



Avaya VENA Fabric Connect

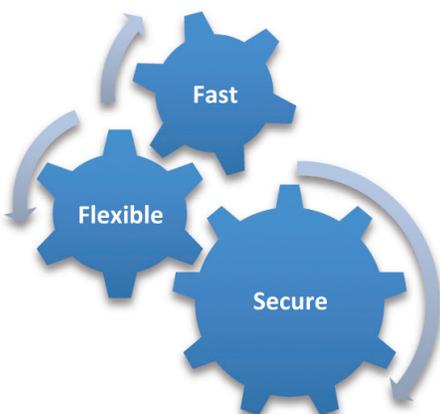
Delivering game-changing productivity, agility, and dependability

By creating one contiguous, end-to-end Fabric, Avaya is empowering businesses to achieve unprecedented levels of infrastructure productivity, service agility, and network dependability, the very essence of the fast, flexible, and secure design aspirations.

Our industry is currently experiencing a shift in application architecture away from simple Client/Server to complex, composite application designs, including the adoption of business operations intelligence applications that are based on communications-enabled business processes and complex-event processing. And, of course, at the heart of the next-generation data center is the pervasive adaption of Virtual Machine (VM) computing; the ability to support mobility is crucial to making this environment successful. Inefficient mobility equates to reduced flexibility, degraded time-to-service, and loss of productivity.

The Avaya Virtual Enterprise Network Architecture (VENA) Fabric Connect solution enhances productivity by optimizing the way that networks are deployed, implemented, operated and maintained. Liberating the business from the topology constraints of rival solutions and alternative technologies, Fabric Connect empowers versatile placement of networking components and interconnections; optimized end-to-end connectivity is automatically and instantaneously calculated - and similarly recalculated during planned or unplanned topology changes.

Delivering genuine service agility is new and unique. Prior to Fabric Connect, networks were forced down one of two paths: they either provisioned as they went, or pre-provisioned en masse. Neither option is conducive to efficient and effective operations. Attempting to match the extremely dynamic nature of VM life cycles with the provisioning burden of a traditional network introduces significant delay in time-to-service. Days, weeks, or even months could be lost in planning and scheduling the required change. Then, there is the very real risk of change-induced error. Similarly, the other extreme - pre-provisioning - also introduces substantial risk, given the inferred burden to configure every possible network service on every available network device. This approach introduces network-wide fault domains and, with the logical desire to extend the network fabric beyond the relatively straightforward confines of the Data Center, is becoming increasingly untenable now that discrete user-centric



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devices and sessions enter into the pre-provisioning equation. What business wants is dynamic, simplified, and orchestrated provisioning; Avaya Fabric Connect delivers precisely this solution.

Isolating the network from its services delivers carrier-grade protection and availability. The complete separation of services and the encapsulation of user addressing at the Fabric Connect boundary ensures that the core of the network becomes transparent to users, appearing as a series of simple pipes, tunneling – as it were – traffic based upon an any-to-any connectivity model. Fully deterministic traffic flows and a proven, standardized management framework greatly simplify day-to-day operations; once again the robust foundational technology that underpins Fabric Connect shows the value of its service provider heritage.

For years both industry and network operators have been searching for a way to reconcile the seemingly opposing goals of Server and Network administration; while one sought service flexibility the other strove for service stability. Obviously the business wants both; flexibility and stability need to be delivered organically by a technology that decouples services from the underlying technology. Avaya Fabric Connect achieves this, doing what no rival solution can – creating a service delivery paradigm that abstracts the IP layer from the physical and enables, the virtualization of the network to be synchronized with compute virtualization.

