



Mobile Computing and Virtual Desktops

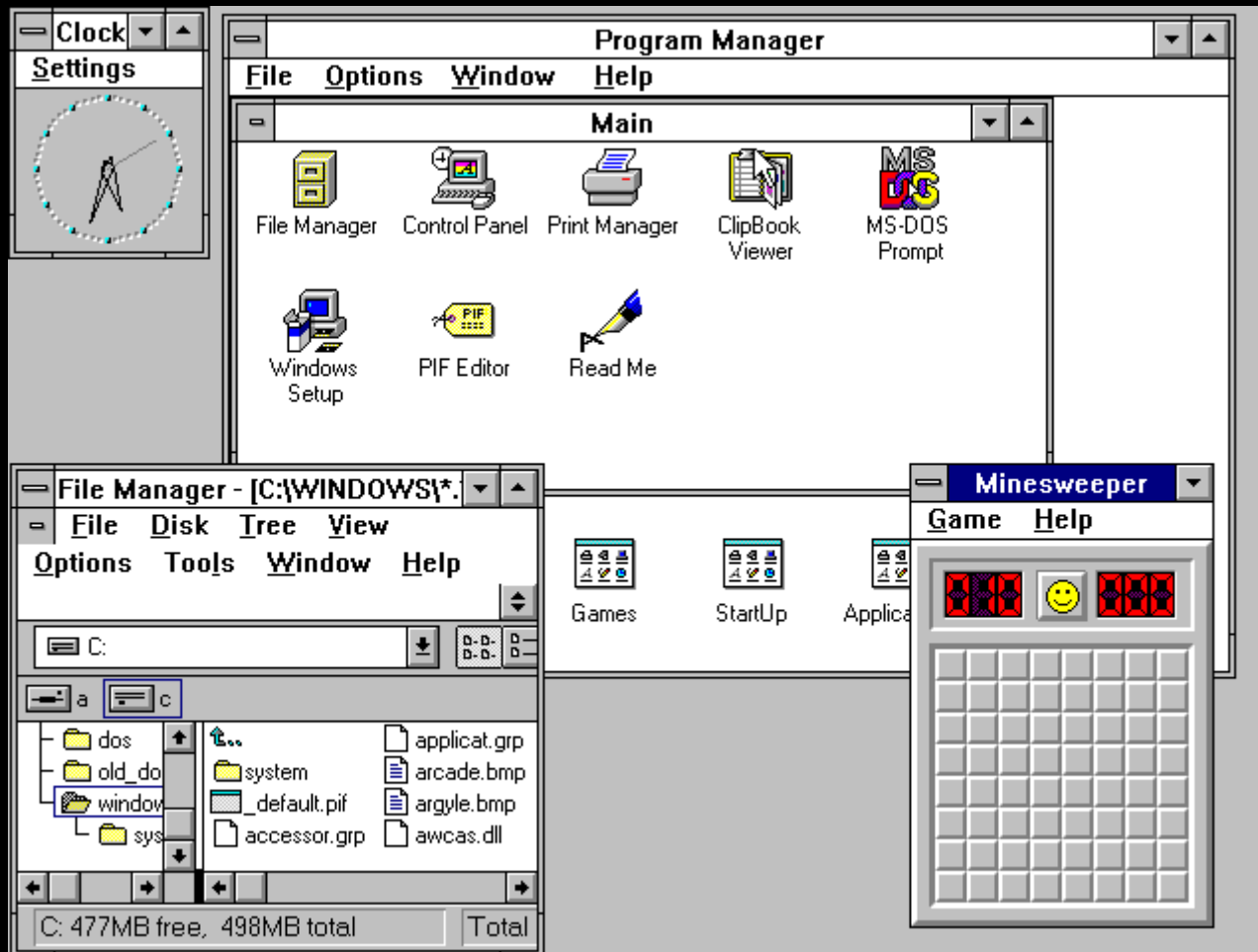


buzzetti@us.ibm.com

- The IBM Worldwide Design Centers comprise certified IT architects and specialists using state-of-the-art methodologies and technologies in the IBM portfolio.
- We work with global clients and business partners to design and architect advanced IT infrastructure solutions. Proven strategies and best-practices through years of experience.
- IBM understands that achieving real business results requires an open, integrated and adaptive infrastructure that provides a scalable, available, secure and energy-efficient environment.



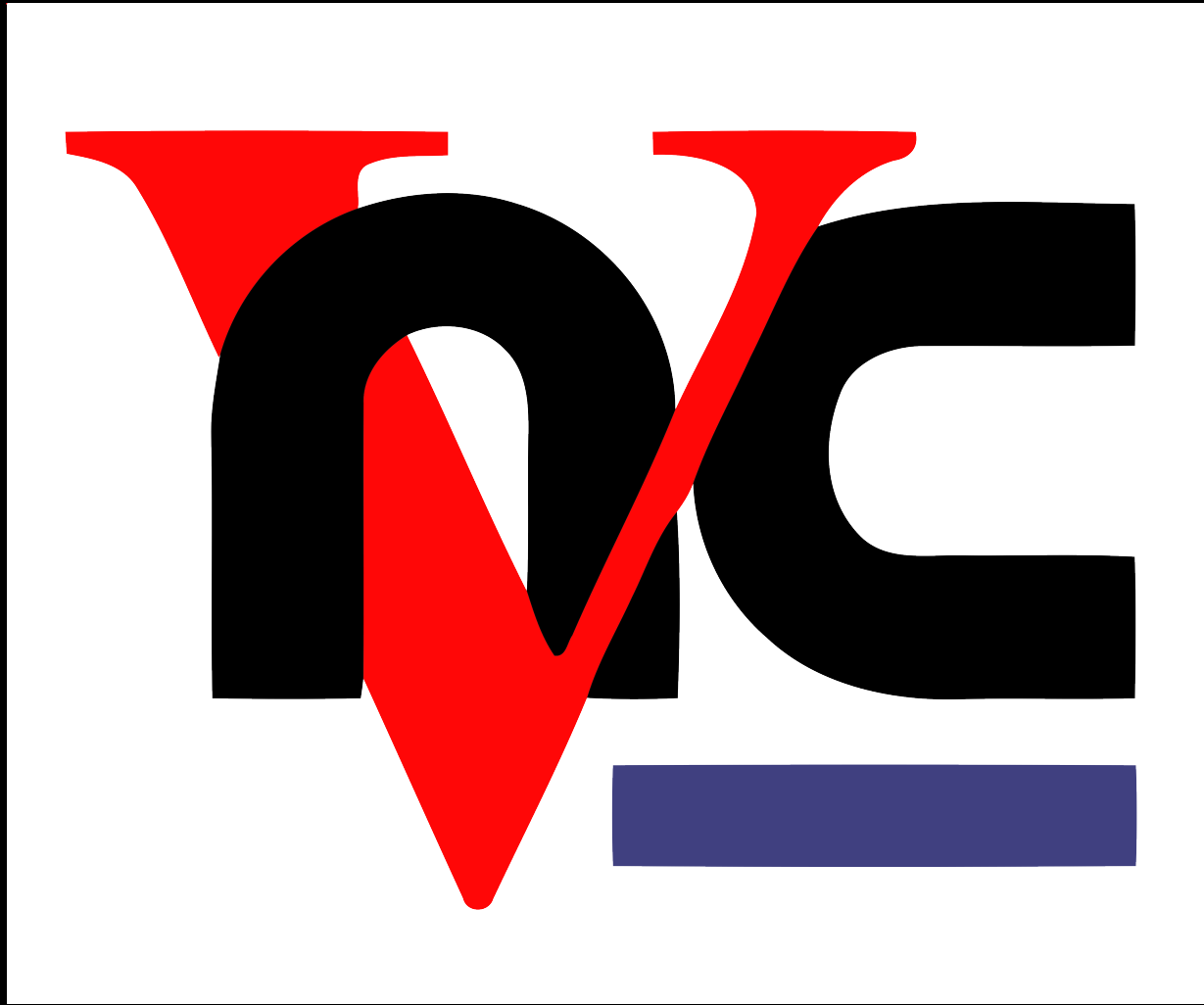
The Design Center



The Past



3270



VNC



RDP

```
mike@slinky:~$ hostname
slinky
mike@slinky:~$ ssh root@jebus.pok.ibm.com
Welcome to Ubuntu 12.04.1 LTS (GNU/Linux 3.2.0-34-generic x86_64)

* Documentation:  https://help.ubuntu.com/

System information as of Fri Jan 25 07:53:41 EST 2013

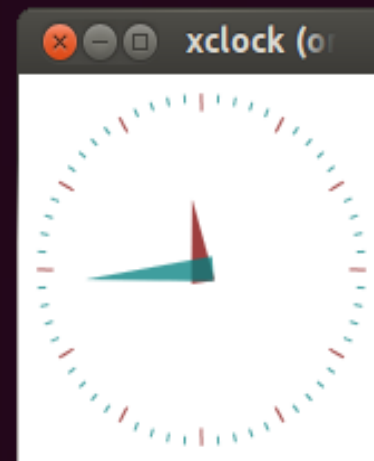
System load:  0.39           Users logged in:      1
Usage of /:   26.2% of 442.53GB IP address for eth0:  9.56.182.90
Memory usage: 11%           IP address for br0:   9.56.182.90
Swap usage:   0%            IP address for virbr0: 192.168.122.1
Processes:   244

=> There is 1 zombie process.

Graph this data and manage this system at https://landscape.canonical.com/

78 packages can be updated.
0 updates are security updates.

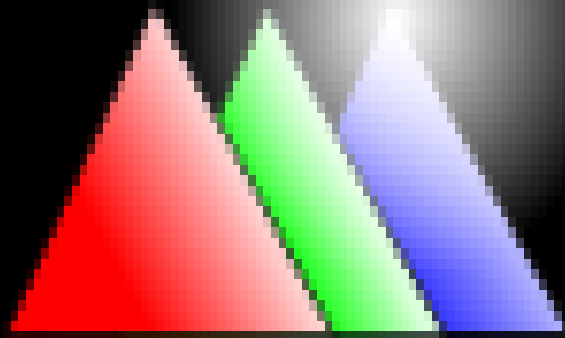
*** System restart required ***
Last login: Sun Jan 13 17:41:18 2013 from sig-9-76-25-93.mts.ibm.com
root@jebus:~# xclock
```



