













to apply to a client specific baseline. In these instances, posing the question to the IT designers will always be the best route forward.

### *LEED*

The LEED process for Virtualization is entirely founded on the use of the USGBC virtualization tool. The most important aspect is the approach; USGBC is very clear that they require the same process and plug loads. For virtualization, we must think and justify it as providing the same amount of work, but at different efficiencies.

The real trick, however, is that they ask for supporting documentation to defend the virtualization rates used in the tool. Different industries and server functions all have varying potential for virtualization. Banks and forward-facing servers often use no virtualization while backward facing and telecom often use high virtualization rates. We have had our greatest success when the IT designer has provided a layout of the data center like in Figure 5 where each grouping of server racks is identified with their own virtualization rate. From this data, a data hall average virtualization rate is fairly straightforward.

### REFERENCES

- U.S. Department of Energy, 2011 Buildings Energy Data Book, March 2012
- U.S. Green Building Council, 2013. LEED Reference Guide for Building Design and Construction, LEED v4, U.S. Green Building Council.
- ASHRAE, 2010. Standard 90.1-2010 Energy Standard for Building Except Low-Rise Residential Buildings, ASHRAE.