Title: Femtocell in wireless communication

Introduction:

Small cells: They are low powered radio access nodes that have a range of 10 meter to kilometer, they are small comparison to macro cell because they have shorter range. Due to high demand of 5g small cells are introduced as a solution to reusing same frequency. Small cell network means of distributed radio technology using centralized baseband unit. They are available for air interfaces including GSM, W-CDMA and LTE.

Types of small cells:

1. Femtocell
2. Picocell
3. Microcell

Femtocell: It is a small cellular base station design for used in homes or small industry. Femtocell is subset of small cell. Femtocell allows to extend network in indoor areas.

It enhanced capacity of telecommunication in such areas where network has some issues due to range problem. It is focused on WCDMA, GSM and LTE. Femtocell lower contention on the main network cell, by forming a connection from end user. Consumer and local industry are happy with great improved service. Currently Femtocell support 4 to 8 active mobile phones. When we close to Femtocell mobile phone expends less power for communication, it increases battery life. It is an alternative way to deliever the benefit of fixed mobile convergence(FMC). Femtocell has a range of 10 meter(approx..).

Picocell: It is a short range cellular station that covered small areas such as shopping mall, schools, hospitals etc. It is used to provide indoor and outdoor coverage. Wireless service can be provided in such areas where network is not provided by larger cell towers. Its range is 100 to 250 meters.

Microcell: It is a cell in mobile phones served by a low power cellular base station covered areas

such as mall, transportation hub etc. It is larger than picocell and femtocell. Its range is upto 2 kilometer. A microcellular network is a radio network composed of microcell.

Advantages of Femtocell:

1. Improved battery life of cellphones due to reduced distance of transmitter and receiver.
2. “5 bar” coverage when there is poor signal.
3. New application can be created to enhance user experience.

Architecture: