Dedicated Host

Best Practices

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1 Best Practices for Purchasing DeHs

Scenarios

Dedicated Host (DeH) provides dedicated physical hosts. You can create ECSs on a DeH to enhance isolation, security, and performance of your ECSs.

If you have specific requirements for the ECS resources, such as the number of ECSs, number of vCPUs, and memory size, you can calculate the number of DeHs required by referring to this document and determine the optimal order of provisioning ECSs.

This section describes how to purchase c6_pro DeHs and provision 20 c6.large.4 ECSs and 4 c6.12xlarge.4 ECSs.

Process

Step	Description
Step 1: Obtain the ECS List	Collect statistics on the list of ECSs to be provisioned based on service requirements.
Step 2: Adjust the ECS Flavors	Adjust the ECSs to be provisioned based on the ECS flavors supported by the DeH flavor family.

Step	Description
Step 3: Calculate the Number of DeHs to Be Purchased	Calculate the number of DeHs to be purchased. The following solutions are supported: • Solution 1: Accurate calculation. Calculate the number of DeHs to be purchased based on the information about all ECSs to be purchased. This solution is suitable for buying a few ECSs with a few types of flavors. The calculation result of this solution is accurate. • Solution 2: Fuzzy calculation. Calculate the required resources using information about all ECSs to be purchased. Then, calculate the number of DeHs to purchase based on the average allocation rate. This solution is suitable for buying a large number of ECSs with various flavors. This solution may be inaccurate because it uses the average allocation rate as a reference.
Step 4: Provision ECSs	Provision ECSs on the purchased DeHs.

Step 1: Obtain the ECS List

List the ECSs to be provisioned. As shown in **Table 1-1**, 20 ECSs (each with 2 vCPUs and 8 GiB of memory) and 4 ECSs (each with 48 vCPUs and 192 GiB of memory) need to be provisioned.

Table 1-1 ECS resources to be provisioned

vCPUs	Memory (GiB)	ECSs
2	8	20
48	192	4

Step 2: Adjust the ECS Flavors

Adjust the ECS flavors in the ECS list to those supported by the DeH flavor family.

For details, see **ECSs Allowed on DeHs**.

Step 3: Calculate the Number of DeHs to Be Purchased

Solution 1: Accurate calculation

Calculate the number of DeHs to be purchased based on the information about all ECSs to be purchased. This solution is suitable for provisioning a few ECSs with a few types of flavors.

Before the calculation, view the DeH flavor information and the NUMA topology information about the supported ECS flavors. For details, see **Categories and Types**.

The accurate calculation procedure is as follows:

1. Sort the ECSs to be provisioned in descending order of flavors.

   For example, 20 ECSs of the c6.large.4 flavor and 4 ECSs of the c6.12xlarge.4 flavor need to be provisioned, as shown in **Table 1-2**.

   Table 1-2 ECS list

vCPUs	Memory (GiB)	NUMA Nodes	Required ECSs	ECSs Already Provisioned
48	192	2	4	0
2	8	1	20	0

2. Prepare an editable table and add one DeH to the initial resource pool.

   For example, if the selected DeH flavor is c6_pro, the initial resource pool information is shown in **Table 1-3**.

   Table 1-3 Initial resource pool

DeH Name	NUMA Information	Resource Type	Total Resources	Used Resources	Available Resources
DeH1	NUMA 0	vCPUs	36	0	36
		Memory (GiB)	144	0	144
	NUMA 1	vCPUs	38	0	38
		Memory (GiB)	152	0	152

3. Obtain the first resource in the first row from the ECSs to be purchased in **Table 1-2**.

   Based on **Table 1-2**, calculate the resources as follows:

   - Required ECSs: Decrease by 1.
   - ECSs already provisioned: Increase by 1.

   Based on **Table 1-3**, calculate the resources as follows:

   - Used resources: Enter the vCPUs and memory of the resources by NUMA based on **Table 1-2**.
   - Available resources: Total resources – Used resources

   For example, after calculation, one ECS can be provisioned and is deducted from the required resources in the table. **Table 1-4** shows the ECS list after resource deduction, and **Table 1-5** shows the resource pool after calculation.

