Cisco Network Positioning System

Today's virtualized cloud-based services require a new level of automation, mobility, and scale from the network, with the control and speed to match the availability of virtual resources within the data center. To facilitate this, Cisco® has introduced the Cisco Network Positioning System to expose the underlying intelligence in the network to cloud-based applications and management solutions.

Applications often have little knowledge of IP topology, and can be deployed into suboptimal locations from a network point of view. This can result in excess consumption of network resources, diminished application performance, and added costs to the network provider. A solution is needed to help locate and use the best resources from the cloud.

The Cisco Network Positioning System helps to provision and manage virtual cloud-based services and other network applications from the network. It is built on advanced network features and the intelligence inside the Cisco Cloud Intelligent Network, and further aggregates data center resources and services to simplify multitenant cloud provisioning.

Exposing Network Intelligence

The Cisco Network Positioning System provides real-time information that includes:

- **Network proximity:** Identifies resources based on hops and distance for both physical and logical topologies
- **Network performance:** Identifies resources based on accessibility, latency, packet loss, and historical performance
- Network capabilities: Provides a global view of resource availability, with real-time updates across multiple data centers

The fundamental role of the Network Positioning System is to receive and respond to inquiries that seek the support of specified services and capabilities. These services and capabilities might include compute capacity, storage, and network services such as firewalls or load balancing. The Network Positioning System responds to an inquiry with a ranked list of the best resources.

Virtual Desktop Use Case for Cisco Network Positioning

It is common for cloud data centers and the network links between them to be overprovisioned for unexpected demand spikes. The Cisco Network Positioning system can optimize the use of your infrastructure and make much of this excess provisioning unnecessary. With Cisco Network Positioning System, data centers and network capacity can offload to each other in real time, maintaining high performance while taking full advantage of distributed resources (Figure 1).

Figure 1. Virtual Desktops with Cisco Network Positioning System
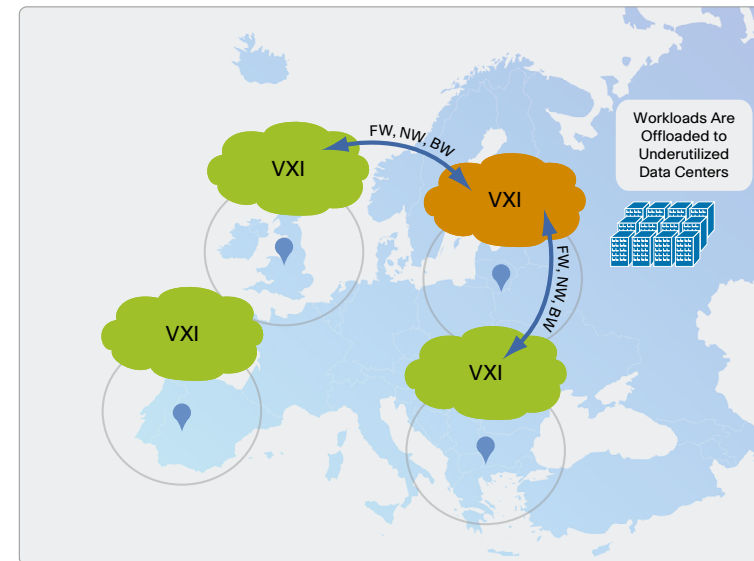
A prime example of real-world use of Network Positioning System is Cisco's Virtualization Experience Infrastructure (VXI), an end-to-end systems approach that delivers the next-generation virtual workspace by unifying virtual desktops, voice, and video. When a demand surge in one location exceeds capacity thresholds, demand can be moved to other data centers, offloading data center and network links to those with available capacity, to optimize and extend provisioning across all available data centers.

Summary

The Cisco Network Positioning System recognizes the real-time topology and performance of the network, as well as what capabilities are available across the network and connected data centers. This real-time information is used to help applications or cloud-based services understand how to best distribute and consume resources in the cloud.