Forwarding



The Present



SPICE

SPCIE



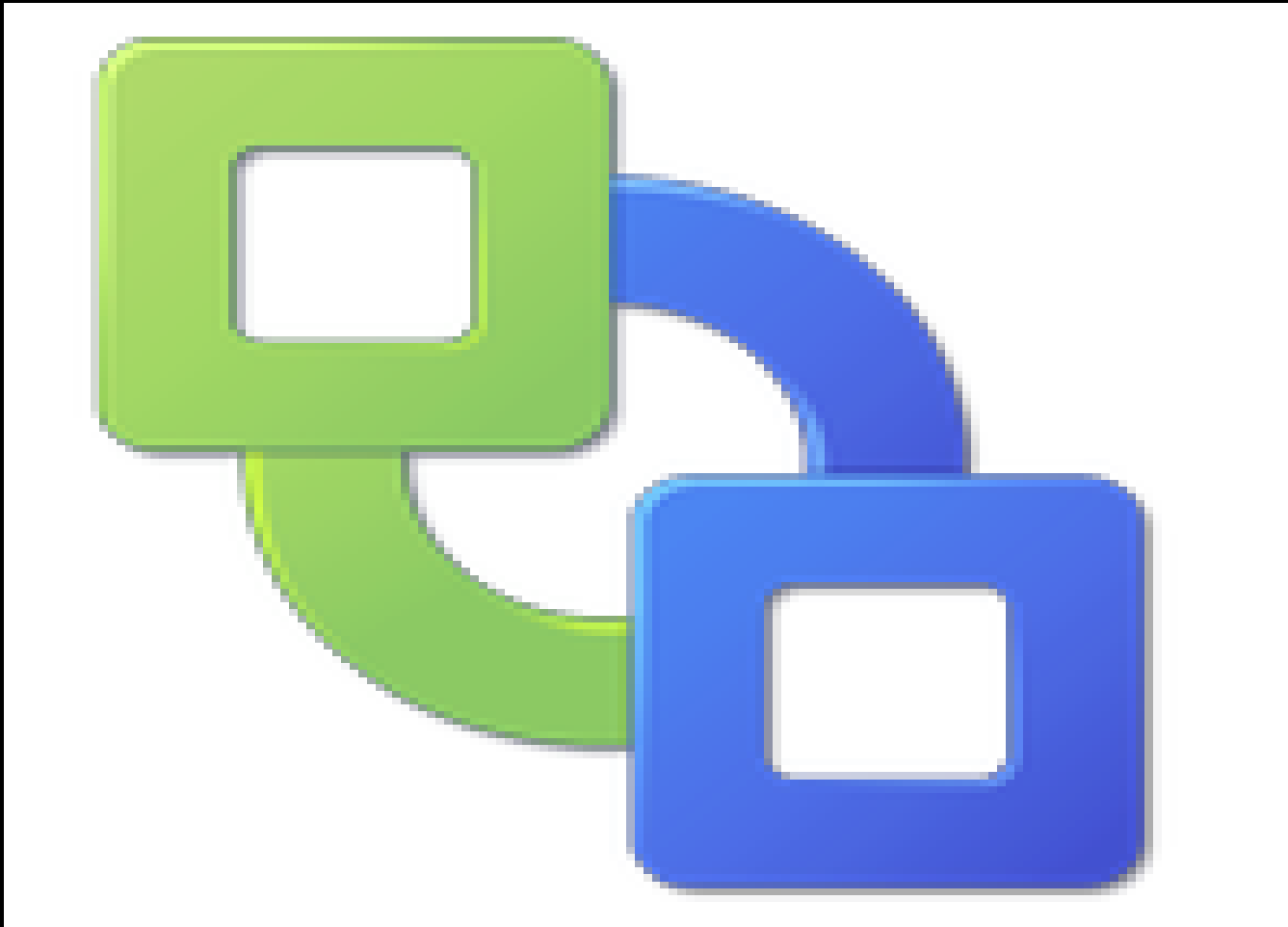
PCoIP



HDX



The Players



Vmware View



Citrix



Verde



Red Hat



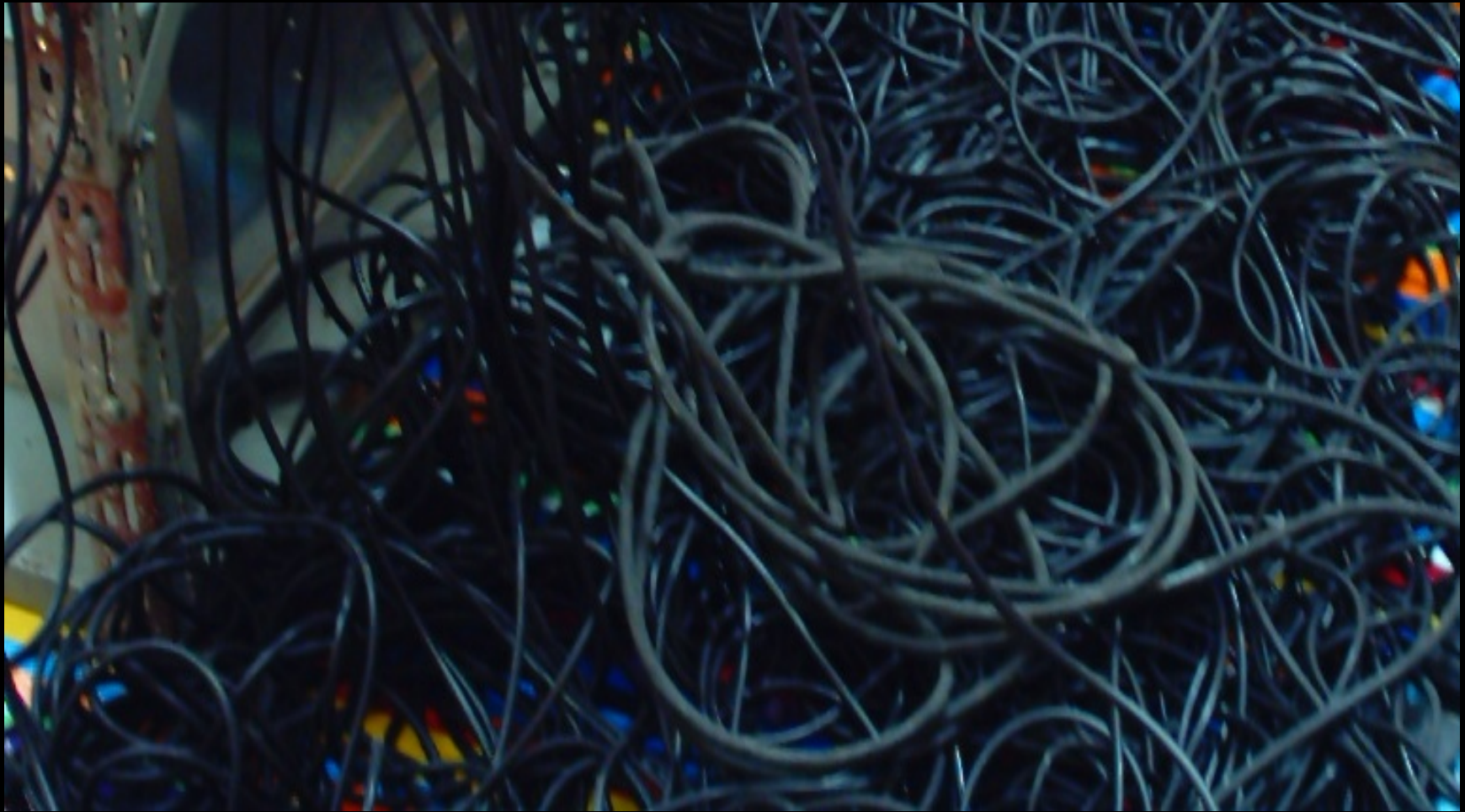
Drivers



Data Security



Data Backup



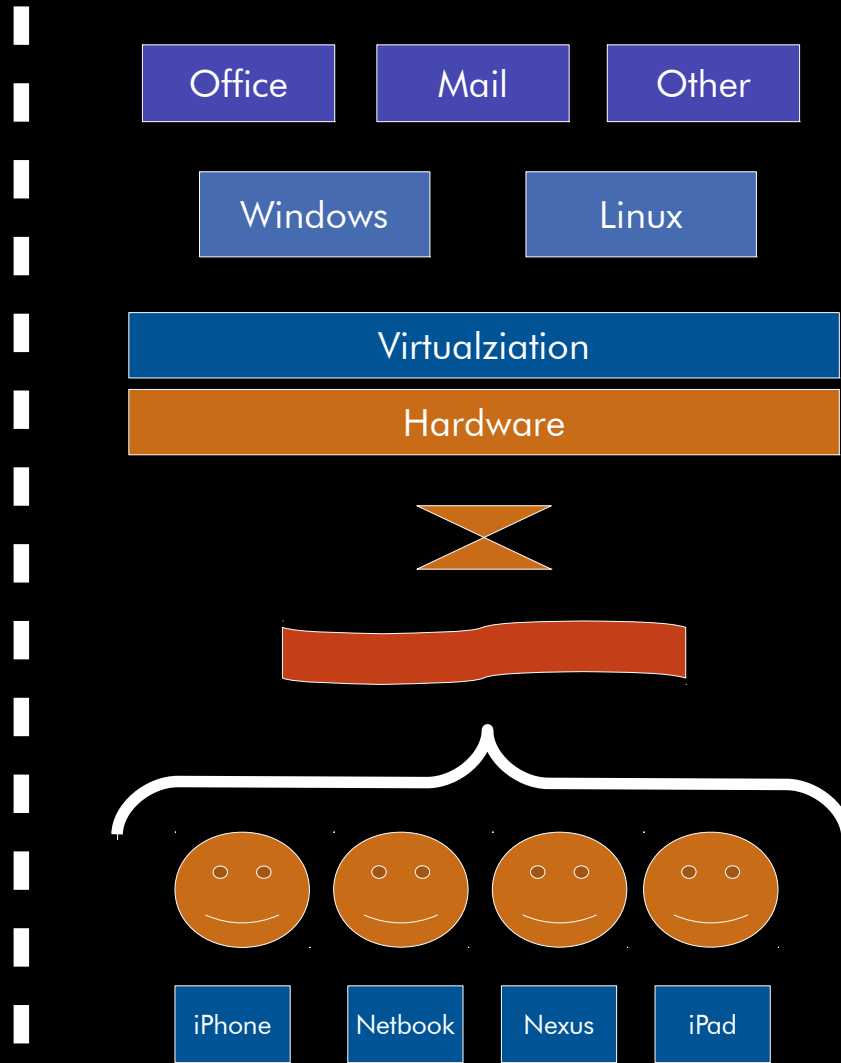
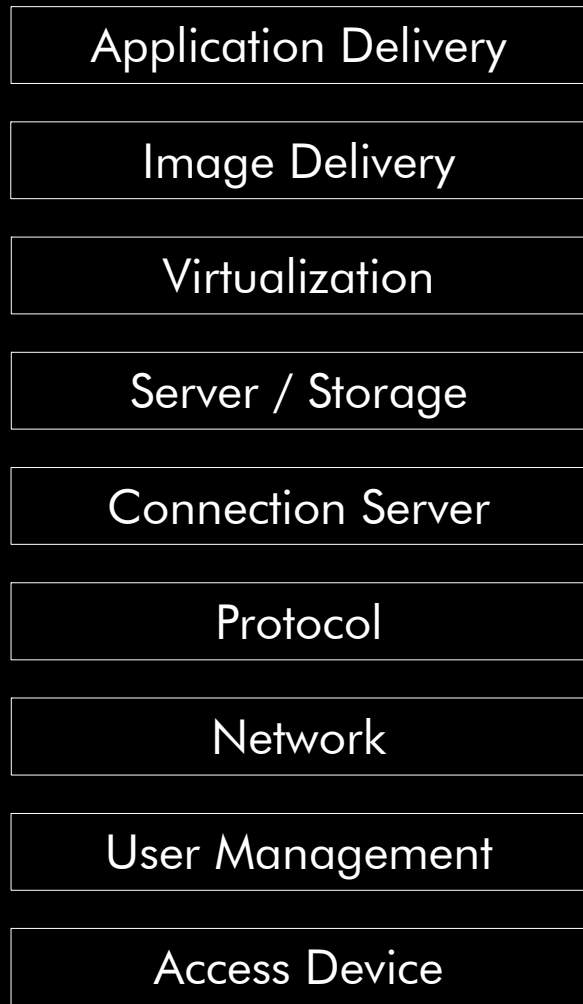
Complexity