Table 1-4 ECS list after calculation (deducting one ECS)

vCPUs	Memory (GiB)	NUMA Nodes	Required ECSs	ECSs Already Provisioned
48	192	2	3	1
2	8	1	20	0

Table 1-5 Resource pool after calculation (deducting one ECS)

DeH Name	NUMA Information	Resource Type	Total Resources	Used Resources	Available Resources
DeH1	NUMA 0	vCPUs	36	24	12
		Memory (GiB)	144	96	48
	NUMA 1	vCPUs	38	24	14
		Memory (GiB)	152	96	56

4. Based on the DeH resource pool information, calculate the resources in **Table 1-2** in sequence and check whether the DeH can provision an ECS.

   Check the topology information of the ECSs and DeH. If the vCPUs and memory in the DeH resource pool are greater than those of the ECS, the ECS can be provisioned.

   - If yes, deduct the provisioned ECS and repeat **3**.

     If no required resources are available in the row where the resource to be purchased is located, select the next row of resources to be purchased and continue the calculation. If there is no next row, the calculation is complete.
   - If no, go to step **5**.
5. Add one DeH to the resource pool and repeat the operation in step **3**.

Table 1-6 Resource pool (one DeH added)

DeH Name	NUMA Information	Resource Type	Total Resources	Used Resources	Available Resources
DeH1	NUMA 0	vCPUs	36	24	12
		Memory (GiB)	144	96	48
	NUMA 1	vCPUs	38	24	14

DeH Name	NUMA Information	Resource Type	Total Resources	Used Resources	Available Resources
		Memory (GiB)	152	96	56
DeH2	NUMA 0	vCPUs	36	0	36
		Memory (GiB)	144	0	144
	NUMA 1	vCPUs	38	0	38
		Memory (GiB)	152	0	152

6. Repeat steps 3 to 5 until all resources in Table 1-2 are provisioned, that is, no required resources are available in all rows.

   According to the calculation, you need to purchase four DeHs of the c6_pro flavor to provision 20 ECSs of the c6.large.4 flavor and four ECSs of the c6.12xlarge.4 flavor.

Table 1-7 ECS list (after purchase)

vCPUs	Memory (GiB)	NUMA Nodes	Required ECSs	ECSs Already Provisioned
48	192	2	0	4
2	8	1	0	20

Table 1-8 Resource pool (after purchase)

DeH Name	NUMA Information	Resource Type	Total Resources	Used Resources	Available Resources
DeH1	NUMA 0	vCPUs	36	36	0
		Memory (GiB)	144	144	20
	NUMA 1	vCPUs	38	38	0
		Memory (GiB)	152	152	12
DeH2	NUMA 0	vCPUs	36	36	0
		Memory (GiB)	144	144	20

DeH Name	NUMA Information	Resource Type	Total Resources	Used Resources	Available Resources
	NUMA 1	vCPUs	38	26	12
		Memory (GiB)	152	104	48
DeH3	NUMA 0	vCPUs	36	24	12
		Memory (GiB)	144	96	48
	NUMA 1	vCPUs	38	24	14
		Memory (GiB)	152	96	56
DeH4	NUMA 0	vCPUs	36	24	12
		Memory (GiB)	144	96	48
	NUMA 1	vCPUs	38	24	14
		Memory (GiB)	152	96	56

Solution 2: Fuzzy calculation

Calculate the required resources using information about all ECSs to be purchased. Then, calculate the number of DeHs to purchase based on the average allocation rate. This solution is suitable for buying a large number of ECSs with various flavors. This solution may be inaccurate because it uses the average allocation rate as a reference.

1. Collect resource information of all ECSs to be purchased and calculate the total number of vCPUs and memory capacity.
2. Divide the total memory capacity by the total number of vCPUs to obtain the memory-to-vCPU ratio. Compare the ratio with that of DeHs. If the ratio is higher than that of DeHs, the memory is used for calculation. Otherwise, the vCPUs are used for calculation.
3. Use the experience-based allocation rate as the standard rate to purchase DeHs.

Table 1-9 Allocation rate (experience-based)

Average vCPUs of Resources to Be Provisioned	Average Allocation Rate
< 32 vCPUs	85%
≥ 32 vCPUs	70%

4. Calculate the number of DeHs to be purchased based on the following formula:

   Number of DeHs to be purchased = Ceiling (Total resources/Number of resources per DeH/Average allocation rate)

Step 4: Provision ECSs

Recommended provisioning sequence:

To provision as many ECSs as possible, you are advised to provision ECSs in descending order of flavors, which means provisioning large-specification ECSs first and then small-specification ECSs.

For details about how to provision ECSs on a DeH, see **Deploying ECSs on DeHs**.

