

Operation Object. In this example, a semaphore kernel synchronization primitive would be incorporated in the Waitable Privileged Operation Object. The purpose of making a Waitable Privileged Operation Object that incorporates a semaphore would be to limit the number of users which simultaneously perform a particular privileged operation. To perform this particular privileged operation, a user would have to wait on the privileged operation object until the semaphore's count value is non-zero.

### ALTERNATE EMBODIMENTS

While the present invention has been described with reference to a few specific embodiments, the description is illustrative of the invention and is not to be construed as limiting the invention. Various modifications may occur to those skilled in the art without departing from the true spirit and scope of the invention as defined by the appended claims.

#### APPENDIX I

##### PSEUDOCODE FOR CHECK ACCESS ROUTINE

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IF ( the access type desired is not included in the access
mask in the OTD (i.e., is not supported by the object)
ACCESS IS DENIED
RETURN
END
IF ( the caller's access mode is KERNEL )
ACCESS IS GRANTED
RETURN
END
** The caller's access mode is USER
IF ( the object does not have an ACL )
IF ( the mode of the object is USER )
ACCESS IS GRANTED
RETURN
ELSE *** mode of the object is KERNEL
ACCESS IS DENIED
RETURN
END
END
** The caller's access mode is USER and
** the object does have an ACL
ACCESS IS DENIED ** Access Denied unless Granted
by the following procedure
IF the ACL has ACEs
Search the ACL for the first access ACE
WHILE an access ACE is found LOOP
IF ( the user's ID list holds the IDs listed
in the ACE's list )
IF ( the access desired is allowed by the
access ACE )
ACCESS IS GRANTED
EXIT LOOP
ELSE
IF ( the current ACE's Stop Flag
indicates more access ACE's
should NOT be examined )
EXIT LOOP
END
END
END
Search the ACL for the next access ACE
END WHILE LOOP
END
IF ( access is denied )
IF ( the access desired is "SET_ACL" .AND.
the user is a holder of the object's owner ID )
ACCESS IS GRANTED
END
END
CALL AUDIT CHECK ROUTINE ** check audit ACEs and
generate audit
messages
RETURN

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What is claimed is:

1. In a multitasking computer system having a central processing unit, memory means for storing data and

data structures, and predefined system resources, an operating system comprising:

- a multiplicity of objects comprising data structures stored in said memory means;
- a multiplicity of container means, stored in said memory means, for referencing sets of said objects, each container means including means for storing a multiplicity of object pointers to locations in said memory means, stored in said memory means, where said set of objects are stored;
- a multiplicity of container directory means for referencing sets of said container means, each container directory means including a plurality of container pointer means, each container pointer means having means for pointing to the location in said memory means of a corresponding one of said container means; and
- container transfer means for transferring a specified one of said container means from a first container directory means to a specified container directory means, including means for deleting a container pointer in said first container directory means corresponding to said specified container means; and means for storing a container pointer corresponding to said specified container means in said specified container directory means;

whereby an entire set of objects referenced by a container means is transferred to a specified container directory means.

2. An operating system as set forth in claim 1, each said object including transfer flag means for denoting whether said object is transferable; said container transfer means including means for transferring a specified container transfer only when said transfer flag of all of said objects referenced by said specified container means is set.
3. An operating system as set forth in claim 1, each said container means including transfer flag means for denoting whether said container means is transferable; said container transfer means including means for responding to a request to transfer a specified container means to a specified container directory means, including means for denying a request for a container transfer when said transfer flag means of said container means is clear.
4. An operating system as set forth in claim 3, each said object including transfer flag means for denoting whether said object is transferable; said container transfer means including means for denying a request for a container transfer when said transfer flag of at least one object referenced by said specified container means is clear.
5. An operating system as set forth in claim 1, said operating system further including: object identifiers, corresponding to each said object, for referencing said objects; each said object pointer in said multiplicity of object container means corresponding to one of said object identifiers; each said object including count means for denoting the number of object identifiers corresponding to said object; identifier creating means for creating an additional object identifier for a specified object and for incre-