

Introduction to Cloud Computing: A Vendor-Neutral Mental Model

- Cloud computing: on-demand network access to a shared pool of configurable computing resources
- Cut through marketing jargon to translate vendor pitches and ask sharper questions
- A durable framework applicable across AWS, Azure, GCP, and private clouds
- Course roadmap: principles, economics, service models, deployment, security, and practical questioning frameworks



Why Cloud? The Pre-Cloud Reality and the Business Case



"Owning hardware, forecasting capacity, and long procurement cycles slow innovation"



"Underutilization and overprovisioning frustrate both technical and business teams"



"Agility, cost efficiency, and CapEx-to-OpEx shift make cloud inevitable"



"Finance, legal, procurement, and project management must adapt to new shared responsibility models"



The Core Mental Model: NIST's Five Essential Characteristics



- **On-demand self-service:**
provision resources without
human interaction”



- **Broad network access:**
reachable from any device
over standard networks”



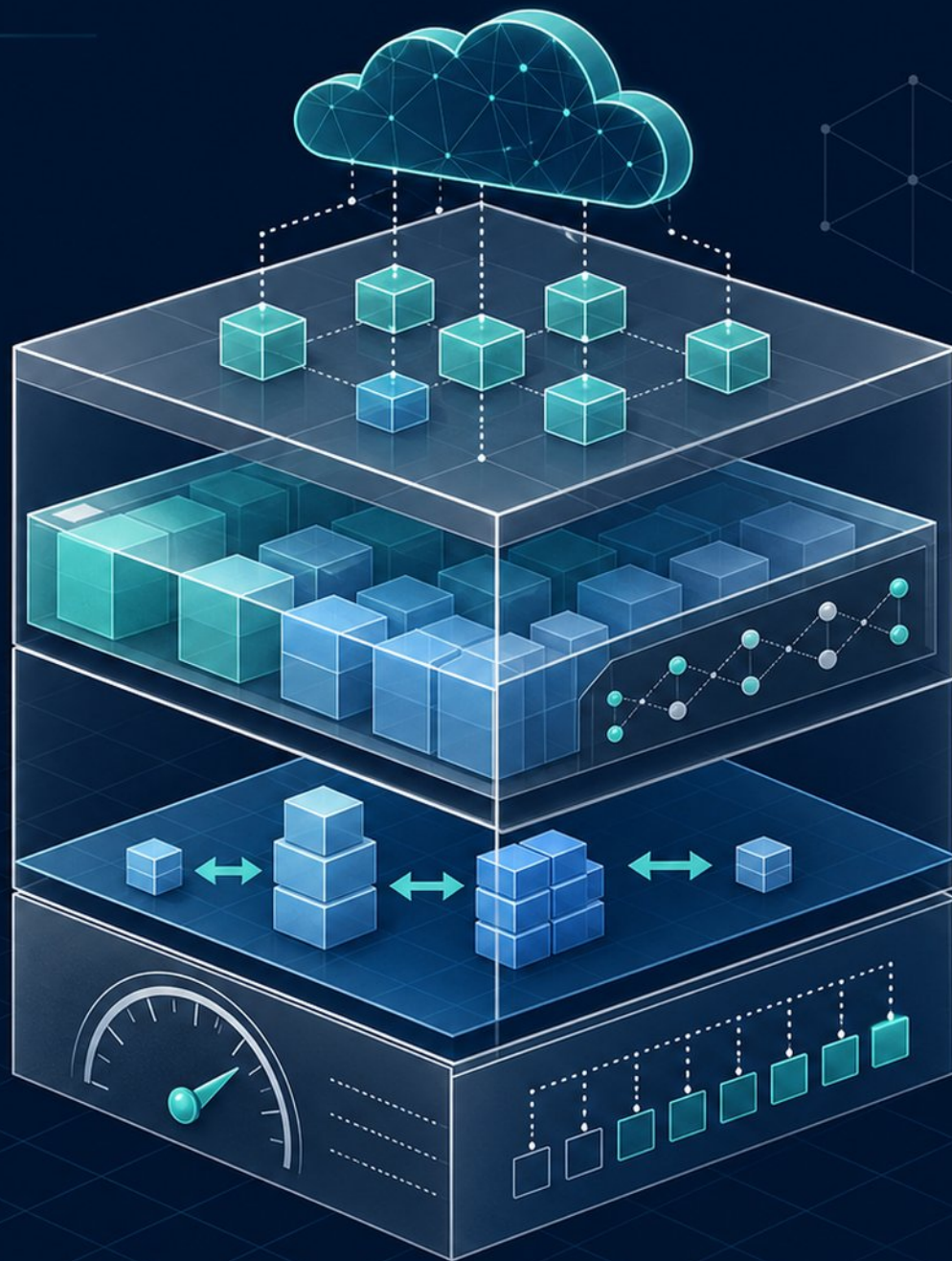
- **Resource pooling:**
shared infrastructure
with data isolation”



- **Rapid elasticity:**
scale up and down
instantly with demand”

