

TECHNICAL SEMINAR

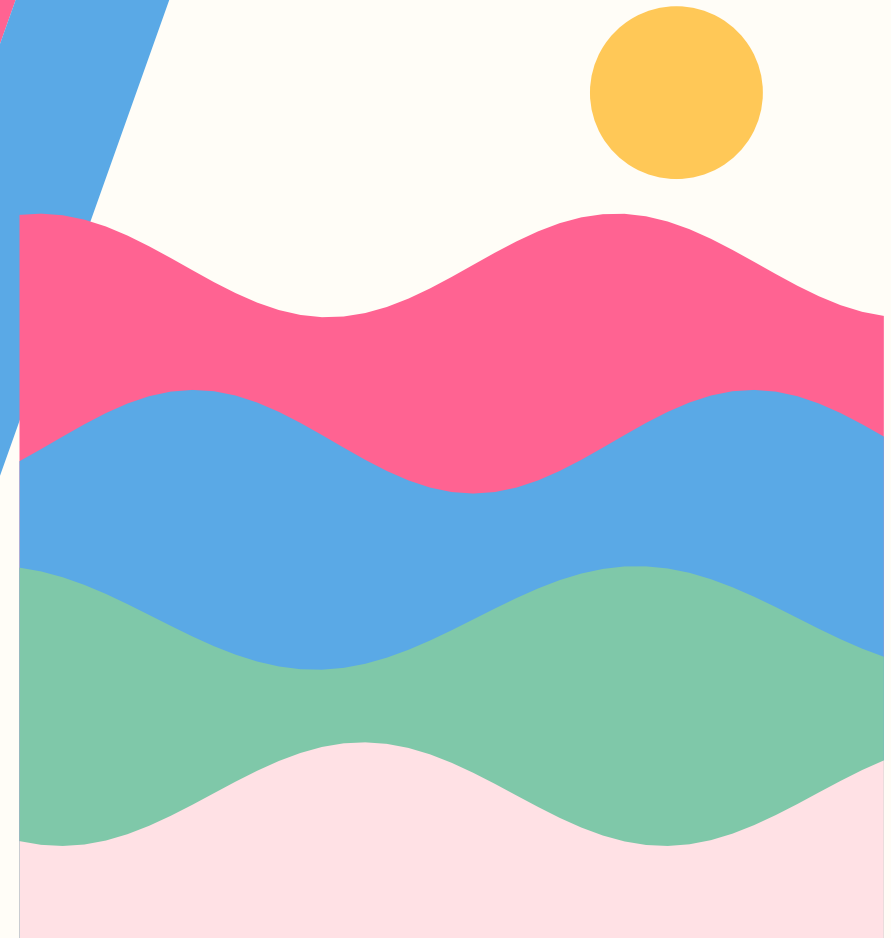
Cloud-Native Applications

Microservices, containers and DevOps

PRESENTED BY
Ishita Verma, Roll
No. 21CS045

GUIDE
Dr. S. Banerjee

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02 | Agenda

01

Overview

02

Core concepts

03

Applications

04

Challenges

05

Future

SECTION 01

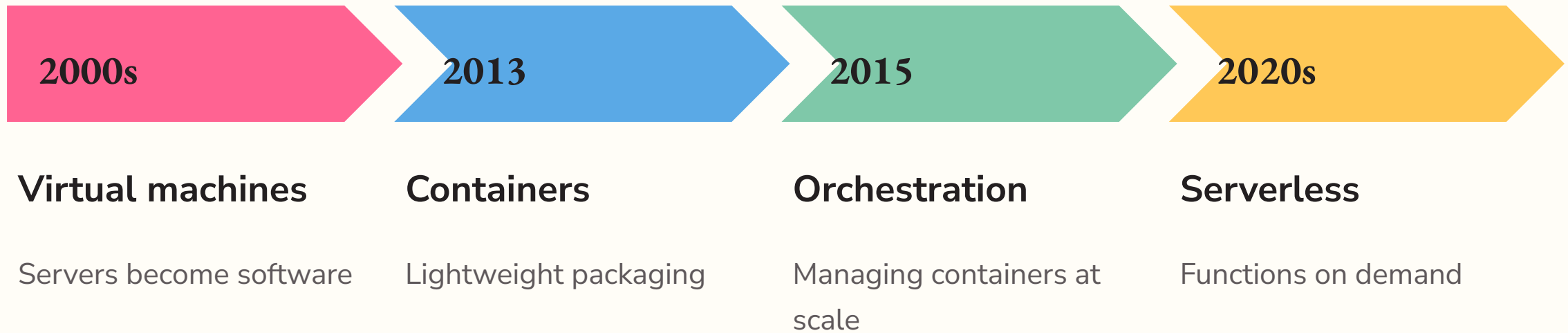
OVERVIEW

04 | Introduction

- ▶ Cloud-native apps are built to run on modern cloud platforms
- ▶ They use microservices, containers and automation
- ▶ They scale and update without downtime
- ▶ Most new software is designed this way



05 | Evolution



SECTION 02

CORE CONCEPTS

07 | Key concepts

1

Microservices

Small services that do one job each.

