

Overview

This module provides an overview of deploying Cisco IOS XRd Router on AWS.

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Overview

Cisco IOS® XRd complements existing physical Cisco® router platforms that rely on Cisco IOS XR Software, such as Cisco Network Convergence System routers, Cisco ASR 9000 Series Routers, and Cisco 8000 Series Routers. Service providers can now improve their operations and offerings by leveraging XRd platform to offer new services that require routing functionality in a compact manner. XRd offers the option to deploy routing in a containerized form-factor enabling routing between network functions in the public cloud and those running on-premises in data centers. This deployment offers flexibility as an increasing number of network functions are moved to the public cloud. The Cisco IOS XRd offers greater agility, improved network efficiency at a lower capital cost and operational expenditures. It also provides the ability to efficiently scale up or scale down the network capacity based on demand.

Features of Cisco IOS XRd Router

XRd runs on generic Kubernetes, and can be integrated into your Kubernetes-based platforms such as Amazon AWS EKS (Elastic Kubernetes Service), as described in this document. The XRd software provides the capability to administer routing functionality, similar to other applications operating within the data center or cloud environment.

XRd software, based on IOS XR7 release, is of lightweight design and expedited boot process. XRd supports contemporary operating system programmability features, including YANG models (both native and open configuration) and Model-Driven Telemetry.

XRd software is a derivative of the highly resilient, stable, and feature-rich Cisco IOS XR Software, possessing the same northbound interfaces and management features as Cisco IOS-XR. As a result, XRd seamlessly integrates with the existing monitoring, automation, and orchestration systems.

Cisco IOS XRd is available as:

- Cisco IOS XRd Control Plane
- Cisco IOS XRd vRouter

For more details, see Cisco IOS XRd Data Sheet.

Known Issues

The following table addresses known issues.

Issue	Description	Condition	Workaround
Traffic Reconvergence Delay during XRd vRouter Cloud HA Failover	This issue impacts the XRd vRouter Cloud HA solution, causing a delay in traffic reconvergence when transitioning from the primary to the secondary XRd vRouter instance. The duration can extend up to the ARP cache timeout on the client workload, which is 4 hours for Cisco IOS XR-based workloads. In contrast, Linux-based workloads have a default ARP cache timeout of 30 seconds.	The likelihood of encountering the issue increases when initiating failover immediately after launching or restarting the EC2 instance hosting the Secondary XRd vRouter instance. Standard prerequisites for the XRd vRouter Cloud Hgh Availability solution include the presence of the XRd HA App container application in the Amazon AWS EKS (Elastic Kubernetes Service) cluster and the configuration of Linux networking, VRRP, and Telemetry settings in Cisco IOS XR.	To address the issue, implement the following workaround: clear the ARP cache of the workload after an unsuccessful failover.

Licensing

The licensing scheme for Cisco IOS XRd is based on a simplified subscription model, which consists of:

- Per-instance licensing for the control plane
- Throughput utilization licensing for the virtual router (vRouter)

This licensing structure enables service providers to pay for the resources they consume, and the licenses are activated through Cisco Smart Software Licensing. You must register Cisco IOS XRd within 90 days to retain the ability to modify XRd configurations. If you try to modify the configuration, you will be notified that your configuration mode is locked due to the unlicensed product. However, if a purchased license expires, there is no impact.

Additional information about Cisco Smart Software Licensing can be found at Licensing.

XRd Deployment Procedure

The procedure to deploy and bring up the XRd vRouter or XRd Control Plane on AWS EKS includes the following steps:

1. Create a virtual private cloud (VPC).
2. Bring Up and Configure an EKS Cluster.
3. Set up Container Registry.
4. Create an Amazon Machine Image (AMI).
5. Create a worker node.
6. Instantiate and Run Cisco IOS XRd.

You can use these steps as a reference to deploy XRd as per your use case.

The examples provided in this document are specific to Cisco IOS XR Release 25.2.1 and later releases and are not qualified for older Cisco IOS XR releases.