Information Security: Level #4
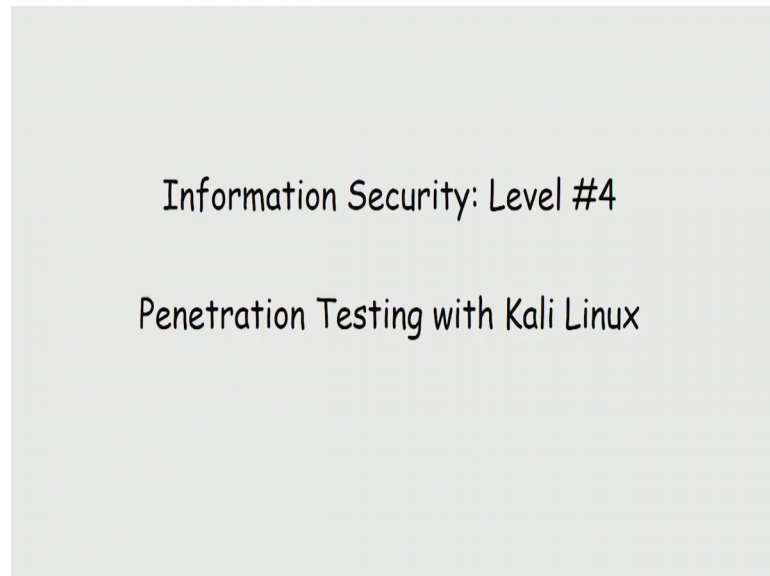**Prof. V. Kamakoti**
Department of Computer Science and Engineering
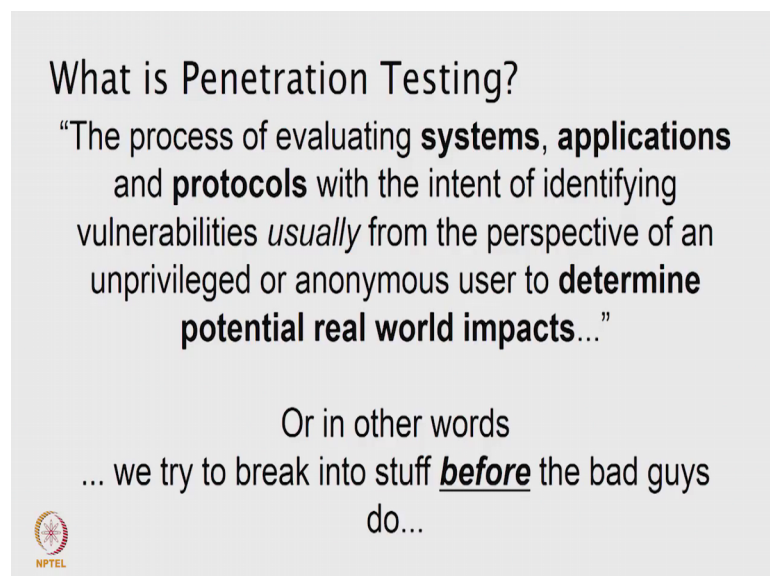**Indian Institute of Technology, Madras**

Lecture – 09
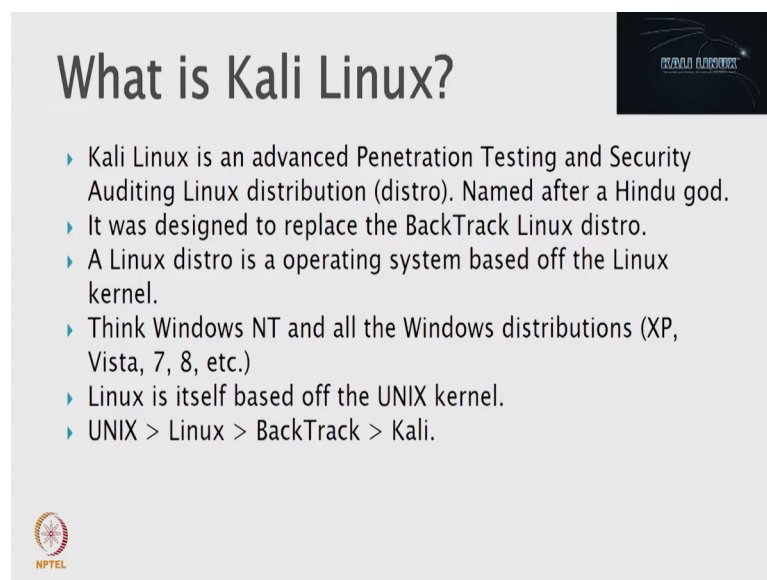**Penetration Testing with Kali Linux**

