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virtual desktop infrastructure

A dynamic method of providing virtualised desktop environments

About Virtual Desktop Infrastructure

Virtual Desktop Infrastructure (VDI) is the perfect solution to significantly reduce Total Cost of Ownership within the Enterprise without compromising the user's computing experience. Additional benefits over and above the TCO reduction include:

- **Reduced Likelihood of virus penetration, and greatly increased ease of isolation and eradication.**
- **Automatic throttling of any infection whilst eradication is effected.**
- **Automatic patching and updating of Operating Systems in accordance with the customers' change control procedures.**
- **Simple and effective scalability – ease of change of Virtual Machine capability, and simple, fast deployment.**
- **Connectivity to centralised storage with full resilience in any event.**
- **Greatly reduced power consumption, with concomitant savings in**
- **Data center cooling facilities, and power management capabilities.**
- **Simple migration of current desktop environments to the VDI environment.**
- **Common management interface through HP's standard deployment and management tools.**

To discuss your requirements with one of our advisors call:

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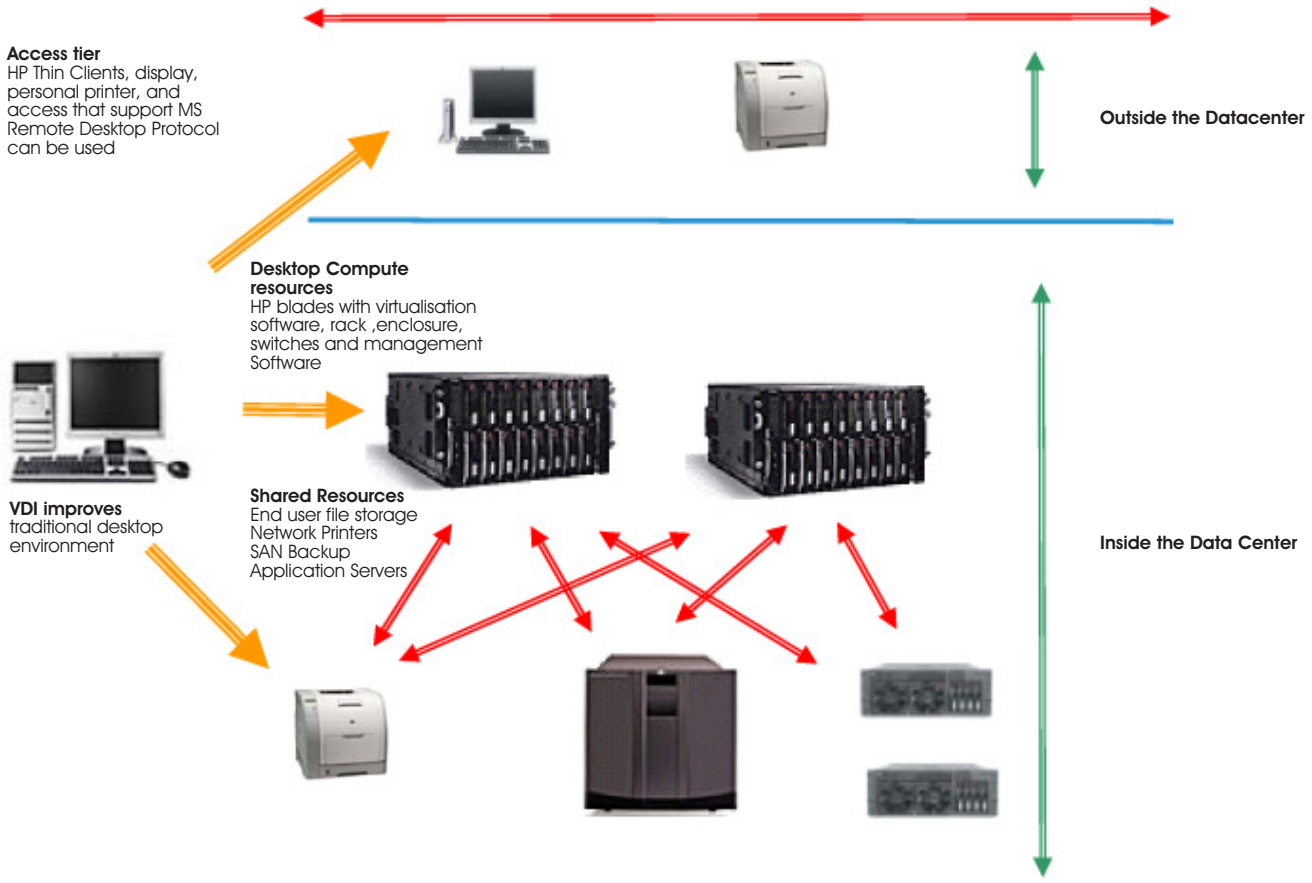
Introduction

