Apache Cassandra

Topics

- Introduction

- Data Modeling

- Querying

- Administration

- Development

- DevOps

Introduction

- Overview

- Architecture

- Compare with Other Database

Apache Cassandra

- Distributed DBMS

  - Open-Source

  - Distributed

  - Decentralized

- Developed at Facebook
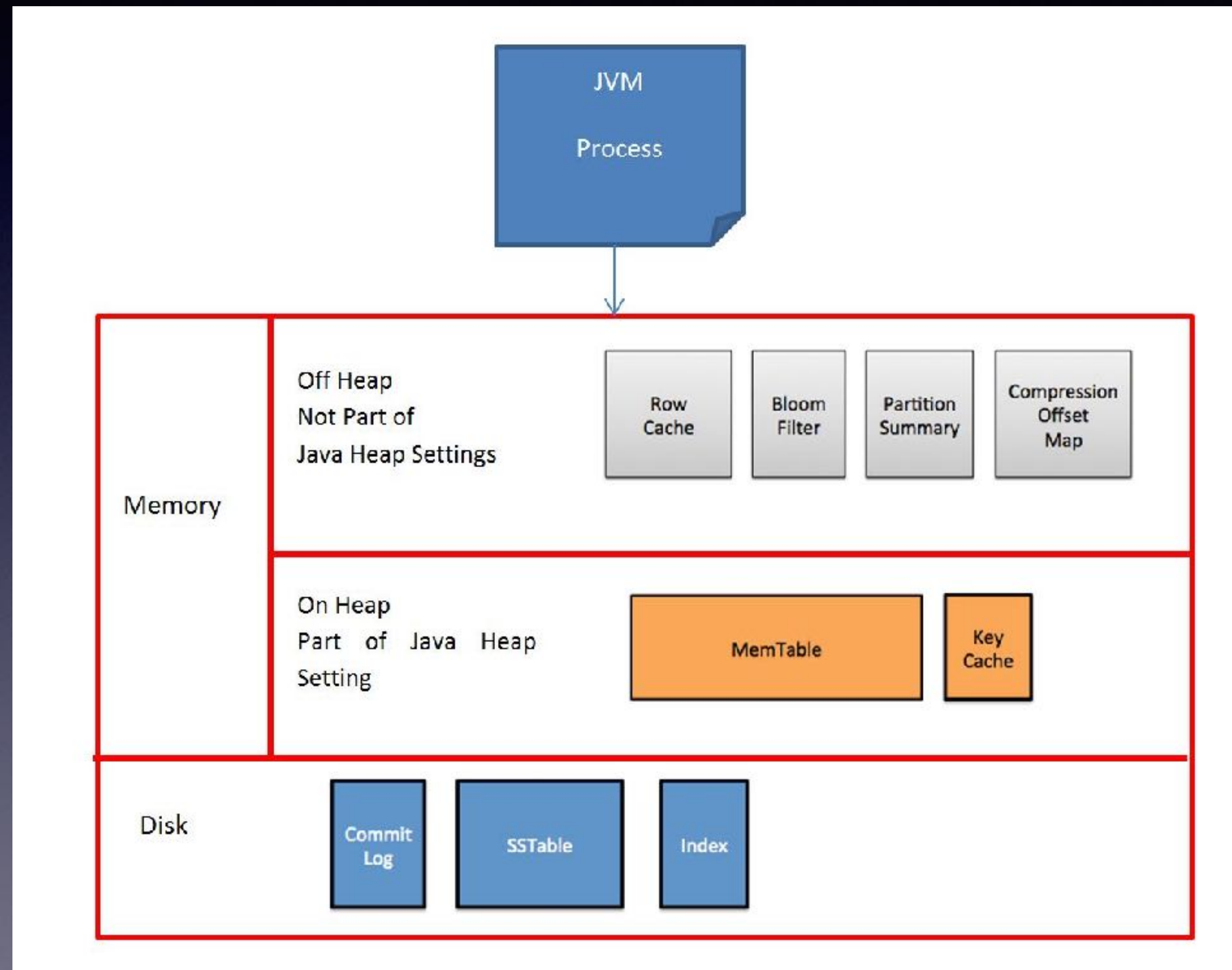
- Power the Facebook inbox search feature

