

QoS AND MOBILE TECHNOLOGIES

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CHAPTER 22

SPECTRUM MANAGEMENT IN FEMTOCELL

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22.1 INTRODUCTION

Femtocell is deploying a large number of smaller and cheaper cells. It is created as a way to increase cost-capacity of the networks. Femtocell also known as 'home base station' are cellular network access points that connect standard mobile devices to a mobile operator's network using residential DSL cable broadband connections optical fiber or wireless last-mile technologies.

Femtocell positively impacts the operator's bottom line in a number of ways. For example the cost of service delivery is reduced by using customer broadband for backhaul and other customer assets such as the site for deployment and power. Indoor solutions such as DAS (Distributed Antenna Systems) and picocells become an attractive and viable business proposition in hotspots such as large business centers, office buildings and shopping malls. These indoor systems are deployed by operators.

Even though the above the solutions of using distributed antenna are more cost effective than using outdoor macrocells to provide indoor coverage for voice and high speed data services, such solutions are still too expensive to be used in some scenarios such as SOHO (Small Office and Home Office) and home users (for personal communications and entertaining, etc.). The scale of SOHO and home use normally does not represent a viable business proposition for operators. Recently, the development of femtocells provides a good opportunity for low cost indoor solutions for such scenarios. Unlike picocells, femtocells are deployed by users. Fig 22.1 shows the network process from cellular to mobile phone