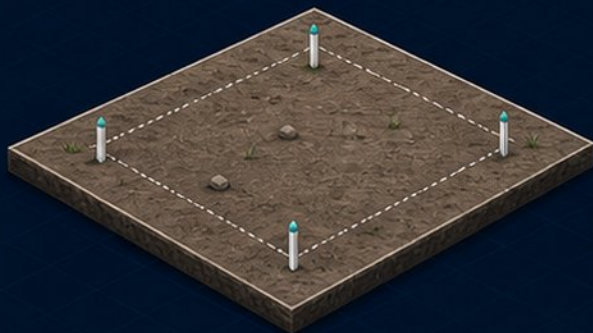


- **Measured service:**
pay only for what you use,
like a utility”



Service Models: IaaS, PaaS, SaaS, and the Shared Responsibility Line

IaaS



Like renting **bare land**

PaaS



Like a **furnished office**

SaaS



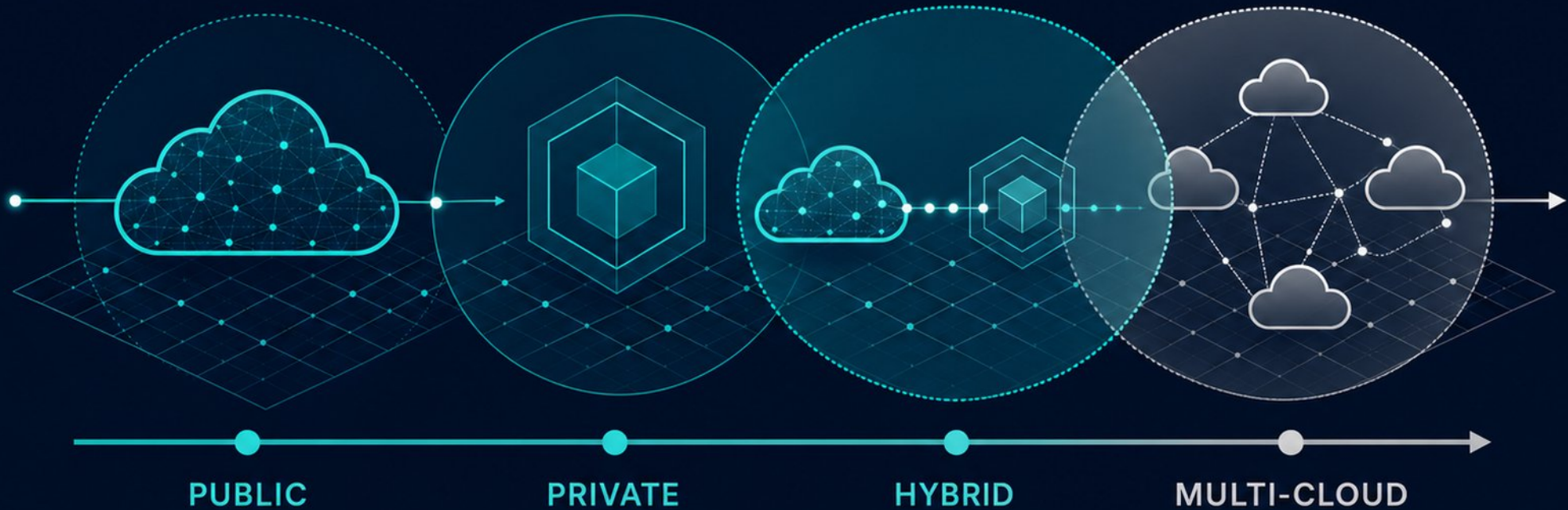
Like a **serviced co-working space**

shared responsibility

	IaaS	PaaS	SaaS
Applications	Customer manages	Customer manages	Customer manages
Data	Customer manages	Customer manages	Customer manages
Runtime	Customer manages	Customer manages	Provider manages
Middleware	Customer manages	Provider manages	Provider manages
Operating System	Customer manages	Provider manages	Provider manages
Virtualization	Provider manages	Provider manages	Provider manages
Servers	Provider manages	Provider manages	Provider manages
Storage	Provider manages	Provider manages	Provider manages
Networking	Provider manages	Provider manages	Provider manages

- **IaaS:** Virtual machines, storage, networks—you manage the OS and up, like renting bare land.
- **PaaS:** Managed runtime—you bring code, they handle the stack, like a furnished office.
- **SaaS:** Ready-to-use apps—you manage users and data, like a serviced co-working space.
- **Shared Responsibility:** Provider secures the cloud; you secure what you put in the cloud.
- **Ask vendors:** "What do I still need to configure and protect?"

Deployment Models: Public, Private, Hybrid, and Multi-Cloud



- Public cloud: shared infrastructure, pay-as-you-go, zero CapEx—ideal for variable workloads.
- Private cloud: dedicated environment for compliance and data sovereignty needs.
- Hybrid cloud: dominant architecture at 73% of organizations, connecting private and public.
- Multi-cloud: 89% of enterprises use multiple providers, yet only 34% have mature governance.
- Most multi-cloud is accidental (M&A, siloed teams), not a deliberate strategy.

