

**ESTABLISHING TELECOMMUNICATIONS CALL PATHS
IN BROADBAND COMMUNICATION NETWORKS**

Abstract

In accordance with the principles of this invention, Pulse Code
5 Modulation (PCM) signal streams are converted into Asynchronous Transfer Mode
(ATM) cells for switching and transmission across a telecommunications network.
Each cell carries one PCM sample of up to 48 different voice connections, the voice
connections selected from the PCM data streams because they have a common
destination. The cells are transmitted over ATM virtual circuits, each circuit
10 transmitting one cell every 125 μ s. Advantageously, ATM transmission systems
interface with PCM systems without adding appreciable delay and without requiring
additional buffering. Advantageously, new voice paths can be established most of
the time by using available slots in the cells of existing virtual paths. This invention
can also be used for implementing a large switching system or a cluster of highly
15 interconnected smaller systems.

