Atomicity

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Xfer

- xfer(A, B, amt)
  - A <- A – amt;
  - B <- B + amt;

---

all or nothing put

```
all_or_nothing_put(data,X)
   flag <- careful_get(X.D0,buff);
   if flag = ok {
      careful_put(X.D1,data);
      careful_put(X.D0,data); }
   else {
      careful_put(X.D0,data);
      careful_put(X.D1,data); }
```

---

all or nothing get

```
all_or_nothing_get(data,X)
   flag <- careful_get(X.D0,data);
   if flag = ok return;
   careful_get(X.D1,data);
```

---

salvage

```
salvage(X)
   flag0<- careful_get(X.D0,buff0);
   flag1 <- careful_get(X.D1, buff1);
   if (flag0 = bad) {careful_put(X.D0,buff1);}
   if (flag1 = bad) {careful_put(X.D1, buff0);}
```