Chapter 8 : Multilevel Security

PRESENTED BY LIOR SHCHERBATY

ROSS ANDRESON'S BOOK "SECURITY ENGINEERING"
Access Control

- DAC - Discretionary Access Control
- RBAC – Role Based Access Control
- MAC – Mandatory Access Control
Introduction - The Origin Of Multi-Level Security (MLS) Necessity

- Why MLS?
- WW2 & Cold War
- Private Business VS Defense Related Communities
Introduction - The Importance Of MLS

- Huge amount of research
- Wide range of companies use MLS
- Wide range of customer use
- Misuse of MLS concepts
Security Policy Model Example

1. This policy is approved by Management
2. All staff shall obey this security policy
3. Data shall be available only to those with a ‘need-to-know’
4. All breaches of this policy shall be reported at once to Security
Security Policy Model – Requirements

- Security policy model
- Security target
- Protection profile
The Bell-LaPadula Security Policy Model

Available data flows using an MLS system.

File A
Label: Top Secret
Write only

File B
Label: Secret
Read / Write

File C
Label: Confidential
Read only

File D
Label: Unclassified
Read only

Process
Label: Secret

Processes can read the same or lower security levels but can only write to their own or higher security level.
The Criticisms Of Bell-LaPadula

- Tranquility property
- High water mark principal
- The admin problem
Biba Integrity Model
History Of MLS

- SCOMP
- Blacker
- NRL Pump
- Sybard Suite
Future* Of MLS

• Vista
• Virtualization - VMWARE

*Future = The Future of the author while writing the book
Practical MLS Problems

- Expensive
- Difficult to build
- Difficult to deploy
- Classification problems
The Human Factor

- UK tax office scandal
- US Navy scandal
Thank You For Listening!

QUESTIONS?

Credit:
Google Picture Search
MIT
intrigano Youtube Channel.
Wikipedia