

Citrix XenApp Performance Essentials

A practical guide for tuning and optimizing the performance of XenApp farms using real-world examples



Luca Dentella

Citrix XenApp Performance Essentials

A practical guide for tuning and optimizing the performance of XenApp farms using real-world examples

Luca Dentella



BIRMINGHAM - MUMBAI

Citrix XenApp Performance Essentials

Copyright © 2013 Packt Publishing

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, without the prior written permission of the publisher, except in the case of brief quotations embedded in critical articles or reviews.

Every effort has been made in the preparation of this book to ensure the accuracy of the information presented. However, the information contained in this book is sold without warranty, either express or implied. Neither the author, nor Packt Publishing, and its dealers and distributors will be held liable for any damages caused or alleged to be caused directly or indirectly by this book.

Packt Publishing has endeavored to provide trademark information about all of the companies and products mentioned in this book by the appropriate use of capitals. However, Packt Publishing cannot guarantee the accuracy of this information.

First published: August 2013

Production Reference: 1120813

Published by Packt Publishing Ltd. Livery Place 35 Livery Street Birmingham B3 2PB, UK.

ISBN 978-1-78217-044-0

www.packtpub.com

Cover Image by Abhishek Pandey (abhishek.pandey1210@gmail.com)

Credits

Author Luca Dentella Project Coordinator Suraj Bist

Reviewer Andy Paul

Acquisition Editor Pramila Balan

Commissioning Editor Llewellyn Rozario

Technical Editors Sanhita Sawant Sonali S. Vernekar

Copy Editors Adithi Shetty Laxmi Subramanian Proofreader Amy Guest

Indexer Hemangini Bari

Graphics Ronak Dhruv Abhinash Sahu

Production Coordinator Manu Joseph

Cover Work Manu Joseph

About the Author

Luca Dentella is an IT architect working for an Italian consulting company, Sorint.lab.

He graduated in Telecommunication engineering from the Polytechnic University of Milan and he specialized in Windows and virtualization technologies, becoming both a Microsoft and a VMWare Certified Professional.

In the last five years, he worked mainly for INGDirect, Italy, where he helped to design and develop the IT infrastructure. Some projects he was involved in include call center virtualization, design of bank shops infrastructure, and outsourcing part of the back office.

He also worked as a Java/C# developer, and now he administers Java Application Servers such as IBM WebSphere and RedHat JBoss, and uses his programming skills to write scripts and programs for automating administrative tasks.

He designs, implements, and administers XenApp farms for different customers.

I'd like to thank my family and my girlfriend for supporting me during the writing of this book. Special thanks goes to my colleagues Albino, Aldo, and Marco who helped me in understanding network and security concepts and suggested the use of WANem.

About the Reviewer

Andy Paul is an accomplished virtualization architect, instructor and speaker. He has designed and delivered virtualization projects for Fortune 500 companies, public and private healthcare organizations, and institutions of higher education. He has also served as a lead technical trainer, an adjunct professor, and a guest speaker for multiple organizations.

Andy is currently the Virtualization Practice Director at GlassHouse Technologies, where he manages the delivery teams, oversees project architecture, and also is a VDI subject matter expert.

Visit Andy's Blog at www.paultechnologies.com/blog.

I would like to thank my wife, Mandy, for her support and dedication which has enabled me in all of my professional pursuits.

www.PacktPub.com

Support files, eBooks, discount offers and more

You might want to visit www.PacktPub.com for support files and downloads related to your book.

Did you know that Packt offers eBook versions of every book published, with PDF and ePub files available? You can upgrade to the eBook version at www.PacktPub.com and as a print book customer, you are entitled to a discount on the eBook copy. Get in touch with us at service@packtpub.com for more details.

At www.PacktPub.com, you can also read a collection of free technical articles, sign up for a range of free newsletters and receive exclusive discounts and offers on Packt books and eBooks.



http://PacktLib.PacktPub.com

Do you need instant solutions to your IT questions? PacktLib is Packt's online digital book library. Here, you can access, read and search across Packt's entire library of books.

Why Subscribe?

- Fully searchable across every book published by Packt
- Copy and paste, print and bookmark content
- On demand and accessible via web browser

Free Access for Packt account holders

If you have an account with Packt at www.PacktPub.com, you can use this to access PacktLib today and view nine entirely free books. Simply use your login credentials for immediate access.

Instant Updates on New Packt Books

Get notified! Find out when new books are published by following @PacktEnterprise on Twitter, or the *Packt Enterprise* Facebook page.

