



Example of using IPspaces

ONTAP 9

aherbin
April 27, 2021

Table of Contents

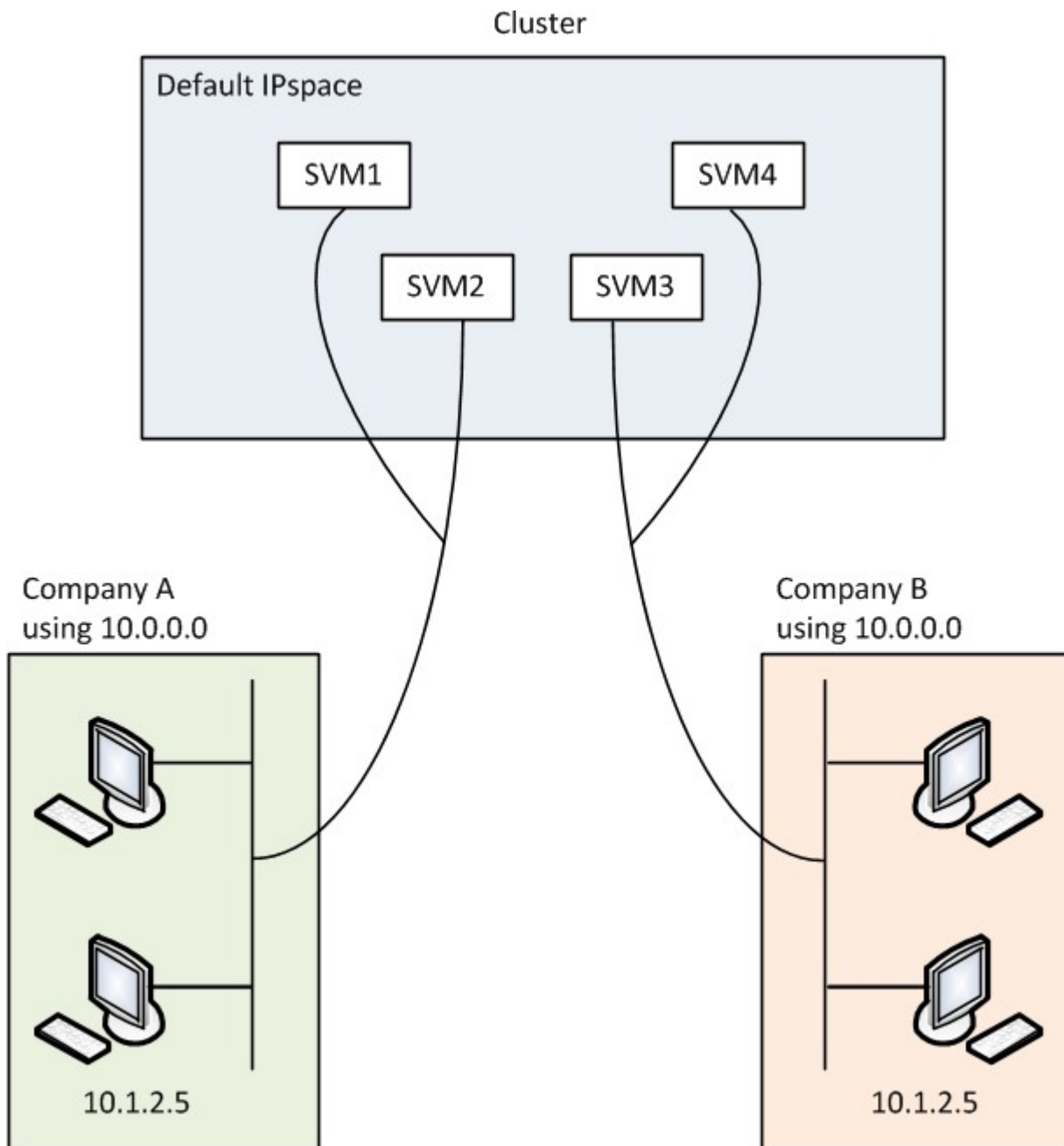
Example of using IPspaces 1

Example of using IPspaces

A common application for using IPspaces is when a Storage Service Provider (SSP) needs to connect customers of companies A and B to an ONTAP cluster on the SSP's premises and both companies are using the same private IP address ranges.

