

DIGITAL ACCESS NETWORK

VIRTUAL DESKTOP INFRASTRUCTURE

WHITEPAPER

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PRODUCT INFORMATION

DIGITAL ACCESS NETWORK's Virtual Desktop Infrastructure (VDI) product is based on a platform independent architecture that enables users to run Windows 7, Windows 10, and Linux desktop environments using VDI technology in a way that enables a person to experience a full desktop computing environment without having to purchase traditional CPU and extra peripherals. This technology will reduce the cost of owning a desktop exponentially closing the gap of "Digital Divide" in Bangladesh – it's a cost-effective way to promote the IT sector initiatives in your organization.

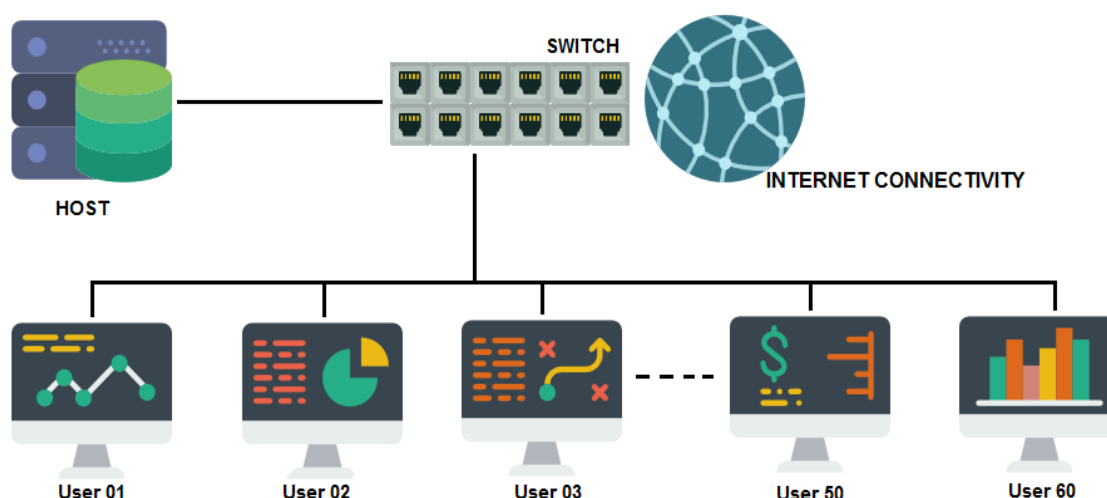


Figure: Virtual Desktop Environment

DIGITAL ACCESS NETWORK has developed solutions to help businesses and educational institutions stay ahead of the curve by implementing a VDI solution focused on your requirements helping you to overcome their limitations and increase productivity. Our solution can easily be deployed in any business and/or educational institution exponentially cutting down the cost to build an IT infrastructure. This technology can be integrated with your existing environment or independently and is applicable for all sizes of IT infrastructures and provides a cost-effective solution to access the full functionality of a desktop at a fraction of the cost.

DIGITAL ACCESS NETWORK's VDI allows an OS like Microsoft Windows to execute in its own dedicated virtual machine on the server. In this way, multiple user's applications will not conflict with one another. What's more, with desktop environments consolidated within the data centre, organizations can deliver secure, isolated desktops that are always on, and securely accessible from anytime with or without integration with Active Directory.

Virtualization Server

DIGITAL ACCESS NETWORK has designed the Virtualization Server with a management dashboard. The Dashboard centralizes all aspects of the private infrastructure and allow the administrator to monitor and configure different network components including the OVS, the VM's hosted on the OVS, the clients etc.

The management dashboard that is built for the OVS provides a rich user interface that allows an administrator to manage the DIGITAL ACCESS NETWORK Clients deployed along with their virtual infrastructure from a web browser from any device. The DIGITAL ACCESS NETWORK VDI Client is an End Point Device that DIGITAL ACCESS NETWORK has designed and built as zero clients VDI. The OVS dashboard allowing even the most advanced configurations such as creating and disconnecting Virtual Machine (VM) and DIGITAL ACCESS NETWORK Clients from this centrally managed graphical user interface (GUI).

Basic System Architecture

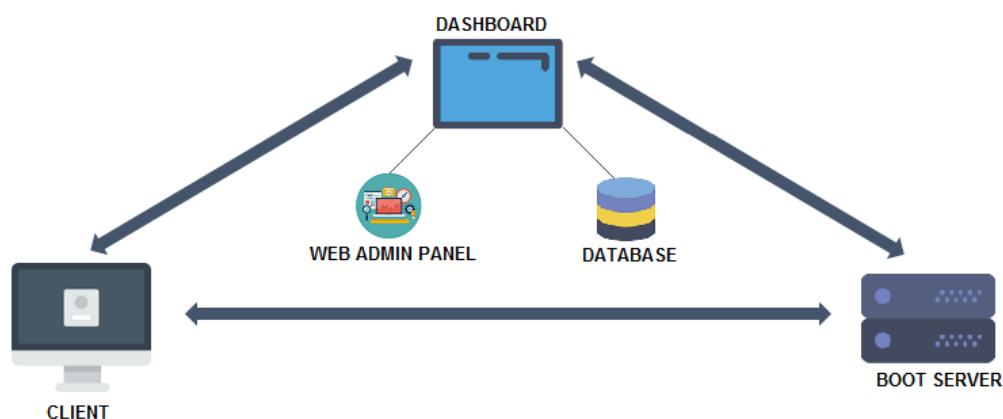


Figure: System architecture for client/ODDUU management

The Advantages

1. Centralized Management

- One-to-many management of desktop images is linked to standardized templates.
- Centralization simplifies management in keeping with managed diversity.
- Infrastructure is logically segmented in the datacentre and managed separately, which enables seamless transition of users in the insurance organization.

