Bloomenergy®

Clean, Reliable Power for Data Centers

Data centers are the lifeblood of the digital economy. Energy, according to Data Center Knowledge, is the lifeblood of the data center industry.

There are many factors to consider when designing a data center. Reliability, cost and latency are all key considerations that must be made when developing a data center strategy.

Reliability

Data and compute resources are only valuable if they are available. Reliability is a key consideration for data center design because customers demand always-on access to their information. Steve Smith, former CEO of the largest colo provider in the world, Equinix, stated "Reliability and resilience with our customer base is probably the #1 reason why Equinix gets chosen to serve their customers".

Mechanically, servers have benefited from massive investments in reliability and uptime. Additionally, many software architectures provide fault tolerant, redundant designs that allows data to be replicated multiple times across a data center. When a server fails, the data is actively available in one or two other places inside the data center and service will not be interrupted.

The electric grid, however, exposes significant risk to the entirety of the data center operation. Former head of data centers at eBay, Dean Nelson, stated "we don't trust the grid." Since the electric grid is not sufficient, data centers rely on backup equipment — diesel generators and UPS. The need for a reliable solution was echoed by Lee Kirby, Uptime Institutes' Executive Director when he said "If I were to sum it up, I think it shows the growing need for reliable digital infrastructure, because the digital economy is so reliant on it and getting more so every day," he said. "Outages are costing us more and having greater impact."

Bloom Energy offers a smarter alternative to traditional backup equipment. By generating always-on power with up to 6 9s reliability, the Bloom Energy Server provides primary power to data centers. The grid becomes the backup solution and allows the system to maintain high mean time between failures (MTBF). The solution removes the need for diesel generators and allows organizations to become both clean and reliable.

Cost

Data center operators strive to increase storage and compute capacity while reducing cost. Energy is a significant portion of operating budgets within data centers and must be considered when developing a strategy. Traditional electricity delivered from the grid also exposes data center operators to fluctuating prices that make budgets difficult to set and achieve.

Bloom Energy Servers generate electricity onsite with an industry leading 65% starting efficiency. Additionally, Bloom produces baseload electricity which is perfectly matched to the high load factors generated by data centers. Not only do Bloom Energy Servers provide a significant OpEx reduction, but the financing solutions available allow customers to lock in prices for the length of the contract.

Latency

Historically, compute and storage could be located in remote areas with inexpensive land and electricity.

The Internet of Things (IoT) has created billions of devices, each demanding low latency access to compute and storage, throughout virtually every location on Earth. Additionally, services such as video content providers need to transmit large data packets over short distances to prevent long haul queuing and delay since transporting data over long distances is prohibitive due to both cost and latency. In order to create efficiencies, reduce transmission cost and improve user experience, data center operations are moving to the "edge". Edge data centers are strategically positioned to bring physical resources closer to end users. Moving to the edge means data centers no longer have the luxury of choosing locations based on cheap land and electricity. Rather, they are forced into more populated areas where more data is generated and consumed. With 40% of organizations expecting to require edge computing capabilities, the industry needs to learn to identify a source of electricity that can work within the confines of the edge.

Bloom Energy parallels the move to the edge. Like other distributed generation resources, Bloom Energy Servers move power generation to the location where electricity is consumed. This increases reliability and efficiency while giving data center operators control over their energy costs. Furthermore, Bloom Energy Servers are incredibly energy dense. The Bloom Power Tower, as demonstrated in an installation in Korea, is capable of producing 8 MW of 24/7 power in the footprint a little larger than a basketball court.

Data center innovations continue to advance as organizations look to store and analyze larger amounts of data. These innovations are pushing the industry to focus on providing a higher level of service to customers. Bloom Energy plays a key part in improving reliability while reducing operational costs.

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