

# Why a Proof of Concept Makes Sense Before Implementing SD-WAN



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## Introduction

A software-defined wide area network (SD-WAN) is an innovative network solution able to save organizations money while improving the scalability, bandwidth, and performance of their technical infrastructure. Still, many C-suite executives worry about investing in what they perceive as a still maturing technology. They question whether their company can earn a significant return on investment (ROI).

For this situation, performing a proof of concept (POC) on an SD-WAN solution helps give businesses the peace of mind that their choice in network technology is the right one for their growth. A POC enables companies to evaluate how this state of the art networking platform provides significant benefits in a real world environment. Once a POC is completed successfully, a full SD-WAN implementation can then move forward with everyone from the C-suite to the IT team feeling confident in its success.

This whitepaper will take a closer look at using a POC before a full SD-WAN implementation. We'll provide a quick overview of how a POC is used throughout the technology world, before illustrating how it makes a perfect introduction to the advantages of SD-WAN at the enterprise. A POC is a perfect way for a business to learn firsthand the positive impact software-defined networking makes on their operations.

## Why the POC is essential in the technology world

Anytime an innovative technology gets introduced, some IT professionals want to throw caution to the wind and immediately plan for a full rollout. Others, likely in the accounting department and executive suite, prefer a more conservative approach. Will it disrupt operations? Will it cost too much compared to any improvement in operational efficiency?

A POC involves using a small project to see how certain innovative ideas work in the real world. In the case of an electronic device, engineers build a prototype to see if their lab ideas function as expected. A similar approach applies when designing user interfaces within software development.

When it comes to implementing SD-WAN, a POC typically involves installing the relevant components at a data center and potentially one to a few branch sites. Network engineers and end users analyze and report on the effects of this partial implementation. Is the new portion of the network easier to manage? Do cloud-based applications and data transfers show improved performance? In the end, the POC is a great way to assuage the fears of the C-suite regarding their investment in SD-WAN technology. They are able to see the real-world impacts of this state-of-the-art networking innovation in action and a full implementation is able to proceed with full confidence.

## Deciding whether to perform a POC

Before even considering a POC, it's essential to understand what an organization hopes to achieve with an SD-WAN architecture. Typically, these benefits include, a future-proofed network, increased bandwidth, improved cloud application performance, enhanced scalability, and significant cost savings. A high priority for any implementation is minimal disruption to network operations.

Of course, each company is different, so it's vital to perform an initial pre-sales analysis focusing on the organizational hopes for SD-WAN. At this point, some companies may trust the technology enough to decide on a full network implementation without first performing a POC. Perhaps they employ an experienced networking team who understands SD-WAN and totally supports migrating to the new platform. However, when the executive team remains skeptical, a POC helps generate support for the full project. Those who control the purse strings are able to see SD-WAN in action and the tangible impacts it brings to a portion of the company's networking infrastructure. Ultimately, it allows an informed decision to be made before proceeding with the full project. For many companies, this is the right approach.

### Best practices for an SD-WAN POC

The requirements for an SD-WAN POC essentially need to mirror most, if not all, of the goals for the full project itself. Once again, the benefits a company hopes to gain from their new network platform come into play. The project's timeline also matters. In the case when a full implementation is scheduled for one year into the future, a 30 to 60-day POC makes sense.

If an enterprise has a number of branch sites with different configurations, be sure to include examples of these as part of the POC. It's important to see how the various flavors of topology interact with the new SD-WAN components. Also consider the interaction with legacy sites slated to not have any SD-WAN functionality.

When conducting a POC, it's essential to vet the integration of SD-WAN components within the company's current network architecture. As such, the organization's network engineering team needs to be closely involved throughout the entire POC. This allows them to verify the ease of component configuration, as well as the monitoring and management utilities of the SD-WAN platform.

Additionally, the company needs to test the seamless interoperability with current networking equipment. In some cases, these older systems end up working side by side with SD-WAN components in the new network infrastructure. Other times, this aging equipment ends up being replaced. A well-considered POC helps companies answer these questions.

During the POC, companies also need to ensure they test the SD-WAN with equipment from multiple vendors. Try to include a vendor mix that reflects a typical branch site on their network. This approach provides the best simulation of a real-world production scenario after a full implementation of the SD-WAN solution.

### Where to conduct your POC

At this point, it's vital to answer the question about where the POC should be conducted: in production, the lab, or a mixture of both. All three approaches have their own advantages and disadvantages.

Performing an SD-WAN POC in production offers the best simulation of a real world environment. However, this comes with the risk of disrupting the company's operations. In the end, that's actually a great stress test for the new SD-WAN components and their interoperability with the company's existing network appliances.

