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FLEXIBLE COMPUTING: ADVANCING END-USER PRODUCTIVITY WITH CENTRALIZED CONTROL

Supporting an increasingly distributed workforce can be a huge drain on IT resources. By enabling a customized end-user experience with server-based control of data, settings, and applications, the Dell™ Flexible Computing Solutions suite of products and services is designed to simplify management, enhance security, and lower total cost of ownership.

The traditional client computing landscape is evolving rapidly as business-critical applications and data continue to grow in size, scope, and complexity. The increasing challenges facing IT departments around manageability, data security, disaster recovery, compliance, and budget constraints are increasing interest in alternatives to traditional PCs. There is particular interest in “locked-down” server-based computing models that tend to emphasize IT control over end-user flexibility.

When it comes to enterprise computing, however, there has been a tenuous link between IT control and end-user flexibility. This already strained relationship may reach a breaking point as the expanding global workforce becomes increasingly mobile and end users are demanding anytime, anywhere access to data and productivity tools from a diverse range of client devices—including not just traditional PCs, but also PDAs, cell phones, public kiosks, and more.

Managing such environments can be a huge drain on IT time and resources. Day-to-day client management tasks such as deploying, patching, and migrating images, applications, and data can be burdensome and costly. Also, as workers employ a broadening range of client devices to access enterprise networks from remote locations, tasks such as enforcing security, ensuring organizational and regulatory compliance, and recovering systems and data following a

disaster can also increase in difficulty. It is clear that a “one size fits all,” locked-down solution is not the answer to this growing challenge.

To help simplify the task of supporting enterprise workforces, many organizations are turning to computing models that centralize control of end-user data and images while promising to offer workers the same flexibility and functionality they have come to expect from their client devices—if not better.

To help organizations realize the benefits of these emerging client computing architectures, Dell has introduced the Dell Flexible Computing Solutions suite of products and services, designed to enhance productivity, simplify management, and lower total cost of ownership. This suite includes products and technologies suited to different types of environments along with a comprehensive set of design, implementation, and support services to help organizations deploy and manage Dell Flexible Computing Solutions optimized for their particular needs.

With flexible computing, the “digital identity” of a worker—data, user preferences, applications, and even the OS—is decoupled from the individual client device and moved to the server. But unlike previous generations of server-based computing models, emerging flexible computing solutions embrace advances such as desktop virtualization to enable an expanded range of client functionality, flexibility, and

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device options. This approach allows organizations to gain the benefits of centralized control—such as enhanced manageability and security—while providing end users with the functionality and mobility that can boost their productivity when using PCs and other devices.

DESIGNING FOR A DIVERSIFIED LANDSCAPE

Flexible computing has the potential to offer the benefits of centralized control combined with rich client functionality, flexibility, and mobility. Because the needs of enterprise workers can be complex and variable, however, no single flexible computing solution is likely to fit every situation.

As a result, IT organizations must consider the requirements of all stakeholders (including client and data center IT staff, facilities staff, and end users) to get a clear view of which users these technologies are best suited for. Less comprehensive approaches that are not end-to-end tend to move the problem around the enterprise without really solving the core issues that generate complexity.

To help organizations assess the appropriate solution for their needs, Dell Infrastructure Consulting Services (ICS) offers a comprehensive End User Profiling Assessment service. With this service, Dell ICS utilizes an end-user “fingerprinting” methodology to analyze the needs of both the end users and the organization as a whole. The resulting usage profile, or “End User Fingerprint,” segments end users based on their complexity of workload, level of mobility, and sensitivity of data and can be used to determine the appropriate traditional solutions or Flexible Computing Solutions for that organization.

