

TECHNOLOGY AUDIT

# Wyse Thin Computing








Wyse

## BUTLER GROUP VIEW

### ABSTRACT

The Wyse Thin Computing range includes hardware and software solutions aimed at providing users with a near PC-like experience, and administrators with a platform for centralised provisioning and device management. Achieving a near desktop-like experience, the Wyse TCX suite delivers rich multimedia content over the ICA/RDP protocols. In addition, the thin client solution provides a higher level of security and reduces management costs and power consumption. While the company has partnered with VMware (and is partnering with Citrix on their virtual desktop solution) for enhanced delivery of virtualised desktops to thin client systems, most of Wyse's successful deployments have been for application delivery using infrastructure from Citrix and Microsoft Terminal Services. In Butler Group's opinion, enhanced multimedia delivery capability and peripheral support, coupled with virtual desktop delivery capability, can extend the deployment scope of thin clients, and evidence can be seen of deployments beyond the traditional scope of task-based workers. In Butler Group's opinion, the range of hardware products together with the enhanced PC-like capabilities further strengthen Wyse's applicability for knowledge-based workers as well as those that are task based.

### KEY FINDINGS

- |   |   |
|---|---|
|  Wide range of hardware form factors which include a mobile laptop thin client.    |  'Zero clients' reduced device management requirements.                          |
|  Supports streaming of rich multimedia content and graphic intensive applications. |  Offers an optimised solution for virtual desktops in partnership with VMware.   |
|  Reduces power consumption by up to 90%.   |  Support for VoIP not integrated into the ICA/RDP protocol.                      |
|  Supported OS include the Wyse Thin OS, Windows XPe, Windows CE, and Linux.        |  Integrates with systems management solutions, e.g. CA Unicenter and IBM Tivoli. |

Key:  Product Strength  Product Weakness  Point of Information

### LOOK AHEAD

Wyse is developing further TCX Suite products designed to further enrich the thin client user experience.

## FUNCTIONALITY

Desktop infrastructure typically accounts for over 30% of the IT budget and presents a sizeable opportunity for cost reduction and enhanced IT service delivery. Thin clients have for long promised to revolutionise desktop management with low acquisition costs, low maintenance and management costs, a longer shelf life, and the data security advantages of server-based storage and computing. However, the growth of graphics-heavy and multimedia applications, low peripheral support, user resistance to low flexibility, and the ever falling prices of 'fat client' PCs, have historically restricted the deployment scope of thin clients to user groups with limited and predictable application requirements, and user groups where security, form factor, display and environmental constraints, and remote access outweigh other considerations. While the benefits of thin clients in the aforementioned scenarios are well documented, mainstream adoption of the platform among knowledge workers requires a desktop experience effectively indistinguishable from the desktop, and application provisioning flexibility and agility comparable to the PC architecture. In addition, desktop management practices that contribute to lower operational costs, such as centralised configuration management and provisioning, and desktop security, should be demonstrably easier on the thin client architecture. The Wyse Thin Computing solution has moved into this domain for both knowledge- and task-based workers.

### *Product Analysis*

The Wyse hardware and software suite is aimed at achieving functional convergence with the 'fat client' paradigm at reduced management costs. Towards that goal the Wyse suite is working towards the following: (1) a desktop experience exactly like PCs in terms of multimedia and graphics-heavy applications access capability, peripheral support, and application deployment agility and flexibility; and (2) reduced management costs by decreasing the thin client OS footprint.

There are three application delivery models for the Wyse Thin Computing solution:

1. Shared applications, via Citrix or Microsoft Terminal Services.
2. Virtual desktops, where applications run centrally and are displayed remotely, but every user operates in an independent and isolated virtual PC environment. Wyse has partnered with VMware to develop a Wyse optimised version of VMware's Virtual Desktop Infrastructure (VDI) and with Citrix with its XenDesktop solution. VDI allows an entire desktop environment to be remotely delivered to the user and allows the flexibility of provisioning applications and related configurations unique to the user, without application conflict issues.
3. Dynamically provisioned 'zero' clients, with no local OS. In terms of easier desktop management, Wyse is aggressively promoting the concept of a very low footprint 'zero client', where the client end does not have a firmware memory or flash drive to store the operating system and other local applications. The most important component in the architecture in the case of a zero client deployment is provisioning software, which broadcasts the operating system and local functions to the device's RAM during system boot up.

