

## SOLUTION OVERVIEW

# Aruba Fabric Composer

Simplify and accelerate data center networking

## aruba | Fabric Composer

### OVERVIEW

Building out enterprise data center infrastructure can be a challenge in planning, integrating, validating, and managing all the required infrastructure components. Even when all the components come together in a predefined composable offering, there is still the challenge of evolving legacy operations and processes.

Applying the old way of doing things to a new, modern IT and cloud infrastructure can be a losing battle.

One of the biggest challenges in building out data center infrastructure is the network fabric, which is the foundational glue that integrates the infrastructure's compute, storage, and application resources. Any bottleneck in the network fabric will negatively impact the enterprises' ability to run applications efficiently.

At a high level, provisioning the network in a modern enterprise data center has been a challenge for two key reasons;

- The network infrastructure itself has been traditionally complex, and typically requires specialized skills and training to configure and manage.
- Network and security teams typically reside in separate, siloed organizations, and often require a job ticket to schedule network configuration, maintenance or configuration of security policies in the environment.

Herein lies one of the most notorious bottlenecks of traditional IT, siloed operations that impede deployment velocity.

### ARUBA FABRIC COMPOSER

Aruba Fabric Composer is an intelligent, API-driven, software- defined orchestration solution that simplifies and accelerates network provisioning, security management and day-to-day operations across rack-scale compute and storage infrastructure. What makes Aruba Fabric Composer different from other solutions is its ability to orchestrate a discrete set of switches as a single networking fabric to simplify operations and troubleshooting. This infrastructure and application-aware solution also automates various configuration and lifecycle events. Aruba Fabric Composer provides a series of workflows that are both interactive and automated which abstract the administrative complexities of setting up complex data centers.

Aruba Fabric Composer also provides unified network and security management for the Aruba CX 10000 platform. This provides automated switch and network configurations, while also unifying security policy and distributed firewalls across the entire switching fabric. This unified network and security policy management significantly simplifies operations and troubleshooting.

Aruba Fabric Composer simplifies fabric management across multi-site data center locations. This multi-fabric orchestration capability is enabled via automating VXLAN configurations at data center border switches and global fabric management synchronization across geography dispersed data center locations.

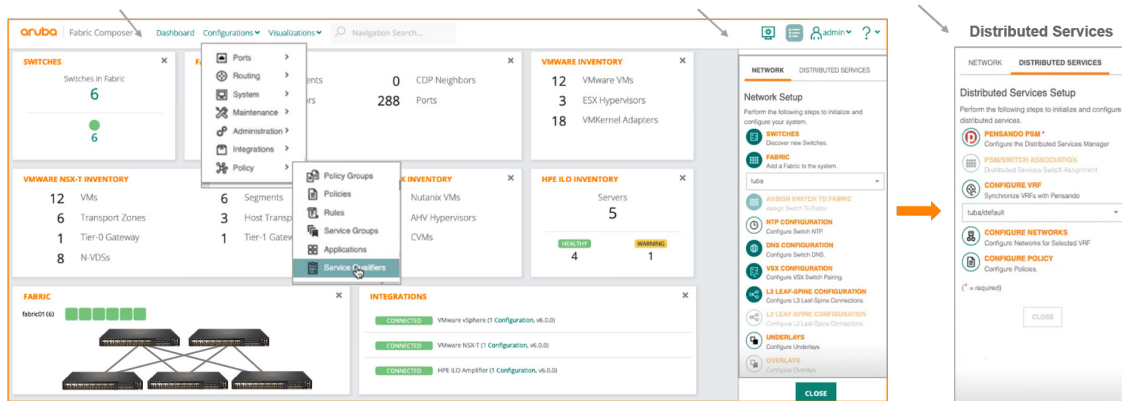


### Dashboard View

Includes information about fabrics, switches, hosts, VMs, and security

### Workflow Automations and Guided Setup

Point and click GUI streamlines and automates away complexity



### Network and Switch Visualization

Hosts, MAC, neighbors, switch inventory, health status

### API level integrations with various environments

Including HPE, Aruba, VMware vSphere, ESX, NSX and Nutanix

Figure 1. Aruba Fabric Composer Dashboard

## DATA CENTER ECOSYSTEM INTEGRATION

Aruba Fabric Composer supports deep IT ecosystem integrations that enable administrators to manage, provision, and visualize their entire end-to-end network. An intuitive HTML5-based user interface provides a self-documenting real time map of the environment: from a VM, to host networking, to a specific switch port and through Networks View visualizing Virtual Switch and Spine-Leaf connectivity.

