

Abbildung 2-1: Clients und Server C+S

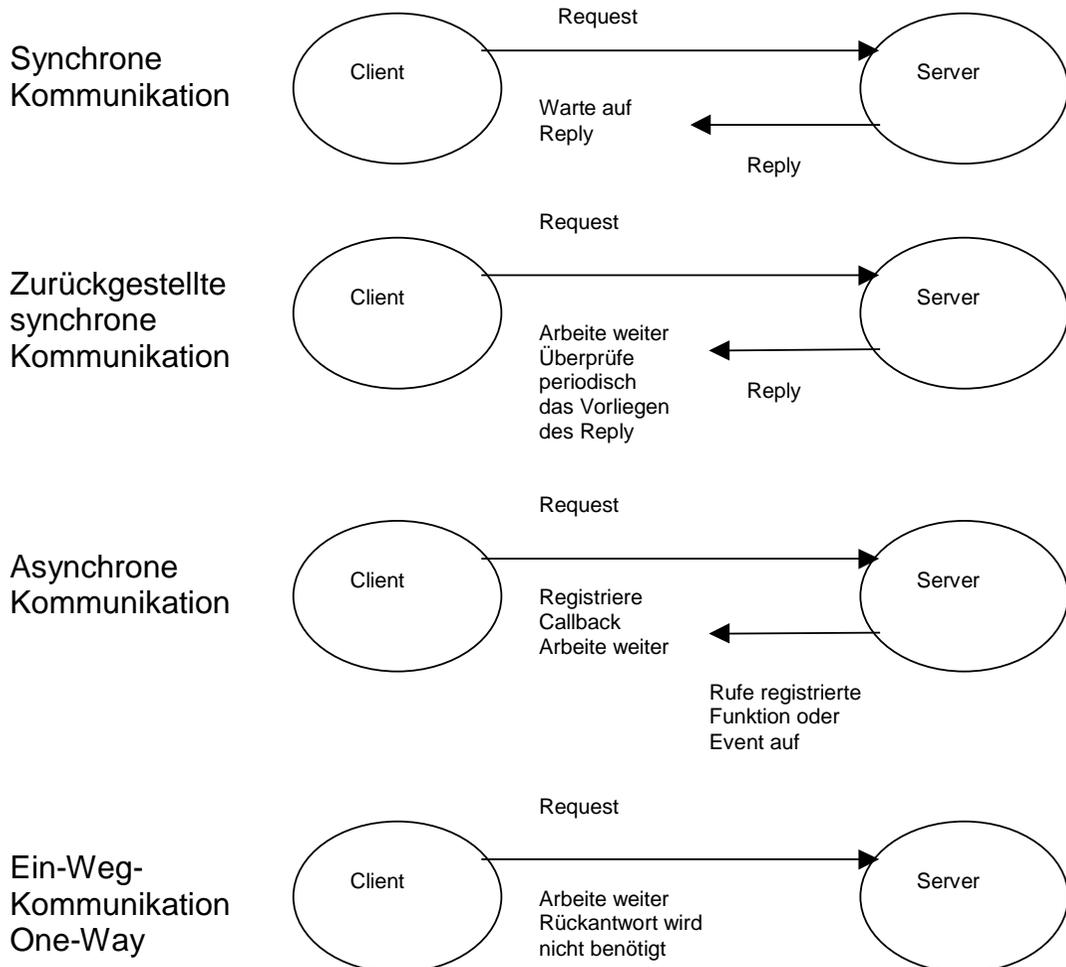
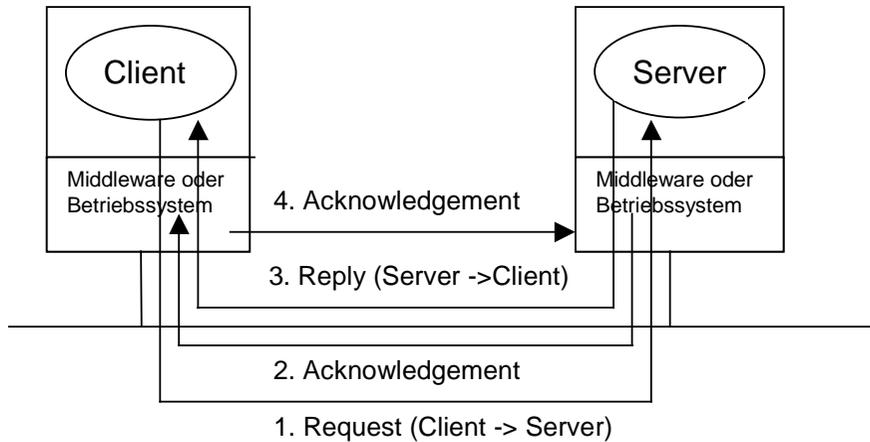
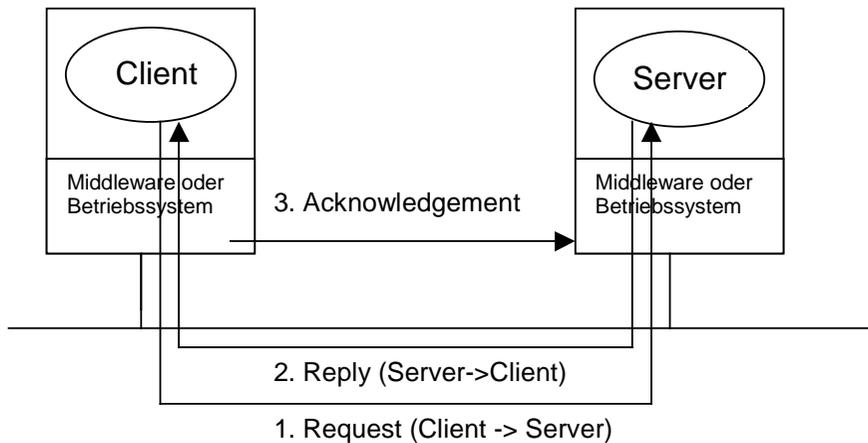