Table of Contents

Preface	1
Chapter 1: Designing a Scalable XenApp Infrastructure	5
XenApp infrastructure	5
Virtual versus physical servers	6
Sizing controllers	6
Data store	7
Data collector	8
XML Broker	11
License server	11
Web Interface	12
Sizing session hosts	13
Application delivery methods	13
Applications on servers – siloed versus nonsiloed	14
Provisioning Services	15
Provisioning Services infrastructure	16
Infrastructure hierarchy	17
Sites	17
Views	17
Stores	18
vDisks	18
The boot process	19
Using PVS with XenApp	20
Performing load tests with EdgeSight for Load Testing	22
Session-host server requirements	23
Ending sessions automatically	23
Web Interface server requirements	24
Installation	24
License server	25

Table	of Contents	
-------	-------------	--

Your first script	25
Connecting to the farm	25
Managing users	26
Adding a load	27
Recording instructions	27
Running a test Summary	28 28
-	
Chapter 2: Monitoring and Improving Server Performances	29
Health Monitoring & Recovery	29
Standard tests	30
Recovery actions	31
Configuring Health Monitoring & Recovery	31
Custom tests	32
Using Citrix performance monitoring counters	33
Citrix CPU Utilization Mgmt User	33
Citrix IMA Networking	33
Citrix Licensing	34
Citrix MetaFrame Presentation Server	34
ICA Session	34
Secure Ticket Authority (STA)	34
XenApp on a virtual infrastructure	35
PowerShell SDK	36
CPU Utilization Management	36
Enabling CPU Utilization Management	37
Shares and reservations	38
Windows Dynamic Fair Share Scheduling	39
High CPU load on datastore	40
Memory optimization	40
DLL collisions	4 0
DLL rebasing and binding	42
Configuring Memory optimization	42
	43
Excluding applications	
Troubleshooting	45
OS optimization	45
All the servers	46
Paging system components Power saving	46 46
Worker threads	46
Page file	46
Provisioned servers	46
System restore	46
Background defragmentation and layout service	47

	Table of Contents
Antivirus	47
Worker groups	48
Creating a worker group	48
Publishing applications	49
Load-balancing policies	50
Load evaluators	51
Load rules	52
Default load evaluator	53
Creating and assigning a load evaluator	54
Analyzing load evaluators	55
Preferential Load Balancing	56
Enabling Preferential Load Balancing	57
Testing load balancing	58
Summary	58
Chapter 3: Optimizing Session Startup	59
The logon process	60
Resolution	60
Connection	61
Remote Desktop Services (RDS) license	61
AD authentication	61
Citrix license	61
Session startup	61
Analysing the logon process	61
Citrix EdgeSight	62
Windows Performance Toolkit Common causes of logon delays	63 64
Authentication issues	65
Profile issues	65
Folder redirection	66
Background upload	68
Citrix Profile Management	68
Features	68
Configuring	69
Troubleshooting	70
GPO and logon script issues	70
Session pre-launch, sharing, and lingering	72
Session pre-launch	72
Configuring	72
Life cycle of a session	73
Session sharing	74

Table of Contents

Session lingering	74
Configuring Summary	75 75
Chapter 4: Improving End User Experience	70
	77
Optimizing Windows GUI	
Windows settings Menu show delay	78 78
Internet Explorer offscreen composition	78
Screensaver	78
Auto end tasks	79
Citrix settings	79
Desktop UI – user policy	79
Graphics – computer policy	80
Visual Display – computer policy	80
Citrix HDX	81
HDX MediaStream	81
Flash redirection	81
Windows Media redirection	83
HDX RealTime	84
Generic HDX RealTime Optimized HDX RealTime	84 85
•	86
HDX RichGraphics OpenGL	86
GPU offloading in a virtual environment	87
HDX Monitor	87
Summary	88
Chapter 5: Optimizing for WAN Links	89
Characteristics of a WAN link	89
Emulating links with WANem	90
Installing	91
Configuring	92
Using	94
WANalyzer	95
Optimizing the ICA protocol	95
ICA Virtual Channels	96
Virtual Channel Priorities	96
ICA MultiStream	98
Enabling ICA MultiStream	99
Traffic shaping	100
SpeedScreen latency reduction	102
Mouse Click Feedback	102

	Table of Contents
Local Text Echo	102
Adding applications	103
Configuring applications	104
Configuring input fields	104
Summary	104
Index	105