A robust set of APIs and tight integration into many 3rd party data center automation stacks, provide a seamless configuration and operational experience.

Aruba Fabric Composer is designed to work with Aruba OS-CX switches and is optimized for HPE data center products and tools such as HPE SimpliVity, HPE iLO and Pensando Distributed Services Platform.

Take for example Aruba Fabric Composer integration with the HPE iLO Amplifier Pack, an essential tool designed to simplify management of HPE servers running iLO. Using this integration administrators can enable easy and centralized access to server information directly giving IT administrators a dramatically simplified troubleshooting experience, providing a single UI through which to view a wealth of information about the hosts and network.

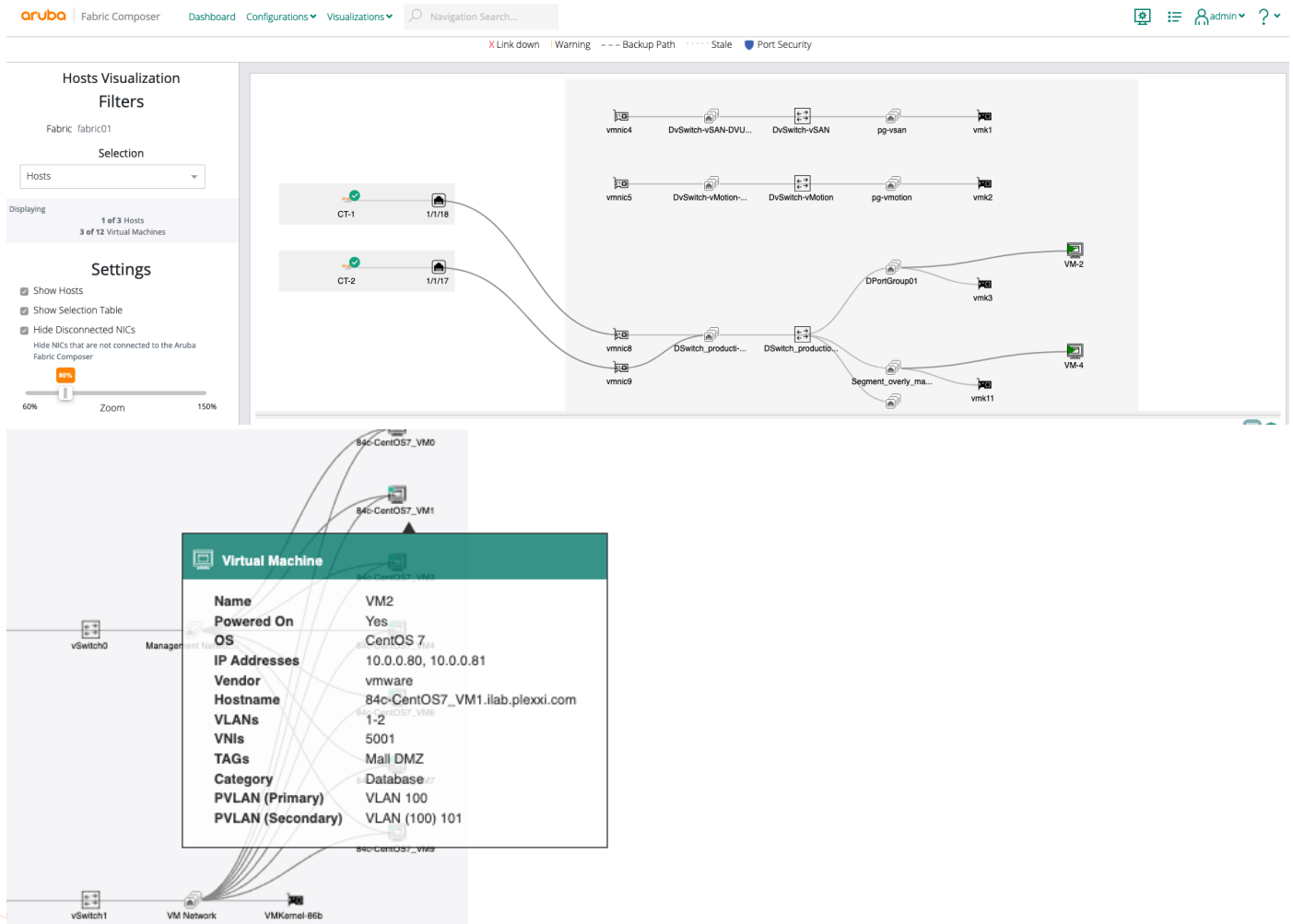
The combination of Aruba Fabric Composer and Aruba OS-CX switches can also support non-HPE environments such as VMware Cloud Foundation, VMware vSphere, VMware NSX, Nutanix Prism, and other, allowing them to enjoy the benefits of automated fabric provisioning, event-based workflow automations, end-to-end environment visibility, automatic storage traffic optimization and unified security policy management.