Abbildung 2-2: Interaktionskoordinationsarten

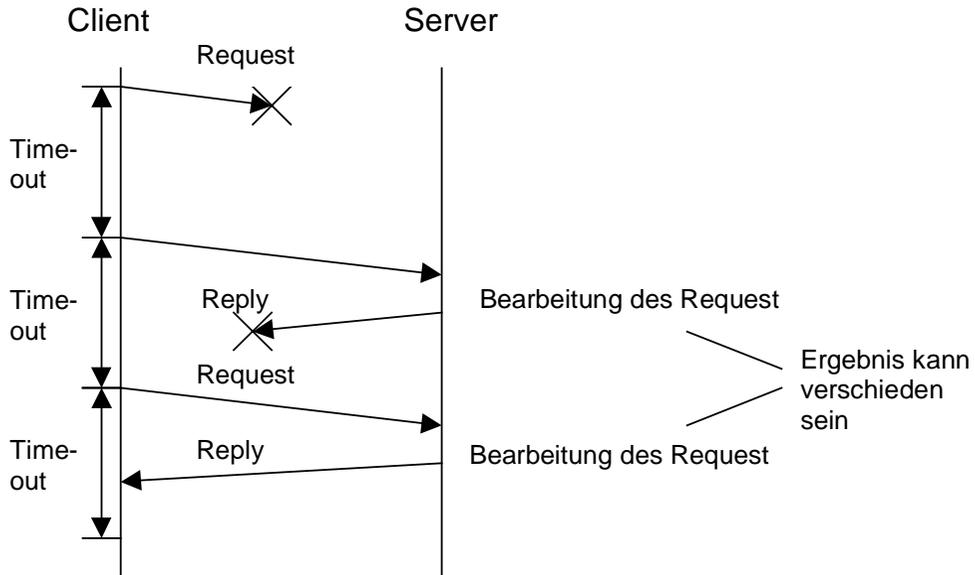


a) Individuell quitierte Nachrichten

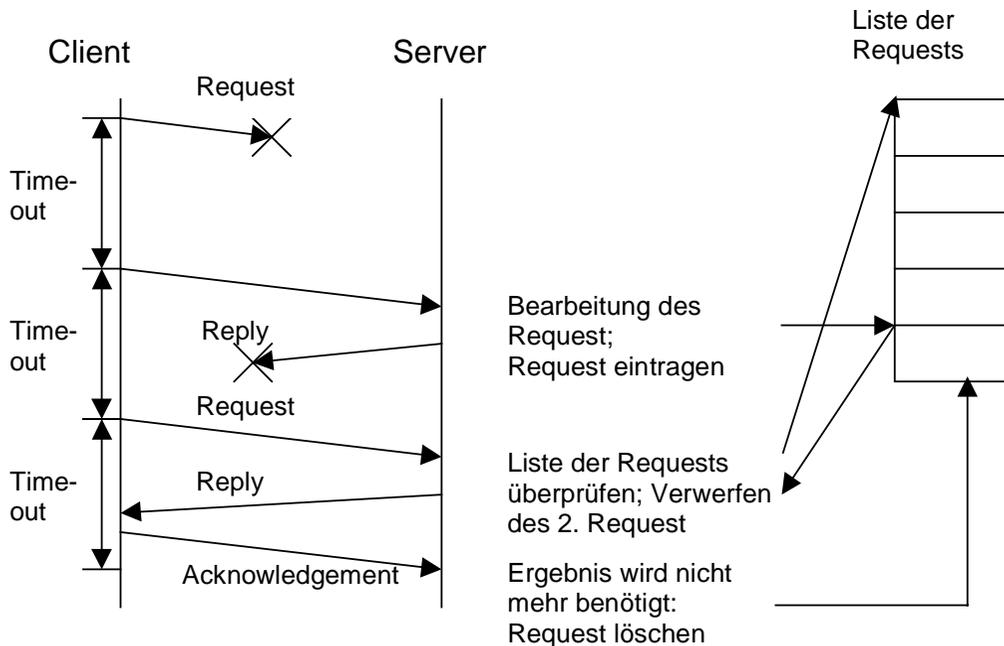


b) Quittierung eines Request und Reply

Abbildung 2-3: Zuverlässige Nachrichtenübertragung
 a) durch individuell quitierte Nachrichten
 b) durch Quittierung eines Request und Reply



a) at least once Semantik



b) at most once Semantik

**Abbildung 2-4: Vergleich der
 a) at least once und
 b) at most once bzw. exactly once Semantik**

```
main()
{
  initialization;
  for(;;) {
    get_request();

    process_request;
    send_reply;
  }
  ...
}
```

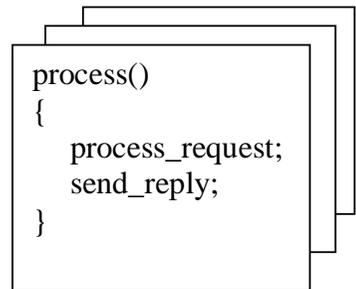
a) iterativer Server

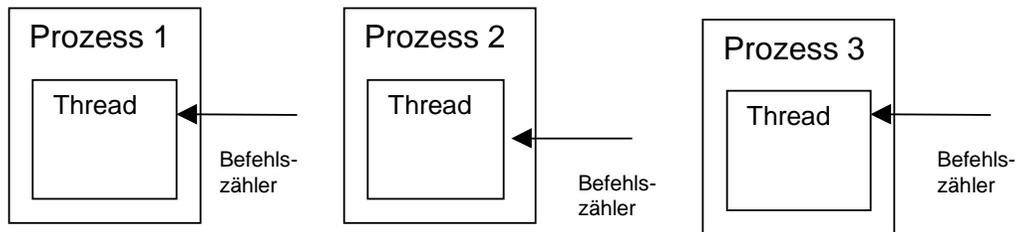
```
main()
{
  initialization;
  for(;;) {
    get_request();

    create_process();
  }
  ...
}
```

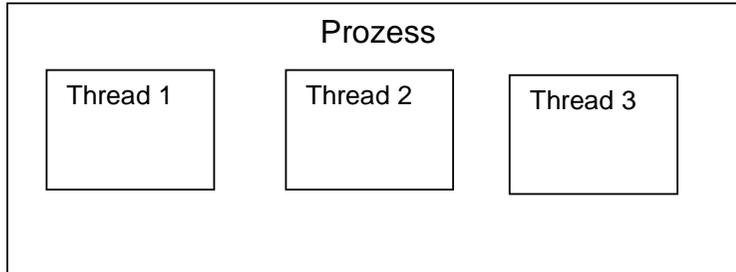
b) paralleler Server

```
process()
{
  process_request;
  send_reply;
}
```





a) Drei Prozesse mit jeweils einem Thread



b) ein Prozess mit drei Threads

Thread Control Block (TCB)

Hardwarekontext: Befehlszähler Register Keller
Softwarekontext: Thread Identifier Child Threads

Process Control Block (PCB)

Hardwarekontext: Befehlszähler Register Keller
Softwarekontext: Process Identifier Adressraum Globale Variablen Offene Files Child Processes Accounting Information ...

