Moduldokumentation

Modul Verteilte Systeme (vesys)

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# Einleitung

## Einleitung

Dieses Dokument stellt die Moduldokumentation für das Modul vesys dar. Allfällige Unterlagen sind im Modulordner zu finden.

## Lernziele

Das Modul beinhaltet folgende Lernziele:

* Erstellen einer Verbindung zwischen zwei Rechnern mittels Sockets
* Wissen über http Protokoll und Webserver
* Implementieren einfacher Servlets
* Prinzipien und Programmierung von RMI
* Prinzipien von Webservices und Programmierung mittels JAXWS
* Verwendung von Webservices mittels WSDL
* Prinzipien und Programmierung von REST und deren Unterschiede zu SOA und ROA
* Prinzipien der asynchronen Programmierung mittels JMS und Akka
* Entscheidung, welche der Technologien für eine Situation geeignet ist

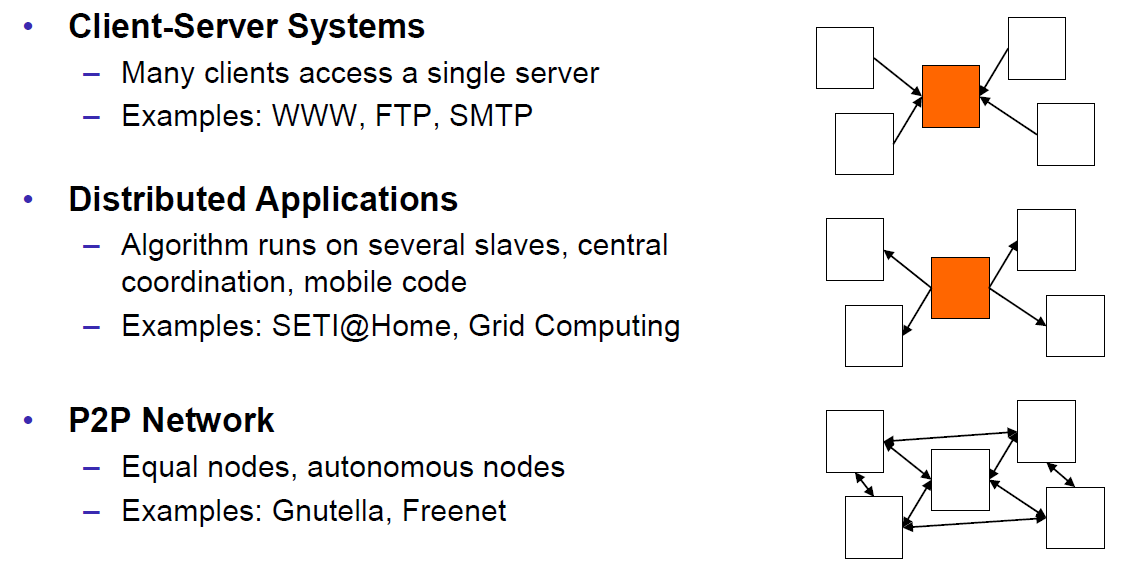
## Prüfungen

Die Modulnote setzt sich zu 50% aus einer Semesterprüfung und einer Modulschlussprüfung zu 50% zusammen. Zusätzlich müssen 4 von 8 Übungen erfüllt werden.

