Report on Monolithic and Microservices Architecture Deployment on Amazon EC2:

Monolithic vs. Microservices Architecture Deployment on Amazon EC2

1. Monolithic Architecture Deployment on EC2

Monolithic architecture involves building an application as a single, tightly integrated unit. When deploying a monolithic application on EC2, follow these steps:

1. **EC2 Instance Selection:** Choose an appropriate EC2 instance type based on the resource requirements (CPU, memory, storage) of the monolithic application.
2. **Installation and Configuration:** Provision an EC2 instance and set up the necessary runtime environment, databases, and dependencies.
3. **Application Deployment:** Transfer the monolithic application code to the EC2 instance and configure the runtime environment.
4. **Scaling:** Scale vertically (upgrading instance type) or horizontally (adding more EC2 instances) to handle increased load.

2. Microservices Architecture Deployment on EC2

Microservices architecture decomposes an application into smaller, independent services. Deploying microservices on EC2 involves the following steps:

1. **Service Decomposition:** Identify distinct business functions and decompose the monolithic application into smaller microservices.
2. **Containerization:** Use technologies like Docker to containerize each microservice, ensuring consistent deployment across EC2 instances.
3. **Orchestration:** Employ container orchestration platforms (e.g., Amazon ECS, Kubernetes) to manage and deploy microservices across multiple EC2 instances.
4. **Integration:** Implement communication mechanisms (RESTful APIs, message queues) for inter-service communication.
5. **Scaling:** Independently scale individual microservices based on demand using EC2's auto-scaling features.

Comparison

- **Scalability:** Microservices architecture allows independent scaling of services, whereas monolithic applications scale as a whole.
- **Flexibility:** Microservices offer flexibility in technology choices, while monolithic apps may be limited by their chosen stack.

- **Complexity:** Microservices introduce more complexity due to inter-service communication and management.

Conclusion

Both monolithic and microservices architectures can thrive on Amazon EC2. The decision depends on factors like application complexity and scalability requirements. Understanding deployment strategies is crucial for successful cloud application development. 🚀