Aruba Fabric Composer is both infrastructure and application aware. These powerful eco-system integrations help IT administrators automate routine network configuration tasks in response to lifecycle events happening within the customers environment. For example, Aruba Fabric Composer's integration with VMware vSphere®, can discover and visualize the virtual network infrastructure within hosts, along with the physical network infrastructure the hosts are connected to.

In addition, Aruba Fabric Composer can respond to VM lifecycle events and configuration changes making appropriate fabric changes automatically. VM administrators can manage fabric operations all from a single VMware console – a very powerful and simplified operating model that most administrators have never had before, until now. Additionally, operators can use Aruba Fabric Composer to orchestrate micro-segmentation, securing workloads with a VM vNIC granularity. Policies can be created by utilizing vSphere TAGs or VM names which provide simplification in policy definition.



## POWERFUL END-TO-END VISUALIZATION OF VIRTUAL AND PHYSICAL COMPONENTS



Using the Aruba Fabric Composer Host View, administrators can easily see end-to-end connectivity between Virtual Machines, Port Groups, vSwitches, and Physical NICs to visualize how they are connected to Aruba CX switch ports.

These industry leading integrations provide administrators with integrated server, security, and networking provisioning for end-end visibility, control, telemetry, and easy troubleshooting – without having to jump between disparate management interfaces when provisioning racks of compute, storage, networking and security services.

*Aruba Fabric Composer and Aruba CX switches provides an innovative and intelligent software-defined solution for customers who are struggling with manual, siloed IT provisioning and operating models across compute, storage and network infrastructure.*



## DETAILED SECTION OF FEATURE/CAPABILITIES

### Event-based Workflow Automation

Aruba Fabric Composer is built from-the-ground-up to be fully integrated with data center infrastructure, application, and workload orchestration systems. Through an open source, event driven automation platform, Aruba Fabric Composer provides both the integration platform as well as a set of Aruba-developed integration packs. Integration packs automate workflows based on the included sensors, actions, and triggers for 3rd party orchestration systems. Following an “If This Then That” (IFTTT) model, Aruba Fabric Composer can provision, configure, or optimize an Aruba network in real time, by reacting to events from these 3rd party systems without the need for user intervention.

### Workload Visibility

Aruba Fabric Composer builds an understanding of the physical network and the workloads that utilize the network. It gathers the necessary information from 3rd party orchestration systems and other repositories leveraging RESTful APIs. It captures the complete picture of the compute/storage/network resource ecosystem. This delivers a more accurate and meaningful global view of how and where virtual demands are impacting the physical network.

