DELL Technologies

Don’t let the challenges of scale-up keep you down.

Partner up with Dell Technologies to scale your datacenter on demand

90% agree: GenAI, IoT and Analytics are ‘force multipliers’ for their digital strategy

In the ever-evolving realm of technology, hyperscale data centers and cloud computing platforms have emerged as the pivot points of modern digital experiences. They enable all kinds of applications to power the digital economy. Using advanced and scalable platforms, these new datacenters improve the flow, processing and eventual ROI captured in this digital code of ones and zeros. As hyperscale cloud providers and large internet companies provide services with simplicity, agility, and control to improve their customers’ business outcomes, they continue to expand their global footprint and enhance operational capabilities. The need for consistently available distributed compute has surged to unprecedented levels. Projections indicate that the global cloud computing market is valued at $585.8 billion in 2022 and it is projected to reach $1,240.9 billion by 2027.[1]

When building or maintaining a hyperscale datacenter infrastructure, the ability to scale with demand, both rapidly and efficiently, is critical. Adding resources like networking, servers and storage for example, empowers Cloud Service Providers (CSPs) to provide customers the capacity to construct tailored frameworks.
A study conducted by Deloitte investigated, how cloud investments contribute to positive outcomes. The study found that “90% of respondents agree or completely agree with the statement that cloud, when combined with other technologies like Generative AI, IoT, and analytics, serves as “force multipliers” for their digital strategy.”[2] This underscores how infrastructure investments by cloud providers brings value to their customers’ technology strategies, business objectives, and innovation priorities. This creates a positive impact on driving revenue and maintaining a strong market position.

As the digital landscape becomes increasingly interconnected, end-users still expect a seamless experience. Whether it involves streaming beloved movies, collaborating on real-time projects, or accessing vital business applications, the demand for uninterrupted services has triggered a need for enterprise compute in more places. This movement towards decentralized compute falls squarely in the lap of CSPs who can provide services from multiple locations, reduces latency while optimizing performance, and keeping customers happy.

Nonetheless, as service providers, they strive to address the needs of tens of thousands or more users concurrently, while facing the intricate challenge of balancing high-availability and reliability for diverse workloads. Adding to the complexity, sustainability goals impose operational limitations on data centers and introduce significant cost considerations. This is precisely where Dell Technologies and its advanced PowerEdge Servers step in, presenting a comprehensive solution to scaling infrastructure.

Having worked with thousands of businesses of all sizes who require scale-out infrastructure, Dell has identified five of the biggest challenges facing hyperscalers today: power and cooling, reducing costs, end-to end-security, simplified management tools, and supply chain management.

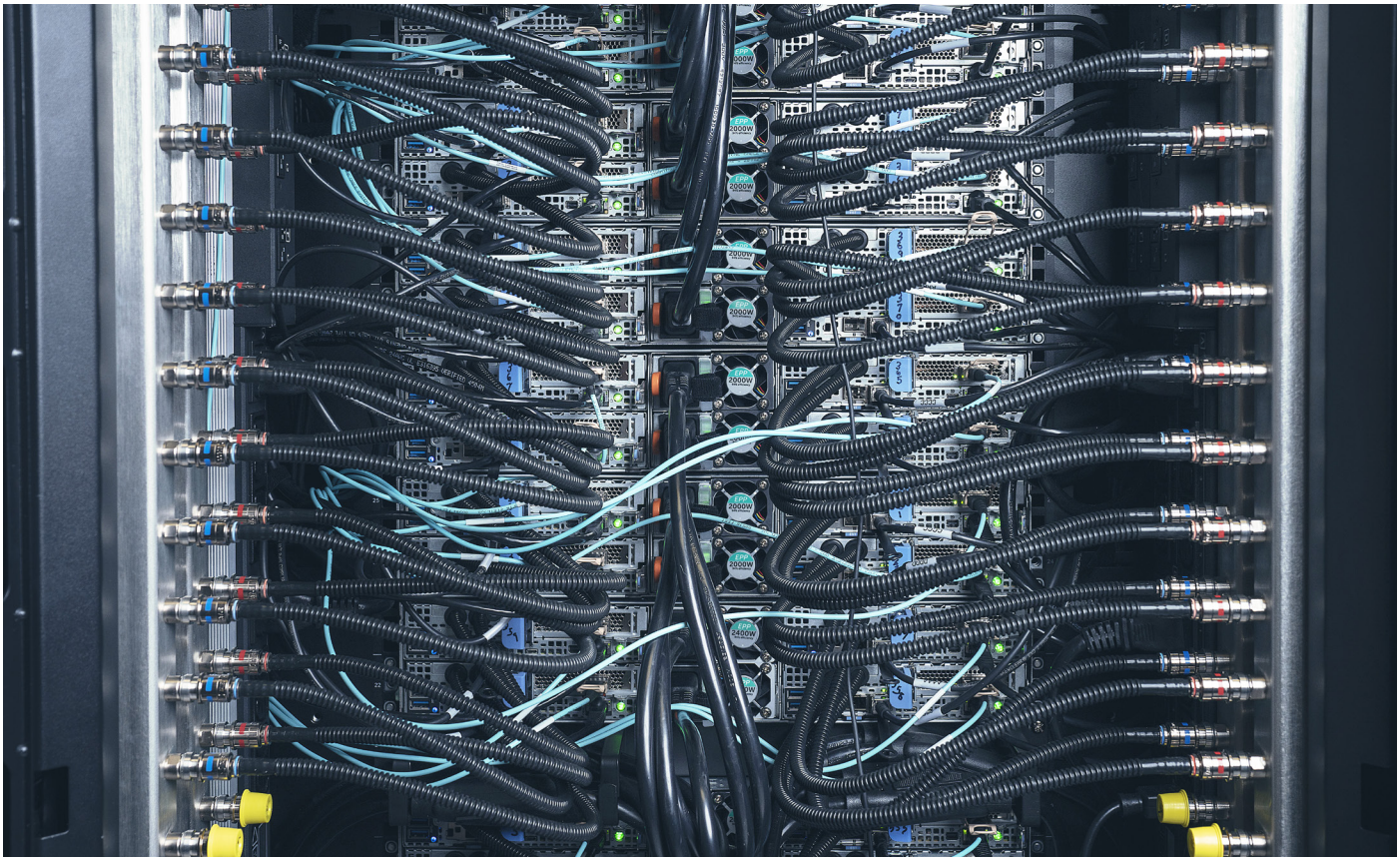
Efficient Cooling Solutions for Enhanced Server Performance

