Leveraging Windows Virtual Apps in a Mac Lab Environment

Mac Admin & Developer Conference 2016

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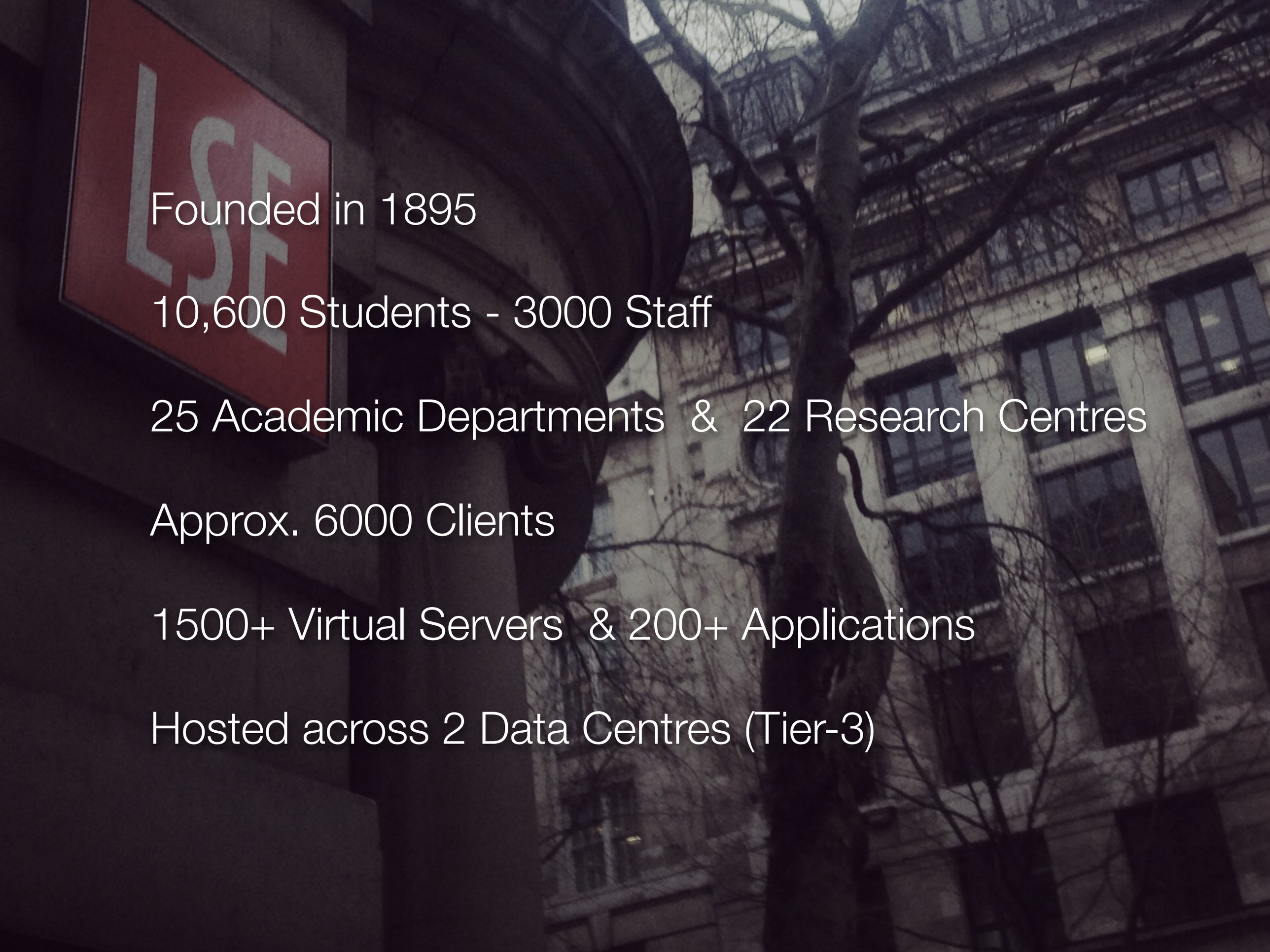

Founded in 1895

10,600 Students - 3000 Staff

25 Academic Departments & 22 Research Centres

Approx. 6000 Clients

1500+ Virtual Servers & 200+ Applications

Hosted across 2 Data Centres (Tier-3)

Apple@LSE

- Service started late 2014 (no Apple support prior)
- 600 OS X & 500 iOS
- From 80 > 1100 devices in 24 months
- No Apple student facilities since 2015

