



Boosting virtual desktop performance with compact cloud clients

By Dan O'Farrell

Virtual desktop infrastructure offers a secure, efficient model for accessing applications and data in private and public clouds. Dell™ Wyse™ D class cloud clients deliver high performance in a compact form factor for a rich desktop user experience.



Harnessing the power of the cloud

To heighten the end-user experience while providing enterprise-class management and scalability, the Dell Wyse D class cloud client features a dual-core AMD processor and a revolutionary unified graphics engine. The high-performance Dell Wyse D90D7 Windows Embedded Standard 7–based thin client is well suited for virtual desktop and cloud applications.

- **Exceptional speed and power** for demanding VDI and Windows applications
- **Outstanding graphics delivery** for a high-definition multimedia experience
- **Energy efficiency** to help reduce cost and carbon footprint
- **Streamlined management** for hands-off administration and easy updates

Organizations are looking to virtual desktop infrastructure (VDI) as a way to deliver a high-quality desktop experience to end users while maintaining centralized administrative management and control of applications and information. While some organizations have deployed traditional PCs for use as clients in VDI-based deployments, many are turning to cloud client devices. Diskless cloud clients access applications and data stored on centralized servers, avoiding the security risks associated with traditional PCs. Additionally, cloud clients are designed to be more energy efficient, easier to deploy and maintain, and more cost-effective than traditional PCs.

Although cloud clients offer significant security, management, and ongoing TCO benefits, they must also deliver excellent performance and usability to the end user to be an acceptable alternative to traditional PCs. This is especially true as the enterprise application landscape increasingly relies on performance-intensive functionality such as multimedia and 3D graphics applications.

The Dell Wyse D class family of cloud clients is designed to deliver powerful desktop performance in a compact, energy-efficient form factor—enabling organizations to provide a robust experience to end users while maintaining enterprise security, manageability, and control. Dell Wyse D class cloud clients can be deployed in a range of VDI scenarios, including virtual environments from Citrix, Microsoft, and VMware. Flexible management and optimization software options, such as Dell Wyse Device Manager and Dell Wyse TCX Suite, help ensure scalability, performance, and a rich user experience, even in very large deployments.

Delivering outstanding performance and efficiency

Dell Wyse D class cloud clients offer excellent performance, connectivity, and efficiency in a lightweight, space-efficient, and energy-efficient package. The cloud clients are equipped with a powerful dual-core AMD G-Series T48E 1.4 GHz processor. This processor combines a low-power CPU and a hardware acceleration engine into a single embedded device, enabling support for the processing demands of a diverse range of user, application,

and operating requirements. Wyse D class cloud clients also feature dual-monitor support to enhance performance and display capabilities across 2D, 3D, and high-definition video applications.

To further help end users get the most from audio-, video-, and graphics-intensive content, the cloud clients offer a wide array of display and peripheral connectivity options, including a DisplayPort interface, a Digital Visual Interface Integrated (DVI-I) port, a composite digital audio jack, and four USB 2.0 ports. Flexible networking options include 10/100/1000BASE-T Ethernet connectivity and optional single- and dual-band 802.11 a/b/g/n integrated wireless, Bluetooth®, and fiber network interface card (NIC) connectivity.

For added functionality—and the kind of desktop experience many end users expect from their devices—Wyse D class cloud clients include firmware based on a variety of operating systems. These operating systems can augment the functionality of VDI, enabling end users to perform basic functions such as Web browsing and accessing Web-based applications without requiring a connection to the VDI back end. Robust management and control features enable administrators to strictly limit the functionality available to end users, giving organizations the ability to fine-tune the balance between enhanced functionality and enterprise security.

Wyse D class cloud clients are available in three embedded OS configurations. The Wyse D90D7 thin client features the Microsoft® Windows® Embedded Standard 7 OS, and the Wyse D90DW thin client comes with Windows Embedded Standard 2009. Both include the Microsoft Internet Explorer® browser and Windows Media® Player for local browsing and multimedia capabilities. Also, the thin clients have a Windows Embedded Device Manager interface to enable device management through Microsoft System Center Configuration Manager.



