#### Namespaces

- Some namespaces are flat
- there are no duplicate names
- Some namespaces are hierarchical
- duplicate items within different branches of a tree
- Need policies to govern namespaces
- Ideally, written policies
- Can become training for new SAs
- · Needed to enforce adherence to policy

CSE 265: System and Network Administration Spring 2016

©2004-2016 Brian D. Davison

### Namespace policies

- Naming policy
- What names are permitted/not permitted?
- Technology specific syntax
- Organizational not offensive
- Standards compliance
- How are names selected?
- How are collisions resolved?
- How do you merge namespaces?
- Technological and political concerns





#### CSE 265:

# System and Network Administration

 Namespaces – the lists and directories in your environment



CSE 265: System and Network Administration

Spring 2016

©2004-2016 Brian D. Davison

#### CSE 265:

# System and Network Administration

- Namespaces the lists and directories in your environment
- files in filesystem
- account names in use
- printers available
- names of hosts
- ethernet addresses
- service-name/port-number lists
- home directory location maps

CSE 265: System and Network Administration

CSE 265: System and Network Administration

# Namespace policies (4)

#### Protection policy

- What kind of protection does the namespace require?
- password list
- UIDs
- login IDs, e-mail addresses
- Who can add/delete/change an entry?
- Need backups or change management to roll back a

Spring 2016

CSE 265: System and Network Administration

©2004-2016 Brian D. Davison

# Namespace policies (5)

#### Longevity policy

- When are entries removed?
- after IP address not used for months
- contractor ID each year
- student accounts a year after graduation
- employee accounts the day they leave
- Functional names might be exceptions
- sales@company.com
- president@university.edu

CSE 265: System and Network Administration

# Namespace policies (2)

#### Naming policy

- How are names selected?
- Formulaic
- e.g., hostname: pc-0418; user-id: xyz210
- Thematic
- · e.g., using planet names for servers; coffee for printers
  - Functional
- e.g., specific-purpose accounts: admin, secretary, guest; hostnames dns1, web3; disk partitions /finance, /devel
- Descriptive
- e.g., location, object type (pl122-ps)
  - No method
- Everyone picks their own, first-come first-serve
- · Once you choose one scheme, difficult to change choose well!

Spring 2016

CSE 265: System and Network Administration

©2004-2016 Brian D. Davison

### Namespace policies (3)

### Comments on naming

- Some schemes are easier to use than others
- easier to remember/figure out, to type, etc.
- Some names imply interesting targets
- secureserver, sourcecodedb, accounting, etc.
  - avoid exceptions to formulaic names
- Formulaic names suggest problems when incomplete
- server1, server2, server4, server7
- Sometimes helpful when desktop matches user's name
- Assuming user wants to be easily identified

CSE 265: System and Network Administration

Spring 2016

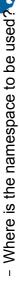
# Namespace Management

- Namespace change procedures
- · Need procedures for additions, changes, and deletions
- Likely restricted to subgroup of admins
- Documentation can provide for enforcement, training and step-by-step instruction
- Namespace management
- Should be centralized
- Maintain, backup, and distribute from one source
  - Difficult to enforce uniqueness when distributed
- Centralization provides consistency

Spring 2016 CSE 265: System and Network Administration ©2004-2016 Brian D. Davison

## Namespace policies (6)

#### Scope policy



- How widely (geographically) shall it be used
  - Global authentication is possible with RADIUS
- NIS often provides a different space per cluster
  - How many services will use it? (thickness)
- ID might serve for login, email, VPN, name on modem pools
  Across different authentication services
- ActiveDirectory, NIS, RADIUS (even with different pw)
  What happens when a user must span namespaces?
- Different IDs? Confusing, lead to collisions
- Single flat namespace is appealing; not always needed

Spring 2016

CSE 265: System and Network Administration

©2004-2016 Brian D. Davison

### Namespace policies (7)

### Consistency policy

- Where the same name is used in multiple namespaces, which attributes are also retained?
- E.g., UNIX name, requires same (real) person, same UID, but not same password for email, login

#### Reuse policy

- How soon after deletion can the name be reused?
- Sometimes want immediate re-use (new printer)
- Sometimes long periods (prevent confusion and old email from being sent to new user)

Spring 2016 CSE 265: System and Network Administration ©2004-2016 Brian D. Davison