OUT-OF-BAND MANAGEMENT FOR NETWORK FUNCTION VIRTUALIZATION (NFV)

HOW TO MAKE YOUR VIRTUALIZED NETWORK INFRASTRUCTURE EASIER TO DEPLOY, MANAGE AND RECOVER

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Building on the success of server virtualization, the IT industry is looking to reap the same benefits by deploying network function virtualization (NFV). NFV architecture can virtualize entire classes of network node functions within one or more virtual machines, or exist with dedicated network devices in a hybrid architecture.

As with traditional network architectures, NFV still faces some of the same challenges when it comes to reliance on the network itself for monitoring and managing the network infrastructure, rapid identification and resolution of network issues and ensuring secure access to and logging for network components.

The Uplogix out-of-band platform brings the same functionality for continuous monitoring, secure access and network automation in traditional networks to NFV and hybrid NFV architectures.

TRADITIONAL OUT-OF-BAND MANAGEMENT

The Uplogix platform can connect to individual network devices over a console port. More than just a console server, Uplogix is the most evolved out-of-band solution providing network management automation, secure access and continuous monitoring.
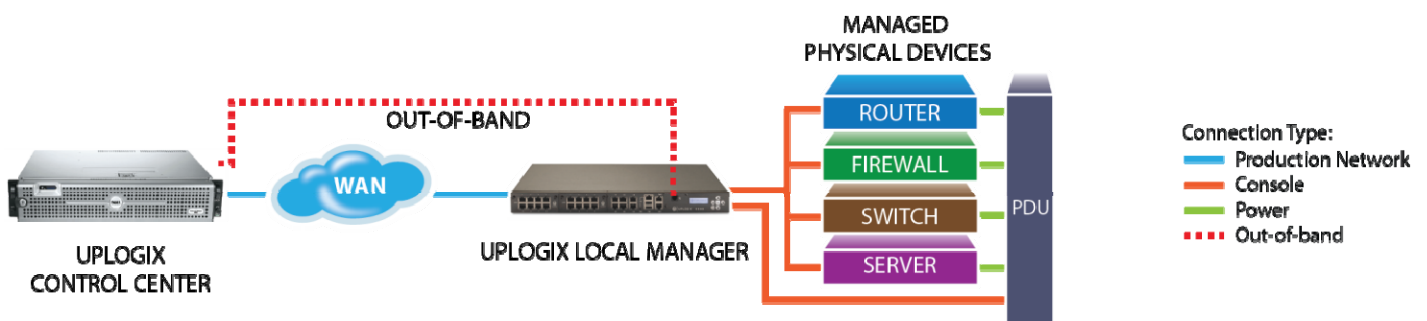
A wide variety of out-of-band options, including LTE cellular modems, provide management network independence and can serve as an automated failover network for critical traffic, allowing the right choice for each site.

Taking secure encryption to the edge of the network protects against internal and external threats. Onboard solid state drives on Uplogix hardware and network encryption for both hardware and virtual deployments protect management data and configuration in transit and at rest.

Uplogix identifies, isolates and solves network problems often before the NOC even knows there is a problem. The automated configuration safety net lets admins confidently make changes remotely plus implement mass changes across the entire network with less effort and risk.

VIRTUAL PORTS

There are a variety of cases where typical console device management may be impractical or impossible. For these deployments, Uplogix has virtual device management ports. These virtual ports mimic the functionality of physical serial interfaces.

