



Application Hosting Overview

In today's networking environment, there is a need for simplifying and automating network management processes. Application hosting gives administrators a platform for leveraging their own tools and utilities for network management. Cisco IOS XR supports third-party, off-the-shelf applications that are built using Linux tool chains. With the software development kit that Cisco provides, users can cross-compile and run custom applications.

When you manage network devices with applications, you are freed of the task of focusing only on the CLI based configurations. Because of the abstraction provided by the applications, while the applications do their job, you can now focus on design and implementation aspects of the network.

The purpose of this chapter is to develop an understanding of the application hosting infrastructure, and the wide range of use cases that may be right for your need.

- [Docker Container Application Hosting, on page 1](#)
- [Top Use Cases for Application Hosting, on page 2](#)

Docker Container Application Hosting

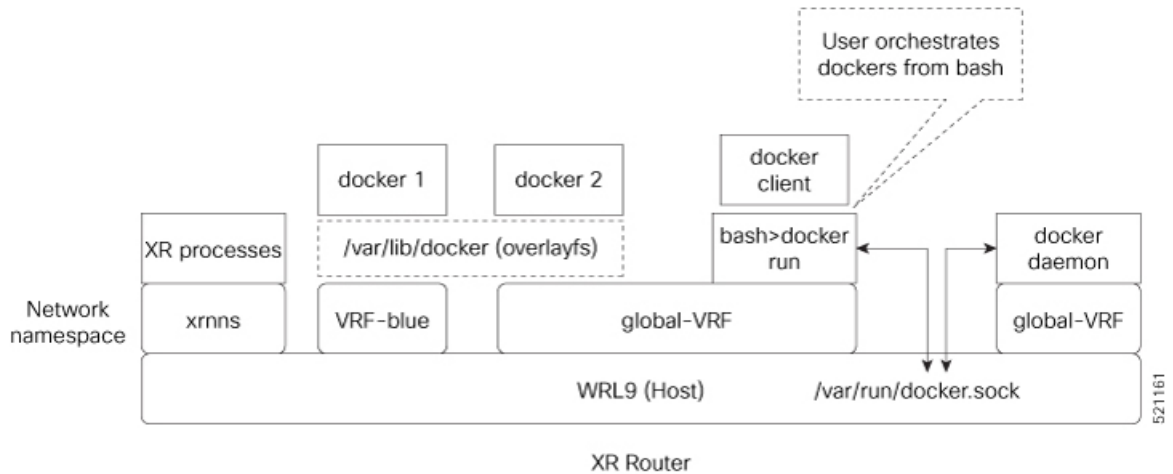
You can create your own container on IOS XR, and host applications within the container. The applications can be developed using any Linux distribution. Docker container application hosting is suited for applications that use system libraries that are different from those libraries provided by the IOS XR root file system.

In docker container application hosting, you can manage the amount of resources (memory and CPU) consumed by the hosted applications.

Docker Container Application Hosting Architecture

This section describes the docker container application hosting architecture.

Figure 1: Docker on IOS XR



The **docker client**, run from the bash shell, interacts with dockers (docker 1 and docker 2) by using the docker commands. The docker client sends the docker commands to **docker daemon**, which, then, executes the commands. The docker daemon uses the **docker.sock** Unix socket to communicate with the dockers.

When the **docker run** command is executed, a docker container is created and started from the docker image. Docker containers can be either in `global-vrf` namespace or any other defined namespace (for example, VRF-blue).

The docker utilizes overlays under the `/var/lib/docker` folder for managing the directories.

To host an application in docker containers, see [Hosting an Application in Docker Containers](#).

Top Use Cases for Application Hosting

Some of the top use cases for application hosting are:

- **Measure Network Performance:** An application can be hosted to measure the bandwidth, throughput and latency of the network. An example of such an application is the iPerf tool.
- **Automate Server Management:** An application can be hosted to automate the server functions like upgrading software, allocation of resources, creating user accounts, and so on. Examples of such an application are the Chef and Puppet configuration management tools.