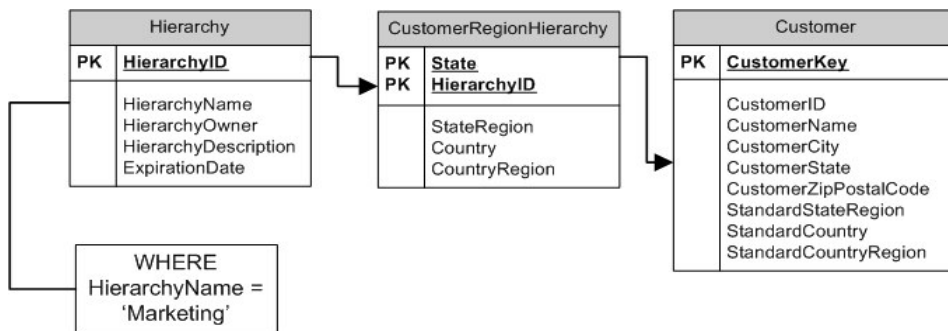## Kimball Design Tip #62: Alternate Hierarchies

By Warren Thornthwaite

Different users often want to see data grouped in different ways. In the simplest case, one department, like Marketing, wants to see customers grouped into one hierarchy and another department, like Sales, wants to see it grouped into an alternate hierarchy. When it really is this simple, it makes sense to include both hierarchies in the Customer dimension table and label them appropriately. Unfortunately, there are only so many alternate hierarchies you can build into a dimension before it becomes unusable.

The need to more flexibly accommodate alternate hierarchies occurs when several departments want to see things their own way, plus they want to see multiple versions of their own way. In this case, we generally work with the users to define the most common way data will be grouped. This becomes the standard or default hierarchy in the base dimension. Any other commonly used hierarchies are also built into the dimension to maintain simplicity for the users.

We then provide an alternate hierarchy table that allows users to roll the data up based on their choice of the available alternate hierarchies. The figure shows an example alternate hierarchy bridge table called CustomerRegionHierarchy for rolling up geographical regions.

Each hierarchy in the alternate hierarchies table must include the entire hierarchy from its starting point where it joins to its associated dimension up to the top. In this case, the CustomerRegionHierarchy table starts at the State level and goes up from there. It is certainly possible to start from a lower level of detail, ZipPostalCode for example, but it would make the bridge table larger and might not add any benefit. On the other hand, if there's a requirement to create alternative groupings of zip codes within states, the bridge hierarchy table obviously has to start at the zip level.

To simplify reporting and analysis, the bridge table includes the definition of the standard hierarchy. This choice then becomes the default in all structured reports, allowing users to switch between the standard and alternative hierarchies. The creation of a separate Hierarchy table helps simplify maintenance with one row for each hierarchy, but increases the visual complexity. This table could be denormalized back into the bridge table.

The CustomerRegionHierarchy table should be used in structured reports or by expert users. Joining

it to the Customer table will cause over counting unless the HierarchyName is constrained to a single hierarchy. All structured reports that provide access to an alternate hierarchies table should be built using the default hierarchy and should require the selection of a single hierarchy.

The alternate hierarchies table is an example of added value in the warehouse. These kinds of custom groupings are commonly used in business, but the definitions are not often centralized or managed in any formal way. Usually they live in a spreadsheet (or dozens of spreadsheets) on desktops.