Abbildung 2-7: Information für einen Thread und einen Prozess

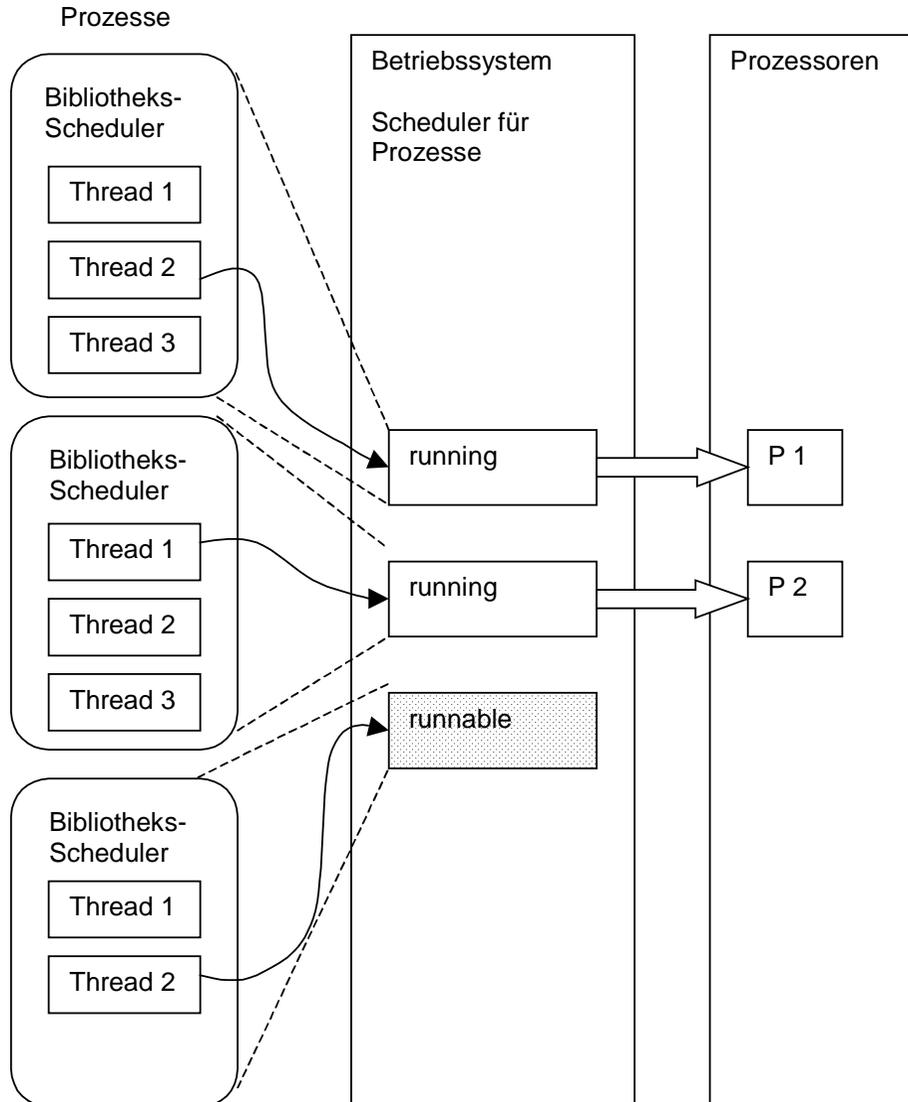


Abbildung 2-8: Threads auf Benutzerebene

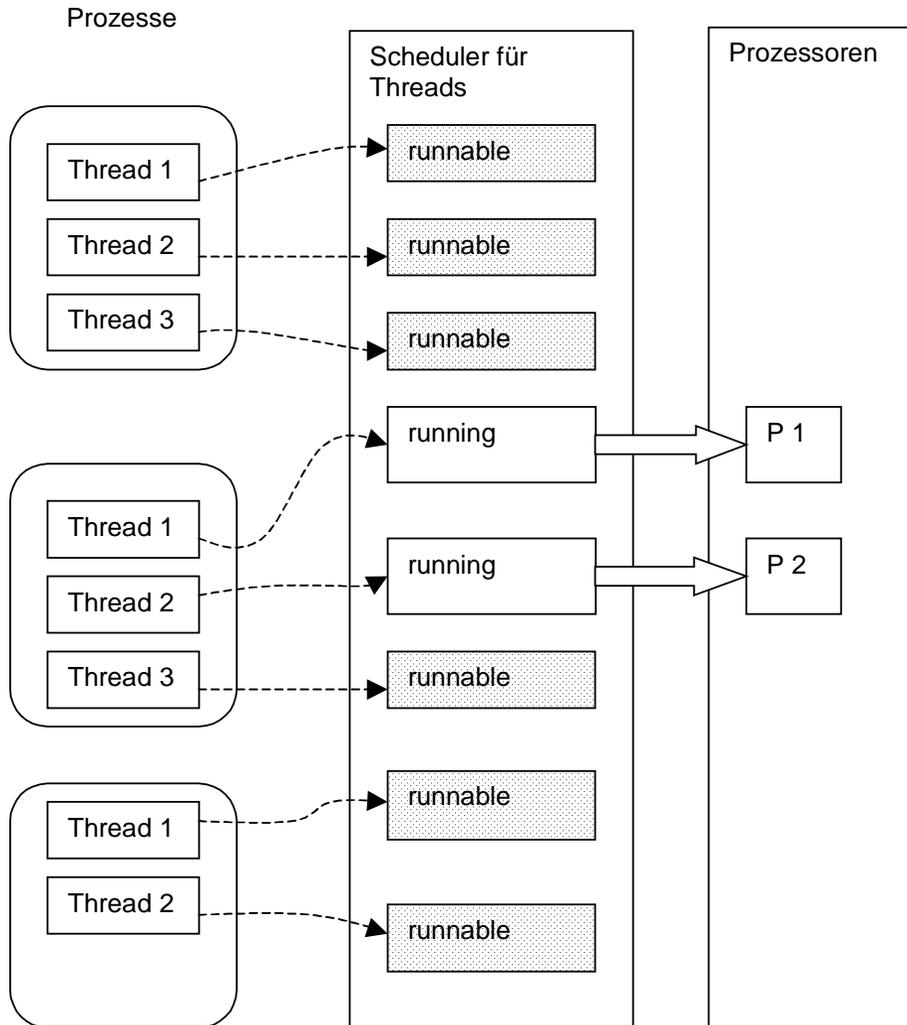