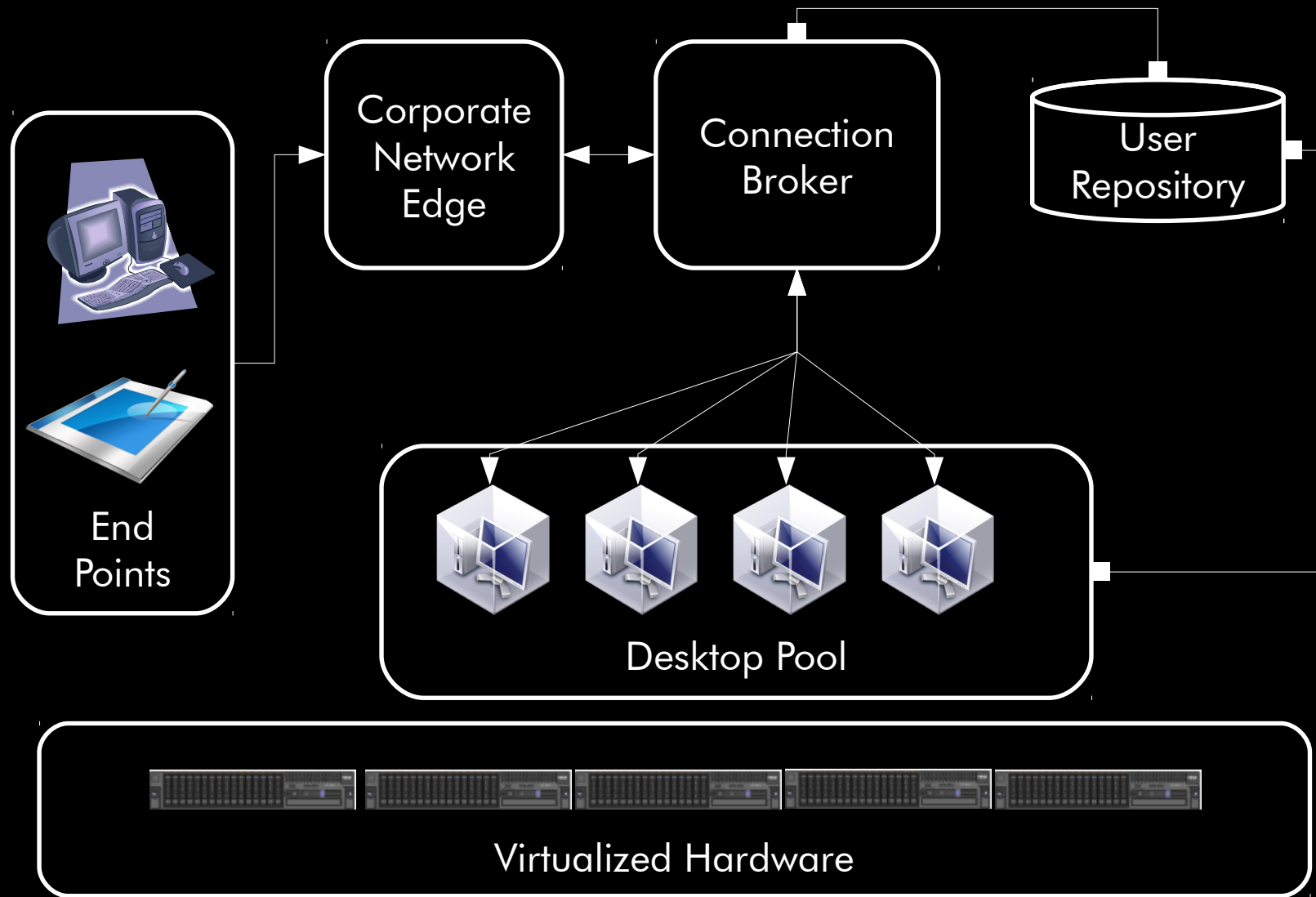
Mobile



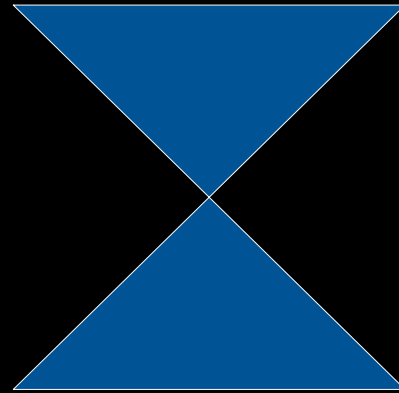
Today's mobile is broken



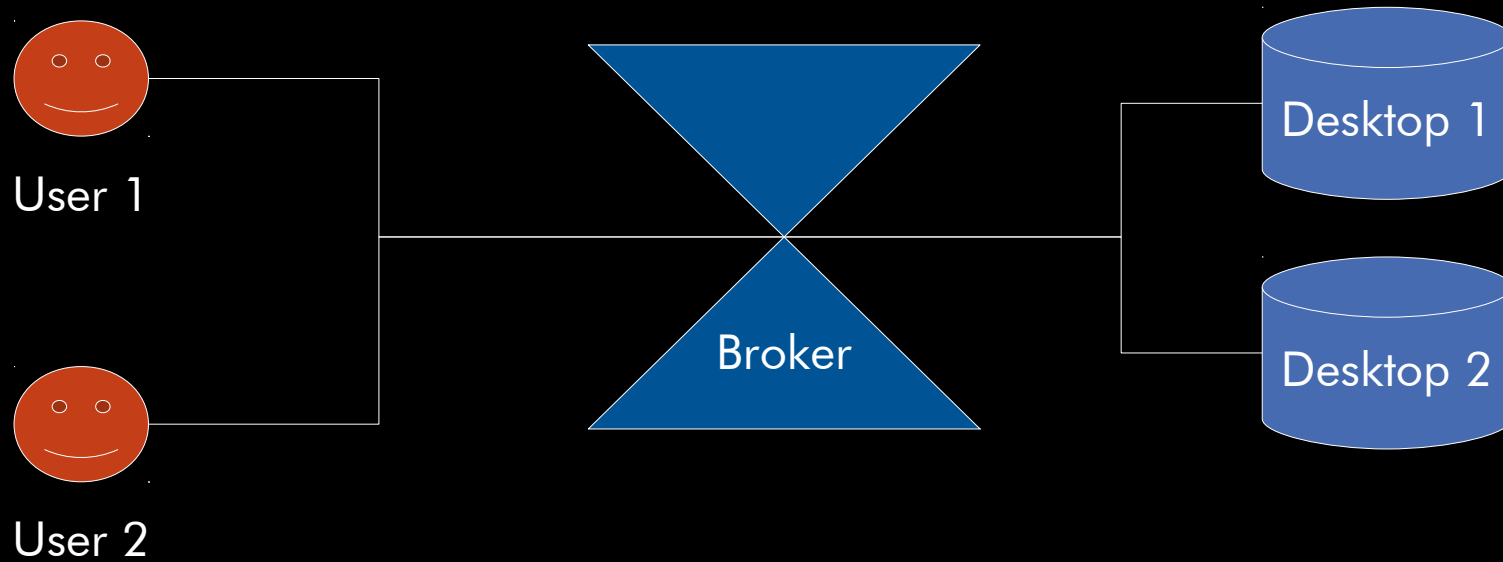
The Layers



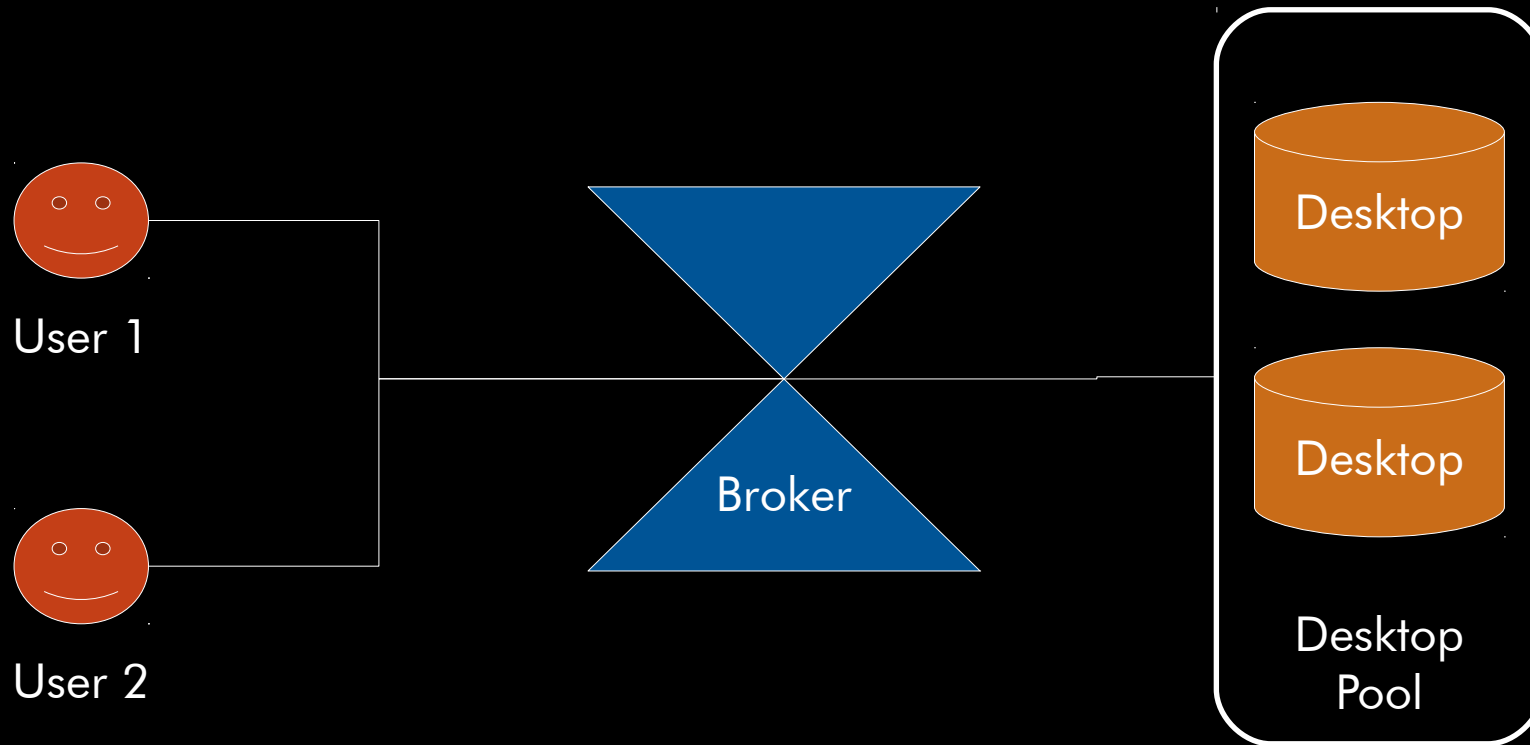
Implementation Overview



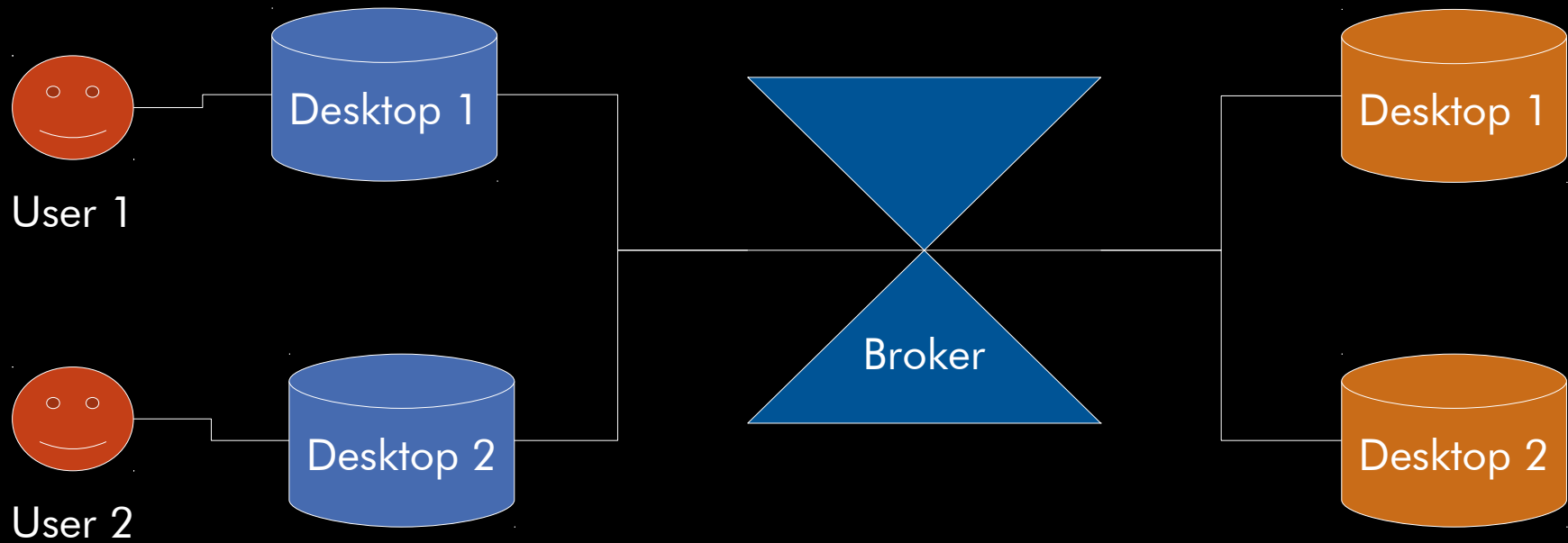
Pass-through



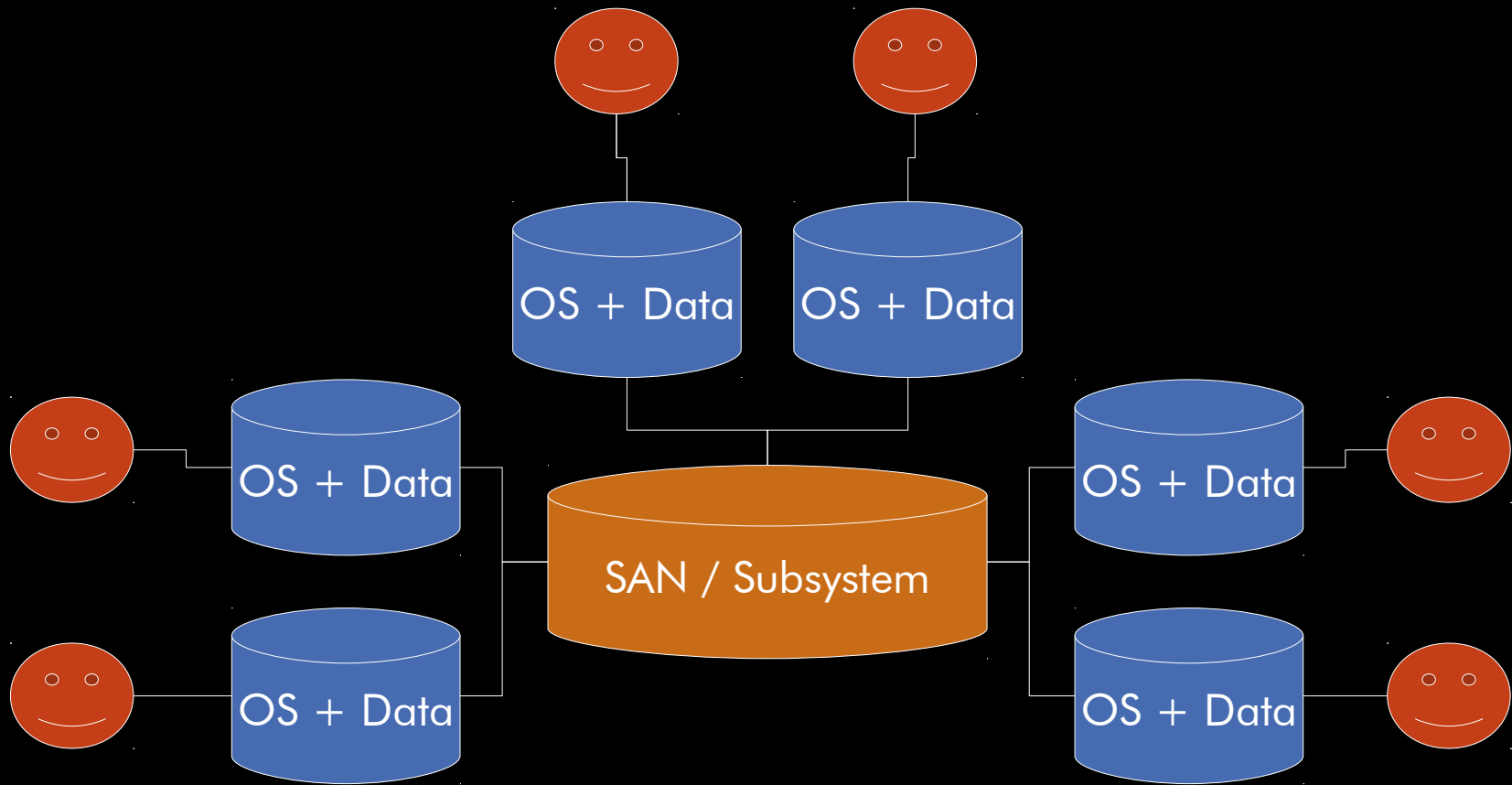
Persistent Desktops



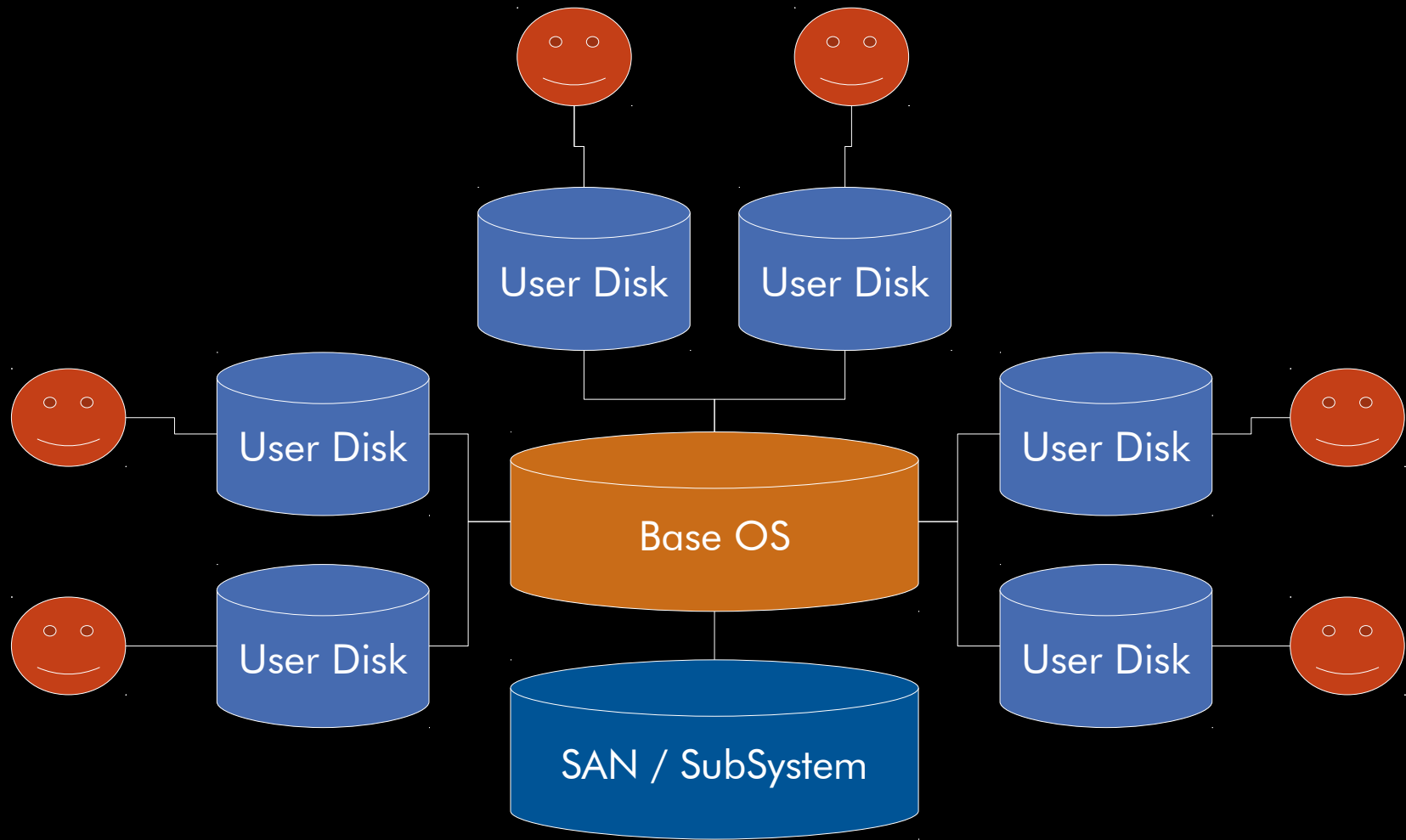
Non Persistent Desktops



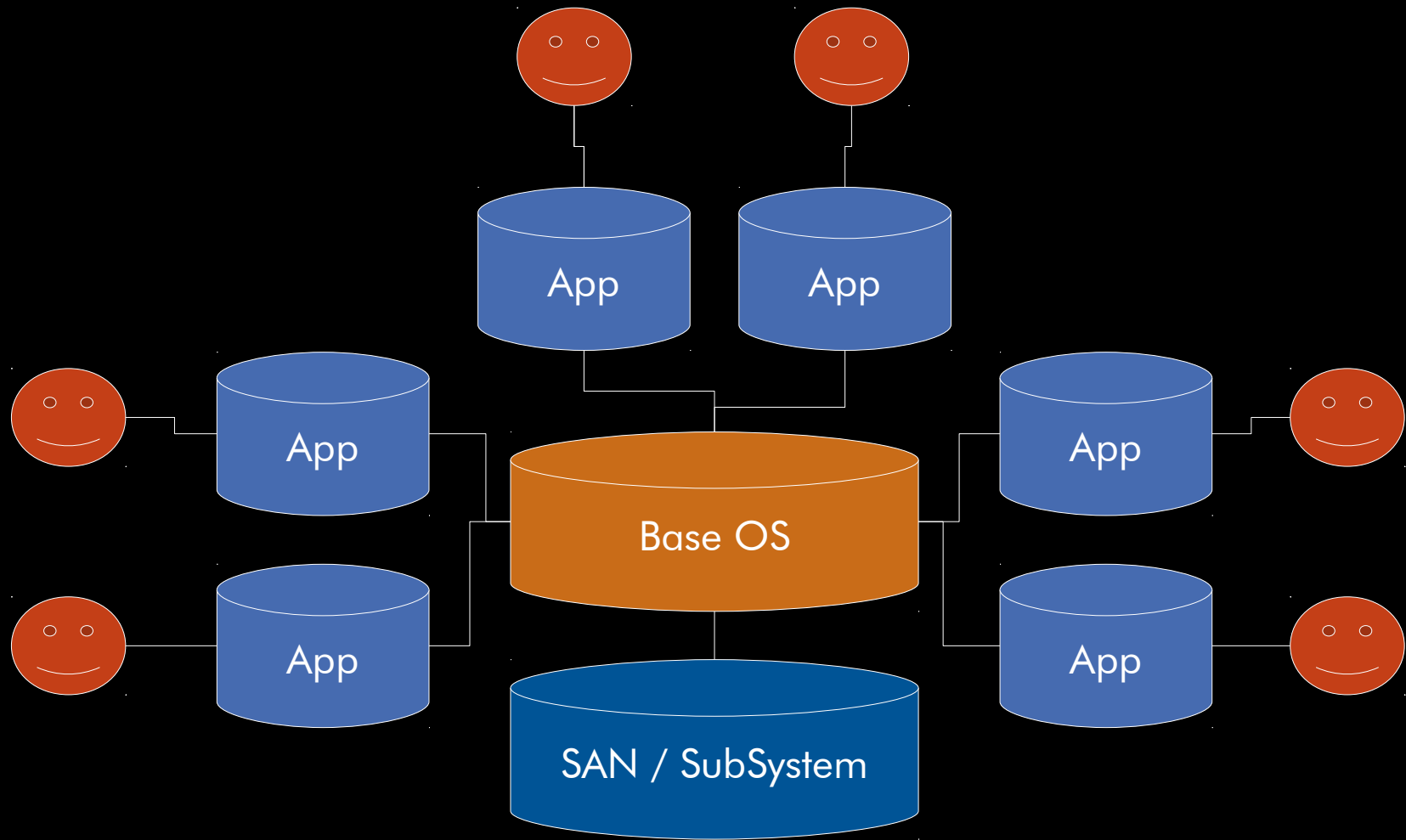
Desktop Syncing



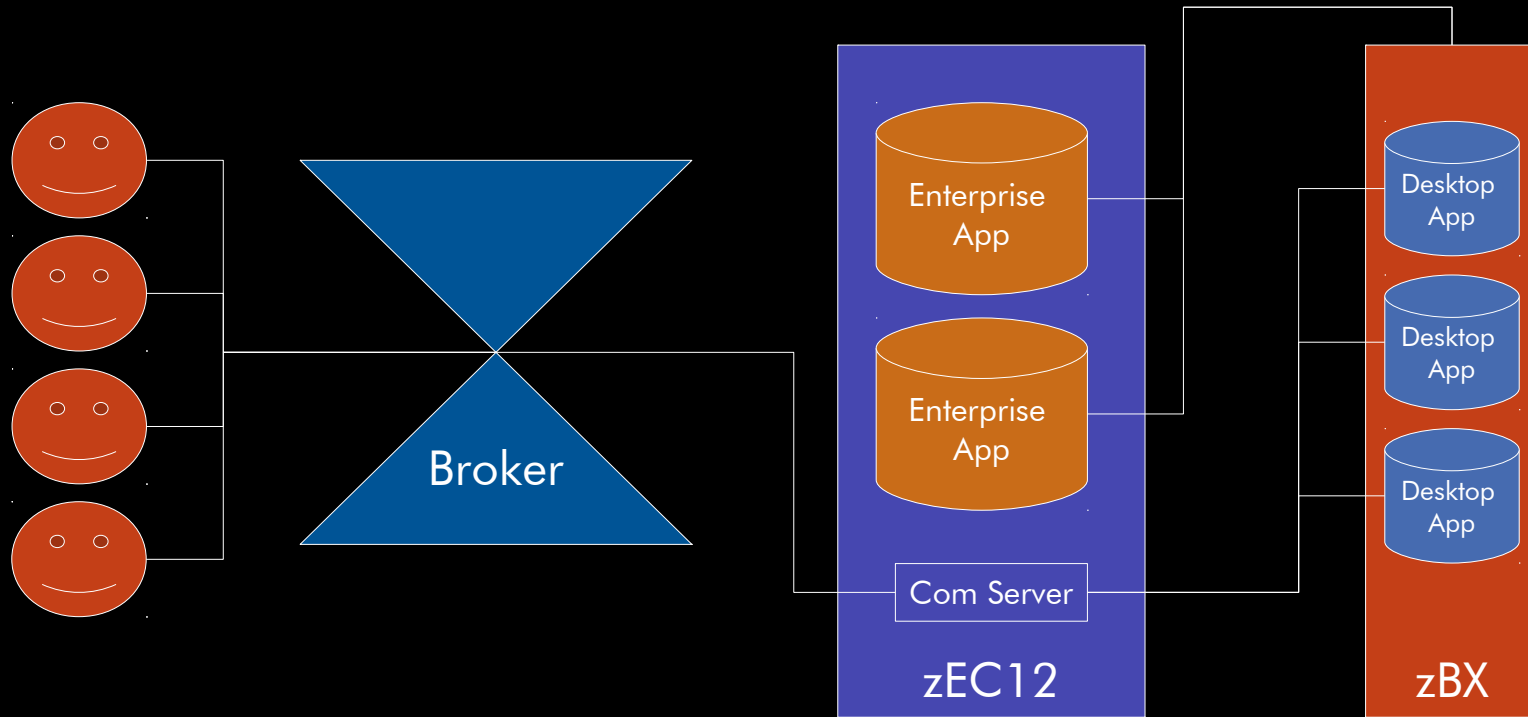
Full



Linked Clone



Thin Applications



Future ?



Questions ?

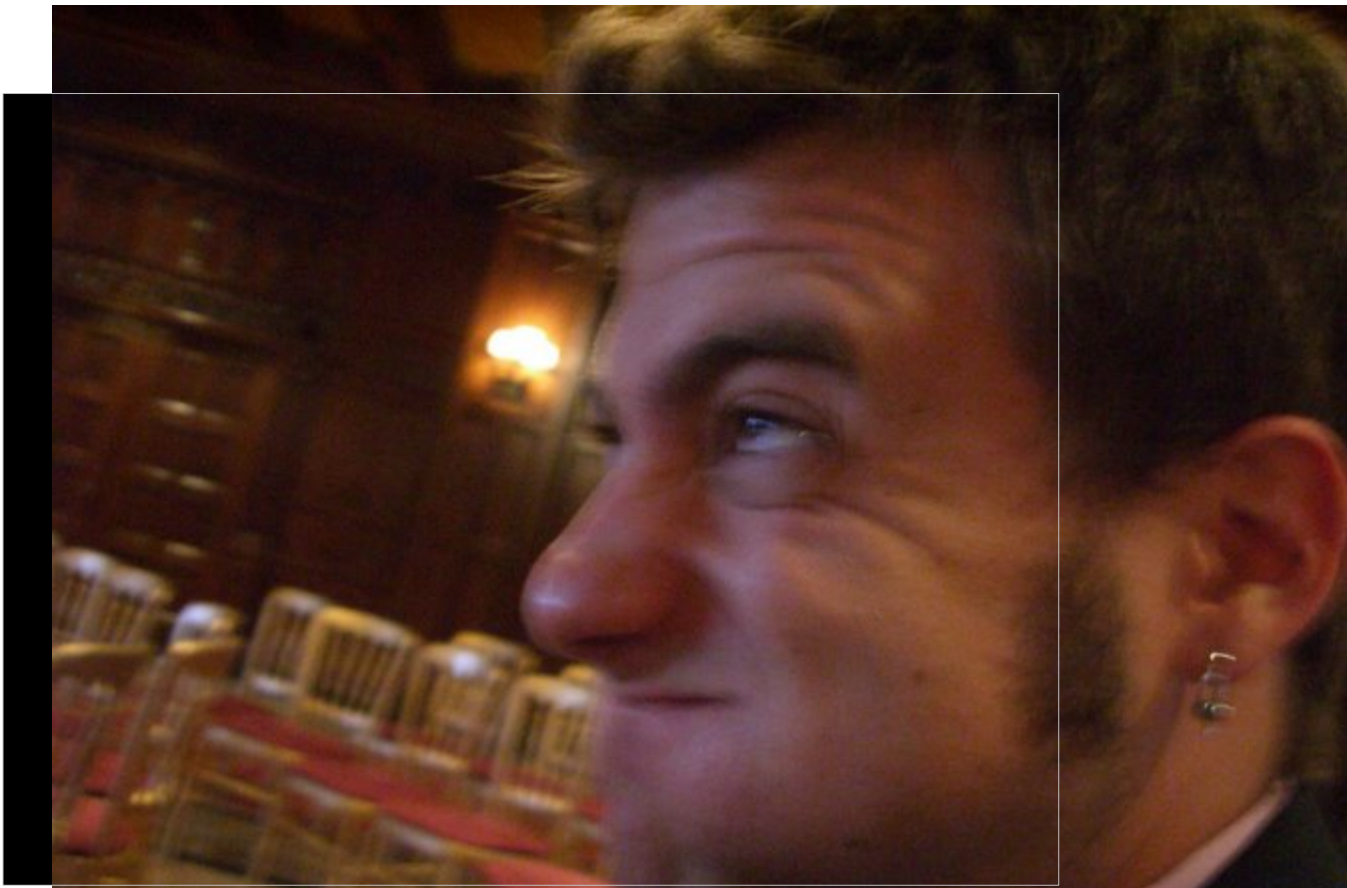


Image from

<http://www.cloudtec.ch/assets/template/img/blog/vi.jpg>

In the past few years, the world of IT has seen some amazing new technologies. We have seen the advent of mobile smart phones, intelligent tables, and ever faster personal computers.

One of the biggest issues in corporate IT is the potential of losing highly sensitive data by using these devices. Another interesting aspect of the growth of corporate desktops in the recent years is the increase of refresh windows for end user computing devices. In the past 10 years, companies have increase the refresh rate from around 18 months to potentially over 5 year. This can make development, testing and other compute intensive work very difficult.



This is me. I am here to help. I include this chart so that people can have my email.

Although I might look young, I have been in the IT field for almost 15 years.