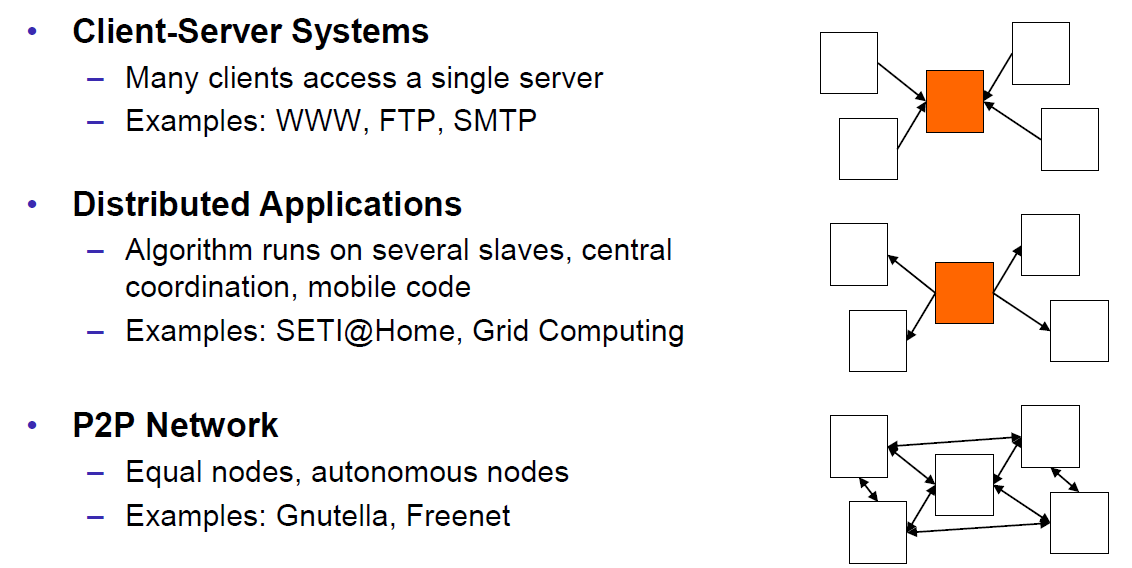
# Woche 1

## Definition of Distributed Systems

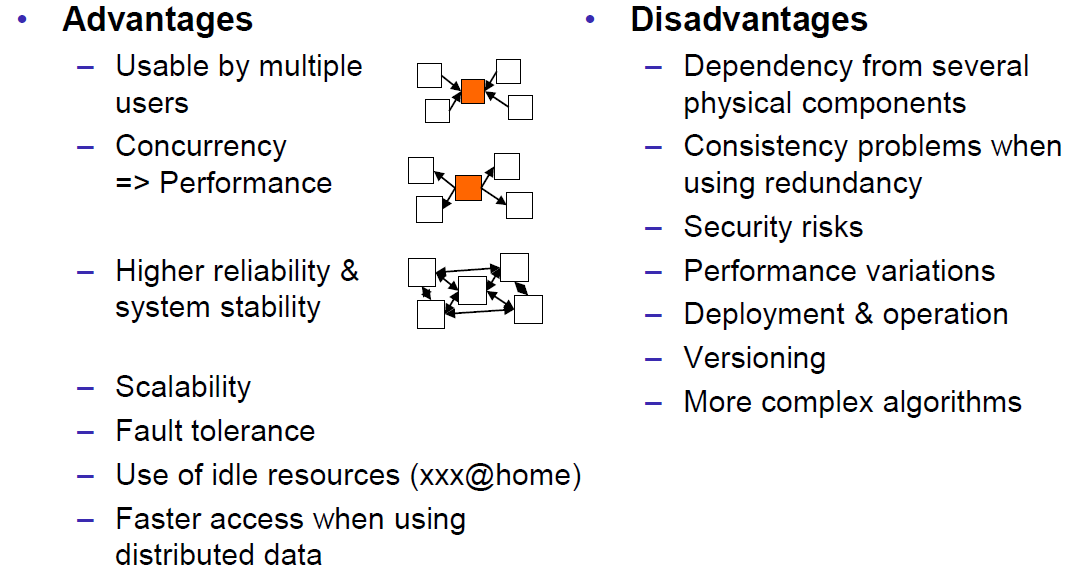
### Definitions



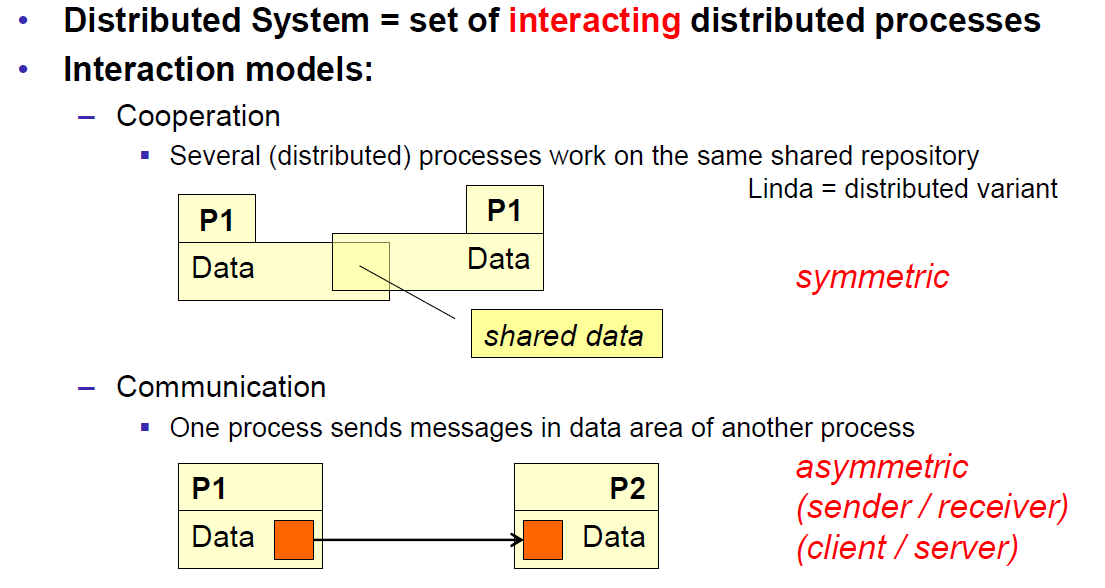
### Classification



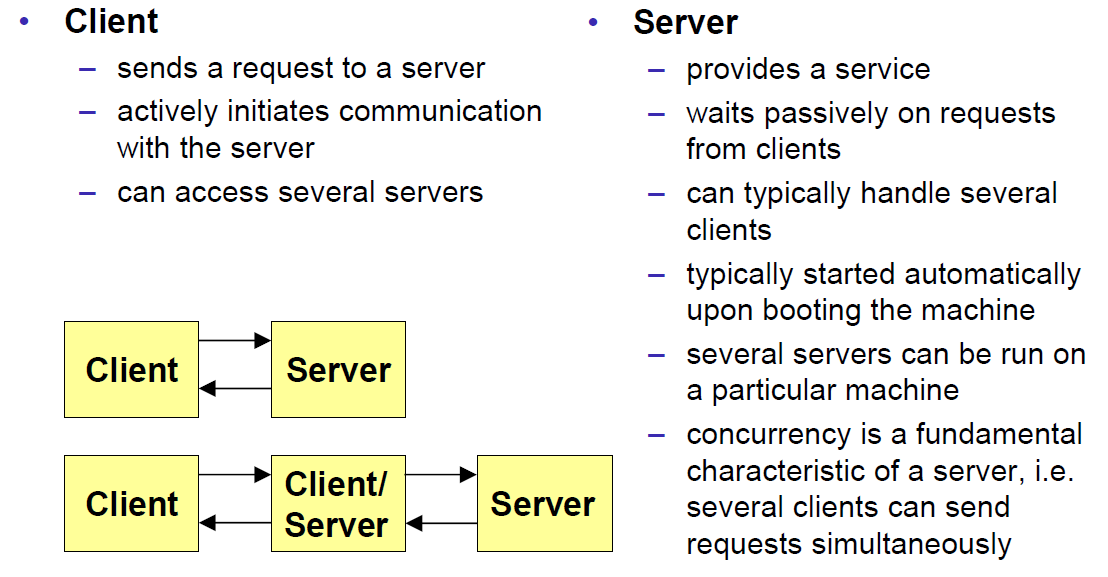
### Pros and Cons



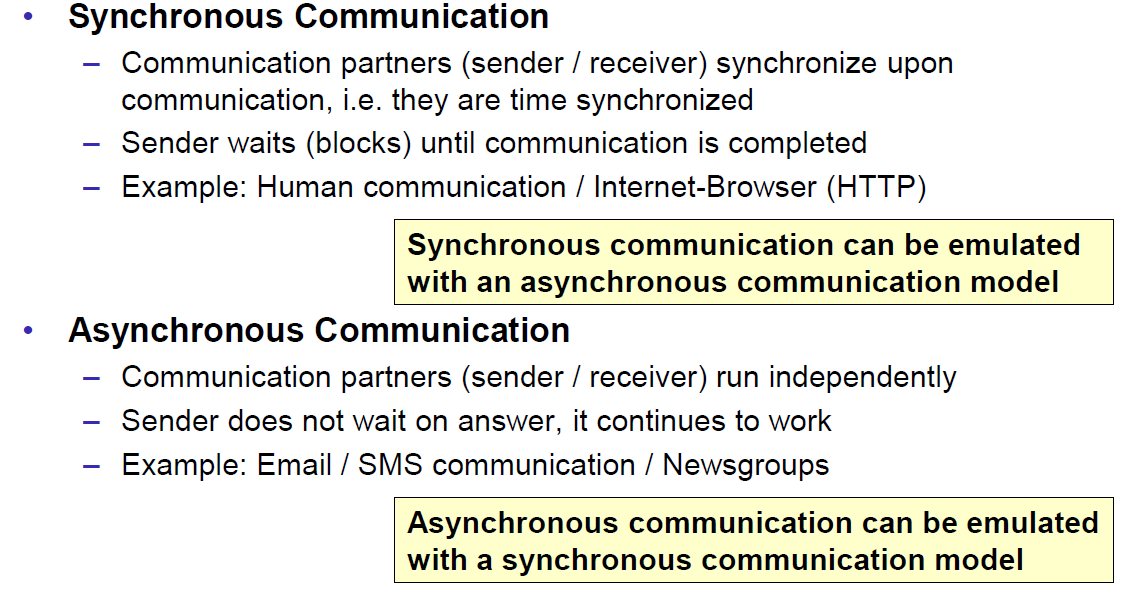
