

# HP FlexFabric 5930AF Switch Series



Designed for multi-tenancy and data center virtualization

## Quick start cloud computing

Cloud computing is a vehicle for delivering IT infrastructure as a service to an ever-increasing number of mobile users with an unlimited appetite for information around the globe. In order to move toward cloud delivery, enterprise data center networks must be virtualized, support multi-tenancy, and build the capability to dynamically allocate the required resources to all installed business applications.

Today, in many data centers, it takes weeks of manual provisioning and configuring of networks to meet applications requirements and maintain business continuity—due to the complexity and labor-intensive nature of the effort involved. There is an urgent need to find new ways to simplify and automate the processes of setting up virtual networks and deploying them on demand. Meanwhile, the mounting demand for applications that meet changing business needs while maximizing return on investment is accelerating the move toward virtualization and multi-tenancy in data centers. New business and technology environments call for adaptive solutions that respond quickly to changing market dynamics.

In response to these demands, we've introduced the HP FlexFabric 5930AF Switch Series. The switch series represents a new generation of data center switches that are optimized for software-defined networking (SDN) and for supporting virtualization, cloud computing, and multi-tenancy. It is a family of high-density 40 GbE and ultra-low latency top-of-rack data center switches. The series belongs to the FlexFabric solution module of the HP FlexNetwork architecture. It's most suited for leaf-and-spine network deployments. While it is ideal for deployment at the server-access layer in large enterprise data centers, it can also be deployed at the core layer of data centers at medium-size enterprises.

## The new standard for data center access switches

With the advent of SDN, data center networks will see an accelerated deployment of virtualized applications, move to the cloud, and rise in server-to-server traffic. As a result, customers require innovations in the ToR switches to meet their needs for scalability, agility, higher-performance server connectivity, virtualization, cloud readiness, and convergence of Ethernet and storage traffic.

The FlexFabric 5930AF ushers the arrival of the first 40 GbE top-of-rack switch with built-in hardware support for virtual environments, cloud multi-tenancy, and SDN. With support for Virtual Extensible Local Area Network (VXLAN) and Network Virtualization using Generic Routing Encapsulation (NVGRE), Virtual Ethernet Port Aggregator (VEPA), OpenFlow 1.3, Transparent Interconnection of Lots of Links (TRILL), HP Intelligent Resilient Framework (IRF), and Fibre Channel over Ethernet (FCoE), the FlexFabric 5930AF sets a higher standard for data center access networking.

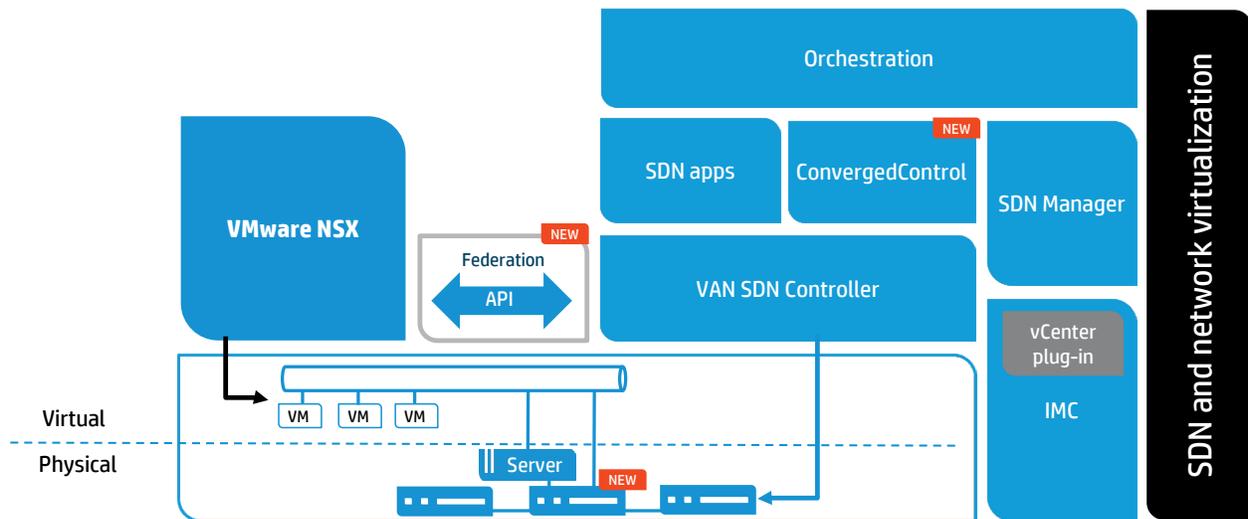
## **Top 10 highlights of the FlexFabric 5930AF**

