Release Notes

RackHD 1.0.0

REV 01
January 2017

EMC²

Revision history

Table 1 RackHD release notes revision history

Revision	Date	Description
01	January, 2017	Initial RackHD 1.0.0 release notes

Product description

RackHD is a hardware management and orchestration platform that is used to manage and monitor diverse commodity hardware for converged infrastructure platforms.

For more information go to rackhd.readthedocs.IO.

New features

Learn about the new features introduced in RackHD 1.0.0 and iterative releases.

RackHD 1.0.0 Release New Features

Feature	Description
TLS Security and Authentication for AMQP	AMQP TLS and Authentication/Authorization - 1.1.0
Remove a compute node	Added an API to remove a compute node from the list of managed servers.
Extend Simple Storage SPMF schema with additional OEM disk data	Simple storage SPME schema is extended with additional OEM disk data
Install KVM as post-bootstrap - via option provided in Onserve bootimage API	This feature installs a Bootimage with KVM option
HTTP Proxy for installation repositories	This feature allows a user to use a proxy to point to a remote location where OS images are stored.
Rediscover (Refresh) Compute Nodes	This feature provides the ability to rediscover a node via a programmatic interface without requiring a PXE boot.
Event Notification for OS Install Complete	This feature provides an alert on the AMQP bus that notifies the higher level software the OS install is complete.
Network telemetry	This feature provides the ability to gather and report basic network switch port telemetry. Includes: • port name • port speed • output util (%) • input util (%) • port state (up/down), etc.
Workflow Fault Tolerance	The Graph state should be stored in the database with little to no in-memory state, such that tasks can be picked up by more than one process
Redfish 1.0 Compliant APIs	Redfish 1.0 Compliant APIs for Chassis, Systems and TaskService implementation into the RackHD code base. These APIs align with the "Redfish Discovery"

Feature	Description
	feature development where RackHD supports interrogating a remote machine with a standardized RedFish 1.0 specification and creates the relevant compute node and catalogs. This provides a common data model view for the underlying catalogs of interrogated data. Redfish 1.0 Compliant APIs for AccountService, EventService, Registries, Managers, Schemas and SessionService implementation into the RackHD code base. These APIs support various features such as user account and session management. Refer to the API documentation for additional information for each API.
Add/Remove a Rack Node	This feature provides for the passive creation of a"rack node" in RackHD. The "rack node" will act as an "enclosure" for the network switches and compute enclosures (or "bricks") in a single rack.The rack node is used for creating a neighborhood topology
Neighborhood Physical Topology	This feature provides for populating a "rack node" with the server and switch nodes to allow tracking of the relationships between the physical rack and the nodes inside the rack. i.e. The "rack" neighborhood.
Discover and create network to compute node topology	This feature provides for creating a relationship between the top of rack network switch and its attached compute nodes. This is implemented via a mechanism that will capture needed data from a top-of-rack switch and combine it with lldp catalogs or node data where available to create or amend the underlying data to expose the topology connection. The topology relationship between the switch and the node can be viewed under the RackHD compute node entries accessible via the RackHD 2.0 node APIs.
Event Notification: Server Node	This feature provides event notifications over AMQP during the discovery process of a compute node and the removal process of a compute node. If a new server node is added or removed, RackHD will notify higher level software that hardware catalog has changed so appropriate action can be taken. This alerting mechanism allows for higher level software to manage hardware presence dynamically, eliminating the need for higher level software to constantly request current hardware catalog and compare for changes against last read.
Event Notification: Switch node	This feature provides event notifications over AMQP during the discovery process of a switch node and the removal process of a switch node. If a new switch node is added or removed, RackHD will notify higher level software that hardware catalog has changed so appropriate action can be taken. This alerting mechanism allows for higher level software to manage hardware presence dynamically, eliminating the need for higher level software to constantly request current

