vCPU and RAM Distribution

Introduction

This chapter provides information on how to distribute Virtual Central Processing Unit (vCPU) cores and RAM resources for Cisco IOx applications on Cisco Catalyst IR1835 router.

Note vCPU is also known as physical processor.

Distribution of vCPU and RAM Resources for Cisco IOx Applications

Distributing the available resources efficiently allows you to run multiple IOx applications simultaneously.

Use these templates to distribute the vCPU and RAM resources:

- **Data Plane Heavy—**Refers to a router configuration where majority of system resources are dedicated to the data plane, which is responsible for processing and forwarding network packets.

  Data Plane Heavy template maximizes throughput and ensures high-speed packet transfer, which is essential for network traffic demands. This ensures more processing power and memory to handle the increased load on the data plane, enhancing router's ability to move large volumes of data efficiently.

Note The Data Plane Heavy is the default template for vCPU and RAM distribution in the IR1835 router.

- **Service Plane Heavy—**Refers to a router configuration where majority of system resources are allocated to the service plane, which is responsible for providing network services such as Quality of Service (QoS), security functions, and load balancing.

  Service Plane Heavy template allocates additional vCPU and RAM to IOx applications. However, it reduces data throughput (bandwidth).

Note Routers with 2 GB RAM and a single core vCPU (IOx resources) cannot run multiple IOx applications such as Unified Threat Defense and Cisco Cyber Vision.

Higher CPU and RAM Allocation for IOx Applications

From Cisco IOS XE Release 17.15.1, the IR1835 router with 8 GB RAM supports Data Plane Heavy and Service Plane Heavy distribution templates. You can allocate 3 GB RAM and two vCPU cores to IR1835 router for hosting Cisco IOx applications. We recommend the Service Plane Heavy template to allocate resources for hosting IOx applications.

Configure Data Plane Heavy Template

Procedure

Step 1 Enter the configuration command to enable the data plane heavy template:

```
Router(config)#platform resource data-plane-heavy
```

Step 2 Enter the reload command to reboot the router and activate the data plane heavy template:

```
Router#reload
```

What to do next

Verify the active vCPU and RAM distribution.

Verify the Active vCPU and RAM Distribution

Use the **show** command to verify the vCPU cores allocation for IOx applications.

```
Router#show platform software cpu allocation
CPU alloc information:
Control plane cpu alloc: 0-1
Data plane cpu alloc: 2-3
Service plane cpu alloc: 0-1
Slow control plane cpu alloc:
Template used: CLI-data_plane_heavy
```

Use the **show** command to verify the RAM allocation for IOx applications.

```
Router#show app-host resource
Resource Allocation:
  CPU Quota: 33%
  Memory Quota: 2048MB
  Storage Total: 6350MB
  Storage Available: 1404MB
```

Use the **show** command to verify the CPU units resource allocation for IOx applications.

```
Router#show app-host infra
IOX version: 2.11.0.3
App signature verification: disabled
CAF Health: Stable
Internal working directory: /vol/harddisk/iox
CPU:
  Quota: 33%
  Available: 33%
  Quota: 1617(Units)
  Available: 1617(Units)
```

Configure Service Plane Heavy Template

Procedure

Step 1 Enter the configuration command to enable the service plane heavy template:

```
Router(config)#platform resource service-plane-heavy
```

Step 2 Enter the reload command to reboot the router and activate the service plane heavy template:

```
Router#reload
```

What to do next

Verify the active vCPU and RAM distribution.

Verify the Active vCPU and RAM Distribution

Use the **show** command to verify the vCPU cores allocation for IOx applications.

```
Router#show platform software cpu allocation
CPU Allocation Information:
  Control plane cpu alloc: 0-1
  Data plane cpu alloc: 3
  Service plane cpu alloc: 0-2
Template used: CLI-service_plane_heavy
```

Use the **show** command to verify the RAM allocation for IOx applications.

```
Router#show app-host resource
Resource Allocation:
  CPU Quota: 38%
  Memory Quota: 3072MB
  Storage Total: 6350MB
  Storage Available: 1403MB
```

Use the **show** command to verify the CPU units resource allocation for IOx applications.

```
Router#show app-host infra
IOX version: 2.11.0.3
App signature verification: disabled
CAF Health: Stable
Internal working directory: /vol/harddisk/iox
CPU:
  Quota: 38%
  Available: 38%
  Quota: 1862(Units)
  Available: 1862(Units)
```