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MASTER SYSTEM DESIGN IN JUST 21 DAYS

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Day 1

Introduction to System Design

🔶 Understand the importance of system design in building scalable, reliable systems.

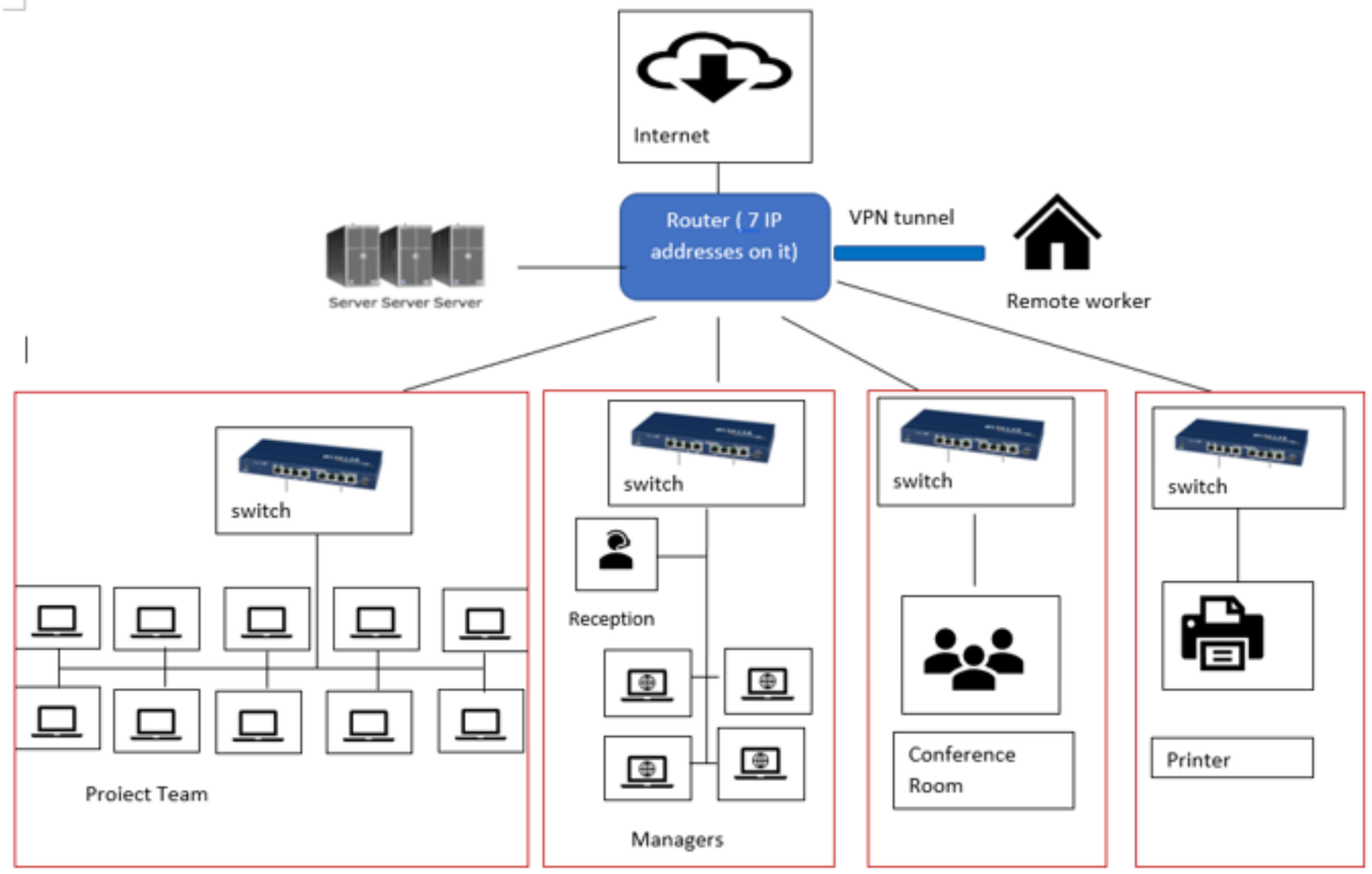
🔶 Explore the key components of system design, such as load balancing, caching, and databases.