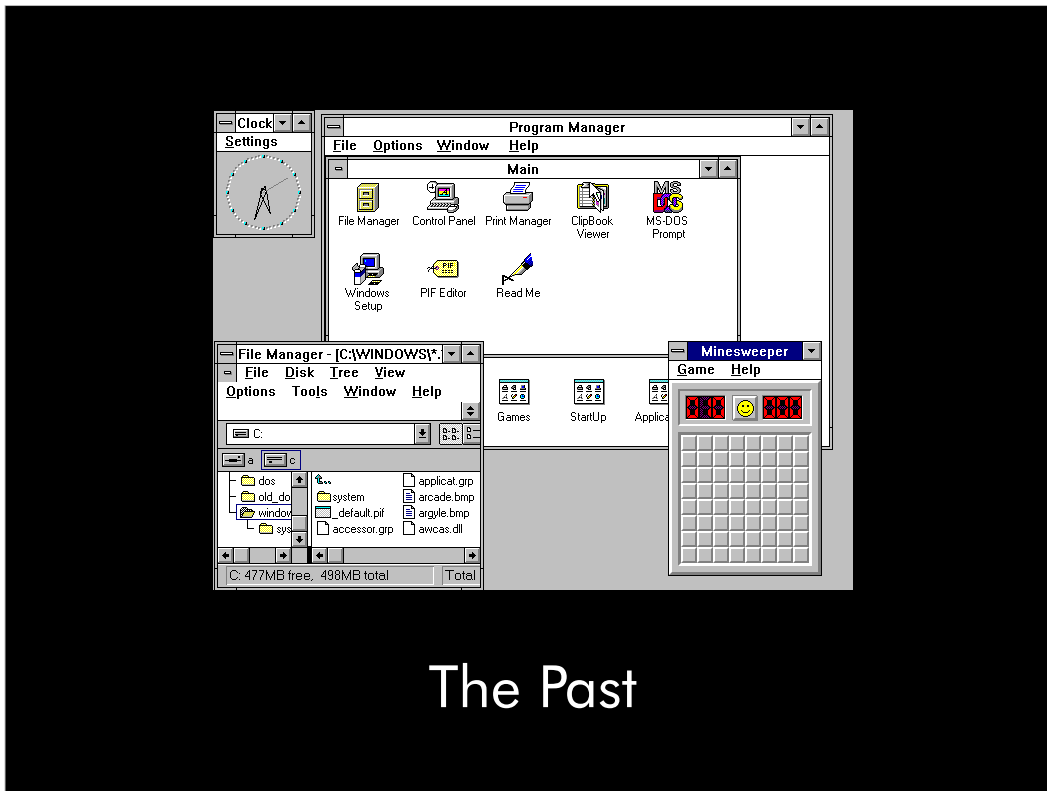
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The Design Center



<http://www-03.ibm.com/systems/services/designcenter/index.h>

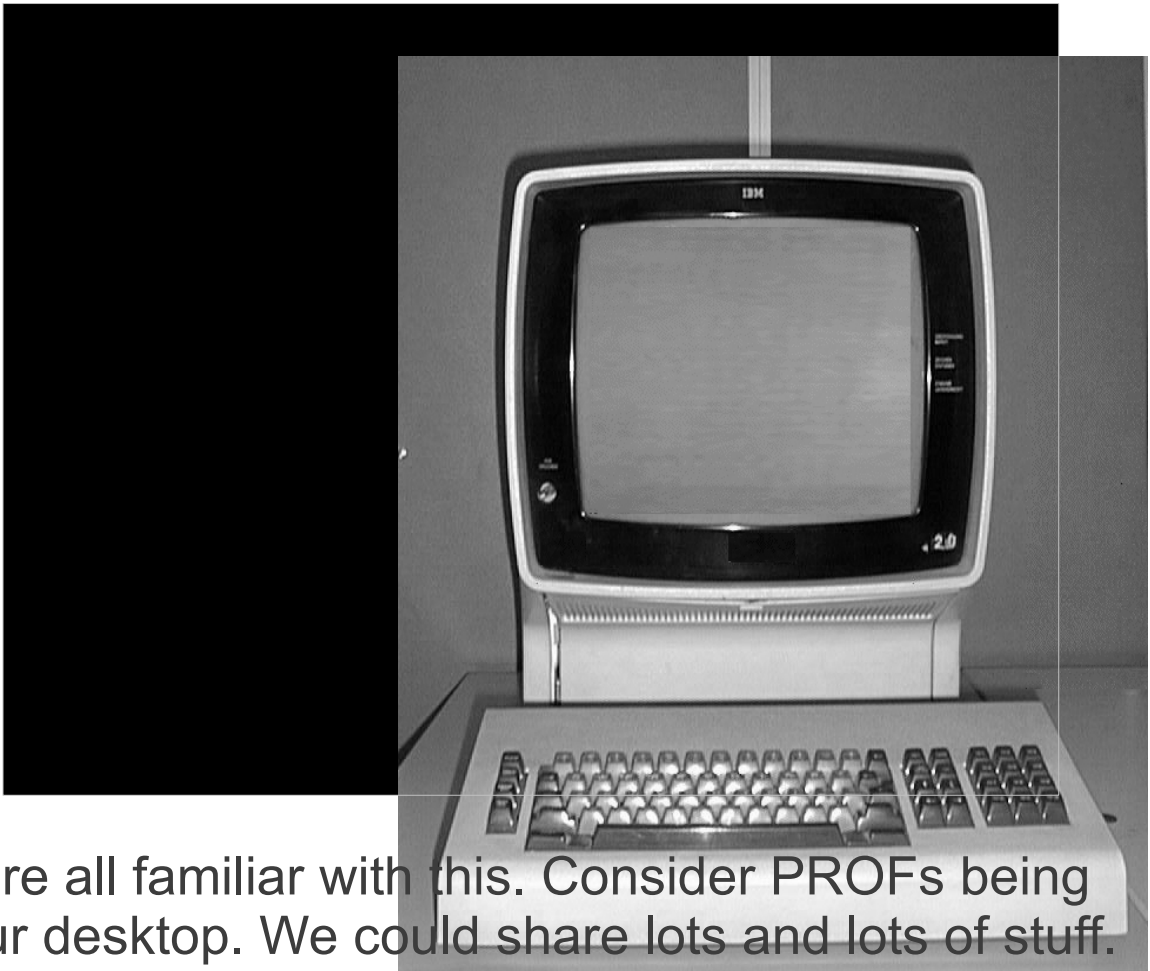


The Past

Image from

http://upload.wikimedia.org/wikipedia/en/thumb/7/73/Windows_3.11_desktop.jpg

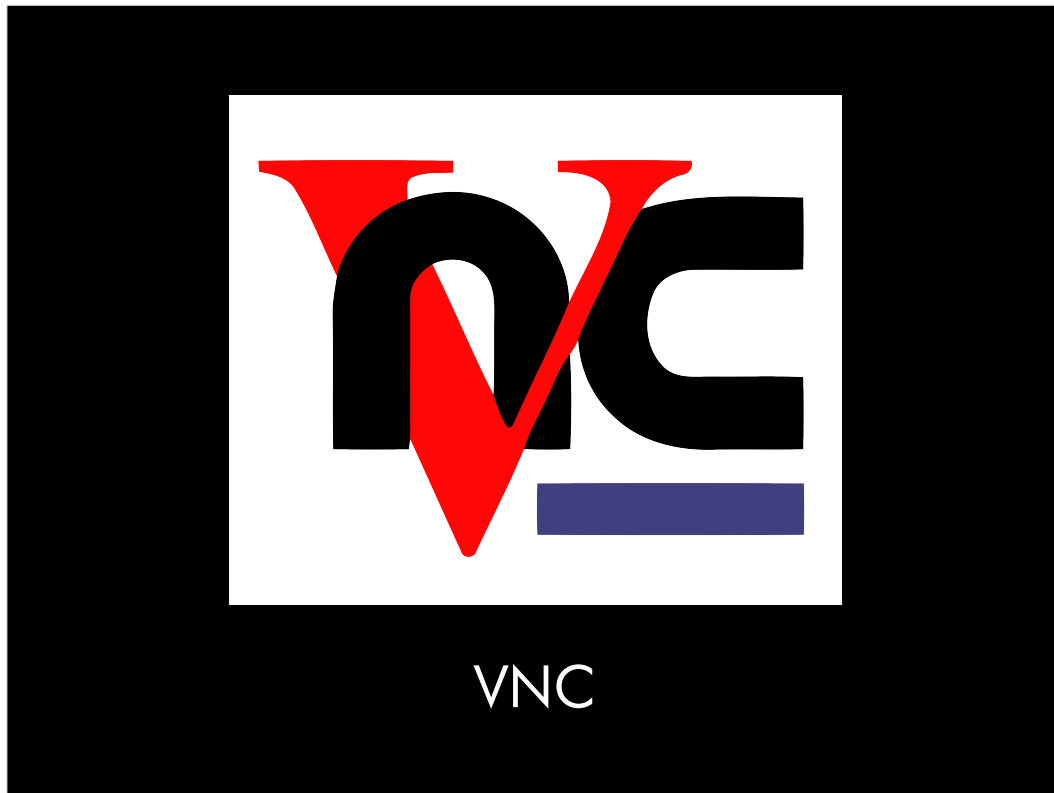
In the past, desktops were stand alone work entities. It wasn't until windows 3.1.1 (Windows for work groups) that networking was attached.



We are all familiar with this. Consider PROFs being your desktop. We could share lots and lots of stuff. Remember VM Shared disks ?

Things were similar then. The desktop was noting more that putting characters across the 80 wide columns.

We have since moved into emulating these devices.



Virtual network computing. Circa 1999.

Basically remote framebuffer.

"Put a rectangle of pixel data at the specified X,Y position"

Not secure, passwords are sent in plaintext, though it can be tunneled.

It is platform independent. Runs on a server and has client. Windows can connect to linux etc.

Since it is so primitive its very versatile, but is no the most efficient.

It does do clipboard sharing.