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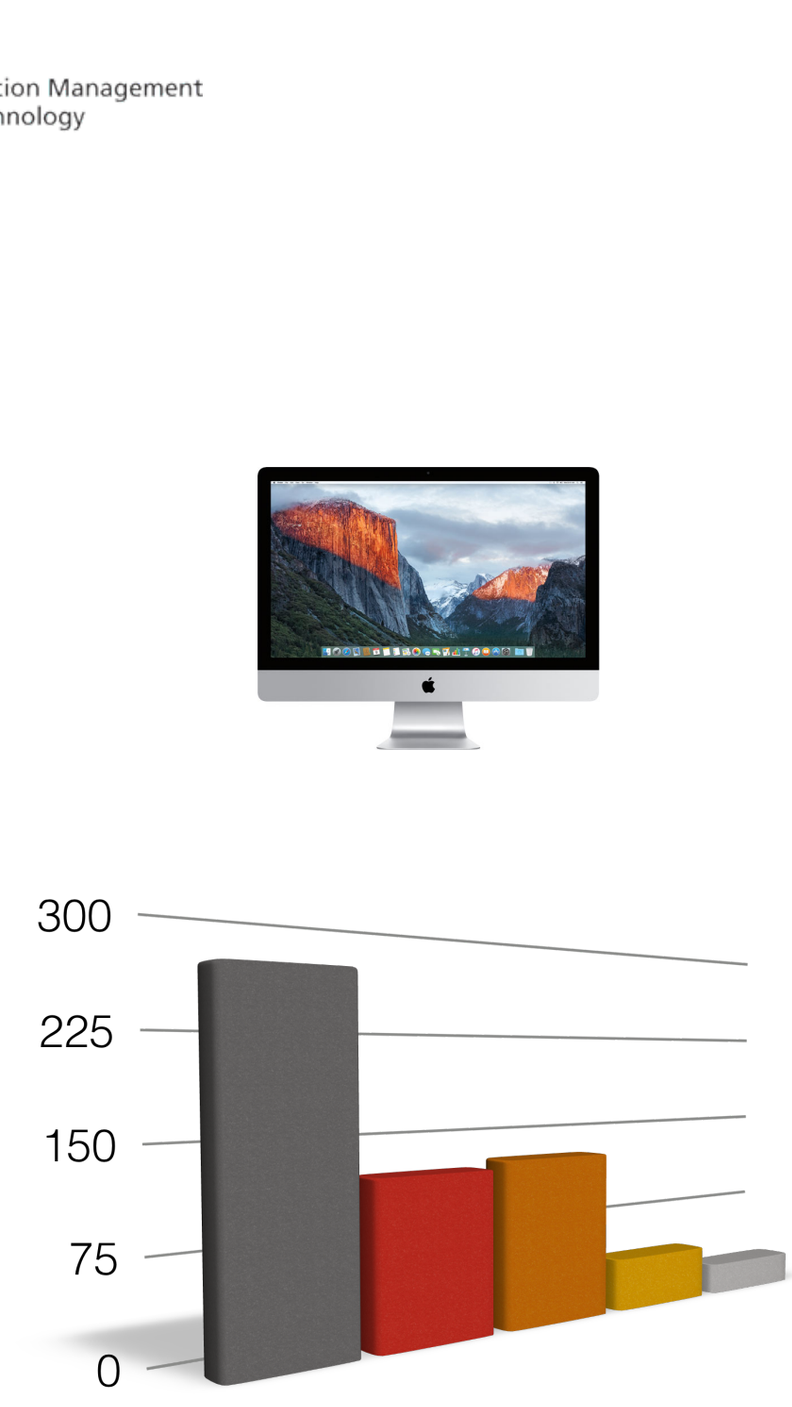