Abbildung 2-9: Threads auf Betriebssystemebene

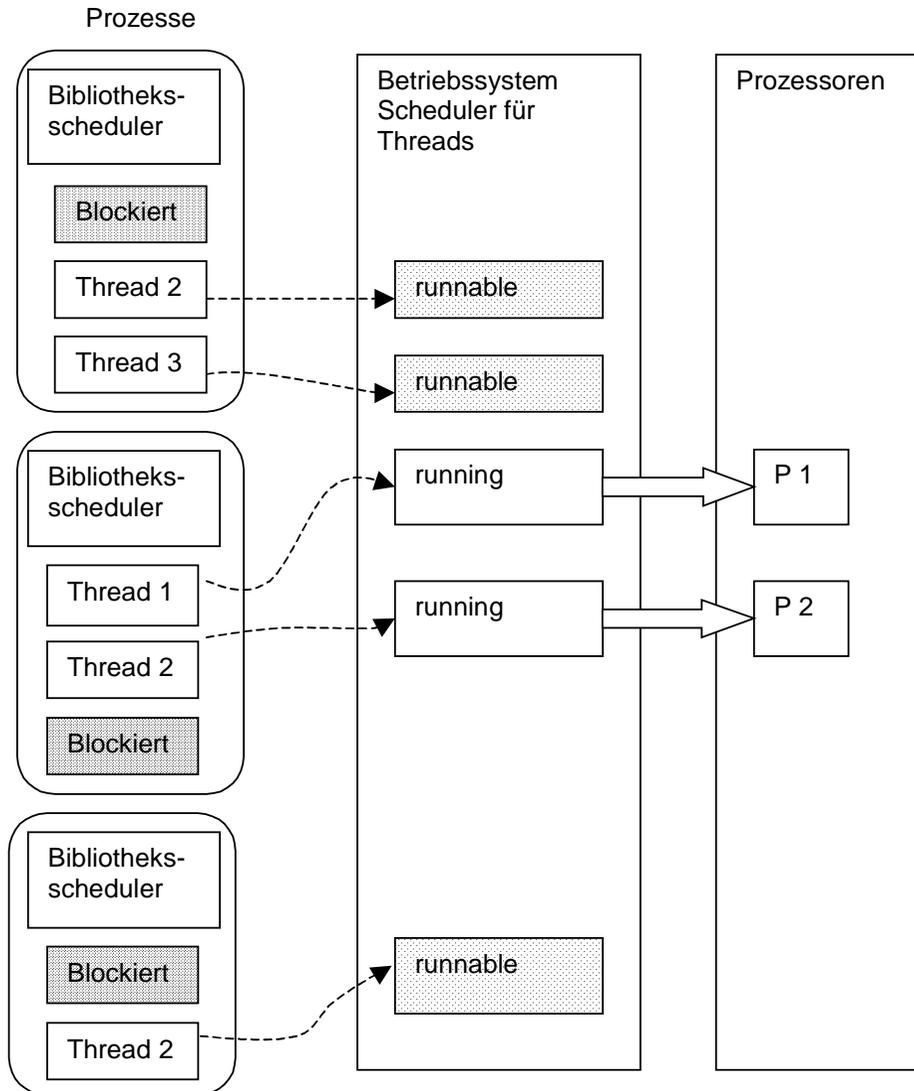


Abbildung 2-10: two-level Scheduler

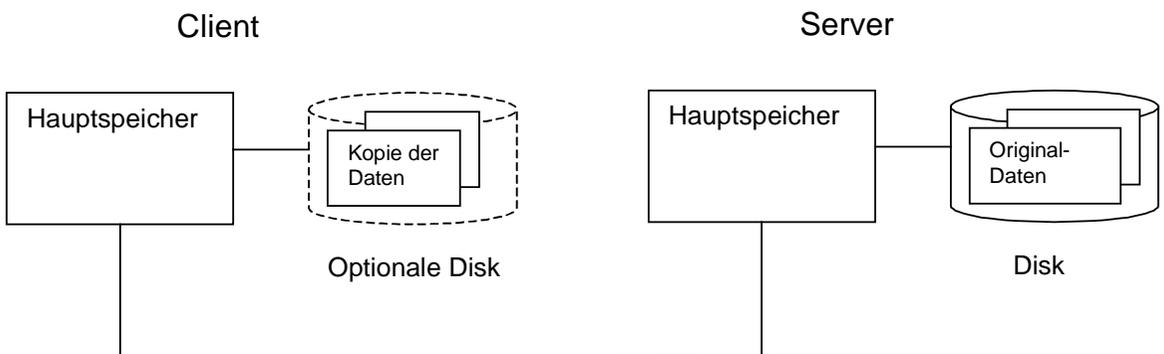