### Interaction Models

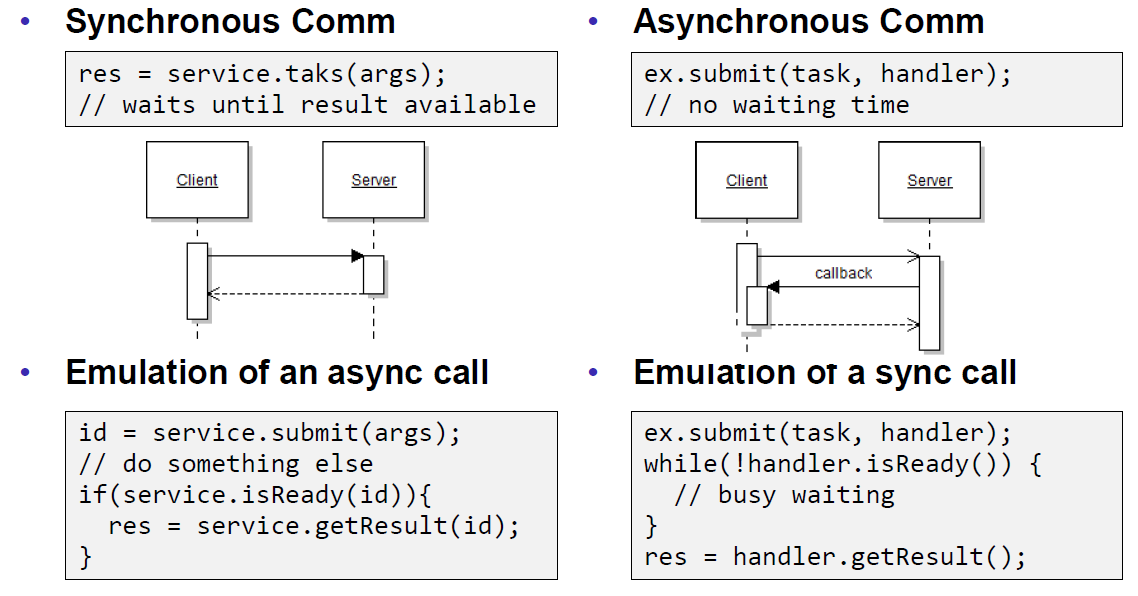


### Client/Server Model

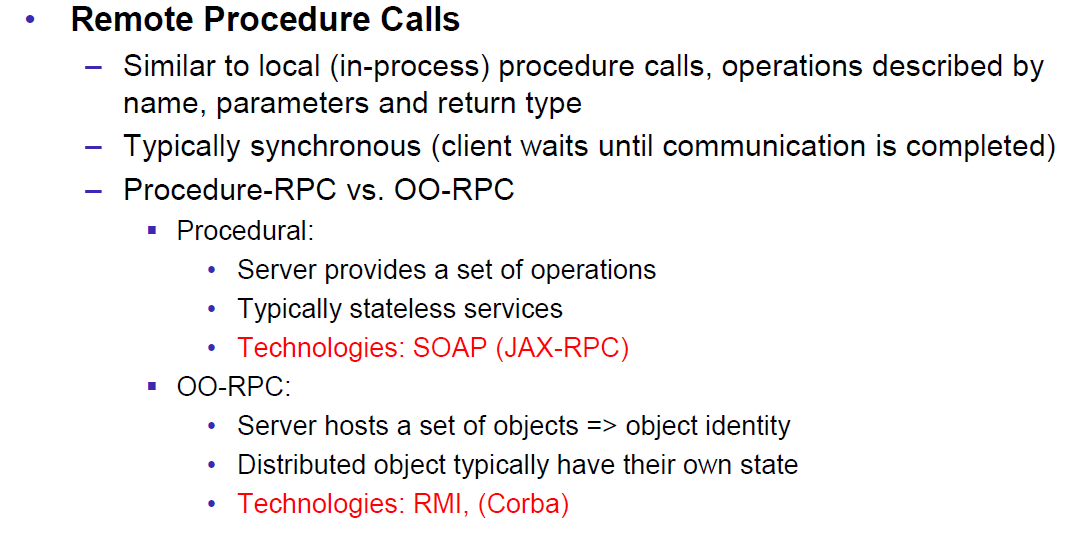


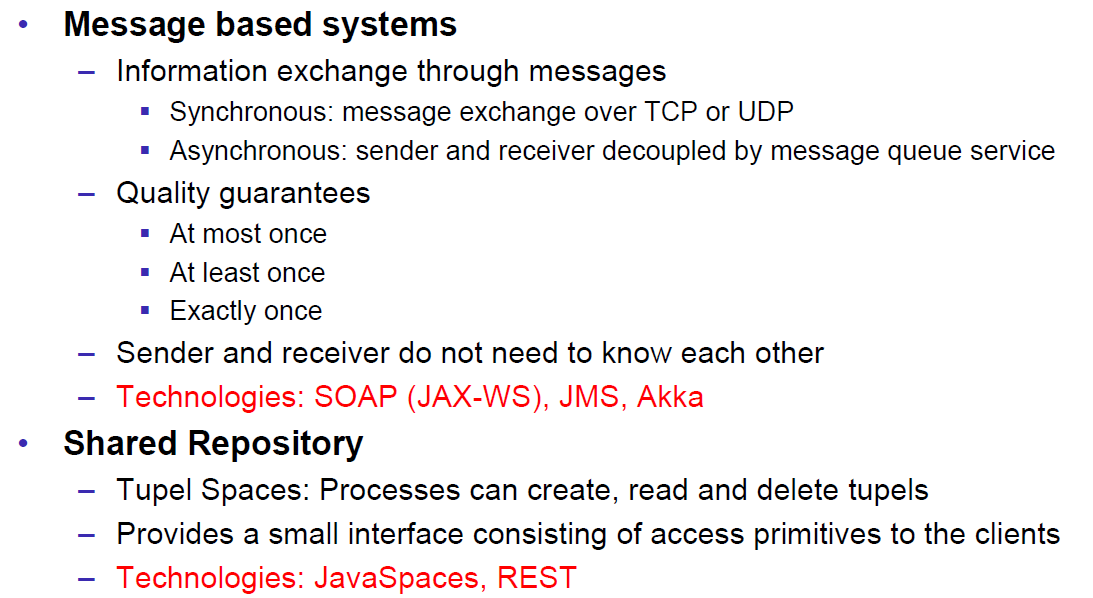
### Communication Models





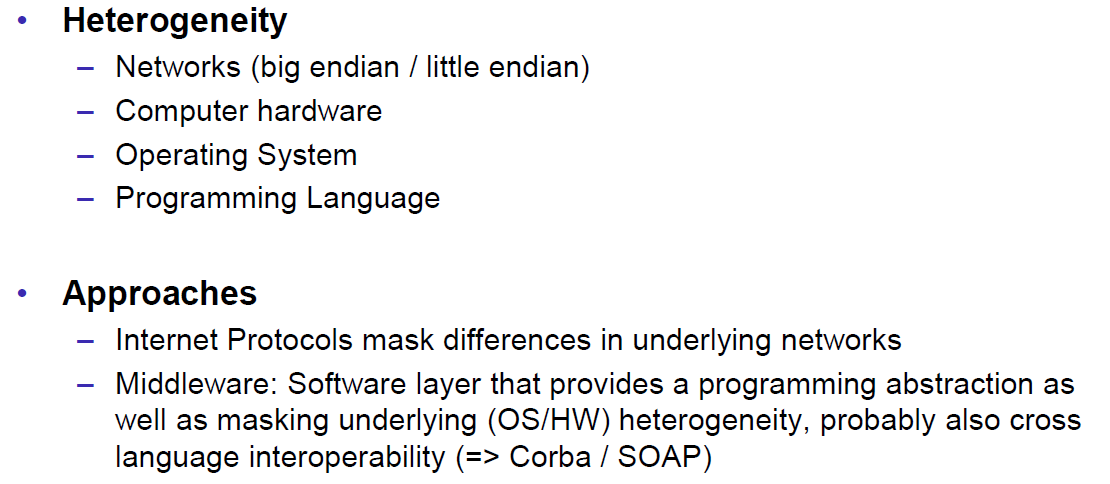
### Communication Styles



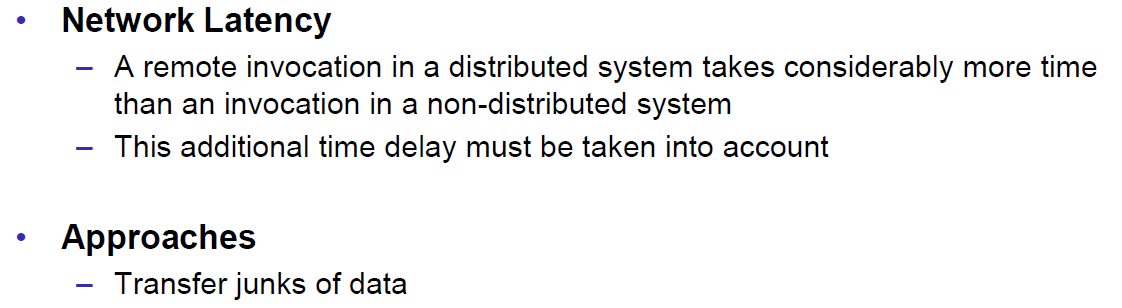


