wipro | Google Cloud

Wipro Nuage – Accelerating silicon design innovation on Google Cloud

As semiconductor companies explore new frontiers of cloud to better meet their EDA requirements, Wipro has the expertise needed to address the related HPC challenges.

Creating More Efficient Silicon Design Processes

Silicon design being the foundation for high-demand technologies like autonomous driving, vehicle electrification, AI and 5G, time-to-market pressure has pushed chip makers into emphasizing flexibility and efficiency in the silicon design process. The demands of the related workloads challenge the limits of compute and storage, both in terms of quantity and flexibility, neither of which can be achieved in a static data center.

Providing the compute and storage capabilities needed to improve the silicon design process requires an HPC infrastructure that often comes with substantial capital expenditure. Wipro is helping semiconductor companies gain more speed, flexibility and efficiency by optimizing their current processes for migration to Google Cloud. To help companies make this shift, we draw on our Wipro FullStride Cloud Services, which combine industry-leading business solutions and our business outcome-based approach to help you take full advantage of the transformative potential of the cloud.

Beneficial for everything from start-ups to large design enterprises, Wipro Nuage provides a proven framework for addressing both common and unique challenges as you start moving HPC workloads to Google cloud.

EDA Transformation Framework – Vision for EDA on Cloud

Need for transformation → **Elements of transformation** → **Execution of transformation**

Objectives and Challenges	People and Process	Grid	Storage	Apps and Tools	Roadmap Execution
Transform Strategy – max benefits min effort	Workload readiness for Cloud	Hybrid Architecture – Cloud Integration and provisioning	Storage Management and Migration	License Management, Tracking and Optimization	Transform Plan Development and Refinement
Transformation Plan	People and process readiness	Tools of optimization	Storage movement and synchronization	EDA Apps and Tools Management	Change Management and Transition
	Metrics – latency, efficiency, utilization	Grid Engine Management	Storage movement and synchronization	Business function management	

Wipro Nuage uses a silicon design transformation framework that takes a holistic, enterprise architecture-based approach. It addresses all aspects of the silicon design lifecycle, including people and process readiness, cloud and on-premises infrastructure, storage and license optimization.

PEOPLE AND PROCESSES:

As you move processes to the cloud, specific aspects will need to be made more efficient. For example, new skills may need to be developed or small changes in existing processes or workloads may need to be incorporated. Our consulting services will identify and prioritize areas for improvement and help create a plan for achieving them.

GRID:

Electronic design automation (EDA) workloads run more efficiently if the grid is set appropriately. In a static data center, workloads instances can be constrained by the available computing resources. As workloads move to the cloud, they can access virtually unlimited computational power, but it must be managed for efficiency and cost. Wipro Nuage uses an artificial intelligence/machine learning (AI/ML)-based tool that optimizes HPC design flows to ensure that the grid runs workloads efficiently – assigning the right size and type of instance and automatically scaling up and down as needed.

STORAGE:

Wipro consultants will review your storage and network architecture to determine areas for improvement. When coupled with recommendations from Wipro Nuage tools, you can further optimize your workloads by making the I/O more efficient. As processes move to the cloud, there is often a substantial amount of data within the enterprise that needs to be made available there. Our infrastructure specialists support effective data migration.

APPS AND TOOLS:

Wipro Nuage uses an intelligent resource manager and predictor to effortlessly meet the HPC and storage requirements of spiky workloads and minimize the licensing costs of EDA tools. It automates the process of identifying the right resource requirements so you can minimize the HPC costs of EDA workloads, shift spending from CAPEX to OPEX and improve asset utilization.

Wipro Nuage also uses **Google Cloud Platform's Vertex AI** to build, train and deploy ML models that help identify the right data size. For example, when a design engineer submits a job, Wipro Nuage invokes **Cloud Endpoints**, which identifies the right size for the workload. If an instance is not available in the pool, Wipro Nuage uses **Google Cloud Deployment Manager** to create the right-sized instance for the job.

Wipro transformation services, powered by Wipro Nuage on the GCP, let you to accelerate silicon design workloads by better predicting and optimizing resources.

Key Features

Wipro Nuage is an automated orchestrator that optimizes HPC costs for EDA workloads and uses an AI/ML prediction engine to right size compute cores and memory in public, hybrid and private cloud scenarios. In GCP environments, it auto-scales infrastructure resources to dynamically meet the needs of current and forecasted workloads.

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

Optimize infrastructure with a potential for zero waste	**Reduce IT costs by 20 to 40% (40 to 50% for IP/front-end design and 20 to 25% for physical/back-end design)**	**As much as double asset utilization**

Key Takeaways

As Wipro consultants help you transform your HPC processes in anticipation of moving them to the cloud, our goal is to make your organization more:

Frictionless:

Process, people and infrastructure changes have minimal impact on the end user.

Self-reliant:

Given how EDA is one of your core business processes, we help make your organization and IT environments more self-sufficient and self-governing.

Efficient:

When integrated with your enterprise architecture, our tools and services are designed to make your grid more efficient.

AI/ML driven:

Our services use an AI/ML engine that helps reduce costs, improve performance, optimize license usage and allocate storage more efficiently.

Wipro Nuage has reduced the costs of our existing clients by 20-60%. It successfully addresses the business, financial and technical challenges facing the semiconductor industry as it migrates EDA workloads to the GCP.

Learn more about Wipro Nuage on Google Cloud here.