

TECHNICAL OVERVIEW

VSF FAST SOFTWARE UPGRADE

ARUBA MOBILE FIRST INFRASTRUCTURE

INTRODUCTION

With the 16.03 ArubaOS-Switch software release, a new feature, VSF Fast Software Upgrade, was introduced to enhance performing a software upgrade in a Virtual Switching Framework (VSF) stack. VSF is a “front plane” stacking solution for the Aruba 5400R Switch Series using existing switch ports rather than dedicated stacking hardware and cabling. Typically, when upgrading the software on a switch stack, the entire stack needs to reboot simultaneously to upgrade the stack members. As a result of an entire stack reboot, network downtime occurs while the stacking members reboot and interfaces return to a forwarding state. VSF Fast Software Upgrade alleviates this, minimizing downtime to less than 3s (static routing), utilizing a sequenced reboot between the VSF stack members when updating software.

VSF Fast Software Upgrade works by doing a simple sequenced reboot of the VSF members. The feature is only supported in software versions KB.16.03 or newer, and cannot be used to downgrade to a version earlier than 16.03. VSF Fast Software Upgrade is only supported on the Aruba 5400R Switch Series, which supports up to a 2-member stack. In this configuration, each switch will have either the commander or standby role. The Commander makes all the decisions of the stack, manages network/control protocols, forwarding tables, configuration, and firmware images for the stack. The Standby synchronizes the configuration and protocol state of the commander and “stands by”, ready to take over in the event of a failure of the commander.

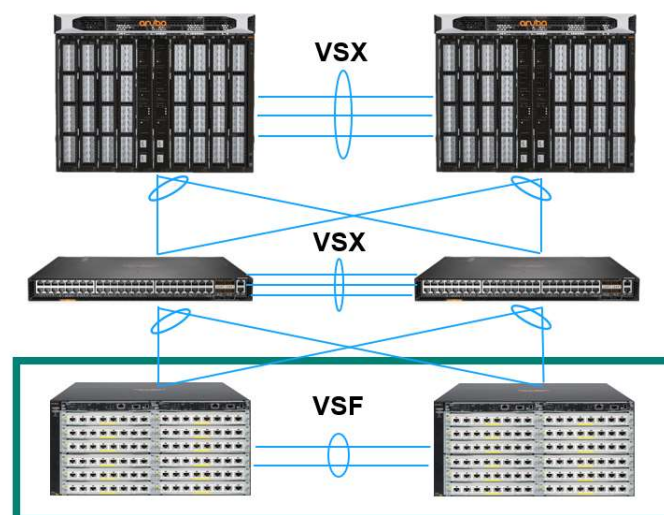


Figure 1: Aruba Mobile-First VSF Deployment

CONFIGURATION

To initiate the VSF Fast Software Upgrade feature, software is first downloaded to the stack, done via the VSF Stack Commander, with the code automatically copied to each of the other stack members with the following command:

```
switch(config)# copy usb flash KB_16_06_0006.swi secondary
```

After the software has been copied, the user can issue a sequenced reboot command to start the Fast Software Upgrade process:

```
switch(config)# vsf sequenced-reboot secondary
```

When the sequenced reboot command is executed, the standby reboots first; as the commander actively manages the stack, rebooting it first would incur additional downtime due to the failover process. Once the standby reboots, it comes back as a commander, taking over the active forwarding as the previous commander is subsequently rebooted.

The key to minimizing downtime with VSF Fast Software Upgrade is to utilize link-aggregation groups (LAG) with dual-homed uplinks and downlinks, where possible. When one stack member reboots, traffic will continue to forward on the active stack member over one of the LAG links, minimizing network downtime.

Note: When using clients or devices connected to a single 5400R VSF member (non-LAG), expect downtime on that client or device. It is recommended to use dual-homed devices where possible.

SUPPORTED PLATFORMS

- Aruba 5400R Switch series – KB.16.03 or later

VSF FAST SOFTWARE UPGRADE REBOOT TIMES

	Upgrade with VSF Fast Software Upgrade	Upgrade without VSF Fast Software Upgrade
Static Routing	2-3s	90s
Multicast Routing	20-21s	180-240s
IGMP	65-86s	175-235s
OSPF	17-22s	175-206s
BGP	53s	135s

Table 1: VSF Fast Software Upgrade Reboot Times