

SONiC

Robustness Monitor(RM)

Team: INV

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創新

Innovation

品質

Quality

虛心

Open Mind

力行

Execution

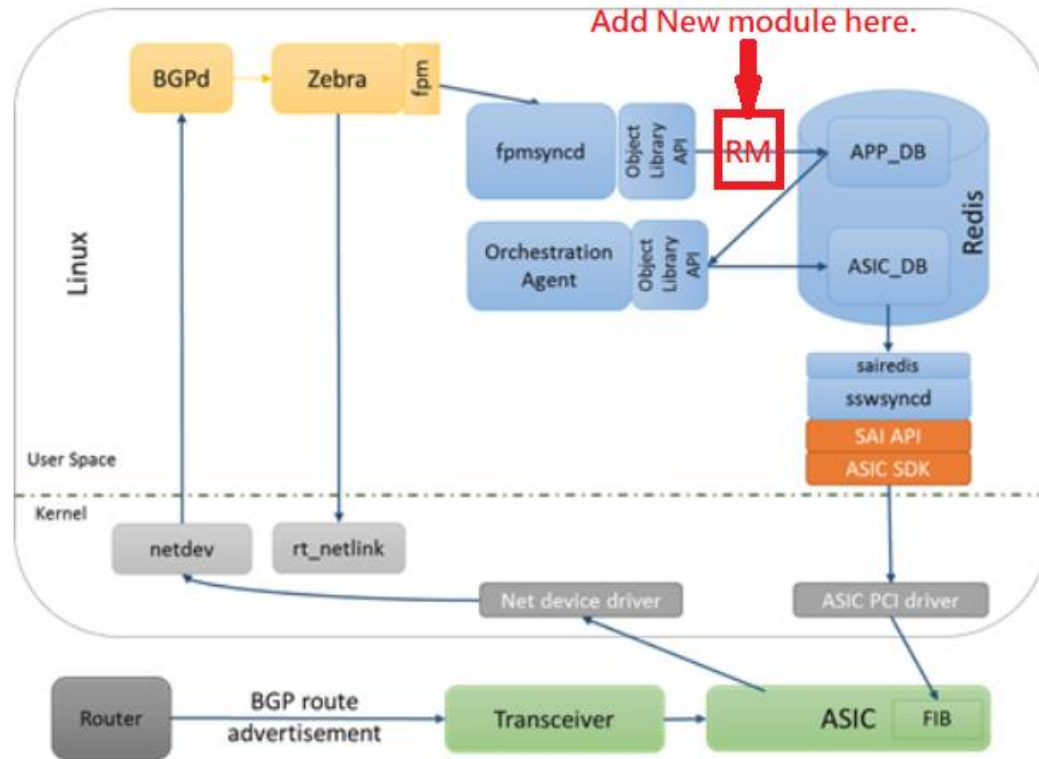
Inventec

Why?

Tackle issues like SONiC system run-out-of-resource crash.
e.g.: SAI_STATUS_TABLE_FULL , Orchagent(OA) crash

```
<snip>
SONiC-Inventec-d7054 ERR syncd: _brcm_sai_l3_route_config:1133 L3 route add failed with error Table full (0xfffffffffa).
<snip>
SONiC-Inventec-d7054 ERR syncd: :- processEvent: failed to execute api: create, key: SAI_OBJECT_TYPE_ROUTE_ENTRY:
{"dest":"200.0.0.0/24","switch_id":"oid:0x21000000000000","vr":"oid:0x3000000000003a"}, status: SAI_STATUS_TABLE_FULL
<snip>
SONiC-Inventec-d7054 NOTICE syncd: :- exit_and_notify: sending switch shutdown request notification to OA
<snip>
SONiC-Inventec-d7054 NOTICE orchagent: :- handle_switch_shutdown_request: switch shutdown request
SONiC-Inventec-d7054 INFO supervisorord: orchagent terminate called after throwing an instance of 'std::invalid_argument'
<snip>
SONiC-Inventec-d7054 INFO swss.sh[7111]: <skip> INFO exited: orchagent (terminated by SIGABRT (core dumped); not expected)
<snip>
```

What's RM?



