



Think fast.™

Riverbed Certified Solutions Professional – Hyper-Converged Branch (RCSP-HCB) Blueprint

Exam 599-01

© 2015 Riverbed Technology, Inc. All rights reserved.

Riverbed and any Riverbed product or service name or logo used herein are trademarks of Riverbed. All other trademarks used herein belong to their respective owners. The trademarks and logos displayed herein cannot be used without the prior written consent of Riverbed or their respective owners.

Akamai® and the Akamai wave logo are registered trademarks of Akamai Technologies, Inc. SureRoute is a service mark of Akamai. Apple and Mac are registered trademarks of Apple, Incorporated in the United States and in other countries. Cisco is a registered trademark of Cisco Systems, Inc. and its affiliates in the United States and in other countries. EMC, Symmetrix, and SRDF are registered trademarks of EMC Corporation and its affiliates in the United States and in other countries. IBM, iSeries, and AS/400 are registered trademarks of IBM Corporation and its affiliates in the United States and in other countries. Juniper Networks and Junos are registered trademarks of Juniper Networks, Incorporated in the United States and other countries. Linux is a trademark of Linus Torvalds in the United States and in other countries. Microsoft, Windows, Vista, Outlook, and Internet Explorer are trademarks or registered trademarks of Microsoft Corporation in the United States and in other countries. Oracle and

JInitiator are trademarks or registered trademarks of Oracle Corporation in the United States and in other countries. UNIX is a registered trademark in the United States and in other countries, exclusively licensed through X/Open Company, Ltd. VMware, ESX, ESXi are trademarks or registered trademarks of VMware, Inc. in the United States and in other countries.

This product includes Windows Azure Linux Agent developed by the Microsoft Corporation (<http://www.microsoft.com/>). Copyright 2012 Microsoft Corporation.

This product includes software developed by the University of California, Berkeley (and its contributors), EMC, and Comtech AHA Corporation. This product is derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm.

The SteelHead Mobile Controller (virtual edition) includes VMware Tools. Portions Copyright © 1998-2013 VMware, Inc. All Rights Reserved.

NetApp Manageability Software Development Kit (NM SDK), including any third-party software available for review with such SDK which can be found at <http://communities.netapp.com/docs/DOC-1152>, and are included in a NOTICES file included within the downloaded files.

For a list of open source software (including libraries) used in the development of this software along with associated copyright and license agreements, see the Riverbed Support site at <https://support.riverbed.com>.

This documentation is furnished “AS IS” and is subject to change without notice and should not be construed as a commitment by Riverbed. This documentation may not be copied, modified or distributed without the express authorization of Riverbed and may be used only in connection with Riverbed products and services. Use, duplication, reproduction, release, modification, disclosure or transfer of this documentation is restricted in accordance with the Federal Acquisition Regulations as applied to civilian agencies and the Defense Federal Acquisition Regulation Supplement as applied to military agencies. This documentation qualifies as “commercial computer software documentation” and any use by the government shall be governed solely by these terms. All other use is prohibited. Riverbed assumes no responsibility or liability for any errors or inaccuracies that may appear in this documentation.

Table of Contents

Table of Contents	2
Preface	3
Certification Overview	3
Benefits of Certification	3
Exam Information	4
Certification Checklist	4
RIVERBED CERTIFIED SOLUTIONS PROFESSIONAL – Hyper-converged Branch (RCSP-HCB) BLUEPRINT AND STUDY REFERENCES.....	6
General Knowledge	7
SteelHead, SFED	7
SteelFusion	8
Exam Question Distribution	8
Exam Questions	9
Types of Questions	9

Preface

This Riverbed® certification blueprint is intended for anyone who wants to become certified in the Riverbed Hyper-converged Branch products and solutions. The Riverbed Certified Solutions Professional – Hyper-converged Branch (RCSP-HCB) program is designed to validate the skills required of pre-sales engineers and technical professionals who work in the initial implementation of Riverbed storage products and solutions.

This blueprint provides a combination of theory and practical experience needed for a general understanding of the subject matter. It also provides sample questions that will help in the evaluation of personal progress and provide familiarity with the types of questions that will be encountered in the exam.

This publication does not replace practical experience, nor is it designed to be a stand-alone guide for any subject. Instead, it is an effective tool that, when combined with education activities and experience, can be a very useful preparation guide for the exam.

Certification Overview

The Riverbed Certified Solutions Professional – Hyper-converged Branch certificate is granted to individuals who demonstrate strong knowledge and experience in the theory, configuration, maintenance, and troubleshooting with the RiOS® and SteelFusion products suite. The typical RCSP-HCB will have taken a Riverbed approved training class such as the *WAN200 Optimization Essentials* and *HCB200 Hyper-Converged Branch Essentials* courses in addition to having hands-on experience in performing deployment, troubleshooting, and maintenance of SteelFusion product in a medium and complex network environments. While there are no set requirements prior to taking the exam, candidates who have taken a Riverbed authorized training class and have at least six (6) months of hands-on experience with RiOS® and SteelFusion products have a significantly higher chance of receiving the certification. We would like to emphasize that ***solely*** taking the class will not adequately prepare you for the exam.

