Abstract
The network world is enormous, dynamic, divers and incredibly very high complex. Survival of computer network is highly depended on the capability of the network to fight with malicious objects which are abundantly available in the cyber space. Our network world is growing larger in size and ways of networking like wired and wireless with different techniques are also growing, but reliability and robustness is the issue of concern in the today’s network. In this paper biologically based mathematical inspired modelling is carried out to monitor the spread of these malicious objects in the network. An attempt is made to develop a discrete-time “Susceptible -Attacked-Infectious-Non-Infectious (SAIN)” model for computer infection with the
aim of estimating parameters such as time of attack, incubation time, and mean infection time by using probabilistic approach. SAIN model is basically compartment-specific approach; each compartment is having distinct boundaries. Computer nodes transfers from one compartment to other such as Susceptible to Attacked, Attacked to Infectious, and Infectious to Non-Infectious with some stochastic random variable. In the end of the paper it is described where and how to use this mathematical modelling for designing the cyber defence systems.

Reference


Index Terms

Computer Science
Communications

Key words

Malicious Object
propagation

Mathematical Modelling