Additionally, running the POC in production truly reveals the benefits of the SD-WAN approach to the customer. They are able to see in action how SD-WAN makes a significant positive impact on their network operations. A production POC also illustrates the seamless integration of SD-WAN with the current network infrastructure.

The company's IT team benefits from seeing the real time analytics displayed on the network monitoring dashboard. This hard data remains a key factor in ultimately determining whether or not the POC was a success. It also illustrates the relative ease of managing an SD-WAN network solution.

Still, despite these notable advantages, some companies shy away from the risks of running a POC in production. In this case, they choose to perform any integration tests in the lab. Since this is a simulation of a production environment, any issues discovered in the POC might be “false positives”—problems that wouldn't necessarily exist in production. In a sense, this lab environment is an experiment unto itself and likely not the best way to run an accurate POC.

A mix between both environments is another possibility. Installing an SD-WAN orchestrator component in the production data center and simulating a branch site in the lab provides a somewhat valuable POC without potentially disrupting traffic. This is a suitable approach for larger enterprises with many branch sites. Eventually, the team migrates this proxy production system into the corporate network infrastructure.

### Creating suitable test strategies for the POC

Before beginning the POC, having a well-formulated test plan is essential. Choose the right test cases to vet different scenarios, including troubleshooting a technical problem or seeing the effects of a massive traffic surge on the entire infrastructure. A wide range of test cases ensures the POC reveals the utility of the SD-WAN platform in a variety of real-world situations.

If the organization extensively uses cloud-based software, verifying the performance of these applications needs to be part of these test cases. Vetting the interoperability of different vendor equipment and apps is also important. In a similar fashion, the simulation of troubleshooting and service escalation calls is a wise inclusion on any thorough POC test plan.

For some of these disparate scenarios, using a wide area network (WAN) emulator is a great help. This device lets network engineers simulate an outage, helping them analyze whether there was packet loss anywhere in the SD-WAN infrastructure. An emulator is also able to simulate the effects of jitter, poor latency, and packet loss using either Port Control Protocol (PCP) or User Datagram Protocol (UDP). Using an emulator enables engineers to gain the benefit of seeing how the SD-WAN system reacted when faced with these issues.

In the end, a WAN emulator ensures a wide range of “problems” happen, albeit simulated. This is actually more suitable compared to the production environment, where issues might not occur enough times to be useful during a POC. Performing detailed testing in this fashion is essential for the company to get the most benefit from their POC.

### The criteria for determining a successful POC

After conducting an SD-WAN POC using a well-considered test plan, what comes next? What are the criteria for determining its success? When preparing the test plan, it's also important to detail the required results for a successful outcome.

Did the integration with existing network components happen in a seamless fashion? What about the allocation of bandwidth? Both of these issues influence the eventual full implementation. Also consider some form of cost-benefit analysis. Did the POC reveal a promise for cost savings once the SD-WAN infrastructure is implemented? Determining which older network gear is able to be removed also helps inform this process.

Additionally, a final report on the POC needs to cover any failures, as well as why they were deemed as such. Is the SD-WAN technology fine and just some minor changes are needed to the implementation plan? If that's the case, highlighting these issues in the final report ensures everything gets documented so an informed decision on how to proceed is possible.

Ultimately, when choosing between different SD-WAN vendors, this kind of rigorous testing process is vital. It covers everything from creating a detailed test plan to conducting a thorough POC to producing a final report with meaningful findings. At that point, an informed choice can be made on whether to proceed with a full SD-WAN implementation and with which vendor.

### Kickstart a VMware SD-WAN POC

VMware SD-WAN™ by VeloCloud® enables enterprises to deploy a faster, more cost-effective WAN for increased efficiency and agility. VeloCloud, now part of VMware encourages enterprises to see the results for themselves with a POC. The team works closely with businesses to help execute a successful POC to ensure they see optimized application performance, branch agility, and reduced costs. The checklist below helps identify tasks and decisions customers/enterprises typically undertake in choosing the perfect SD-WAN solution. It is crucial to have a comprehensive understanding of the solution to ensure it fits your specific needs. VMware SD-WAN offers the most flexibility with deployment options that enable customers to integrate our solution without re-work to their existing network.

#### TASK

- Identify business challenges (or) expected future state of business to be achieved with SD-WAN
- Scope of POC
- Timeline of POC
- Sites chosen for production POC/ semi-production POC
- Environment simulated for lab POC
- Test plan written? Or gather test plan from vendors
- Success criteria determined
- Determine ROI

For more information on VMware SD-WAN, please visit <https://www.velocloud.com/> or contact your VMware representative.



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