Redfish Host Interface Work In Progress

Proposal from SPMF Host Interface Taskforce

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.

Content

- Problem Statement
- Requirements
- Status
- Proposal

Problem Statement and Objectives

- The current Redfish specification defines a TCP/IP-based out-of-band interface between a client and a Management Controller
  - Currently Redfish does not define a standard host interface e.g IPMI
- Significant user feedback has been received that a DMTF standard Redfish “In-band” Host Interface (HI) is needed:
  - So that Apps/tools running on a system OS (both deployment OS’s and production OS’s) can communicate with the Redfish manager that is managing the system using the Redfish API
  - In future, the host OS and UEFI/BIOS may also benefit from being able to communicate with the manager using a standard Redfish API

Key Host Interface (HI) Requirements

- Implementable with typical MC technology
- Easily integrated into products
- In-band HI and out-of-band API must be the same (where possible) so that client apps will have minimal (if any) change to adapt
- Support authentication, confidentiality, and integrity:
  - Support environments where users do not want to solely rely on host/OS access control mechanisms
- Support multi-manager to multi-host architectures:
  - Blade system with Chassis Mgr and MCs on each blade each w/ HI
- Targeted for a 1.0 release in 2016 with Host OS support.
  - Longer-term, add support pre-OS clients e.g. BIOS/UEFI and OS boot path

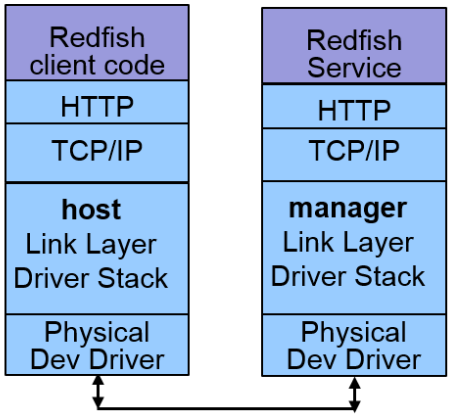
Status and Work in Progress

- Development of the Host Interface (HI) specification is being done by the SPMF Host Interface Task Force
  - Co-chairs: Paul Vancil (Dell), Open
- The task force is jointly working with the DMTF PMCI WG on the proposal and specification
  - PMCI co-chaired by Hemal Shah (Broadcom), Patrick Caporale (Lenovo)
- Status:
  - Requirements analysis complete
  - Implementation proposals discussed and primary issues worked
  - Currently completing detailed documentation that will include 4 parts:
    - Minor changes to Redfish Spec –that will largely point to the HI Specification
    - Redfish schema additions for Manager– for configuration of the HI
    - Redfish Host Interface Specification doc, that describes the interface
      - SMBIOS structures (initially captured in HI spec)
    - Minor extension to existing PMCI WG spec(s)

Redfish HI Proposal

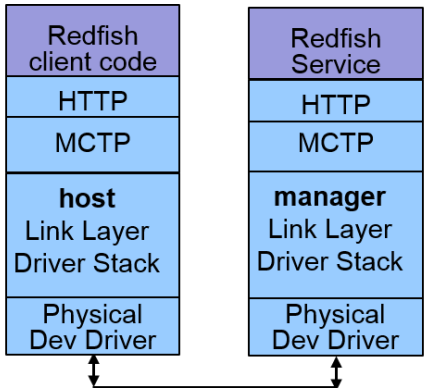
- **Two Host Interface Models considered:**
- Network HI: Redfish HTTP requests/responses over a TCP/IP network connection between Host and Manager.
  - Any physical or logical interconnect that can route TCP/IP can be used.
  - Redfish>HTTP>TCP/IP >LinkLayer >PhysicalLayer

  This will be the initial priority to meet TTM goal



- MCTP HI: Redfish HTTP requests/responses over an MCTP connection between the host and Manager.
  - Any physical interconnect that has a host MCTP transport binding defined can be used.
  - Redfish>MCTP>LinkLayer>PhysicalLayer

  This will be considered in more detail after the Network HI is defined



Network HI Details

- A Network Host Interface provides a TCP/IP network connection that routes TCP/IP traffic between the Redfish client software running on the host OS and the Manager.
- Any link-level driver and interconnect that routes TCP/IP may be used.
- Authentication, encryption, and authorization equivalent to the out-of-band Redfish API is supported in the definition.
  - Implementations should support the full authentication, encryption, and authorization for Network Host interfaces.
  - Implementations may also support AuthNone or un-encrypted connections when passing credentials if so configured.
- A mechanism to automatically pass credentials to the host OS kernel is also being defined
  - Users may disable this if desired
  - The privileges for this kernel interface could be configurable, and in many cases are expected to be limited to reading sensors
  - Considering mechanism using UEFI runtime variables

MCTP HI Details

- An MCTP-based Host Interface provides an MCTP Host Interface compliant with DSP0256 that routes Redfish requests and responses over MCTP between the Redfish host software and the Manager
- Any physical interconnect between the host and manager that has a MCTP host transport binding (as defined in DSP0256) can be used
- The SPMF and PMCI will specify a mapping of HTTP to MCTP sufficient to carry Redfish requests/responses.
- Authentication, encryption, and authorization will be supported in the MCTP HI definition.
- The mechanism to pass credentials up to the host OS kernel will also be supported.

➢ The MCTP HI definition will likely be released as an update after the Network HI

SMBIOS Support

- The host may support an SMBIOS Type 42 struct that defines the attributes of the Redfish Host Interfaces that are supported for the system.
- Information in the structure will allow host software to discover the Redfish Manager interfaces supported and to initialize the host-side driver stack.
- For Network Host interfaces, the mechanism that clients should use to discover/obtain the manager IP address will also be described in the structure