### Workload Optimization

Aruba Fabric Composer optimizes data paths to satisfy the needs of critical application workloads. Policies created around explicit workload demands such as latency are met by arranging the network to satisfy those needs first. Optimizing the network to workloads needs delivers deterministic and predictable network performance and ensures that the right network resources are applied to the right workloads. This, for example, can translate to faster storage replication and mirroring or quicker database transaction response.

### Global Network Control

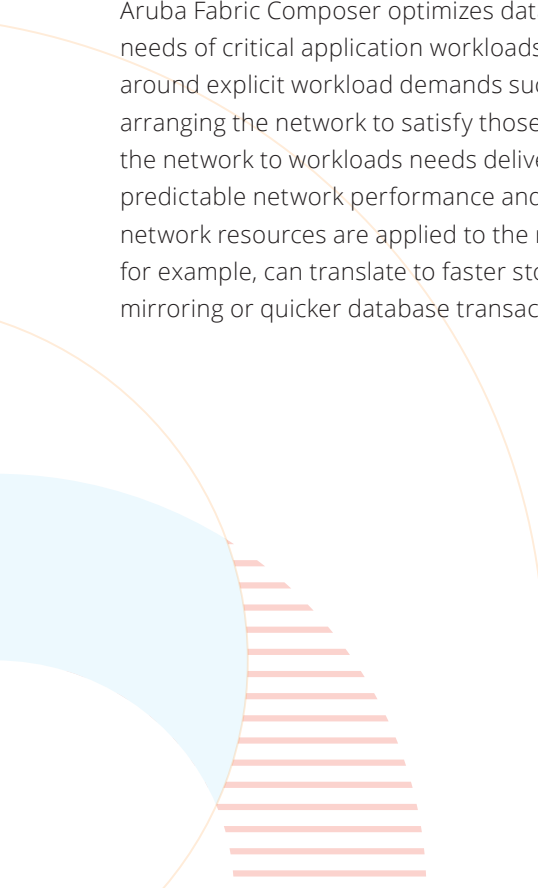
Aruba Fabric Composer offers the simplicity and intelligence of centralized network management with the rapid response and scalability of decentralized control. Once Aruba Fabric Composer has satisfied configuration of the workload requirements, it then works with the Aruba CX switching fabric to orchestrate the desired new network state. When workload requirements demand a new network state,

Aruba Fabric Composer communicates updated topology information to the switches. The switches then implement the configuration across the network.

Aruba Fabric Composer multi-site fabric orchestration further enhances and simplifies the operational experience in managing multiple private clouds across geographically dispersed data center locations.

### Unified Policy and Distributed Services

Aruba Fabric Composer provides unified orchestration for segmentation, security, and firewall policy configuration. It is also the primary network and security engine for The Aruba CX 10000 Series Switch with Pensando. All network configurations and firewall policy definitions are managed by Aruba Fabric Composer. The Aruba CX 10000 provides an entirely new switching solution to overcome legacy limitations. The solution allows operators to extend the capabilities of the leaf-spine fabric to natively provide 800G of distributed stateful firewall for east-west traffic, zero-trust segmentation, pervasive telemetry, and in the future stateful NAT, encryption services.





## NETWORK VISUALIZATION

### Visualize leaf and spine CX switches

aruba Fabric Composer Dashboard Configurations Maintenance Visualizations Navigation Search...

Spine Leaf Border Leaf VSF Stack DSS

#### Networks Visualization

Fabrics: Cedar Leaf-spine Fabric

Settings:

- LLDP Neighbors
- Leaf-Spine
- VSX
- Hosts
- Neighbors
- Attachments

**FILTER**

Show Network

Show Details Table

Custom Layout **CLEAR**

Grid Layout

Grid: 2 to 10 (100% zoom)

Name Truncation: 17 Characters

Spine Location: Top

**Switch**

Name: cedar-sw-05

MAC Address: B8-D4-E7-D9-E8-01

IP Address: 172.20.15.163

Health: Healthy

Status: SYNCED

Software Version: GL.10.09.0001AA

Model: Aruba 8325-48Y8C

Role: Border Leaf

Switch Configuration  
Fabric Configuration

1 selected

Name	Vendor
cedar-01-exxi.lab.plexoi.com	vmware

### VXLAN Multi-site Fabric Visualization

#### Networks Visualization

Fabrics: Site-A, Site-B

Settings:

