



Wipro Nuage: Accelerating and Optimizing Silicon Design Workloads on the AWS Cloud



Semiconductor development requires a high-performance computing (HPC) infrastructure that can seamlessly scale up and down to accommodate peaks in design and simulation cycles. Although migrating to the cloud helps with on-demand access to resources, costs can escalate quickly if not managed properly. Hence, enterprises need an intelligent resource manager and predictor to handle high compute and storage requirements for spiky workloads and to optimize the license costs of electronic design automation (EDA) tools.






Built in close collaboration with AWS, Wipro Nuage automates the process of identifying the right resource requirements and enables businesses to minimize the HPC costs of EDA workloads, shift spending from capex to opex, and improve asset utilization.

Key takeaways

It uses **AWS SageMaker** to build, train, and deploy ML models that help in identifying the right data size. When a design engineer submits a job, a Wipro Nuage agent invokes the **AWS Lambda** Service responsible for orchestrating the process of identifying the right size for the workload. If an instance is not available in the pool, Wipro Nuage will use the **AWS Cloud Formation template** to create the rightsized instance for the job.

Wipro Nuage is a smart orchestrator powered by AI/ML that enables enterprises to accelerate silicon design workloads through the prediction and optimization of resources using AWS cloud-native services.

Wipro Nuage on AWS

 Frictionless	 Optimized HPC Costs	 AI/ML Enabled	 Extensible Architecture	 Self-service
<ul style="list-style-type: none"> Ensures a seamless integration and enables quick tools adoption 	<ul style="list-style-type: none"> Provisions compute resources only when EDA licenses are available Delivers lower HPC costs than any other solution on the market Eliminates idle compute times using an auto-provisioning feature that tracks incomplete job requests Enables true elasticity with zero waste 	<ul style="list-style-type: none"> AI/ML prediction engine ensures rightsized compute cores and memory Optimizes short-running jobs through runtime ML predictions with low-cost preemptive capabilities 	<ul style="list-style-type: none"> Offers a solution which is agnostic to cloud provider and HPC scheduler Facilitates business-specific customizations and configuration 	<ul style="list-style-type: none"> Equips engineers with self-service capabilities for managing and governing jobs. Provides a dashboard for monitoring hosts, for monitoring hosts, projects, and license info.
	Predictable Outcome/TTM	Optimized License Cost	Automated and Seamless	




In addition to the benefits illustrated above, certain aspects make Wipro Nuage unique and enable IT teams to:

- **Ensure the rightsizing of compute core and memory** through AI/ML-based prediction engines.
- **Improve predictability and forecast management** so enterprises can use their infrastructure more efficiently.
- **Reduce total cost of ownership** by optimizing operations and monitoring hosts, projects, and license information.

Key features

Wipro Nuage is an automated orchestrator that significantly optimizes HPC costs for EDA workloads. It leverages AI/ML prediction engines to ensure the rightsizing of compute cores and memory in a public, hybrid, or private cloud scenario. In AWS cloud-based environments, it can auto-scale infrastructure resources to meet the dynamically changing needs of current and foreseen workloads.

With Wipro Nuage, semiconductor companies can move away from fractured processes, experiences, and data sets to gain the following benefits:

-  A cost-optimized infrastructure with a potential 100% increase in resource utilization
-  A 20 to 40% reduction in IT costs (40–50% IP/front-end design and 20–25% physical/back-end design)
-  A doubled improvement in asset utilization

Wipro Nuage on AWS is the only solution on the market that addresses the business, financial, and technical challenges the semiconductor industry faces when migrating EDA workloads to the AWS cloud.

Learn more about Wipro Nuage [here](https://www.wipro.com/engineeringNXT/wipro-nuage/).

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strong commitment to sustainability and good corporate citizenship, we have over 220,000 dedicated employees serving clients across six continents. Together, we discover ideas and connect the dots to build a better and a bold new future.

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