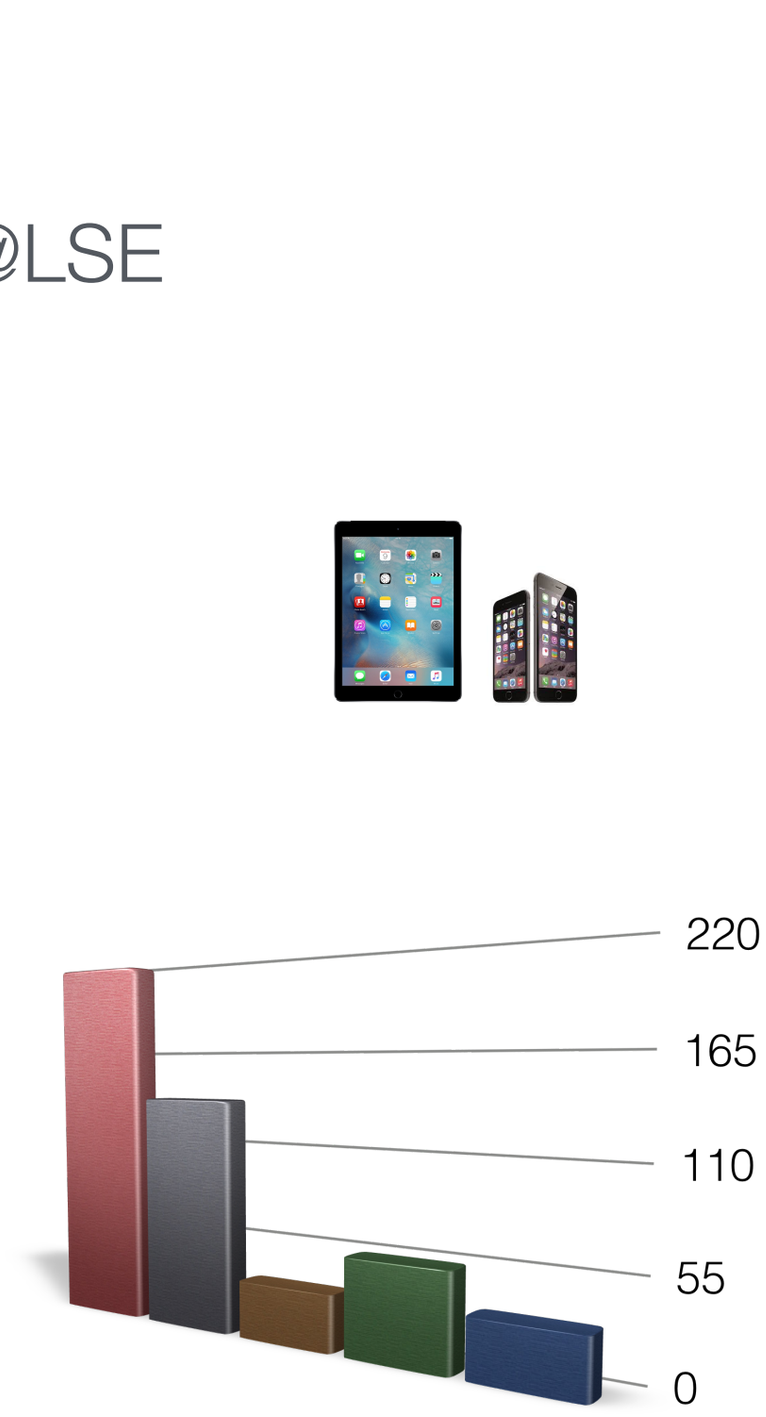
Apple@LSE