Image From

<http://www.ubuntuka.com/ubuntu-terminal-client-access-window>

Remote desktop protocol is owned by MS Circa 2000

Supports audio redirection, file system redirection, print
and port redirection

Not encrypted by default, but can run on TLS

```
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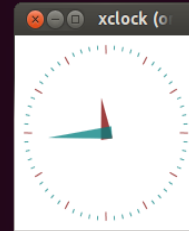
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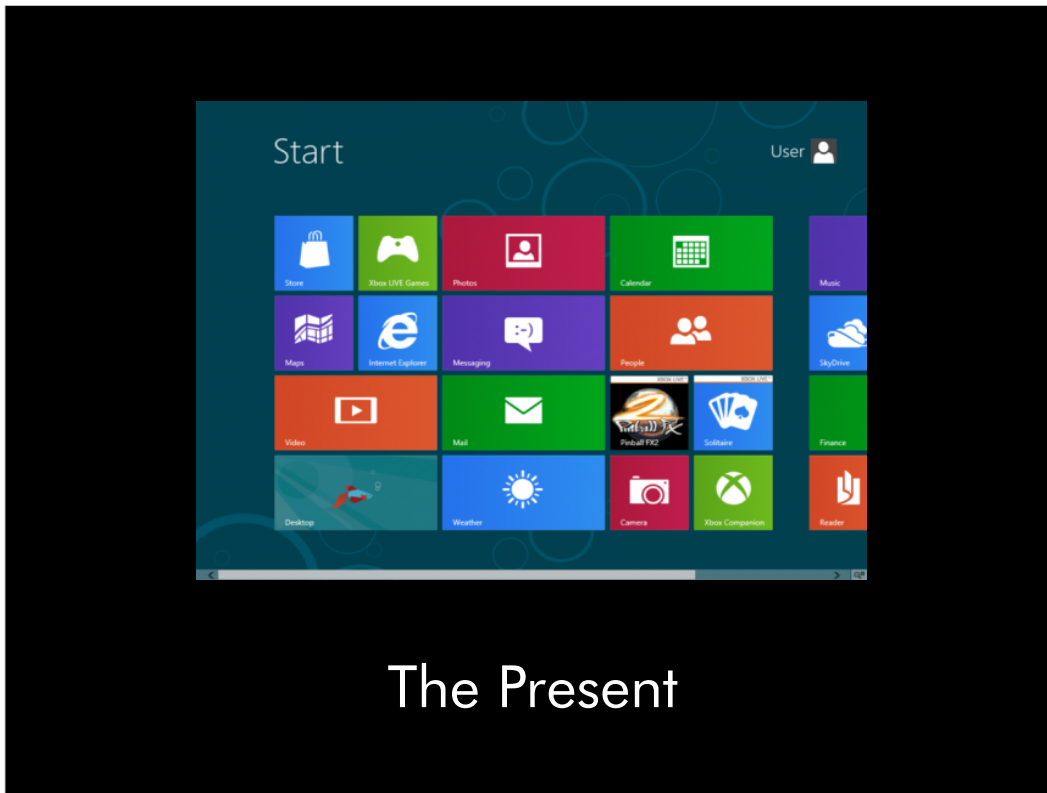
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```



Forwarding

With X based windowing systems, one can forward the application from one x server to another. This is normally done over RSH or SSH. This is strictly windowing, no special devices, no sound.

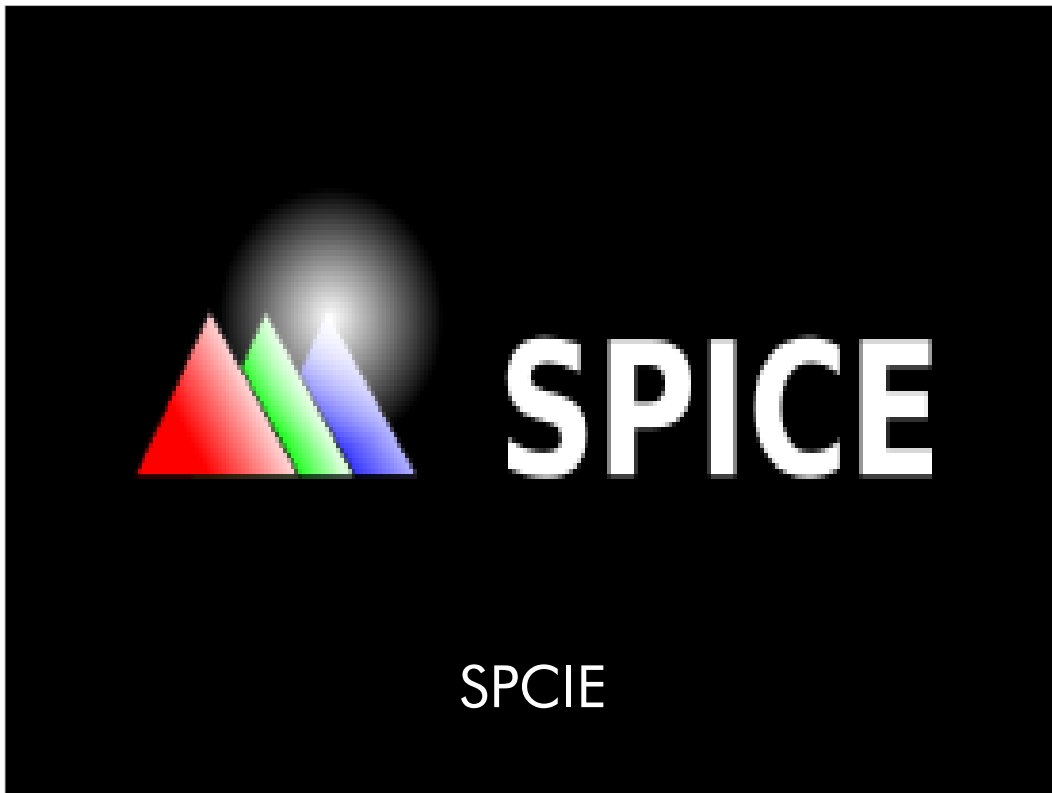


The Present

Image from

http://amog.com/wp-content/uploads/2012/04/Apr17_Windows

Desktops have come a long way. Although windows 8 looks very similar to windows 3.0 users are much more advanced. The internet is ingrained in every way they use these technologies. So what has changed that makes VDI and mobile so important?



Simple Protocol for Independent Computing
Environment

Created in 2007 by Qumranet, now RedHat

Big support in QEMU / KVM based applications



Image from

<http://pages.samsung.com/ca/pcoip/English/>

Circa 2005

Owned by terridici. Licensed by VMware. Allows for all sorts of device redirection and pass through.



Based on Independent Computer Architecture, which is closely related to the x Windows systems

MultiStream ICA with RTP Audio enables the best audio performance, even over high latency networks. Seamless isochronous plug-and-play provides support for webcams and USB audio devices.

Client-side webcam video compression reduces bandwidth requirements.

Voice over IP SDK supports leading telepresence applications such as Cisco, Avaya, and MS Lync with Citrix Ready technology partners like Avistar.

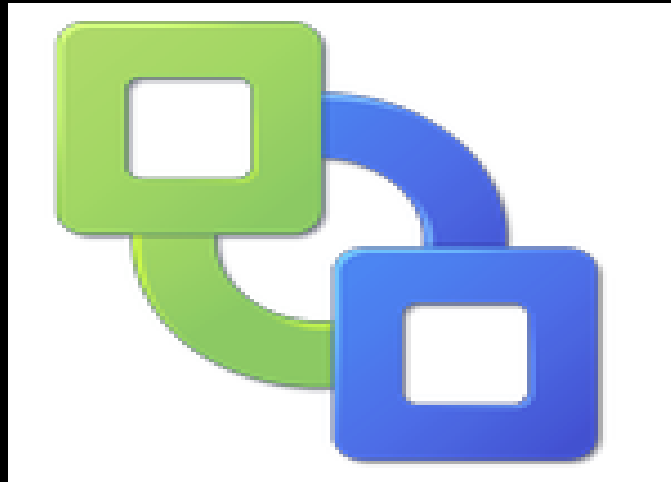
