In order to be competitive and profitable in the price-sensitive markets they serve, semiconductor and Electronic Design Automation (EDA) companies demand high levels of productivity from their design teams, better predictability in their development schedules, and high quality. Organizations are examining their existing processes and moving towards a Virtual Design Center (VDC) in order to optimize their processes for delivering quality products on time and within budget in a high-demand market.

The Power of a Virtual Design Center

Discover why a VDC will help you save money, acquire talent, and accelerate time to market.
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1.0 The High-Demand Market of Chip Design

Semiconductor organizations are continuing to re-examine processes to look for efficiencies after seeing a three percent drop in total revenue from the previous year. According to Steve Ohr, research director at Gartner, uncertainty about the state of the macro economy, coupled with ongoing inventory overhang, sent ripples through the semiconductor industry. He says, “The hardest-hit areas include the PC supply chain; memory, analog, and discrete components. The PC business, ordinarily a growth driver, was on a negative slope for the first time in many years.” However, even with the looming fiscal cliff, ongoing European debt crisis, and a still slow global economy, semiconductor predictions are positive with analyst support for revenue growth. The industry will continue to see growth with emerging demand for technology such as smartphones, tablets, televisions, communications and Internet infrastructure, and computing platforms.

To remain profitable in the price-sensitive markets they serve, semiconductor/Electronic Design Automation (EDA) organizations are examining their existing methods in order to optimize their processes for delivering quality products on time and within budget. As the cost of developing a new semiconductor fab is anticipated to surpass US$5.0 billion by 2015, more and more chip manufacturers are adopting outsourcing models to balance the cost of delivering products in a highly expensive and competitive market. At the same time, executives are demanding higher levels of productivity from their design teams, better predictability in their development schedules, and higher quality of product. In order to support these demands and changing business models, there is a growing trend towards Desktop Virtualization, a method which organizations are offering applications independent of location and workstation, so that the users can work onsite, online, offsite, and offline anywhere and at any time.

2.0 What is a Virtual Design Center?

Desktop Virtualization is one of the hottest trends in IT these days. The term designates the various technologies that allow an organization to distribute and manage business applications and desktop environments to their users from a central location. Desktop Virtualization solutions are made of many pieces, which include Virtualized Desktop Infrastructure (VDI), remote access solutions, virtualized storage and networks, consolidated data centers, and high-performance remote graphics. Desktop Virtualization technologies offer numerous benefits spanning from reduction in total cost of ownership to reduced IT overhead, improved business agility, and extended reach.

Engineering departments and companies have been slow in adopting Desktop Virtualization. Traditionally, their perspective has been extremely workstation-centric and they considered that Desktop Virtualization solutions were not up for the task of distributing high-end engineering applications. Things are changing however, and as Desktop Virtualization becomes more mature, a new generation of solutions has emerged that allows organizations to transform the way they deploy and manage their engineering desktops to build a new kind of design center. We call it the Virtual Design Center.

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1 Gartner, Intel Continues to Lead Struggling Semiconductor Market, 2012
2 Digitimes, Trends in the Global IC Design Service Market, 2012
3.0 Factors Driving the Need for a Virtual Design Center

With growing competitive pressures, increasing costs, and a global workforce, semiconductor manufacturers are under extreme scrutiny to produce better products for less money. In order to do this, they must re-examine legacy processes and technology infrastructure and evaluate if they continue to meet new and emerging business requirements.

Historically, semiconductor manufacturers have supported business operations by deploying the software and tools necessary for EDA in a distributed environment. This type of solution deployment enabled teams from around the globe to access high-performance EDA software from their specific office location without sacrificing performance. As many organizations expanded their IT infrastructure over time, they discovered that the expansion resulted in “server sprawl”—a huge proliferation of application servers geographically located throughout the organization. Although this supported the engineers’ day-to-day operations, there are several challenges associated with a distributed model.

3.1 Increasing cost of the data center

The management and maintenance of regionally disperse data centers is time consuming, IT resource intensive, and expensive—very expensive. According to “Cloud Computing for Dummies,” although each data center is a little different, the average cost per year to operate a large data center is usually between $10 million to $25 million. In terms of where these costs are going:

42 percent: Hardware, software, disaster recovery arrangements, uninterrupted power supplies, and networking (costs are spread over time; amortized, because they are a combination of capital expenditures and regular payments). The initial cost of acquiring server hardware is just a small part of the overall cost of operation; there are other downstream costs such as hardware and software maintenance that must be included in the TCO. Moreover, most organizations have policies which define a 3 to 5 year hardware replacement cycle. At which time, not only do organizations have to shell out valuable IT budgets to acquire new systems, but they may have to enlist professional services to aid the application and data migration tasks.