Day 2

Networking Basics

🔷 Dive into networking concepts, including protocols, IP addressing, and routing.

🔷 Learn about the OSI model and how it relates to system design.



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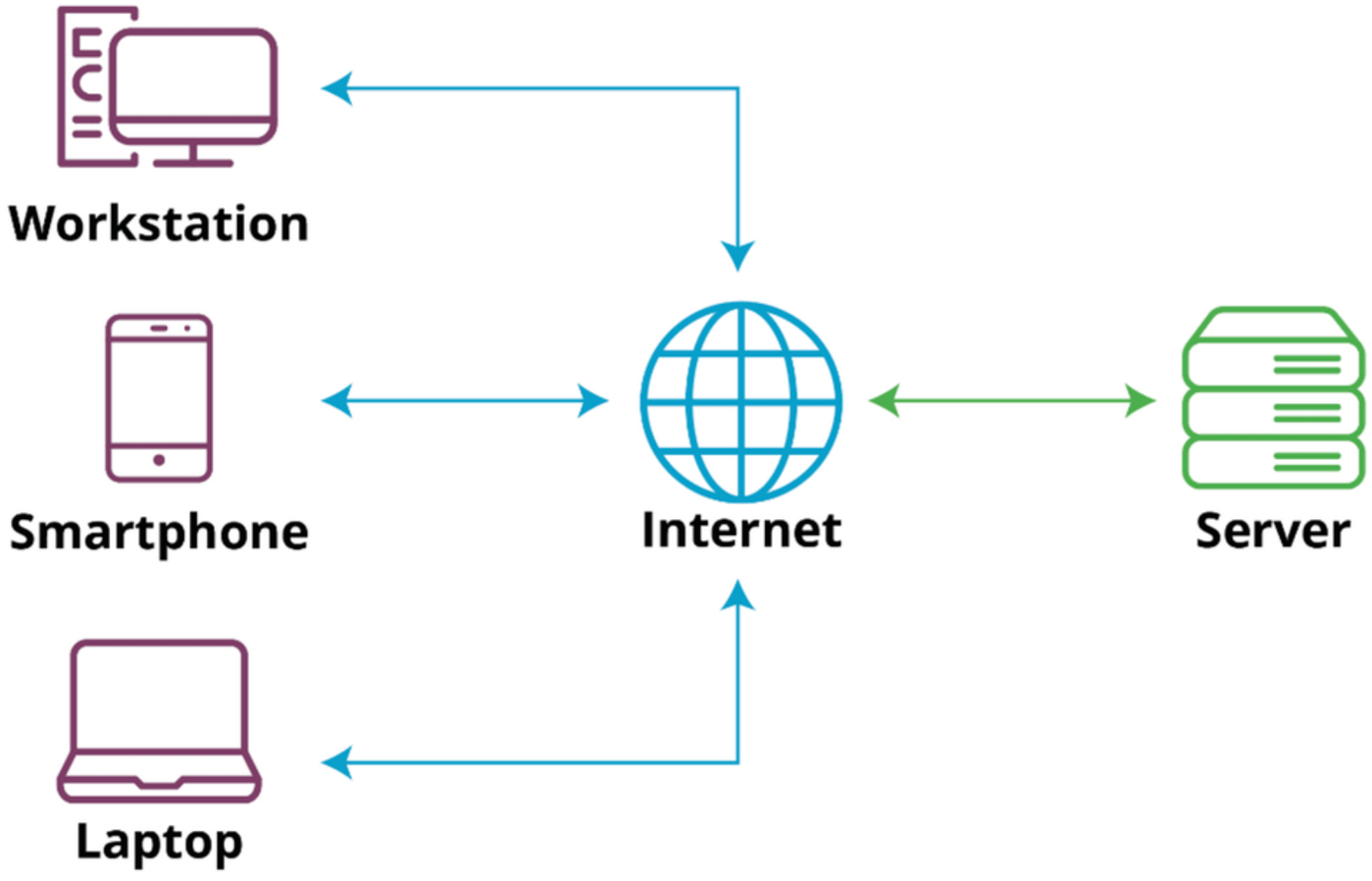
Day 3

Understanding Client-Server Architecture

- Explore the client-server model and its relevance in system design.
- Study the roles and responsibilities of clients and servers in a distributed system.



