SMI Program Report
June 2009

Please Forward Within Your Organization

The SNIA Storage Management Initiative (SMI, www.snia.org/smi/) exists to unify the storage industry on an extensible, interoperable, open, and highly functional interface for storage management. The SMI brings together the resources of the SNIA to deliver this interface, called the *SMI Specification* or *SMI-S*.

Feedback or comments regarding this report may be directed to Tom Mancuso, Senior Program Manager, at tom.mancuso@snia.org.

Contents

Introducing *Customer-Driven CTP*

New and Improved CTP—In Development

The Storage Networking Industry Association (SNIA) and the Storage Management Initiative will be introducing a new and improved Conformance Testing Program (CTP) this fall. CTP for SMI-S 1.4.0 will be the first release of CTP that is a direct response to Customer Driven SMI-S. It will include testing at three different levels, including an Event-driven level, which will test the indications produced by SMI-S implementations. And it will include new reporting of test results that will explain the functions supported in end-user terms.

Initial (unofficial) releases of CTP for 1.4.0 are available today for testing. EMC and HDS are taking advantage of the early releases to get their providers ready for the 1.4 test suites. In June we will hold our second plugfest that features the 1.4 testing. Vendors that want to be ready for the official release of the tests later this year should get the latest drop of CTP for 1.4 and begin their testing.

There will be another plugfest in August. This will likely be the last plugfest before the first official release of CTP for SMI-S 1.4. Vendors that want to be a part of the announcement of the release need to get their providers ready now. Any testing that you can complete between now and August will ensure that we can reach closure on any problems with either the tests or implementations.

Levels of Testing

In previous releases of SMI-S, CTP performed ”model walking” to simulate client discovery of profile implementations and ”recipe test cases” for testing various (configuration) methods of the profiles. There was no testing of indications at all. While the configuration recipe test cases were designed to exercise configuration methods, a minimal implementation may not be required to implement the methods. As a result, many configuration recipe test cases would execute successfully, even if no configuration was performed.

CTP for 1.4 will continue to do ”model walking” to verify that implementations can be discovered. Such test cases will need to succeed to get credit for passing the ”Passive” level of testing. And some of the ”recipe test cases” will also serve as part of the ”Passive” test. The first major change to the recipe test cases will be to log whether or not configuration methods were actually run and succeeded. If no configuration was executed, an implementation may still get credit for passing the ”Passive” test. If configuration methods were run and succeed, then the implementation will get credit for passing the ”Active” test.

Finally, new recipe test cases are being written (or existing recipe test cases modified) to create and subscribe to indications that monitor the actions taken by the test cases. If the implementation accurately throws indications for the test case operations, the implementation will get credit for passing the ”Event Driven” tests.

One final note on the level of tests: An implementation will be able to specify that it wants a particular level of test (Passive, Active or Event Driven). Each of these tests will be priced separately. The Passive test will be the lowest priced test and the Event Driven tests will be the most expensive. The intent of this pricing is to encourage vendors to complete some level of testing, rather than not take the test at all.

CTP Results Reporting in End User Terms

As mentioned earlier, the CTP "recipe test cases” are being modified to report results in end-user terms. This will be in addition to the existing “profile” reporting. Because so much of SMI-S is “optional” or ”conditional,” it is frequently uninformative to know that an implementation has passed a ”profile” test. Therefore, the recipe test cases are being modified to report functions that are successfully performed in end-user terms.

The classic example of what you will be able to see is in testing of Block Services (an Array component profile). With CTP for SMI-S 1.3, vendors get listed for passing the Block Services test cases (model walking and recipe test cases). But SMI-S allows an implementation to pass Block Services without supporting either LUN creation or pool creation. New test cases will clearly identify whether LUN creation or pool creation were supported by the implementation. While the standard will still treat these functions as optional, the test case will verify whether or not the optional features were implemented and report the results in end-user terms.