To obtain the RCSP-HCB certification, you are required to pass a computerized exam available at any Pearson VUE testing center worldwide.

Benefits of Certification

1. Establishes your credibility as a knowledgeable and capable individual in regard to Riverbed products and services, WAN optimization, Storage Delivery and application acceleration.
2. May help improve your career advancement potential.
3. Entitles you to use the RCSP-HCB certification logo on your business card.
4. Enables you to join Riverbed's RCSP Members only Splash community group.

Exam Information

Exam Specifications

- **Exam Number:** 599-01
- **Exam Name:** Riverbed Certified Solutions Professional – Hyper-converged Branch
- **Version of RiOS:** Up to SteelFusion v4.1, SFED and VSP v4.1.
- **Number of Questions:** 60
- **Total Time:** 75 minutes for exam, 15 minutes for Survey and Tutorial (90 minutes total)
- **Exam Provider:** Pearson VUE
- **Exam Language:** English only. Riverbed allows a 30-minute time extension for English exams taken in non-English speaking countries for students that request it. English speaking countries are Australia, Bermuda, Canada, Ireland, New Zealand, United Kingdom, South Africa, and the United States. A form will need to be completed by the candidate and submitted to Pearson VUE.
- **Special Accommodations:** Yes (must submit written request to Pearson VUE for ESL or ADA accommodations; includes time extensions and/or a reader)
- **Offered Locations:** Worldwide (over 4000 test centers in 165 countries)
- **Prerequisites:** None (although taking a Riverbed training class is highly recommended)
- **Available to:** Partners, customers, and employees
- **Passing Score:** 70%
- **Certification Expires:** Every two years (must recertify every two years, with six month grace period)
- **Recertification Criteria:** Retake the 599-01 – RCSP-HCB current exam. If you are a RCSA-HCB certified, taking the 599-01 – RCSP-HCB exam will re-certify both your RCSA- HCB and the RCSP- HCB.
- **Wait Between Failed Attempts:** 72 hours
- **Wait Between Passed Exams:** One year
- **Cost:** \$225.00 (USD)
- **Number of Attempts Allowed:** Unlimited

Certification Checklist

As the RCSP- HCB exam is geared towards individuals who have both the theoretical knowledge and hands on experience with the RiOS and SteelFusion products suite; ensuring proficiency in these areas is crucial towards passing the exam. For individuals starting out with the process, we recommend the following steps to guide you along the way:

1. Building Theoretical Knowledge

The easiest way to become knowledgeable in deploying, maintaining, and troubleshooting the RiOS® and SteelFusion products suite is to take a Riverbed authorized training class. To ensure the greatest possibility of passing the exam, it is recommended that you review the RCSP- HCB Blueprint – Recommended Resources for Study and ensure your familiarity with all topics listed, prior to any examination attempts.

2. Gaining Hands-on Experience

While the theoretical knowledge will get you partway there, it is the hands-on knowledge

that can get you over the top and enable you to pass the exam. Since all deployments are different, providing an exact amount of experience required is difficult. Generally, we recommend that resellers and partners perform at least five deployments in a variety of technologies prior to attempting the exam. For customers, and alternatively for resellers and partners, starting from the design and deployment phase and having *at least three months of experience* in a production environment would be beneficial.

3. Taking the Exam

The final step in becoming an RCSP- HCB is to take the exam at a Pearson VUE authorized testing center. To register for any Riverbed Certification exam, please visit <http://www.pearsonvue.com/riverbed>.

RIVERBED CERTIFIED SOLUTIONS PROFESSIONAL – Hyper-converged Branch (RCSP-HCB) BLUEPRINT AND STUDY REFERENCES

The Riverbed Certified Solutions Professional exam, and therefore this blueprint, covers the Riverbed products and technologies up to SteelFusion v4.1, SFED and VSP v4.1.

This publication does not replace practical experience, nor is it designed to be a stand-alone guide for any subject. Instead, it is an effective tool that, when combined with education activities and experience, can be a very useful preparation guide for the exam.

Riverbed Recommended Training Courses

- WAN200 Optimization Essentials
- HCB200 Hyper-converged Branch Essentials courses

Additional Information on Riverbed Training can be found at:

<http://www.riverbed.com/services-training/training/>. You can also write to training@riverbed.com.

Riverbed authorized training courses and Riverbed Certification are mutually exclusive programs. This means that certification is not directly mapped to specific training courses and vice versa. We recommend certain courses but in no way does that automatically qualify or prepare you for the exam.

To access Riverbed technical documentation and publications please visit Riverbed Support webpage at <https://support.riverbed.com/index.htm>.