1. The FlexFabric 5930AF has a compact form factor of 1RU with 40 GbE port density, accommodating 32 QSFP+ ports that can support up to 128 10 GbE ports—using breakout cables delivering up to 1.28 Tbps switching capacity
2. The FlexFabric 5930AF leverages industry-leading IRF technology to radically simplify the management of access layer switches by up to 75 percent by allowing viewing of up to four switches as a single virtual device, using one IP address; Delivers on the FlexFabric promise of simpler, two-tier networks that provide higher levels of performance, while reducing cost and complexity
3. The FlexFabric 5930AF offers the industry's only support for IEEE 802.1Qbg standard VEPA; Working with the HP FlexFabric Virtual Switch 5900v, the FlexFabric 5930AF ToR takes advantage of the HP Intelligent Management Center (IMC) to unify the management of the physical and virtual networks; This enables network administrators to monitor and manage VM-to-VM traffic and apply advanced network policies, such as QoS and ACLs, to VM-to-VM traffic
4. The FlexFabric 5930AF supports OpenFlow 1.3 and SDN, setting the FlexFabric 5930AF apart from competing top-of-rack switches; Utilizing the power of HP Virtual Application Network and the growing library of SDN applications, the FlexFabric 5930AF expands the potential for SDN and accelerates the deployment of data center applications
5. The FlexFabric 5930AF is the industry's first switching solution with VXLAN and NVGRE support for hardware, opening the door for true multi-tenancy and scalable cloud computing deployments; And together with SDN and OpenFlow 1.3 support, the FlexFabric 5930AF outshines the competition when it comes to virtualization and cloud computing
6. The FlexFabric 5930AF delivers 40 GbE wire speeds, enhancing leaf-and-spine scalable and low-latency architectures; The 1/10 GbE switches, serving as leaf devices, are best suited as spine switches; And the TRILL and IRF capabilities that come with the FlexFabric 5930AF enable the creation of highly scalable L2/L3 networking fabrics, satisfying customer requirements in Hadoop and other big data environments
7. The FlexFabric 5930AF provides support for Data Center Bridging (DCB) and FCoE, making it ideal for deployment in converged environments where high port density and networking bandwidth are in demand
8. The FlexFabric 5930AF comes with the Comware 7 modular network operating system, which delivers enterprise-grade resilience with In Service Software Upgrades (ISSU) for real-world high availability
9. The FlexFabric 5930AF offers full L2/L3 support and IPv4/IPv6 dual stack
10. The FlexFabric 5930AF helps lower OPEX with the HP policy of no extra charges for network operating system features; Unlike competing devices, the FlexFabric 5930AF is fully licensed, enabling customers to save on expensive licenses

## HP and VMware help customers unify data center networks

Federated SDN and network virtualization solutions provide a common infrastructure and operations model across physical and virtual networks. The new HP-VMware networking solution federates the Virtual Application Networks SDN Controller with the VMware NSX network virtualization platform to provide customers with an integrated approach for automating their physical and virtual network infrastructure. The networking solution is designed to provide a centralized view, unified automation, visibility, and control of the complete data center network—improving agility, monitoring, and troubleshooting.

**Open, interoperable solution that unifies physical and virtual networks**



The Virtual Application Networks SDN Controller also comes with support for the VMware Open vSwitch Database (OVSDB) management protocol. This enables the 5930 top-of-rack switch to participate in the automated provisioning of the virtual network, which will be delivered by the NSX network virtualization platform.

