Scalable Platform Management Forum

Forum Status 3/9/15
Disclaimer

• The information in this presentation represents a snapshot of work in progress within the DMTF.

• This information is subject to change without notice. The standard specifications remain the normative reference for all information.

• For additional information, see the Distributed Management Task Force (DMTF) website.
Scalable Platforms Management Forum

- Created in September 2014
- Currently 10 member companies
- Promoter members: Broadcom Corporation, Dell Inc., Emerson, Hewlett-Packard Company, Intel Corporation, Microsoft Corporation
- Charter: Create and publish an open industry-standard specification and schema that meets the expectations of Cloud and Web-based IT professionals for scalable platform hardware management utilizing existing tool chains as well as being usable by personnel with minimal experience.
- Technology submissions from RedfishSpecification.org and Microsoft formed the basis of the forum’s work
SPMF Specification Scope and Goals

- The DMTF’s Scalable Platforms Management Forum (SPMF) is working to create and publish an open industry standard specification and schema that meets the expectations of end users for simple, modern and secure management of scalable platform hardware.
- RESTful interface over HTTPS in JSON format based on OData v4
- A secure, multi-node capable replacement for IPMI-over-LAN
- Schema-backed but human-readable output
- Covers popular use cases and customer requirements
- Intended to meet OCP Remote Machine Management requirements
Progress towards a v1.00 release

- **v0.94 Work in Progress** released in January
  - Aligned the JSON payload with OData v4 constructs
- **v0.95 Work in Progress** expected mid-March
  - Completes the key collections and resources
- **v0.96 Work in Progress** (March / early April)
  - Entire data model stable (only bug fixes beyond)
- **v0.97 Work in Progress** (late April)
  - Specification clean-up, additional schema text
- **v1.00 Specification** (June)
  - Final specification submission to Technical Committee by mid-May
  - DMTF only requires a 30-day Intellectual Property review period
Introduction to the data model

- All resources linked from a Service Entry point (root)
  - Always located at URL: \redfish\v1
- Major resource types structured in ‘collections’ to allow for standalone, multi-node, or aggregated rack-level systems
  - Additional related resources fan out from members within these collections

- **ComputerSystem**: properties expected from an OS console
  - Items needed to run the “computer”
  - Roughly a logical view of a computer system as seen from the OS

- **Chassis**: properties needed to locate the unit with your hands
  - Items needed to identify, install or service the “computer”
  - Roughly a physical view of a computer system as seen by a human

- **Managers**: properties needed to perform administrative functions
  - aka: the systems management subsystem (BMC)
Resource map (highlights)

- **/redfish/v1**
  - Root Resource
  - Links to all content

- **/redfish/v1/Systems**
  - Collection of Systems
  - "Logical" view of the system
  - 1..n

- **/redfish/v1/Systems/<id>**
  - Server Information
  - Model #, Serial #, Boot Order, NIC MAC, status, etc.

- **/redfish/v1/Chassis**
  - Collection of Chassis
  - "Physical" view of the system
  - 1..n

- **/redfish/v1/Chassis/<id>**
  - Chassis
  - Chassis global physical asset info

- **/redfish/v1/Managers**
  - Collection of Managers
  - BMC functionality

- **/redfish/v1/Managers/<id>**
  - BMC
  - System Manager operations

- **/redfish/v1/Managers**
  - Session
  - Accounts
  - Schema
  - Events

- **/redfish/v1/Managers**
  - Services
  - Logs

- **/redfish/v1/Managers**
  - Disks
  - NICs

- **/redfish/v1/Managers**
  - Power
  - Thermal

- **/redfish/v1/Managers**
  - Processors

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How to participate – we want your input!

