7. ADMINISTRATING POLICY

CONTENTS OF A SECURITY PLAN :-

1] POLICY :-

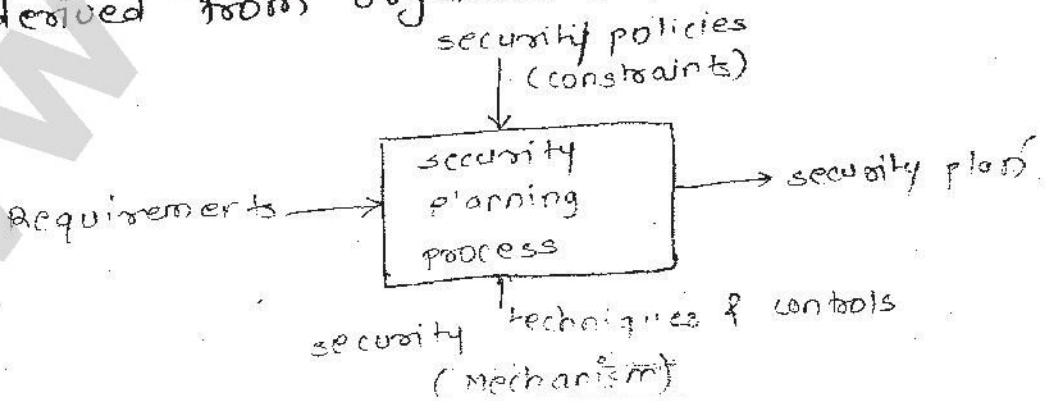
- must state the organisation's policy.
- indicates the goals of a computer security.
- willingness of the people involved in work.
- policy statement must answer to :-
  - i) Who should be allowed access.
  - ii) To what system should access be allowed ?
  - iii) What types of access should each user be allowed.
- policy should specify the following :-
  - i) The organization's goals & commitment.
  - ii) Responsibility for security.

2] CURRENT SECURITY STATUS :-

- defines the limits of responsibility.
- describes status of security at the time of the plan.
- ~~needs & which~~ describes which assets are to be protected & who is responsible to protect them.
- defines the boundaries of responsibility.
- should clarify who provides the security.

3] REQUIREMENTS :-

- derived from organizational needs.



Basic reasons & needs for new security level should be clearly defined.

- Requirement should have following characteristics
  i) correctness :- are the requirements understandabl
  ii) consistency :- Are there any conflicts?
  iii) completeness :- Are all possible situations addressed

4] TIMETABLE :-

- shows how & when the elements of the plan will be performed.
- describes how the security requirements will be implemented.
- specify the order in which the controls are to be implemented.
- gives milestones.
- contains schedule for periodic view.

5] ACCOUNTABILITY :-

- Describes who is responsible for each activity.
- Responsibility & roles should be given to different users.

6] RECOMMENDED CONTROLS :-

- maps controls to the weaknesses identified in the policy & requirements.
- The ways for fulfilling requirements should be stated

7] CONTINUING ATTENTION :-

- specifies a structure for periodically updating the plan.

RISK ANALYSIS :-

1] A risk can be distinguish from other project events in following concept :-

- A loss associated with an event :-
  - The event must generate a negative effect.
  - lost time, lost money, lost understanding, low quality. This loss is called the risc impact.
- The likelihood that the event will occur :-
  - Thereisprobabaplity of occurence associated with each risc.
  - It can be measured in 0 (impossible) to 1 (certain
  - When the risc probability is 1, problem is there.
- The degree to which we can change the outcome :
  - Risk control involves a set of actions to reduce or eliminate the risc.

2] The strategies for risk reduction are as follows :-

- avoiding the risk :-
  - by changing requirements for security.
  - by changing system characteristics.
- Transferring the risk :-
  - allocate the risc to other systems, people, organizati
- Assuming the risk :-
  - by accepting it, controlling it with available resources if it occures.

$$\text{Risk leverage} = \frac{(\text{risk exposure before reduction}) - (\text{risk exposure after reduction})}{\text{cost of risk reduction}}$$

STEPS IN RISK ANALYSIS :-

1] IDENTIFY ASSETS :-

Hardware :- processors, boards, keyboards, monitors, terminals, tape drives, printers, disks.

software :- source program, object program, system programs, utility programs.

Data :- data used during execution, stored data on various media, printed data.

people :- skills needed to run the computing system or specific programs.

documentation :- on programs, hardware, systems.

supplies :- paper, forms, laser cartridges, magnetic media

2] DETERMINE VULNERABILITIES :-

- this step requires imagination.
- we want to predict what damage occurs to assets & from what sources.
- we enhance our imaginative skills to find the nature of vulnerability.
- we want to use an organized approach.

3] ESTIMATE LIKELIHOOD OF EXPLOITATION :-

4] compute expected loss

5] survey & select new controls

6] Project savings.

Two-Phase update:-

- A problem is failure of computing system before completion of transaction.

Update technique:-

- first phase is called intent phase
- In which DBMS gathers all the info such as data, open files, lock out other users & calculate final answers.
- makes no changes to database.
- It is repeatable no of times.
- takes no permenant action.
- last event of first phase is commiting.
- commiting involoes writing of commit flag.
- After commiting DBMS makes permanent changes. called as second phase.
- update activities of phase two can be repeated.

Redundancy:-

- for some important data, redundancy is maintained.
- for eg:- like check bits.

- to maintain consistency in data.

Recovery:-

- DBMS provides log based recovery method
- In case of failure, database is reloaded from backup copy. & changes are applied from the audit log.

Monitor:-

- unit of DBMS which is responsible for structural integrity.
- for eg:- monitor rejects numeric value for alphabetic characters.

Range comparison:-

- ensures value is written within acceptable range or not.
- ensures internal consistency of a database

state constraints:-

- describes the condition of entire database
- eg:- commit flag.
  set when commit phase starts & cleared when it ends.

Transition constraints:-

- describes conditions before changes can be applied to database.