



Solving EDA Workload Challenges with Azure NetApp Files

A simple solution for complex EDA workloads.

Executive Summary

Semiconductor development requires a high-performance computing infrastructure that can seamlessly scale up and down to accommodate peaks in design and simulation cycles. To get the agility they need, many companies migrate their electronic design automation (EDA) workloads to the cloud. Although the cloud provides the on-demand resources that companies need, a file server must be manually built to meet the functional requirements of the applications, which can generate millions of files per simulation. This build-your-own approach results in poor performance and scalability, which means that companies struggle to keep up with the high read and write requirements and negates the reasons for moving EDA workloads to the cloud in the first place.

Azure NetApp® Files is a complete enterprise file-storage service, delivering high performance and low latency with the agility, cost efficiency, and easy-to-manage enterprise features not typical of any previous cloud storage. It's a simple, easy-to-deploy solution for complex EDA workloads.

1.



Scale Effortlessly

Even though a semiconductor itself is quite small, it takes an army of developers and huge pools of compute and storage resources to get a single chip to market. Hundreds or even thousands of developers work on the design and simulation phases at a given time. Access to on-demand resources is necessary to keep the project flowing and to deliver a high-quality product on time.

With Azure NetApp Files, developers can spin up resources in the cloud as they need them. When they're finished, they can spin down those resources and spin up new resources for simulations. When simulation data comes back, they can spin down the simulation resources and spin up development resources to make edits and adjustments, all in just minutes, continuing the spinning up and down cycles until the final product is delivered.

Unlike any other storage service, Azure NetApp Files lets you change both the capacity and the service level on the fly so that you can scale the service level to target the specific activity. You can run lower-performance SLAs during the development process and dial it up to the Ultra performance tier to speed the simulation runs. And you can do all this with data in place, without requiring any copies.

2.



Maintain Maximum Performance

For manufacturing companies, accelerating time to market is crucial to gain and maintain a competitive edge. It's no different for semiconductor companies. As these companies look to the cloud to help them create a more agile development environment, they find that performance in the cloud simply is not fast enough to meet their needs. This means that many organizations have to choose between agility and performance.

For one chip, engineers may be designing more than 10,000 different things at the same time. And each of those things needs to be tested individually, as well as how it works with the other 9,999 things. This process generates millions of files. To keep development flowing, reading and writing these files is continuous. A performance bottleneck in the architecture can bring the entire operation to a halt. For this reason, cloud solutions have not been a viable option.

Azure NetApp Files makes the cloud a real solution for semiconductor companies. The Azure NetApp Files service is built directly on NetApp technology in the Azure data center, with direct connections to the compute network, so you get the best of both worlds: the agility you need in Azure plus the ability to achieve extremely high performance with ultra-low latency. Three service levels—Standard, Premium, and Ultra—can be changed on demand, allowing you to fine-tune your cost and data performance to the needs of your applications and adjust performance on the fly. Performance for each volume scales with the amount of allocated capacity, up to 4.5Gbps per volume, so performance is not limited as your dataset grows.

3.



Control Costs

Supporting hundreds or thousands of developers with the agile, high-performance infrastructure they need is a costly line item for most EDA organizations. Add to that the computer aided design (CAD) software licenses for each compute node—which average about 8 times the cost of the infrastructure itself—and the IT expenses can become staggering.

Migrating EDA design and test workloads to Azure NetApp Files eliminates the capital expenses involved in purchasing the necessary hardware, most of which is used only for short bursts of time for each simulation run. Having agile cloud resources also means that you pay only for the resources used while the CAD tools are running.

Because Azure NetApp Files is a cloud storage solution with completely unprecedented file performance, developers can spin an environment up, complete their testing quickly, and then spin the environment down. This combination of faster processing and the ability to shut down the environment when finished, without risk of losing data, can significantly reduce software licensing fees, which are charged by the minute of operating time, and lower the cost of the cloud resources, because you pay only for the resources you use.



Why Azure NetApp Files for EDA Workloads

EDA workloads present a unique set of challenges due to their extremely high file counts, massive capacity, heavy metadata operations, and high-performance requirements. Administrators require simplicity and usability in these environments so that they can focus on supporting the application and its users, rather than on managing complex IT architectures—especially in the cloud.

Azure NetApp Files brings enterprise-grade data management and storage to Azure to help you manage your EDA workloads and applications with ease. From design to simulation to tape-out, Azure NetApp Files delivers the massive scale and predictable performance that EDA workloads demand, in a cloud-based solution that's cost effective and easy to use.

Learn how Azure NetApp Files can help your organization accelerate time to market—starting today!

- [Azure NetApp Files Solution Brief](#)
- [Azure NetApp Files web page](#)
- [Azure NetApp Files overview video](#)

About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation, and optimize their operations. For more information, visit www.netapp.com. #DataDriven