

SYSTEM MANAGEMENT - Larry Birenbaum



# SYSTEM MANAGEMENT

## Introduction

"System Management" - SM, AM  
organization of accounts, groups, users  
accounting  
capability control  
file security  
Coverage

## Organization of accounts, groups, users

Evolution of structure

Attributes of structure

2 trees

dual purposes of accounts, groups  
hierarchical

Benefits of structure

partition of files

define relationship between users and groups/files  
"parental limitations" - control hierarchy (SM, AM)

Additional attributes of structure

logon control

groups - logon & home  
accounting

## Capability

Components

Purpose

Use

(Maxpri and local attributes)

## File Security

"Security is a matrix"

Concept

Implementation

access / accessors

Hierarchical protection

Defaults

Other forms

RELEASE

lockword

## Comments on organizational structuring

Basic structure?

Distribution in structure

Interpretation of groups

Applications of groups

## Some examples

# BASIC STRUCTURE

## ACCOUNTS

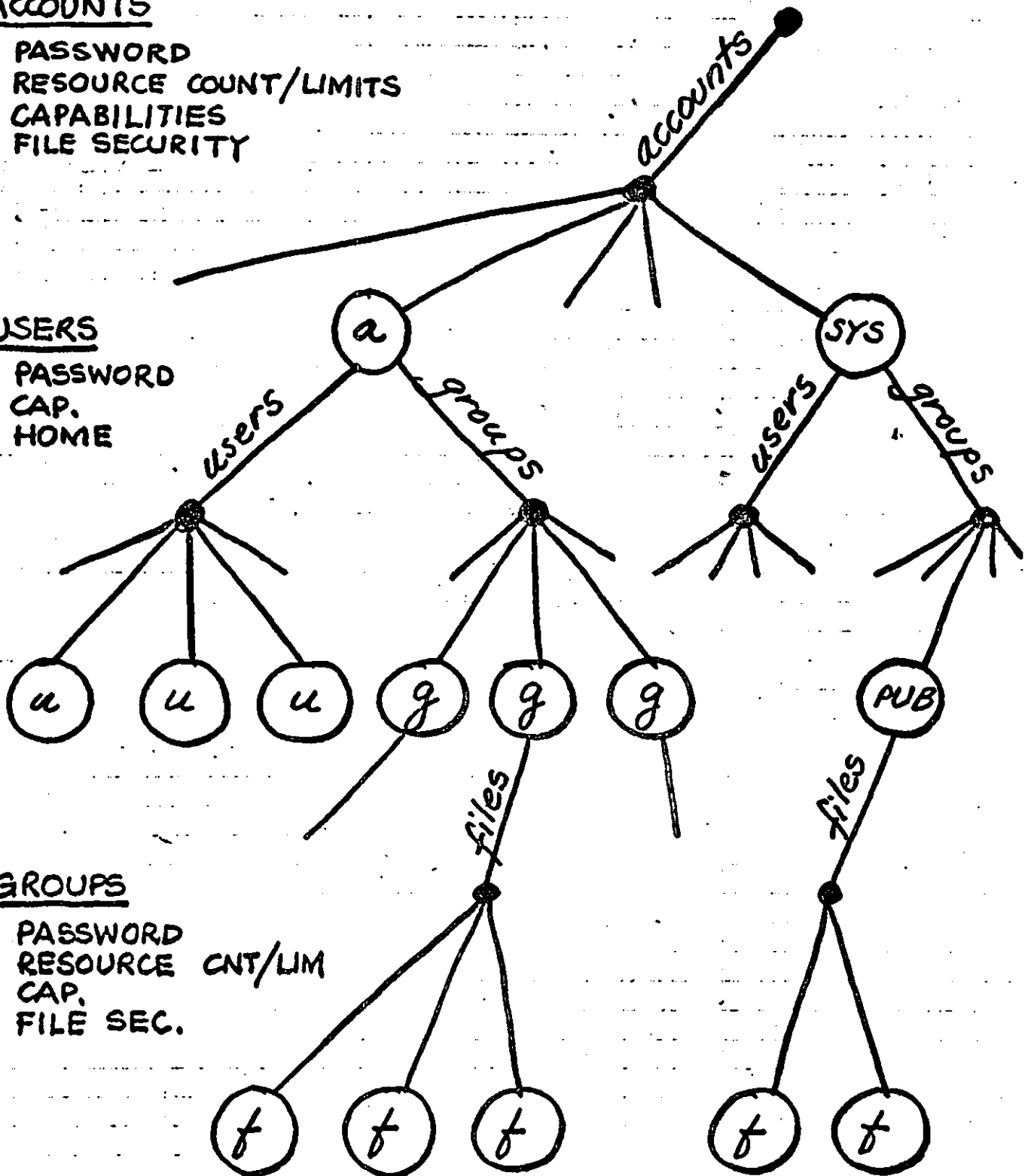
PASSWORD  
RESOURCE COUNT/LIMITS  
CAPABILITIES  
FILE SECURITY

## USERS

PASSWORD  
CAP.  
HOME

## GROUPS

PASSWORD  
RESOURCE CNT/LIM  
CAP.  
FILE SEC.



WHAT IT DOES

CAPABILITIES

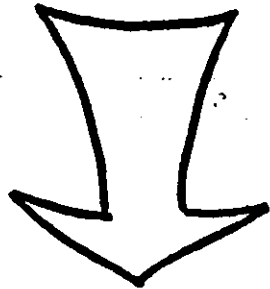
WHY HAVE IT

SM	SYSTEM MGR.	}	PROTECT SYSTEM CONTROL
AM	ACCT. MGR.		
OP	SYSTEM SUP.		
AL	ACCT. LIB.	}	TYPE FOR SECURITY
GL	GROUP LIB.		
IA	INTERACTIVE	}	CHARGEABLE
BA	BATCH		
ND	DEVICES		
SF	SAVE FILES	}	CONTROL SYSTEM LOAD
PH	PROCESS		
DS	DATA SEGS.		
MR	MULT. RINS	}	PROTECT DEADLOCK
PM	PRIV. MODE		PROTECT SYSTEM

# PROGRAM CAPABILITIES

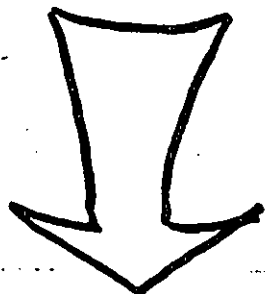
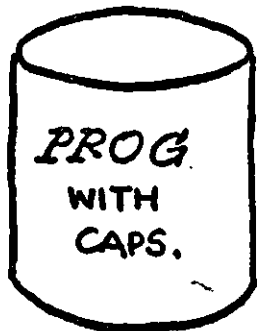
PM, MR, DS, PH

## THE PROTECTION MECHANISM



PREPARE  
WITH  
CAPS.

USER MUST HAVE CAPS.



RUN

PROGRAM FILE'S GROUP

MUST HAVE CAPS.



# FILE SECURITY

## MATRIX

WHO  
(ACCESSOR)

PROGRAMMER

MANAGER

SECRETARY

WHAT  
(ACCESS)

