resources or interconnections through which to route or interconnect subscriber unit **49** and **109** with another node or user. Interconnections include a PSTN interface **103**, a wideband wired interface **115** (e.g., fiber optic link, or shielded cable interface), and a wideband wireless interface **70** such as a microwave communication link or laser link with another high frequency transceiver such as a satellite **100** or microwave repeater. Bandwidth may also be accommodated by employing multiple channels of a lower bandwidth medium or other techniques known by those of skill in the art.

FIG. **2** illustrates a simplified block diagram of a variable bandwidth repeater switch for use in a communication system, in accordance with a preferred embodiment of the present invention.

Variable bandwidth repeater switch **42** dynamically allocates bandwidth when requested to subscriber units **49** and **109**. Wireless subscriber unit **49** or wired subscriber unit **109** detects the availability of enhanced services. Wireless subscriber unit **49** may detect the presence or availability of enhanced services by monitoring for the presence of enhanced services beacon signal **52** as transmitted by an enhanced services beacon transmitter **112**. In the preferred embodiment, enhanced services beacon transmitter **112** defines enhanced services region **58** (FIG. **1**) by broadcasting enhanced services beacon signal **52** throughout enhanced services region **58** (FIG. **1**). In another preferred embodiment, wireless subscriber unit **49** detects the presence or availability of enhanced services by coding in a communication link with a variable bandwidth repeater switch status or other indicator informing wireless subscriber unit **49** of such services.

An enhanced services communication link **56** carries a request for enhanced services which may be a bandwidth request message to variable bandwidth repeater switch **42**. Enhanced services communication links **56** with wireless subscriber unit **49** and wired subscriber units **109** are serviced by wireless enhanced services region transceivers **105** and wired enhanced services region transceivers **108**, respectively. Enhanced services region transceivers **105** and **108** receive a bandwidth request from subscriber units **49** and **109**, respectively, and when approved or authorized for enhanced services, employ the requested bandwidth by transmitting and receiving consistent with the requested bandwidth.

A switch controller **106** performs an authorization or validation of requesting subscriber units to verify authorization of subscriber units to perform enhanced services. Switch controller **106** also processes an enhanced services request and, when resources are available to dynamically allocate the requested bandwidth, switch controller **106** controls the interconnections of switch **104** to form the appropriate interconnections with the transmission services.

Enhanced services transmission transceivers **102**, **114**, and **120** establish an interface with transmission services and employ the requested bandwidth by transmitting and receiving consistent with the requested bandwidth. For example, a wired enhanced service transmission transceiver **120** provides the appropriate interface with PSTN interface **103** for accommodating enhanced services. Also, a wideband wired enhanced services transmission transceiver **114** provides an appropriate interface for a wideband wired interface **115**. Wideband wired interface **115** may be a fiber optic link or other shield cable interface. Also, a wireless enhanced services transmission transceivers **102** provide an appropriate interface to a wideband wireless interface **70**. Variable bandwidth repeater switch **42** employs these transmission services or other interfaces know by those of skill in the art.

FIG. **3** is a flowchart of a method for dynamically allocating bandwidth through a variable bandwidth repeater switch to a subscriber unit in an enhanced services region, in accordance with a preferred embodiment of the present invention. Enhanced services communication system **10** (FIG. **1**) has a standard region and an enhanced services region. In the enhanced services region, bandwidth on communication links is dynamically allocated using variable bandwidth repeater switch **42** (FIG. **1**) to subscriber units located within enhanced services region **58** (FIG. **1**).

A query task **310** evaluates the availability of enhanced services, such as by monitoring for the transmission of enhanced services beacon signal **52** (FIG. **1**) or other communicative protocol such as the exchange of a system capability status with a subscriber unit. By detecting the availability of enhanced services, a subscriber unit may more efficiently and economically operate in enhanced services communication system **10** (FIG. **1**). When enhanced services are not available, a task **315** employs standard communication services for transmitting information through the system.

When enhanced services are available, a query task **320** authorizes or validates users of enhanced services. In a preferred embodiment, variable bandwidth repeater switch **42** consults a record to verify that enhanced services are approved for a particular subscriber unit. If enhanced services are not approved, a subscriber unit employs only standard communication services.

When a subscriber unit is authorized, a task **325** enables enhanced communication services to a particular subscriber unit. The subscriber unit may then place bandwidth requests for allocation of an enhanced services communication link having varied parameters, such as a change in bandwidth.

A query task **330** determines when a request for enhanced services has been issued. When a request for enhanced services is detected, a task **335** evaluates the bandwidth request from a subscriber unit by comparing the request with available resources.

A task **340** selects a variable bandwidth connection from a menu of interconnections through variable bandwidth repeater switch **42** (FIG. **1**) having at least the requested bandwidth. In a preferred embodiment of the present invention, interconnections are selected by evaluating the cost of each of the interconnections having at least the requested bandwidth. In another preferred embodiment, selection of interconnections is performed according to other criteria such as propagation delays through the network. In yet another preferred embodiment, the plurality of available interconnections are presented to the user of a subscriber unit, wherein the user selects a particular interconnect from among several.

In another preferred embodiment, the selecting step may further allow the user to withdraw the bandwidth request. Such a withdrawal may be occur when interconnection costs become expensive or the benefits of dynamic allocation of bandwidth becomes prohibitive.

A task **345** establishes the route or interconnection according to the requested interconnect. Such interconnection may be performed by switch **104** (FIG. **2**) at the direction of switch controller **106** (FIG. **2**). Communication over enhanced services communication link **56** (FIG. **1**) commences when interconnection completes.

FIG. **4** is a flowchart of a method for a subscriber unit employing dynamically allocated bandwidth through a vari-