All Dell Flexible Computing Solutions are similar in that they locate the end user’s digital identity on the server. Individual solutions differ, however, in the way processing is distributed between client device and server (see Figure 1):

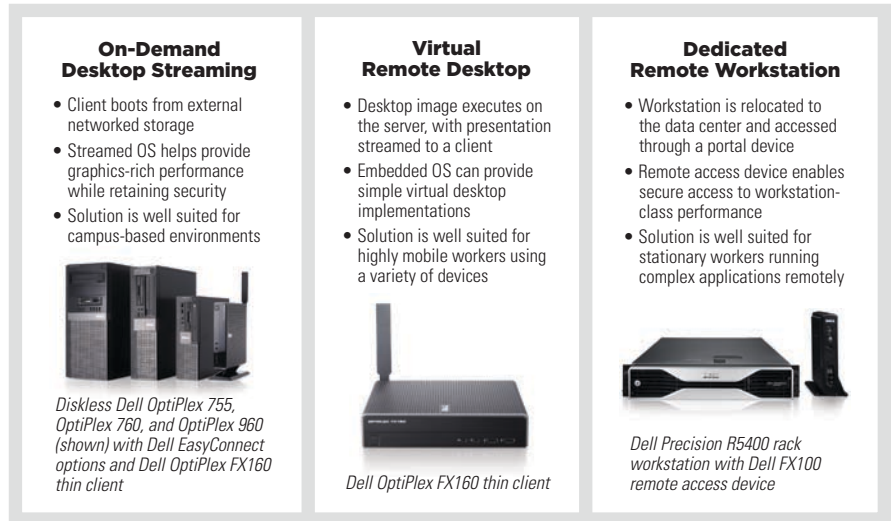


Figure 1. The Dell Flexible Computing Solutions suite helps meet a broad range of organizational requirements

- **Dell On-Demand Desktop Streaming™ (ODDS) solution:** With ODDS, storage is moved from the client to the server. Each client boots from networked storage but retains processor, graphics processing, and user interface functions. ODDS is well suited to campus-based environments in which workers require excellent graphics and processing performance.
- **Dell Virtual Remote Desktop (VRD) solution:** With VRD, storage and processor functionality—the client “desktop”—are offloaded to the server and virtualized, and the client device itself performs only graphics processing and user interface functions. VRD is well suited to highly mobile workers who may use a variety of devices from different locations.
- **Dell Dedicated Remote Workstation (DRW) solution:** With DRW, the entire physical workstation is located centrally, and the display is accessed through a portal device. DRW is well suited to stationary workers running complex applications in which the preferred workstation location may be outside the immediate physical environment—for example, specialized medical applications in an operating room.

To help with the design, implementation, and ongoing support of a flexible computing solution, Dell ICS offers several other services including a one-to-two-day flexible computing workshop—which provides an introduction to flexible computing and the range of solutions available—as well as comprehensive design and implementation services. Dell also offers a wide range of Dell ProSupport services for ongoing support of a flexible computing implementation.

OPTIMIZING FLEXIBILITY AND SESSION MOBILITY WITH VRD

For organizations that must support remote office or mobile workers who may use a variety of client devices, the VRD approach offers optimal flexibility for client devices while retaining server control of the digital identity for each end user. VRD leverages either VMware® Virtual Desktop Infrastructure or Citrix® XenDesktop™ software to enable workers to access centrally managed, server-based virtualized desktops from a range of devices, including traditional PCs, specialized Dell Flexible Computing thin clients such as the Dell OptiPlex™ FX160 desktop,¹ and many other devices such as public kiosks and PDAs (see Figure 2).

¹ For more information on the new Dell OptiPlex family, including the OptiPlex FX160 thin client, see “Powering Business Productivity with Dell OptiPlex Desktops,” by David Schweighofer, in *Dell Power Solutions*, November 2008, DELL.COM/Downloads/Global/Power/ps4q08-20090123-OptiPlex.pdf.