Other Features of CTP

CTP for SMI-S 1.4 will continue to support three popular features that we introduced in earlier releases:

- Early Adopter Reporting
- Unofficial testing on previous and future releases of SMI-S
- Unofficial testing of an older implementation

CTP will not include testing of profiles that do not have multiple vendor implementations. And CTP does not include official testing of "Experimental" profiles in SMI-S. So the SMI introduced the "Early Adopter" page for each Release of CTP. A number of vendors have taken advantage of this feature. This will continue with the 1.4 test suites. There are several profiles that will be run through the tests and get listed on the Early Adopters page with the vendor implementations.

CTP for 1.4 includes CVS branches of SMI-S and test execution options for running the tests against a particular release of the specification. For CTP testing on 1.4, the 1.4 branch of CVS must be used to be an official test. But a vendor may also run the test on previous releases (e.g., the 1.3 branch) or later releases (e.g., the 1.5 branch). While this may seem odd, it allows someone that is promoting a new profile for 1.5 to test their implementation using the test suites from 1.4 and the CVS branch of the specification at the 1.5 level.

Many vendors are taking advantage of running the 1.4 test suites on their older (e.g., 1.2) implementations. This allows a vendor to verify that their older implementation can still pass the newer tests without having to actually upgrade their implementations to 1.4. This is an excellent way of doing early testing to determine the work that might be required to upgrade the implementation to the 1.4 level.

New Profiles being Tested

As mentioned earlier (see Other Features of CTP), it is anticipated that there will be a number of new profiles that will be going through CTP; also there will be testing of profiles that have not been CTP tested for recently. Profiles to be tested include—but are not limited to—Host Hardware RAID Controllers, Host Discovered Resources, Array copy services, Thin Provisioning, Pools from Volumes, and several Fabric profiles.

Program Updates

SMI Technical Steering Group (TSG)

The TSG is suffering a bit of a leadership crisis with the retirements and company moves. However, the TSG continues to get work done. In June, the TSG expects to approve the "Fully Scoped" Draft of SMI-S 1.5.0.

With many folks cutting back on their activities in the TSG and the TWGs, the TSG is considering following SMI-S 1.5.0 with another release of version 1 (1.6.0). While there may be new materials in 1.6.0, it will also likely include specification tightening based on content and xml reviews.

At the May Technical Symposium, there were a couple of presentations covering Vendor Extensions. This topic is part of the "customer driven SMI-S" initiative. Customers want SMI-S to cover vendor unique extensions to the standard, so that they don't have to switch to alternative interfaces to perform functions that are unique to a vendor. CIM and SMI-S allow such extensions. SMI will publish vendor extensions as a way of identifying how the standard can be extended and identifying functions that are being offered in conjunction with the standard.

Conformance Testing Program (CTP)

The Conformance Testing Program (CTP) has been working on a number of items both new and old since the last update to this report.

The Conformance Committee, which directs the efforts of CTP with respect to SMI, has elected Steve Quinn of Hitachi Data Systems as its new Chair. Steve has been working with SMI since its inception and has many years of experience in specification development and code development. Steve is replacing Mike Walker, formerly with IBM, who has opted to retire to his farm in Illinois. Mike is still contributing to the success of SMI-S, and we thank Mike for all of his efforts both past and continuing. We wish Steve the best of luck and thank him for his future efforts to support CTP.

The Conformance Committee would also like to acknowledge that Compellent has formally passed the SMI-Provider test. We are happy to have Compellent aboard and wish them many years of success while working with SMI-S.

Work has been progressing on the SMI-Provider test in a number of areas. First, the 1.4 SMI-Provider test is progressing according to plan. We have seen a number of vendors showing interest in Array, Host Hardware RAID Controller and Storage Virtualizer. This interest has been displayed at the plugfests that SMI holds to drive the implementations of SMI and the use of the SMI-Provider test at those plugfests. The 1.4 test has a number of changes, the most dramatic of which is the separation of the test into three levels: PASSIVE, ACTIVE and EVENT DRIVEN.