- Peer Switches
- Leaf-Spine
- VSX
- VXLAN Tunnels
- Hosts
- Neighbors
- MAC Attachments

**FILTER**

Show Network

Show Details Table

Custom Layout **CLEAR**

Grid Layout

Grid: 2 to 10 (100% zoom)

Name Truncation: 17 Characters

Spine Location: Top

LEAF-SPINE **VXLAN TUNNELS**

Select to Highlight Connection

	Tunnel Health	Source Switch	VTEP Source IP Address	Destination Switch	VTEP Peer IP Address	Tunnel State	VXLAN VNI / VLAN	VXLAN Name
<input type="checkbox"/>	OPERATIONAL	penny-sw-01	192.168.10.7	penny-sw-05	192.168.10.8	Operational	10010/10, 10020/20	vxlan1
<input type="checkbox"/>	OPERATIONAL	penny-sw-02	192.168.20.7	penny-sw-06	192.168.20.8	Operational	10010/10, 10020/20	vxlan1
<input type="checkbox"/>	OPERATIONAL	penny-sw-05	192.168.10.8	penny-sw-01	192.168.10.7	Operational	10010/10, 10020/20	vxlan1
<input type="checkbox"/>	OPERATIONAL	penny-sw-05	192.168.10.8	penny-sw-06	192.168.20.8	Operational	10010/10	vxlan1
<input type="checkbox"/>	OPERATIONAL	penny-sw-06	192.168.20.8	penny-sw-02	192.168.20.7	Operational	10010/10, 10020/20	vxlan1
<input type="checkbox"/>	OPERATIONAL	penny-sw-06	192.168.20.8	penny-sw-05	192.168.10.8	Operational	10010/10	vxlan1



## Visualize Sub-Leaf Switches

This allows customers to easily migrate legacy data center servers with 1G and 10G NICs to Aruba switches with the same interface and then add these as a sub-leaf to newer leaf and spine architectures.

The screenshot shows the Aruba Fabric Composer interface. At the top, there are navigation tabs for 'Fabrics', 'Connections', and 'Settings'. A 'Switch Status' bar is visible with icons for Spine, Leaf, Border Leaf, Sub Leaf, VSF Stack, and DSS. A filter dialog box is open, showing options to filter by Peer Switches, Leaf-Spine, VSX, VXLAN Tunnels, Connection Analysis, Hosts, Neighbors, and MAC Attachments. The main area displays a network topology with several switches labeled 'hive-sw-01' through 'hive-sw-08'. A detailed configuration panel for a 'hive-sub-leaf' switch is shown on the left.

Switch	
Name	hive-sub-leaf
MAC Address	64:E8:31:B6:A2:81
IP Address	172.20.15.116
Health	Healthy
Status	SYNCED
Software Version	FL.10.10.0002
Model	6300F 24G 4SFP56
Role	Sub Leaf
VSF	Yes
Member 1 Role	Conductor
Member 1 Model	6300F 24G 4SFP56
Member 1 Status	Ready
Member 2 Role	Standby
Member 2 Model	6300F 24G 4SFP56
Member 2 Status	Ready
Manager	Aruba Fabric Composer

Switch Configuration  
Fabric Configuration

Switch Ping  
Switch Traceroute  
Switch Analytics

## Data Center Ecosystem Integration

Aruba offers Integration Packs for several 3rd party IT orchestration systems. Integration Packs are built into the Aruba Fabric Composer and include specific logic for tools such as: Aruba Central, Aruba NetEdit, HPE iLO Amplifier, HPE SimpliVity, Pensando PSM, Nutanix Prism, Vmware NSX-T, Vmware vSphere and VSAN and Vmware Cloud Foundation.

Based on discovery of managed elements within each of these orchestration systems, these pre-packaged fully tested and supported integration packs provide workflows ranging in functionality from network provisioning, micro-segmentation policy orchestration to automated network optimization.