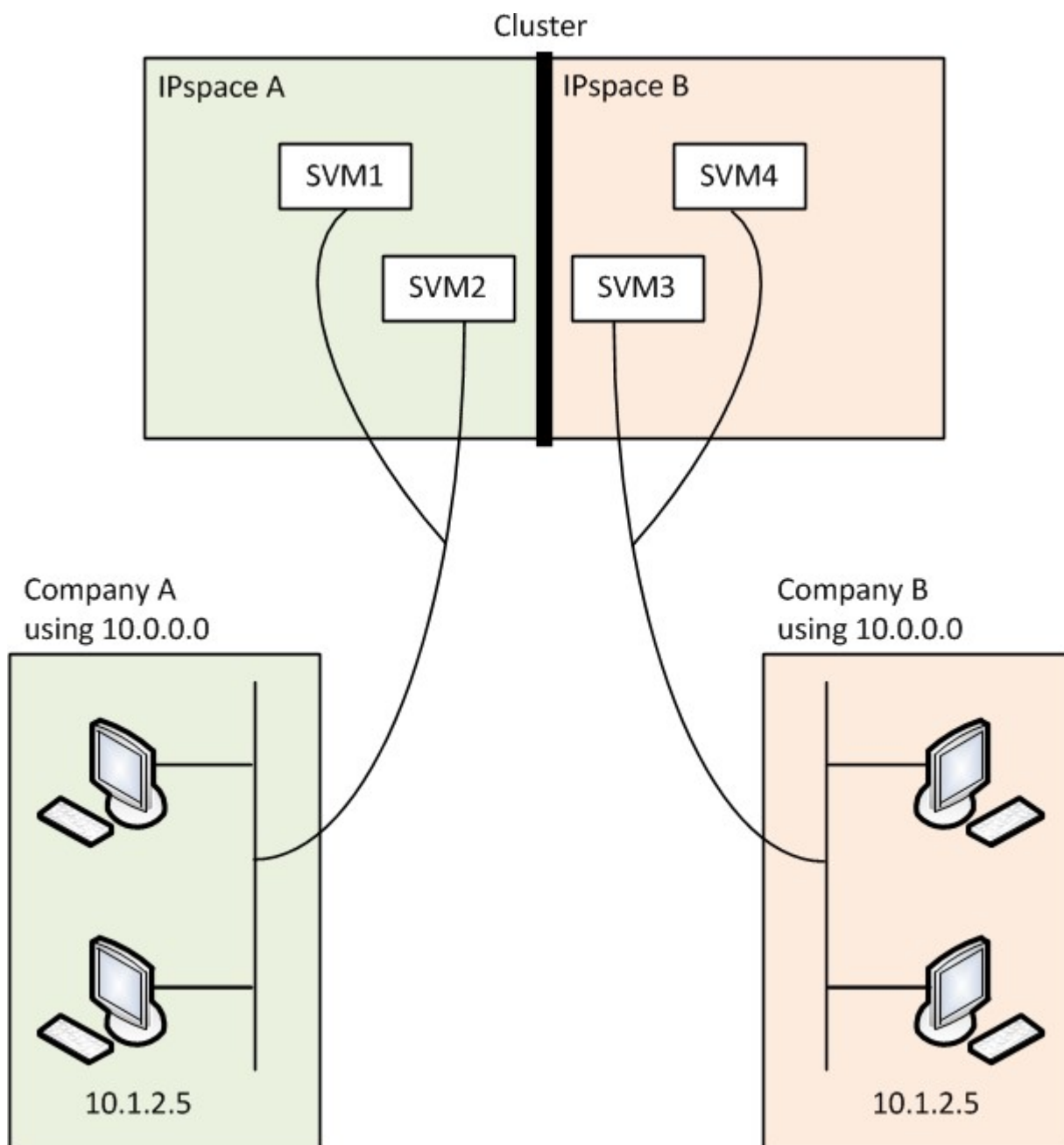
The SSP creates SVMs on the cluster for each customer and provides a dedicated network path from two SVMs to company A's network and from the other two SVMs to company B's network.

This type of deployment is shown in the following illustration, and it works if both companies use non-private IP address ranges. However, the illustration shows both companies using the same private IP address ranges, which causes problems.



Both companies use the private IP address subnet 10.0.0.0, causing the following problems:

- The SVMs in the cluster at the SSP location have conflicting IP addresses if both companies decide to use the same IP address for their respective SVMs.
- Even if the two companies agree on using different IP addresses for their SVMs, problems can arise.
- For example, if any client in A's network has the same IP address as a client in B's network, packets destined for a client in A's address space might get routed to a client in B's address space, and vice versa.
- If the two companies decide to use mutually exclusive address spaces (for example, A uses 10.0.0.0 with a network mask of 255.128.0.0 and B uses 10.128.0.0 with a network mask of 255.128.0.0), the SSP needs to configure static routes on the cluster to route traffic appropriately to A's and B's networks.
- This solution is neither scalable (because of static routes) nor secure (broadcast traffic is sent to all interfaces of the cluster). To overcome these problems, the SSP defines two IPspaces on the cluster—one for each company. Because no cross-IPspace traffic is routed, the data for each company is securely routed to its respective network even if all of the SVMs are configured in the 10.0.0.0 address space, as shown in the following illustration:



Additionally, the IP addresses referred to by the various configuration files, such as the `/etc/hosts` file, the `/etc/hosts.equiv` file, and the `/etc/rc` file, are relative to that IPspace. Therefore, the IPspaces enable the SSP to configure the same IP address for the configuration and authentication data for multiple SVMs, without conflict.

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.