VDI is a flexible, scalable, cost effective, resilient replacement for Personal Computers, Kisdata ensures that customers are aware of HP's leading products, technologies and services as these form the basis of our recomendations. VDI creates a centralised, easily managed, resilient solution that results in great savings, user accessibility, reliability and resilience.

High Level Overview of Virtual Desktop Infrastructure



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Architecture Overview

It is important to understand that the illustration above includes:

Access Tier

Any device that supports Microsoft's Remote Desktop Protocol (RDP) can achieve access – and that includes access via traditional dial up modems. As long as the trip time is less that 100MS, the user experience will be almost the same as would be experienced within a traditional enterprise Ethernet LAN or WAN. HP's Thin Clients will provide the greatest TCO advantage, but laptop users are also candidates.

Unlike most other solutions, the user can access and work on extremely large files without downloading them to the local system, simply because the user is viewing a 'picture' of the blade instance. This feature obviously reduces network traffic, both peaks and scale.

Should the thin client access device fail for any reason, it can be replaced simply with no loss of data or functionality. Indeed, should the actual blade instance be lost, the user will seamless and automatically be 'rolled' over to another blade whilst still working, with no loss of function, and probably won't even notice the change. Thin clients have no moving parts, and consequently an average life expectancy in excess of 10 years. As access is via RDP, virus intrusion is far more unlikely, and this resilience is enhanced with the use of HP's **Vulnerability and Patch Management Pack**, a **ProLiant Essential** product. The blades will also support **Intelligent Networking Pack**, another **Essential** that both provides network connectivity resilience, but also throttles any virus activity for the Enterprise anti-Virus software to undertake the eradication with minimum impact on the enterprise network.

Theft of the thin client is unlikely as a consequence of the limited resale value of the thin client devices, and there is no loss or destruction of data since the applications and all the data is held within the Data centre. VDI virtually eliminates the need for sensitive data to be stored in user access areas, and maintains better privacy controls on both employee and customer data.

With centralised management and deployment of the user access environment, there is greatly reduced risk of user interference.

We are also able to greatly assist Organisations that have overseas call centres with state of the art load balancing we can ensure that the core data resides within the Data centre thus ensuring tha the corporate data remains secure all with no loss of service or performance.

Compute Resources

The compute resources are virtual Desktops installed on HP's BladeSystem's BL20 or 25p products, and a virtual Desktop is allocated to every user. This ensures the maximum cost benefit from each blade, and reduced overheads and costs of ownership to the enterprise

The virtual machines typically run Microsoft XP Pro and Linux. The additional advantage is that almost any application that is Windows XP compatible and runs on your PC will run in the virtual environment, and there is no need to ensure compatibility with Terminal Services applications. Where Applications need to write to a local video buffer, or multiple head support is required, we recommend the use of the workstation blade in a non virtualised environment – especially trader environments.

Software images are easily and rapidly deployed from within HP's **Systems Insight Manager** (SIM) and **Rapid Deployment Pack** (HP RDP). This means additional users can be rapidly added within minutes as opposed to hours or even days. The inclusion of HP's **Vulnerability and Patch Management Solution** into the SIM console also automates for the maintenance of installed environments, both physical and virtual, and aids in the prevention of virus infections. Similarly patches and hot fixes are deployed within minutes to all identified machines, but in accordance with the enterprise's change control procedure – and because images form the basis of deployments, roll-backs if required are both simple and rapid.

HP's SIM and HP RDP together with **Virtual Machine Management Pack** allow automatic provisioning and maintenance of the virtual environment, and even the grouping of users or departments into certain groups. Indeed, should a bigger compute resource be required by a developer, the other instances on the blade can be moved to others for the time needed, and then automatically replaced, or the requirement for the bigger resource can be temporarily moved to a blade of its own, and then replaced.