Wyse TCX is used with both the shared applications and virtual desktops, to enhance the user's experience. Wyse TCX Multimedia software offers PC-level streaming audio/video via the Remote Desktop Protocol (RDP) or Independent Computing Architecture (ICA) protocols. Wyse TCX USB Virtualizer enables 'Plug & Play' peripheral support for virtual desktops while still providing full management control over which USB devices can be used. Wyse TCX Multi-Monitor enables the expected behaviour of application windows and dialog boxes in multi-monitor environments.

The Wyse Thin Operating System is tightly coded and hardened, thereby making the task of accidentally corrupting the software inherently difficult. Thin clients also do not need an anti-virus agent or personal firewalls to be installed locally. All security settings are administered and maintained at the server level, hence users cannot disable any anti-virus settings, or install their own applications, unauthorised peripherals, or data devices. Thin client devices have long had a reputation for being secure and this, of course, can aid customer organisations in their compliance initiatives. User access to the thin clients is currently through user ID and password, with an option of extending it beyond this through smartcards. In Butler Group's opinion the use of user ID and password alone is today insufficient for most organisations to be confident in the security of their systems and data, therefore the availability of smartcard access will be of importance.

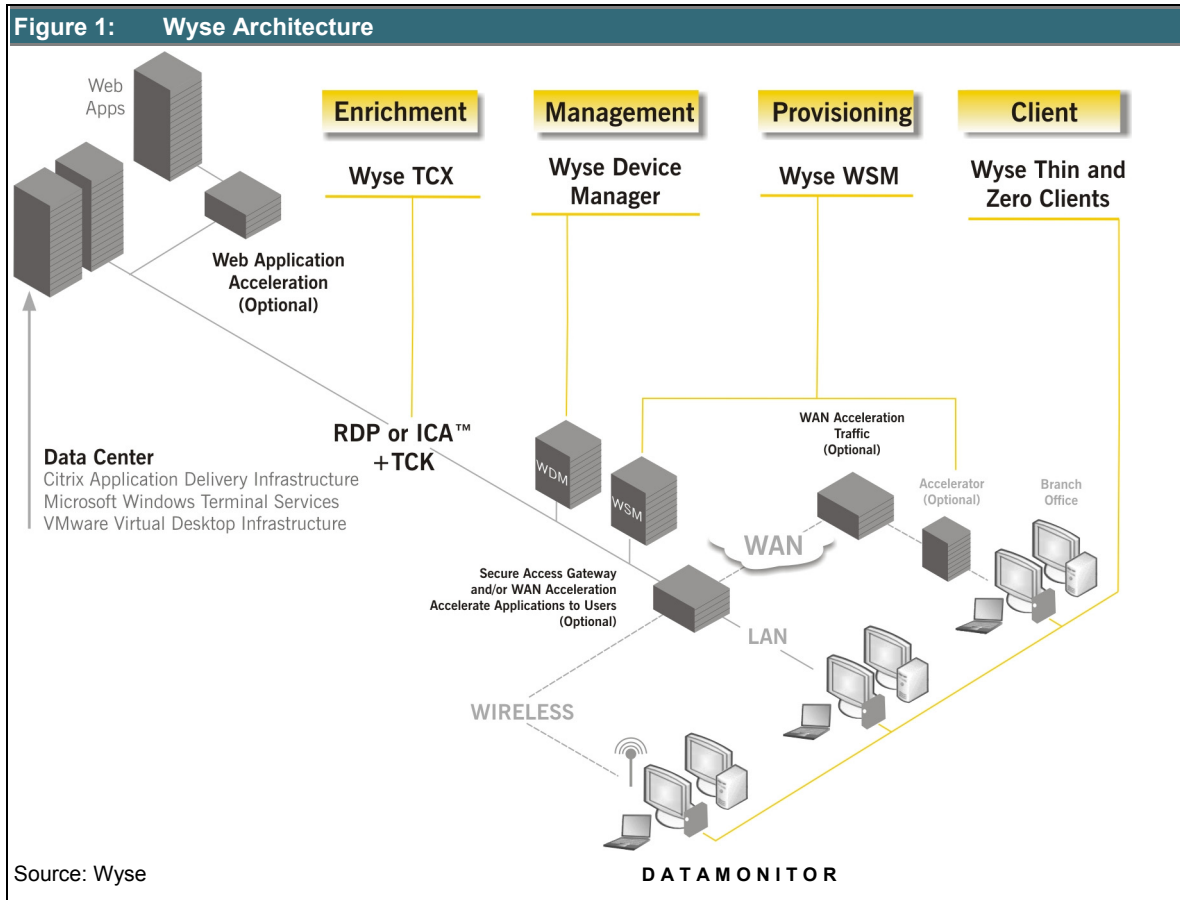
Wyse provides a centralised management console through its Wyse Device Manager, which does not allow users to change or modify the configuration settings defined by the administrators. These thin clients can also be managed centrally through third-party systems management solutions.

