

Good, Better, Best: How Tandem Diabetes achieved iOS CI stability and speed with MacStadium

Tandem Diabetes used genuine Apple Macs in a private cloud hosted by MacStadium to achieve nearly 2x faster iOS build speeds.

Tandem Diabetes takes an innovative, user-centric approach to the design, development, and commercialization of products for people living with diabetes who use insulin. Tandem manufactures and sells insulin pumps that connect to your smartphone for an automated insulin delivery system, offering next-level comfort, convenience, and discretion.

Tandem Diabetes has a team of about 30 iOS developers and another team of about 20 Android developers responsible for updating and maintaining the mobile apps that control customer insulin pumps.



The problem with self-hosting

Tandem started iOS development with 2 self-hosted Mac minis, which the development team used as long-running agents to manage pull requests and builds. The problem with this setup was that any side effects or changes made on those machines would affect future builds.

When this happened and builds failed, developers were left wondering if it was their code causing the failure or a misconfiguration on the machine.

“If a developer has to wait almost an hour to find out if their code change works, that really decreases the opportunities for flow state, the opportunities for collaboration, and maybe even a developer’s willingness to try things.”



www.tandemdiabetes.com

Who:

Tandem Diabetes manufactures and sells insulin pumps that connect to your smartphone for an automated insulin delivery system, offering next-level comfort, convenience, and discretion.

Situation:

The iOS development team needed improved pull requests and build speed after transitioning from self-hosting to GitHub hosted runners.

Solution:

Tandem Diabetes migrated to MacStadium Bare Metal Macs to spin up and tear down VMs on demand.

Impact:

2x faster builds – Requests that averaged 40 minutes on GitHub hosted agents are now completing in an average of 21 minutes with MacStadium.

Good, Better, Best: How Tandem Diabetes achieved iOS CI stability and speed with MacStadium

Tandem Diabetes used genuine Apple Macs in a private cloud hosted by MacStadium to achieve nearly 2x faster iOS build speeds.

A better, more stable option

The Tandem team needed to solve the stability issue quickly and [GitHub's hosted runners](#) was the easiest way to get a build environment that was the same every time. They wanted a one-time-use virtual machine (VM) based on a reliable, static image. This change greatly improved their build stability, but the Tandem team paid for that stability with a marked decrease in speed.

“I would say it was worth it. Looking back on it, even with GitHub actions being so slow, it was better.”

The best solution for stability and speed

With stability nailed, it was time for the Tandem developer experience team to focus on improving pull request (PR) and build speed. They quickly determined that using more powerful GitHub hosted runners was cost prohibitive, so they turned to MacStadium as the premier vendor for iOS and macOS CI.

"I had been familiar with MacStadium as a company for quite a while. They come up pretty frequently in talks of iOS CI or macOS CI work as the premier vendor, at least in the US." - Isaac Halvorson, Developer Experience and Apple Platform Engineer at Tandem Diabetes

Tandem Diabetes evaluated a few MacStadium options and settled on an environment of cloud-hosted bare metal Macs, on which they use open-source software to spin up and tear down VMs on demand. Since the team had already built out the GitHub images to be platform independent, the transition to MacStadium bare metal Macs was "pretty painless."



www.tandemdiabetes.com

“If a developer has to wait almost an hour to find out if their code change works, that really decreases the opportunities for flow state, the opportunities for collaboration, and maybe even a developer's willingness to try things.”

Good, Better, Best: How Tandem Diabetes achieved iOS CI stability and speed with MacStadium

Tandem Diabetes used genuine Apple Macs in a private cloud hosted by MacStadium to achieve nearly 2x faster iOS build speeds.

~2x faster build speeds for iOS

Given the savings, the Tandem Diabetes team was able to design their MacStadium environment with enough host machines that the team almost never waits for queueing. Requests that averaged 40 minutes on GitHub hosted agents are now completing in an average of 21 minutes with MacStadium.

““ At a high level, we saw close to a 50% decrease in time. And we run a number of builds on every pull request that we make. ””

In fact, the new MacStadium environment was so much faster, the new most asked question from the developers was “How is it this fast?”

Conclusion

Tandem Diabetes moved from self-hosted, long-running macOS agents to CI-as-a-Service (CaaS), and eventually to a MacStadium private Mac cloud to provide the stability and speed that their iOS developers needed to create and manage their life-changing app.

"Our goal is to instill confidence and provide as much usefulness as we can to a build."



www.tandemdiabetes.com

Top Benefits:

- ✓ Reliable Mac compute engenders confidence in the development process
- ✓ ~2x faster build times increase developer productivity
- ✓ More and more powerful hosts for the cost