## SUMMARY OF KEY BENEFITS

### Simplify IT operations

Orchestrate a discrete set of switches as a single networking fabric which significantly simplifies day-to-day operations and troubleshooting overall. Workflow automation and simple point and click GUI help streamline and automate complexity - for example, helping to automate away EVPN configuration complexity.

**Accelerate provisioning** – Speed infrastructure provisioning with software-defined fabric automation and orchestration. Integrates into your existing IT operational frameworks with ease. Automated, turnkey infrastructure deployment that helps minimize delays and manual interactions with separate IT operational teams and silos.

**Increased visibility and control** – End-to-end network visibility of connective of hosts, virtual machines, VLANs, services and workloads simplify troubleshooting of connectivity and performance problems. Automatically detect and dynamically solve network issues before your business is impacted.

### Aruba Network Analytics Engine (NAE) Monitoring

– Capitalizing on the full automation and deep visibility capabilities of AOS-CX, Aruba Fabric Composer also leverages NAE scripts to provide a wider spectrum of issue monitoring including hardware device health, CPU/Memory utilization, transceiver, routing and system resource alerts.

**Unified security policy configuration** – Centrally defined policy elements distributed to every rack allowing for fine-tuned micro-segmentation of workloads. Unified policy allows the administrator to easily configure stateless ACLs or create stateful policies enforced by Distributed Services Firewall.



**Monitoring, telemetry, and troubleshooting** – Aruba Fabric Composer provides detailed alarms, events, and deep insight into what is going on within the network, and security. These insights help with troubleshooting when issues arise and ongoing monitoring.

Monitoring agents enable, configure, and use Aruba NAE scripts to provide additional details on Aruba CX data center switches to provide additional information. Alerts are sent to Aruba Fabric Composer system health ICON and Aruba Fabric Composer Audit Log located on the main dashboard. The network administrator can use the monitor agents page to add, edit, or delete collectors. Additionally switch syslog alerts are centrally collected by the Aruba Fabric Composer Audit Log. These can be viewed and sorted based on severity.

### QUICK SETUP FOR FABRIC ROUTING

Aruba fabric composer supports the switch configuration and telemetry of several routing protocols for fabric intra-connect and network connectivity. These include

BGP, OSPF, VRF, and EVPN. Ability to configure switch route maps to enable policy capabilities provides granular control for exchanges between fabrics and external switches The Spanning Tree Protocol is supported to prevent L2 loops in the fabric.

### ARUBA FABRIC COMPOSER ORDERING INFORMATION

Aruba Fabric Composer is the integration platform residing between the Aruba OS-CX switches and 3rd party tools. It provides the means by which the Aruba fabric can automate lifecycle data center operations and optimize, application and storage workload performance.

Aruba Fabric Composer is offered as a self-contained ISO or Virtual Machine OVA, and can be installed in both virtual and physical host environments as a single instance or as a Highly Available 3 node cluster. Aruba Fabric Composer is available as a yearly per switch software subscription option.

SKU	PRODUCT DESCRIPTION	SUPPORTED CX SWITCHES
R8D18AAE	Aruba Fabric Composer Device Management Service Tier 3 Switch 1 year Subscription E-STU	6300
R8D19AAE	Aruba Fabric Composer Device Management Service Tier 3 Switch 3 year Subscription E-STU	6300
R8D20AAE	Aruba Fabric Composer Device Management Service Tier 3 Switch 5 year Subscription E-STU	6300
R7G99AAE	Aruba Fabric Composer Device Management Service Tier 4 Switch 1 year Subscription E-STU	6400, 8400, 8325, 8360, 9300, 10000
R7H00AAE	Aruba Fabric Composer Device Management Service Tier 4 Switch 3 year Subscription E-STU	6400, 8400, 8325, 8360, 9300, 10000
R7H01AAE	Aruba Fabric Composer Device Management Service Tier 4 Switch 5 year Subscription E-STU	6400, 8400, 8325, 8360, 9300, 10000