Applications of Cassandra

- Great Application where **Data** is collected at **High Speed** from **Different** kinds of **sources**

- Internet of Things

- Product & Retail apps

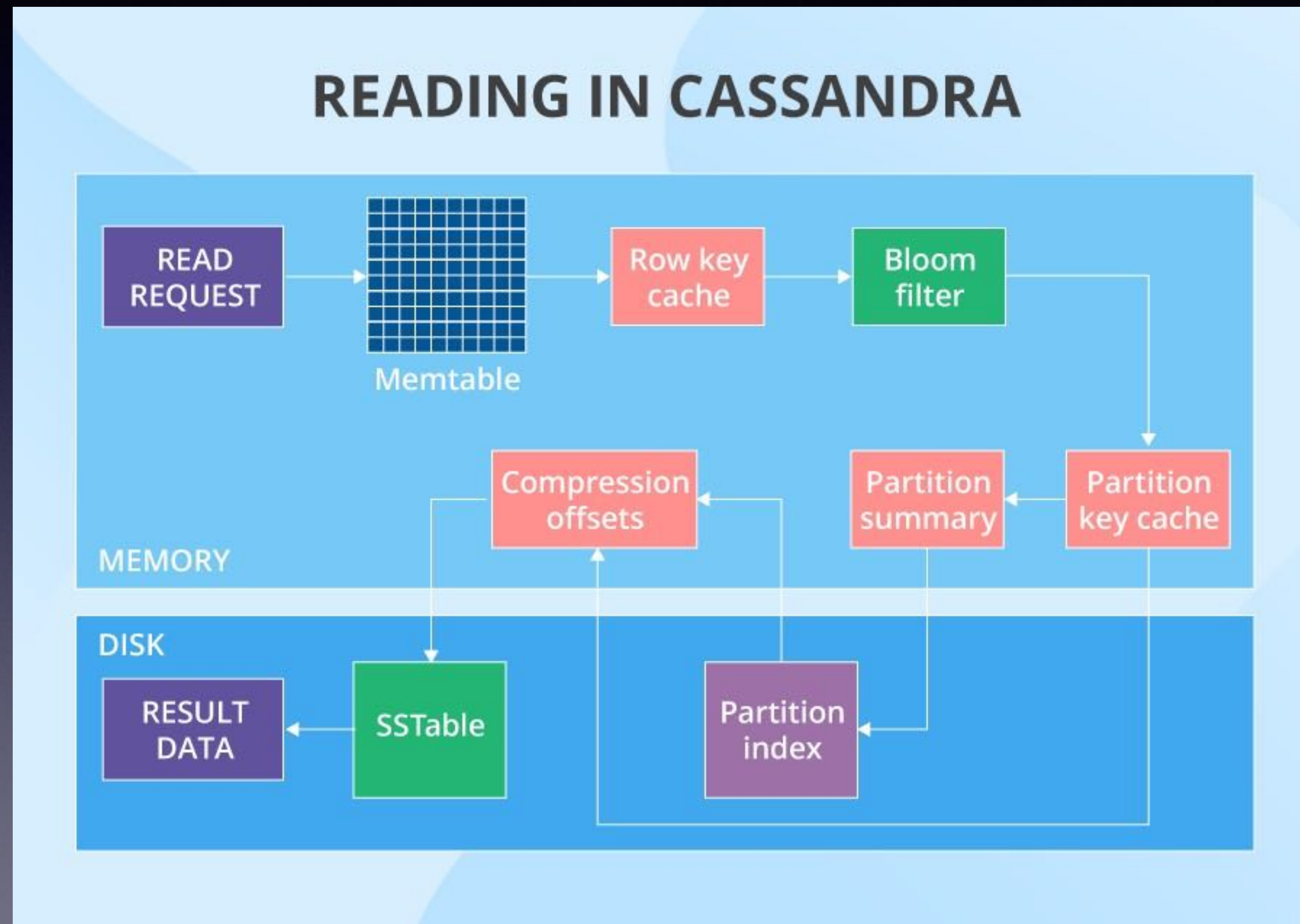- Messaging

- Social Media Analytics