Peer-to-peer connections of popular unified communications applications, including Cisco's Unified Communications Application Suite and Microsoft's Lync 2010, enable enterprise-scale video conferencing.



The Players

Image From

http://hockeygods.com/system/gallery_images/9997/original.jp



Vmware View

Based on the ESXi hypervisor and the vSphere infrastructure.
This probably has the most mind share.



Citrix has been doing this for along time, since like 1989.

They have very interesting technology, and are using the acquisition of Xen as a basis for Xen Desktop



Very new. The Verde solution was announced in 2009.
Based on KVM



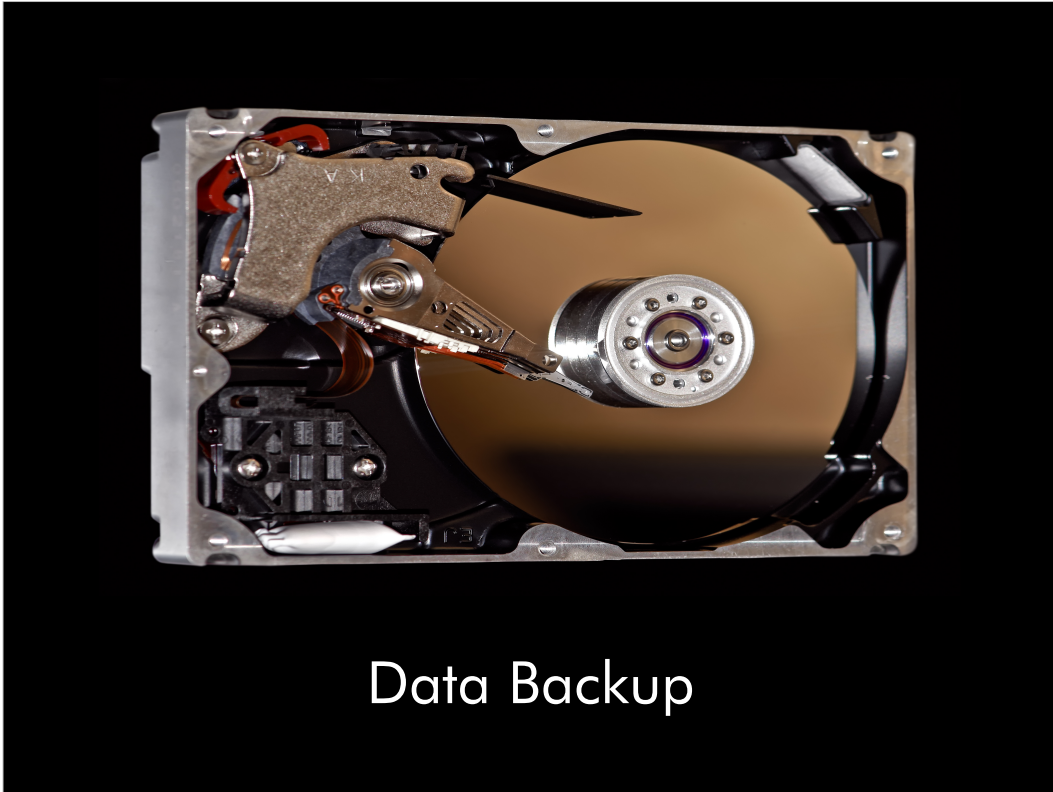
Red Hat



There are many drivers for VDI... and VDI is most likely going to start to drive mobile.

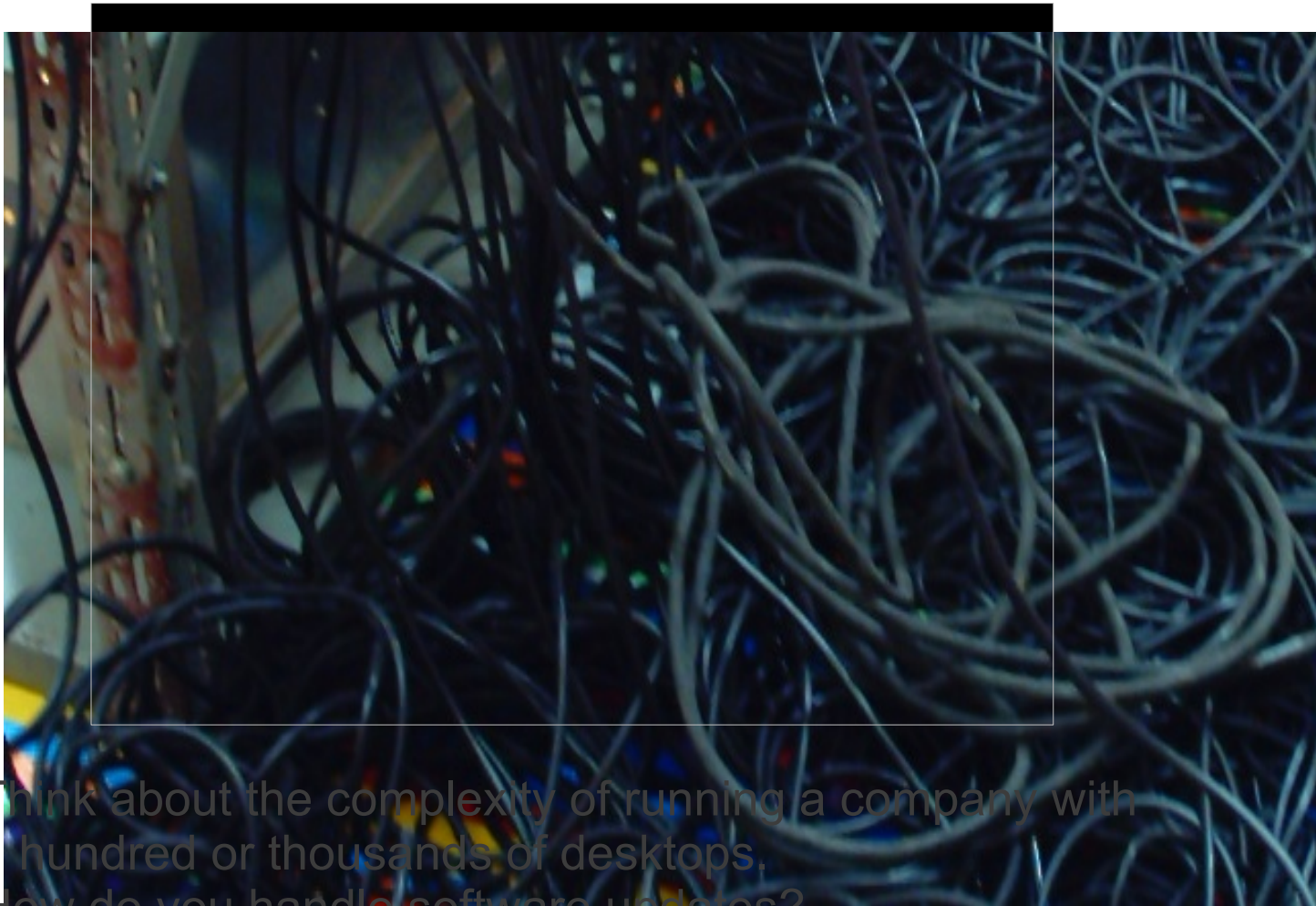


Data doesn't leave the enterprise. This is key when people are accessing the data with their own devices. When those devices are mobile, security is even more important.



Data Backup

Since the data never leaves the data center, the enterprise back up strategy can now be leveraged to include desktops.



Think about the complexity of running a company with
hundred or thousands of desktops,
How do you handle software updates?
How do you handle viruses?
How do you handle hardware issues?



Everyone that had one of these devices wants to access their data from said device.

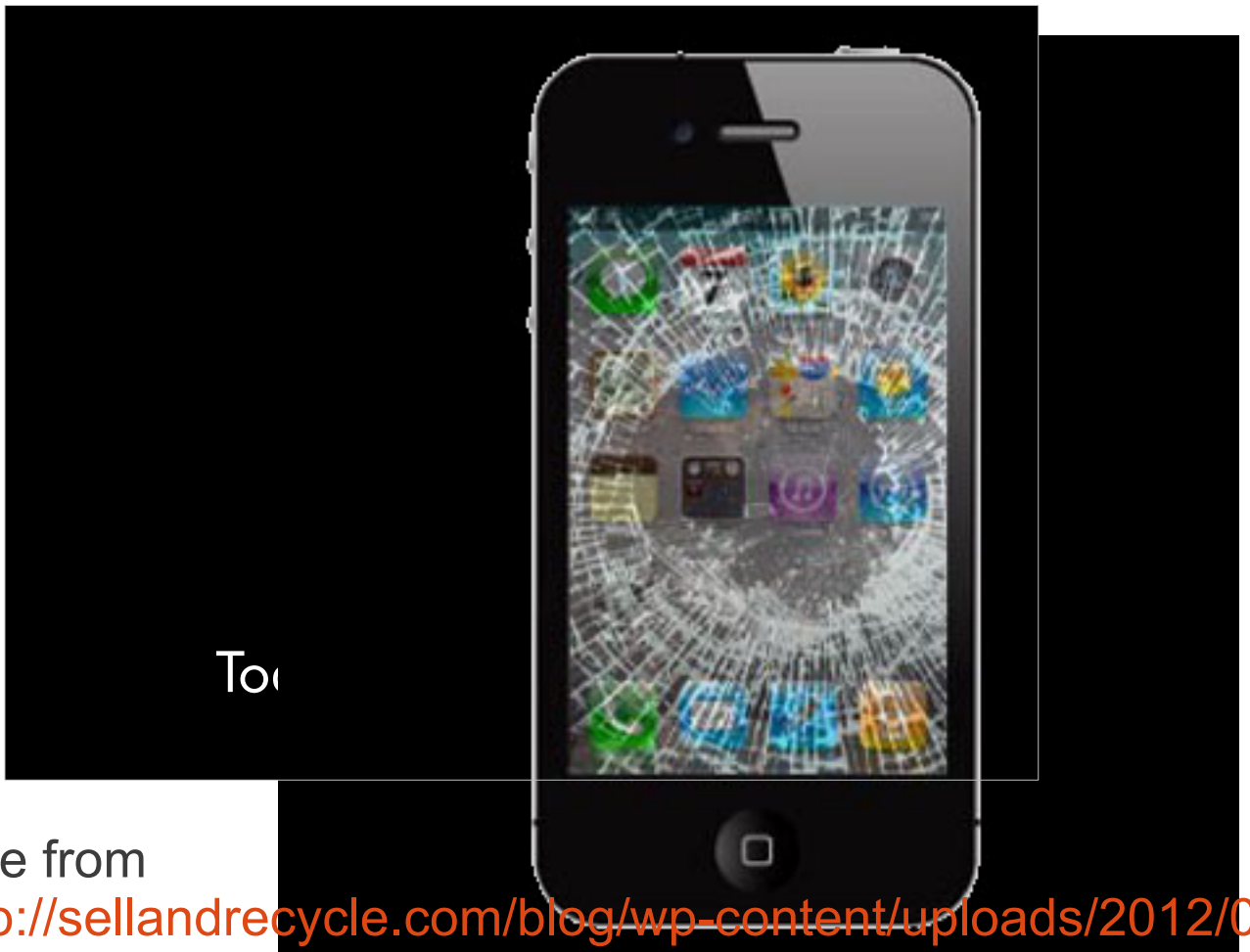
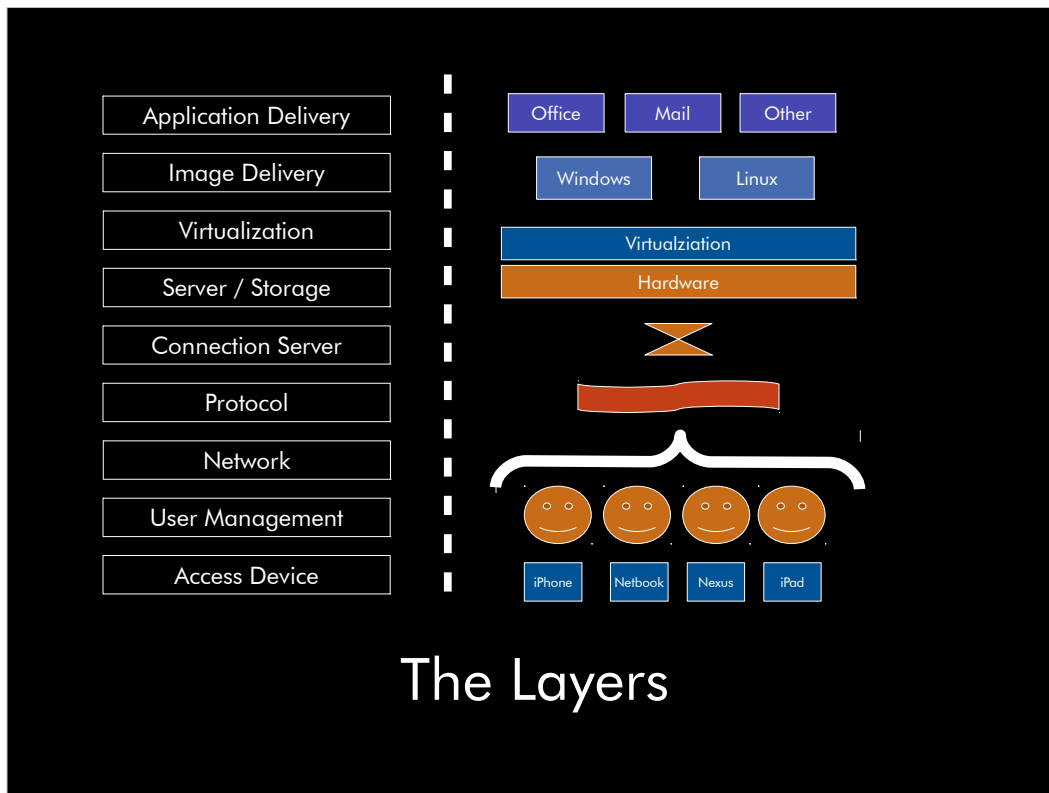


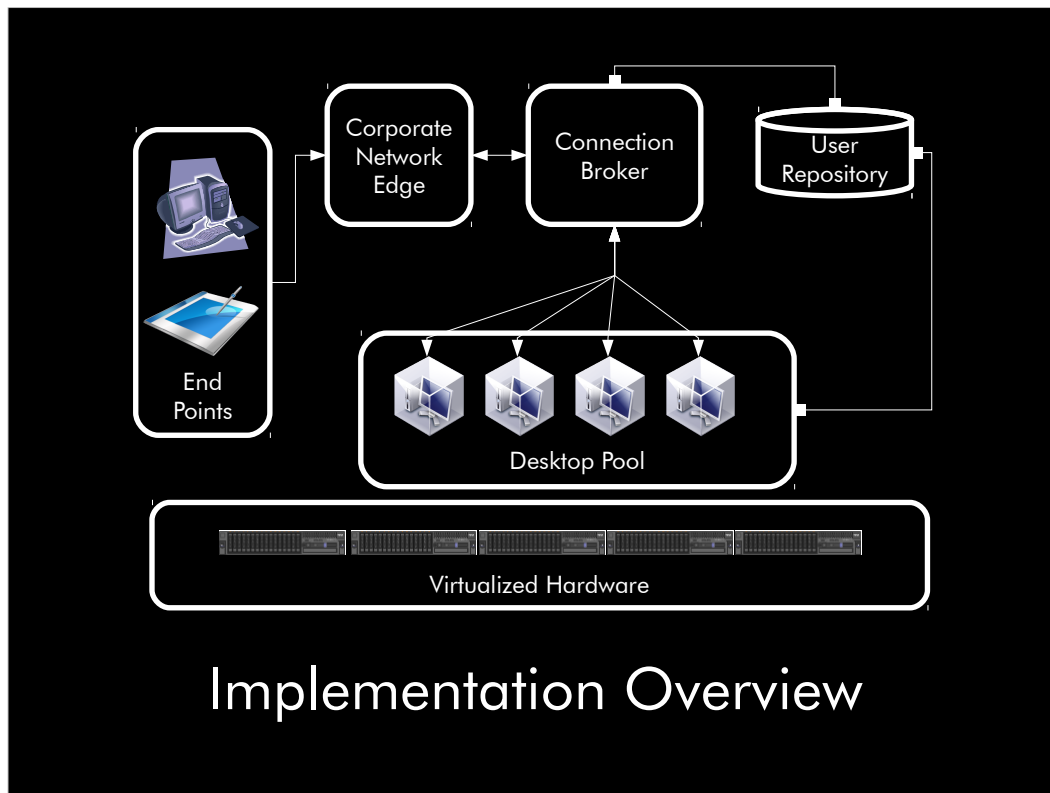
Image from

<http://sellandrecycle.com/blog/wp-content/uploads/2012/03/b>

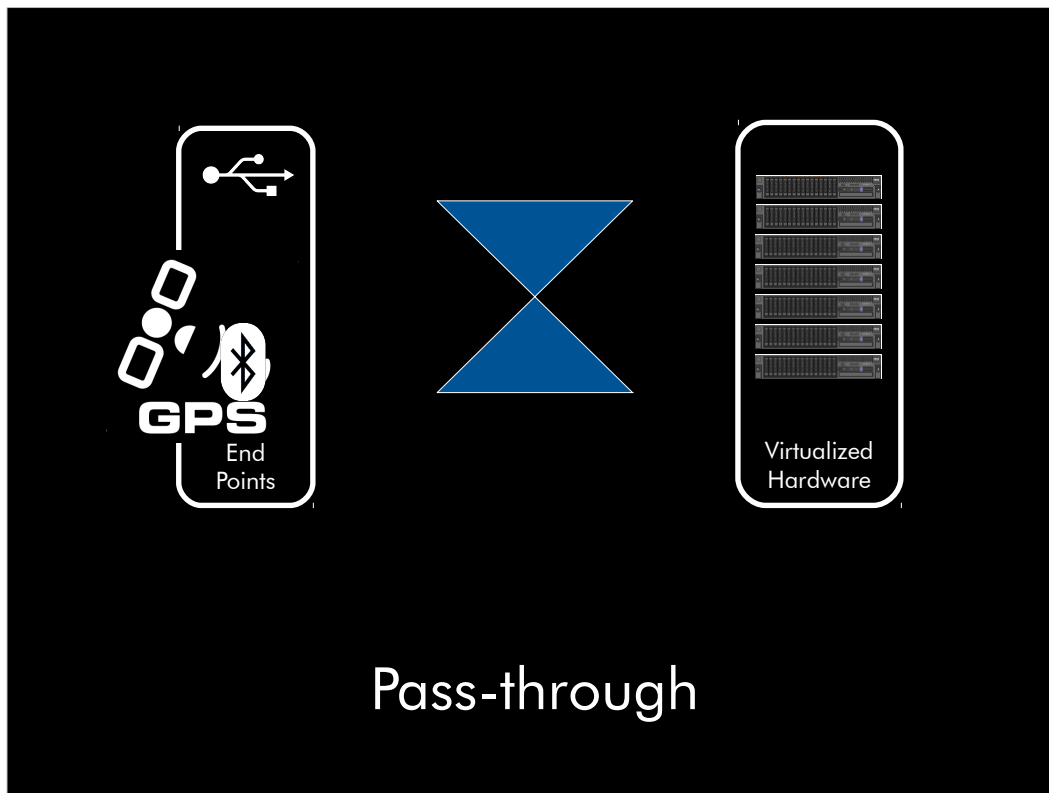
I uses IBM's mobile offering. I feel that the way they do mobile is very broken. They want to own my device because there is the potential storage of sensitive information.



IBM's RA for VDI breaks everything up to layers. Notice how there is a separation between hardware and virtualization.



This is the basic overview of how the components fit together.