### **Product Operation**

The Wyse thin client architecture is illustrated in Figure 1, and comprises the following:

- Wyse hardware, either Wyse zero or thin clients connected through the LAN or by wireless means.
- Wyse software, including the provisioning software, client management software, and the enrichment software.
- A server-based delivery system, which can be a Citrix Application Delivery Infrastructure, Microsoft Terminal Services, or a Virtual Desktop Infrastructure.

The aforementioned software components are not bundled and can be procured independently.



**Wyse Hardware**

The suite of hardware solutions from Wyse comprises the S Class, V Class, G Class, and the mobile X Class devices.

- S Class devices:** These desk, wall, or monitor mountable devices having four USB and serial ports run on Wyse Thin OS, Microsoft Windows CE, Microsoft Windows XPe, and Linux platforms. The S Class devices have a rated power consumption of 6.6 watts and are suitable for task-based office workers using applications such as Microsoft Office, and ERP and CRM solutions.
- V Class devices:** These are more powerful than the S Class in terms of local processing capability. They support a dual-monitor use case scenario by means of an optional splitter cable. In addition to wireless access facilities, the V Class thin clients offer three USB parallel and serial ports, and support for smartcards and PC cards. Supported Operating Systems include Wyse Thin OS, Microsoft Windows XPe, Microsoft Windows CE, Linux, and zero client.
- G Class devices:** The G Class thin clients, running on Microsoft Windows XPe, offer support for up to six monitors through a PCI expansion slot. With powerful processing capabilities, these devices are suitable for trading floors and graphic intensive multimedia use cases.
- X Class devices:** The Wyse X Class devices have a laptop form factor and run on Microsoft Windows XPe. The thin and fan-less design aspects are geared towards a 'greener' computing practice. With support for Bluetooth, USB, Smart and Express cards, X Class devices are suitable for users with a need for mobile and secure corporate data access.

- **Viance desktop appliances:** Wyse has announced a new class of appliances specifically designed for the Citrix XenDesktop product line. The Viance appliances will be available in desktop and mobile form factors and are designed to provide an optimised user experience with minimal management.

### Wyse Software

On the client management front, organisations can deploy and manage Wyse Thin Clients through Microsoft's Systems Management Server (Microsoft SMS), Altiris Deployment Server, or Wyse Device Manager (WDM). WDM centralises the control of thin clients and provides the administrator with automated discovery and granular hardware and software asset tracking capabilities. The solution also provides an integration option with Active Directory. Apart from providing facilities for dynamic device grouping, enabling IT administrators to group network devices based on organisational structure and define default device configurations for groups, the WDM also provides remote device monitoring and troubleshooting capabilities, including OS patching and software updates and add-ons provisioning. Wyse Device Manager can also manage thin clients from other vendors but the range of third-party devices it can currently manage is not comprehensive.

Traditionally, the thin client OS and a few local applications reside in a firmware memory or local flash storage. However, as lower-footprint clients require less intensive client management, Wyse has a strategic direction towards 'zero clients', which have no local OS. Instead, OS and other local applications are dynamically provisioned in real-time into the device RAM during the boot cycle. Wyse has successfully used this approach with its WSM product and intends to make dynamic provisioning a standard part of its product offering.

The company offers the Wyse TCX suite to enhance the user experience and provide them with a near PC desktop feel. The TCX suite has three major components: TCX Multimedia; TCX Multi Display; and TCX USB Virtualizer. The TCX Multimedia enables streaming of multimedia content over the network, the lack of which in the past has held back a wider-scale adoption of thin client solutions in general. Current supported video formats do not include Quicktime or Flash, but will be introduced in the near future. TCX Multi Display lends support for multiple monitors to be connected to a single terminal as and when required. The solution extends the RDP/ICA desktop connection so that the same desktop is spread across two monitors, and makes sure that windowing capabilities (such as maximising a window) are restricted to one screen alone rather than across both screens. TCX USB Virtualizer provides plug-and-play support for peripheral devices and is currently available for virtual desktop environments. Apart from Windows XP, other thin client OS, most notably Linux, are notorious for offering poor plug-and-play support for peripherals. Wyse, through this offering, would further enhance its value proposition of providing users with a near desktop experience.

In a Server-Based Computing (SBC) environment, Wyse Thin Clients leverage the functionality of remote application publishing products like Citrix XenApp (previously called Citrix Presentation Server) and Microsoft Terminal Services. The thin client architecture has the effect of reducing network bandwidth consumption as application data does not traverse the network, and only the image and the client feedback (such as keystrokes) traverse the network.