## Challenges of Distributed Systems

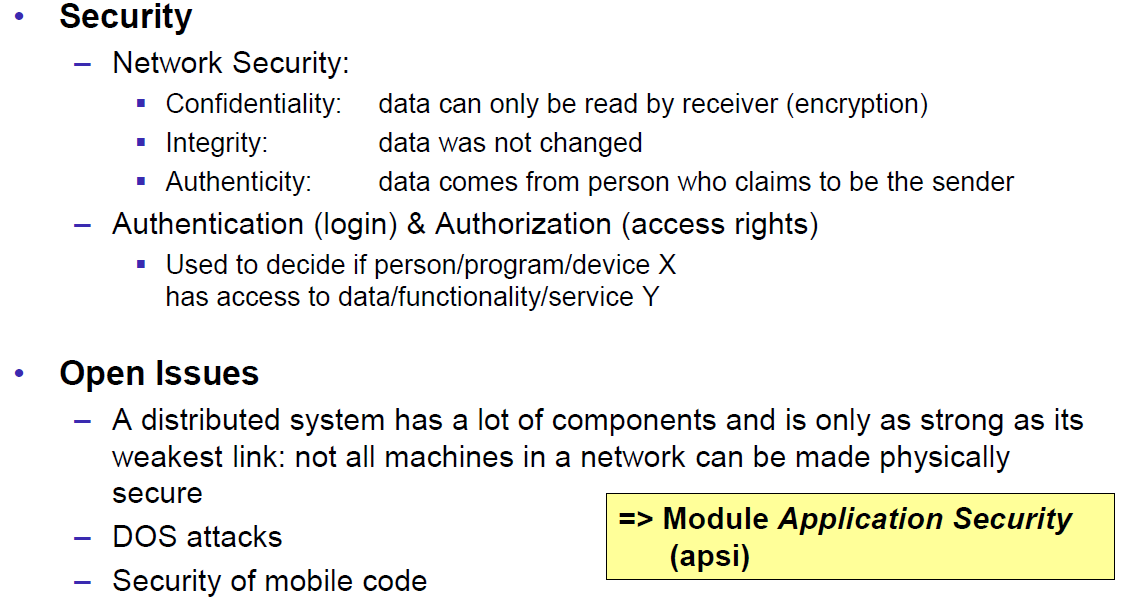
### Heterogeneity



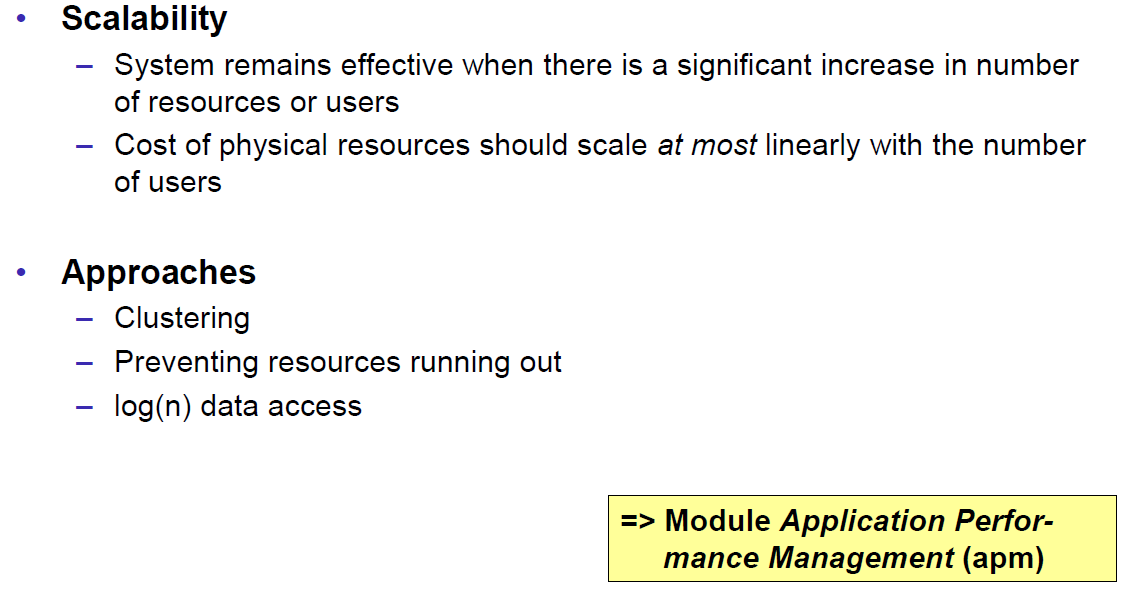
### Latency



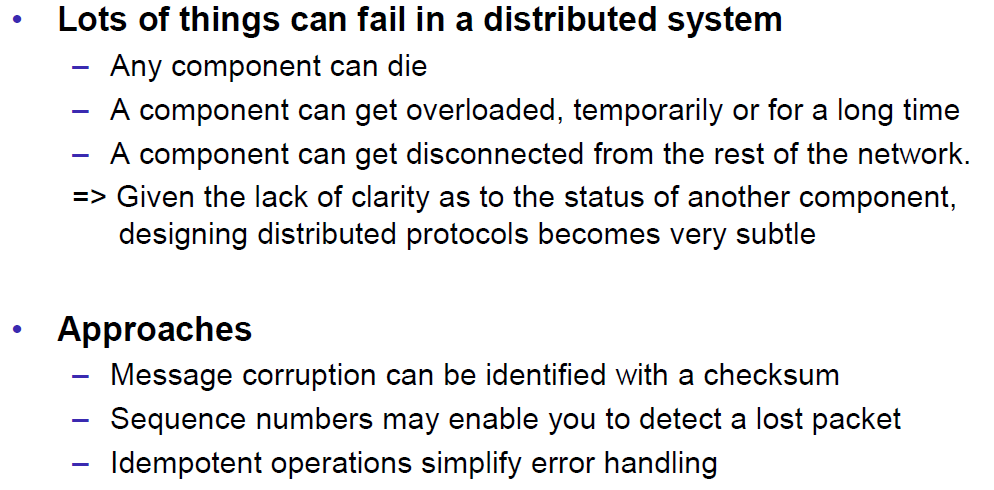
### Security



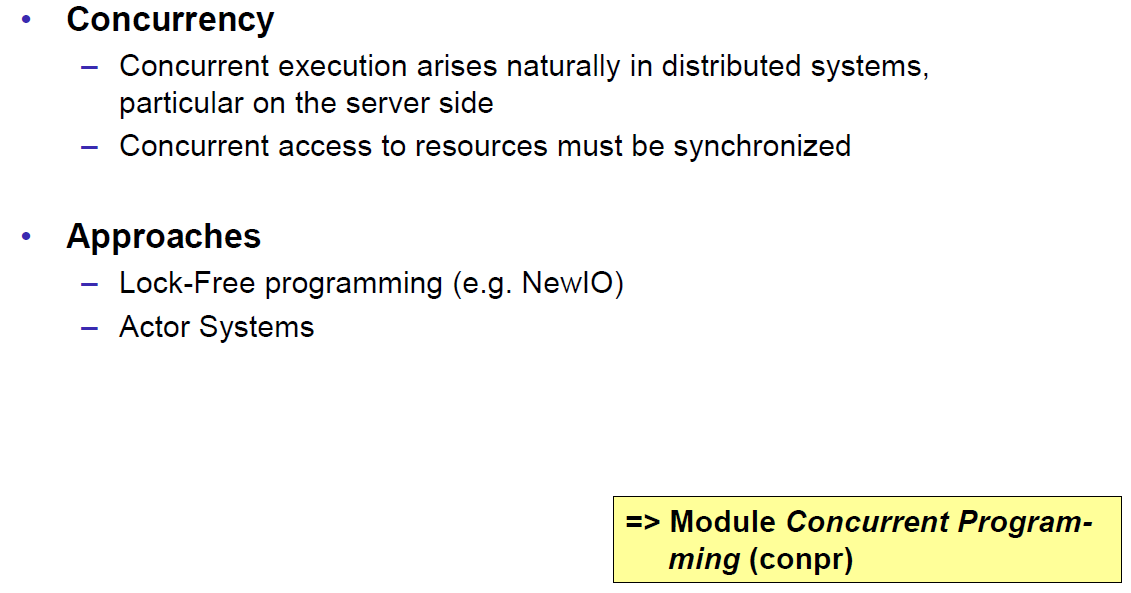
### Scalability



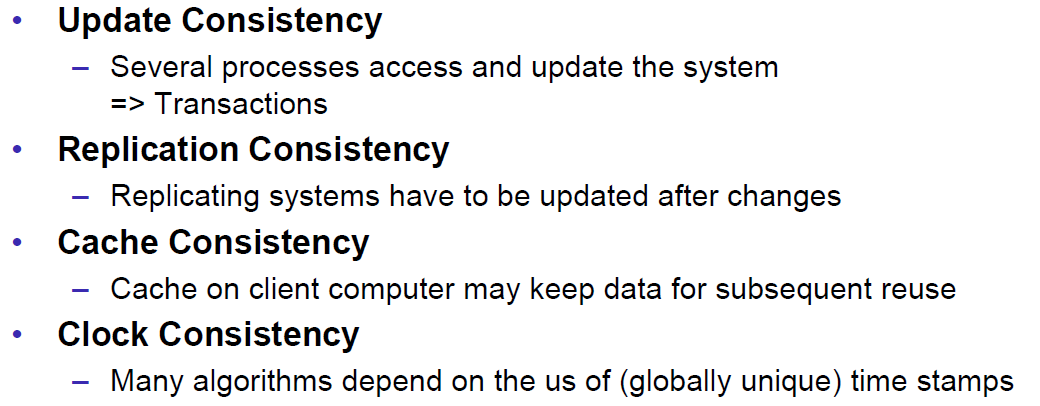