2

Containers

Packaged apps that run anywhere.

3

CI/CD

Automated build, test and deploy.

08 | How it works

1 Code

Small, independent services

2 Package

Build container images

3 Deploy

Orchestrator runs them

4 Observe

Logs, metrics, traces

09 | Architecture

Services, containers and an orchestrator.

Each microservice ships in its own container. An orchestrator schedules containers across machines, restarts failures and scales services up or down with traffic.



Architecture diagram

SECTION 03

APPLICATIONS

11 | Applications



Image 1

E-commerce

Scale during big sales.



Image 2

Banking apps

Release features weekly.

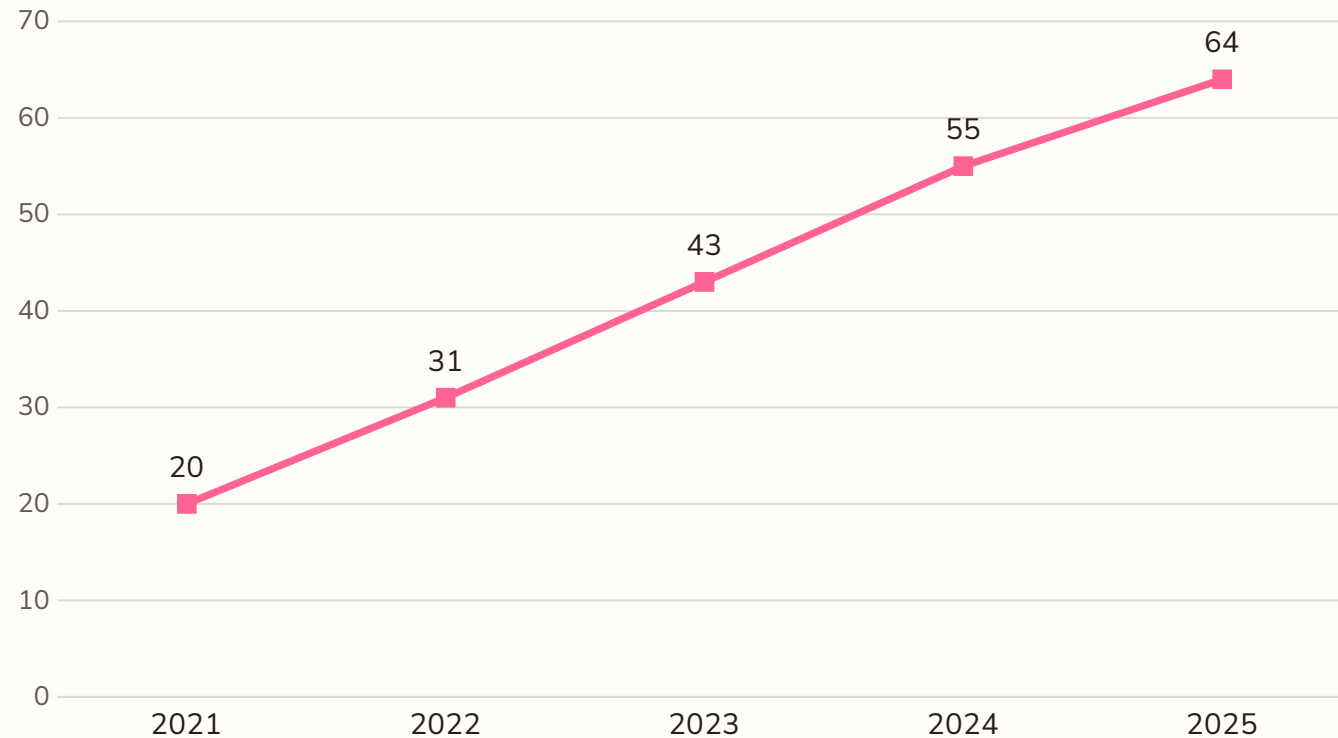


Image 3

Streaming

Serve millions at once.