Most of the company's thin client installations have been deployed on a Citrix back-end, accounting for around 80% of their total installed base. The Wyse Thin Computing products can be deployed on a Virtual Desktop Infrastructure environment, which enables hosting desktop environments within multiple virtual machines running in the data centre. VDI functionality is now built into the standard Thin OS, and Wyse CE, Linux, and XP devices also support VDI. VDI technology is currently available from VMware and will also be available in the upcoming Citrix XenDesktop software.

## Product Emphasis

The emphasis of the Wyse Thin Computing offering is two-fold: (1) providing a near desktop experience from the end-user point of view, and (2) reducing the costs and complexities involved in the management of desktops from an administrator's point of view. On the first aspect, Wyse Thin Clients are better placed in comparison to a few years back, with enhanced multimedia capabilities, and plug-and-play support for peripheral devices. On the second front, the Wyse infrastructure enables easy and centralised management of thin clients in an enterprise through its device management software, which facilitates definition of configuration settings centrally and locks them in a way that users do not have privileges to change them.

## DEPLOYMENT

Wyse Thin Client can be installed by any in-house IT department provided they have Citrix XenApp, Citrix Xen Desktop, Microsoft Terminal Services, or VMware Virtual Desktop Infrastructure previously configured and operational to support application delivery. The company's largest enterprise deployment in Europe is over 20,000 units and more than 100,000 in the US. Deployments in the VDI environment are few and success of the VDI can be better assessed in the coming months and years as the marketplace matures.

Wyse thin client products are available with Wyse Thin OS, Windows CE, Linux, and Windows XPe operating systems. Windows XPe offers a local Windows environment with support for local applications such as browsers or custom client software. XPe typically requires more intensive management, which is achieved through Wyse Device Manager. A standard capability with Wyse operating systems is the ability to protect the operating system from changes, and Wyse Windows XPe devices have a write filter that protects the OS against changes made.

The Wyse Device Manager and Wyse WSM for automated provisioning require Microsoft Windows Server for deployment. The Wyse Device Manager offers integration options with third-party management solutions such as CA Unicenter, IBM Tivoli, and Citrix Management Console, for a flat (pre-defined) fee.

The company provides training services for administrators of the Wyse Device Manager and Wyse WSM. These are delivered either through company certified partners or directly through Wyse.

There is a range of services to complement the Wyse thin computing clients and software services. Customers have the option of engaging these services as and when the need arises or on a regular continuing basis, leveraging the expertise of Wyse staff in fine-tuning deployments. These services include:

- The creation of custom images and factory installation of the same, with the cost for this depending on the number of created images.
- Deployment Services – Wyse partners' offer removal, disposal, and installation of thin clients, across or in a particular segment of an enterprise.
- Support Services – a range of customer services including 24x7 global support.

## PRODUCT STRATEGY

The solution has a horizontal focus and is targeted at Small to Medium-sized Enterprises (SMEs) and large enterprises. Developments in the field of desktop virtualisation and advanced multimedia capabilities have enabled Wyse to tap into markets which go beyond the task-based user scenario. The current use cases of the Wyse Thin Client model are largely in the retail, healthcare, transport, and financial services sectors, and government and other not-for-profit organisations. The main competition is of course in the continued use of PCs in the enterprise environment, but according to Wyse the current levels of thin client utilisation are 8% in the UK and between 15% and 20% in Scandinavia, and rising. In Butler Group's opinion the impact of virtualisation coupled with green initiatives (when also reducing costs) will help to drive the thin client market forward.

The two main Return On Investment (ROI) drivers are:

1. Longer hardware refresh cycle: Thin clients can avoid between two and three PC refresh cycles. An existing Wyse customer in the UK retail sector is currently replacing its thin client hardware after a period of eight years.
2. Reduced operating costs and management overheads: The low power consumption of thin clients reduces energy costs by almost 90% compared to fat clients. Also, according to Wyse, systems management costs can be reduced by between 50% and 70%.

The Wyse hardware has a 100% purchase cost model with volume discounts available. The software has a perpetual licensing structure with an annual support and maintenance fee of around 20% of the licence cost, entitling the users to software upgrades and the corresponding documentation. The prices for the company's hardware offerings start at UK£169 and could go up to over UK£300 for a fully-loaded machine. The mobile X Class devices are priced around UK£380, which could vary depending on the specifications opted for. All of the hardware products, except the mobile X Class thin client, come with a three-year return-to-base warranty with additional warranty options included. The mobile X Class thin client has a one-year warranty period.

