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Multi-tier applications

Web Server | Application server | Data base server
---|---|---
Web Server | Java servlet | Enterprise Java Bean
Web Server | Application server | Mainframe
Load Balancing

Server load balancer

Web Server

Application server
Load Balancing and Multi-Tier applications

Tier-2 server sharing

Server load balancer

Web Server

Application server
Load Balancing and Multi-Tier applications

Load balancing on Tier-2 servers (not recommended)

Server load balancer

- Web Server
- Application server
Load Balancing and Multi-Tier applications

Application server

Server load balancer

Capable of assembling web pages
Storage Area Network (SAN)

- Fiber Channel
- iSCSI
- FCIP
- SCSI
Public network access

- External Firewall
- Internet
- De-Militarized Zone (DMZ)
  - Public Intranet
  - Public Front-end
- DNS
- Public servers
- WWW Mail
- HTTP proxy FTP proxy
- Private Intranet
- Internal Firewall
Public network access

- **External Firewall**
- **De-Militarized Zone (DMZ)**
  - Public Intranet
  - Public front-end
- **Private Server** accessed only from the inside
- **Internal Firewall**
- **Private Intranet**
- **Public Servers**
- **WWW Mail**
- **HTTP proxy FTP proxy**

**Back end**

**Internet**

**DNS**

**Public network access**
Security and load balance

Internet or other public network

External Firewall

Load balancer

Physical servers

Internal Firewall

Physical servers

Private Front-end

Unbalanced public Front-end

Application Server

Back-end

Database Server

Rete aziendale (privata)

SAN

Layer 2 or layer 3 network

Physical servers
Addressing

- Private addressing can be used
- A proxy is used to make hosts access external networks
- Static NAT to access servers
  - Services publication
  - Implemented by an external firewall