Day 4

Scalability

- Delve into the principles of scalability.
- Understand horizontal and vertical scaling, and their use cases.

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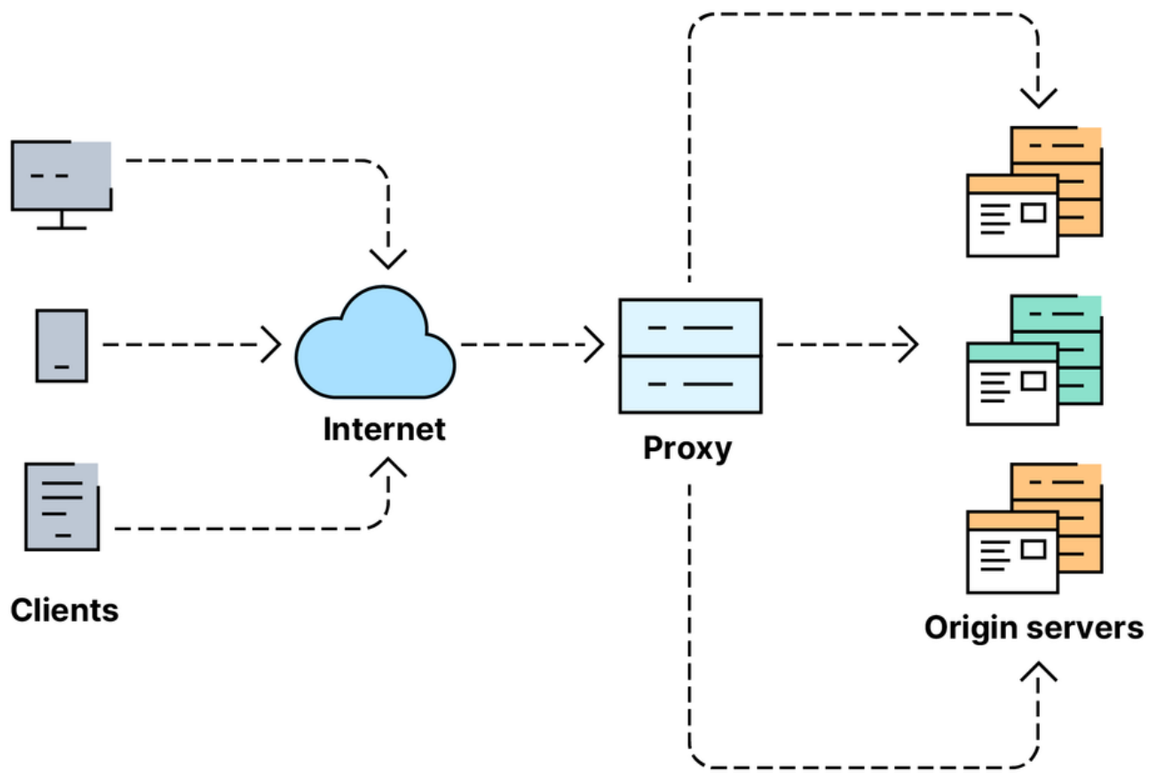
Day 5

Load Balancing

- Learn about load balancers and their role in distributing traffic.
- Study load balancing algorithms and strategies.



Day 6

Caching

- Explore the importance of caching in improving system performance.
- Study caching strategies and when to use them.

Day 7

Databases and Data Stores

- Understand different types of databases (SQL, NoSQL) and data stores.
- Study data modeling and database design.

