

Introduction to NAS

Network Attached Storage

NAS is a small computer which

- stores data
- transfers data over the network
- runs under Linux
- uses different processors, usually Intel Atom or ARM

NAS disks

- 1 to 24 drive bays (typically 4 or 8 disks are used)
- typically 3.5'' SATA disks, rarely 2.5'' SATA
- contain user data (almost all disk space) and firmware

NETWORK
ATTACHED
STORAGE



NAS failure modes

- Operator errors – a user deleted an array or a network share
- NAS box failure - disks are intact while a NAS does not work (for example, burnt PSU)
- Disk failures - difficult to describe and classify

NAS failure due to disk failure:

- One disk fails in RAID0 or JBOD – disk must be cloned or repaired
- (1+1) disks fail in RAID5
 - one disk has failed without being noticed (long ago) and then the second disk failed
 - one disk has failed, a user replaced it, but rebuild does not complete due to a minor error on one of other disks
- in both cases, repair or clone disk that failed last