### Failures



### Concurrency

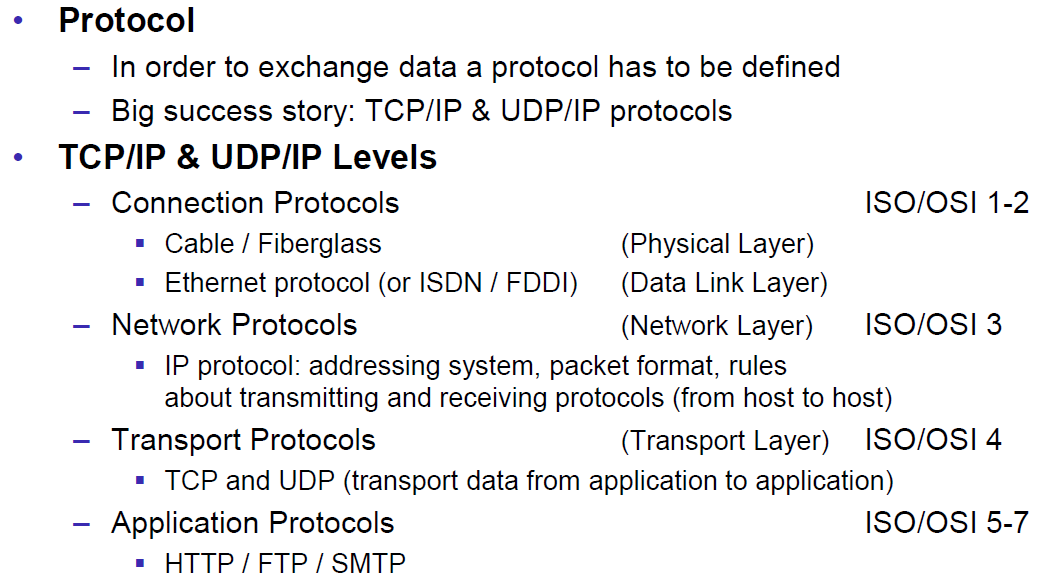


### Consistency

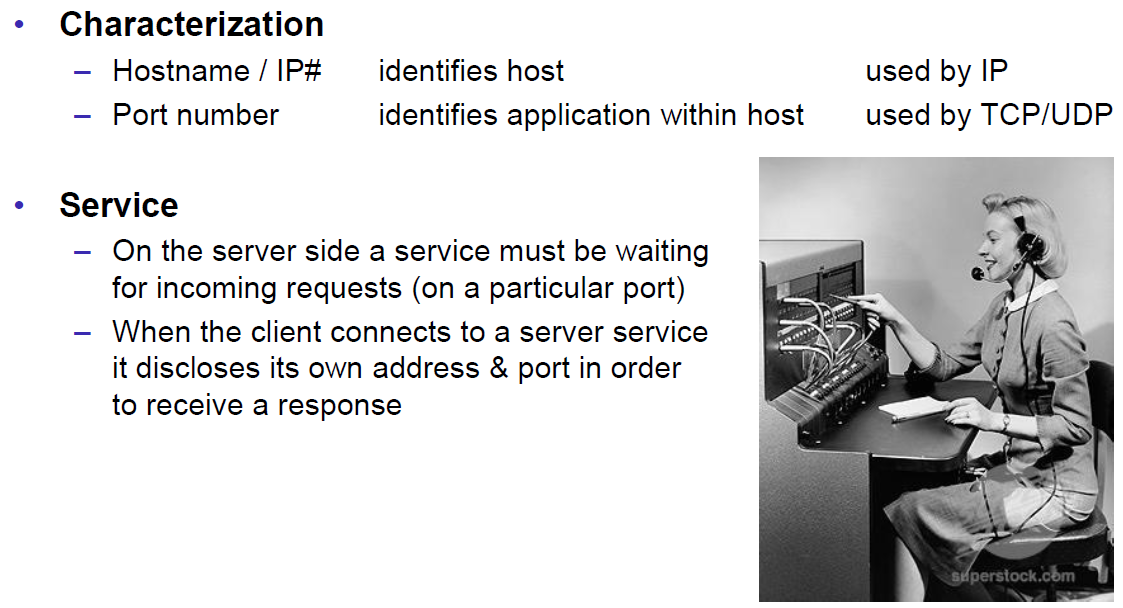


## Networking

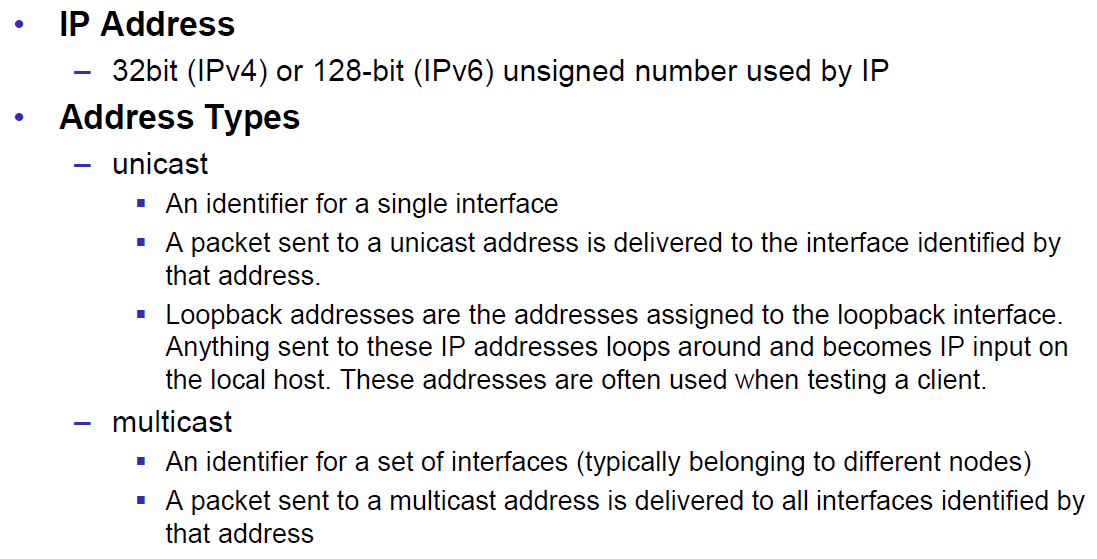
### Protocol & Network Levels



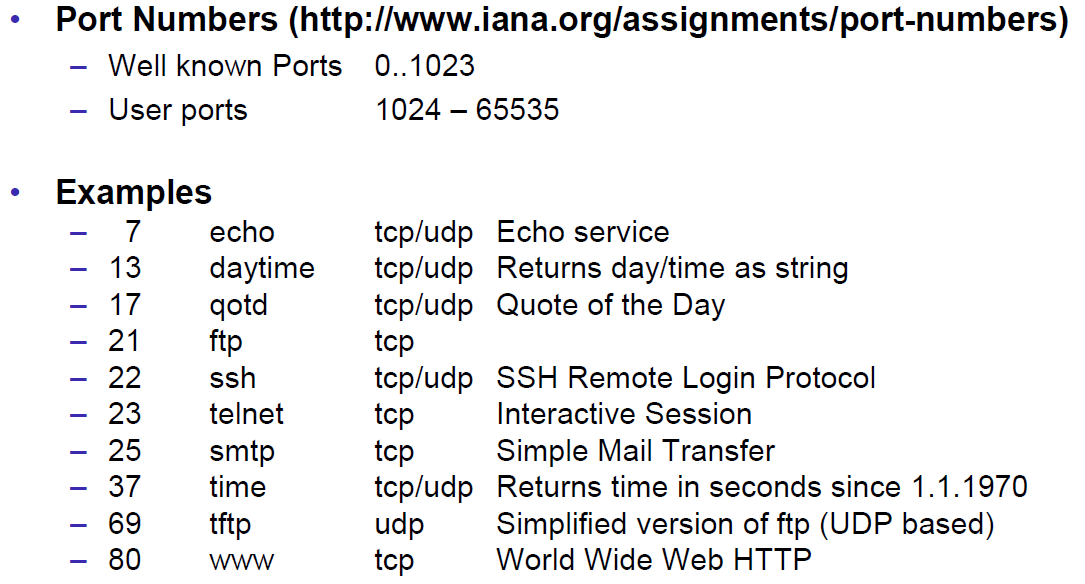
### IP Socket Connections



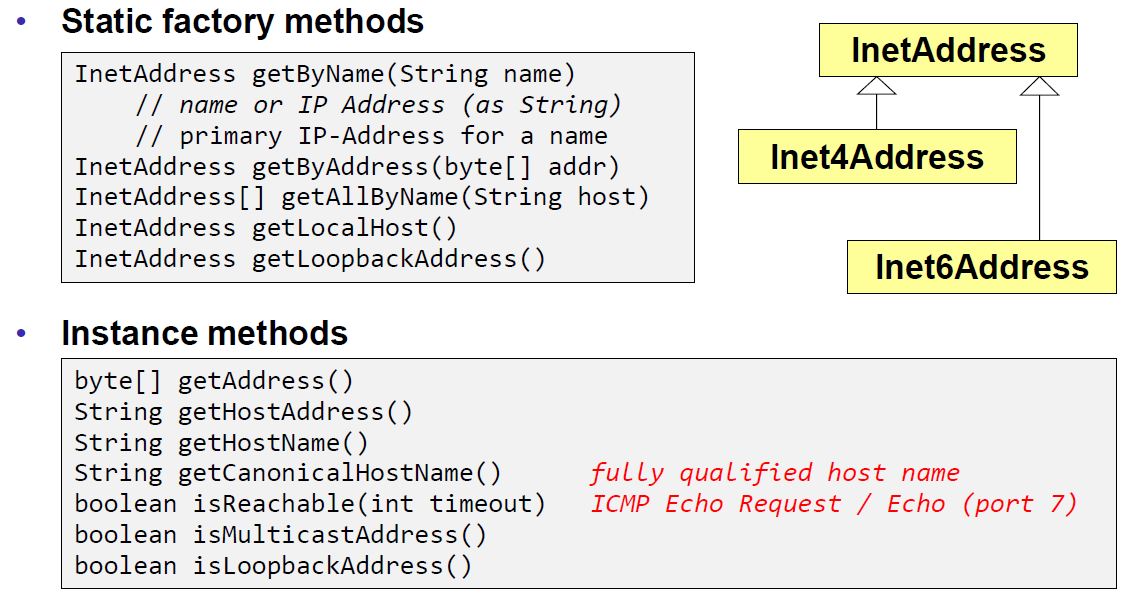
