new es facility (version 3) (I prefer Th is) (involves no changes to existing code)

Creation of new capability types

uses
1 new es type ("capability creating authorization")
2 new operations

operations

1) Create a "capability creating authorization."

returns a capability of the new type. The data word contains the bit pattern of the next available type field. The next available type field is stepped forward.

2) Create a capability

IP1 must be a capability of type = "capability creating authorization"

IPN a data word

returns a capability of type field given by data word of IP2

option bits allow

data word = IP2

arguments for 3rd version

easiest to implement (no change to previous code, any facility must

at least contain either a generation procedure for new type fields or a check procedure to

make sure proper es uben and no conflict with es system types)

Clean, no confusion with class codes for subprocesses etc.
new ecs facility (version 1 - control by disk system)

creation of new capability types:

1. a class code with permanent part = 0
temporary part = 0

will be created during initialization and placed in master c-list
all subsequent newclass codes will be created with permanent part > 0

2. create a capability of special type
   IP1 must be a capability for a class code
with permanent part 0, (let the temporary part be 1) then
   IP2 must be a data word

   The ECS system will return a capability of the (ips) type beyond
   the last used ECS system type, option bits will be all 1's and
   the data word of the capability will be IP2

3. create "capability creation" authorization
   IP1 as in 2

   The ECS system will return a capability of a "capability creation" type
   The bottom bits of the data word of the returned capability will be
   The type field of the (ips) type beyond the last used ECS system type.
new E5 facility (version 2)

creation of new capability types

for all classes issued by E5 systems where permanent part > 0

1. create "capability creating" authorization.

   returns a class code with permanent part 0
   fixed temporary part equal to the bit pattern of
   next available type field.

2. create capability

   if 1 must be a class code with permanent part 0
   in 2 a data word

   returns a capability with type field as given in temporary part of class and
   option bits all on
   data word = in 2