- PASSIVE testing is essentially a read-only test and offers an entry point for providers to prove their implementation of SMI to the most basic level.
- ACTIVE testing is a read-write test for the providers and adds provisioning testing onto the PASSIVE level.
- EVENT DRIVEN testing is the highest level of testing—and most complex—that will be offered. The EVENT DRIVEN testing will exercise the use of Indications to a greater degree and add additional model validation after an ACTIVE event has been executed on the provider. The Conformance Committee may not have this level of test available until after the first official release of 1.4.

The Conformance Committee expects to issue the first official release of the SMI-Provider test in September of 2009. Please remember to make reservations for the August plugfest to prepare your company for this release.

The 1.3 SMI-Provider test has been undergoing continuing maintenance. Upgrades to the test have been provided, or are lined up, for Array, HBA, HDR and Storage Media Library testing. The Conformance Committee is currently waiting to close a few more issues for 1.3 and expects to provide a bulk release for 1.3 sometime this summer.

Lastly, the 1.2 version of the test has been undergoing continuing maintenance to address areas such as Storage Media Library, Fabric and Switch. The Conformance Committee expects to maintain this test for the foreseeable future due to its popularity.

Please contact James Rigger, Manager/Conformance Testing Program at (719) 884-8901 or james.rigger@snia.org if you have any questions about the Conformance Testing Program or are interested in CTP testing of your company's products.

For additional information on CTP, see http://www.snia.org/forums/smi/tech_programs/ctp/.

See List of Vendors Conformant to SMI-S in this report.

SMI-Lab Program

April Plugfest: IndicationsFest 2

IndicationsFest 2 was our second plugfest with a concentration in indications. During the first IndicationsFest, we focused on the set of operations used to discover which indications an agent supported, as well as the subscription process. In IndcationsFest 2, we looked at the indications payload returned to the client. The results are being incorporated into a series of requests to update SMI-S and software components. This testing will help as we focus on event-driven testing in CTP 1.4. During the plugfest, vendors also validated several CTP 1.4 features.

Upcoming plugfests

- The August 17-21 plugfest will be ReplicationFest and intense testing of CTP for SMI-S 1.4 (including new Early Adopter profiles). This plugfest will help finalize the first official 1.4 CTP release; this will also kick off the creation of a press release timed for Fall SNW about CTP 1.4.
- October 19 - 23, 2009 plugfest topic is "TBD"

The SMI Implementation Committee oversees the SMI's interoperability lab (SMI-Lab) at the SNIA Technology Center in Colorado Springs, CO. The Technology Center enables SMI-Lab participants to remotely access other participating vendors' equipment to perform interoperability testing. Face-to-face plugfests are also held at the SNIA Technology Center and offer SMI-S vendors the ability to directly interact with each other in a vendor-neutral setting.

See http://www.snia.org/forums/smi/tech_programs/lab_program/ for more information about plugfests and SMI-Lab.

SMI Marketing

SMI-S Videos

Check out the new videos for SMI-S, CTP, SMI-Lab, and SMI. Look for the Video icons on these pages:
- http://www.snia.org/forums/smi/ (Storage Management Initiative video)
- http://www.snia.org/forums/smi/tech_programs/smis_home (SMI-S video)
- http://www.snia.org/forums/smi/tech_programs/ctp (CTP video)
- http://www.snia.org/forums/smi/tech_programs/lab_program (SMI-Lab video)

These videos include images from several years of SMI activities, plus video content taken during one of last year's plugfests.

Report from SNW

At the Storage Networking World spring conference, our main message was "Customer Driven SMI-S." The customers for SMI-S include vendors implementing the standard, particularly the developers, plus our end users. Customer Driven SMI-S is a set of projects that address concerns raised by all of these customers.

SMI had a table on the SNW Expo floor. We had two flyers: "Customer Driven SMI-S" for End Users and "Customer Driven SMI-S" for Storage Vendors. Several SMI members manned the table and answered questions. We also met with the End User council. During SNW, we met with analysts answering questions about SMI-S; we have continued those meetings after SNW.

