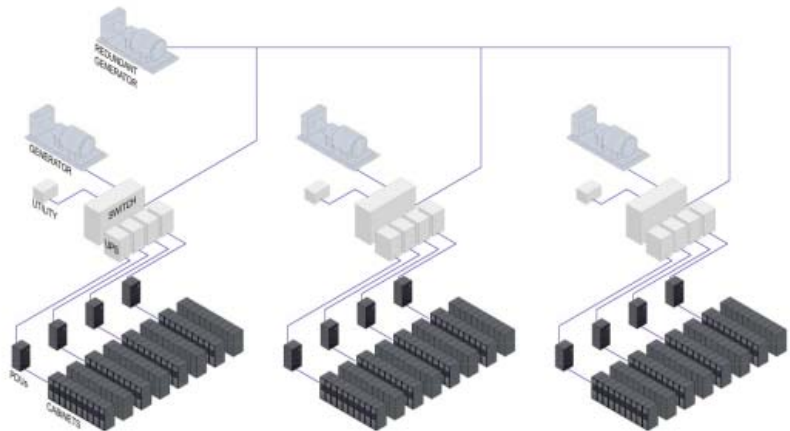


Modular Scalable Infrastructure

Today's data center operator is focused as much on energy efficiency as on reliability. Because systems operate more efficiently at full capacity, the drive to lower Power Usage Effectiveness (PUE) into the 1.4 range requires that MEP systems are sized to match the actual loads in the data center.

In the past Data Centers were often designed and constructed with MEP support systems that were sized to meet the overall capacity required five, ten or even fifteen years into the future. That design philosophy was preferred because it avoided the need to upgrade critical systems in an operating critical environment. Today, that legacy design philosophy is unacceptable to most users.

The old design philosophy has lost favor for two primary reasons. First, organizations are now more than ever trying to drive down or delay capital costs; paying for MEP capacity that is not needed for five or ten years simply does not make sense. Second, oversized MEP equipment operates far less efficiently than equipment with a high utilization rate.



To address these concerns, *idGroup* has been focusing on developing modular scalable infrastructure systems that operate very efficiently, are relatively easy to expand and are more cost effective than the larger legacy systems. The key to a successful modular scalable design is understanding both the current power load and the projected growth of the data center.

Typically, *idGroup* focuses on the initial build that will support operations for a three to five year period. Equipment is selected based on what is currently standard to most manufacturers and can be matched to the capacity of other systems. For example, a 625kVA UPS system in a 2N configuration matches very well with a 1 MW generator using an air cooled chiller plant. This type of system matching assures that our clients do not run out of UPS before they run out of cooling, or vice versa. To achieve this type of system size efficiency, operators have to avoid putting a "stake in the ground" relative to system capacity, and rather, focus on rack count and rack growth, and choose components that match well with the needs of the facility. Significant amounts of time and money will be saved with this approach.

Once the system components are selected, the development of a phased growth strategy is critical to ensure that future installations go smoothly. The design needs to be developed so that the new systems can be installed and tested without the need to disrupt the critical load. All connections and bypasses need to be well planned and installed during Phase One. Additionally, it is important to leave a little extra room in the MEP spaces in case dimensions change with the next generation of equipment.

Finally, understanding the overall commissioning and integrated testing strategy for each phase is of great importance up front. It is critical that all new systems can be tested without risking ongoing operations.