

IV. Authorization

- **Access Control Matrix**
 - For every combination of (principal,object) say what mode of access is allowed
 - May be very large (1000s of principals, millions of objects)
 - May be sparse (most entries are “no access”)
- **Access Control Lists (ACLs)** = per object, list of allowed principals and access allowed to each
 - Maintained at server
- **Capability Lists** = per principal, list of files allowed to access and type of access allowed
 - Could split it up into capabilities, each for a different (principal,file)
 - Can be handed (like certificates) to clients