Designing for Any Data Center - The Dell Development Process

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SUMMARY

- Dell spends years understanding the market environments of servers to provide the best server solutions to the market capable of ideally tailoring to each data center

- The market research done for servers involves extensive research via customer meetings and surveys as well as deep discussions with Dell internal and external solution partners

- The PowerEdge FX2 solution is an example of how Dell research and development can drive new types of concepts via providing an innovative way to solve a data center challenge

Solving data center challenges. That's Dell's goal when it begins to design new servers for the Dell EMC PowerEdge solutions portfolio. Dell uses its development process to ensure it provides unique solutions capable of helping users best utilize solutions in a manner allowing data center savings and new capabilities in each design.

Market Research

Designing a new server concept always begins with understanding the industry. This typically begins with user discussions of needs and customer surveys designed to help understand what challenges exist today and, directionally, what the top priorities are of IT administrators for the future. For a previous generation of technology, that resulted in over 8,000 customer conversations over more than 50 countries.

Dell then also works closely with all of its hardware and software partners to understand the goals, direction and future capabilities of each solution. Dell then spends years of combined people resource time to triangulate all the data to understand what technology from partners, and Dell IT ideas and capabilities, could best solve the needs of users.

A good example of how Dell industry research resulted in a unique product is the PowerEdge FX2 solution. A number of years ago, data was typically saved on centralized storage such as a SAN or NAS array and not much on the server. As technology evolved over time, software began to move from using servers and storage solutions separately to using the local server as the host for much storage. This became especially important with the rise of Software Defined Storage solutions such as Vmware VSAN, Microsoft Storage Spaces (or Spaces Direct), RedHat CEPH, Dell XC with Nutanix and ScaleIO. This resulted in the need for far greater local storage and a resulted in a different type of solution – the PowerEdge FX2.

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The PowerEdge FX2 Solution

Concurrently with Dell's market observations, Dell's Research and development teams are constantly brainstorming new ideas to help solve the problems and pain points we hear from customers, as well as future problems we predict will happen due to shift in software ecosystems and use case. In this case, Dell considered the current server portfolio, and realized this changing ecosystem required a need for a radical change in the local storage design of a server. Released in 2011, the 2U PowerEdge R720 held 16 2.5" small form factor (SFF) drives. In 2014, the PowerEdge R730XD expanded to 26 2.5" drives. Dell's R&D had a concept for a modular architecture that, among other use cases, might also be a great fit for the SDS use case. After testing the ideas with customers and internal concept testing, Dell released the PowerEdge FX2. A flexible, modular solution, the PowerEdge FX2 was capable of holding 50 2.5" drives in the same amount of space as the R720 to help users get move storage capability per every U in a data center. Triangulating all the market data led to a solution capable of providing a much better solution for many software defined environments as well as solutions that can take advantage of a great deal of local storage.

Alternative Options

Software defined storage is also an example of the many ways Dell EMC works to partner with other solutions or with the industry but still use PowerEdge solutions. Dell provides options from all in one solutions such as VXRAIL or XC that can provide turn key, quickly deployed options capable of providing a quick outcome in any environment. Dell also provides Ready Node options for VSAN and ScaleIO to provide simple guidance on the software recommended components to best use with each type of solution.

While extremely varied, all of these types of solutions are considered when Dell begins the concept process of developing the next PowerEdge server to solve this need.

Concept to Deployment

Any PowerEdge solution comes from months or years of working with the industry, IT users and internal engineers to develop and then execute ideas to best solve data center needs. In an industry as varied as IT, development teams are required to constantly consider new ways to challenge the industry by providing a better solution than ever before which often leads to solutions such as the ground breaking PowerEdge FX2 platform.

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