LOOK AT IT

DELETE IT

ADD TO IT

Y	Y	N
N	Y	N
Y	N	Y



ACCESS

R READ

A APPEND

W WRITE

L LOCK

X EXECUTE

S SAVE

FOR A GIVEN  
FILE ACCESS

ACCESSOR

ANY ANY USER

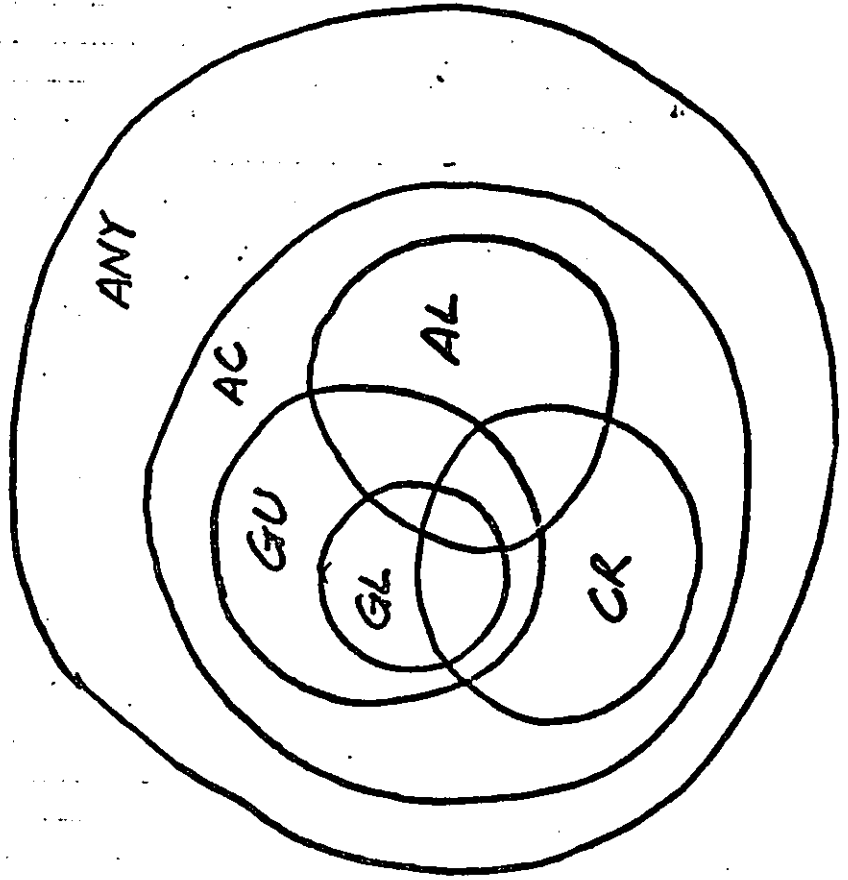
AC ACCT MEMBER

AL AC / AL CAP

GU HOME / LOGON

GL HOME / GL

CR CREATOR



## SOME EXAMPLES

<u>CRITERIA</u>	<u>SOLUTION</u>
GROUP FOR "NEWS" FILE  READ- EVERYONE ADD TO FILE- REPORTER CREATE/DELETE FILES- EDITOR	GROUP SEC- R:ANY A:GU W:S:GL  REPORTER- HOME= GROUP EDITOR- HOME= GROUP; and GL
GROUP FOR PROPRIETARY PROGRAMS  RUN- SELECTED PEOPLE DELETE/CREATE FILES- LIBRARIAN MODIFY PROGRAMS- SYS. PROGRAMMER	GROUP SEC- X:ANY W:S:GU R:GL  [LOCKWORD ON FILES] LIBRARIAN- HOME= GROUP PROGRAMMER- HOME= GROUP; and GL
GROUP FOR DATA COLLECTION  ADD TO FILES- SALESMEN READ- DISTRICT MANAGERS DELETE & MODIFY- SALES MANAGER CREATE FILES- SYS. PROGRAMMER (special format)	GROUP SEC- A:ANY R:GU S:AL W:GL  DISTRICT MGR- HOME= GROUP SALES MGR- HOME= GROUP; and GL PROGRAMMER- AL
SIMPLE ACCOUNT  UNLIMITED ACCESS TO ALL USERS N MALICIOUS USERS	give everyone AM

(MORE EXAMPLES)

GROUP FOR TIME ACCT'G ONLY; NO FILES

- give PASSWORD to authorized users.
- GROUP SEC - R:GU

GROUP FOR FILES ONLY; NO TIME ACCT'G

- give PASSWORD to no one!
- GROUP SEC - as required.

ACCT. WITH NO FILES; SAVE ACCESS DISALLOWED - don't give account SF

USER WITH TWO PRIVATE GROUPS

- HOME = GROUP1
- logon with GROUP2 (PASSWORD)
- (default group security)

"SECURITY IS A MATRIX"

JAIL

