



Building your EDA Platform on AWS Cloud with Tech Mahindra

# Abstract

Electronic design automation (EDA) software enables chip designers to design, test and validate complex integrated circuits (ICs) before production. Chip designs have today crossed billion transistor mark and have grown so much that the compute required to finish design-verification cycle in an acceptable amount of time has far exceeded the average on-premises capacity of most enterprises. This coupled with cyclical nature of semiconductor industry, makes it challenging to deliver new ICs in time.

## Introduction

Whenever there is sudden/seasonal increase in demand for new IC chips, it reflects as increase in demand for EDA workload compute. It takes months for procurement of new compute due to supply chain challenges with additional delays for setup, installation, configuration of compute coming into the data centre.

To address this key challenge and remain competitive in the market, TechM's EDA on AWS cloud solution takes account of **already existing on-prem server farm and enable on-need bursting of EDA workloads in AWS cloud**, using pay as you go model, all this in a short duration. This results in **reduced wait time, improved productivity** which enables you to do **lot more** with the existing engineering.



# EDA on Cloud Solution

Tech Mahindra is one of the leading VLSI services companies catering to the top semiconductor clients and a centre of excellence for EDA software. This solution is built in close partnership with AWS for our potential customers.

#### Solution Benefits

- Reduced time to market Faster tape outs primarily with the ability to cater to peak on-demand compute needs, while using workload specific latest CPU reducing the design-synthesis-verification cycle times.
- **Improved productivity, reduced wait** Access to newer and optimized CPU that reduces the job execution time, reduce wait time, and helps in improved productivity of engineering teams.
- **Automation** Setup and deploy multi-site enterprise grade EDA environment quickly, without worrying about data centre and lead time to acquire compute.
- Multi-vendor EDA flows Easily setup best-in-class heterogeneous multi-vendor EDA tool flows.
- **Better Usage of Licenses** Maximizing the value of EDA licenses by increasing the availability of compute and creating them just in time. (on-spot instances).
- **Scalability** Spin up and down EDA environment at will, for running a workload cycle like EDA verification job.
- Cost of ownership Just in time scaling coupled with cloud consumption and compute cost optimization models giving complete cost visibility/control and lowering the cost of ownership for peak demands.
- **Better collaboration** Makes it easier to collaborate between design, verification teams/service partners, different EDA vendors and manufacturing teams across geographical locations.

### Solution Features

- Vendor agnostic, best-in-class EDA tool sets for heterogeneous flows.
- Allows customers to augment existing on-prem CPU farm with cloud.
- Solution uses **IBM LSF scheduler**, which is the current **gold standard f**or EDA workloads.
- Reduce queue wait time for engineers with the ability to scale up/ down compute requirements in minutes, using EC2 Fleet API you can launch any number of compute instances in a single API call.
- Automation with IaC (Terraform, Packer, Shell) and scripting for rapid setup, brings down deployment time to a few hours.
- Enables you to extend on-prem network store as high-performance hybrid cloud network storage powering EDA workloads using **NetApp ONTAP.**
- Cloud enables customer to move to newer CPUs faster, while also right sizing the CPU to the EDA workload.
- **Flexibility** to use the right CPU for the new design/ workloads overcoming the inertia of migration to new generation of CPU platforms. This enables nimbleness and flexibility to the design process and gives a competitive advantage as well as optimize the utilization of EDA licenses.

### Hybrid Cloud Model Base Line Architecture



## The NXT.NOW<sup>™</sup> Advantage

Tech Mahindra is one of the industry leaders in the **semiconductor** domain, anchoring large COEs and partnerships with the leading semiconductor companies across the globe. TechM's deep understanding with the semiconductor ecosystem is an added advantage which enables it to pioneer EDA on cloud solutions for the industry, co-creating this offering with AWS.

AWS is the global leader in cloud business, and TechM's partnership with AWS to co-create this solution will be able to effectively address all business challenges of the design houses/fab-less companies.



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