Building the Next-Gen Data Center

What’s wrong with enterprise IT today? Most IT leaders have a ready answer: infrastructure that’s too expensive, inflexible, and difficult to manage.

To solve these problems, Dell EMC designed a modular platform that offers more choice, reduces complexity, and excels at scalability.
IT departments need a change. As researchers at Forrester note in their October 2016 report, entitled “2017 Predictions: Dynamics That Will Shape the Future in the Age of the Customer”: “Technology has already changed the world: the way people live, the power customers have, and how businesses operate. The pace of innovation can be dizzying. The next wave of technologies is poised to remake industries and customer experiences.”

This rapid change — especially the growth of mobile devices and cloud computing — has altered expectations. Business leaders now expect IT to provide new IT resources on a moment’s notice and to scale immediately as demand grows.

Limited Legacy

But the legacy server architecture, in most cases, wasn’t designed to meet the demands of a mobile, data analytics–heavy, cloud-driven era. When discussing their top concerns, IT leaders frequently say that they “can’t implement fast enough to meet business goals.” This inability to meet business demands stems from three common IT infrastructure problems:

1. **It’s inflexible.** Business needs change constantly, and legacy infrastructure often is unable to keep up with newer applications. As a result, IT must perform costly and time-consuming “rip-and-replace” upgrades.

2. **The management tools and processes require too much staff time.** Instead of working on new value-producing projects that would make the business more successful, most IT staffs spend the bulk of their time just maintaining existing systems. These cumbersome processes and tools add to the total cost of ownership (TCO) for tech investments and prevent IT from working on more valuable projects.

3. **It requires overprovisioning of hardware to meet SLAs during peak usage.** Because they need to be ready for a surge in demand, many IT managers buy additional infrastructure resources that sit unused much of the time. Internal financial structures can complicate this problem, because most organizations lack the tools to enable IT to charge a given chassis to more than one department. As a result, they end up with multiple chassis with empty slots.

Productivity Pressure

These three problems drive up IT expenses at a time when IT leaders are under nearly constant pressure to reduce costs. In order to find the savings they need, they usually consider two different options. First, they consider proprietary systems that promise to reduce overall costs. Although these solutions may reduce TCO in the short term, they may limit choices. Over time, organizations can find themselves trapped by vendor lock-in and once again dealing with problems caused by inflexible infrastructure.

The second option is to deploy commodity hardware and open-source software. The

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low acquisition costs for these solutions are attractive. Unless organizations have a large and experienced IT staff, however, they find that maintaining these systems requires too much time and effort, exacerbating one of the key problems with their existing infrastructure.

Fortunately, there’s a third option. An optimized modular infrastructure offers the best of both worlds: more choice with less complexity. Ideally, this next-gen hardware should be right-sized to meet requirements today and to scale quickly and easily to meet workload needs into the future.

Next-Gen Data Center Essentials

Vendors are responding to the need for a future-ready data center with innovative server platforms that can evolve as business needs change. The best options offer choice and simplicity in key areas.

Simplified management: The Dell EMC PowerEdge FX architecture, for example, gives organizations the option of rack- or blade-style management within the same chassis. This technology allows IT to use the type of management that makes the most sense at a given time, without locking them into that choice.

Next-generation architectures require advanced management tools that simplify deployment and maintenance. The Dell EMC FX platform is built with embedded OpenManage technology that simplifies and automates many common tasks. Zero-touch deployment features make it possible for administrators to provision hundreds or even thousands of servers in seconds. Whether an organization has a traditional IT environment, a modular infrastructure, or a software-defined data center, this sort of automation reduces the time IT must spend on day-to-day tasks.

Easy connectivity: IT leaders should look for platforms that free them from proprietary limitations by allowing them to install any off-the-shelf, standard PCIe card. Enterprises need a solution that can efficiently handle all types of storage traffic. Some platforms provide aggregation capabilities that reduce cabling requirements. In the case of Dell EMC’s FX architecture, cabling needs decrease by a factor of eight-to-one, reducing costs and eliminating many headaches for IT staff.

Right-sized infrastructure: The rise of cloud computing has led business leaders to expect that they’ll be able to scale their applications and infrastructure quickly and easily. To meet this expectation, IT managers need a modular IT architecture that allows them to add capacity as necessary without the expense of overprovisioning. The Dell EMC FX architecture addresses this problem with high-density servers that fit into a 2U chassis. The design allows customers to buy resources in “bite-sized” chunks that help to control costs while enabling exceptional scalability. Because it’s easy and inexpensive to add more modules, IT can scale up as demand grows.

With a smaller chassis, there’s also a much better chance that a single department within the company will fill all the server slots in the chassis. That helps organizations avoid the
empty slots in 10U boxes that result from their chargeback structures. Thus, they eliminate unnecessary waste.

Also, high-density hardware provides additional cost savings because it packs a lot of compute power into a small package. It reduces the servers’ footprint, which in turn reduces real estate and related utility costs.

**Flexibility for changing workload demands:**
Different workloads need different types of infrastructure. For example, while an organization’s big data analytics may need a lot of storage, its Web servers may need faster processing and connectivity. Next-gen infrastructure addresses the needs of these different types of workloads by combining storage, compute, and networking capabilities into a single box.

Advanced technology, like the Dell EMC FX platform, takes a modular approach, allowing companies to tailor the mix of resources for their specific needs. Companies can build out their boxes with the exact combination of storage and computing resources necessary for their applications.

With this approach, organizations can scale up as demand grows. And as business needs change, it’s easy to reconfigure and redeploy the existing modules to match evolving workloads using the advanced management tools that are part of the platform.

Companies should look for a platform that has a complete range of servers and storage configurations. That way, they can optimize their infrastructures for their applications, getting the capacity and performance they need for each workload now and in the years to come.

**Control Costs While Meeting Business Needs**
The Dell EMC FX architecture is designed to help companies overcome the most common IT infrastructure problems. It allows companies to scale or reconfigure their resources quickly and inexpensively. Advanced management tools can increase productivity, allowing staff to spend less time on day-to-day maintenance. And high-density, modular hardware makes it easy to purchase additional capacity as it is needed rather than overprovisioning.

The right infrastructure helps IT reduce TCO while serving the evolving needs of the business. The key is to avoid inflexible solutions and difficult-to-manage commodity infrastructure. Instead, companies should look for a future-ready modular platform that maximizes flexibility, ensures worry-free computing, and controls costs.

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