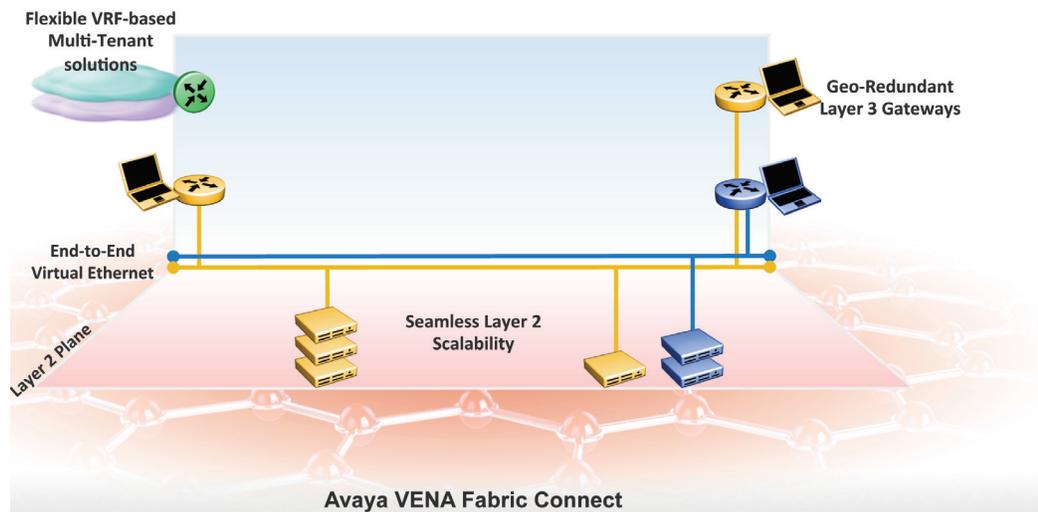
Avaya's introduction of the Fabric Connect solution sets a new standard for service agility. The edge-only, one-touch provisioning model empowers service change without time-consuming change control because isolation of user services and separation from the network core ensures full compartmentalization of the failure domain and therefore the risk. The business benefit is pronounced, with service additions and changes enacted in real-time. This is especially true and relevant when moving compute resources away from the mass of isolated, application-specific servers that characterized the traditional data center. Orchestrating highly efficient provisioning, management, troubleshooting, and securing multiple VMs requires network-level insight and visibility into virtual machine lifecycle, application of appropriate network and port-level configurations at the individual VM level, dynamic tracking of VMs as they move throughout the data center, and enforcement of network attributes for VMs, no matter where instances migrate.

A further advantage that Avaya provides is to facilitate service orchestration, and VM mobility is a perfect example of delivering tangible time-to-service benefits. Real-world application life cycle management requires the regular migration of VMs – this could be for maintenance, recovery, or scaling – however traditionally they have been restrained by network limitations; VMs can

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only move within a single broadcast domain. Fabric Connect re-writes the rulebook and, by creating a single end-to-end solution, services can be moved anywhere and everywhere. However, certain considerations remain: physical connectivity, capacity, Layer 3 gateway functionality, etc. This is where and how Avaya Virtualization Provisioning Service leads, by seamlessly integrating with VMware vCenter to synchronize the network and server domains; Switches are configured on the fly to reflect the mobility requirements.

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Avaya Fabric Connect obviously benefits from its foundation being that of the IEEE's Shortest Path Bridging standard (802.1aq); it was, after all, designed not simply as a 'Spanning Tree replacement', but as a true, full-featured, simplified virtual private networking technology– an 'Enterprise-friendly MPLS' if you will. The Fabric is extended the instant that devices are enabled, and the end-to-end 'virtual Ethernet' propagates throughout the domain, regardless of the physical topology (or mix of topologies). Shortest, most optimal paths are calculated and common services – such as VMs – only ever consider themselves to be a single hop away from the other members of their community.

About Avaya

Avaya is a global provider of business collaboration and communications solutions, providing unified communications, contact centers, networking and related services to companies of all sizes around the world. For more information please visit www.avaya.com.

Abstracting the services from the constraints and limitation of the traditional two-dimensional design model of protocol-applied-to-physical liberates the network and empowers a radical shift in network design and service delivery. At Layer 2, the predominate, although not exclusive, requirement within the data center, VLANs (or unique hosts) are simply mapped to the required 'Service ID'; this occurs only at the Fabric Connect edge, reducing time-to-service and the burden and error-prone requirement of end-to-end, device-by-device, link-by-link configuration. And because the underlying technology is natively extensible, Fabric Connect integrates support for Layer 3 in the same way; VRFs are mapped to the appropriate Service IDs and end-to-end connectivity is immediately delivered.

Indeed, Avaya is able to optimize the provisioning of routing functionality, and with our enhanced implementation of router redundancy (VRRP), with multiple active instances, we can distribute gateway functionality through the Fabric, as and where it is most effective. This is particularly relevant in a distributed, physically-dispersed Data Center model. Avaya's groundbreaking Switch Cluster capability is deployed on the perimeter of the domain, providing resilient active-active connections for attached devices, including servers or other network devices.

The Avaya VENA Fabric Connect solution enables businesses to build a Cloud-grade infrastructure that is extensible from data center to campus and beyond; end-to-end network virtualization is a crucial differentiation of VENA. Designed for next-generation networking, Fabric Connect is a flexible solution that can be tailored to fit current business needs while providing a smooth migration path that accommodates natural or dramatic evolution. Addressing the crucial data center requirements, Fabric Connect creates self-aware network infrastructures that simplify the logical provisioning of network services and provide the components required to create a simplified, network-wide solution that features active/active connectivity and service-orientated networking from Top-of-Rack to Core.

Avaya is uniquely positioned based on decades of networking experience, and this helps ensure that the transition to an Avaya Fabric Connect solution is low-risk, seamless, and overwhelmingly positive.

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