Enhancing server performance through efficient cooling solutions has become a critical concern. Hyperscale data centers are typically built with scalable power capacity for requirements of 5 to 150 megawatts (MW) across 50,000 to 1+ million square feet of space.[3] Recent energy statistics, cited by the Advanced Research Projects Agency, underscored an annual energy expenditure of over 205 billion kilowatt hours by datacenters housing thousands of servers.[4] Moreover, according to the US Department of Energy, a staggering 40% of this energy is attributed to cooling systems, indicating the magnitude of the cooling challenge faced by CSPs.[5]

Dell Technologies has responded to this challenge by introducing their groundbreaking Smart Cooling technology. By leveraging advancements in air and direct-liquid cooling, Dell PowerEdge servers offer enhanced dissipation of heat compared to conventional cooling methods. This results in reduced power consumption and substantial operational cost savings. Recent industry data underscores that liquid cooling can lead up to a remarkable 50% reduction in cooling energy consumption, thereby greatly improving overall efficiency.[6] The demand for cold aisle chassis design is gaining momentum to address both OSHA regulations and management efficiency within data centers. As a result, technicians can now experience enhanced serviceability directly from both the hot and cold aisle.

Optimizing Efficiency and Budgets: Exploring Cost-Saving Solutions

Hyperscalers require a wide variety of consumption models to operate their datacenters. This is often a pivotal determinant of their success. These models are intricately linked to their capital structures and payment options. Recent studies highlight the proliferation of pay-as-you-go models, which have experienced exponential growth in recent years. This shift in payment preferences underscores the fluid nature of the industry and accentuates the demand for adaptable solutions. Dell Technologies provides an array of versatile payment options, encompassing the innovative pay-as-you-go service as well as capital purchase or operational leasing. The pay-as-you-go approach facilitates resource scalability in concurrence with fluctuations in consumption, optimizing the allocation of resources and fostering more effective cost-management.



Guarding Your Digital Fortress: Strengthening Server Security

In an era marked by relentless cyber threats, security stands as a paramount worry for large data center operators. With 48% of IT professionals reporting an increase in ransomware attacks and 22% of organizations experiencing a ransomware attack in past 12 months, the importance of having a secure foundation for enabling a zero-trust environment is imperative.[7] The mandate for safeguarding sensitive customer data cannot be understated. Dell Technologies is at the forefront of this challenge, integrating security by design into its PowerEdge Servers. A modern resilient and intelligent technology foundation built on Zero trust principles which includes hardware-based encryption and sophisticated threat detection, constitutes a potent defense against the escalating cyber threats.

Simplified Control: Elevating Server Software Management

Navigating and orchestrating an expansive network of servers on a large scale presents a formidable endeavor riddled with challenges. Dell Technologies empowers hyperscale customers with a suite of comprehensive systems management tools. These enable centralized control and real-time monitoring capabilities, including an option for open ecosystem system management. This robust toolkit results in streamlined operations, minimized downtimes, and an enhanced quality of service.

Ensuring Supply Chain Security: Building Trust and Resilience

A secure global supply chain is made up of an adaptable network of trusted suppliers. Capitalizing on its leading supply chain expertise, Dell Technologies ensures a continuous flow of resources with our supply chain advantage.[8] This agility in deployment, substantiated by industry trends, results in an accelerated time-to-market and the capability to meet diverse user requirements across various global regions. Furthermore, Dell's ProDeploy Infrastructure Suite can put your pre-configured servers to work faster. Customers can save up to 115 hours configuring 100 servers when using ProDeploy Factory Configuration, and over 223 hours deploying 100 servers using ProDeploy for Infrastructure.[9]

Conclusion

The complexity of hyperscale IT environments necessitates a holistic approach to scalability. It grants customers access to ever-evolving, cutting-edge technologies and best practices. This proactive strategy will help CSPs maintain their competitive edge, adeptly responding to evolving demands and changing requirements. When spikes in user traffic or the integration of emerging technologies are on the rise, CSPs can partner with Dell Technologies. By doing so, they strategically position themselves to harness new capabilities, deliver exceptional services to customers, and maintain a trusted position within the growing hyperscale landscape.

Dell Technologies PowerEdge Scale Servers, pave the way to address the challenges listed above. Using innovative power and cooling solutions, adaptable payment models reflective of industry trends, robust security features, comprehensive systems management tools, and a streamlined global servicing framework, Dell Technologies empowers CSPs to confidently navigate the multifaceted digital realm with confidence.

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