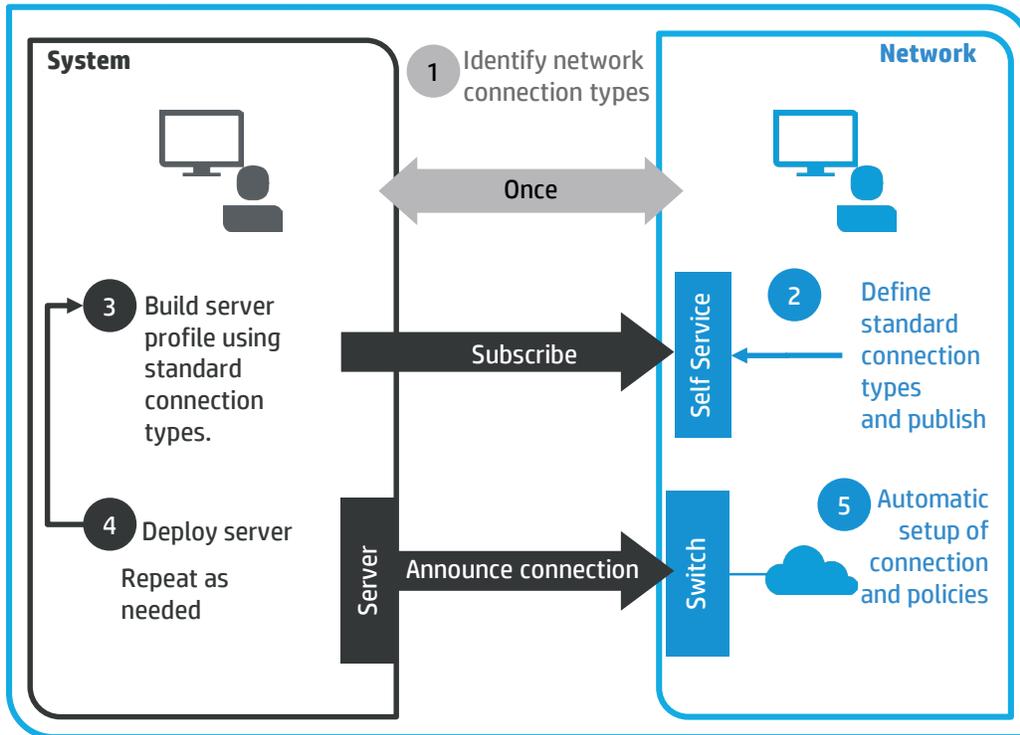
The 5930 top-of-rack switch with built-in intelligence based on VXLAN technology extends network virtualization to the servers, enabling virtual and physical networks to work together as one entity.

## Simple, automated, and consistent application of network policies

The IMC VAN Connection Manager Module plays a critical role in providing a unified view of the physical and virtual switching infrastructure. The VAN Connection Manager module interacts with the VMware ESX vCenter via a plug-in interface to track the creation and movement of virtual machines. The network administrator can use IMC to create network policies that can be assigned for each application or virtual machine.

The use of IMC enables network administrators to provision, apply, and manage standard networking policies, such as ACLs and QoS to VMs, using familiar tools used to manage physical switches. It is worth noting that these policies migrate in tandem with VMs—providing simple, automated, and consistent application of network policy without the intervention of network administrators.

### Unified management of physical and virtual networks

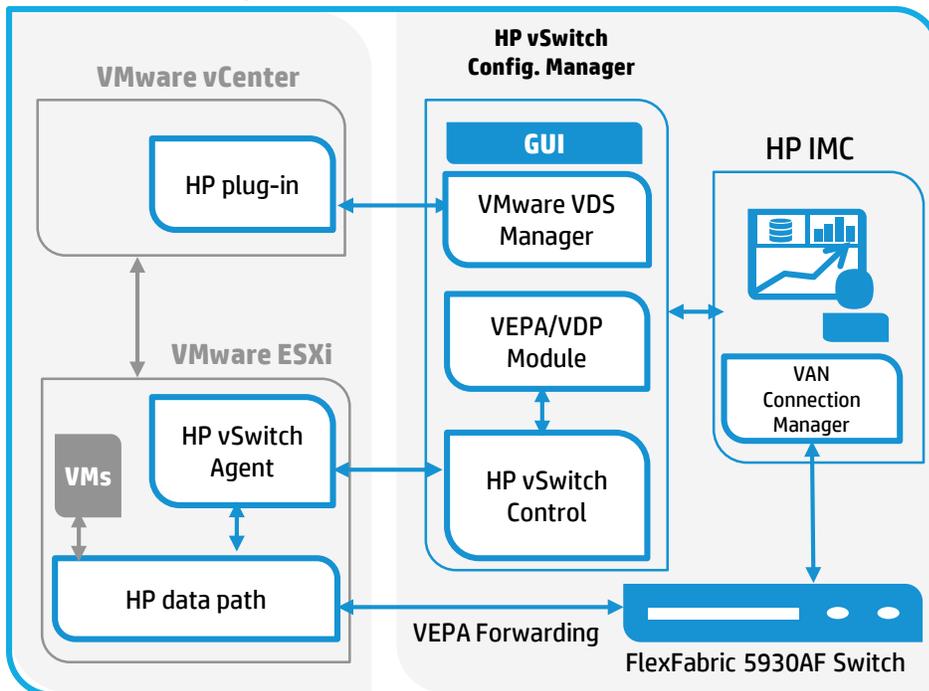


## Greater efficiency, speed, and productivity

The FlexFabric 5930AF access-layer switches are a cornerstone of the HP FlexFabric Virtual Switch 5900v solution. Through the support of industry-standard Ethernet Virtual Bridge (EVB) and VEPA, the FlexFabric 5930AF provides the foundation needed to interact with and enable the Virtual Switch 5900v in the VMware ESXi environment. The IEEE 802.1Qbg standard defines the interaction between the virtual switch environment and the physical infrastructure switch. Meanwhile, EVB enables the management of VM traffic by using the VEPA protocol. This makes possible the VM movement, or mobility, across the network. It also gives network administrators the means to create and automate migrations of VM profiles.