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Ok, in this particular session, we will talk about penetration testing with Kali Linux. What is Kali Linux basically used for.

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First, what is penetration test testing? I am just evaluating the systems basically the applications and the protocols. Protocols were accessing applications. And my indent intent is to basically identify vulnerabilities usually from the perspective of an unprivileged or anonymous user to determine potential real world impacts. Or in other words we try to break into stuff before the bad guys. So, this is essentially what we are trying to achieve through penetration testing. So, I will try to penetrate into a system before a actual guy who wants to penetrate will ever attempt to; I will penetrate into the system show that I could penetrate into the system, but I do not do any damage right that is the ethics part of it. So, what is penetration testing, I am evaluating all my system application and protocol modules one-by-one, and check it for some of the vulnerabilities, and if those vulnerabilities come out what would be the impact.

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So, in this context, what is Kali Linux, Kali Linux is an advanced penetration testing and security auditing Linux distribution. And this is named after a Hindu God. And it was designed to replace the BackTrack Linux distribution. A Linux distribution is the operating system based of the Linux kernel. Like for example, Windows NT and all the Windows distri[bution] distribution like XP, Vista, 7, 8 very similar to. Linux is itself based on the Unix of Unix kernel. So, what is Kalin Linux (Refer Time: 01:43), Unix right to secure things many times it fails, it went to Linux, it is again failed many times, then they went to backtrack and then today Kali. What I mean they fail this that as I said just a generic penetration testing tool Unix per say without any second without kali

libraries will not do any good. Similarly, Linux alone are backtracking, so that is very important here.

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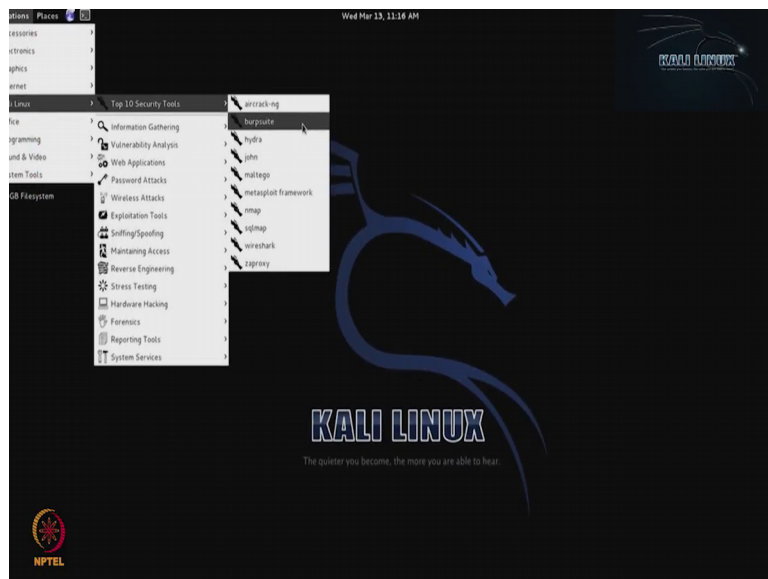So, the Kali Linux when it comes like you know the normal Linux comes with your C plus, g c c etcetera, the Kali Linux actually comes out with a set of tools like Nmap, Wireshark, John the Ripper is a password cracker, Aircracking for penetration testing of wireless LAN's, and iKat hacking tool. So, all these things are part of your Kali Linux penetration testing programs.

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So, this is how the Kali Linux looks. These are all the top ten security tools that are available there, in which as you see there is several tools that are available as a part of this.

