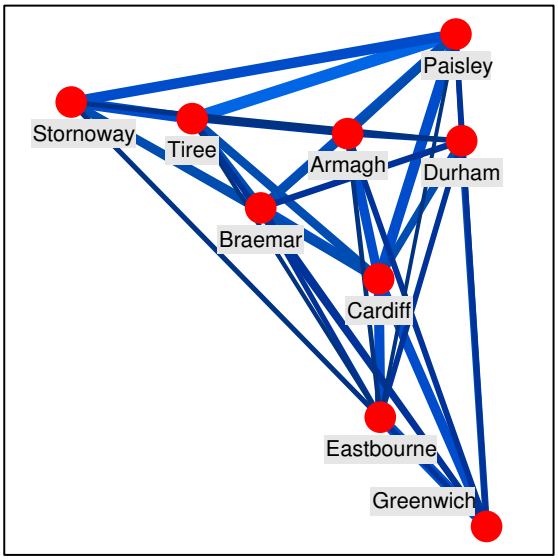

Fig. 6.18 The data for this chart consist of measures of association between the time series for rainfall at each weather station. The measures are robust measures that can detect more complex associations, but for this data, they reduce to a robust form of simple correlation. The resulting matrix of correlations is laid out as a network, where the distances between variables (the stations) indicates how closely correlated they are. Since we are placing 9 nodes in two dimensions (18 parameters) using data for 9*8/2 = 36 distances, the distances cannot be made to fit exactly. The color and width of the lines is used to display the actual associations.

6.4.4 Faceting when Data is Not Categorical

Time is generally considered to be a continuous variable, but faceting requires categories. We can break time into ordered categorical data in a number of ways. The simplest way is to use a measure of time that is slightly less granular than the data's natural level; for daily data we could use weeks or months, for monthly data, years. etc. Figure 6.13 on page 92 used this technique; taking data recorded every 15 minutes and faceting by the day component of time. An alternative technique would be to bin the data, as is done for histograms, but care should be taken that the bins make some sort of sense – bins every 36 months would be fine, but bins every 35 months would be irritating.

One disadvantage of splitting a time series up in this way is that it is harder to see patterns when they occur across breaks in the data. For the passenger arrival data, this is not an issue because there is a natural split at night time, but for many series such a split could make plots harder to interpret. One solution to this problem is **shingling**. Shingling is an important part of the **trellis** display paradigm. A trellis display is a variation on structured faceting; essentially it is a faceting with a special form of axis drawn for the facet variables. Trellis displays were introduced in [1], and [48] provides a good discussion of their use, contrasting them with interactive methods for conditioning data.

The concept of *shingling* can be used both with and apart from the trellis display methodology. A continuous variable that is to be used in a faceted chart is broken