Abbildung 2-11: Client Caching

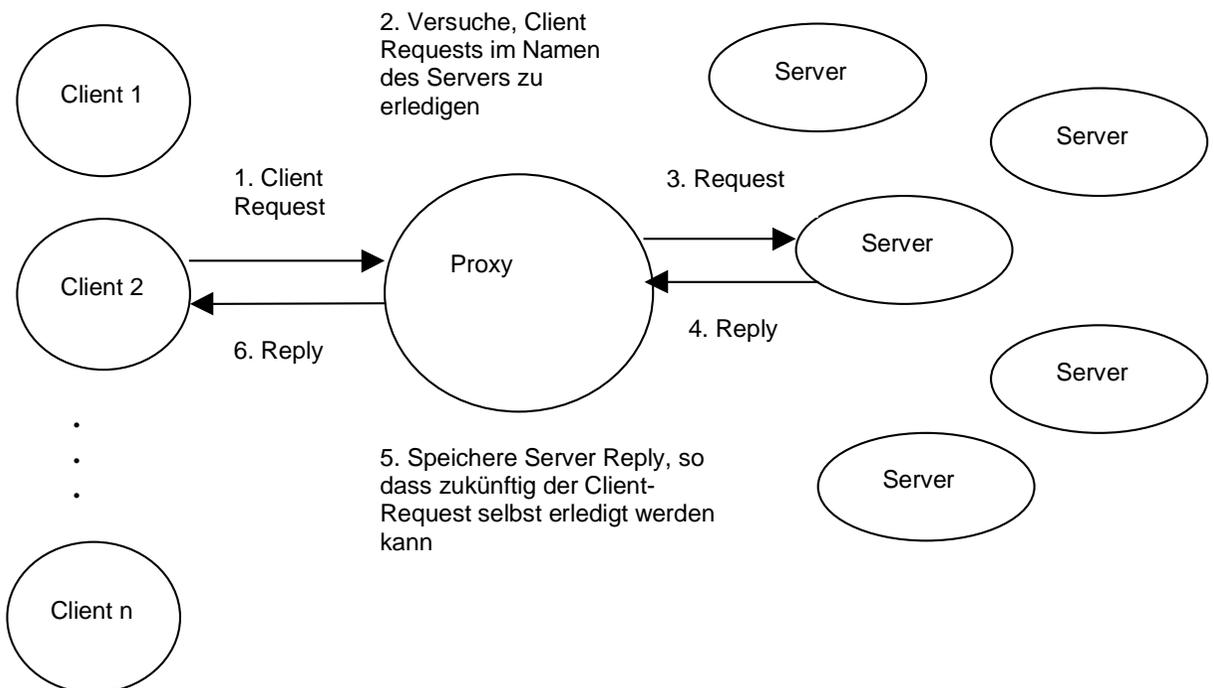
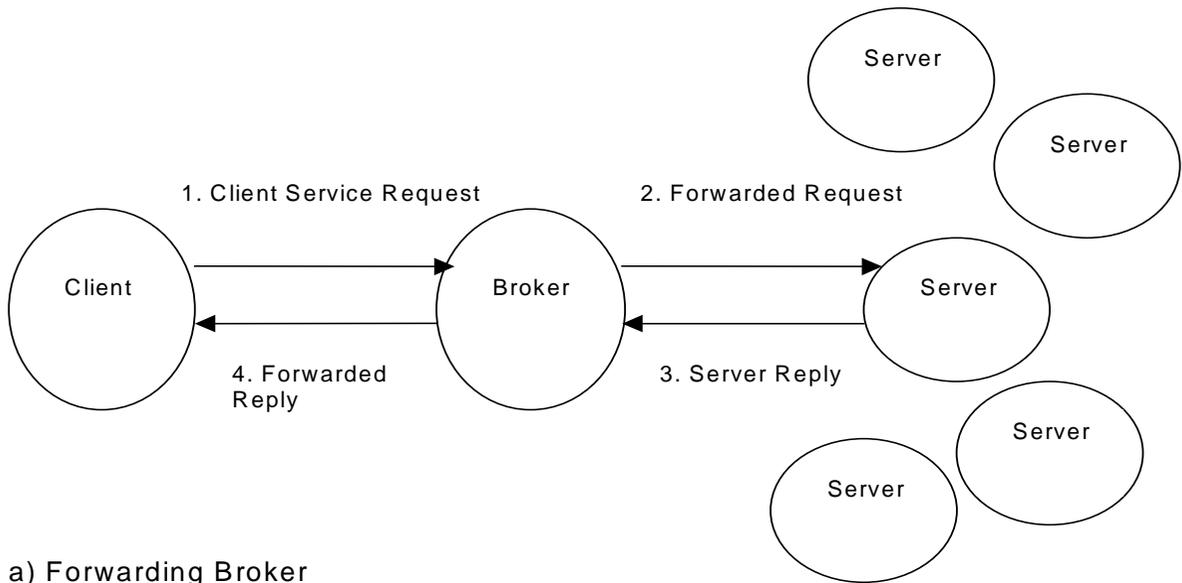
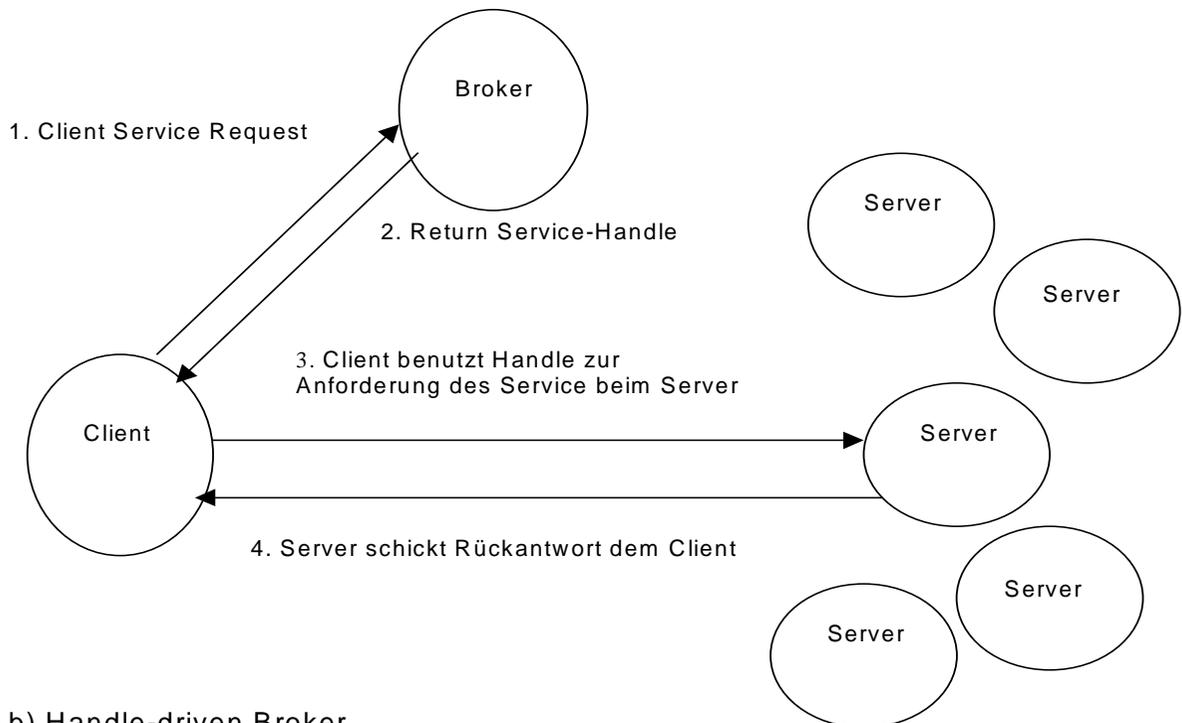