SMI Marketing Committee Weekly Meetings

Thursdays at 9:00 AM Pacific Time
Meetings are open to staff from all SMI member companies. If you have comments or questions about SMI's marketing effort or would like more information, please contact Troy Biegger, Interim Marketing Chair at smimarketing-chair@snia.org or Tom Mancuso, Sr. Program Manager, SMI, at tom.mancuso@snia.org.

Calendar of Upcoming SMI-Related Events

Dates	Location	Event
August 17-21, 2009	Colorado Springs, CO	SMI-Lab9 Plugfest #4 "Replicationfest 2" http://www.snia.org/forums/smi/tech_programs/lab_program/smi_plugfest_reg
August 31-September 3, 2009	Colorado Springs, CO	SNIA Technical Symposium http://www.snia.org/members/eventcentral
October 12-15, 2009	Phoenix, AZ	Storage Networking World Fall 2009 http://www.snia.org/about/calendar/event_detail
November 16-19, 2009	Santa Clara, CA	Management Developers Conference http://www.mandevcon.com/

Key Program Milestones

The matrix below shows SMI-Specification development milestones as they relate to all versions of the spec in the development or standardization pipeline. SNIA Members may access detailed production schedules for each version by visiting SMI-S Central at: http://www.snia.org/members/smis/.

Storage Management Initiative Outlook			
SMI TSG	SMI-S 1.5 Full Scope Draft Completed Q2 2009	SMI-S 1.5 Implementation Draft Completed Q4 2009	SMI-S 1.5 Final Draft Completed Q1 2010
SMI CTP	CTP's First Official SMI-S 1.4 Provider Test Released Q3 2009	CTP for SMI-S 1.4 Final Provider Test Released Q1 2010	CTP for SMI-S 1.5 Provider Test "First Official Release" Q3 2010
SMI-Lab	Plugfest #3 "ScaleFest 2" 06/08/09 to 06/12/09	Plugfest #4 "Replicationfest 2" 08/17/09 to 08/21/09	Plugfest #5 "Topic – TBD" 10/19/09 to 10/23/09
SMI Marketing	SNW Fall 2009 10/12/09 – 10/15/09	MDC 11/16/09 – 11/19/09	
ANSI/ISO	SMI-S 1.3 Submission to INCITS Q2 2009	SMI-S 1.4 Submission to INCITS (Planned submission date) Q1 2010	SMI-S 1.5 Submission to INCITS (Planned submission date) Q1 2011

List of Vendors Conformant to SMI-S

Many vendors have passed SNIA-CTP SMI-Provider and SMI-Client conformance tests from SMI-S v1.0.2 to 1.3.0. Over the life of CTP, 27 different companies have successfully run CTP against 52 different software products (clients and agents) covering over 500 device products.

For more information on the statistic for CTP, see:
http://www.snia.org/forums/smi/tech_programs/ctp/ctp_statistics.

To learn more about SNIA-CTP and the vendor's products that have passed SNIA-CTP please visit:
http://www.snia.org/forums/smi/tech_programs/ctp/.

Vendors with Products Conforming to SMI-S 1.3

EMC Corporation
Hewlett-Packard Company
Hitachi Data Systems
Hitachi Limited

Vendors with Products Conforming to SMI-S 1.2

Brocade Communication Systems, Inc.
EMC Corporation
Hewlett-Packard Company
Hitachi Data Systems
Hitachi Limited
IBM
NetApp

Vendors with Products Conforming to SMI-S 1.1

3PAR
ADIC
Brocade Communication Systems, Inc.
Cisco Systems
DataDirect Networks
EMC Corporation
Emulex
Fujitsu Limited
Hewlett-Packard Company
Hitachi Data Systems
Hitachi Limited
IBM
LSI Corporation, Engenio Storage Group
McDATA Corporation
NEC Corporation
NetApp
Pillar Data Systems
QLogic
Quantum
Xyratex

Vendors with Products Conforming to SMI-S 1.0

Brocade Communication Systems, Inc.
Cisco Systems
CNT
Dell Computer
EMC Corporation
Emulex
Fujitsu Limited
Hewlett-Packard Company
Hitachi Data Systems
Hitachi Limited
IBM
LSI Corporation, Engenio Storage Group
McDATA Corporation
NetApp
QLogic
Silicon Graphics
StorageTek
Sun Microsystems, Inc.

