BROADCOM

Solution Brief

Benefits of Brocade® Fabric OS® Target Path

Ensure a Secure, Reliable, and Resilient Brocade SAN

FOS Target Path Highlights

Stability and Reliability

- Minimize risks and unexpected issues by utilizing a release with proven field runtime.
- Reduce the need for raising and escalating support cases with 85%+ fewer defects in a more stable and reliable release compared to other non-Target Path releases at the same major code level.
- Ensure smooth, seamless updates that you can trust when transitioning between Target Path releases that have been vetted in end-user production environments.

Security

- Address critical security CVEs as quickly as possible by installing the latest Target Path Fabric OS (FOS) updates.
- Deploy vetted security fixes, reducing the risk of data breaches and cyber vulnerabilities.
- Reduce the amount of time and effort necessary to vet new code.

Support

- Guarantee qualification and support by all Brocade partners, making it ideal for multivendor environments.
- Ensure compatibility and avoid errors with current entitlement that makes an environment fully supported.
- Ensure that FOS is qualified with all supported storage devices and HBAs.
- Simplify code management in environments with switch support from multiple vendors.

Overview

Managing a modern data center storage area network (SAN) requires attention to a multitude of elements, ranging from storage arrays to HBAs and, of course, the network connectivity in between. Although it can be easy to configure and provision the SAN switches for storage and host devices, and then forget about them, doing so can be a risky mistake. It is critically important to ensure that Fibre Channel switches in the network are maintained with the best hygiene practices. However, how do busy SAN administrators find the time to guarantee that their switches stay up-to-date with the latest firmware at all times to ensure that they are running the best quality and trouble-free SAN environment possible?

Broadcom helps remove the effort and guesswork by providing regularly updated recommendations for selecting firmware to use on its entire range of Brocade® Fibre Channel switching products. Through the use of extensive analysis of customer feedback, defect tracking and assessment, release adoption metrics, and decades of experience, Brocade Support and Engineering have developed a sophisticated set of metrics to determine the best versions of Fabric OS® (FOS) to deploy on any Brocade switch to ensure the utmost reliability and network resilience. These recommendations are referred to as Brocade *FOS Target Path* versions of code and have proven to be the pathway to resilience, security, and efficiency for any SAN administrator.

Stability and Reliability

Broadcom takes pride in producing the highest-quality software and firmware available in the industry by leveraging best practices for both code design and development, as well as quality assurance (QA) and test procedures. Despite these best practices, it is impossible to produce highly sophisticated operating system software, like Brocade FOS, that does not contain some defects or issues that escaped the test and qualification process. And even though Broadcom generates maintenance and patch releases to address any identified or reported issues, it can be challenging to determine which release to choose to deploy in an environment.

Over a decade ago, Broadcom introduced the Target Path designation for Brocade FOS software releases to alleviate the burden of trying to identify the best releases to use in any environment. The baseline qualification criteria for a release to be designated as Target Path include the following:

- Created primarily for stability and reliability and not for the introduction of new features, reducing the extent of major new changes in the code.
- Qualified and supported by all major partners and OEMs.
- Deployed in multiple enterprise production environments for a period of time sufficient to evaluate the release as being high quality.
- No reported known pervasive or impacting issues, no critical defects, and no issues identified as critical or service-impacting by a technical service bulletin (TSB).
- No known risk or exposure to high-criticality security CVEs.

While these criteria for FOS Target Path designation would certainly suggest that the release is more stable and reliable, actual metrics of Target Path code used in customer production environments truly reveal the benefits:

- The latest Target Path release on a major code level has *85% to 90% fewer defects* than non-Target Path releases at the same level (based on data from FOS v9.x releases).
- Cases opened and escalated with Brocade TAC (Support) are *three times higher (73%)* when using older versions of FOS versus the latest Target Path recommended releases (27%) (statistics based on FOS v9.1.x code).

When maintaining a network environment, it is always important to ensure smooth, seamless migrations when updating the equipment to newer versions of code. Broadcom introduced nondisruptive online code updates to the SAN market decades ago and always supports these upgrades for designated migration paths. When migrating to a newer version of FOS, the most reliable path is to always upgrade to Target Path releases, since these transitions undergo the highest level of testing and verification.

Security

In today's world of ever-present cyber criminals, it is absolutely essential to actively protect against security threats and vulnerabilities. In order to ensure that the very latest security patches and updates are applied to Brocade switches, the solution is simple—stay current with the latest Target Path recommended versions of FOS.

The latest security vulnerability updates to address known CVEs are always included in the most recent Target Path versions of code, eliminating the guesswork to identify the most secure way to maintain a SAN. For most environments, Broadcom recommends updating FOS to a current Target Path release every 6 months or at least every 12 months for organizations that are less adverse to security risks.

Partner Support

Broadcom produces multiple new FOS releases each year ranging from major new releases introducing the latest features and support for new hardware to maintenance and patch releases to address vulnerabilities and defects. Broadcom's OEM partners do not always adopt every new release that is made available, which can present challenges to SAN administrators when trying to determine which version of FOS to use in their environment.

Fortunately, by always selecting a version of FOS that is designated Target Path, this guesswork is eliminated. Every FOS Target Path version is qualified and supported by all Broadcom partners. Selecting FOS Target Path releases not only ensures support for the version of software, but also means that the code version has undergone extensive testing and QA by Broadcom and also by all of Broadcom's partners in their own extensive test environments with a full range of storage products.

Steps to Target Path Success

So how do organizations go about leveraging FOS Target Path recommendations in their Brocade SAN? The process is quite simple.

- Begin by reviewing the latest version of the *Brocade Software Release Support and Posting Matrices* document available on Broadcom's website (https://docs.broadcom.com/docs/Brocade-SW-Support-RM). This document is updated several times a year, so be sure to access the latest version by visiting the site.
- After determining which major version level of FOS is appropriate for an environment, look for the latest version designated as Target Path (the following example is shown for illustrative purposes only—be sure to refer to the latest posted document).

Latest Major Version (Supported): FOS v9.2.X					
Version	**GA Date**	**Target Path**	**FICON Qualified**	**Posting Status**	**Notes**
FOS v9.2.1a	March 1, 2024		Yes	Posted	
FOS v9.2.1	December 20, 2023			Posted	
FOS v9.2.0b1	June 27, 2024	Yes	Yes	Posted (LW[a])	

- Log in to the Broadcom or Brocade partner portal and download the desired version of FOS to install across the switches in the SAN. (Be sure to download the appropriate Platform Specific Download (PSD) version for the models in the environment.)
- Verify that each Brocade switch has a current Brocade Trusted FOS (TruFOS) Certificate installed, and then proceed to install the appropriate downloaded FOS package to the switches. This process can be simplified even further by using Brocade SANnav™ Management Portal software, which can manage the installation of new FOS code across all switches in the environment.

Summary

Keeping up with the multitude of tasks required to maintain a stable, reliable, and secure SAN can be a daunting challenge, but following Brocade FOS Target Path code recommendations can reduce significant time and effort. Based on analysis of quality metrics and data, the benefits of maintaining a Brocade SAN environment with the latest FOS Target Path recommended code are crystal clear. Get on the fast path to SAN management success with Brocade FOS Target Path.

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For more product information: broadcom.com

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