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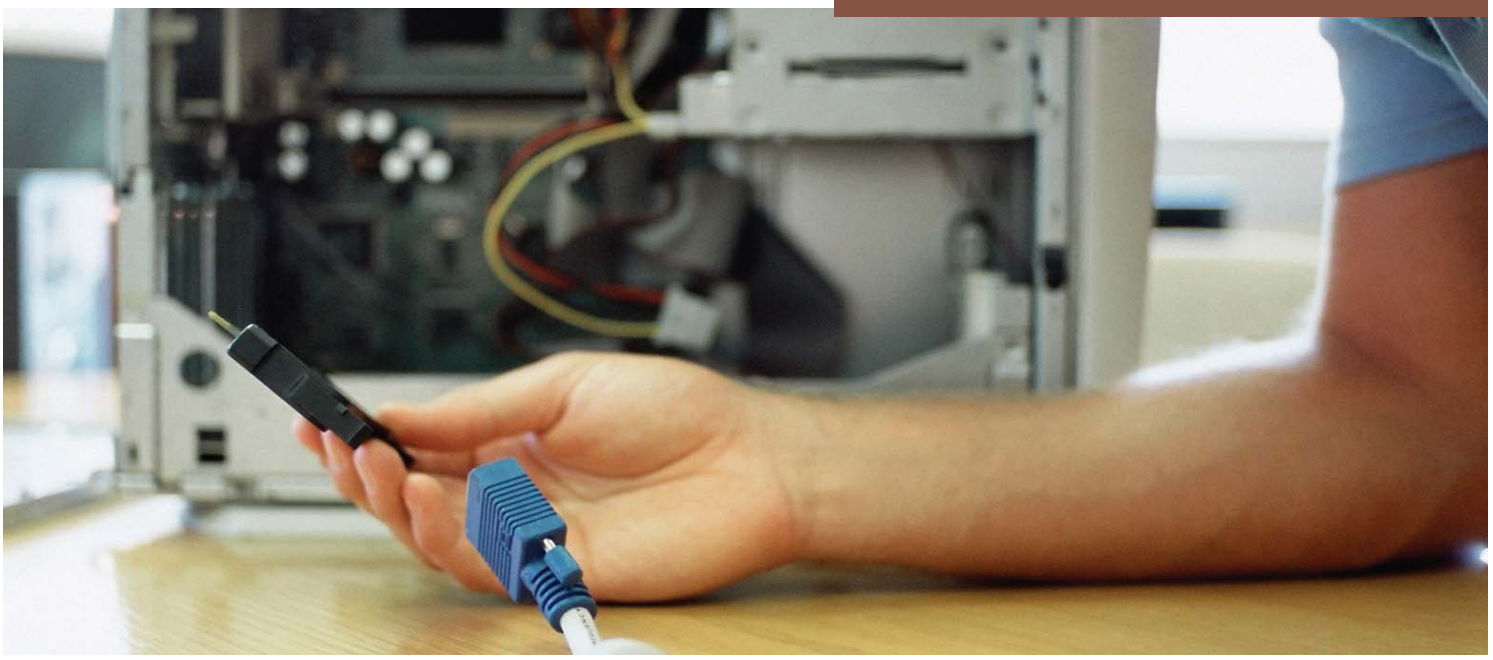

Once a user logs in, they are allocated to a virtual machine with their local preferences and data – should that virtual instance fail, the user can be automatically moved to another virtual instance with no loss of work or performance – indeed the user will probably not even notice a change other than a single screen flick. The change can happen whilst the user carries on working!

The compute layer is self healing and extends Data centre availability and resilience in to the desktop arena. Any failures in the hardware layer will be automatically notified to the operations team, and automatic re-provisioning can commence with no loss of function of performance.

VDI takes advantage of multiple redundant network connections on each blade, as well as independent dual Fibre Channel connections to the SAN as needed. This functionality allows the provisioning of NIC teaming if needed, as well as the provision of Uplink Failure Protection in the BladeSystem integrated Nortel and Cisco switches. Further resilience is possible with the addition of Intelligent Networking Pack, facilitating early detection of network uplink failures, and the automatic re-provisioning of the data stream.

'Quality of Service' implementations are possible with the use of Microsoft's RDP, as prioritisation of this traffic over segments of the network can significantly enhance the end users computing experience

Shared Resources: Consolidated Storage

VDI enables access to SAN and NAS based storage for all data. Back-ups of user data become part of the planned periodic enterprise backup schedule – and disaster recovery is simplified because both the actual desktop images and user data can all be restored simply and reliably. Indeed, should a disaster occur, the user interfaces and data can be migrated back to traditional desktops if required, although traditional desktops can also become the access interface to the restored virtual instance.