### IP Addressing



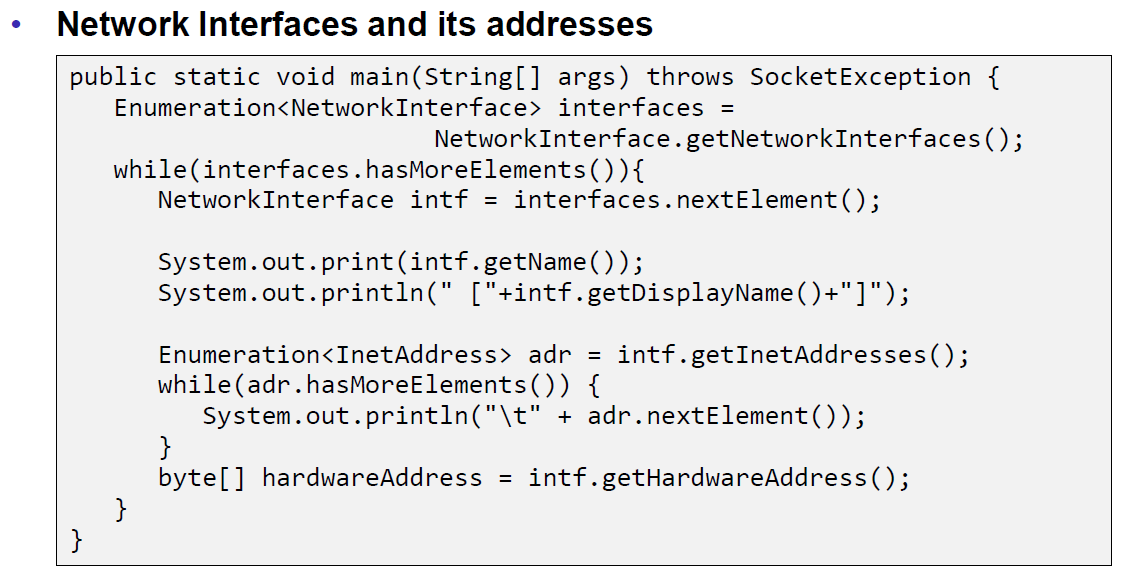
### TCP/UDP Common Port Numbers



### InetAddress

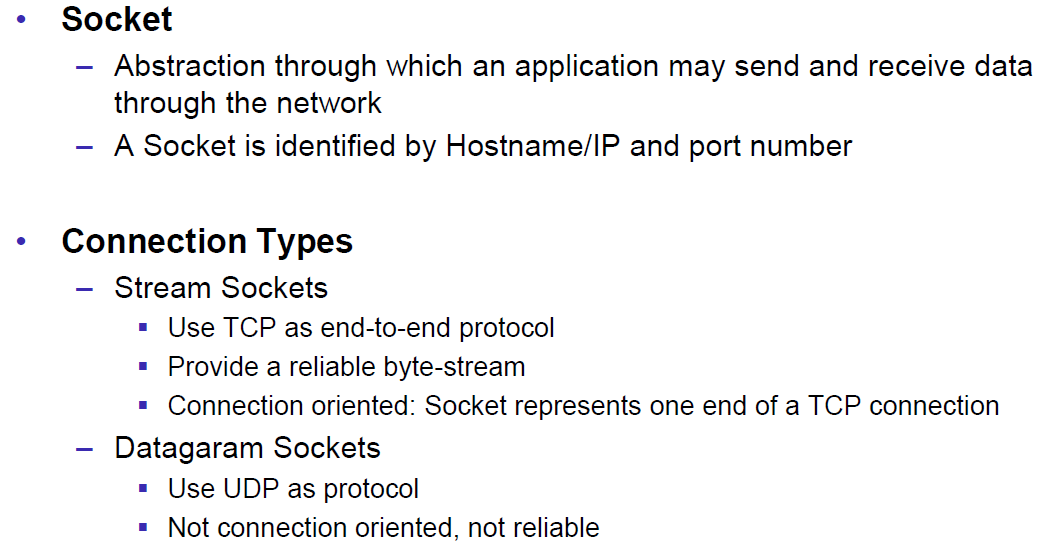


### Network Interfaces

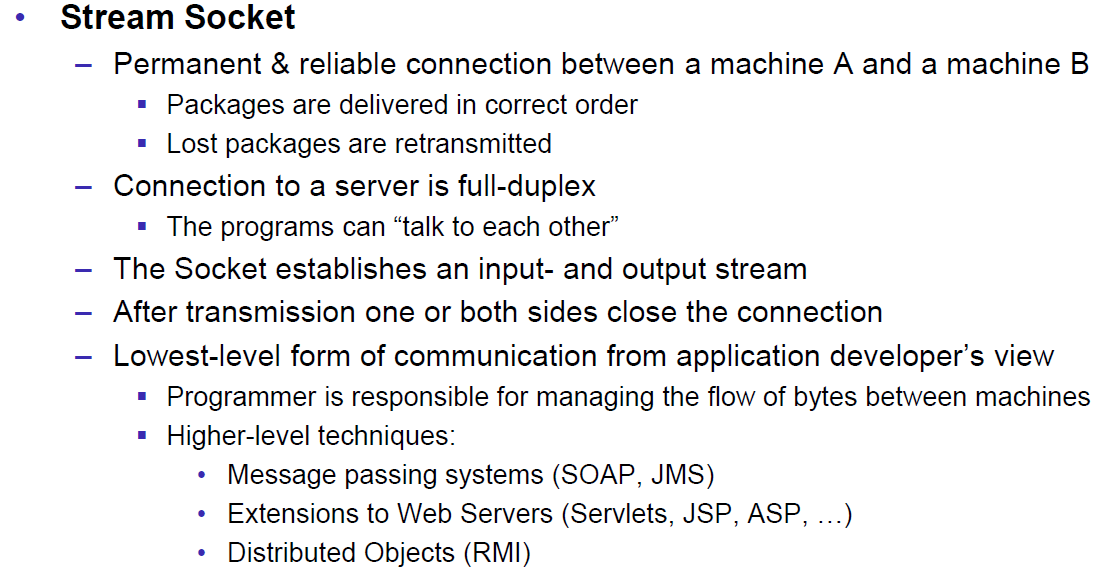


## Sockets

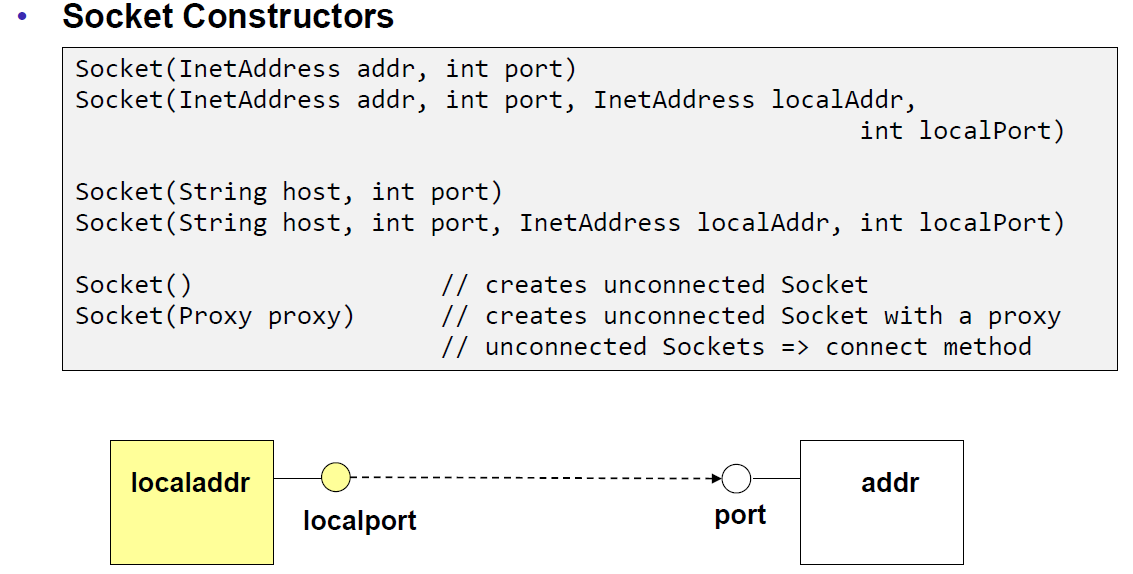
### Sockets

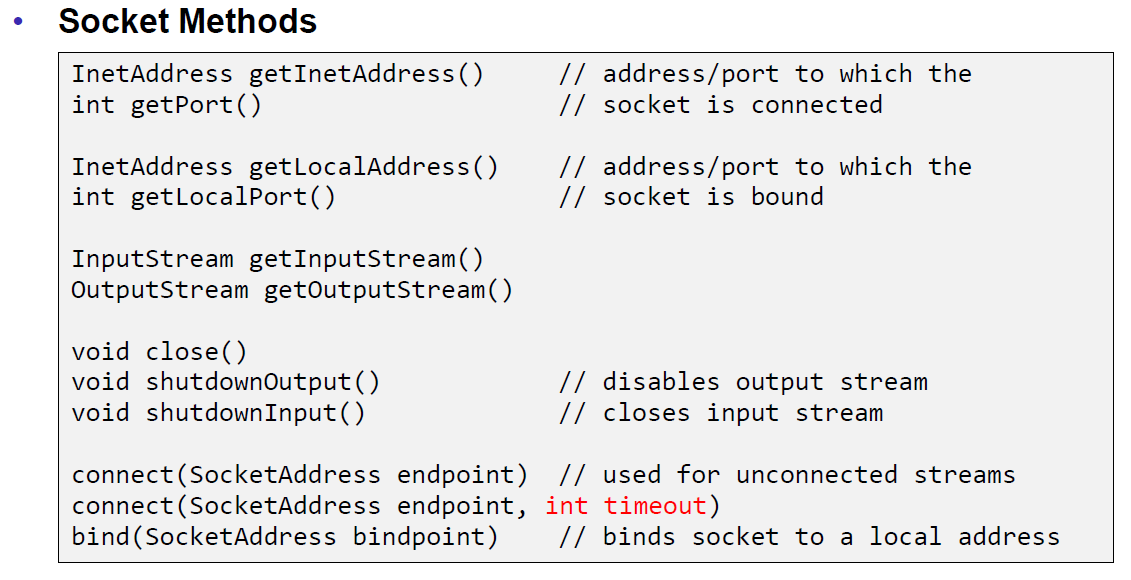