1. Join the SPMF!
   By Joining the DMTF and SPMF, you can shape the standard

2. Through SPMF member companies who also participate in OCP

3. DMTF feedback portal, providing feedback on “Works In Progress”
   As the group produces “Works In Progress”, you can provide feedback at http://www.dmtf.org/standards/feedback

4. DMTF Alliance partnership arrangement.
   The DMTF values working with affiliated industry organizations, and the
   Alliance Partner membership is a way for the DMTF to formalize synergistic
   relationships with other standards groups. Strictly for not-for-profit
   organizations in the standards arena, the Alliance Partner membership level is
   offered at no charge. Alliance Partner members may participate in DMTF
   working groups as a non-voting member via a representative.
   SPMF desires to create a “Work Register” with OCP and other organizations
   to establish an Alliance Partnership.
Q&A & Discussion
DMTF Announces New Scalable Platforms Management Forum

http://www.dmtf.org/content/dmtf-announces-new-scalable-platforms-management-forum

Group developing standard specification to enable simple, modern and secure management of scale-out platform hardware for cloud and web-based infrastructures

PORTLAND, Ore. – October 7, 2014 – DMTF, an industry standards organization working to simplify the manageability of network-accessible technologies through open and collaborative efforts by leading technology companies, today announced the formation of its new Scalable Platforms Management Forum (SPMF). SPMF will create and publish an open industry standard specification and schema that meets the expectations of end users for simple, modern and secure management of scalable platform hardware.

Scalability in today’s cloud- and web-based infrastructures is increasingly achieved with horizontal, scale-out solutions, which often include large quantities of simple servers. The usage model of scale-out hardware is drastically different than that of traditional enterprise platforms, and requires a new approach to management. The SPMF will create a standard to address the needs of IT professionals drawing from experience gained in widely-used protocols, such as REST, and constructs such as JSON and/or OData. This standard should enable customers to integrate SPMF solutions within their existing tool chains.

“Until now, many end users have been developing their own tools for scale-out management, typically using JSON-oriented RESTful interfaces,” said Jeff Hilland, president, DMTF. “An open industry standard that meets scalability requirements and integrates easily with the existing tool chain in multi-vendor scale-out deployments will be a significant benefit not only to scale-out customers, but to traditional enterprises as well.”

Company Support for SPMF [see quotes at web link above]

   Broadcom  Dell  Emerson  HP  Intel  Microsoft

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A Modern Management Solution

**Design Tenets**
- Separate the protocol from the data model
- Leverage common Internet / Web services standards
- Design for implementation on existing BMCs and firmware products
- Make it easy for pro’s and amateurs to utilize

**REST:** The API architecture
- Rapidly replacing SOAP

**HTTPS:** The Web protocol
- Well-understood by admins
- Known security model
- Known network configuration

**JSON:** Modern data format
- Human-readable
- Simpler than XML
- Support for modern programming languages

**OData:** Ecosystem leverage
- v4 using JSON format
Target v1.0 Feature Set

Retrieve “IPMI class” data
- Basic server identification and asset info
- Health state
- Temperature sensors and fans
- Power supply, power consumption and thresholds

Discovery
- Service endpoint (network-based discovery)
- System topology (rack/chassis/server/node)

Basic I/O infrastructure data
- Host NIC MAC address(es) for LOM devices
- Simple hard drive status / fault reporting

Security
- Session-based leverages HTTPS

Perform Common Actions
- Reboot / power cycle server
- Change boot order / device
- Set power thresholds

Access and Notification
- Serial console access via SSH
- Alert / event notification method(s)
- Event Log access method(s)

BMC infrastructure
- View / configure BMC network settings
- Manage local BMC user accounts

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Some of the expected Open Source Efforts

**Client Library**
- Common utility support functions
  - Discovery, Enumeration, etc.
  - Alert subscription
- Typical tasks
  - Power on/off/reboot
  - Gather thermal data
- Languages under consideration
  - Python
  - Java
  - PowerShell

**Scripting Support**
- Windows PowerShell® 5.0
  - Easily supports REST operations
  - Leverage application integration

**Command Line Utility**
- Similar to IPMItool
- Designed for end users
- Calls Client library
- Likely written in Python

**System Emulator**
- Provide “target” for developers
- Minimal implementation of service
- Jumpstart client-side development

**Conformance Test Suite**
- Schema-aware tool for testing
- Provides checklist for vendors and customers
- Avoid spec interpretation conflicts

Windows PowerShell is a registered trademark of Microsoft Corporation