HCLTech
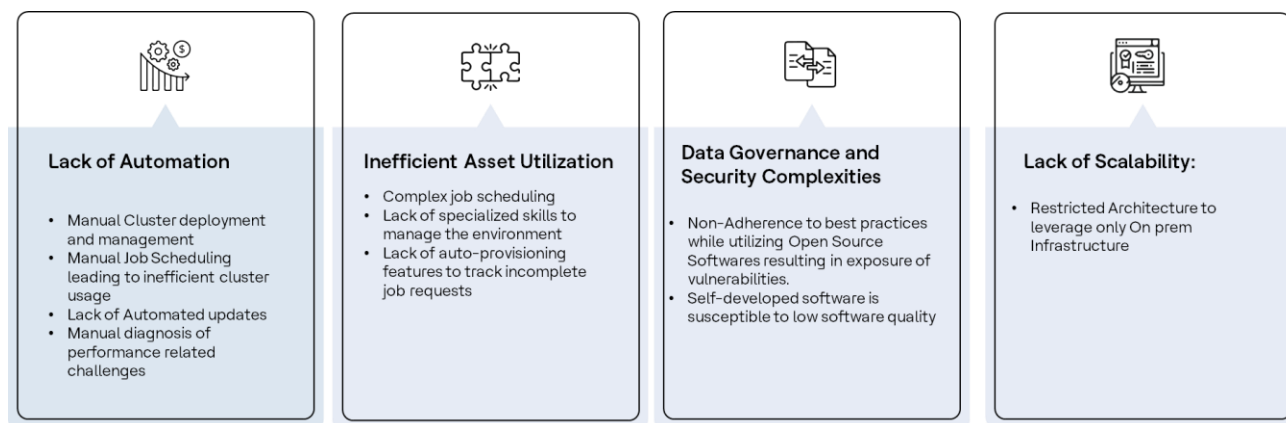# Services for Azure HPC

In today's competitive business landscape, High Performance Computing (HPC) has emerged as a game-changer for enterprises, empowering them to process large data sets and complex simulations faster. The result is accelerated innovation cycles with improved efficiency.

High Performance Computing (HPC) is a key enabler for solving complex problems in science, engineering, and business domains. HPC applications require high levels of performance, scalability, and reliability, which can be challenging to achieve on traditional infrastructure.
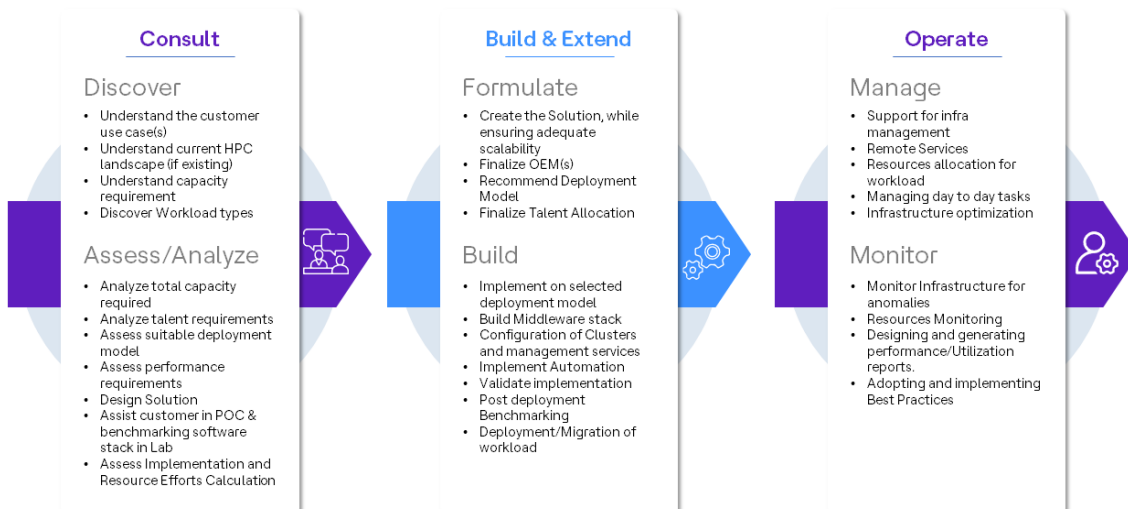
Challenges:

Lack of Automation

- Manual Cluster deployment and management
- Manual Job Scheduling leading to inefficient cluster usage
- Lack of Automated updates
- Manual diagnosis of performance related challenges

Inefficient Asset Utilization

- Complex job scheduling
- Lack of specialized skills to manage the environment
- Lack of auto-provisioning features to track incomplete job requests

Data Governance and Security Complexities

- Non-Adherence to best practices while utilizing Open Source Softwares resulting in exposure of vulnerabilities.
- Self-developed software is susceptible to low software quality

Lack of Scalability:

- Restricted Architecture to leverage only On prem Infrastructure

Microsoft Azure offers a comprehensive portfolio of HPC solutions that can meet the diverse needs of HPC users, from on-demand clusters and virtual machines to specialized hardware and software services. However, migrating, deploying, and optimizing HPC workloads on Azure can be a daunting task for many organizations, especially if they lack the necessary skills and experience. That's why HCLTech, a leading global technology company, offers a range of services and solutions for HPC on Azure, to help customers leverage the power and flexibility of the cloud for their HPC needs.

HCLTech's services and solutions for HPC on Azure enable customers to harness the power and flexibility of the cloud for their HPC needs. Whether customers are looking for HPC assessment and planning, migration and deployment, optimization and management, or ready-to-use solutions, HCLTech can help them achieve their HPC goals on Azure.

HCLTech services for Azure HPC:

Consult

Discover

- Understand the customer use case(s)
- Understand current HPC landscape (if existing)
- Understand capacity requirement
- Discover Workload types

Assess/Analyze

- Analyze total capacity required
- Analyze talent requirements
- Assess suitable deployment model
- Assess performance requirements
- Design Solution
- Assist customer in POC & benchmarking software stack in Lab
- Assess Implementation and Resource Efforts Calculation

Build & Extend

Formulate

- Create the Solution, while ensuring adequate scalability
- Finalize OEM(s)
- Recommend Deployment Model
- Finalize Talent Allocation

Build

- Implement on selected deployment model
- Build Middleware stack
- Configuration of Clusters and management services
- Implement Automation
- Validate implementation
- Post deployment Benchmarking
- Deployment/Migration of workload

Operate

Manage

- Support for infra management
- Remote Services
- Resources allocation for workload
- Managing day to day tasks
- Infrastructure optimization

Monitor

- Monitor Infrastructure for anomalies
- Resources Monitoring
- Designing and generating performance/Utilization reports.
- Adopting and implementing Best Practices

Why HCLTech?

- **Domain expertise:**
  - A very large-scale integration center of excellence (CoE)
  - Tested use cases and reference architectures.
- **HPC expertise:** Enables efficient adoption of HPC techniques by performing-
  - infrastructure tuning and optimization,
  - high-performance data analytics (HPDA)
- **Cloud expertise:**
  - Proven capabilities across Azure cloud advisory and assessment, product development, adoption planning and execution, cloud security, and operations
  - Strong contextual knowledge and experience across various industry domains. Dedicated Cloud business unit with deep expertise on industry verticals.
- **Strategic alliances:**
  - 35+ years partnerships with Microsoft
  - Strong partner ecosystem
- **Industry recognition**: HCLTech has been recognized as leader in multiple analyst reports in Data center and public cloud services.

Success Stories:

Major automobile firm in Europe moves HPC to Azure cloud	
- Helped the customer achieve a scalable infrastructure with optimized performance and cost control. - Enabled significant performance improvement from AWS other hyperscalers - Ensured same performance of the HPC application on Azure as that of on-prem	

HCLTech | Supercharging Progress™