Personal Area Networks

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The **IEEE 802.15** is used for **Personal Area Networks** (PANs). These networks specifically target **low-power devices**. There are several variants to the IEEE 802.15:

* **IEEE 802.15.1** – This variant was the first to be made. Commercially, it is called **Bluetooth**.
* **IEEE 802.15.2** – This variant targets the coexistence of Bluetooth and Wi-Fi.
* **IEEE 802.15.3** – This variant aims to provide **high data rates** while still maintaining the low cost and power.
* **IEEE 802.15.4** – Allowing for lower data rates, this variant minimizes cost and power consumption.

Each of these standards have different requirements and therefore different specifications for the physical and MAC layers. Each of them are meant to be used within a **10 meter** range.

## IEEE 802.15.3

As mentioned before, the IEEE 802.15.3 standard was created specifically for high data rates. This makes it perfect for things like **multimedia applications**.

### MAC Layer

The main functionalities provided by the MAC layer are:

* Fast Connection Time
* Ad-Hoc Networking
* Transmission with QoS Support
* Security
* Dynamic Membership
* Efficient Data Transfer

### Network Topology

Since this is an ad-hoc network, **piconets** are used, each of which have multiple devices (called DEVs) and a single piconet coordinator (the PNC). The PNC provides timing information and communicates with the DEVs. The difference between a PNC and an AP is that a PNC does not transfer any MAC frames.