58 percent: Heating, air conditioning, power consumption, and floor and rack space management are additional costs that are associated with traditional regionally dispersed data center deployment methods, not to mention property and sales taxes and labor costs—in fact, as much as 40 percent of annual costs are labor alone. The reality of the traditional data center is further complicated because some of those costs are simply to maintain existing (and sometimes aging) applications and infrastructure.

All considered, the costs associated with regionally disperse data centers are inefficient and outdated. Semiconductor organizations need to be able to utilize resources more strategically rather than duplicating resources and costs per region to support the same infrastructure and legacy applications in each location.

3.2 Runaway system management

It requires tremendous IT resources to keep track of the server population and application licensing, maintain operating systems and applications, and deploy new servers with new applications and other general administrative tasks related to system management. In addition, IT organizations are further taxed by tasks related to ensuring the security of the corporate assets—both the physical hardware and the business data. The larger the server population, the harder it is to protect them from theft, virus, phishing attacks, and other forms of hacking.
3.3 Applications and services reliability
High availability and disaster recovery can effectively protect corporate assets that reside on application servers and data warehouses from natural disasters and a wide variety of failures. On the other hand, it also adds more servers to the already over-populated IT ecosystem and increases the workload of the stretched IT organization. The multiplication of complexity for implementing high availability and ensuring service reliability further magnifies the cost of managing and controlling the systems.

3.4 Geographically dispersed employees
Another consideration around a growing interest in a Virtual Design Center for engineers is that not every employee sits at a desk all day or can be sourced in the same town as the organization’s head office. Today’s top talent has lots of options. Not long ago, it was a common practice to relocate engineering talent long distances and at great expense in order to staff new projects with the best resources. There was a time that organizations had to allocate annual budget to support relocating engineers to be close to the project teams working on a new design. These team members would often have to relocate their lives and families for several years in order to be close to the applications and teams they required for chip design, product development, and team collaboration.

This process of relocation is expensive, disruptive, and often resulted in an organization having to settle on staffing choices; the ones that were willing to make the move, rather than the most suitable employee.

3.5 Market and competitive pressure
Today’s semiconductor organization is under constant pressure to reduce time-to-market, provide better economical and technical predictability of design projects, implement aggressive manufacturing constraints, and support outsourcing models. To accomplish this, semiconductor companies have to find ways to keep pushing their engineering teams to be more productive and operate on a global level.

With multiple priorities to drive efficiencies, there is often emphasis on upgrading the suite of EDA tools and yet little or no consideration on how these suites will be delivered to their engineers. As a consequence, a number of inadequate and inefficient access issues have emerged, plagued with problems that are affecting the quality and speed of the design flow and thus impacting productivity and brand quality. For instance:

• Problems in screen drawing quality leading to mistakes and errors during the design and verification stage
• Poor user experience over global networks, penalizing users that are not close to the EDA application center
• Lack of a true enterprise architecture and scalability, resulting in performance, productivity, and security issues
4.0 Benefits of a Virtual Design Center

4.1 Reduce costs by consolidating the data center

By consolidating regional data centers into a single “Virtual Design Center” (VDC) for engineers, semiconductor organizations can reduce the costs associated with staffing and supporting multiple design centers. Cost savings can be significant as organizations look to dramatically reduce leased building space; servers; operating costs including heating, cooling, and power consumption; and not least of all, manpower. According to a study by OpenText, utilizing the power and the performance of remote application access solutions, and their ability to eliminate the effect of distance by virtually drawing users and applications together, resulted in an operating cost savings of up to 49 percent when expenses such as acquiring capital, setup, and ongoing costs were factored in.

A Virtual Design Center can help an organization dramatically reduce infrastructure costs and maintenance costs associated with multiple design centers, while making it much easier for IT departments to implement and roll out new solutions to improve productivity and retire legacy ones that are no longer viable to support the business.

For semiconductor manufacturers, a Virtual Design Center is a secure, centralized EDA application environment that enables engineers from any location to access high-performance EDA software on-demand.

4.2 Acquire top talent

Implementing a Virtual Design Center for engineers allows mobile and remote workers to go anywhere and still get access to their applications allowing their project files to remain secure on the server in the Virtual Design Center.

