White Paper

SD-WAN Technical Concepts

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This third white paper in the series on Software Defined (SD) technologies aims to cover in more detail some of the technical terms used, what these actually mean, the concepts they cover and how they fit together in the SD landscape.

We will see exactly how vSmart, vEdge, vBond and vManage interlink and how the services used to manage these components and systems contribute to the efficiencies and benefits of utilising SD technologies.

SD-WAN Technical Concepts

There are various technical terms used in SD-WAN to describe networking concepts which may be familiar, as they have direct analogues in traditional networking and quite a lot in common with WAN delivery methods such as DMVPN (Dynamic Multipoint Virtual Private Network).

vSmart

The vSmart controller is the brains of SD-WAN, it is the centralised policy controller and delivers the control plane for all connected SD routers in the domain.

vBond

The vBond is part of the orchestration and zero touch deployment of SD-WAN, a vBond tells the vEdge which vSmart will be responsible for its configuration and policies.

vEdge

The vEdge is the SD-WAN router, it's software and can be hosted on multiple device types including certain hypervisors.

vManage

The vManage is the policy and management plane (interface) for the whole SD-WAN environment. The vManage interface allows a single point of management for the whole SD-WAN.

Domain ID

A domain is a logical grouping of vEdge routers and vSmart controllers that demarcates the span of control for the vSmart controllers.

Each domain is identified by a unique integer, called the domain ID. Currently, you can configure only one domain in an SD-WAN overlay network.

Within a domain, vEdge routers can connect only with the vSmart controllers in their own domain. The vBond orchestrator is aware of which vSmart controllers are in which domain, so that when new vEdge routers come up, the vBond orchestrator can point those routers to the vSmart controllers in the proper domain. However, the vBond orchestrator is never a member of a domain.

Within a domain there is full synchronization of routing information among the vSmart controllers and vEdge routers, and there is scope for route aggregation and summarization. An organization can divide up its network into domains to serve desired business purposes. For example, domains can correspond to a large geographic area or to data centers so that each data center and the branches for which it is responsible are contained within a single domain.

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