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Day 8

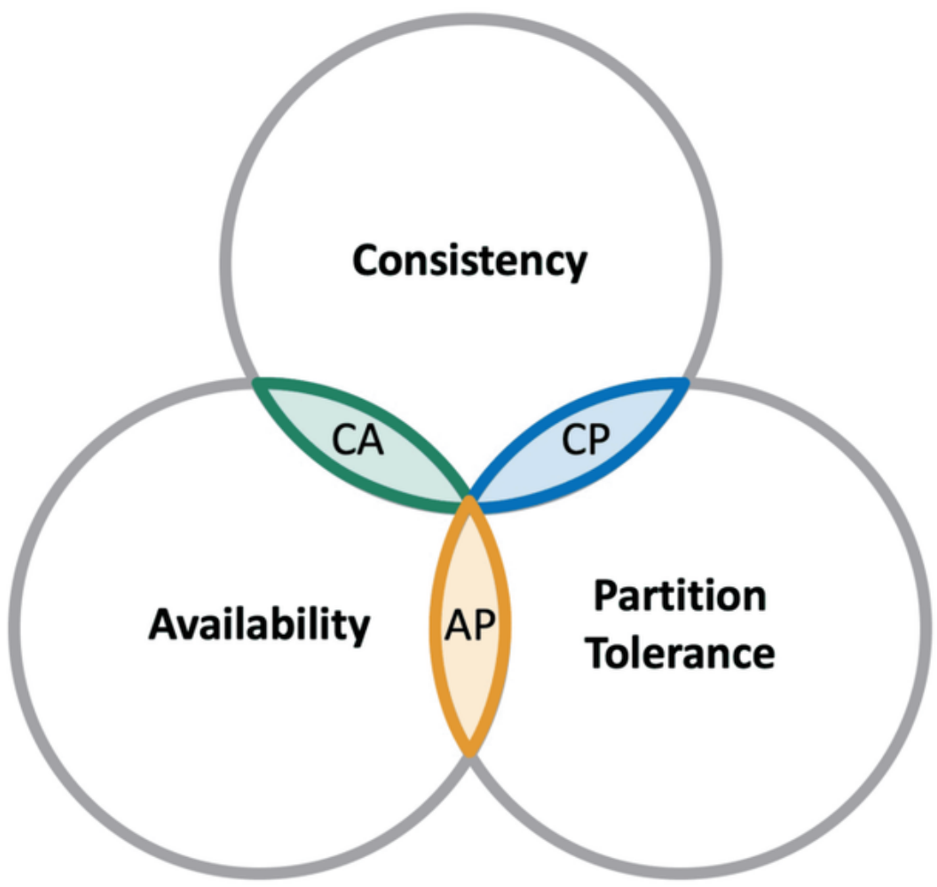
Distributed Systems Basics

- Dive into the fundamentals of distributed systems.
- Learn about distributed computing models and their challenges.

Day 9

CAP Theorem

- Study the CAP theorem and its implications on distributed systems.
- Understand the trade-offs between Consistency, Availability, and Partition Tolerance.



