Sprint Benchmarks 5G Network Using Volcano Test Solution

Volcano, a network performance measurement platform, enables the Tier-1 carrier to scale test operations quickly, reliably and cost-effectively.

Challenge

Sprint™ had a vision for the launch of its 5G network: to create an industry-leading data network with lightning-fast download speeds. Delivering on this mission, however, would require rigorous testing and validation of the network's performance. To do so, Sprint's leadership team needed more than just an "all-hands-on-deck" approach—it needed a powerful testing tool that would enable the Tier-1 carrier to benchmark its network and devices in ways that couldn't be accomplished in the lab alone.

Stress for Success

Sprint's engineers knew they needed a new way to generate traffic to effectively simulate a network under load; however, they had to do it in way that wouldn't divert critical technical resources in the process of data collection, but rather keep those resources back in the home office to analyze and optimize the system.

> *"When DCmobility first engaged me with the overall approach for Volcano, I was coming back from a very long, frustrating and expensive first test of our network, We were bringing in engineers from all over and running testing like we had done in the past."*
>
> — Technical Director with Sprint's Mobile Services Development & Device Integration team

The layer-3 logging tool Sprint's team was using to run the tests was both complex and costly, which was affecting the launch schedule. What Sprint needed to accomplish its goal and vision was a tool that could benchmark the system and showcase their success. To hit the company's launch dates, the tool would need to quickly and easily scale—to be able to generate high volumes of traffic, provide customizable and intuitive scripting options, and deliver real-time reporting.

Sprint

About Sprint

- Tier-1 carrier
- Headquartered in Kansas City, KS
- Served 54.5 million connections (as of 3/31/2019)
- Launching mobile 5G in metro areas of nine U.S. markets

About Volcano

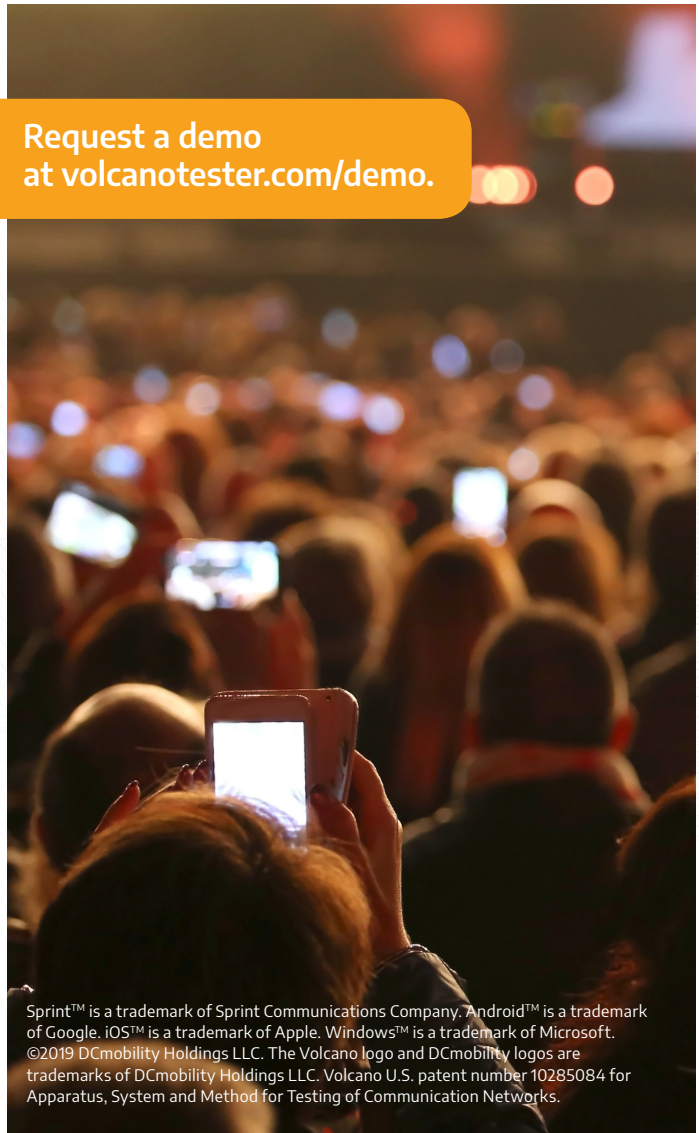
- Allows for remote control of devices for running test scripts
- Allows for the launching of test scripts from devices
- Generates orchestrated Ping, Web Browsing, FTP, HTTP, iPerf, Voice and SMS traffic
- Calculates real-time throughout monitoring, GPS and log generation
- Allows transferrable licensing model for devices
- Supports Android™, iOS™, Windows™ and IoT devices

Simulating Feet on the Street

Volcano proved to be the solution that Sprint needed. The platform swiftly adapts devices in the field into test units via an easy-to-use Android app. Test campaigns and scripts are developed from a central controller that sends messages to a relay server, which, in turn, sends test instructions to the terminals and collects completed test results. For Sprint's 5G launch, the solution was a game-changer.

The Volcano test solution offers engineers complete flexibility to modify scripts for use-case testing as needed for specific troubleshooting. It also verifies consistency across all markets via a common benchmarking script, ensuring an apples-to-apples comparison of network performance.

Utilizing the Volcano platform, the Sprint engineering team did not only deploy test units en masse, but also scheduled high-volume use-cases during off-peak hours to minimize the impact to paying subscribers. Volcano enabled Sprint to orchestrate testing in a repeatable fashion, generate worst-case scenarios, make network adjustments when needed, and, ultimately, validate speeds on the street.



From Test Vans to Trials to "True"

"As field testers responsible for launching hundreds of devices and services over the years, we were constantly looking for new ways to automate the process," says Nate Klonoski, Vice President of Software at DCmobility. "Volcano was born out of a conviction that it could be done faster, better and more cost-effectively than what was available in the industry."

After the successful launch of Volcano for the Telecomunicaciones de México in 2014, the DCmobility team recognized the benefits the platform could offer other domestic and international carriers, and first approached Sprint.

> *"Once I saw the efficiencies that could be achieved by using Volcano, we engaged them with a lengthy trial. Today, we are seeing at least a 10 to 20x improvement with respect to time, cost and associated manpower. We have collected a tremendous amount of data in a very short period that we can post-process in minutes."*
>
> — Technical Director with Sprint's Mobile Services Development & Device Integration team

The use of Volcano has also freed up Sprint's valuable engineering resources to allow them to reallocate their time to analyzing the network, rather than collecting data. Sprint engineers now leverage Volcano to quickly identify issues, in addition to having the ability to use layer-3 logging tools when needed for deeper dives into modulation coding schemes and handover messages.

With a successful initial launch in its pocket, the Sprint team is now busy rolling out its "True Mobile 5G" network to major metropolitan markets nationwide with the help of Volcano. Since the extended study, which included rigorous testing and evaluation against other industry test tools, Sprint has extended its use of Volcano to all eight of its local Radio Frequency regions. In addition, the company's Field Integration Team now also uses the tool for first-office application releases.