station **36** is a neighbor base station **38** in the local group **34** in which its neighbor base station **38** is a parent base station **36**.

Each parent base station **36** keeps its neighbor base stations **38** appraised of its current channel assignments. Because of this, and because each base station **22** is a parent base station **36** of its own local group **34**, each parent base station **36** is also appraised of the current channel assignments of its neighbor base stations **38**.

Since, in this embodiment of the present invention, each base station **22** is in a low-earth polar orbit **24**, the number of base stations **22** in line-of-sight communications with a given base station **22** increases as that base station **22** approaches the poles and decreases as that base station **22** approaches the equator. Hence, the number of neighbor base stations **38** in the local group **34** of a given parent base station **36** may constantly change.

FIG. **3** depicts a schematic representation of a pair of base stations **22**, referred to as base stations **40** and **42**, and their respective cellular footprints **44** and **46** in accordance with a preferred embodiment of the present invention. Footprints **44** and **46** each contain a multiplicity of cells **48**. In the example shown, there are **48** cells **48** in each footprint **44** or **46**.

Base stations **40** and **42** are in adjacent low-earth polar orbits **50** and **52**. This means that they converge as they approach the poles and diverge as they approach the equator. As base stations **40** and **42** converge, footprints **44** and **46** overlap and cells **48** that did not interfere will now interfere.

For example, a cell **54** (number **39**) in footprint **44** did not interfere with a cell **56** (number **6**) in footprint **46** prior to convergence. All communication channels **58** in cell **54** were non-interfering with regard to communication channels **58** in cell **56**. As base stations **40** and **42** converge, footprints **44** and **46** begin to overlap and cell **54** approaches cell **56**. At some point, channels **58** in cell **54** interfere with channels **58** in cell **56**. When this occurs, a conflict resolution process, discussed later, resolves the conflict.

FIG. **4** depicts a chart **60** indicating a relationship between reuse units **62** and communications channels **58** in accordance with a preferred embodiment of the present invention. A first plurality **64** of communications channels **58** are grouped into reuse units **62**, each of which contains a second plurality **66** of channels **58**. In the preferred embodiment, each reuse unit **62** contains eight channels **58**. The use of reuse units **62** simplifies the management of channel assignments. Those skilled in the art may readily discern that reuse units **62** of other numbers of channels **58** are viable, including reuse units **62** containing only a single channel **58**.

A reuse unit **62** is placed in use when a channel **58** it contains is placed in use, and is placed out of use when all channels **58** it contains are placed out of use. A channel **58** in an in-use reuse unit **62** may have one of three states; in-use, out-of-use but potentially interfering, or out-of use and non-interfering.

An in-use channel **58** is one that has already been assigned to a call at a particular location. An in-use channel is, therefore, not available for assignment in the vicinity of its use. That is, an in-use channel is not considered to be a free channel **58** in the vicinity of its use.

A conflict may arise with an in-use channel **58**, e.g. through the convergence of base stations **22**. The conflict is resolved through a process described later. Resolution of the conflict may or may not require the conflicting channel **58** to be placed out of use.

A potentially interfering out-of-use channel **58** is one that, while not assigned to a call, cannot be so assigned because placing it in-use would interfere with a channel **58** already in use nearby. An interfering out-of-use channel **58** is not available for assignment and is not a free channel **58**.

A non-interfering out-of-use channel **58** is one that is out of use and, were it to be assigned to a call at a particular location, would not interfere with a channel **58** already in use near that location or elsewhere. Therefore, a non-interfering out-of-use channel **58** is available for use and is considered to be a free channel **58**.

At base station **22**, free channels **58** (FIG. **3**) in in-use reuse units **62** are desirably placed in use before another reuse unit **62** is placed in use. Conversely, when the last in-use channel **58** in a reuse unit **62** is placed out of use, reuse unit **62** is placed out of use and returned to a general pool of reuse units **62** available for use throughout system **20**.

The placing of channels **58** in use or out of use is performed at the reuse-unit level. In other words, whenever base station **22** desires to place a channel **58** in use, it will use a free channel **58** (a non-interfering out-of-use channel **58**) in an in-use reuse unit **62** if possible. If no free channel **58** exists, then base station **22** will place a reuse unit **62** in use, from the general pool of reuse units **62** for system **20**, to provide the required free channel **58**. Conversely, whenever base station **22** places the last in-use channel **58** in reuse unit **62** out of use, then reuse unit **62** is itself placed out of use and returned to the general pool of reuse units **62** for system **20**. Those skilled in the art may readily discern that reuse units **62** of other numbers of channels **58**, and other reuse schemes, may be used.

FIG. **5** depicts a flow chart of a process **68** for managing the assignment of communication channels **58** on a real-time basis in accordance with a preferred embodiment of the present invention. FIG. **6** depicts a representational local-group reuse-unit allocation table **70** in accordance with a preferred embodiment of the present invention. Referring to FIGS. **1**, **2**, **5**, and **6**, process **68** provides efficient management of communication channel usage and assignments between base stations **22** and subscriber units **26** of system **20**. Process **68** is executed in base stations **22** in response to channel usage requests from base stations **22** and subscriber units **26**.

A task **72** of process **68** is performed in which parent base station **36** receives reuse unit status data from neighbor base stations **38** in its local group **34**. A task **74** is then performed wherein parent base station **36** sends reuse unit status data to each neighbor base station **38** in local group **34**. Through tasks **72** and **74**, parent base station **36** continuously notifies neighbor base stations **38** of the status of reuse units **62** in use at base station **22**, and is kept continuously notified of the status of reuse units **62** in use at each neighbor base station **38** in local group **34** of which base station **22** is the parent. For these purposes, reuse unit status refers to whether reuse units **62** are in use or out of use. Base station **22** coordinates this reuse unit status data by updating allocation table **70**. Since every base station **22** is a parent base station **36** of its own local group **34**, every base station **22** has the requisite data to keep its allocation table **70** current.

In this embodiment, tasks **72** and **74** maintain table **70** to give the real-time status of all reuse unit **62** assignments made by parent base station **36** and all neighbor base stations **38** within local group **34**. In exemplary table **70**, at least two primary data are kept, these being a loading index **76** and reuse units data **78**. Loading index **76** is effectively the number of in-use reuse units **62** at each base station **22** in local group **34**. In the exemplary table **70**, empty data cells