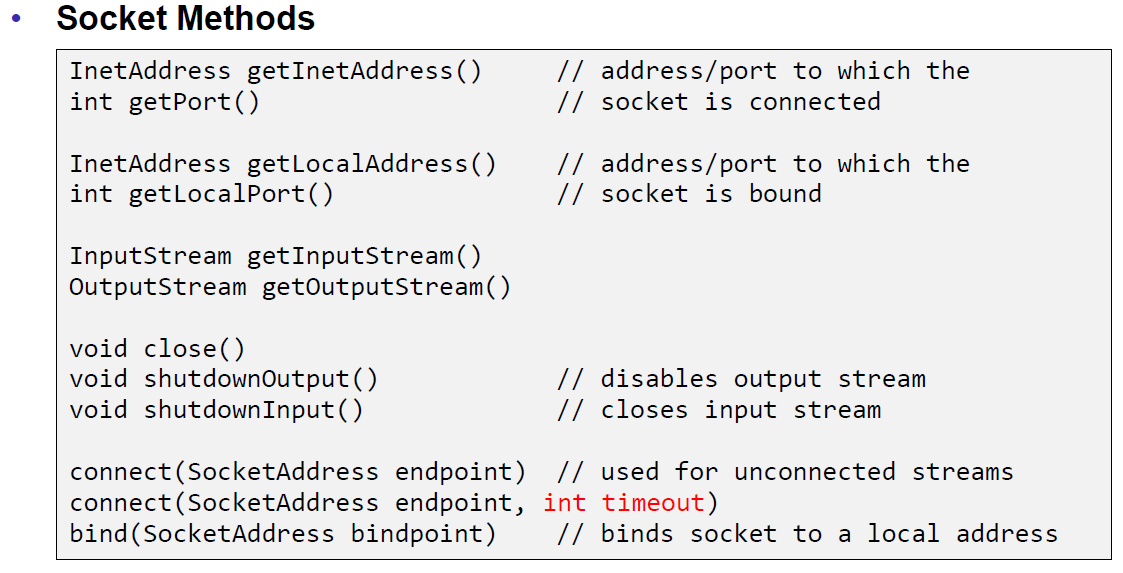
### TCP Sockets



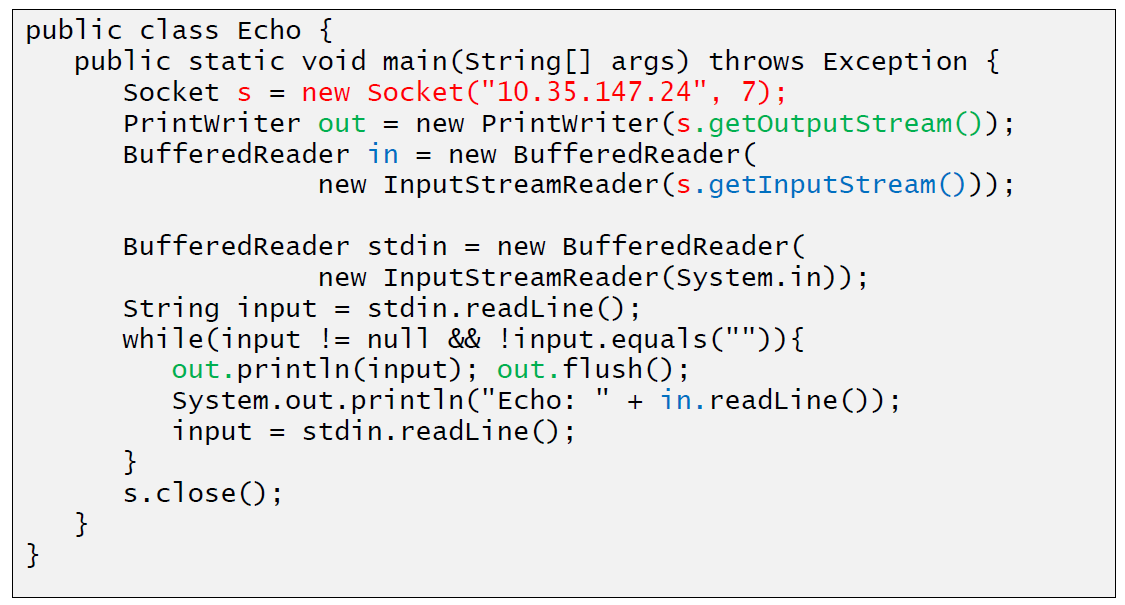
### Java Socket



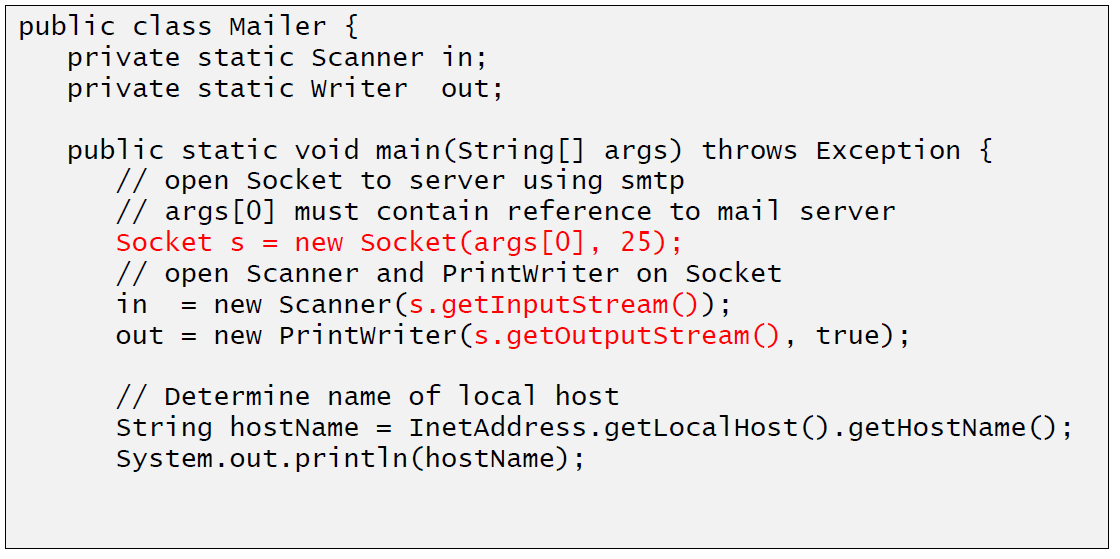


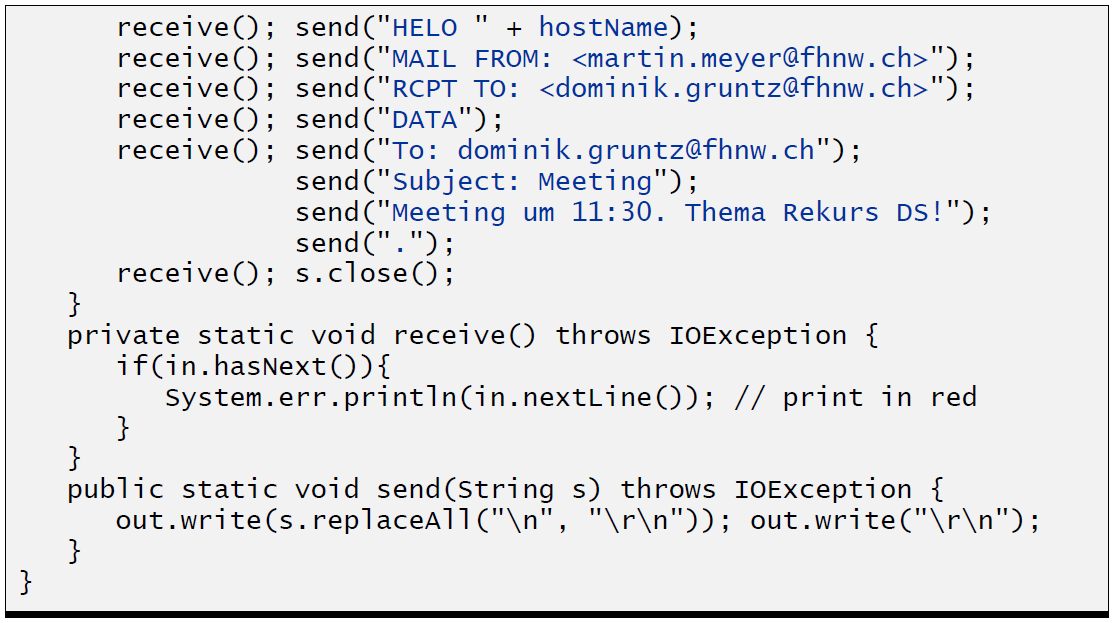


### Sample Client (Echo)

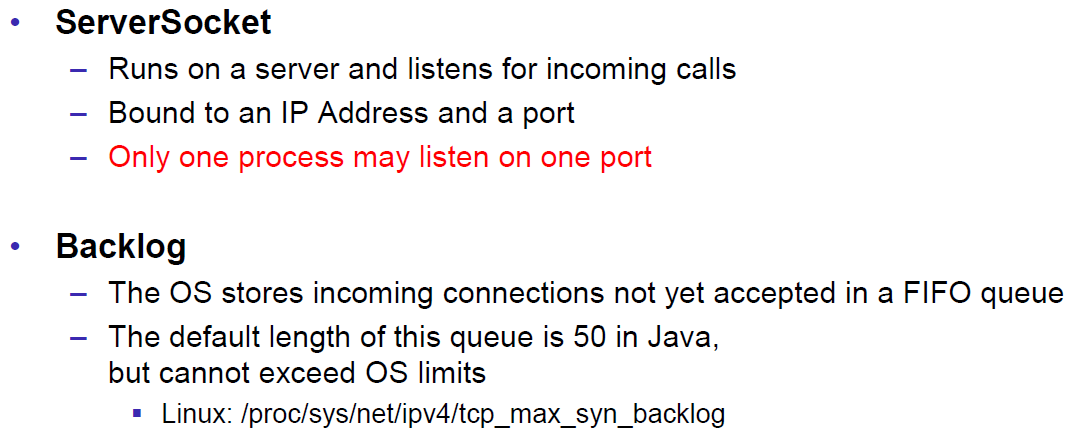


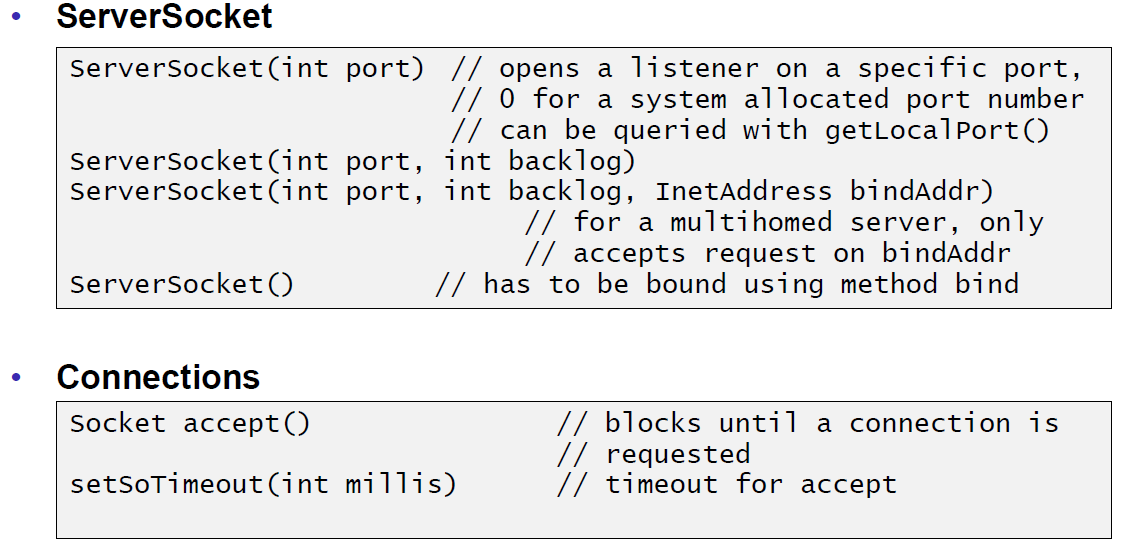
### Sample Client (Mailer)



