Below is a **hands-on DevOps roadmap** using **AWS (EC2, EKS, ECR, S3, EBS, IAM, VPC)** plus **Docker, Kubernetes, Terraform, Ansible, Jenkins, GitHub Actions, Prometheus & Grafana**, showing **how** and **when** to add or scale each service as your user base grows (1 → 10 → 100 → 1 000 → 10 000 users). You'll learn the **who**, **what**, **why**, and **how**, plus **approximate monthly costs** so you can speak confidently in interviews.

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1. Service Roles & Unit Costs

Service	Role	Cost Component
IAM / VPC	Access control & network isolation	No charge (Amazon EC2 T3 Instances – Amazon Web Services (AWS))
EC2 (t3.small)	Kubernetes worker nodes	$0.0208/hr → $14.98/mo (EC2 On-Demand Instance Pricing – Amazon Web Services)
EKS Control Plane	Managed K8s control plane	$0.10/hr → $72/mo for standard support ([Amazon EKS Pricing
ECR	Docker image registry	$0.10/GB-month storage (Amazon Elastic Container Registry Pricing - Amazon Web Services)
S3	Object storage (backups, assets)	Pay-as-you-go, no minimum; 12-month free tier (5 GB) (Amazon S3 Pricing - Cloud Object Storage - AWS, Amazon S3 - Cloud Object Storage - AWS)
EBS (gp3)	Block storage for pods/data volumes	$0.125/GB-month (High-Performance Block Storage– Amazon EBS Pricing - AWS, Amazon EBS Volume Types - Amazon Web Services)
Docker	Containerization	OSS, free
Kubernetes	Orchestration	OSS, free (you pay infra above)
Terraform	Infrastructure as Code	OSS free; Terraform Cloud free tier
Ansible	Configuration management	OSS free
Jenkins	CI server (optional)	OSS free
GitHub Actions	CI/CD pipelines	Free 2 000 min/mo public; $0.008/min beyond (About billing for GitHub Actions, Usage limits, billing, and administration - GitHub Actions)
Prometheus & Grafana	Monitoring & dashboards	OSS free; runs on EC2/EKS nodes

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2. Scale-Up Cost Estimates

Users	EKS	EC2 Nodes	ECR	S3 (5	EBS	GitHub	Total/mo

	CP ($72)	(t3.small)	(1 GB)	GB→beyond)	(20 GB→)	Actions (1 000 min→)	
1	$72	1 × $14.98	$0.10	Free (5 GB)	$2.50	$8.00	**$97.58**
10	$72	1 × $14.98	$0.10	$0.50 (50 GB)	$5.00	$8.00	**$100.58**
100	$72	2 × $29.96	$0.50	$2.00 (200 GB)	$10.00	$16.00	**$129.46**
1 000	$72	4 × $59.92	$1.00	$5.00 (500 GB)	$25.00	$32.00	**$194.92**
10 000	$72	8 × $119.94	$2.00	$10.00 (1 TB)	$50.00	$64.00	**$427.76**

- **EC2 cost** from t3.small: $0.0208/hr ≈ $14.98/mo (EC2 On-Demand Instance Pricing – Amazon Web Services).
- **EKS control plane**: $0.10/hr standard support (Amazon EKS Pricing | Managed Kubernetes Service - AWS, Managed Kubernetes Service - Amazon EKS FAQs).
- **ECR**: $0.10/GB-mo (Amazon Elastic Container Registry Pricing - Amazon Web Services).
- **S3**: pay-as-you-go; free first 5 GB for 12 months (Amazon S3 Pricing - Cloud Object Storage - AWS, Amazon S3 - Cloud Object Storage - AWS).
- **EBS gp3**: $0.125/GB-mo (High-Performance Block Storage– Amazon EBS Pricing - AWS, Amazon EBS Volume Types - Amazon Web Services).
- **GitHub Actions**: $0.008/min Linux, assume 1 000 min use → $8 (About billing for GitHub Actions, Usage limits, billing, and administration - GitHub Actions).

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3. Timeline & Actions

Phase	Users	Actions	Who
Initial (P1)	1	- Terraform: provision VPC, IAM roles - ECR: push initial image - EKS: create cluster + 1 node	DevOps / Developer
Scale-up (P2)	10	- Ansible: patch nodes - Terraform: upgrade worker → t3.small	DevOps
Scale-up (P3)	100	- Terraform: add second nodegroup (2×t3.medium) - Enable Cluster Autoscaler	DevOps
Scale-up (P4)	1 000	- Terraform: add 4×t3.large nodes - Implement Kubernetes HPA for app pods	DevOps
Scale-up (P5)	10 000	- Terraform: add 8×t3.xlarge - Integrate Spot Instances & node taints/affinities	DevOps
CI/CD	All	- Jenkins or GitHub Actions pipelines	Developer/DevOps

		for build/test/deploy - Store infra code in GitHub & Terraform	
Monitoring	All	- Deploy Prometheus & Grafana on EKS via Helm - Configure alerts for CPU, memory, errors	DevOps
Backup & DR	All	- S3: daily backups of DB dumps - EBS Snapshots & archival in Glacier	DevOps

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4. Hands-On Skills Gained

- **Infrastructure as Code**: Terraform modules for VPC, EKS, nodegroups.
- **Configuration Management**: Ansible playbooks for patching and security.
- **CI/CD**: Jenkins or GitHub Actions workflows, Docker builds, ECR pushes.
- **Container Orchestration**: Kubernetes on EKS, Cluster Autoscaler, HPA.
- **Monitoring & Alerting**: Prometheus metrics, Grafana dashboards.
- **AWS Services**: IAM policies, VPC networking, EBS volumes, S3 lifecycle, ECR registry.

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5. Cost Optimization Tips

- **Savings Plans / Reserved Instances**: Up to 72% savings on EC2/EKS (EC2 Reserved Instance Pricing – Amazon Web Services).
- **Spot Instances**: Use for non-critical workloads to save ~90% on compute.
- **Auto-Scaling**: Combine Cluster and Pod autoscaling to only pay for needed capacity.
- **ECR Lifecycle Policies**: Clean stale images to reduce storage bills.
- **S3 Lifecycle**: Transition infrequently accessed data to Infrequent Access/Glacier tiers.

With this **detailed plan**, you'll not only deploy and scale your copy trading app but also gain practical experience with the full AWS + DevOps toolchain, complete with real-world cost insights—perfect preparation for any interview.