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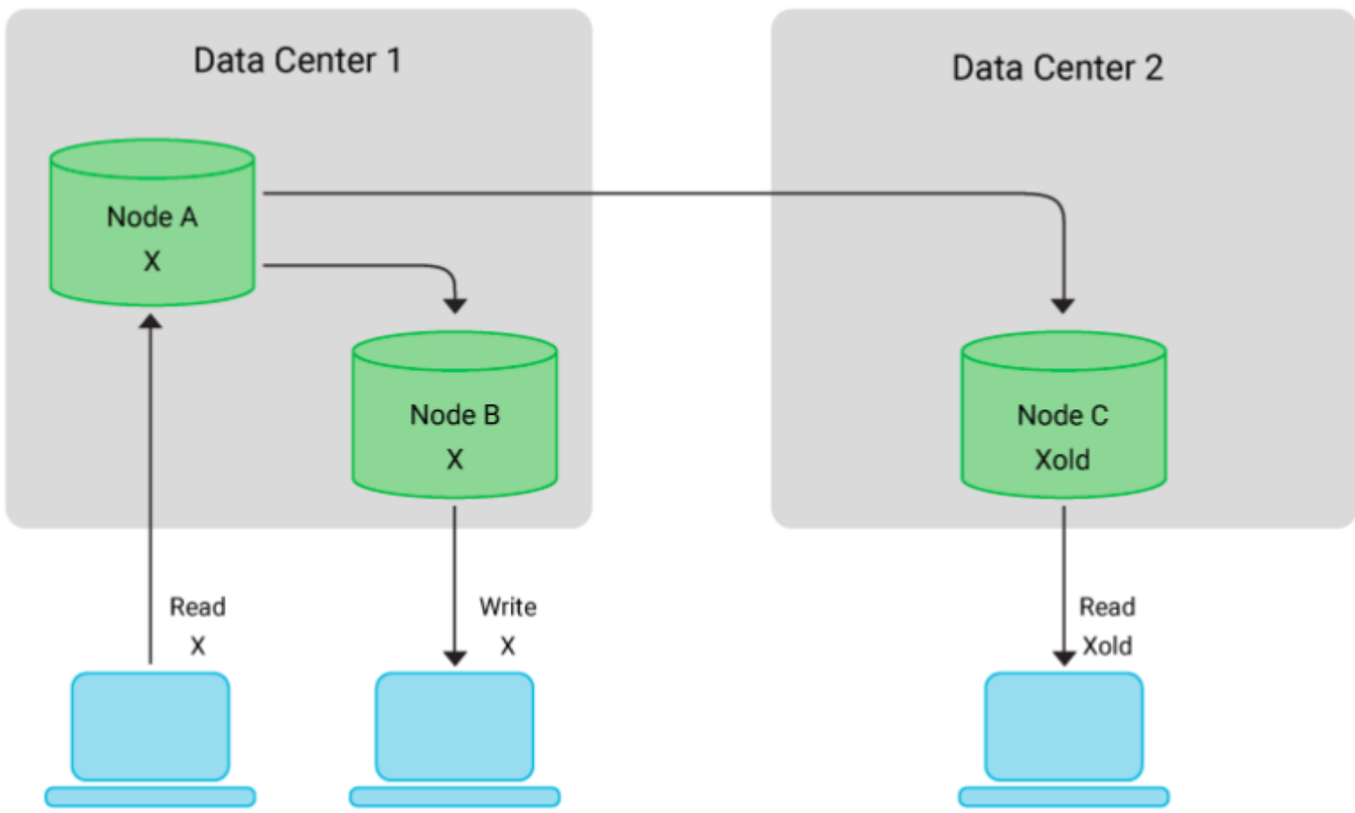
Day 10

Eventual Consistency

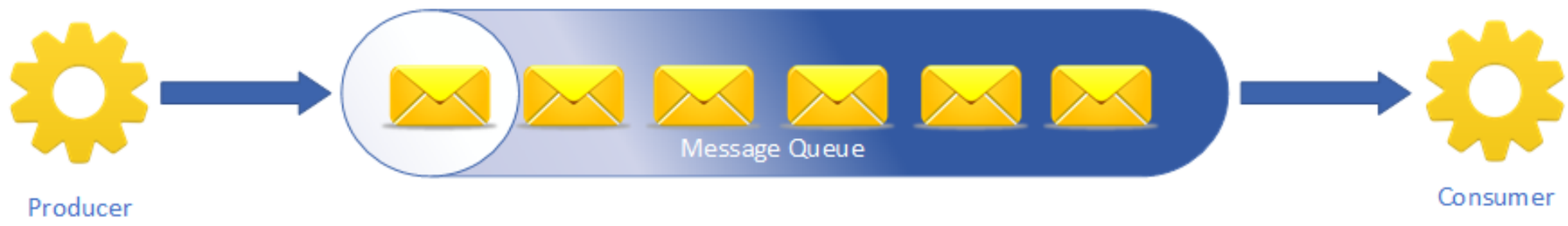
- Explore the concept of eventual consistency in distributed databases.
- Study how systems achieve consistency over time.



Day 11

Message Queues

- Learn about message queues and their use in building scalable systems.
- Study popular message queuing systems like Kafka and RabbitMQ.