Optimizing the end-user experience

What if an organization's mobile workforce could take digital content anywhere and keep it safe and sound? See how Dell cloud client computing enables enterprises to provide anytime, anywhere access to a mobile workforce, while maintaining the necessary control and support of applications and data.

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The Wyse D50D thin client is based on the Wyse-enhanced SUSE Linux® OS, an enterprise-grade OS that combines security, flexibility, and usability. Finally, the Wyse D00D cloud PC, provisioned by Dell Wyse WSM server software, is designed to combine the power of a high-end PC for local execution with the security of cloud-based virtual desktop applications and content.

In addition to the embedded OS options, Wyse D class cloud clients include several firmware options that provide built-in support for a variety of virtual infrastructures, such as Citrix® XenApp™, Citrix XenDesktop®, Microsoft Hyper-V®, Microsoft Remote Desktop Services, Microsoft VDI Suites, and VMware® View™ environments. Wyse D class cloud clients also support advanced high-performance protocols including Citrix HDX™, Citrix HDX 3D, Microsoft RemoteFX®, and PC-over-IP (PCoIP) for VMware View.

The small size and energy efficiency of the Wyse D class cloud clients offer enhanced portability and dramatic energy savings relative to traditional PCs. Wyse D class cloud clients weigh less than 2.5 pounds and come in a portable 6.7 inch x 1.6 inch x 7.3 inch form factor that can be placed vertically or horizontally, providing great flexibility in terms of device placement. Additionally, a Wyse D class cloud client consumes on average only 9 W of power in typical use. In contrast, a traditional PC could consume between 70 and 150 W for the same usage profile. Even in sleep mode, Wyse D class cloud clients draw only 2 W—while remaining capable of being remotely managed.

Providing enterprise-class manageability and scalability

In addition to being high performance, compact, and energy efficient, Dell Wyse D class cloud clients are designed to be easy to deploy, manage, and scale. The clients are supported by Wyse advanced virtualization and management software products, including management and automatic configuration from Dell Wyse Device Manager (WDM) and Dell Wyse Configuration Manager (WCM) and user-experience optimization and acceleration through Dell Wyse Virtual Desktop Accelerator (VDA) and Dell Wyse TCX software. (For information on software designed to secure cloud connectivity from a mobile device, see the sidebar, "Cloud to go.")

WDM and WCM enable centralized management and administration of Wyse D class cloud clients. WDM is used to manage non-Windows OS-based clients, and WCM is used with Windows Embedded OS-based thin clients. Both WDM and WCM help administrators streamline deployment, monitor the health and status of client devices, and scale efficiently.

To enable administrators to deploy cloud clients securely and with minimal end-user impact, WDM and WCM software support comprehensive device imaging, patching, and software updating with bandwidth throttling for efficiency and reliability. Fully encrypted HTTP over SSL (HTTPS)-based imaging and updates help ensure enterprise security.

Administrators can use WDM and WCM for centralized monitoring and reporting of device health status, including remote shadowing and control. Moreover, they can



specify global or user configurations that the software automatically deploys across the installation. The software also provides automated device discovery and detailed information about hardware and installed software assets.

In addition to streamlining management, WDM and WCM include built-in scalability features that help administrators support large-scale deployments without

overwhelming management overhead or degrading performance. For example, to streamline patch and update distribution, WDM and WCM allow administrators to initiate updates to groups of cloud clients instead of applying them one at a time. At the same time, the software is designed to minimize the network and performance impact of large-scale patch distribution by automatically pacing the distributions

to be network friendly. These capabilities enable administrators to deliver effective, secure, remote cloud client support while minimizing end-user downtime.