Feature	Description
	hardware catalog and compare for changes against last read.
Event Notification: RackHD Heartbeat	This feature provides heartbeat event notifications via AMQP for the base RackHD services. Via listening on the AMQP exchange, the heartbeat events can be monitored and used to determine the services are actively running.
Event Notification: Server Health State	RackHD performs basic health monitoring of servers and will generate an event notification for any Warning or Critical level alerts seen in the BMC SEL log.
Event Notification: Switch Health State	RackHD performs basic health monitoring of switches and will generate an event notification for any Warning or Critical level alerts that are identified by specific SNMP monitored values.
Event Notification: Server Power States	This feature provides event notifications over AMQP for compute node power state changes. RackHD shall poll the power state of the server nodes under management and if a state change occurs, it must provide an event to notify higher level software the power state changed on a node under management.
Event Notification: Rack	This feature provides event notifications over AMQP for the specific creation and deletion of rack nodes. If a new rack node is added or removed, RackHD will send an event notification so monitoring software can take appropriate action. This alerting mechanism allows for higher level software to manage hardware presence dynamically, eliminating the need for higher level software to constantly request current hardware catalog and compare for changes against last read.
Add API authentication to RackHD	The API's supported by RackHD support SSL, but currently offer nothing for verifying who's access them (authentication/authorization). This release adds a basic authN mechanism to the APIs for RackHD, such that if enabled and the correct authentication is not provided, the APIs will return a 401 Forbidden response.
Dell PowerEdge 13G FW Update	This features provides the ability to programmatically update BIOS and BMC via RackHD APIs for the Dell R730/7 30XD servers
Quanta SKU Pack with firmware	This feature adds the specific firmware upgrade workflows for the Quanta nodes into the Quanta SKU packs. • the firmware version has a default of our internal version, but be overridable to a version provided at the time of workflow invocation • the workflow uses a firmware version built into the microkernel of the skupack by default • the workflow accepts a different firmware version in the workflow invocation call that has been uploaded

Feature	Description
	via the /api/1.1/files API so that future firmware updates can be made without recreating the microkernel and SKUpack • the workflow defaults to not rebooting (as needed) to finish the BMC/BIOS firmware updates, but also take an option that would allow it to reboot at the completion of the workflow. If the no-reboot (default) option is selected, it's expected that the end-user of the RackHD APIs will be responsible for rebooting and verifying the firmware version independently • the workflow to upgrade firmware is capable of being invoked in parallel on 2 or more machines without blocking the firmware verification/upgrade workflow processes
Account Management	This feature allows an admin user to add/remove user accounts.
BIOS Configuration Settings	This feature provides the ability to modify BIOS settings via a Redfish API.
Cisco POAP	This feature supports Cisco Power-On Auto Provisioning for Nexus switches.
Containerized Deployment	This feature supports a RackHD deployment where the services are run in Docker containers.
Customize Discovery Workflow	This feature provides the ability to customize the discovery workflow
Decommission a Server	This feature provides the ability to bring a server back to bare metal.
Decouple DHCP	This feature decouples DHCP server to allow a user to use their own.
Event Notification Improvements	This feature provides RackHD with the ability to provide event notifications for things like OS installation complete, health notifications, etc.
Image Repository	This feature provides a location for storing images.
Node Labeling	This feature allows a user to tag a set of hardware with a label for easier querying. Labeling can be used to label fault domains, allocation to application, allocation to customer, etc.
Node Logical Topology	This feature can be used to build a logical topology of the managed hardware. It shows the reltionship between nodes and switches and racks.
Pollers (log service, snmp, ipmi)	This feature enables RackHD to start pollers that will periodically go out and gather data over SNMP, IPMI, etc.
Progress Indicator	For long running tasks, this feature RacKHD provides a progress indicator to show percentage complete.