12 | Adoption trend



Organisations running containers in production (sample data).

Sample data for illustration — replace with your own figures.

13 | Advantages and limitations

Advantages

- ✓ Scales with demand
- ✓ Faster releases
- ✓ Resilient to failures
- ✓ Portable across clouds

Limitations

- More moving parts
- Needs DevOps skills
- Monitoring complexity
- Cost control

14 | Open challenges

1

Complexity

Many services to manage.

2

Skills

Training needed.

3

Security

Supply-chain risks.

SECTION 04

FUTURE

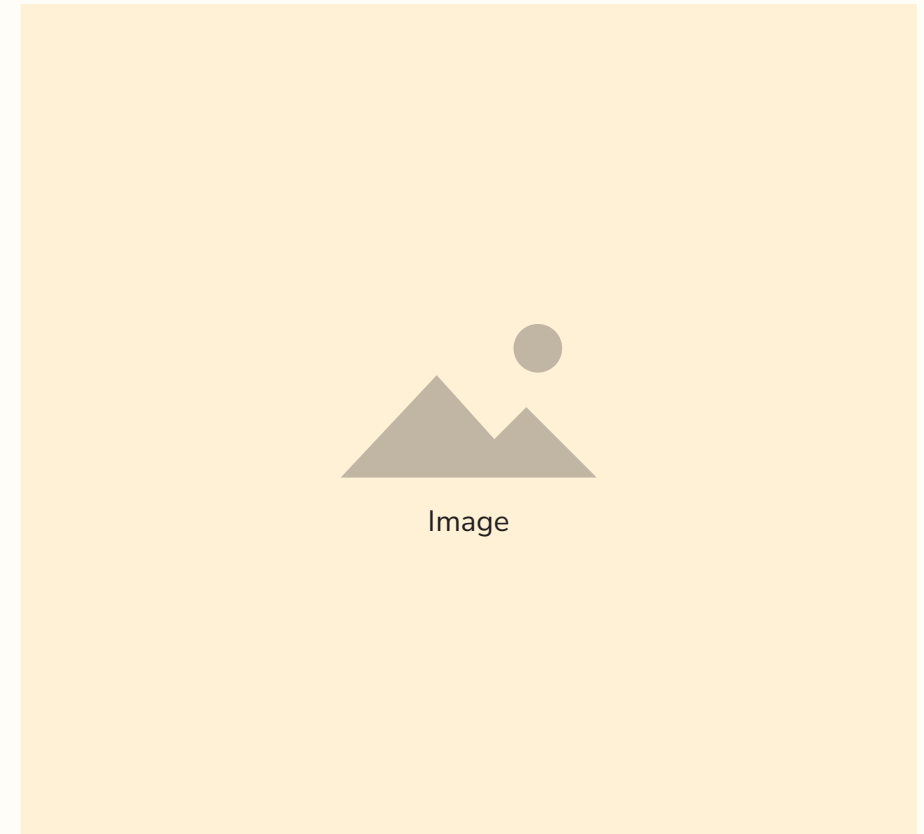


Platform engineering will make
cloud-native easier for every
team.

Looking ahead

17 | Conclusion

- ▶ Cloud-native is the default for new apps
- ▶ Automation is the real advantage
- ▶ Start simple and grow



18 | References

- ▶ [1] Survey paper on the topic, IEEE Access, 2024.
- ▶ [2] Textbook chapter covering fundamentals, 2023.
- ▶ [3] Recent conference paper on applications, 2025.
- ▶ [4] Industry white paper (generic reference).



Questions?

Thank you for listening.

Ishita Verma

Department of Computer Science