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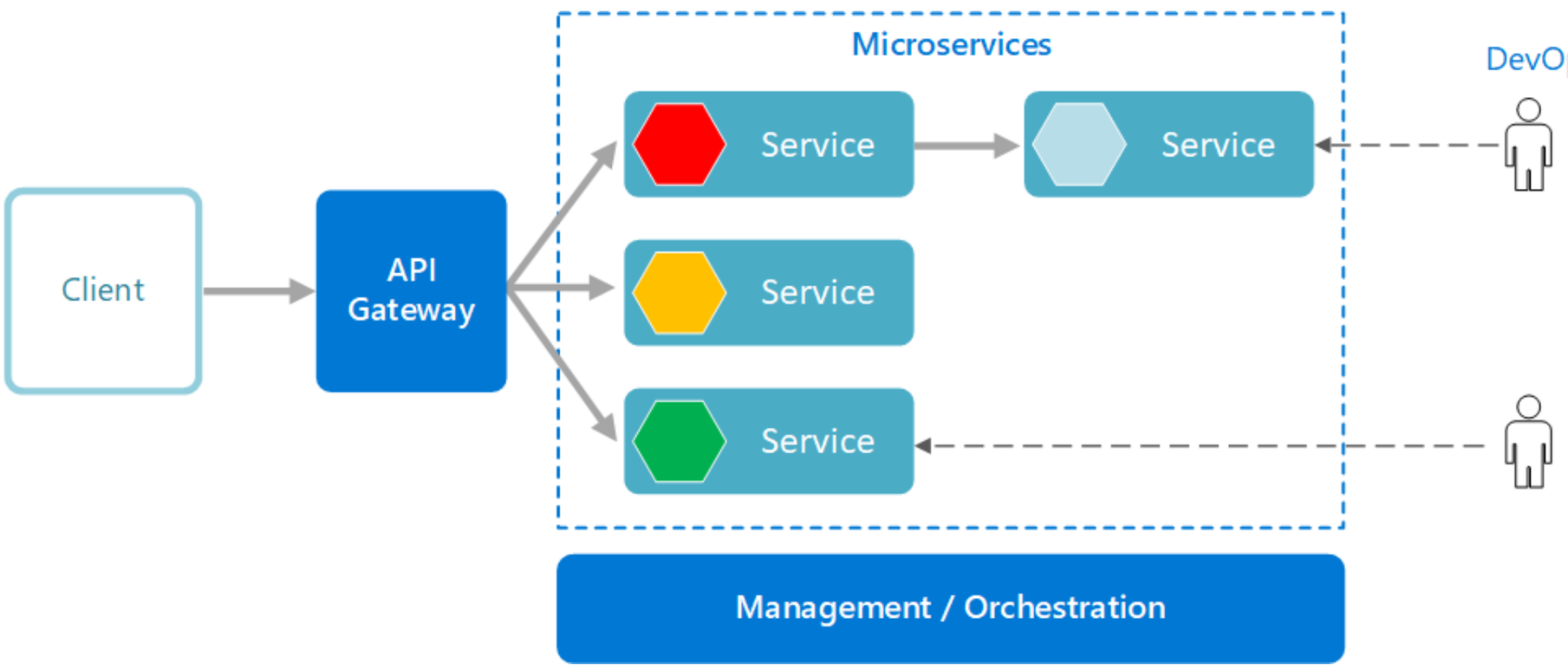
Day 12

Microservices Architecture

- Explore microservices architecture and its benefits.
- Learn about service discovery, communication, and orchestration.



Day 13

Security in System Design

- Understand security best practices in system design.
- Study authentication, authorization, and encryption.

Day 14

Implementing Infrastructure as Code (IaC)

- Learn about IaC tools like Terraform and Ansible.
- Study how to automate infrastructure provisioning.

