Service type, storage classes, and PV size for GKE clusters

Astra

Ben Cammett
April 07, 2021

Table of Contents

Service type, storage classes, and PV size for GKE clusters 1
Overview 1
CVS-Performance service type 1
CVS service type 2

Service type, storage classes, and PV size for GKE clusters

Astra uses Cloud Volumes Service for Google Cloud as the backend storage for persistent volumes. You should understand how choosing a service type, storage class, and persistent volume size can help you meet your performance objectives.

Overview

Cloud Volumes Service for Google Cloud provides two service types: *CVS* and *CVS-Performance*. These service types are supported in specific Google Cloud regions. Go to NetApp Cloud Central's Global Regions Maps to identify the service type that's supported in the Google Cloud region where your clusters reside.

If your Kubernetes clusters must reside in a specific region, then you'll be using the service type supported in that region.

But if you have the flexibility to choose between Google Cloud regions, then we recommend the following based on your performance requirements:

- For K8s applications that have medium-to-high performance storage needs, choose a Google Cloud region that supports CVS-Performance and use the Premium or Extreme storage class. Such workloads include AI/ML pipelines, CI/CD pipelines, media processing, and databases including relational, noSQL, time series, etc.
- For K8s applications that have low-to-medium storage performance needs (web apps, general purpose file storage, etc.), choose a Google Cloud region that supports either CVS or CVS-Performance, with the Standard storage class.

The following table provides a quick comparison of the information described on this page.

Service type	Use case	Supported regions	Storage classes	Min volume size
CVS-Performance	Apps with medium-to-high storage performance needs	View supported Google Cloud regions	• netapp-cvs-standard • netapp-cvs-premium • netapp-cvs-extreme	100 GiB
CVS	Apps with low-to-medium storage performance needs	View supported Google Cloud regions	netapp-cvs-standard	100 GiB

CVS-Performance service type

Learn more about the CVS-Performance service type before you choose a storage class and create persistent volumes.

Storage classes

Three service levels are supported with the CVS-Performance service type: Standard, Premium, and Extreme. When you add compute to Astra, you're prompted to choose either Standard, Premium, or Extreme as the default storage class for persistent volumes. Each of these service levels are designed for different capacity and bandwidth needs.

The names of the storage classes are *netapp-cvs-standard*, *netapp-cvs-premium*, and *netapp-cvs-extreme*.

Learn more about these service levels in the Cloud Volumes Service for Google Cloud docs.

Persistent volume size and performance

As the Google Cloud docs explain, the allowed bandwidth for each service level is per GiB of provisioned capacity. That means larger volumes will provide better performance.

Be sure to read through the Google Cloud page linked to above. It includes cost comparisons and examples that can help you better understand how to couple a service level with volume size to meet your performance objectives.

Minimum volume size

Astra provisions persistent volumes using a minimum volume size of 100 GiB with the CVS-Performance service type, even if the PVC asks for a smaller volume size. For example, if the PVC in a Helm chart asks for 6 GiB, Astra automatically provisions a 100 GiB volume.

CVS service type

Learn more about the CVS service type before you choose a storage class and create persistent volumes.

Storage class

One service level is supported with the CVS service type: Standard. When you manage clusters in regions where the CVS service type is supported, Astra uses the Standard service level as the default storage class for persistent volumes. The storage class is named *netapp-cvs-standard*.

Learn more about the Standard service level in the Cloud Volumes Service for Google Cloud docs.

Persistent volume size and performance

The allowed bandwidth for the CVS service type is per GiB of provisioned capacity. That means larger volumes will provide better performance.

Minimum volume size

Astra provisions persistent volumes using a minimum volume size of 100 GiB with the CVS service type, even if the PVC asks for a smaller volume size.

Copyright Information

Copyright © 2021 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at http://www.netapp.com/TM are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.