DRAFT – Considered for Rackspace Rapid Provisioning / Customer Datacenters
Mercury Project: Liquid Metal

Mercury is a set of services, agents, and libraries designed for the purpose of managing datacenter hardware assets

Mercury is not 'cloud' software. However, it can be used to deploy clouds more quickly and efficiently than previously thought possible.

Mercury is not configuration management. However, it's real time inventory databases can be used as back ends for many DevOPs workloads.

Mercury services:

mercury_inventory – Controller service for a free form, document oriented database. Populated by mercury agents and multi-band collectors for the purpose of building a ubiquitous document structure that describes hardware. If it exists here, it exists on the floor; exactly as described

mercury_rpc – Service that provides access to active agent RPC capabilities at scale. Calls can be run on a single node or an entire fleet in parallel. Targets are selected using a mercury_inventory query.

mercury_log – Service endpoint for all logging messages originating from the mercury namespace. Allows for post-mortim and live tracing of any mercury process. Provides accurate metric generation for the purpose of billing, auditing, and BU reporting at any granularity.

Mercury agents:

mercury_agent – The core agent that operates within an ephemeral OS running on an inventory target (device still under provider control, ie not sold or allocated). The OS environment contains libraries and abstraction layers for the intent of providing a common RPC interface for provisioning and decommissioning workflows. Agent capabilities expose mechanisms for managing firmware, hardware RAID, OS Provisioning, drive sanitation, etc.

mercury_inspectors – These core software units provide the most precises and full featured libraries for interrogating hardware, discovering network interfaces and neighbors (LLDP), and detecting hardware state change. Used primarily for populating the mercury_inventory database, but also useful for standalone operation

Out of band:

mercury_power – Provides inventory backed, centralized mechanism for controlling device power state. Also provides interfaces to higher level OBM protocols such as redfish, wsman, rac, and hp-rest. Such protocols can be used to supplement inventory acquisition and discovery when running the agent and inspectors is not possible (device is sold)

In band:

mercury_ssh – Light, agent-less RPC like interface primarily used in instances where it is not possible to load the agent, or re-provision nodes, without the need for a reboot (headshot) via in-band loading and kexec. In theory, could provide 10-15 second rekicks, with no hardware reboots.