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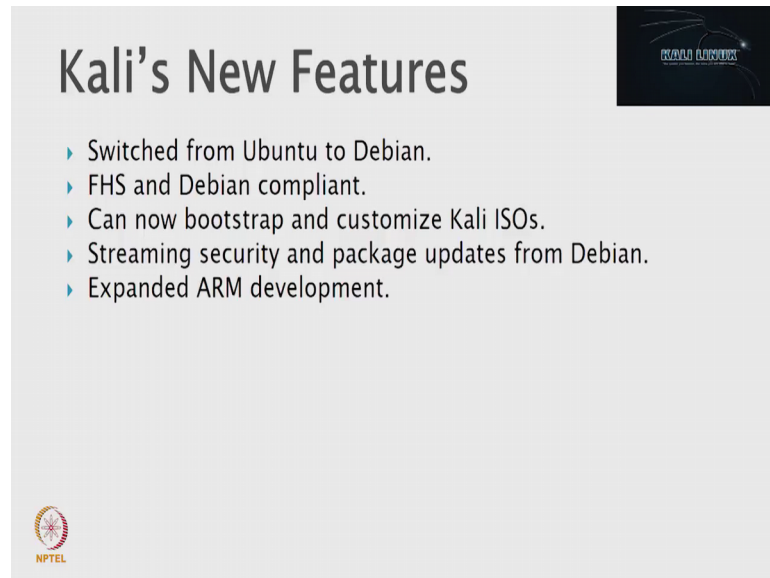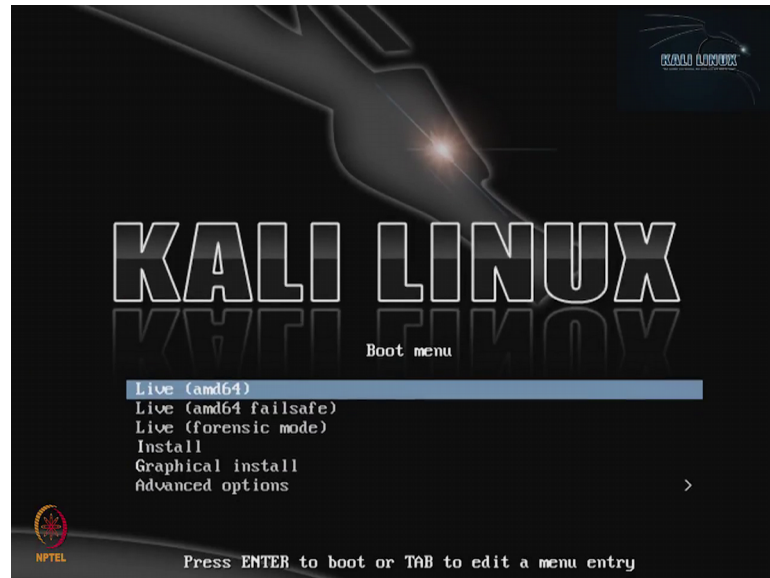

This is how it boots.

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So, Kali Linux why should we use it, first it is free, but that is not just a criteria please note that. 300 plus applications are already loaded onto it and tested. It has a vast wireless device support. It is completely customizable. And it has multilingual support. It

has secured development environment. It has a open source Git tree from which you can just download and compile. File system hierarchy standard FHS complaint, this is probably the only operating system that is FHS complaint. And then Gnu privacy can guard GPG secure signed the packages and repos. So, these are all some of the interesting things that come out with Kali.

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Kali also has moved away from Ubuntu to Debian. It is now FHS and Debian complaint. You can now bootstrap and customize kali ISO. It can streaming security and package updates are that from the Debian. And you have an expanded ARM development. So, all these are part of your Kali's new feature.

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So, because of these news features, it has become easy to abri upgrade or for future versions. And customizable desktop environment; if it is there then kali installations can be automated. So, I said when you know the version of kali changes automatically this will get updated in all the repositories. So, this is sort of introduction to Kali Linux. And you will be learning more about Kali Linux and of course, network security as a part of this course as we proceed.

Thank you.