Abbildung 2-12: Proxy-Server



a) Forwarding Broker



b) Handle-driven Broker

Abbildung 2-13: Broker Modelle:
a) Forwarding Broker
b) Handle-driven Broker

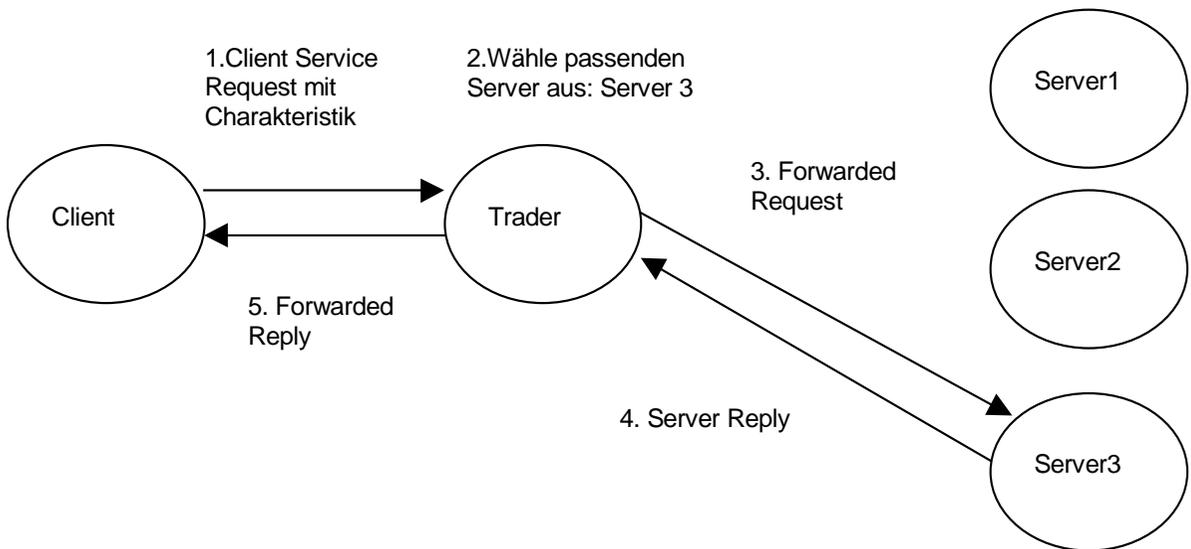


Abbildung 2-14: Client-Trader-Server mit forwarding Technik

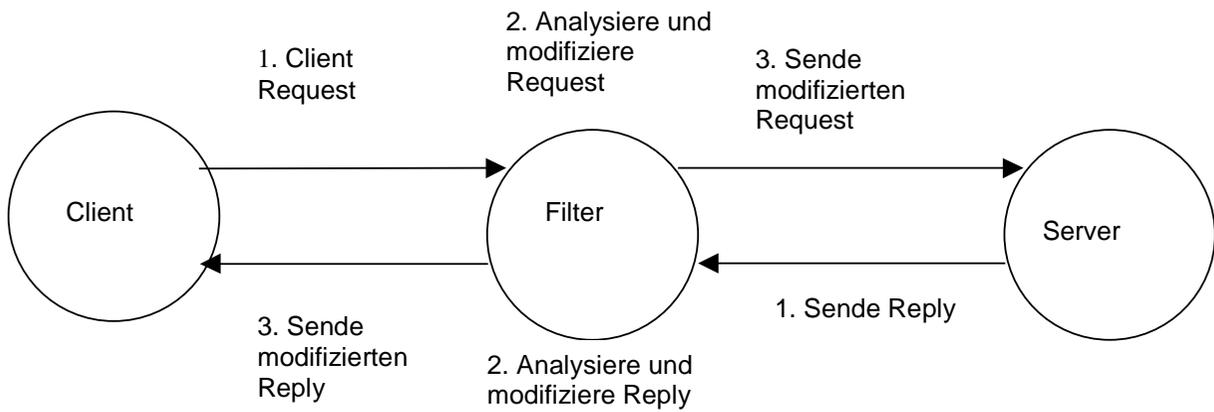