- Recommendation Engine

Traditional RDBMS vs Cassandra

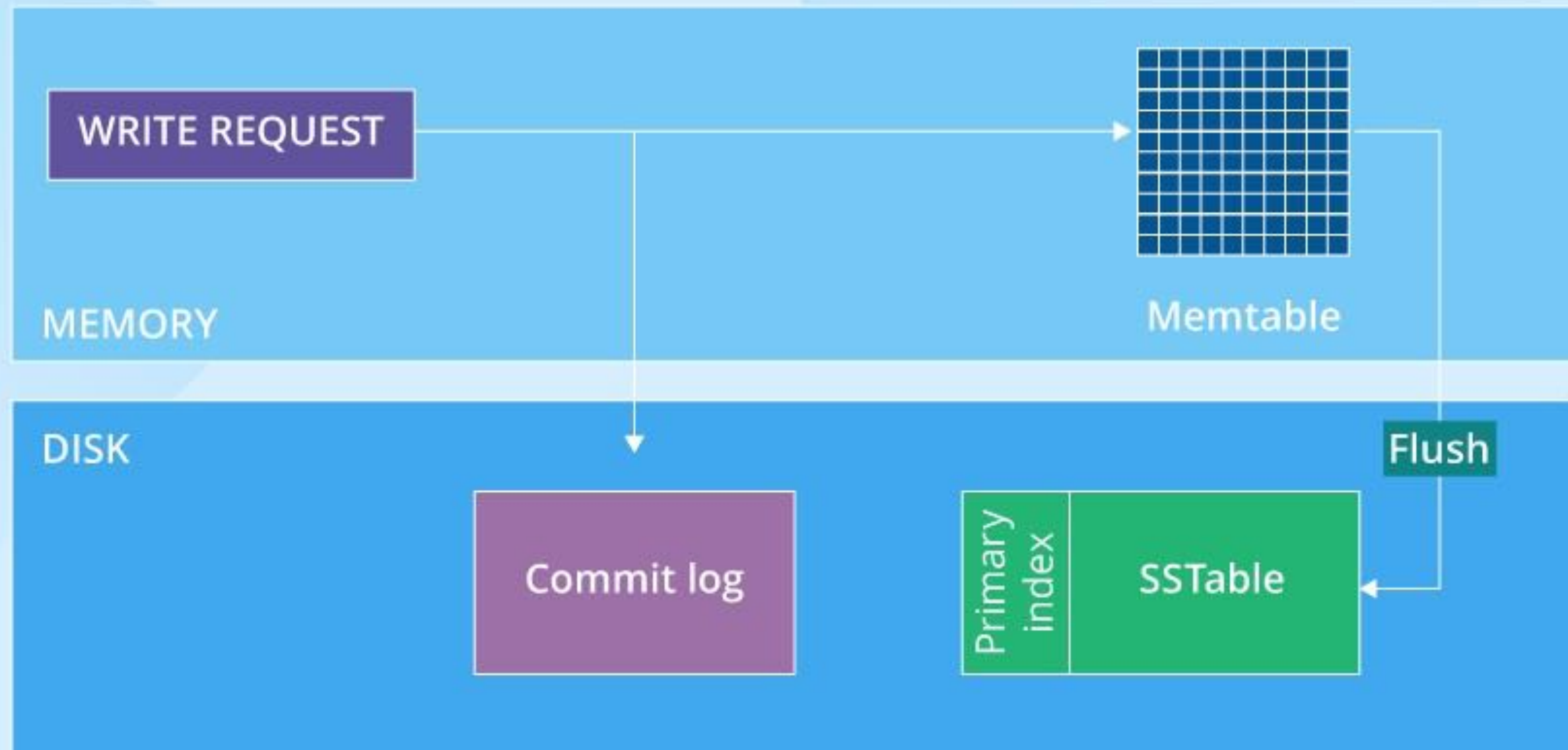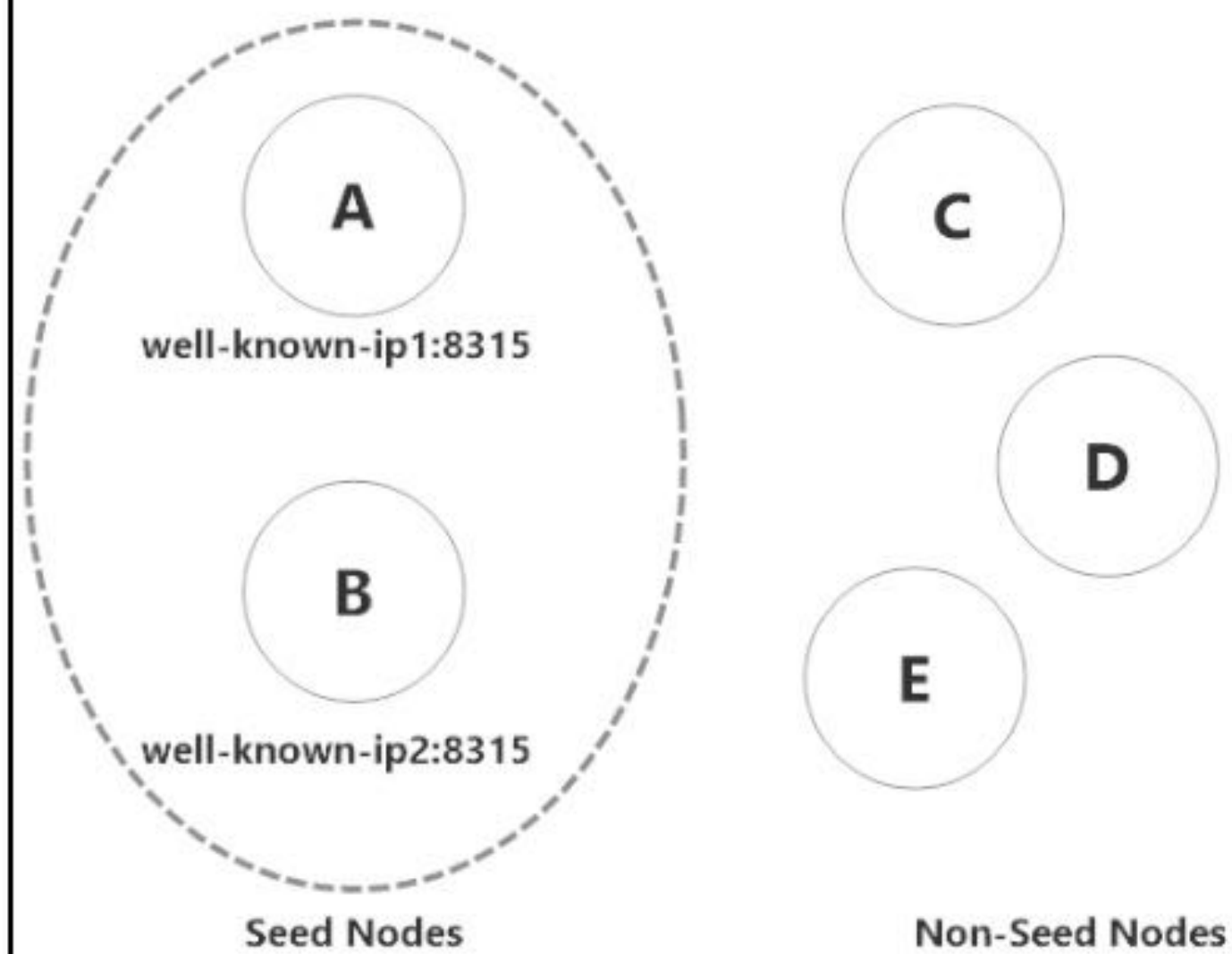| Feature	Traditional RDBMS	Cassandra
Data Model	Relational	NoSQL, flexible column families
Architecture	Centralized/Master-Slave	Distributed, Peer-to-peer
Scalability	Vertical, complex horizontal	Horizontal, easy to scale out
Consistency	Strong (ACID)	Tunable, often eventually consistent
Transactions	Complex, nested	Simple
Use Cases	Structured data, strong consistency	High availability, large datasets