2. Flexibility

- Users can connect to the same desktop environment from any network-connected client, which enables "Change the Way We Work" initiatives.
- Embedded CPU in the monitor enabling a more spacious work environment.
- Each user environment is centrally managed and can be placed anywhere on the network.

3. Security

- All data remains within the datacentre and can be backed up.

- All datacentre access is authenticated and audited.
- A virtual desktop kept inside the data centre will secure information. This gives you more control over IP; you only need to lockdown the image you create so that it cannot access external devices.
- The DIGITAL ACCESS NETWORK VDI provides improved security on the PC paradigm by centralizing management, data and sometimes execution to enforce security initiatives.
- The DIGITAL ACCESS NETWORK VDI is more secure, available, reliable, manageable, scalable, and offers a better ROI and lower TCO than PCs.

4. Power Reduction

- VDI results in a reduction in overall workplace-related carbon emissions.
- Significant reduction in power usage which results in a decrease in electricity bills

5. Cost Effective

- Low cost computer system which significantly decreases operational costs and has a significant effect on the cost of each desktop, sometimes reducing it by as much as 40%.
- VDI transforms the desktop lifecycle and reduces its number of components.
- The Private network allows the VDI to work with a single OS and application license, whereby license costs are reduced significantly within the private network infrastructure. A single genuine licensed version of any software can be used for all VM's instead of needing to buy them separately for each PC.
- Reduces costs by simplifying management, deployment, and increasing reliability while also increasing agility and life cycle.

6. Disaster Recovery and Business Continuity

- In the event of office locations becoming unavailable, VDI allows users to work from remote locations.
- Centrally managed desktops provided to users on any endpoint device -- desktops, thin clients & Web clients, these end points can be used as Windows OS, Linux OS or iOS as needed in given time.

7. Faster troubleshooting

- VDI reduces the tedious task of running out to physical PCs as images can be accessed from any linked workstation, any user facing hardware trouble on their usual systems can go to another one and access their data and applications simply by logging in and having their policy based apps and rules pushed to them.

8. Single OS utilization and management

- Each user utilizes the same image i.e. the operating system as well as the installed applications which reduces administrative and support costs. Updating VM's is simple and fast as well as - Install applications, patches, and drivers once, and every user relying on that image benefits from the update.

9. Hardware virtualization

- All the VMs over the virtualized infrastructure use a base image of the hardware for processing different requests and managing different drivers. This saves the extra cost of establishing each unit of hardware for each workstation; instead all the workstations can be accommodated with a centralized hardware.

10. Increased Productivity

- Productivity can increase by more than 98%, while standard PCs have long repair times that cause delays and higher costs as multiple systems can be virtually preconfigured, packaged and put into operation in minutes.
- Each virtual machine works as an individual machine on the same server, so even if one of the VM crashes throughout the operations it does not affect the working of other VMs.

SERVER REQUIREMENTS

The server configuration provided below can deliver optimal performance for 45-50 VDI clients, thus **2 servers** of the same configuration are required for 90 PCs.

SERVER REQUIREMENTS FOR 45-50 PCs		
Processor	:	2 x 8 Core=16 Core Intel® Xeon E5-2620 V4 (20MB, 2.10 GHz)
HDD	:	4 x 2TB= 8TB 7.2K RPM 128MB Cache SATA 6Gb/s 3.5"512e, Toshiba
RAM	:	8 x 32GB= 256GB DDR4-2400 1.2V ECC REG DIMM
RAID	:	1 x 8 Port SATA On Board RAID
NIC	:	1 x Intel® i350 Quad port GbE LAN
POWER	:	750W Redundant Power Supplies Platinum Level (94% efficiency)

Features Summary

FEATURE	DESCRIPTION
Centralized Management	Manage all aspects of OC, VM Guest configuration including network configuration, bonding, CPU allocations and storage. Supports Open Source KVM Virtualization Hypervisor hosts.
Monitoring	Real time monitoring of OC profiles, VM CPU utilization and storage. Alerts and notifications.
Security	OC based access control allowing defined granted access for a VM and Operating System. Detailed audit trails integrated with Database and Institutional Active Directory.
Maintenance Manager	Perform maintenance on guests and OC without downtime. Upgrade OC directly from management system.
Smart Migration	Dynamically move virtual machines between hosts.
High Availability	Virtual machines automatically restart on another host in the case of host failure.
System Scheduler	Balance workloads in the datacentre by scheduling the virtual machines based on OC resource usage and policy.
Power Saver	During off-peak hours, concentrates VM on fewer physical hosts to reduce power consumption on unused hosts.
Image Creating	Create new virtual machines based on templates. Use snapshots to create point-in-time image of VMs.
Image Deleting	For improved utilization deleting VM based on systems resources.
Force Disconnecting	Command line management for disconnecting a VM from OC for misused.
Scalability	Manage to create, remove, disconnect and update in large private IT infrastructures with scalable management platform including the active users on any given time.

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