General Knowledge

Subject	Reference
Storage	<p>Books:</p> <ul style="list-style-type: none"> • Private Cloud Computing: Consolidation, Virtualization, and Service-Oriented Infrastructure –Stephen R Smoot, Nam K Tan – (Morgan Kaufmann) • Storage Networking Fundamentals: An Introduction to Storage Devices, Subsystems, Applications, Management, and File Systems (Vol 1) – Marc Farley (Cisco Press) • Storage Implementation in vSphere 5.0 – Mostafa Khalil (VMware Press) <p>Open forums, public sources:</p> <ul style="list-style-type: none"> • http://snia.org • http://www.enterprisestorageforum.com/storage-technology/ • http://chucksblog.emc.com/chucks_blog/

SteelHead, SFED

Subject	Reference
SteelHead® (Installation and Configuration)	<ul style="list-style-type: none"> • Steelhead® Appliance Installation and Configuration Guide • Riverbed® SteelHead Deployment Guide v9.0 – Chapter 19: Storage Area Network Replication • SteelFusion Deployment Guide v4.0 • SFED Series 2x00, 3x00 and 5100 Systems Owner's Manual v4.1 • Steelhead Edge Installation and Configuration Guide (SFED) v4.1 • SteelFusion Edge Management Console User's Guide (includes SteelFusion) v4.1 • Riverbed® Training Course: WAN200 Optimization Essentials

SteelFusion

Subject	Reference
SteelFusion™ (Installation and Configuration)	<ul style="list-style-type: none"> • SteelFusion Core Deployment Guide v4.0 • SteelFusion Core Installation and Configuration Guide v4.1 • SteelFusion Core Management Console User's Guide v4.0 • Riverbed® Training Course: WAN200 Optimization Essentials • Riverbed® Training Course: HCB200 Hyper-converged Branch Essentials • Riverbed® Training Course: HCB300 AdvancedStorage Delivery

Exam Question Distribution

Subject Area	Number of Questions from this area
General Knowledge	6
SteelFusion	37
Troubleshooting	7
Installation	4
FusionSync	4
Hardware	2

Exam Questions

Types of Questions

The RCSP-HCB exam includes a variety of question types, including single-answer multiple choice, multiple-answer multiple choice, scenario based, drag-and-drop, and match. The question distribution is heavily targeted toward the multiple-choice variety. Regardless of the type of question, selecting the best answer(s) in response to the questions will yield the best score.

NOTE: these are sample questions only, may refer to older product names or versions, and do not appear as actual exam questions.

Sample Questions

1. Which kind of replication is supported in Core HA scenario?
 - a. Block-by-block replication.
 - b. VMFS replication.
 - c. NTFS replication.
 - d. Smart-sync replication.

2. What happens in a non-HA configuration, when Pool Management is configured and the pool manager is no longer available?
 - a. The pool is dissolved.
 - b. The first member joined becomes a manager.
 - c. The last member joined becomes a manager.
 - d. No change to pool management.

3. The Riverbed hardware snapshot provider will run on which of the following operating systems? (Choose 2)
 - a. Redhat Linux
 - b. Windows 2008 R2
 - c. Windows 2003
 - d. Windows 2008
 - e. SUSE Enterprise

4. Which of the following CLI commands would you run on a Windows Host (which has the RHSP plugin installed) to take an application consistent snapshot of SteelFusion appliance attached LUN?
 - a. snap
 - b. diskshadow
 - c. snapshot
 - d. vss
 - e. volume

5. Which port is used for management information between the SteelFusion Edge and SteelFusion Core?
 - a. 7770
 - b. 7970
 - c. 7950
 - d. 7750
 - e. 7951

6. From the list below, associate each SteelFusion Edge HA status level to its correct definition:

The SteelFusion Edge is serving client requests, but the peer appliance is down
The SteelFusion Edge is passively accepting updates from the active peer, but its block store is not yet current with the state of the active peer
The SteelFusion Edge is serving client requests; the standby peer synchronizes with the current state of the active peer
The SteelFusion Edge is passively accepting updates from the active peer and is synchronized with the current state of the system
The SteelFusion Edge is updating the standby peer with updates that were missed during an outage.

Active Sync	
Active Degraded	
Active Rebuild	
Standby Rebuild	
Standby Sync	

Answers

1: a; 2: a; 3: b and d; 4: b; 5: b; 6 (see below)

Active Sync	The SteelFusion Edge is serving client requests; the standby peer synchronizes with the current state of the active peer
Active Degraded	The SteelFusion Edge is serving client requests, but the peer appliance is down
Active Rebuild	The SteelFusion Edge is updating the standby peer with updates that were missed during an outage.
Standby Rebuild	The SteelFusion Edge is passively accepting updates from the active peer, but its block store is not yet current with the state of the active peer
Standby Sync	The SteelFusion Edge is passively accepting updates from the active peer and is synchronized with the current state of the system