



Distributed Management Task Force, Inc.

Developing management standards & promoting interoperability for enterprise & Internet environments

Driving SMASH Conformance, Quality, and Customer Satisfaction



Simplifying Cross-Platform Server Management

The ultimate growth and success of enterprise businesses hinges heavily on the ability to control costs while expanding data center resources. Additionally, important initiatives such as grid and utility computing make efficient server management increasingly critical. However, these systems typically lack a standard server management framework — a problem that prevents cost-effective growth of data centers and the businesses they support. The Systems Management Architecture for Server Hardware (SMASH) dramatically simplifies cross-server management and directly decreases data center management and integration costs.

“The SMASH Command Line Protocol (CLP) delivers key benefits for management interoperability in the data center, and SMASH CLP support will be a ‘must have’ server purchasing requirement for many large NAC enterprises.” — Fred Wettling, chairman, Network Applications Consortium (NAC) and technology strategy manager, Bechtel Corporation

Attempts to manage cross-platform server systems can be costly and confusing due to disparities among the tools needed to manage systems through in-band and out-of-band connections for different operating systems and system states. Integrating and managing systems currently

requires the use of uncoordinated tools from various vendors. With dissimilar command interfaces and varying levels of functionality, these disparate management tools become too complex for users to learn or use effectively.

The resulting effect on management costs and business efficiency can be devastating. Escalating data center costs and uncertain system integration outcomes increasingly drain budgets and development resources, as well as the desire to upgrade and expand those data centers.

Exceeding Customer Expectations

IT customers expect server hardware and software to have a certain level of quality and support before they consider the actual merits of the products. Instead, the diverse array of server products that do not work well together leaves customers with a feeling of broken promises and the perception that the individual products are low quality.

By participating in the SMASH Forum, vendors can show customers that high level of quality and support by certifying their products.

SMASH FORUM INDUSTRY SUPPORT

Avocent*	Hitachi*	Novell
Dell*	IBM*	Peppercon AG
	Symantec*	

* Leadership Member

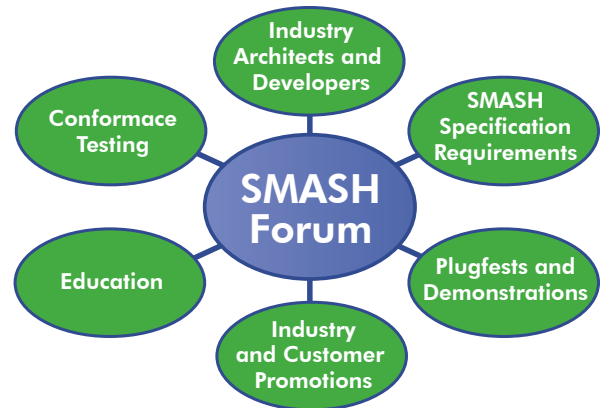
SMASH-certified products will be viewed as containing core function to handle a large percentage of common server management tasks. With the infrastructure assured, vendors and developers can focus on developing the next generation of product features that solve previously unaddressed customer concerns.

The SMASH Forum brings together key industry resources, including server vendors and application developers, to simplify server management. Participating companies stand to gain a significant return by shifting resources from base-function to richer product features.

High Data Center Costs... or SMASH?

Annual outlays for maintaining and managing server systems far exceed total server hardware and software costs. The various server management options are expensive, increase operational costs, and do not support the various platforms and needed functions.

SMASH dramatically reduces the total cost of ownership in server environments by streamlining and simplifying the IT process for managing multi-vendor server systems. SMASH-compliant systems enable businesses to realize increased efficiencies and increased service uptime.



Complex and Redundant Tools... or SMASH?

The management of multi-vendor servers in a data center requires an endless array of uncoordinated command line interfaces, applications, and consoles that increase management and integration costs. In many cases, these tools are specialized and adapted to each individual environment, installation, and product. Proprietary server management components from vendors use multiple commands and interfaces to perform the same functions.

Ultimately, the high cost of management deters IT consumers from aggressively expanding data center resources. The absence of extensible, secure, and highly functional standard management interfaces for server hardware greatly diminishes the added value of server components in a multi-vendor data center.

SMASH eliminates the need for redundant interfaces by providing a single interface for managing servers and their components (processors, power supplies, sensors, network cards, cooling systems, and other devices). *End users*, such as administrators, no longer need to learn disparate command line interfaces. *Application developers* no longer need to integrate incompatible feature-thin management methodologies or deploy vendor-proprietary agents to enable distributed management of server hardware. Instead, each is better positioned to concentrate on developing features and functions that create value for all users. Ultimately, with reduced management costs, end users can adopt server technology faster and application developers can build more powerful, more available, and more agile solutions.

JOIN THE SMASH FORUM

Influence the future of server management and benefit from SMASH by joining the SMASH Forum.

- Rally and pool industry resources to ease the high cost of development and maintenance.
- Apply industry expertise to influence the development of conformance tests.
- Promote broad industry adoption of SMASH to maximize the benefit.
- Use SMASH compliance testing tools and certification to promote interoperability.

For information on the SMASH Forum, send e-mail to smashforumchair@dmtf.org or visit www.dmtf.org/interoperability/SMASH_Forum.

Strong Conformance Program, Easy Self-Certification

SMASH Forum members collaborate to develop conformance test details. Server vendor and application developer members combine their expertise so that the resulting conformance requirements make the most sense for respective server products. Collecting implementation experience in this way brings the voice of the customer back into the products.

Vendors and developers start by creating a SMASH implementation and performing functional tests. A Forum-developed test application runs conformance tests also developed by the Forum against the SMASH implementation. A SMASH compliance certification record is then generated which can be uploaded to an online repository for server-side validation.