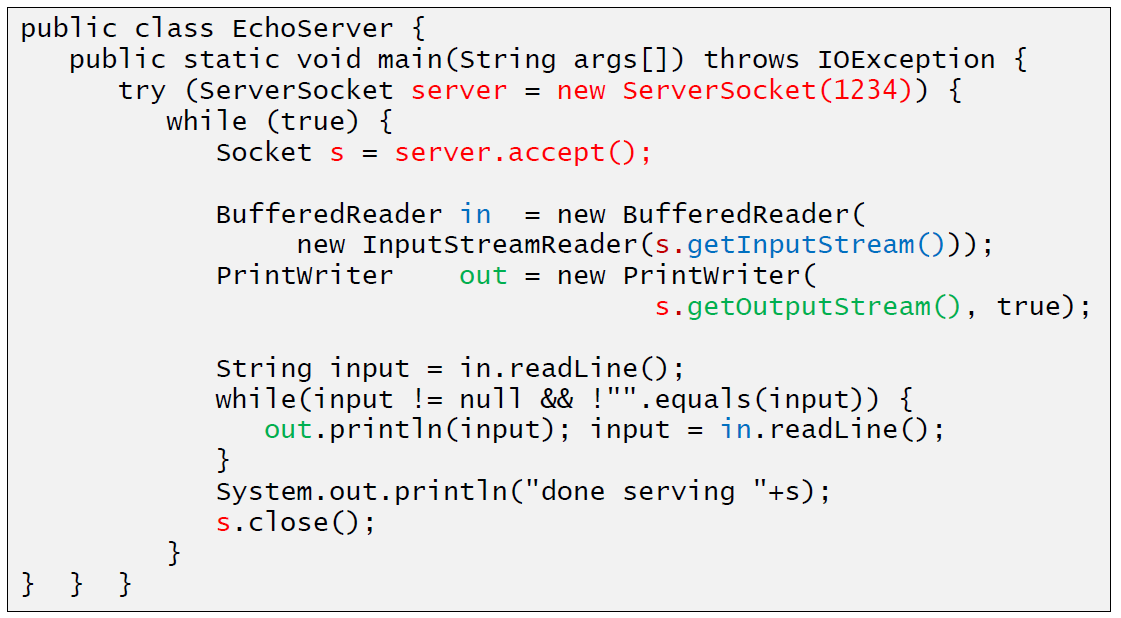


### ServerSocket

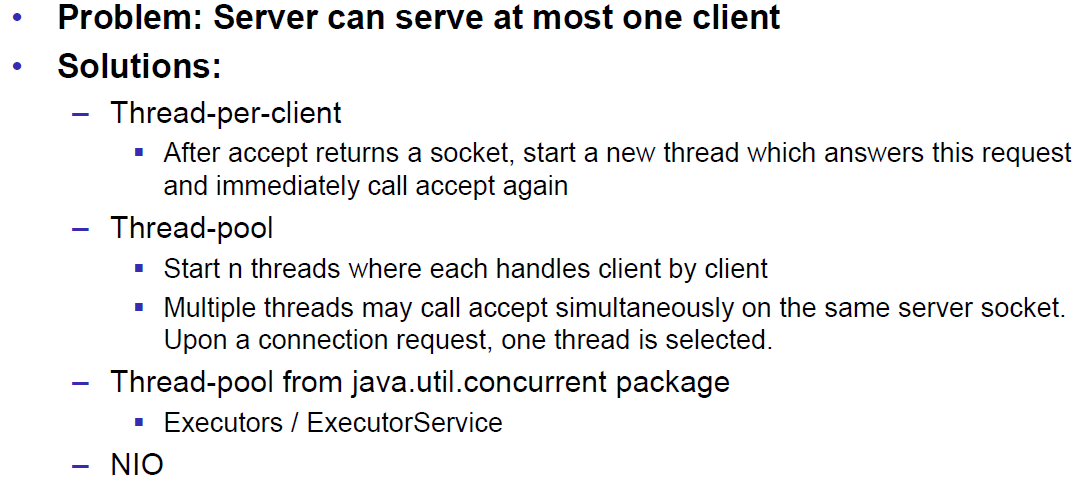




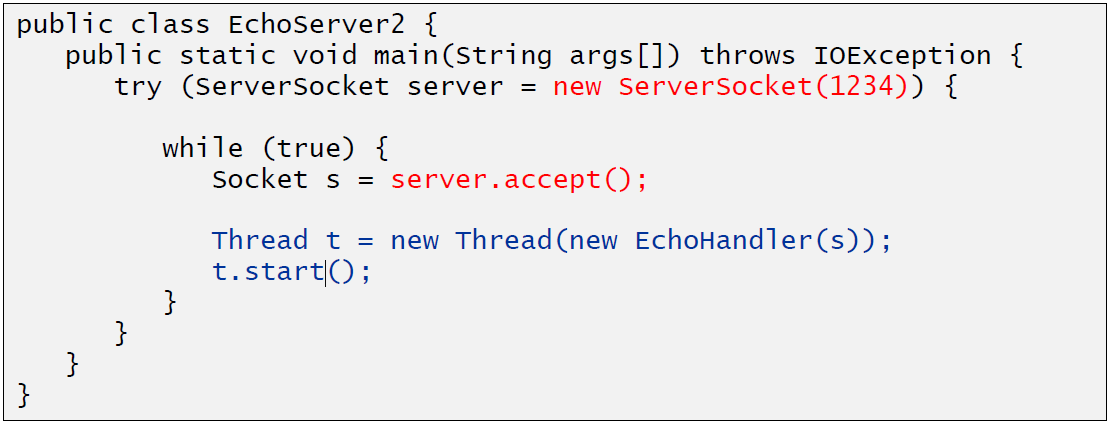
### Echo Server

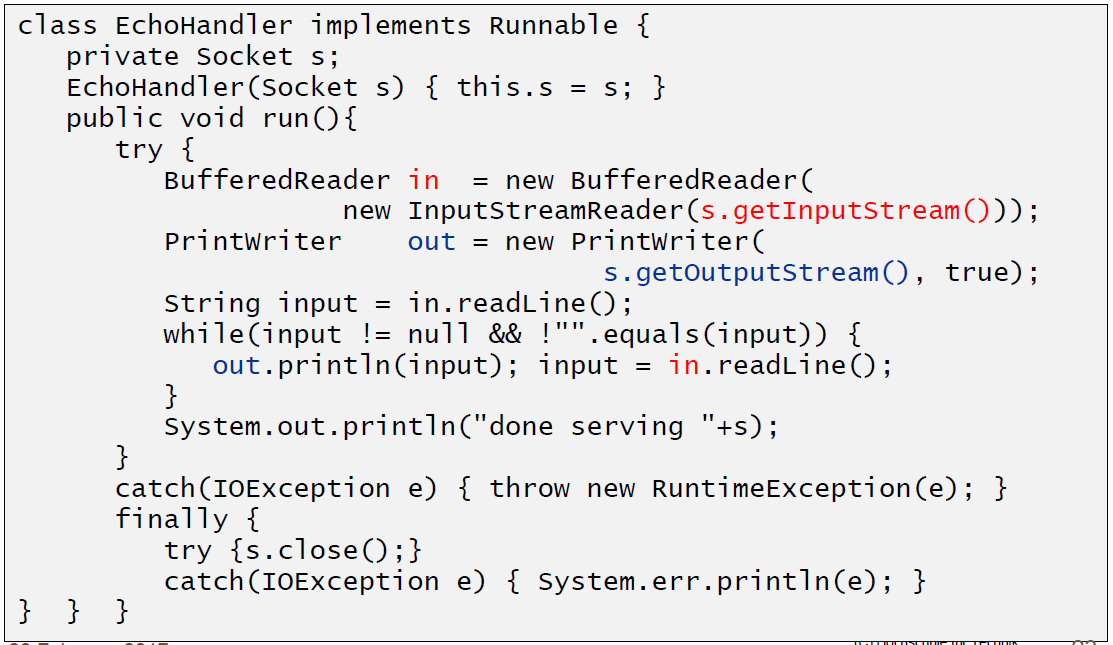


### Concurrent Echo Server

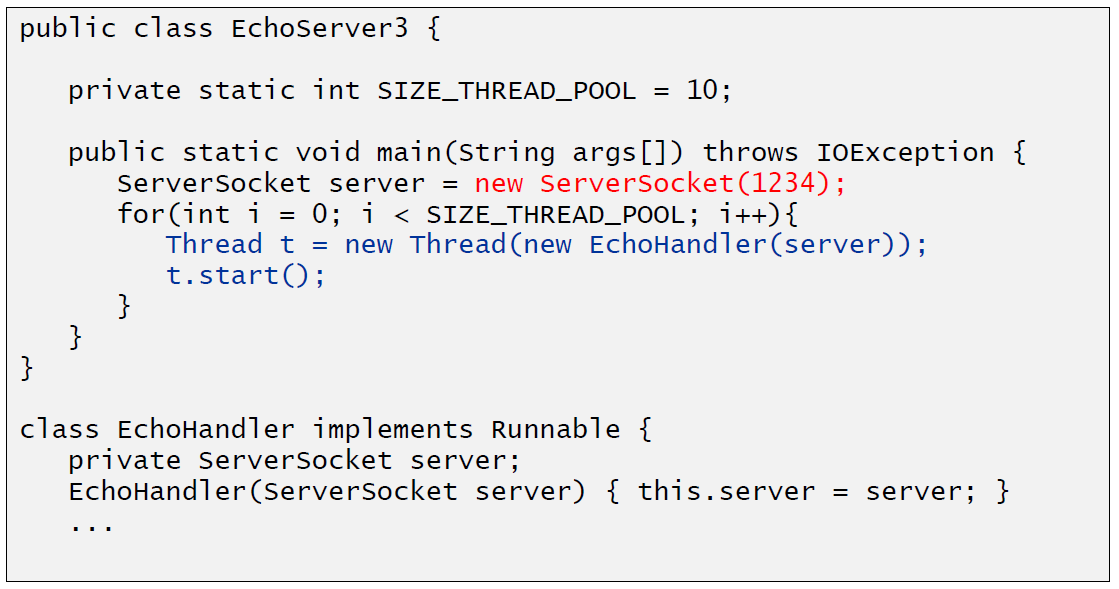


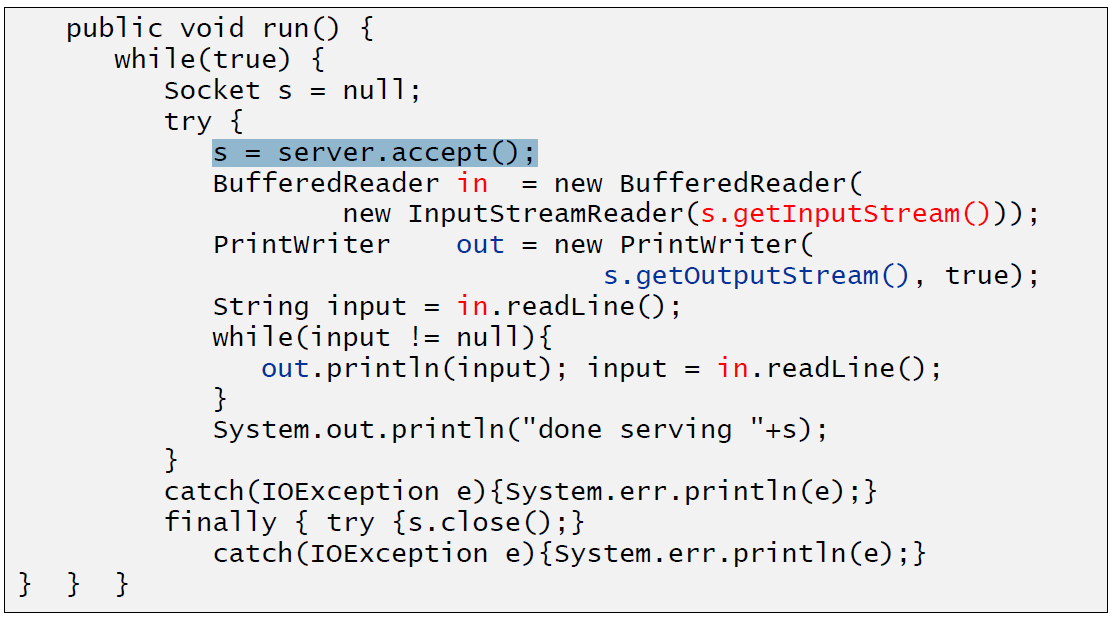
### Concurrent Echo Server (Threaded)



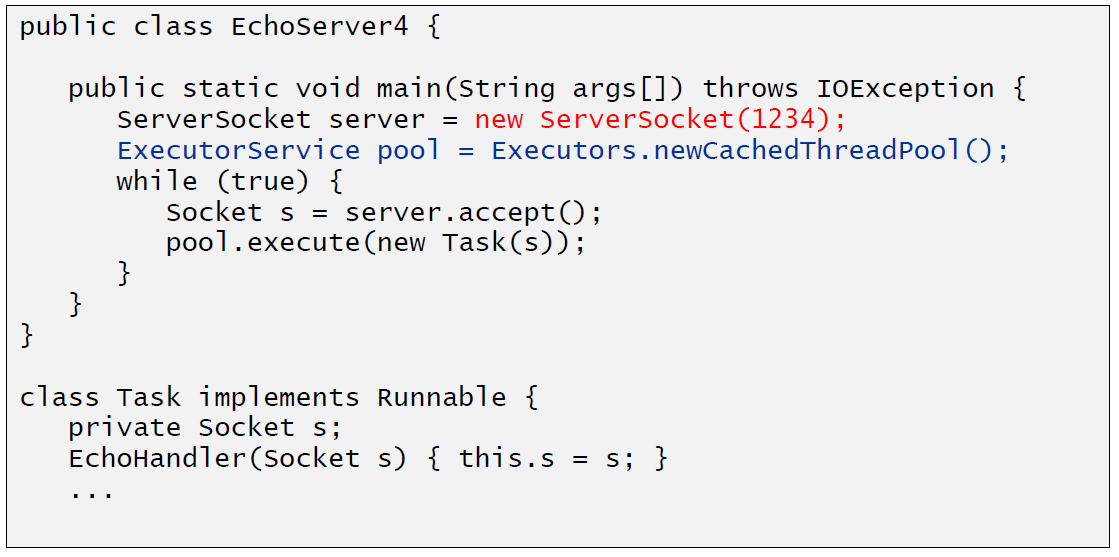


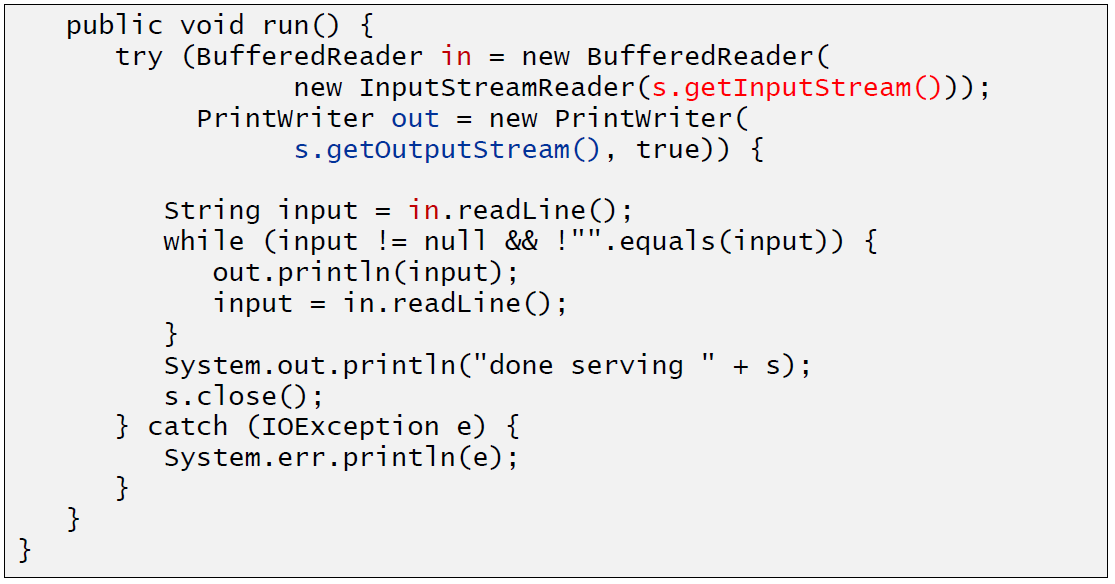
### Concurrent Echo Server (Limitierter Threadpool)





### Concurrent Echo Server (Dynamischer Threadpool)





# Woche 2

TODO