The Economics of Cloud: CapEx, OpEx, and FinOps



- CapEx vs. OpEx: large upfront buys vs. predictable monthly bills



- Pay-as-you-go, reserved, and savings plans still waste 29% of IaaS/PaaS spend



- Hidden costs: data egress fees, idle resources, and architectural inefficiencies



- FinOps: cross-team accountability between engineering, finance, and business



- 2026 FinOps covers SaaS, licensing, and AI spend aligned with executive strategy

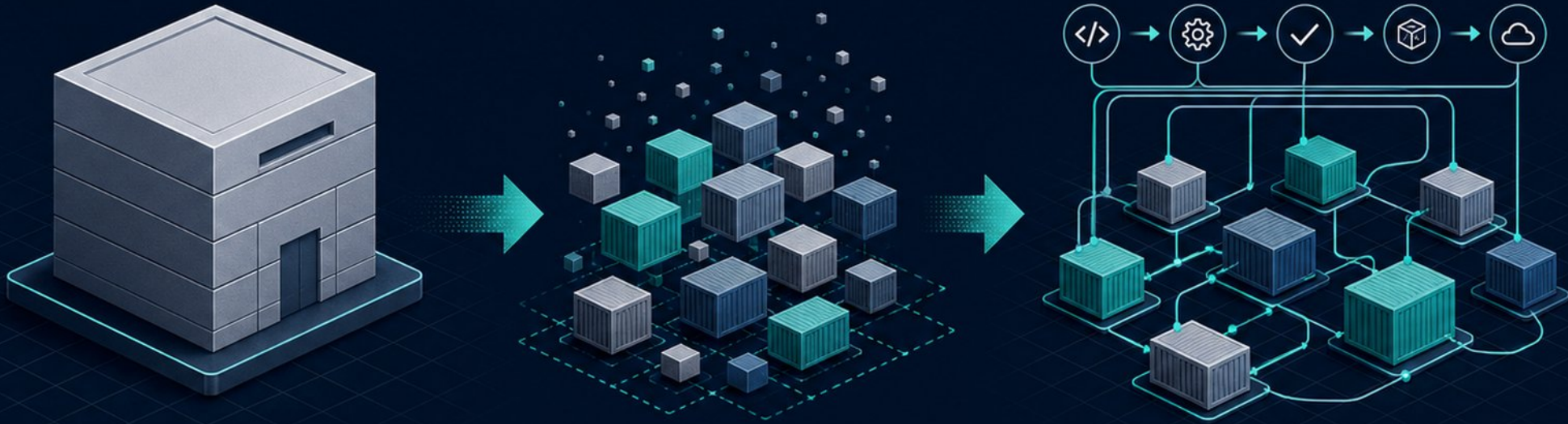


Security, Compliance, and Trust: A Partnership, Not a Product

- Cloud security is a partnership: provider secures the foundation, you configure access, encryption, and identity
- Compliance frameworks (SOC 2, ISO 27001, GDPR) map to shared responsibility matrices
- Ask about key ownership, rotation, HSM usage, and key destruction processes
- Identity and access management is the new perimeter: least privilege, separation of duties, continuous monitoring
- Zero-trust: never trust, always verify—cloud both enables and complicates this model



Cloud-Native: What the Term Means and What It Changes



- Cloud-native vs. lift-and-shift: designed for elasticity, not just VM migration



- Containers, microservices, and orchestration automate deployment and scaling



- DevOps and continuous delivery enable faster, safer releases



- Unified observability detects incidents 3.2x faster in multi-cloud



- Platform engineering teams are 2.6x more likely to succeed in multi-cloud

AI and Cloud: The Inseparable Duo Shaping 2026 Strategy



- AI is the execution layer of cloud: 99% of orgs say AI increases cloud investment need



- GenAI adoption surged to 58% of public cloud services, adding security and cost challenges



- AI workloads change economics: GPU instances cost 15x more than CPU



- 85% of large enterprises now have a dedicated AI governance team or senior leader



- Cloud and AI strategies must be developed in tandem for responsible scaling



Practical Framework: Asking the Right Questions



Use a repeatable framework for any cloud discussion or vendor pitch



Assess workloads, data gravity, regulations, and maturity first



Ask vendors: shared responsibility boundaries and exit strategies



Evaluate lock-in, portability, and migration cost vs. staying put



Scenario: mid-size firm moving a customer-facing app to cloud

? Who is responsible for what?

? Where does my data live and how is it protected?

? How easy is it to exit or migrate?

? What are the total costs over time?

? What could prevent portability?

CLOUD CONTRACT

Next Steps: Continuing Your Cloud Literacy Journey



- **Mental model one-pager:** NIST 5 characteristics, 3 service models, shared responsibility, FinOps



- **Vendor-neutral certs:** CompTIA Cloud+ for multi-cloud ops, CSA CCSK for cloud security



- **Filter by concepts like zero trust or FinOps,** not product announcements



- **In your next meeting, ask:** "What service model is this? Who is responsible for what?"



PersonWise.

PersonWise • AI digital-human course platform



Scan the code or click anywhere to watch this course live, with voice Q&A

personwise.ai/t/2efba304/public