Consolidated storage and information lifecycle Management is critically important for organisations operating within the ambits of the US Health Insurance Portability and Accountability Act, of 1996, Sarbanes-Oxley of 2002, or the Basle II requirements of 2003.

VDI is a great consolidator – it reduces sprawl by obviating the need for servers and storage to be stored and maintained close to end user PC's.
VDI has added benefits in the removal of heat generating PC's from the workplace by placing the equipment in the Datacenter with a lower total power consumption and sophisticated power management of the infrastructure.

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Cost Savings

VDI provides the opportunity to reduce TCO costs by more than 60%. Centralisation of the computing and storage together with improved manageability significantly reduces cost through best practice. The added capability for remote simultaneous management of thousands of machines greatly reduces cost, increases uptime, and provides the basis for ongoing improvements.
Some of the projected savings are shown below:

Category	Typical Hard Cost P/A for Desktop PC	Cost for this customer for a typical DT PC implementation	Savings as a result of VDI implementation	Cost for this customer for a VDI implementation	Notes
Total no. of users		10,000.00		10,000.00	
Percentage of concurrent users		100%		100%	
Max. no. of concurrent users		10,000.00		10,000.00	
Implementation cost per user (retail price shown)		$900.00		$900.00	For VDI this includes a complete solution including blades, virtual machine software, switches, power, 2GB NAS storage per user, and a complete deployment of HP SIM /RDP. It does not include all the additional ProLiant Essentials software highlighted.
Total implementation cost		$9,000,000.00		$9,000,000.00	
Systems Management	$626.00	$6,260,000.00	70%	$1,878,000.00	Radically simplified image standardisation and SW deployment methodology
Break/Fix support	$386.00	$3,860,000.00	90%	$386,000.00	
Install/Remove/update/Move	$191.00	$1,910,000.00	90%	$191,000.00	Desk side - Thin clients almost never break. Datacenter - by predictive failure provisioning and rip and replace technology.
Help Desk	$317.00	$3,170,000.00	50%	$317,000.00	Thin Client at user desk - rarely breaks, never moved, never upgraded.
How-to Support	$134.00	$1,340,000.00	40%	$134,000.00	Radical image standardisation with no change opportunity minimised HelpDesk calls
Training	$64.00	$640,000.00	40%	$64,000.00	Standardised HW and SW = significant reduction
Power Consumption	$24.00	$240,000.00	70%	$24,000.00	Thin client has lower power draw - VDI shared blade load over up to 16 virtual machines , and power saving technology introduced
Total Support costs per annum	**$1,742.00**	**$17,420,000.00**		**$5,226,000.00**	
Total Support cots for 4 years with implementation cost		**$78,680,000.00**		**$29,904,000.00**	
Total Customer Savings over 4 Years ($US)				**$48,776,000.00**	
Total Customer Savings as a % over 4 Years				**62%**	
Average Support Cost Savings per User per Year				**$1,219.40**	

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Over and above the estimates above, there are indeed other benefits:

- Standardised hardware and image control means new images are easier to qualify.
- No further constant, unmanaged and incremental PC upgrades.
- No end user downtime as a result of lost data, or awaiting PC repair and maintenance.
- Savings at work site as a consequence of lower workplace cooling.

Implementation and Support Services

Kisdata working with HP Services is able to deploy, and manage the solution as required. The actual deployment services may be based on a specific statement of work, or can be deployed using standard HP deployment CarePacks.

Kisdata can provide Financial Services tailored to maximise asset value and TCO reduction throughout the product lifecycle

Technology refresh.

Trade-ins.

Upgrades.

Add-ons.

Equipment take-out including packaging and logistics.

Environmentally sound asset disposal.

E-Services including on-line asset tracking.

Kisdata Training and Education Services can supply on site and web based training and materials to assist customers in managing change in the migration process

Conclusion

HP's Virtual Desktop infrastructure is a revolution in change – more importantly it offers:

The opportunity to reduce your TCO by more than 60% over a 4 year life cycle.

Greater access to staff for their productivity tools.

Significant opportunities to safeguard data for all users, and to ensure compliance with new laws on data security, retention, and protection.

Excellent Disaster recovery and fault tolerant capabilities for end user computing.

Consistent and predictable end user experience.

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