

Wi-Fi technology Evolution and use of campus Wi-Fi for tutorial and research

This tutorial has 2 parts; the first parts will give a clear picture of the evolution of Wi-Fi from various perspectives and the second part will outline and demonstrate the use of campus Wi-Fi for teaching and research on networking and wireless topics. It would be clear to most people that Wi-Fi has become one of the most successful technologies for data access in homes, offices, and other public areas. Most computing devices have Wi-Fi enabled in them to help the user access internet and other services easily. The next wave of Wi-Fi will be in consumer electronics segments like TVs, set-top boxes followed by the adoption of Wi-Fi for sensing and control. All these trends point to a very successful technology which has been packaged very well for the end-user.

In the first part of the tutorial, we will cover the technical aspects behind the growth of Wi-Fi. This will include spectrum, data rates, technologies, and deployment strategies. We shall present some future trends with respect to technologies that are likely to be adopted as well as some sample features that one is likely to experience in a future Wi-Fi product. In the second part, we would like to demonstrate a potential use of the campus Wi-Fi typically present in many educational institutions. We shall demonstrate how an active Wi-Fi deployment can be used to obtain traffic at various sites around the campus and use that to analyse the protocol at various levels. Such a facility will be useful to teachers of wireless and networking as live packet traces and statistics can be used to involve the students in exploration of the technology while it is being taught. The same campus network can be used by researchers for analyzing the huge amount of Wi-Fi data to infer trends and validate models related to various traffic trends and their impacts. We plan to use Airtight networks' Wi-Fi solution to demonstrate the campus Wi-Fi capabilities

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