All Wyse hardware products are shipped with Wyse Device Manager Workgroup edition, the licence for which is bundled with the hardware. The workgroup edition creates a Microsoft Data Engine (MSDE) database containing client asset information and delivers client management solutions for organisations with relatively simple network environments. For larger, enterprise-scale deployments requiring tens of thousands of thin clients to be managed, companies could opt for a scaled up version of the workgroup edition WDM, called the WDM Enterprise Edition. The licensing structure for the enterprise edition depends solely on the number of devices that it manages.

Wyse consistently led the market in unit shipments until the recent acquisition of Neoware by HP, which has made HP the leader in unit volumes. According to Wyse, its strategy of software development and user experience enrichment gives the organisation a differentiated position which enables it to successfully compete in this increasingly competitive market. Butler Group believes that HP's market presence in the areas of infrastructure management, devices, and services areas could pose a challenge to Wyse in the medium to long term, but we anticipate that Wyse will rise to the challenge and continue to compete effectively.

Wyse is developing further TCX Suite products designed to further enrich the thin client user experience. Support for Voice over IP (VoIP) is currently supported using a local client on XPe or Linux, but is not integrated into the ICA/RDP protocol. In Butler Group's opinion this should be addressed in the near future, as it is being increasingly used by businesses as a method of internal communication and collaboration, and also as a method of reducing costs by removing telephones from the desks in call centres and using soft-phones instead.

## COMPANY PROFILE

Founded in 1981, Wyse Technology Inc. is a privately-held company that has established itself as a leading supplier of thin client network terminals and related software. Headquartered in San Jose, California, the company's original business model was built around green screen terminals and PCs until the mid 1990's. It was at this time that the company invented the thin client, which could download software from central servers, and subsequently patented it. Wyse has its worldwide sales offices in North America, Asia, Oceania, Europe, Middle East, and Africa.

The company currently has 25% of the thin client market share and its clients include: Avis, Xerox, Marriott, Pfizer, Adecco, Deutsche Bank, ExxonMobil, UPS, and Fedex.

## SUMMARY

Wyse, with its wide range of hardware form factors, increasingly lower footprint clients, and market leading presence, is clearly well positioned in the traditional deployment areas of the thin client architecture. Also with enhanced multimedia capabilities, improved peripheral support, virtual desktop initiatives with the virtualisation market leaders, and demonstrated interoperability with a wide range of desktop management solutions, Wyse is leading the thin client market's attempt to extend the thin client deployment scope. In Butler Group's opinion these enhancements could tilt the decision in favour of the thin client offering where the requirement for security, remote access, and low client management are high in areas such as remote IT service and customer care centres, where either a pure or a mixed fat client environment currently exists.

For mainstream knowledge workers, although the developments in the Wyse Thin Computing range have significantly enhanced the applicability beyond the traditional boundaries of thin client deployments, it remains to be seen whether the reduced operational and management costs will further outweigh the notorious user resistance to lower flexibility, either real or perceived. In Butler Group's opinion, however, Wyse is well placed to reach convergence with the requirements of significant sections of the PC-user community for knowledge-based workers in a few years. Also, the benefits vis-à-vis desktops should be large enough to compel IT decision makers to introduce significant changes to the desktop infrastructure, which has traditionally been a low priority area.

Table 1: Contact Details	
<p><b>Wyse Technology (UK) Ltd</b> 1 The Pavilions Ruscombe Park Twyford RG10 9NN UK Tel: +44 (0)118 934 2200 Fax: +44 (0)118 934 0749 E-mail: sales-uk@wyse.com www.wyse.co.uk</p>	<p><b>Wyse Technology Inc.</b> 3471 North First Street San Jose California 95134-1801 USA Tel: +1 (800) GET WYSE Fax: +1 (408) 473 2080 E-mail: sales@wyse.com www.wyse.com</p>
Source: Wyse	<b>DATAMONITOR</b>

**Headquarters**

Europa House,  
184 Ferensway,  
Hull, East Yorkshire,  
HU1 3UT, UK  
Tel: +44 (0)1482 586149  
Fax: +44 (0)1482 323577

**Butler Direct Pty Ltd.**

Level 46, Citigroup Building,  
2 Park Street, Sydney,  
NSW, 2000,  
Australia  
Tel: + 61 (02) 8705 6960  
Fax: + 61 (02) 8705 6961

**Butler Group**

245 Fifth Avenue,  
4th Floor, New York,  
NY 10016,  
USA  
Tel: +1 212 652 5302  
Fax: +1 212 202 4684

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