Abbildung 2-15: Client-Filter-Server C+S_FS⁼

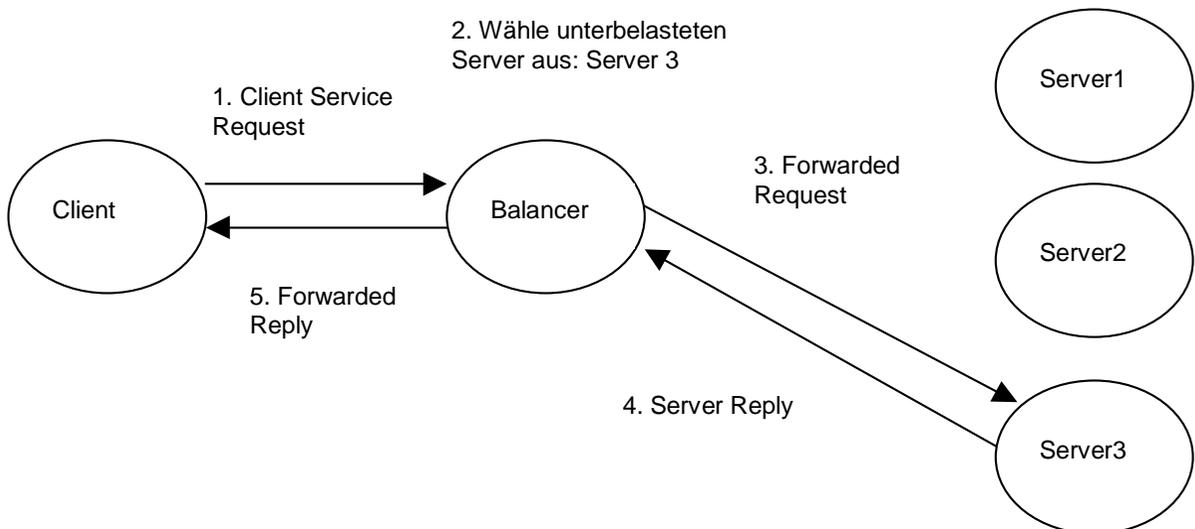


Abbildung 2-16: Client-Balancer-Server mit forwarding Technik

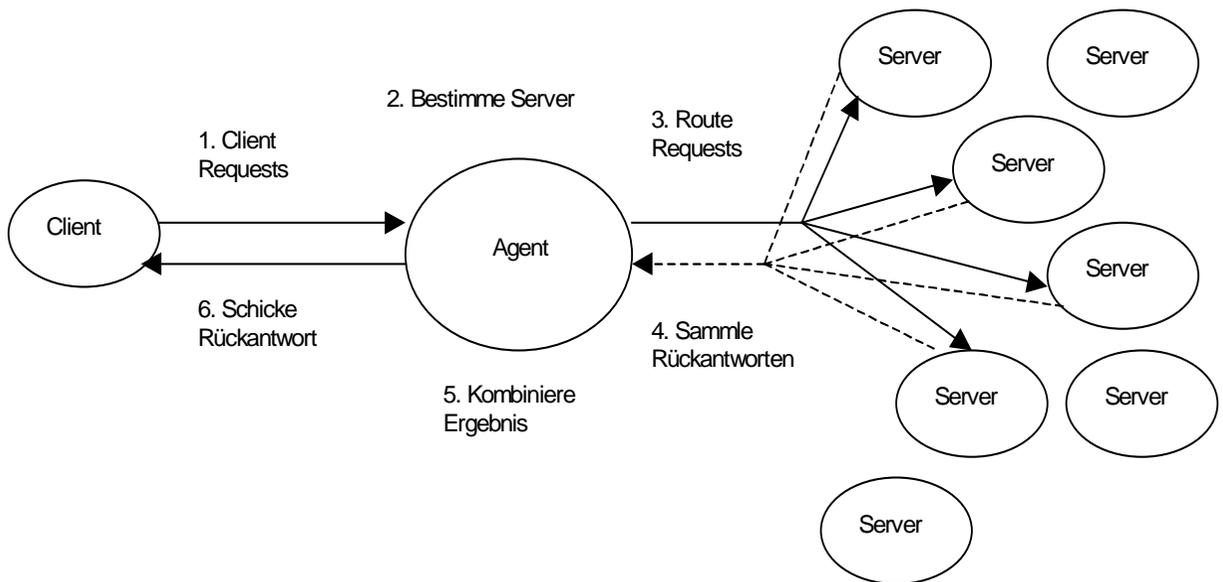
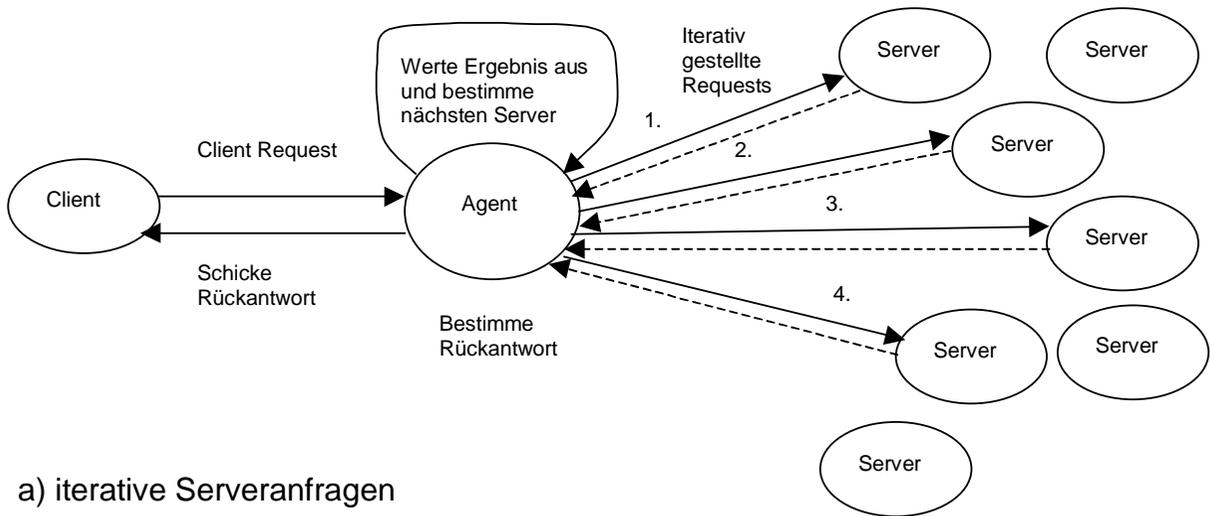
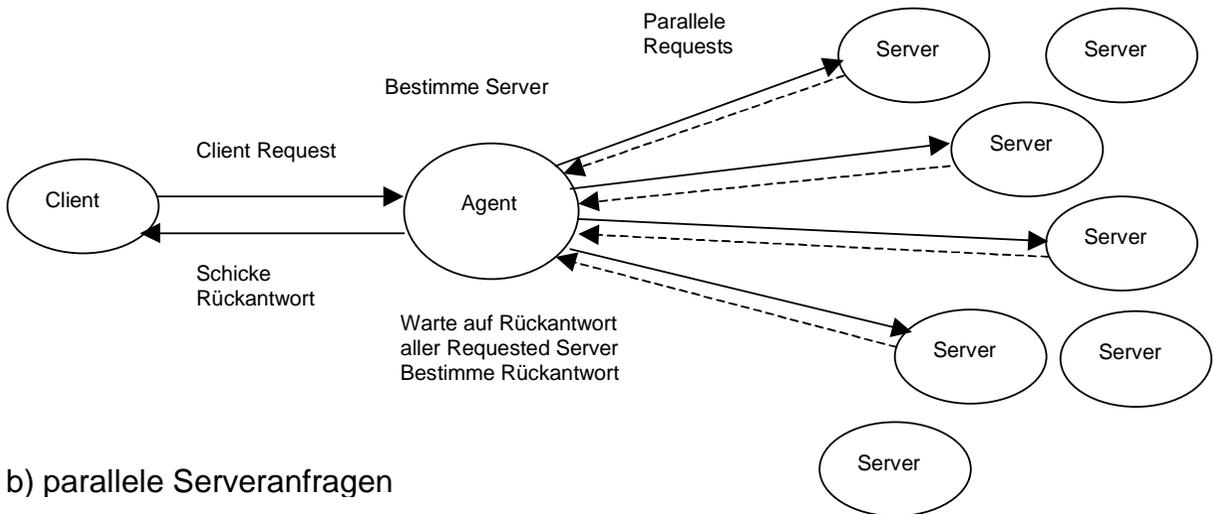


