Definition of Distributed System

A distributed system is a network that consists of autonomous computers that are connected using a distribution middleware.

They help in sharing different resources and capabilities to provide users with a single and integrated coherent network.
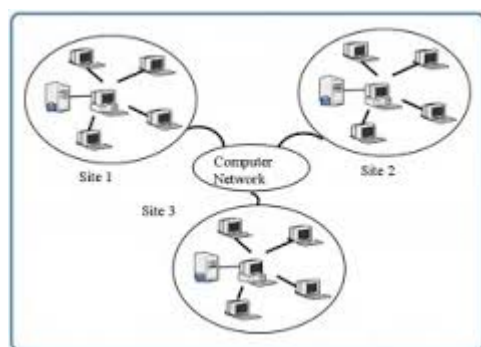
Block Diagram of Distributed System

Examples of Distributed Systems

1. Intranets

A single authority protected access – a firewall.

Services:

- Infrastructure services
- File service
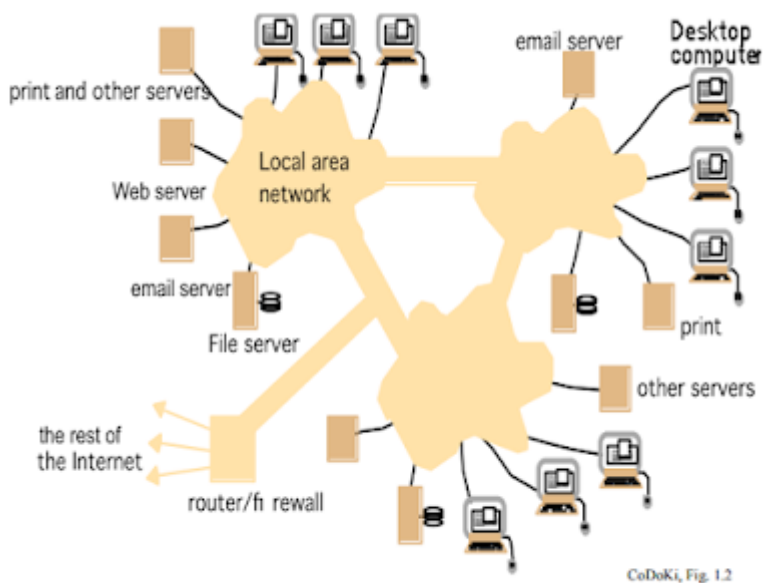- Name service
- Application services

Figure 1.2 A typical intranet

2. Resource Sharing

Resource Sharing and the Web Hardware resources (reducen costs) Data resources (shared

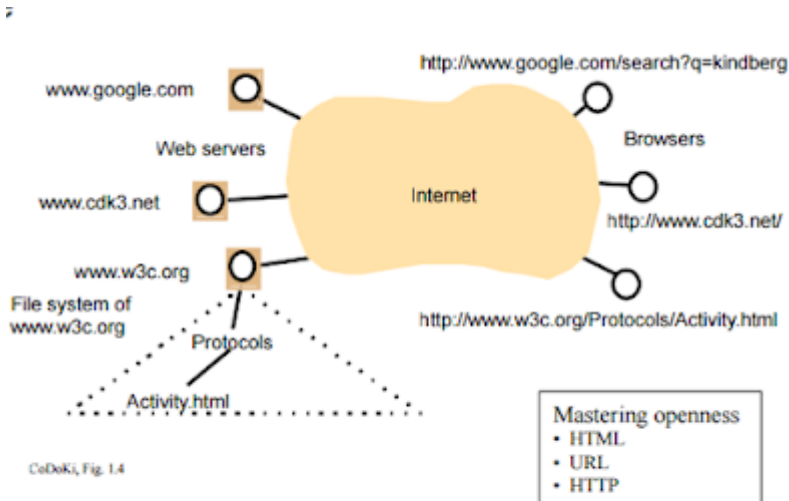usage of information) Service resources search engines computer-supportedncooperative working Service vs. server.

Figure 1.4 Web servers and web browsers

Goals Of Distributed System

1. Making resources accessible
2. Distribution transparency
3. Opennessn Scalability
4. Security
5. System design requirements

1. Making Resources Accessible

- Naming Access control
- Security
- Availability
- Performance

- Mutual exclusion of users

2. Transparency

Distribution in users viewpoint: a single unified system.

3. Concurrency

- Several simultaneous users.
- Integrity of data
- Mutual exclusion
- Synchronization

4. Openness

- Making the network easier to configure and modify.
- Openness facilitates
    - Interoperability,
    - Portability,
    - Extensibility,
    - Adaptivity

5. Security

Security is a big challenge in a distributed environment, especially when using public networks.

6. Scalability

Distributed systems should be scalable with respect to geography, administration or size.

7. Reliability

Compared to a single system, a distributed system should be highly capable of being secure, consistent and have a high capability of masking errors.