Feature	Description
Create a Rack Node Type	This feature enables the creation of a Rack Node in order to assign nodes to a given rack. Used to build logical system topology.
Secure Erase	This feature allows a user to leverage securely erased server storage using DOD approved disk erasure algorithms.
Server and Switch Basic Health Status	This feature will monitor server and switch data to notify the user that a critical failure is imminent or that one has occurred.
SKU Pack	The feature packages together the firmware, vendor tooling, and SKU specific workflows together. A SKUPack allows a user to easily add support for a new SKU without having to upgrade or reinstall RackHD.
Southbound callback APIs	This features allows an application running on the node under management the ability to callback to RackHD via an API.
Redfish 1.0 southbound	This feature provides limited Redfish1.0 support as a southbound interface such that RackHD can provide basic node discovery for a server that has a Redfish interface.
WSMAN southbound interface	This feature allows RackHD to communicate with RackHD via WSMAN.

Known issues

Lists the known issues in RackHD 1.0.0 and iterative releases.

RackHD 1.0.0 known issues

Key	Problem summary
RAC-34	redfish/GET TaskService {identifier}/ returns internal server error on bad input
RAC-35	redfish/GET Systems {identifier} /BootImage/ no input validation
RAC-45	Some virtual nodes cannot retrieve SEL entries
RAC-47	AMQP message "sku-unassigned" cannot be generated
RAC-49	RackHD/Get Managers {identifier}/EthernetInterfaces {index}/ returns 200 with bad index
RAC-70	RACKHD: Switch topology not updating node when switch is deleted.
RAC-72	RackHD/GET Managers {identifier}/ returns 404 for valid Mangers when discovered nodes
RAC-79	ORA 8080 port connection refused while virtual nodes count arrived ~350
RAC-80	RackHD/Redfish X-Auth-Token/ provides access to v2.0 API
RAC-82	RHEL/CentOS Bootstrap fails to set active partition on Quanta when RAID volume exists

Key	Problem summary
RAC-84	PUT /api/2.0/nodes/:id/relations allows setting up a rack-within-rack relationship
RAC-92	OnRack API 2.0: fail to delete tag named by special characters on the node
RAC-94	RackHD Northfish 1.0 - GET/Chassis/{identifier}/Power and Thermal - virtual Dell C6320
RAC-97	POAP workflows do not generate md5sum line in rendered template
RAC-104	Adding DNS search domain does not work in esx-ks template
RAC-107	One virtual node power state is "unknown"
RAC-110	RHEL7/CentOS7 installation success rate is low (6:20) during @scale test
RAC-111	ORA/RHEL/ kickstart enables IPv6 on secondary NIC by default
RAC-112	POAP workflow: does not work with v7 nxos images
RAC-113	#202 RackHD/RackHD node will be discovered twice if two NICs are connected a control network
RAC-138	Bootstrap does not set IPv6 address correctly
RAC-156	Fail to specify firmware image file to override sku-pack if ORA has no firmware image
RAC-165	[@scale-200 nodes] 56 out of 200 system power status is unknown
RAC-277	RackHD/GET Chassis {identifier}/Thermal/ does not report correct FAN count

Hardware support

Lists hardware supported in RackHD.

Hardware
Arista Switches (7124S)
Brocade VDX (6740)
Cisco Nexus 3xxx (3048, 3132, 3164, 3172)
Cisco Nexus 9xxx (9332, 8372)
Dell EMC PowerEdge 13G (R630, R730, R730xd, C6320)
Dell EMC PowerEdge 14G (R640)
Dell EMC Hydra (Intel WB)
Dell EMC Rinjin (Intel WB)
Panduit
Quanta T41
Quanta D51 (1U and 2U)

Supported operating systems

This topic lists the operating systems supported by RackHD.

Operating systems
CentOS 6.5, 7
CoreOS 899.17.0
ESXi 5.5, 6.0
Ubuntu 14.04, 16.04*
Windows Server 2012
Photon OS 1.0*
RHEL 7*
SLES 11, 12*

* Support for these operating systems has been developed in RackHD, but they are currently not part of regression testing.