Day 15

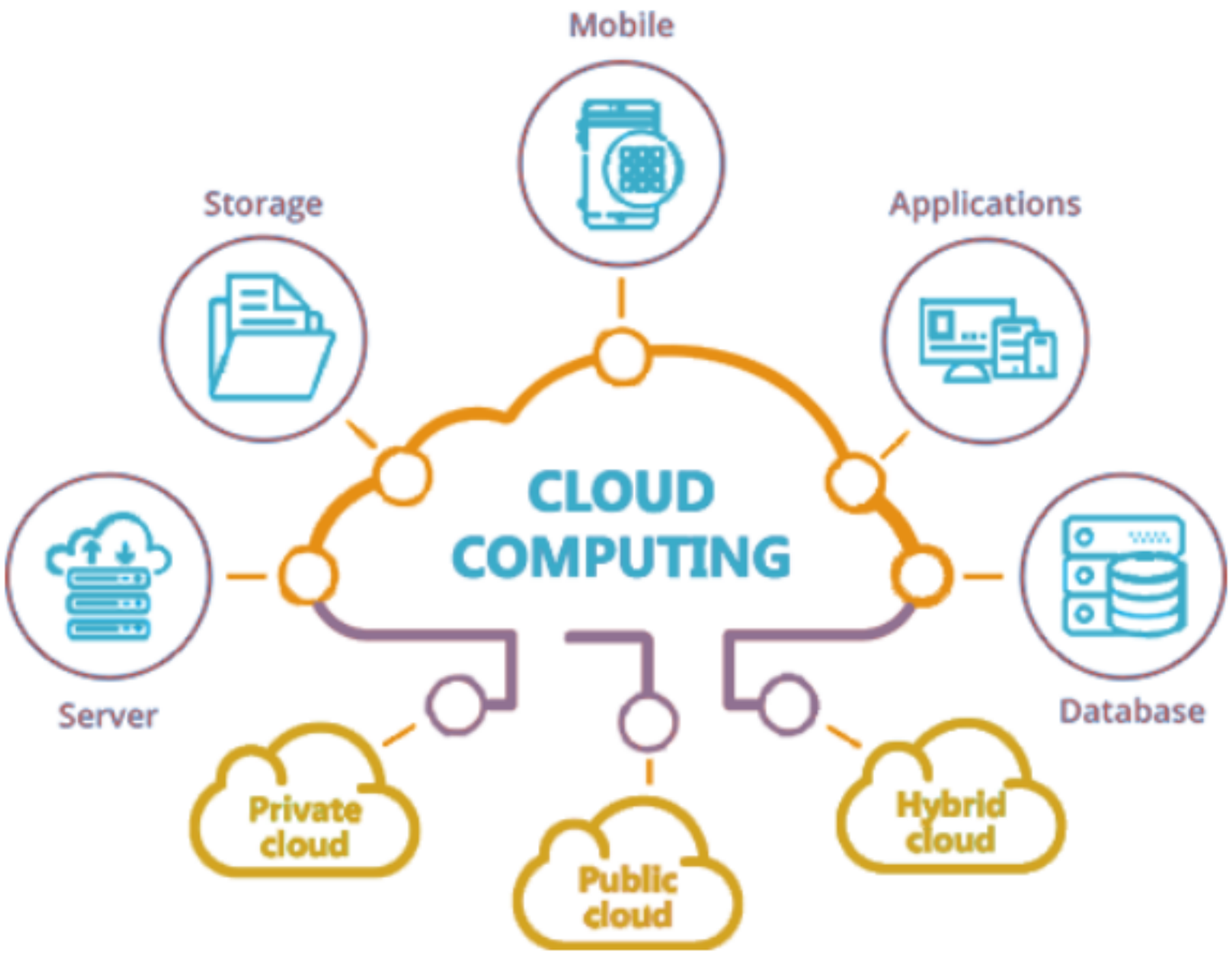
Case Studies

- Analyze real-world case studies of system design.
- Learn from successful system design implementations.

Day 16

Cloud Computing

- Explore cloud services from providers like AWS, Azure, and GCP.
- Study how to design and deploy systems in the cloud.



