

**CASE STUDY-PROPOSAL**

**OPERATING SYSTEM**

**Title: *Operating System and Secure Operating Systems***

**Abstract:** One of the fundamental concerns in the security of cyberspace and e-commerce is the security of operating systems that are core piece of software running in all information systems such as network devices. Many of known vulnerabilities discovered so far are rooted from the bugs of operating systems.

**Introduction:** Every modern computer has a core piece of software called kernel or Operating system, executed on top of a bare machine of hardware that allocates basic resources of the system e.g., CPU, memory, drivers, ports, etc. Some of the popular commercial and open source operating systems are Microsoft Windows, Unix, Mac OS, Linux because of the crucial role of the operating system in the operation of any computer system, the lack of security of an operating system will have fundamental impacts to the overall security of a computer system.

**Security of Operating System:** Most modern information computer systems provide concurrent execution of multiple applications in a single physical computing hardware (which may contain multiple processing units). Within such a multitasking, time-sharing environment, individual application jobs share the same resources of the system, e.g., CPU, memory, disk, and I/O devices, under the control of the operating system. In order to protect the execution of individual application jobs from possible interference and attack of other jobs, most contemporary operating systems implement some abstract property of containment.   
**Model of Security:** Generally, in an access control-based security model, there are set of objects, and set of subjects (a subject itself can also be an object). Every object has an associated security attribute, or security label; every subject also has a security label, or security clearance; and a defined set of control rule, or security policy that dictates which subject is authorized to access which object.

**Furthermore, Case study of SE-Linux will be discussed in the development of Secure Operating Systems.**

**Conclusion:** The security of individual applications may still suffer from the vulnerabilities of their own, with the strong containment of a secure operation system, the damages caused from a compromise within one application would be much localized, and the impacts among various applications could be much well controlled.

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