To optimize VDI client performance, VDA is designed to accelerate application performance across high-latency networks, such as capacity-constrained wide area networks (WANs). VDA helps accelerate existing VDI protocols, such as Remote Desktop Protocol (RDP) and Independent Computing Architecture (ICA), and utilizes techniques including compression and window sizing optimization to neutralize the effects of network latency and packet loss. Using VDA, organizations can deploy virtual desktops and cloud client computing environments in locations where network latency effects may otherwise prove prohibitive.

The TCX suite of virtualization software further enhances the performance of Wyse D class cloud clients. TCX augments existing VDI protocols such as RDP and ICA to boost desktop performance and responsiveness. And through multimedia acceleration, TCX helps streamline the delivery of video and audio content to deliver a rich user experience. The software is designed to speed up a range of media types, including MPEG-1, WMV, MP3, WAV, and WMA. A collaborative processing architecture enhances server scalability and network utilization by offloading multimedia rendering to the client.

TCX incorporates other key features to bolster the multimedia experience. Flash redirection offers excellent Flash video performance, including support for enhanced playback of YouTube-style Flash videos in Internet Explorer. In addition, TCX is designed to ensure that applications and dialog boxes are multi-monitor aware when more than one monitor is used. TCX also supports bidirectional audio, which is required for the deployment of applications such as voice over IP (VoIP), digital dictation, and voice recognition. And USB

Cloud to go

The Dell Wyse PocketCloud™ family of products provides access to remote Mac OS–based and Windows OS–based computers—either from a Web browser or from a client app for tablets and smartphones running on Google Android, Apple iOS, and Microsoft Windows RT platforms. End users can create a personal cloud comprising their mobile devices, home and office computers, and cloud storage. The personal cloud enables them to maintain full access and control over where content is stored and shared without syncing everything to a public cloud service.

PocketCloud Pro is designed to provide a comprehensive remote desktop experience, enabling end users to run Microsoft Office applications and browse files with enterprise-grade performance and security. PocketCloud Explore and PocketCloud Web allow end users to search, view, organize, and share files across their personal cloud. Featuring a variety of connection options, the apps are easy to set up and use, with intuitive, touch-friendly user interface elements such as virtual keyboards and rich gestures.

The PocketCloud family includes the following key features:*

- Minimal setup and configuration
- Intuitive user interface for small screens
- 2 GB cloud storage at no additional cost
- Unified search across multiple computers
- Flexible connection options: Remote Desktop Protocol (RDP), Virtual Network Computing (VNC), and Auto Discovery
- VMware View support
- Microsoft Remote Desktop Gateway support
- Secure Sockets Layer (SSL) and Federal Information Processing Standards (FIPS) encryption
- Advanced SSL tunneling
- RDP 256-bit Network Level Authentication (NLA)/Transport Layer Security (TLS) encryption

For more information, visit pocketcloud.com.

*PocketCloud family features may vary by product.

virtualization enables support of plug-and-play peripherals, including Webcams and headsets, in VDI environments.

In addition to serving as an endpoint in Citrix, Microsoft, or VMware VDI environments, the Wyse D class platform can function as an excellent cloud PC when provisioned with OS images and applications that are delivered through Dell Wyse WSM server software. With WSM, a Wyse D class cloud PC receives its OS image and applications at user logon and then executes applications locally. While OS images, applications, and data reside on the WSM server—enabling the security of server-based content—end users enjoy the power of a locally executing PC with the ease of management of a virtual desktop. When an end user logs off the Wyse D class cloud PC, the system is designed to be

automatically wiped clean of software and content, ready for the next user. A Wyse D class cloud PC is well suited for branch offices and for end users who require extremely high performance from their virtual desktops.

Taking VDI to the next level

As cloud computing and VDI adoption rates continue to rise, providing a robust user experience is paramount to ensuring end-user productivity and satisfaction. Dell Wyse D class cloud clients are designed to offer excellent performance, scalability, and functionality in a compact, energy-efficient form—enabling organizations to benefit from the security, manageability, and cost-benefits of VDI while delivering an outstanding desktop experience to end users. 

Author

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Learn more

Dell Wyse cloud clients:
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