In the case of NFV architecture, these virtual ports can be established to manage the virtual devices running on a host machine from a physical Uplogix Local Manager. Virtual ports can be used in conjunction with physical ports on the Uplogix platform.
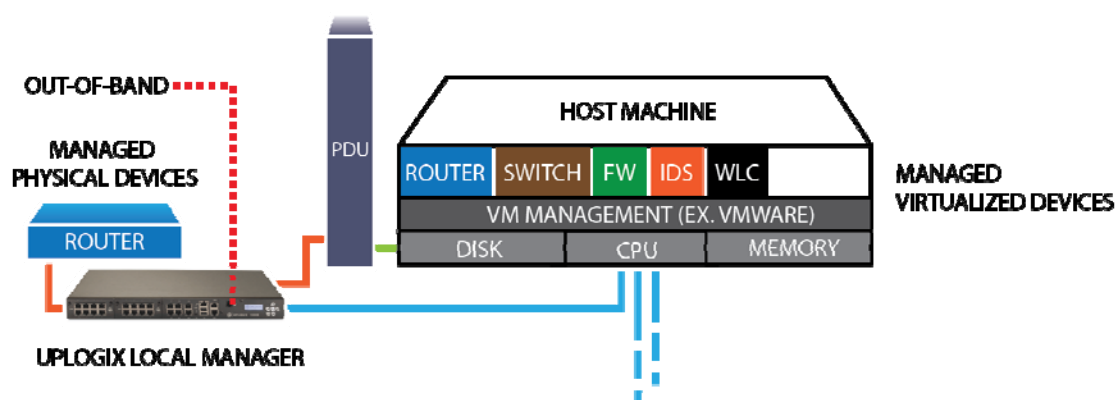

The maximum number of allowable virtual ports on a physical Uplogix Local Manager is 16 ports. To assure adequate performance on richly configured systems, Uplogix recommends that the sum of configured physical ports and virtual ports not exceed the total number of physical ports supported by the Uplogix platform.

Virtualizing Uplogix

Uplogix can also be virtualized in an NFV architecture. For the out-of-band link, a USB cellular modem can be attached to the host machine for access by the Uplogix VM.

USB-attached console ports provide connections to physical devices including the host machine itself.
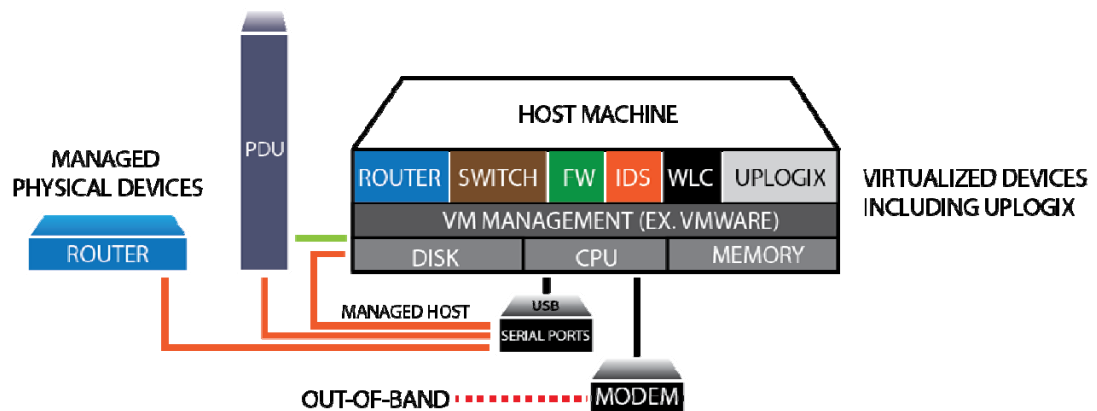
NFV device console ports can be accessed across the hypervisor backplane to the virtual console port provided for each device, limiting the requirement for outside network connectivity. Management IP connections to each NFV device can be connected across the internal virtual switch.

Benefits include ease of deployment and less hardware to install/purchase by taking advantage of existing host machines. 50 virtual ports (plus 1 hardware port to manage the host machine) are supported.

A limitation of running Uplogix as a VM on the host machine is that it loses some of the independence of running on a physical appliance. For example, if the host machine goes down, all of the VMs, including Uplogix will not be functional. Or, during an operation that reboots the host machine, Uplogix will not be able to monitor the device.

Summary

NFV is gaining adoption, in part, because it provides abstraction of services from physical boundaries and limitations. Instant networks can be formed, utilized and decommissioned as work flow needs expand and contract.

While the promise of NFV is great, it will also come with management challenges that Uplogix can address. The variety of ways to deploy Uplogix makes it possible to use the most effective method for each site, while maintaining consistent management from the NOC through the Uplogix Control Center.

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