With a Virtual Design Center, top talent can be sourced from any location around the world. By leveraging a best-in-class solution for remote access, engineers can access their work from any location at any time, regardless of geographical boundaries. There are some additional key benefits to supporting a Virtual Design Center:

4.2.1 Engineering talent will love it.

It cannot be overstated how much quality of life people get out of working for a distributed work environment. Employees get a flexible working environment without sacrificing their quality of work. With remote desktop solutions, engineers are able to access EDA applications that require a lot of resources for execution, right from their home. Suspending and resuming a session at any time, engineers have complete flexibility to do their work and do not need to be sitting in the data center. This kind of working environment becomes ideal for top talent, and encourages them to stay with the organizations that offer it.

4.2.2 Hire great people wherever you find them.

Once a company is untethered from one physical location or regional data centers, their pool of available job applicants becomes the entire world. You can hire anyone who fits the demanding job requirements wherever they live. This greatly opens up the pool of available resources for projects; organizations are no longer limited in the talent they can hire based on geographical boundaries.
4.2.3 Job satisfaction.

Communications and sharing of project data can be a challenge for any company and one that’s amplified for distributed data centers dealing with data integration, collaboration, and data synchronization. Organizations on the leading edge of a desktop virtualization strategy are already examining the latest in technology solutions to enable engineering desktops with better solutions for process efficiency and improved performance. Remote application access solutions enable engineers with the highest-quality access to some of the most resource-intensive applications available. By implementing a Virtual Design Center, engineers have easy collaboration with other remote peers. With easy-to-use tools, engineers are encouraged to collaborate with global teams, share work, and find process improvements. This kind of flexible working environment makes the engineer’s job easier and improves job satisfaction.

4.3 Accelerate time to market

While design tools are evolving to better aid in the design process, remote application access solutions focus on increasing design process productivity so engineers can produce more with limited time and resources. Empowering engineers with easy access to their applications from anywhere, anytime truly enables them to be more productive, more responsive, and better able to adapt and adjust to last-minute project requirements. There are several key aspects to implementing a Virtual Design Center that will accelerate time-to-market of new chip designs:

4.3.1 Less IT downtime.

Engineers spend less time not being productive because IT spends less time on maintaining EDA tools and applications.

4.3.2 Engineering mobility.

Engineers are able to access their EDA projects regardless of where they are located. No longer are engineers limited to a standard working day where they need to be close to their applications. EDA software can be accessed from anywhere at any time without requiring the engineer to be in the office during regular working hours.

4.3.3 Increase session runtime.

By keeping simulations running day or night without having workers physically at their desks, it becomes easier to track progress and catch and correct problems early. This has the potential to shave precious time off a simulation and significantly boost productivity.

4.3.4 Less wasted time on simulations.

Flexible “suspend and resume” features in remote application access solutions allow engineers to set up simulations, suspend them for any length of time, and then connect back in over the Internet, on any computer, at any location. Sessions resume exactly where they left off without the need to restart a multitude of applications.

4.3.5 Provide “fail-proof” protection.

Work against unexpected loss of bandwidth or power failure. If an engineer is running design simulation exercises from a distant location when weather-related problems break the connection, the session is saved. The “fail-proof” feature facilitates quick reconnection and speedy recovery when the connection is restored. Support for enterprise directories and other smart authentication devices significantly reduce engineers’ sign-in fatigue.
5.0 OpenText Remote application access solutions

5.1 Virtual Design Center remote access
As part of your desktop virtualization strategy, let OpenText be your platform for remote application access.

Throughout its history, remote application access solutions have been largely influenced by the major electronics and semiconductors organizations in the world, as well as the largest EDA vendors, resulting in a solution that not only satisfies the most stringent criteria when supporting engineers as they access their EDA environment but also provides significant additional business value to their enterprise:

- High-performance EDA solution display regardless of location or network conditions
- Support for the most complex 3D environments
- High-quality screen rendering providing engineers with accurate view of the design
- Collaborative features to enable cross-department, cross-geographies teamwork
- Engineers’ productivity boosted by protection against unexpected failures, reducing user downtime and allowing for more flexible control over time-consuming tasks such as simulation
- Reduction in infrastructure costs through significantly smaller bandwidth requirements and ability to consolidate application servers in a single location

To learn more about the power of remote access visit us at opentext.com/campaigns/exceed-va-turbox.htm.

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