

The Cellular Concept

Unit 3

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Introduction

- Main objective of early mobile system was to achieve a large coverage area by using a single, high powered antenna.
- This approach achieved very good coverage.

- Main drawback was it was impossible to reuse same frequencies throughout the system.
- Example: the Bell Mobile System in New York(1970) only supported 12 simultaneous calls over a thousand miles.

3.1 Introduction to Cellular Systems

- Cellular concept is a system level idea
- Instead of a single high power transmitter (large cell) we use many low power transmitters (small cells), each providing coverage to only a small portion of the service area.

3.1 Introduction to Cellular Systems

- Solves the problem of spectral congestion and user capacity.
- Offer very high capacity in a limited spectrum without major technological changes.

3.1 Introduction to Cellular Systems

- Reuse of radio channel in different cells.
- Enable a fix number of channels to serve an arbitrarily large number of users by reusing the channel throughout the coverage region.
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