Images from

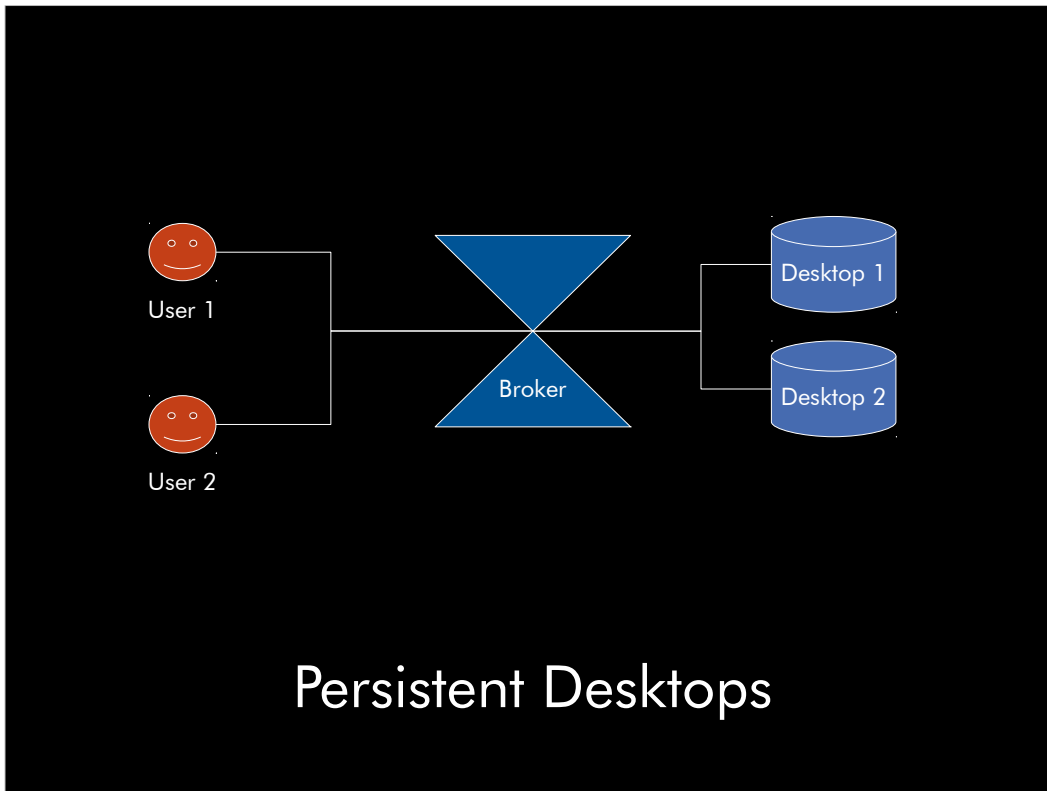
http://upload.wikimedia.org/wikipedia/commons/f/fd/USB_Icon.

<http://www.thisisant.com/assets/ANT.GPS.icon.FA.jpg>

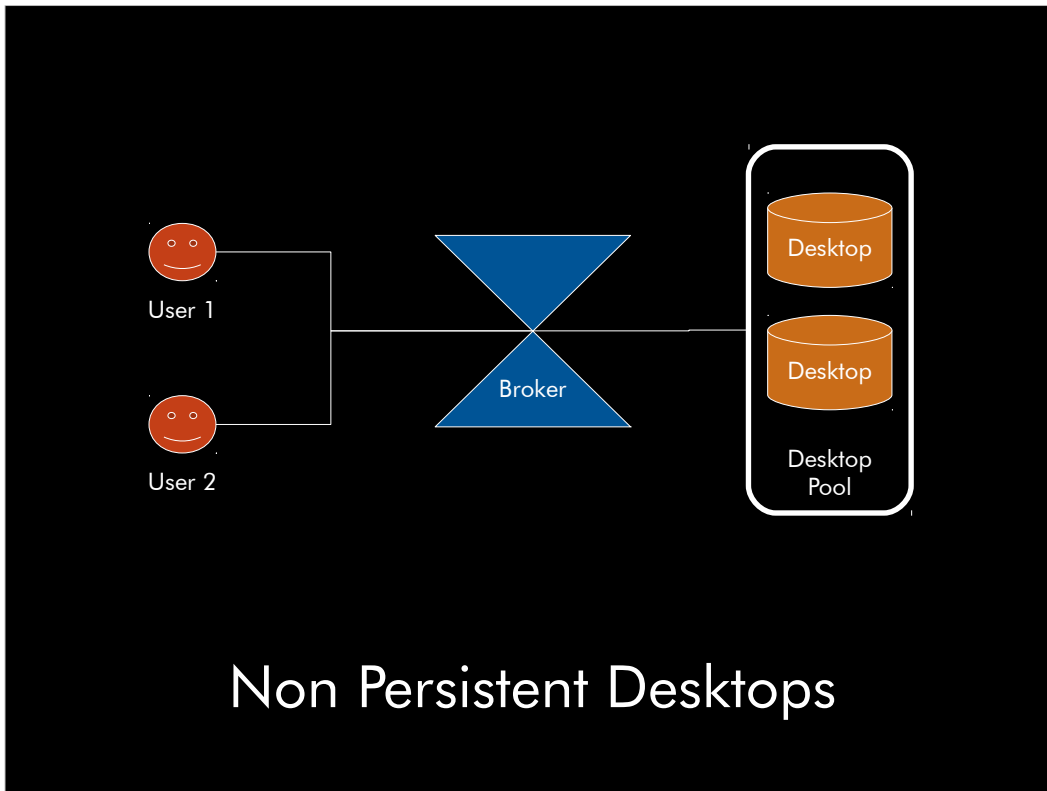
http://upload.wikimedia.org/wikipedia/commons/thumb/d/da/Bluetooth_Icon.

With VDI, we can now pass through almost any device.

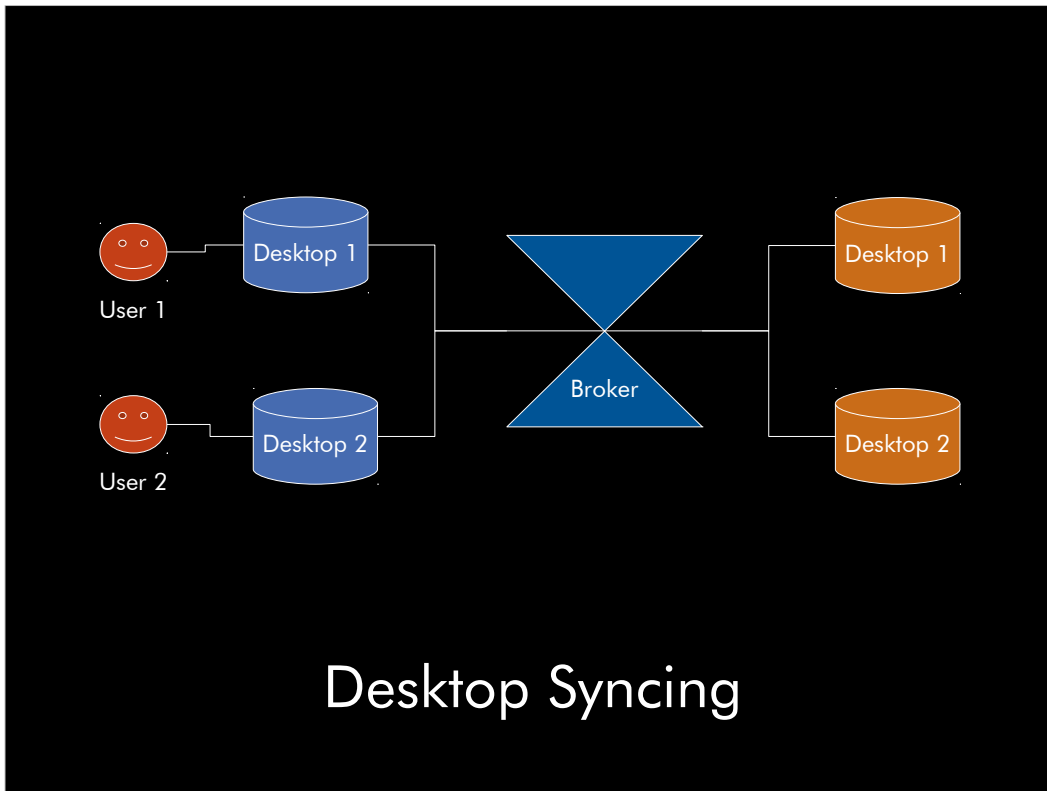
This is due to the fact that virtualiation in the server side makes drive issues go away. With mobile we can now have many new devices.



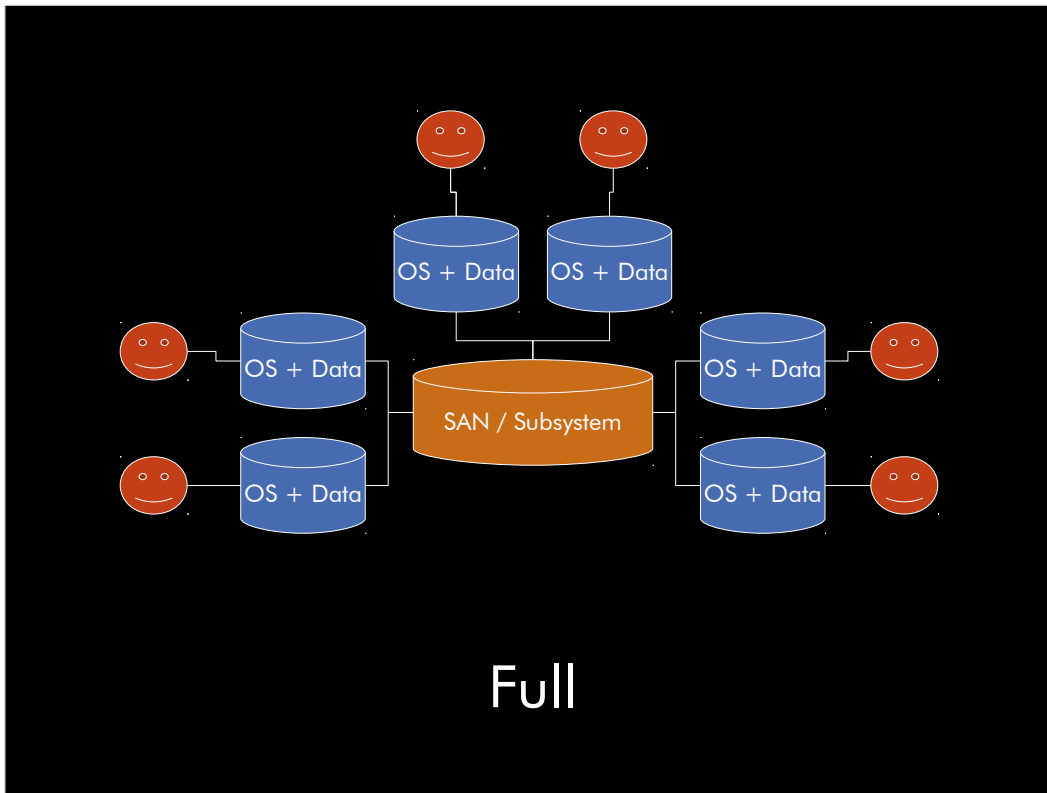
One way to build a VDI is with persistent desktops. The user request the exact same desktop every time, though it is there person desktop. Generally this is a full replace for the standard no VDI based desktop.



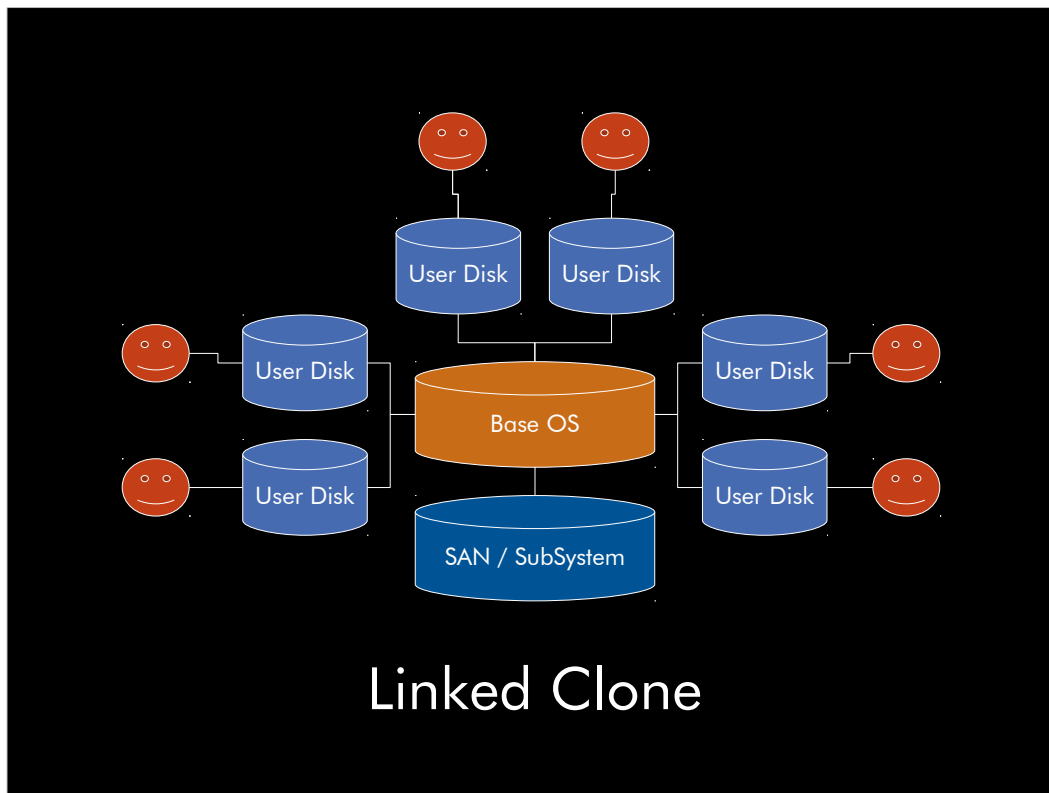
For users that do not require personalized desktops, one can pool the desktops. This can help control the number of licenses in use at any one time.



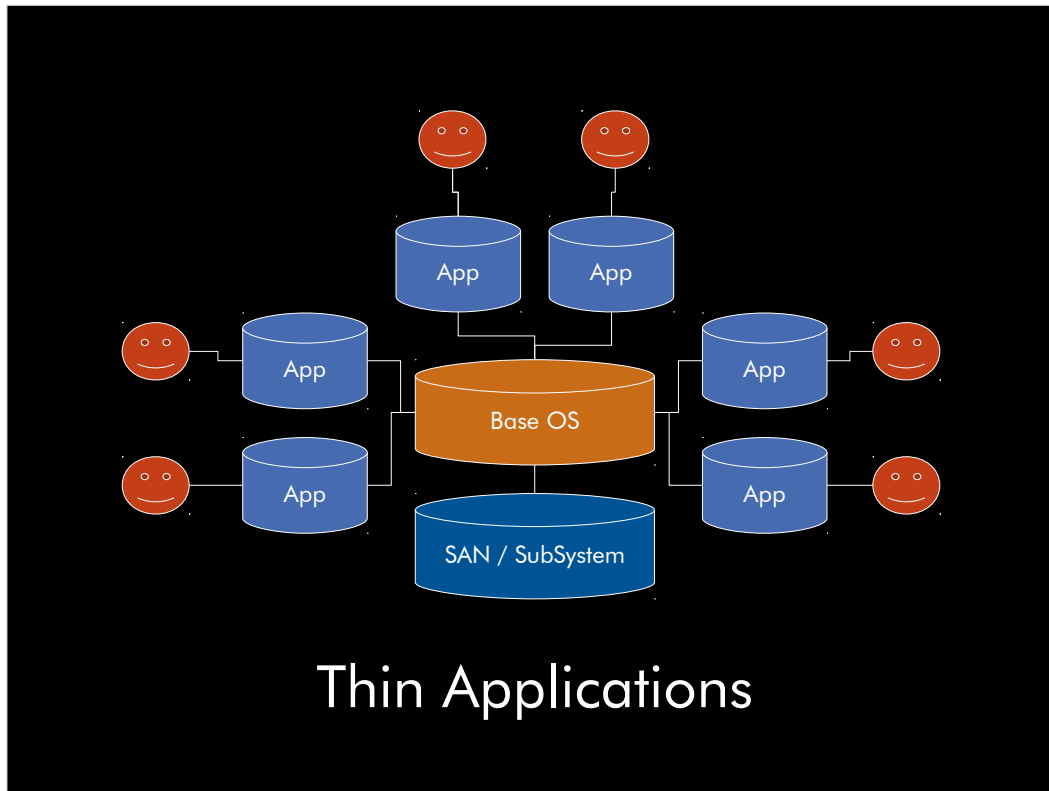
This is when the users sync the desktop when they are done using it. This is used when the user still has a thick client but is not attached to the corporate data center. This is important for mobile users.



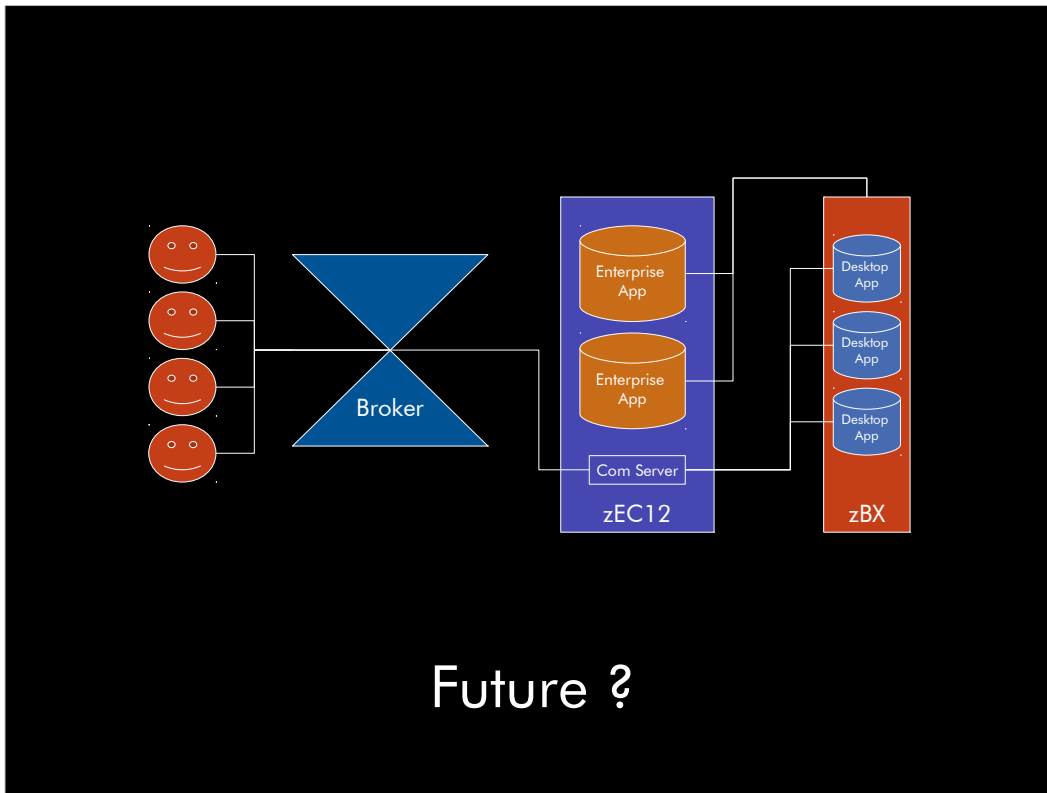
One of the many storage options. Each user gets a full disk. Whether it is persistent or not, there is a full disk for each desktop.



Each desktop gets a small delta disk. They all link to a single version of the main desktop. This makes storage requirements a lot lower. It also simplifies updating the service. When the OS needs a patch, it only needs to be done in one place.



This is fairly new concept. It is when an application administrator packages up an application so that users don't have access to the full desktop. It drastically reduces the amount of storage needed.



What happens when we move the desktop into a zBX?
Nothing leaves the mainframe. The Future.



Questions ?