Abbildung 2-18: Client-Agent-Server C+S_AS⁺



a) iterative Serveranfragen



b) parallele Serveranfragen

**Abbildung 2-19: a) iterative und
 b) parallel gestaltete Serveranfragen durch den Agenten**

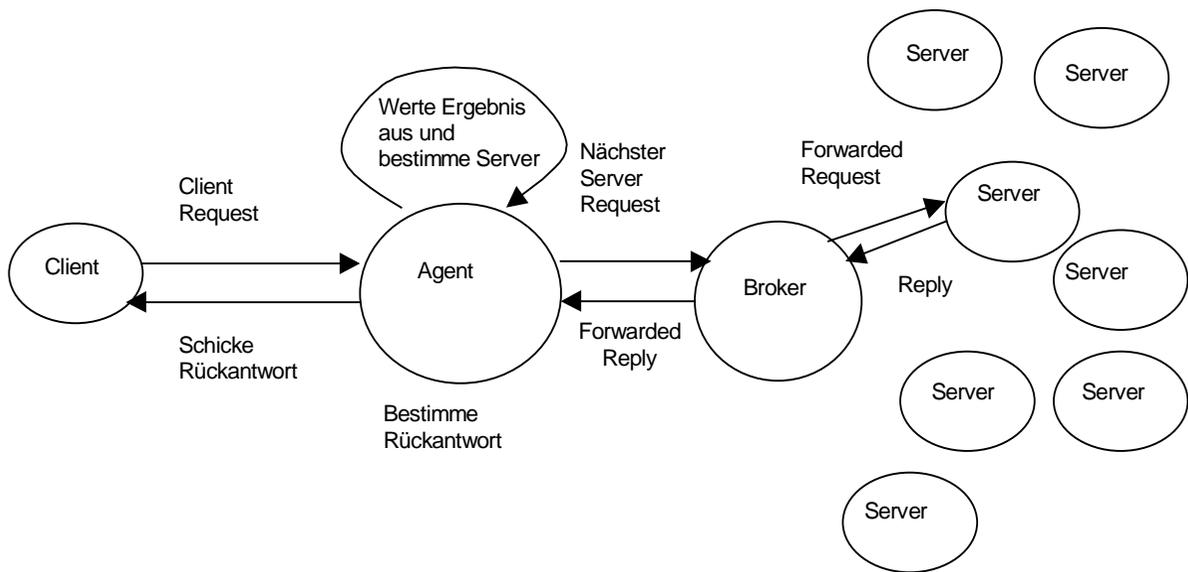
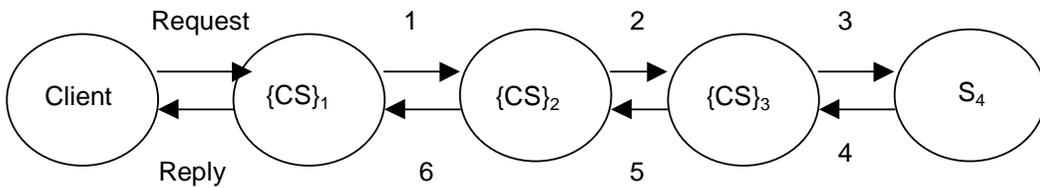
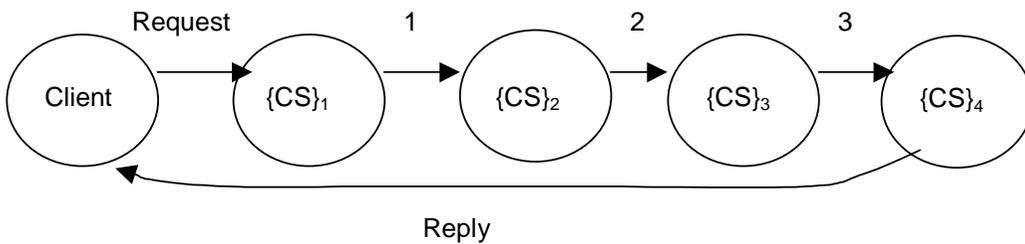


Abbildung 2-20: Adressermittlung des Agenten bei einem C+S_AS_{Br}S⁺-System mit einem forwarding Broker



a) rekursive Client-Server-Kette



b) transitive Client-Server-Kette

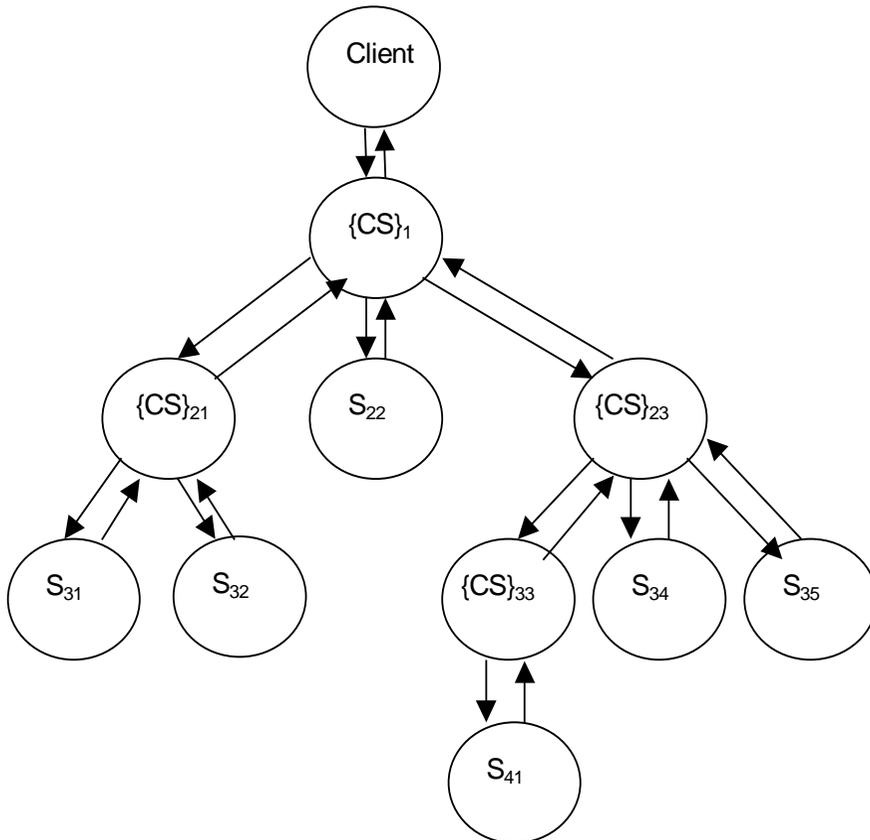


Abbildung 2-22: Client-Server-Bäume $C+({CS})^*$ mit rekursiven Anfragen