



Changing the Development of SMI-S

The Storage Networking Industry Association (SNIA) is introducing a new era in Storage Management Initiative (SMI) activities, based on feedback on the current SMI-S program. SMI-S will continue to define management standards for new storage functionality such as power monitoring and Fibre Channel over Ethernet (FCoE). The Storage Management Initiative is also launching a series of projects focused on the objectives of various customers of SMI-S:

- End users are customers of both SMI-S and our vendors. "End users" refers to IT professionals in data centers deploying and using SMI-S solutions
- Solutions integrators who integrate and deploy SMI-S solutions on behalf of end users
- Companies developing products based on SMI-S particularly developers who are directly creating products are also customers of the standard. This includes vendors developing device instrumentation (SMI-S providers) and applications (SMI-S clients)

End User (and Integrator)-Driven SMI-S

Some new projects relate to **end users** and **solutions integrators**. *Customer Driven SMI-S* will focus on creating data center plug-and-play interoperability between SMI-S compliant management applications and devices. "Best practices" tutorials have been created to help developers make SMI-S solutions easier to install and configure. The Storage Management Initiative will create additional best practices documentation to help developers create customer driven products. SMI is also creating a web site with information from multiple vendors that can help anyone (including integrators) installing SMI-S enabled products. This work will also create "best practices" information for end users and integrators to help plan SMI-S installations.

SMI-S Alert enhancements allow implementations to provide alert features equivalent to those in existing non-standard solutions. This project introduces more alert messages into the standard, introduces new features to help application developers use alerts, and extends the conformance testing program with comprehensive event testing. SMI-S 1.2.0 introduced some techniques for arrays to effectively manage large configurations, addressing both scalability and performance of management communication. Vendors have implemented support for this approach and the testing results have been promising, so view classes are being extended to other types of devices.

The Conformance Testing Program (CTP) is being enhanced in several ways to help end users. More functionality is being tested, helping vendors discover and address potential issues in interoperability and robustness before products are delivered to customers. CTP is also enhancing its reporting to identify specific features supported by the implementation. The reports will talk about how these features relate to business-oriented goals (such as "LUN creation" and "Pool creation"), in addition to the engineering-driven "Block Services" profile name. There will be many more features reported than the current list of profiles, providing finer-grained information about the SMI-S functionality supported by the device. The combination of business-oriented feature names and finer-granularity in reporting helps end users understand whether SMI-S enabled products support specific uses of the standard. This can help in purchasing decisions and in selecting combinations of applications and devices that contribute to a desired solution.

New Developer-Driven SMI-S

Developers of SMI-S solutions are also customers of the standard. *Customer-Driven SMI-S* includes projects to assist developers by defining a single storage management standard. SMI-S success with managing Fibre Channel devices is extended so that SMI-S becomes the primary management interface into all storage networking products in the market. A vital component of achieving this objective is assisting the vendors with the implementation of vendor/product unique extensions to SMI-S profiles. The vendor-extension program will introduce a website where vendors can share their extensions to SMI-S for functionality that is not in current versions of the standard. Vendor extensions serve as incubators for new functionality, allowing vendors with similar device capabilities to collaborate in developing a proposal for a future SMI-S version. Vendor extensions also help application developers who are interested in implementing support for vendor-specific or emerging technologies. By extending the SMI-S framework, vendors may be able to phase out legacy, proprietary frameworks – some of which may not have been designed for current security guidelines.

Developers (and other readers of SMI-S) will also benefit from a more intense review process that is in progress across the entire standard. This process includes a larger set of reviewers than for previous SMI-S reviews, and specifically targets key application developers as well as device experts.

Provider CTP is being enhanced to allow vendors to select limited to passive management, passive plus active management (adds testing of provisioning features, or event-driven management (active management), plus testing of subscription and delivery of indications). There will be separate pricing plans for these three levels, allowing companies to request minimal testing at a lower price, or more advanced testing that validates support for advanced SMI-S features.

SMI-S plugfests now include activities that focus on topics of interest to developers that are not directly covered by the standard (for example, scalability or installability). These activities are driven by suggestions made at plugfests, and involve training, development of prototypes, visits from experts to help evaluate emerging technology, and sometimes revisit things that may not be working as expected. Recent plugfests have included activities around SLP discovery, scalability, and events/indications. SMI is also planning plugfest topics that help application developers discover new and more optimal approaches for things like scalability. Plugfests also provide an early opportunity for testing interoperability between SMI-S components.

Last, but not least, the Storage Management Initiative has created the SMI-S Developers Group: <u>http://groups.google.com/group/SMI-S-developers-group</u>.

This group allows developers – even non-SNIA members – to get answers to questions about SMI-S.

When Will We See Customer-Driven SMI-S?

Most of the *Customer-Driven SMI-S* programs have already been started and, as mentioned, some results are already available.

- SMI presented tutorials on "Installation Best Practices" at the SNIA Developers Conference and at the Management Developers Conference in Fall 2008. SMI will continue to develop best practice guides and make them available to developers. The SDC presentation on SMI-S: Deployment Best Practices is available at http://www.snia.org/events/storage-developer2008/presentations.
- Event handling enhancements are actively being developed, but will take about a year to complete. New event messages have been added to key profiles in the last two SMI-S releases, and more will be added in upcoming releases. New interfaces to help application developers with events will be in the SMI-S 1.5 specification (available to the public Fall 2010). Testing enhancements for events will be available within the next few months, but it will take about a year for all the planned enhancements to become available.
- The highest impact scalability enhancements will be made available in the SMI-S 1.5 specification (Fall 2010).
- CTP enhancements for passive and active testing and finer-grained reporting are being validated March 2009 and will become available for testing of SMI-S 1.4 in Fall 2009. Event-driven CTP testing will become partially available in 2009 and completed in 2010.
- The vendor extension program will be introduced by the summer of 2009; documentation for vendor extensions will be available by the end of 2009.
- The first results of the improved specification reviews are included in SMI-S 1.4, which is available publicly in April 2009. The specification reviews are continuing, and additional results will be seen in upcoming SMI-S versions.
- Customer-driven activities are part of plugfests scheduled for 2009. See the plans for upcoming plugfests at http://www.snia.org/forums/smi/tech_programs/lab_program/

Engineers continue to extend SMI-S with additional storage types and features. The new *Customer-Driven SMI-S* programs extend the SMI-S program to address the objectives of end users, integrators, and developers of new applications and devices. The combination of both an engineering focus and a customer focus helps drive SMI-S implementations that address the objectives of all these stakeholders in storage management.

About the Storage Management Initiative

SMI is a membership-based initiative created by the SNIA to develop and standardize interoperable storage management technologies and promote them to the storage networking and end user communities. <u>http://www.snia.org/smi</u>

2009 Storage Management Initiative Member Companies:

