



Tech Skills for TPM (Cloud, system design)

Course Description:

This course equips Technical Program Managers with foundational knowledge of cloud computing, system design, and distributed architectures. Through hands-on labs and real-world scenarios, TPMs will learn to evaluate technical trade-offs, collaborate effectively with engineering teams, and contribute to architectural decisions. Ideal for TPMs seeking to bridge the gap between business needs and technical execution.

Course Learning Objectives:

By the end of this course, Technical Program Managers (TPMs) will be able to:

- Understand key cloud computing concepts (laaS, PaaS, SaaS) and major cloud platforms.
- Grasp fundamentals of system design and distributed architectures.
- Collaborate effectively with engineering teams using architectural thinking.
- Evaluate trade-offs in design decisions (scalability, availability, consistency)
- Contribute to planning, estimation, and risk management with technical insight.
- Map business requirements to technical solutions.

Pre-Requisite:

- Familiarity with software development life cycle (SDLC)
- Basic understanding of cloud concepts (nice to have)
- Comfort with reading diagrams and technical documentation.

Category	Course Level	Region (IDC/US)	Duration
DS/AI/ML	Intermediate	IDC	16 Hours 4 hrs. * 4 days





Agenda:

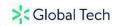
Day	Module Name	Topics Covered	Total	Any Use Cases
			Duration	(If Applicable
				during this day)
1	Cloud Computing			
	Foundations for TPMs			
	Cloud 101: Core Concepts	What is the cloud? laaS, PaaS, SaaS	1 hour	
		Providers: Azure, GCP		
		Regions, Zones, and Global Infrastructure		
	Key Cloud Services	Compute: GCE, App Engine: Azure Blob,	1.5 hour	
		GCS		
		Databases: RDS, DynamoDB, Cloud SQL		
	Cloud-Native vs On-Prem	When to use what: trade-offs and	1.5 hours	Hands-On Lab:
	vs Hybrid	examples Cloud cost considerations		Design a basic web
		and pricing models		app architecture on a
				chosen cloud
				(GCP/Azure)
2	Introduction to System			
	Design Principles			
	System Design Basics	Monolith vs Microservices	1 hour	
		Scalability, Reliability, Availability		
		CAP Theorem and its impact		
	Key Components of	Load balancers, databases, queues, caches.	1.5 hours	
	System Design	Stateless vs stateful services		
		API gateways and service mesh		





	Metrics and SLAs for	Latency, Throughput, Uptime	1.5 hours	Workshop:
	TPMs	SLAs, SLOs, SLIs — What TPMs should		Whiteboard a basic
		monitor		system for an online
				file storage/sharing
				platform
3	Designing Scalable			
	Systems and Cloud			
	Integration			
	Design Patterns for Scale	Horizontal scaling, partitioning, and replication	1 hour	
		Caching strategies (CDNs, Redis, Memcached)		
		Event-driven systems (Pub/Sub, Kafka)		
	Designing for Failures and	Circuit breakers, retries, rate limiting.	1.5 hours	
	Resilience	High availability and multi-region design		
	Security and Compliance	Identity & access (IAM, RBAC)	1.5 hours	Hands-On Case
	Basics	Secure design practices		Study:
		Compliance: GDPR, SOC2, HIPAA (overview)		Design a real-time
				collaborative
				document editing
				service (Google Docs-
				like)
4	TPM-Focused Planning,			
	Communication &			
	Trade-offs			
	Evaluating Tech Decisions	Cost vs Performance vs Maintainability	1 hour	
		Build vs Buy decisions.		
		Dependency and integration risks		
	Technical Communication	Writing technical specs & PRDs with	1.5 hours	
	for TPMs	architectural alignment		
		Effective diagramming: sequence, component,		
		deployment diagrams		





	Communicating with engineers, architects, and		
	leadership		
Final Capstone Design	TPMs design & present a system (e.g., ride-	1.5 hours	
Project	sharing backend, video streaming platform)		
	Evaluate trade-offs and prepare a technical		
	narrative Peer review session		

Daily Learning Outcomes:

Day	Learning Outcomes
1	Participants will be able to Understand core cloud concepts, key services, and how to design basic cloud architectures.
2	Participants will be able to Learn foundational system design principles and whiteboard scalable, reliable system architectures.
3	Participants will be able to Apply design patterns for scalability, resilience, and security in cloud-integrated systems.
4	Participants will be able to Evaluate technical trade-offs and enhance communication through diagrams, specs, and a capstone design project.