Cardinal Proposal

Name

Cardinal - OpenDaylight Monitoring as a Service

Repo Name

cardinal

Description

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In current legacy network, NMS (Network Management Systems) is a viable approach to provide a centralized system that monitors and controls remote /managed devices located throughout the network, using for examplle SNMP (the basic protocol). Of-course there are others protocol like TL1, TMF/Corba that are also being leveraged to monitor the managed network.

With the advent of Software Defined Networks, the basic need arises to monitor the network (Controller, deployed features, network etc.). As a first step, on priority the need arises to expose the SDN Controller' (OpenDaylight) health/statistics to existing legacy NMS applications. With SDN networks yet to provide inter-working for monitoring/management functionality, the need arises to at least enable the NMS operators to get access to health/diagnostics information from/of SDN Controller.

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Scope

Cardinal (OpenDaylight Monitoring as a Service) proposes a solution in OpenDaylight that extends the following for a remote NMS:

- OpenDaylight MIB (Management Information Base) defined in OID experimental
- Enable ODL diagnostics to be exposed across SNMP for remote NMS
- Integrate with OpenDaylight TSDR and Centinel for monitoring data and analytics
- Extend ODL diagnostics across northbound for autonomous notifications (SNMP Traps)

Cardinal feature (Karaf support)

- Run snmpd/snmptrapd daemon in background once the Cardinal feature is turned on
- Supported SNMP commands - snmpwalk, snmpget, snmptranslate, snmpgetnext
- SNMP Autonomous events (INFO & Traps) will be supported

Cardinal Core ODL Data

- Introduce SNMP OID for OpenDaylight monitoring/inter-working to remote/legacy NMS
- Support ODL diagnostics – ex: ODL health (CPU, Memory usage, up time etc.)
- Support autonomous notifications - ODL SNMP Traps and INFO messages
- Interacts with Karaf using SSH or REST APIs (if available)
- Interacts with MD-SAL to store relevant data into datastore

Cardinal REST APIs

- Support REST GET equivalent to SNMP GET requests - to enable SDN Applications to retrieve ODL diagnostics
- POST to start/stop daemon

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OpenDaylight SNMP MIB (experimental OID)

- SNMP OID defining OpenDaylight diagnostics data

- SNMP OID defining OpenDaylight autonomous notifications (Traps, INFO)

OpenDaylight diagnostics data (SNMP)

- Support SNMP (snmp* requests) for exposing OpenDaylight diagnostics data
- Support SNMP (INFO, TRAPS) autonomous notifications from OpenDaylight
- Support REST API for OpenDaylight north-bound to retrieve equivalent to SNMP data-set from OpenDaylight north-bound
- Integrate with TSDR and Centinel for OpenDaylight / SDN network data (proposed for Cardinal - Carbon)

X – Data collector /Listener

- Listens on data according to the rules (proposed for Cardinal - Carbon)
- Interacts with MD-SAL to put listener on SB data (proposed for Cardinal - Carbon)
- Provide APIs to receive notifications (proposed for Cardinal - Carbon)
- Persistence feature like TSDR can send notification alerts (proposed for Cardinal - Carbon)

Resources Committed (developers committed to working)

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Vendor Neutral

The project is made from scratch, no vendor code, logos nor is anything included.

Meets Board Policy (including IPR)

See Also

- Project proposal (for Creation Review): File:Cardinal-ODL Monitoring as a Service V1.pdf