SMI-related Groups and Committees

The groups and individuals listed below provide guidance and direction within SMI; they are on a careful path, managing the components and infrastructure of the SMI Program.

Some key web links to SMI information are:

Conformance Testing Program	http://www.snia.org/ctp/
SMI-S Developers Group	http://groups.google.com/group/smi-s-developers-group
SMI Specification	http://www.snia.org/tech_activities/standards/curr_standards/smi/
SMI-Lab Program	http://www.snia.org/forums/smi/tech_programs/lab_program/
SMI-S Central	http://www.snia.org/members/smis/

SMI Governing Board

The SMI Governing Board is comprised of an elected set of volunteer governing members and a contingent of (non-voting) representatives from SMI-related groups and SNIA staff. The SMI Governing Board establishes the strategic direction of the initiative, establishes SMI policies and procedures, and oversees SMI's various committees and taskforces.

Chair: Paul von Behren, smiboard-chair@snia.org
Co-Chair: Jerry Duggan, HP smiboard-chair@snia.org
Treasurer: Don Deel, EMC
Secretary: Mike Walker, IBM (Retired)
Vincent Franceschini, HDS

Conformance Testing Program (CTP)

CTP provides conformance test standards for the SNIA SMI Specification and assists in developing programs to support launch of SMI-S certification for companies developing products conformant to SMI-S.

Chair: Steve Quinn, HDS smiconformance-chair@snia.org
Program Manager: James Rigger, SNIA james.rigger@snia.org
Website: http://www.snia.org/ctp

SMI-Lab Program (SMI-Lab)

The SMI-Lab program is an industry-wide collaborative program that helps companies accelerate the development and implementation of SMI-S based Client and Provider products from SNIA member companies.

Chair: Paul von Behren, smiimplement-chair@snia.org

Website: http://www.snia.org/forums/smi/tech_programs/lab_program

Plugfest Registration Link: https://www.snia.org/apps/SMI_Lab_Plugfest_Registration/register.php

SMI Technical Steering Group (TSG)

The Storage Management Initiative (SMI) Technical Steering Group (TSG) is a sub-group of the SNIA Technical Council (TC). Its primary purpose is to provide a single storage management focus by guiding and managing the SNIA technical efforts for the creation, maintenance and evolution of a SNIA Storage Management Initiative Specification (SMI-S). This standard will allow storage management systems to reliably and securely identify, monitor and control physical and logical resources, enabling multi-vendor management interoperability.

Chair: Duane Baldwin, IBM (tsg_smi-chair@snia.org)

Website: www.snia.org/apps/org/workgroup/techcouncil/tsg_smi/

Technical Work Group	Title	Contact	Company	Email
Disk Resource Management TWG	Chair	Scott Baker	Olocity	snia-drm-chair@snia.org
Fibre Channel TWG	Chair	John Crandall	Brocade	snia-snmwg-fc-chair@snia.org
File Systems Management TWG	Co-Chairs	Gary Steffens Mike Thompson	Pillar Data EMC	fsmtwg-chair@snia.org
Host TWG	Chair	Duane Baldwin	IBM	hosttwg-chair@snia.org
Management Application TWG	Co-Chairs	Duane Baldwin Kurt Krems	IBM Olocity	maptwg-chair@snia.org
Management Protocol TWG	Chair	Paul von Behren	Individual	protocoltwg-chair@snia.org
SMI-S Core TWG	Co-Chairs	John Crandall Paul von Behren	Brocade Individual	smiscoretwg-chair@snia.org
Storage Media Library TWG	Chair	Dr. Krishna Harathi	IBM	snia-sml-chair@snia.org