With the EVB and VEPA support, once a virtual machine is created and installed, it communicates through the FlexFabric Virtual Switch 5900v to the FlexFabric 5930AF top-of-rack switches and IMC to automatically provision the appropriate network policies. The provisioned policies reside on the FlexFabric 5930AF top-of-rack switch, and it can be executed at line rates when applied against the specific VM traffic. The use of the FlexFabric 5930AF switches to process network-related policies and tasks offloads the host CPU of these tasks, releasing host-server resources to process business applications. The use of dedicated networking resources speeds the execution of networking tasks and accelerates the VM-related processes at the server edge.

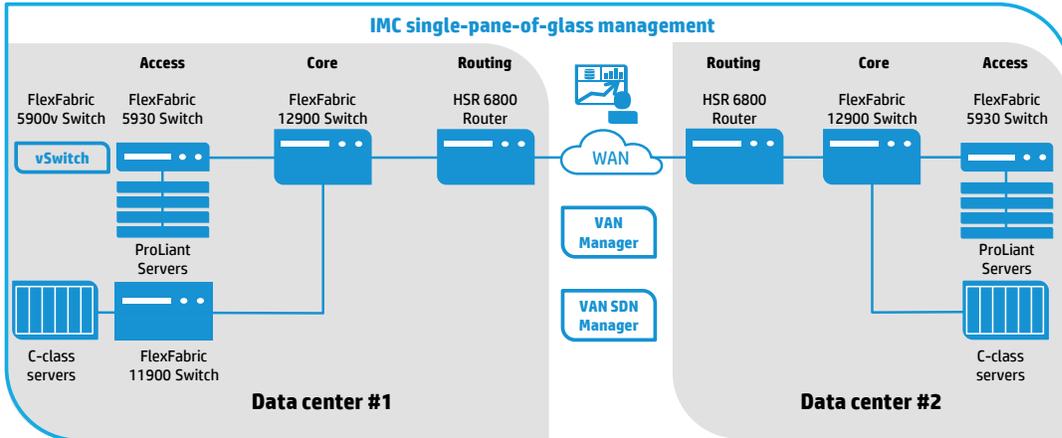
### Enhanced VM mobility across the network



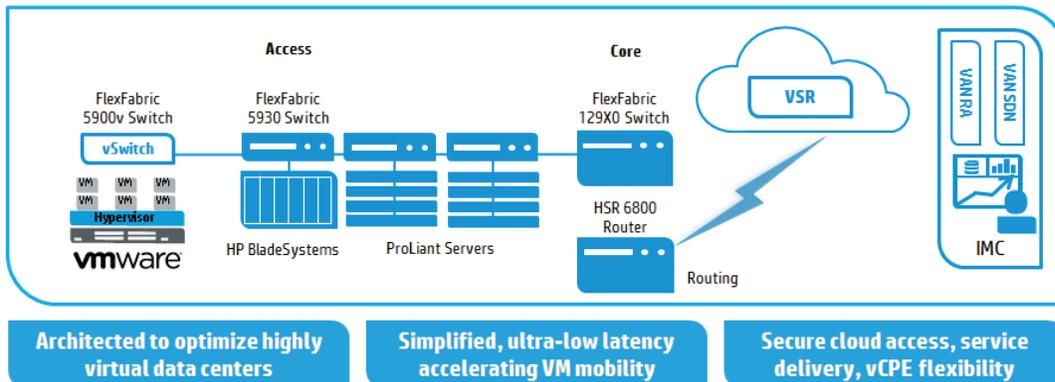
## The FlexFabric 5930AF in the data center

Here are some deployment models for the FlexFabric 5930AF Switch—highlighting the diversity and power of the new member of the industry-leading FlexFabric family of data center access switches.

### FlexFabric delivers simplicity, scale, and automation



### FlexFabric cloud, virtualized data centers



### FlexFabric Big Data, Hadoop use case

