



# Virtual Desktop Infrastructure

## FlexPod

NetApp  
March 25, 2024

This PDF was generated from <https://docs.netapp.com/us-en/flexpod/vdi/fpd-citrix-vir.html> on March 25, 2024. Always check docs.netapp.com for the latest.

# Table of Contents

- Virtual Desktop Infrastructure ..... 1
  - FlexPod Datacenter with Citrix Virtual Apps & Desktops 1912 LTSR and VMware vSphere 7 for up to 6000 seats ..... 1
  - FlexPod Datacenter with VMware Horizon View 7.10, VMware vSphere 6.7 U2, Cisco UCS Manager 4.0, and NetApp ONTAP 9.6 for up to 6700 seats ..... 1
  - 3D graphics visualization with Citrix and NVIDIA - White paper ..... 1
  - FlexPod Datacenter with Citrix XenDesktop/XenApp 7.15 and VMware vSphere 6.5 Update 1 for 6000 seats ..... 2
  - FlexPod Datacenter with VMware Horizon View 7.3 and VMware vSphere 6.5 Update 1 with Cisco UCS Manager 3.2 for 5000 seats ..... 2
  - FlexPod Datacenter with VMware Horizon View 7.10, VMware vSphere 6.7 U2, Cisco UCS Manager 4.0, and NetApp ONTAP 9.6 for up to 6700 seats ..... 2

# Virtual Desktop Infrastructure

## **FlexPod Datacenter with Citrix Virtual Apps & Desktops 1912 LTSR and VMware vSphere 7 for up to 6000 seats**

Jeff Nichols, Cisco  
Suresh Thoppay, NetApp  
Dre Jackson, NetApp

This document provides the architecture and design of a virtual desktop infrastructure for up to 6000 end-user computing users. The solution is virtualized on fifth-generation Cisco UCS B200 M5 blade servers, booting VMware vSphere 7.01 Update 1 through FC SAN from the AFF A400 storage array. The virtual desktops are powered using Citrix Provisioning Server 1912 LTSR and Citrix RDS/Citrix Virtual Apps & Desktops 1912 LTSR, with a mix of RDS-hosted shared desktops (6000), pooled and/or non-persistent-hosted virtual Windows 10 desktops (5000), and persistent-hosted virtual Windows 10 desktops provisioned with Citrix Machine Creation Services (5000) to support the user population. Where applicable, the document provides best-practice recommendations and sizing guidelines for customer deployments of this solution.

[FlexPod Datacenter with Citrix Virtual Apps & Desktops 1912 LTSR and VMware vSphere 7 for up to 6000 seats](#)

## **FlexPod Datacenter with VMware Horizon View 7.10, VMware vSphere 6.7 U2, Cisco UCS Manager 4.0, and NetApp ONTAP 9.6 for up to 6700 seats**

Vadim Lebedev, Cisco  
Suresh Thoppay, NetApp

This document provides a reference architecture and design guide for a 5000-seat to 6000-seat desktop workload, end-user computing environment on FlexPod Datacenter with Cisco UCS and NetApp AFF A300 and NetApp ONTAP data management software. The solution includes VMware Horizon server-based RDS Windows Server 2019 sessions, VMware Horizon persistent full clone Microsoft Windows 10 virtual desktops and VMware Horizon non-persistent, instant-clone Microsoft Windows 10 virtual desktops on VMware vSphere 6.7U2

[FlexPod Datacenter with VMware Horizon View 7.10, VMware vSphere 6.7 U2, Cisco UCS Manager 4.0, and NetApp ONTAP 9.6 for up to 6700 seats](#)

## **3D graphics visualization with Citrix and NVIDIA - White paper**

This document describes the performance of Citrix XenDesktop on Citrix XenServer with

NVIDIA Tesla P4, P6, and P40 cards on Cisco UCS C240 M5 and B200 M5 servers with SPECviewperf 13.

[3D graphics visualization with Citrix and NVIDIA - White paper](#)

## **FlexPod Datacenter with Citrix XenDesktop/XenApp 7.15 and VMware vSphere 6.5 Update 1 for 6000 seats**

Vadim Lebedev, Cisco  
Chris Rodriguez, NetApp

This document provides a Reference Architecture for a virtual desktop and application design using Citrix XenApp/XenDesktop 7.15 built on Cisco UCS with a NetApp All Flash FAS (AFF) A300 storage and the VMware vSphere ESXi 6.5 hypervisor platform.

The landscape of desktop and application virtualization is changing constantly. The new M5 high-performance Cisco UCS Blade Servers and Cisco UCS Unified Fabric combined as part of the FlexPod proven Infrastructure, with the latest generation NetApp AFF storage result in a more compact, more powerful, more reliable and more efficient platform.

[FlexPod Datacenter with Citrix XenDesktop/XenApp 7.15 and VMware vSphere 6.5 Update 1 for 6000 seats](#)

## **FlexPod Datacenter with VMware Horizon View 7.3 and VMware vSphere 6.5 Update 1 with Cisco UCS Manager 3.2 for 5000 seats**

Ramesh Guduru, Cisco  
David Arnette, NetApp

This document provides a reference architecture, design guide, and deployment for up to a 5000-seat, mixed workload end-user computing environment on FlexPod Datacenter with Cisco UCS and NetApp All Flash FAS (AFF) A300 storage. The solution includes VMware Horizon server-based Remote Desktop Server Hosted sessions, VMware Horizon persistent Microsoft Windows 10 virtual desktops, and VMware Horizon non-persistent, Microsoft Windows 10 instant clone virtual desktops on VMware vSphere 6.5.

[FlexPod Datacenter with VMware Horizon View 7.3 and VMware vSphere 6.5 Update 1 with Cisco UCS Manager 3.2 for 5000 seats](#)

## **FlexPod Datacenter with VMware Horizon View 7.10, VMware vSphere 6.7 U2, Cisco UCS Manager 4.0, and NetApp ONTAP 9.6 for up to 6700 seats**

Vadim Lebedev, Cisco  
Suresh Thoppay, NetApp

This document provides a reference architecture and design guide for a 5000-seat to

6000-seat desktop workload end-user computing environment on FlexPod Datacenter with Cisco UCS and NetApp AFF A300 and NetApp ONTAP data management software. The solution includes VMware Horizon server-based RDS Windows Server 2019 sessions, VMware Horizon persistent, full clone Microsoft Windows 10 virtual desktops, and VMware Horizon non-persistent, instant-clone Microsoft Windows 10 virtual desktops on VMware vSphere 6.7 U2.

[FlexPod Datacenter with VMware Horizon View 7.10, VMware vSphere 6.7 U2, Cisco UCS Manager 4.0, and NetApp ONTAP 9.6 for up to 6700 seats](#)

## Copyright information

Copyright © 2024 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.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

## 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.