This process thoroughly tests SMASH-enabled solutions for compliance to the SMASH specifications. SMASH Forum member companies can have successful conformance results for their products uploaded to a publicly accessible online product certification registry where existing and potential customers can view details on products' certification status.

Customers can browse the online repository for SMASH-certified products to make purchase decisions. Certification is a big selling point for customers because it assures them that a product meets the base level of expected functionality. It demonstrates that customer input contributed to product development.

The SMASH Forum also organizes plugfests to demonstrate the interoperability of participating companies' products. These plugfests ensure the quality of the conformance program and provide a checkpoint with the industry on the state of interoperability among leading SMASH implementors.

Key Elements of SMASH Forum Membership

SMASH Forum members gain the benefit of interoperable server management through the following elements:

- **Conformance Test Tool Design and Development:**
Test tools developed through the SMASH Forum drive

conformance testing as a critical part of the certification process.

- **Conformance Specification Development:**
Members evaluate SMASH specifications and develop conformance tests.
- **Product Certification:** Vendors can self-certify their SMASH implementations and upload passing results to a certification registry where customers can view status.
- **Plugfest activities:** Members participate in plugfest activities to evaluate the conformance program and ensure that vendor implementations are functional, reliable, secure, and interoperable.

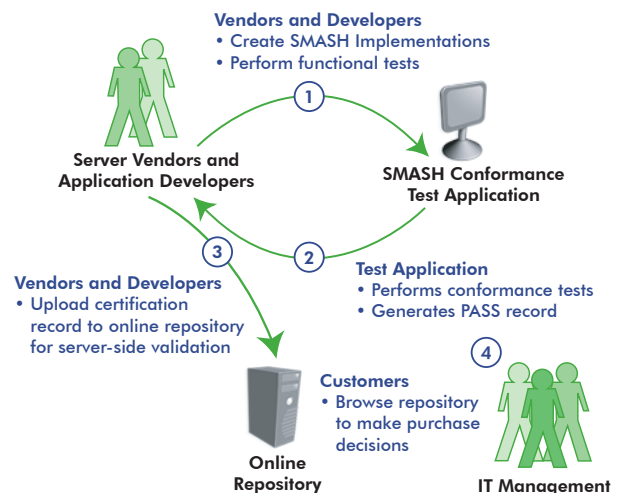
What Is SMASH Compliance?

SMASH profiles provide a normative implementation of the standard that shows which parts of the model are required for a component to be SMASH-compliant. The SMASH Forum conformance test tool tests products for these parts of the standard and certifies them as compliant if they are implemented correctly.

SMASH certifications are set to begin by the end of 2007, and the SMASH Forum will sponsor two plugfests during the year.

Server and Component Supplier Benefits

Companies developing server hardware products and management services benefit from SMASH by having a common interface to build into those products and services. This reduces development investment and



increases customer satisfaction. Suppliers of SMASH-certified products benefit from the following business advantages:

- Faster time to market and lower development costs by reusing common server management protocols
- Greater competitiveness by focusing resources on value-add features rather than redundant server management features

Information Technology Management and Application Developer Benefits

Information Technology (IT) organizations benefit from SMASH by gaining interoperable management technology for multi-vendor server systems. SMASH-enabled systems play a key role in reducing server management costs. This shifts the balance to more spending on the upgrades needed for business growth.

SMASH-compliant server systems enable IT administrators to perform management tasks the same way for stand-alone servers, modular systems (blades), racks, and other components — regardless of machine state, operating system state, server system topology, or access method. The SMASH Command Line Protocol (CLP) facilitates local and remote server management in both out-of-band and out-of-service environments. The resulting flexibility reduces costs and training requirements, converting a cost-prohibitive management approach to one that promotes faster, more stable data center growth. IT organizations realize the following benefits by using SMASH-compliant management systems:

- Lower costs due to simplified integration
- Common command line protocol for managing IT infrastructure, reducing complexity and cost, and deploying systems management configuration data
- Ability to manage IT resources on any machine with standard operating system software

SMASH ultimately keeps enterprise businesses satisfied with streamlined server management, increased server uptime, and reduced total cost of ownership.

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SMASH — An Interoperable, Standard Server Management Implementation

The Systems Management Architecture for Server Hardware (SMASH) suite of specifications is an extension of the DMTF Common Information Model (CIM). By providing an accurate model of the server and its components, SMASH unifies the computer industry on an interoperable, open, secure, and highly functional architecture for managing server hardware in an enterprise. SMASH includes specifications for the Server Management (SM) Command Line Protocol (CLP), SM CLP-to-CIM Mapping, and SM Managed Element Addressing.

Server management profiles provide templates for specific management domains, offering a simplified means to achieve interoperable distributed management. SMASH profiles include base server, CLP service, modular system, record log, sensors profiles, and others. See the *SMASH Implementation Requirements* for the full list.

ABOUT THE DMTF

With more than 3,500 active participants representing 39 countries and nearly 200 organizations, the Distributed Management Task Force, Inc. (DMTF) is the industry organization leading the development of management standards and the promotion of interoperability for enterprise and Internet environments. DMTF standards provide common management infrastructure components for instrumentation, control and communication in a platform-independent and technology-neutral way.

DMTF standards include the Common Information Model (CIM), communication/control protocols like Web-Based Enterprise Management (WBEM) and Web Services for Management (WS-Management), and the Systems Management Architecture for Server Hardware (SMASH) initiative.

Find information about DMTF's standards and activities at www.dmtf.org.