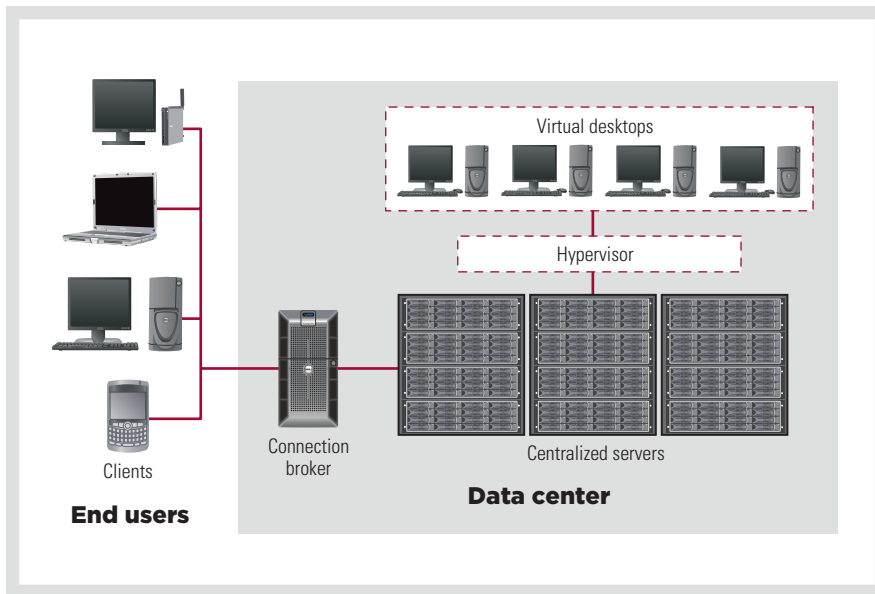


Figure 2. The Dell Virtual Remote Desktop solution offers optimal flexibility for client devices

By enabling access through a wide range of endpoint devices, VRD can dramatically enhance flexibility and mobility for workers on the go. In fact, with VRD, end users can access virtualized desktops from nearly any device or networked PC as long as it is equipped with either a connection broker or Web accessibility. And because VRD enables session mobility, users can move from one device to another without losing state.

In addition to offering enhanced end-user flexibility, the VRD approach helps simplify client management dramatically. By storing and managing virtualized desktops on the server, for example, the VRD approach helps eliminate the need to provision and manage individual client devices. As a result, administrators may provision new desktops in minutes and avoid imaging individual client devices. Also, because applications and data are stored centrally instead of on a client device, basic management tasks such as patches, upgrades, and support can be handled quickly and efficiently.

The VRD approach can also enhance security, simplify regulatory and organizational compliance, and facilitate disaster recovery. For example, because data—including the digital identity of

each user and valuable organizational data—is stored centrally, IT managers can efficiently and effectively control and manage access and help ensure regulatory and organizational compliance. Also, because data is not stored on the client device, security is not compromised in the event of device failure, loss, or theft. And because virtualized desktops are centrally located, they can be backed up and recovered in minutes, helping accelerate recovery time and enhance overall business continuity.


SUPPORTING THE END-USER EXPERIENCE WITH ODDS

For organizations that support end users who work in campus-based environments and require excellent graphics and processing performance, ODDS enables an outstanding user experience while maintaining centralized control. In particular, ODDS allows client PCs to use Dell EasyConnect™ technology to boot and run from networked storage, helping avoid the need for a local disk. Clients can be standard PCs or specialized diskless clients such as Dell OptiPlex FX160, OptiPlex 760, or OptiPlex 960 desktop computers.

PROVIDING REMOTE ACCESS WITH DRW

For organizations that require workstation-class performance in situations in which the workstation is not suited to fit in a specific physical location—for example, using specialized medical applications in an operating room—the DRW solution enables high-performance remote workstation access. In particular, DRW combines the Dell Precision™ R5400 rack workstation with the Dell FX100 remote access device to enable secure, high-performance access to workstation-class performance.

SUPPORTING DIVERSE NEEDS

Dell Flexible Computing Solutions combine leading-edge products and technologies with a comprehensive set of world-class services to help support the evolving needs of increasingly diverse enterprise workforces. By combining centralized control with enhanced client functionality, flexibility, and mobility, Dell Flexible Computing Solutions enable organizations to simplify management, enhance security and recoverability, and lower total cost of ownership. 

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