Sharing Capacity Reservation Group across Subscription under same AAD

The purpose of this document is to provide:

1. A brief overview of the feature, usage scenarios and customer experience of CRG sharing
2. Summary of API experience
3. Error documentation

Overview:

Sharing of deployed resources across subscriptions is a new area for Compute that would allow Capacity Reservation Group to be shared across subscriptions under same AAD.

Due to Azure limitations and funding constraints, we will take a crawl, walk, run approach. For v1, Azure will provide basic functionality that supports the key scenarios some of which are summarized below:

* **Scenarios:**

1. **Resource Reuse:**

Customers can maximize utilization even during scale in of primary apps. Customers with ODCR for DR require the ability to use capacity for lower priority workloads including non-production, test, run-to-completion jobs.

Diagram

Description automatically generated

1. **Centralized Capacity:**

Customers can have the same persona to manage both quota and reserved capacity across subscriptions for the app environments they support.

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1. **Scaling/Sharding:**

At-scale customers can use multiple subscriptions for a single environment.

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1. **ISV customer isolation:**

SaaS providers that host VMs for specific customers can manage supporting resources more centrally while keeping their customers isolated in their own subscriptions. Resources include quota and reserved capacity. This would allow customers to get streamlined access in a more dynamic way that better fits their customer usage patterns.

Diagram

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* **Capacity Reservation Group sharing strategy:**

Capacity Reservation Group can be shared between subscriptions under same AAD

* + Host subscription has to explicitly share with other subscriptions by populating “sharing profile” for a CRG
  + Host subscription admin has to give read/deploy rights to users of subscription with whom capacity reservation has been shared

Example:

In below diagram:

1. User Ava created CRG X with CRs Y and Z in Sub A.
2. User Ava shared CRG X with Sub B and Sub Dev.
3. User Ava granted User Bob and User Sal “read” and “deploy” rights to CRG X.
4. Sub B/VM R and Sub Dev/VM T both match CR Y in VM SKU/location/zone.

Graphical user interface, diagram

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* **Limitations/Restrictions for sharing:**
* Allowed only for subscriptions within same AAD
* Sharing is allowed for explicit list of subscription and not implicit (i.e. all subscriptions within the AAD)
* Individual CR cannot be shared to set of subscriptions
* Move scenarios out of scope
* **Usage patterns:**
  + Customer intends to grant access to all subscriptions in a management group.
  + Customer intends to share with arbitrary subscriptions/specific environments
* **Summary of key design considerations:**
  + Usage Control: Customer has control over use of capacity for example evicting VMs
  + Discoverability: Customer using shared objects must be able to find them via Portal or API (For Private Preview customers will have access to API only, Portal aspect will be ready by Public Preview)
  + Manageability: Customers have the option to set an object’s share policy and then it operates automatically as their object set changes
  + At scale: System can manage large set of objects in a streamlined way
* Customer experience of CRG sharing:
* Customer will populate CRG “sharingProfile” with subscription list to be shared with
* CRG admin can delete CRG and CRs within the CRG:

Diagram

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* CRG admin can evict VMs and remove CRG reference:

Waterfall chart

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* CRG user with read/deploy rights given by admin of CRG can deploy VMs in CRs as well as manage the reservations:

Diagram

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Summary of API experience (examples, actual API template will be finalized after code completion):

# **API changes**

1. Capacity Reservation Groups – Create or Update

For this example, assume Sub B has the GUID “728bcbe4-8d56-4510-86c2-4921b8beefbc”. The new optional “share” property is added.

PUT https://management.azure.com/subscriptions/{SubA}/resourceGroups/{rg}/providers/Microsoft.Compute/CapacityReservationGroups/CRG\_X &api-version=2021-04-01

{

"location":"eastus",

"zones": ["1", "2", "3"]

“shared”: [ “/subscriptions/728bcbe4-8d56-4510-86c2-4921b8beefbc" ]

}

1. Capacity Reservation Groups – Get

Similar to Create or Update, the new “share” property will appear for CRG\_X if defined.

GET https://management.azure.com/subscriptions/{subscriptionId}/resourceGroups/myResourceGroup/providers/Microsoft.Compute/capacityReservationGroups/CRG\_X?api-version=2022-03-01

{

"properties": {

"capacityReservations": [

{

"id": "subscriptions/{subscriptionId}/resourceGroups/myResourceGroup/providers/Microsoft.Compute/capacityReservationGroups/CRG\_X/capacityReservations/CR\_Y"

},

{

"id": "subscriptions/{subscriptionId}/resourceGroups/myResourceGroup/providers/Microsoft.Compute/capacityReservationGroups/CRG\_X/capacityReservations/CR\_Z"

}

],

"location": "westus",

"tags": {

"{tagName}": "{tagValue}"

},

"name": "myCapacityReservationGroup",

"zones": [

"3",

"1"

]

“shared”: [

“/subscriptions/728bcbe4-8d56-4510-86c2-4921b8beefbc"

]

}

1. List all Shared Capacity Reservation groups for a subscription.

[https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.Compute/CapacityReservationGroups?api-version={apiVersion}](https://management.azure.com/subscriptions/%7bsubscriptionId%7d/providers/Microsoft.Compute/CapacityReservationGroups?api-version=%7bapiVersion%7d)&sharedOnly={sharedOnly}

This API request will return the list of the Capacity Reservation Group ids including the shared ones for the given Subscription.

1. VM/VMSS deployment

There are no semantic changes required. As an example, the following configuration of REST call will be supported. Note the highlights – the request is against Sub B, but the reservation property specifies an object from Sub A. Note that if a zone was specified, it would be the Sub B logical zone.

PUT https://management.azure.com/subscriptions/{SubB}/resourceGroups/{rg}/providers/Microsoft.Compute/virtualMachines/VM\_R?api-version=2022-03-01

{

"location": "eastus",

"properties": {

"hardwareProfile": {

"vmSize": "Standard\_D2s\_v3"

},

…

"CapacityReservation":{

"capacityReservationGroup":{

"id":"/{SubA}/resourceGroups/  
{resourcegroup}/providers/Microsoft.Compute/   
capacityReservationGroups/CRG\_X"

}

"storageProfile": {

…

},

"osProfile": {

…

},

"networkProfile": {

…

}