PowerEdge FX2 Total Cost of Ownership (TCO) Comparison

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SUMMARY

The PowerEdge FX2 takes the best capabilities of rack servers and blade servers to provide a better Total Cost of Ownership (TCO) than other data center options. Key benefits include:

- Up to 22% better total TCO over a 2U rack server

- Up to 75% reduced cabling

- Uses 50% less space using a standard FC640 server node

- Provides choice of systems management approach: Can be managed 1:1 like a rack server, or 1:Many like blade servers.

Deciding between multiple types of server form factors can often feel like a daunting choice. Most of the hard decisions eventually come down to how one deploys, manages and best utilizes all costs in the data center.

When designing a server then, Dell took a holistic look at the current data center options and then built a unique server with options that can provide a better total cost of ownership than other choices: The PowerEdge FX2.

Multiple Server Designs

Rack servers are the most popular servers in the world. As either 1U or 2U in size, they are simple, discreet solutions used in almost all data centers. Their small size, yet great capabilities, give them excellent workload flexibility. Unfortunately, as each server is distinctive and doesn't share any components with other servers, they can drive data center complexity and extra costs that a blade, or modular, solution can resolve.

Blade servers on the other hand do a great job of sharing the infrastructure for servers while consolidating cabling, providing faster physical deployment and consolidated management. Blade servers though typically require a larger initial investment due to their larger size. They also historically don't have sufficient internal storage required for many current workloads like Hadoop, or deployments on software defined storage. This leads many users to return such workloads back to rack servers.

To overcome these gaps, Dell EMC created the PowerEdge FX2. The FX2 is an ideal hybrid of the best features of both rack and blade servers, with a better total cost of ownership than others.

The PowerEdge FX2 TCO Advantage

As the PowerEdge FX2 is 2U in size, comparing the TCO to a 2U rack server is a great way to understand the unique capabilities of the FX2. Some examples of savings when using the FX2 with a FC640 are:
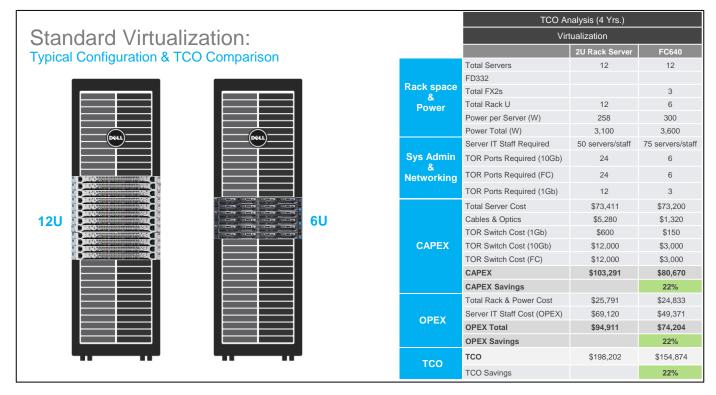
- Reduces cabling by up to 75% which reduces cost and potential points of failure
- Utilizes half the rack space – especially important for co-locations and data center constrained spaces
- Physically deployed once per 4 servers
- Leverages existing systems management skills: Can be managed like a rack server or like a blade server

Data Center Comparison Example

Taking a look at an example of how the FX2 can help a data center is helpful. As 2U servers are the most popular in the world, we'll compare the cost of rack space, power, administration, CAPEX and OPEX to give an example of the TCO advantage of FX2.

Standard Virtualization:
Typical Configuration & TCO Comparison

12U **6U**

		TCO Analysis (4 Yrs.)	
		Virtualization	
		2U Rack Server	**FC640**
Rack space & Power	Total Servers	12	12
	FD332		
	Total FX2s		3
	Total Rack U	12	6
	Power per Server (W)	258	300
	Power Total (W)	3,100	3,600
Sys Admin & Networking	Server IT Staff Required	50 servers/staff	75 servers/staff
	TOR Ports Required (10Gb)	24	6
	TOR Ports Required (FC)	24	6
	TOR Ports Required (1Gb)	12	3
CAPEX	Total Server Cost	$73,411	$73,200
	Cables & Optics	$5,280	$1,320
	TOR Switch Cost (1Gb)	$600	$150
	TOR Switch Cost (10Gb)	$12,000	$3,000
	TOR Switch Cost (FC)	$12,000	$3,000
	CAPEX	**$103,291**	**$80,670**
	CAPEX Savings		**22%**
OPEX	Total Rack & Power Cost	$25,791	$24,833
	Server IT Staff Cost (OPEX)	$69,120	$49,371
	OPEX Total	**$94,911**	**$74,204**
	OPEX Savings		**22%**
TCO	**TCO**	$198,202	$154,874
	TCO Savings		**22%**

The example in the graphic above shows the benefits of using the FX2 versus a standard 2U rack mount server: The data center experiences a 22% better TCO over a four year life cycle.

The great news though is the PowerEdge FX2 also has features users love with racks over blades such as:

- Management of each server can be done the same as either a rack or blade server so the FX2 fits into current data center processes
- Uses standard PCI slots to take advantage of industry standards and/or use integrated networking for cable consolidation
- Minimized size for either workload optimization per chassis, smaller initial investment or more rack level chassis redundancy

Conclusion

The unique, flexible PowerEdge FX2 is ideal for data centers. It is easily integrated into existing infrastructures and offers several key benefits, including superior TCO.

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