1. Functionalities

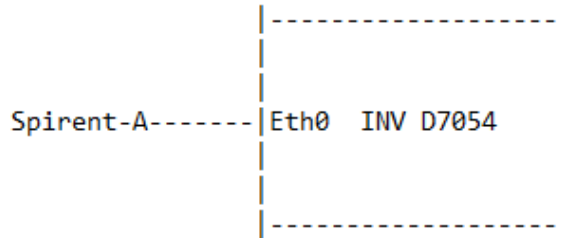
- Refresh & cache all the latest Critical Resource Monitoring (CRM) and config value ranges.
- Before writing to APP_DB/CONFIG_DB (or other DB requiring validation) ,
 - Check config value range & block if needed.
- Available to monitor other system values.

2. Advantage

Save to write first, then delete value in DB due to setting failure.

Demo

Topology



Test-out

```
<snip>
diff --git a/orchagent/routeorch.cpp b/orchagent/routeorch.cpp
index 18e8d61..1442d49 100644
--- a/orchagent/routeorch.cpp
+++ b/orchagent/routeorch.cpp
@@ -791,6 +791,21 @@ bool RouteOrch::addRoute(IpPrefix ipPrefix, IpAddresses nextHops)
    */
    if (it_route == m_syncdRoutes.end())
    {
+   if (route_entry.destination.addr_family == SAI_IP_ADDR_FAMILY_IPV4)
+   {
+   if (!gCrmOrch->isRunOutOfCrmRes(CrmResourceType::CRM_IPV4_ROUTE))
+   {
+   SWSS_LOG_ERROR("Resource ipv4_route table full. Failed to create route %s with next hop(s) %s",
+   ipPrefix.to_string().c_str(), nextHops.to_string().c_str());
+   /* Clean up the newly created next hop group entry */
+   if (nextHops.getSize() > 1)
+   {
+   removeNextHopGroup(nextHops);
+   }
+   return false;
+   }
+   }
+   }
+   }

    route_attr.id = SAI_ROUTE_ENTRY_ATTR_NEXT_HOP_ID;
    route_attr.value.oid = next_hop_id;
<snip>
```

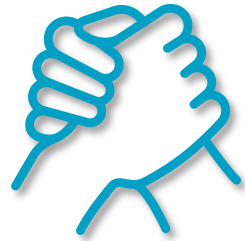
Full Code change

```
---  
orchagent/crmorch.cpp | 51 +++++  
orchagent/crmorch.h   | 1 +  
orchagent/routeorch.cpp | 15 +++++  
3 files changed, 67 insertions(+)
```

```
diff --git a/orchagent/crmorch.cpp b/orchagent/crmorch.cpp  
index ab6c0b7..a55919b 100644
```

```
--- a/orchagent/crmorch.cpp  
+++ b/orchagent/crmorch.cpp  
@@ -279,6 +279,57 @@ void CrmOrch::handleSetCommand(const string& key, const vector<FieldValueTuple>&  
    }  
}
```

```
+bool CrmOrch::isRunOutOfCrmRes(CrmResourceType resource)  
+{  
+    SWSS_LOG_ENTER();  
+  
+    sai_attribute_t attr;  
+    uint32_t reservedCounter = 0;  
+  
+    switch (resource)  
+    {  
+        case CrmResourceType::CRM_IPV4_ROUTE:  
+            attr.id = SAI_SWITCH_ATTR_AVAILABLE_IPV4_ROUTE_ENTRY;  
+            reservedCounter = 10;  
+            break;  
+        default:  
+            SWSS_LOG_ERROR("Failed to get CRM resource type %u. Unknown type.\n", resource);  
+            return true;  
+    }  
+  
+    sai_status_t status = sai_switch_api->get_switch_attribute(gSwitchId, 1, &attr);  
+    if (status != SAI_STATUS_SUCCESS)
```



We are Ready!