The PowerEdge FX2 Unique Solution Design

When designing a data center, server admins often struggle with deciding which types of servers would provide the best total cost of ownership. Historically, there were two types of servers to choose from in data centers: rack servers and blades (modular). Each had their own advantages and drawbacks though which is why the PowerEdge FX2 was designed to provide the best combination of both options.

Rack Server Design

Rack servers such as the PowerEdge R740 or R640 are typically the most popular servers to purchase as they have a good mix of storage to PCI slots mix without using too much space in the data center. Since these typically offer a range of local storage options, they are often used today in solutions such as software/storage defined datacenter (SDS) or Hyper Converged Infrastructure (HCI). These solutions easily connect to external storage but can also just use internal storage for solutions such as vSAN. All servers are easily managed, deployed and updated via tools such as Dell OpenManage.

The challenge with rack servers is each of them is its own physical server. That results typically in lots of cables, power supplies, fans and other components at the rack level.

Blade Server Design

Blade servers were designed to take out the redundant redundancy of rack servers. Sharing a chassis, they consolidate things such as cabling, management points, power supplies and fans. Instead of, for example, 2 power supplies per each rack server, the PowerEdge M1000e blade chassis has 6 shared power supplies for 16 servers. Blade servers can also reduce cabling by up to 96%.
Blade servers also have their challenges. A 10U size chassis requires a larger initial investment. Integrated switches are great for saving space but each switch is proprietary to that chassis and doesn’t take advantage of the flexibility of industry standard PCI slots. Blades also typically are limited in their local storage and, as more environments move towards SDS, the limited local storage often today results in data centers mixing both rack and blade servers which typically isn’t ideal.

**The PowerEdge FX2 Design**

The FX2 is an ideal hybrid taking advantage of the best attributes of both rack and blade servers. There are some key benefits to this innovative design including:

- **Small size:** Like the PowerEdge R740, it’s 2U in size so it doesn’t require a large initial investment and has great data center flexibility.
- **Integrated storage:** As data centers move towards software defined, they require a great deal of local storage. The PowerEdge FX2 has a number of server and storage option configurations and can fit an industry leading 50 2.5” drives into one 2U chassis.
- **Choice of PCI slots or integrated switching:** FX2 has options to use integrated switching to save on Ethernet cabling. It also comes with 8 industry standard PCI slots to leverage common, easily changeable, components.
- **Flexible management:** The entire FX2 chassis can be managed from each iDRAC or from the centralized CMC. This gives administrators used to managing rack servers or blade servers the option to manage the servers exactly as they are used to.
- **Workload optimization:** The same 2U chassis can hold a few different types of servers from quarter width (8 per chassis) to half width (4 per chassis) to full width (2 per chassis). A storage option can also fill each slot. This gives the opportunity to use one type of chassis but each 2U can be optimized for a different type of workload. If a workload needs as many cores per U as possible, the quarter height is perfect. If running SDS, a mix of half height with storage modules might work great. Either way, the chassis management and usage is the same.

**The PowerEdge FX2 Advantage**

The FX2 is an ideal, and unique, server hybrid combining the best attributes of what was previously used in data centers. Its ability to flexibly meet the workload needs of any data center sets it apart from other server options available today.