Architecture

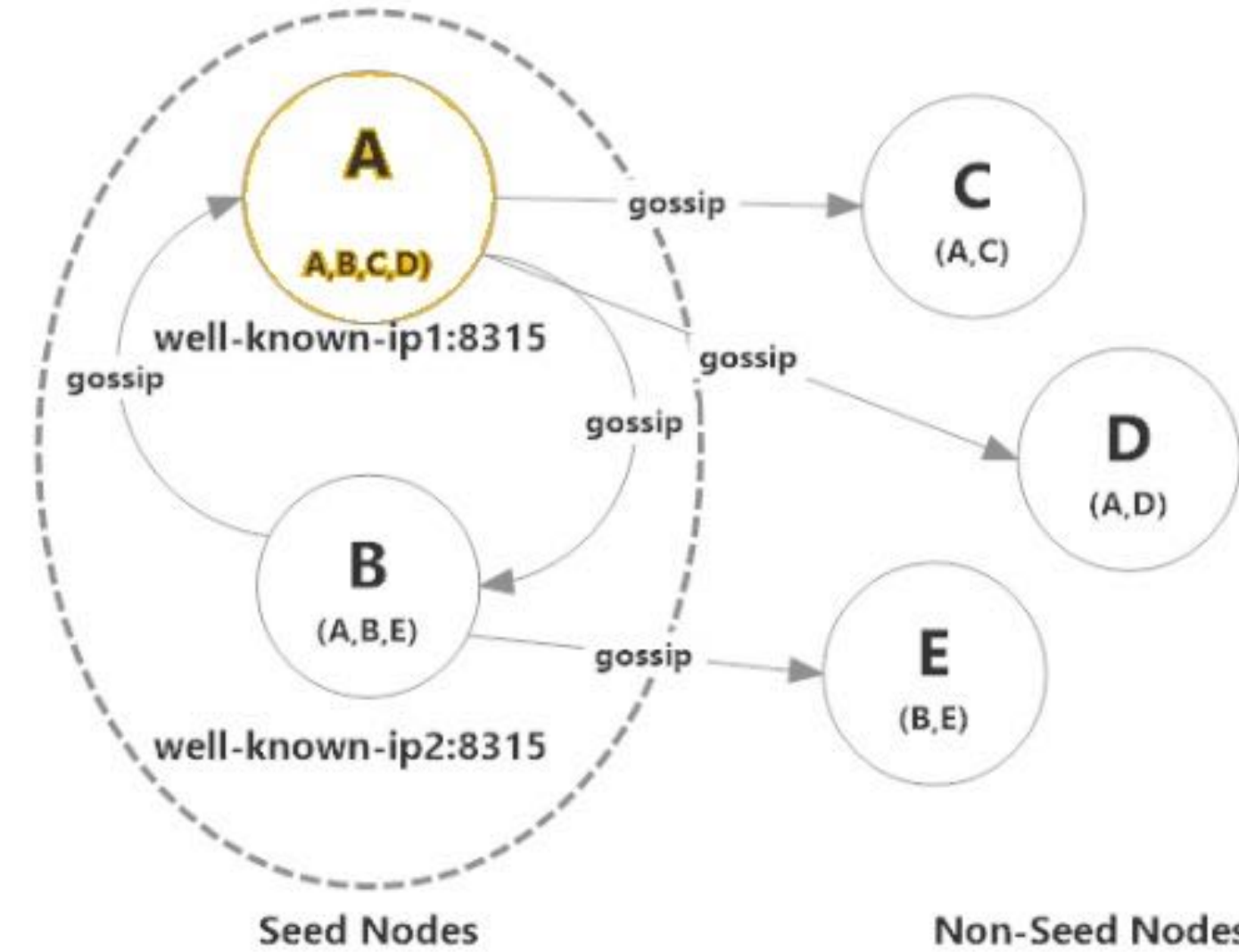# Read Operation
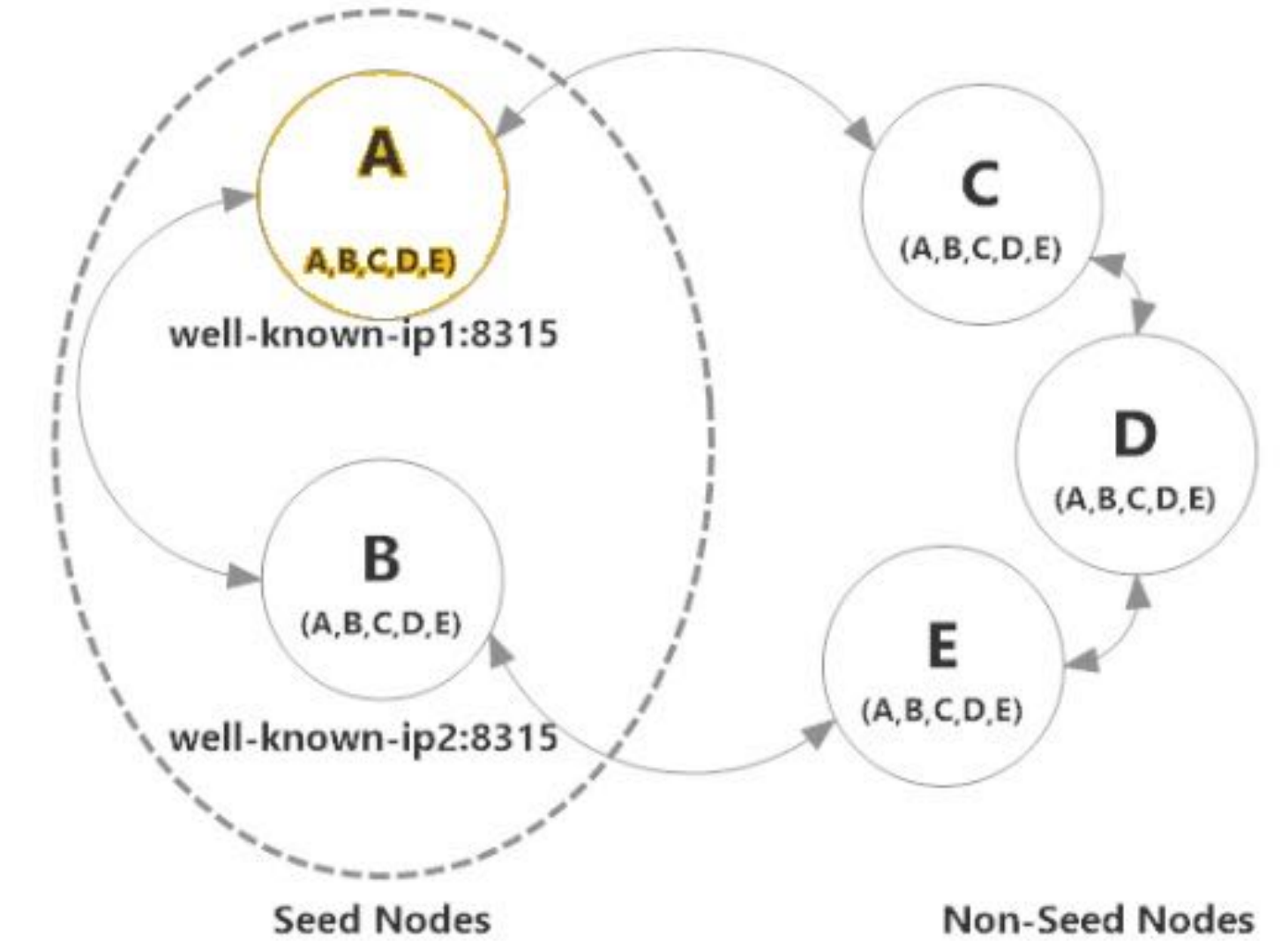
Write Operation

WRITING IN CASSANDRA

High Availability

Data Modeling

- Data Model

- Denormalization Strategies

Querying

- Cassandra Query language - CQL

- Query Optimization

- Advanced CQL Features

Administration

- Cluster Setup and Configuration

- Monitoring and Troubleshooting

- Backup and Recovery

Development

- Client Drivers

- Data Consistency and Durability

- Performance Optimization

DevOps

- Integrating with DevOps Tools