applications?

   If your workload requires downloading and installing any of the following, then your workload will benefit from using VM Applications

   - Web Applications (for example, .war files, Apache Tomcat), Agents (Daemon Agents, Launch Agents, User Agents etc.)
   - Desktop Applications (for example: .exe, .msi, .rpm packages)
   - Datasets for your AI/ML workloads
   - Security, audit, and update packages for compliance purposes

   The above are just examples that were derived from customer research, but it can be for any type of file as long the install and remove are handled.

4. What other features are on the roadmap?

   - Auto-update applications
   - Azure Arc support
   - Share applications directly with subscriptions and tenants
   - Custom actions to interact better with your applications
   - Integration with Azure DevOps

Feature Onboarding Contacts & Dates

Contacts				Release Day		
Compute PG PM	**Beta Engineer**	**Incubation Engineer**	**Service TA(s)**	**Private Preview**	**Public Preview**	**Ge Avail**
Amjad Shaik	*Baba Sainath Bhooman*	*Tyler Morse*	*Camiu Chen, Sampath Rao Madarapu*	*Skipped*	*11/15/2021*	*07/2*