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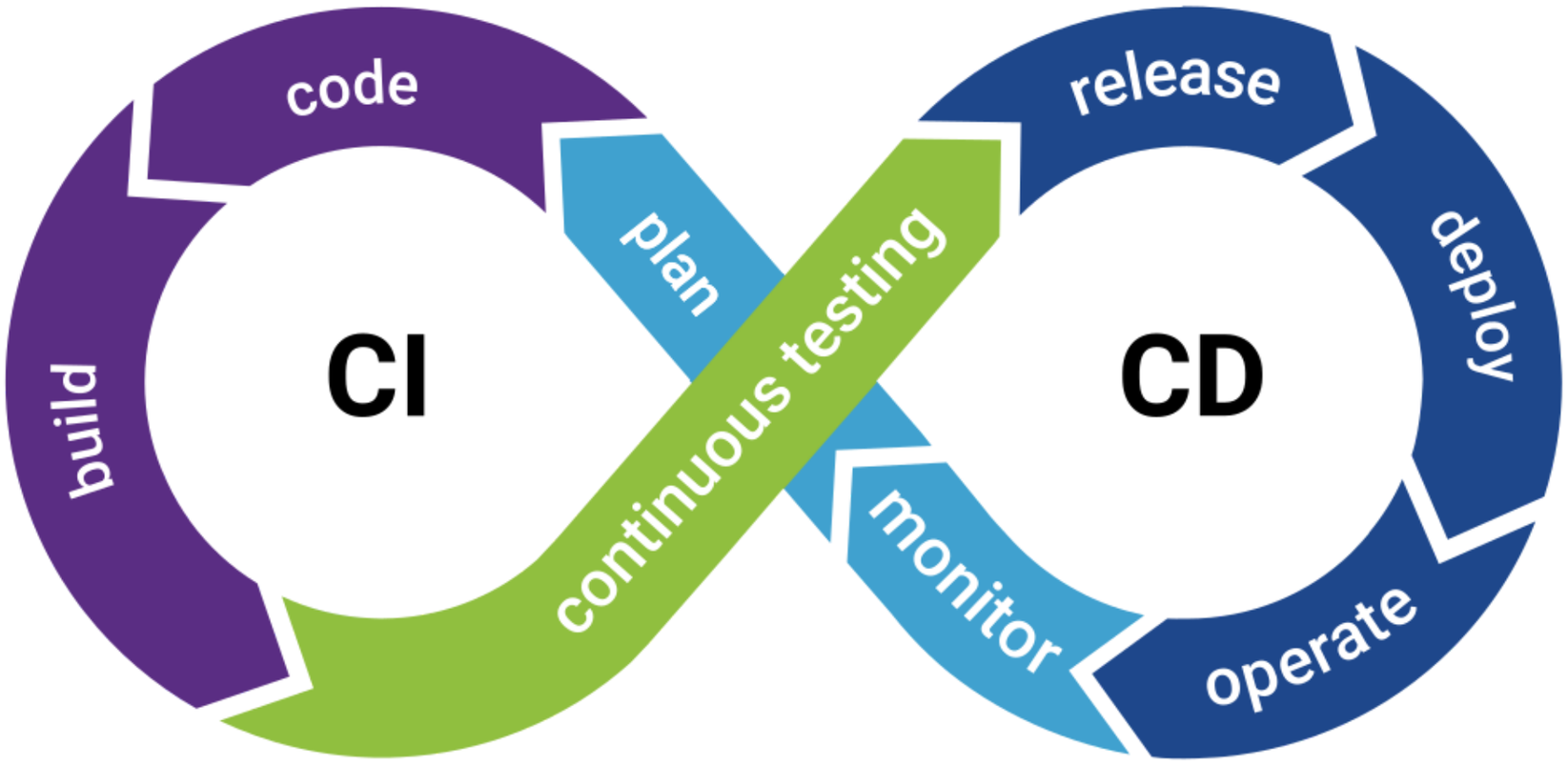
Day 17

DevOps and Continuous Integration/Continuous Deployment (CI/CD)

- Learn about DevOps practices and CI/CD pipelines.
- Study how they are integrated into system design.



Day 18

Advanced Topics (Blockchain, IoT, etc.)

- Explore emerging technologies in system design.
- Study how blockchain and IoT influence system architecture.

Day 19

Performance Optimization

- Learn about performance monitoring and optimization.
- Study profiling tools and techniques.

Day 20

Review and Practice

- Review key concepts from the past 20 days.
- Work on design exercises and case studies.

Day 21

Final Project

- Apply your knowledge to design a complete system.
- Present your design, and seek feedback from peers or mentors.

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WHY ALGOTUTOR

- 100% Placement Assistance
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