- 268 Staff Laptops
- 124 Staff Desktops
- 128 Student iRoam Laptops
- 42 Student Desktops
- Other

- 217 Staff iPads
- 137 Staff iPhones
- 33 iRoam iPads
- 55 Student iPads
- Other

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Apple@LSE facilities for LSE students

Teaching labs

iMacs (Open Access / Teaching)

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LSE Library (Open Access)

Open access iMacs

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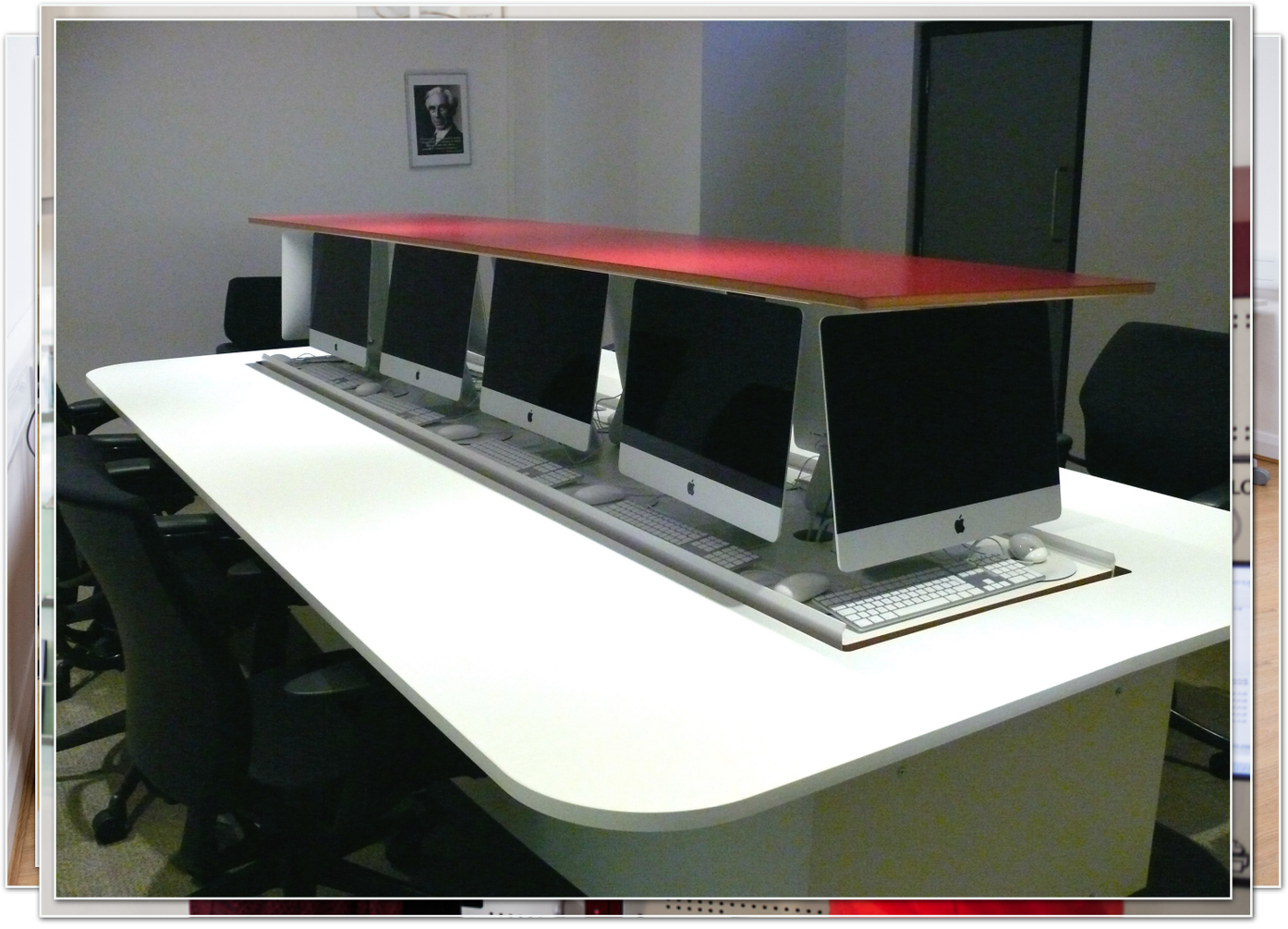
iRoam

24x7 self-service MacBook loan facilities.



Amber Training Room

iMacs used for training in a cross-platform environment.

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Apple@LSE

Infrastructure

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Apple client management

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vmware vSphere

Virtualisation Platform

casper SUITE

Apple client management

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vmware vSphere

Virtualisation Platform

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Virtual Server OS

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RACKSPACE® CLOUD FILES™

Cloud-based data distribution

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Virtualisation Platform

ubuntu

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Apple client management

RACKSPACE® CLOUD FILES™

Cloud-based data distribution

Mobile Device Management — MDM

Device Enrolment Program — DEP

Volume Purchasing Program — VPP

Apple services for device and content provisioning

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vmware vSphere

Virtualisation Platform

ubuntu

Virtual Server OS

casper SUITE

Apple client management

RACKSPACE® CLOUD FILES™

Cloud-based data distribution

Windows Server® Active Directory

Integration with LDAP, Printing, Email, File Sharing

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Acronis Access Connect

Seamless Mac & iOS integration with Windows file shares

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Virtualisation Platform

vWorkspace

Presentation Virtualisation

ubuntu

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Apple services for device and content provisioning

Amber Room

Background & Requirements

- New lab fitted with 10 computers
- Primary use as training lab, also used as meeting / conference room
- Training requirements were for cross-platform courses (focus on Microsoft training & certifications)
- Physical space restrictions meant all-in one approach
- Future-proof and scalable (as much as possible!)

★ For us this was a pilot of what was to be implemented everywhere

Apple@LSE (Amber Room)

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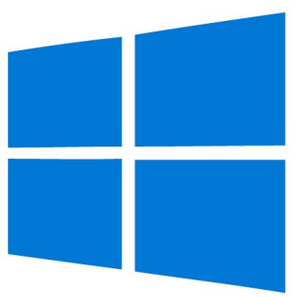
Leveraging Windows Apps & Resources from OSX

Bootcamp

Local VM

VDI



RDS

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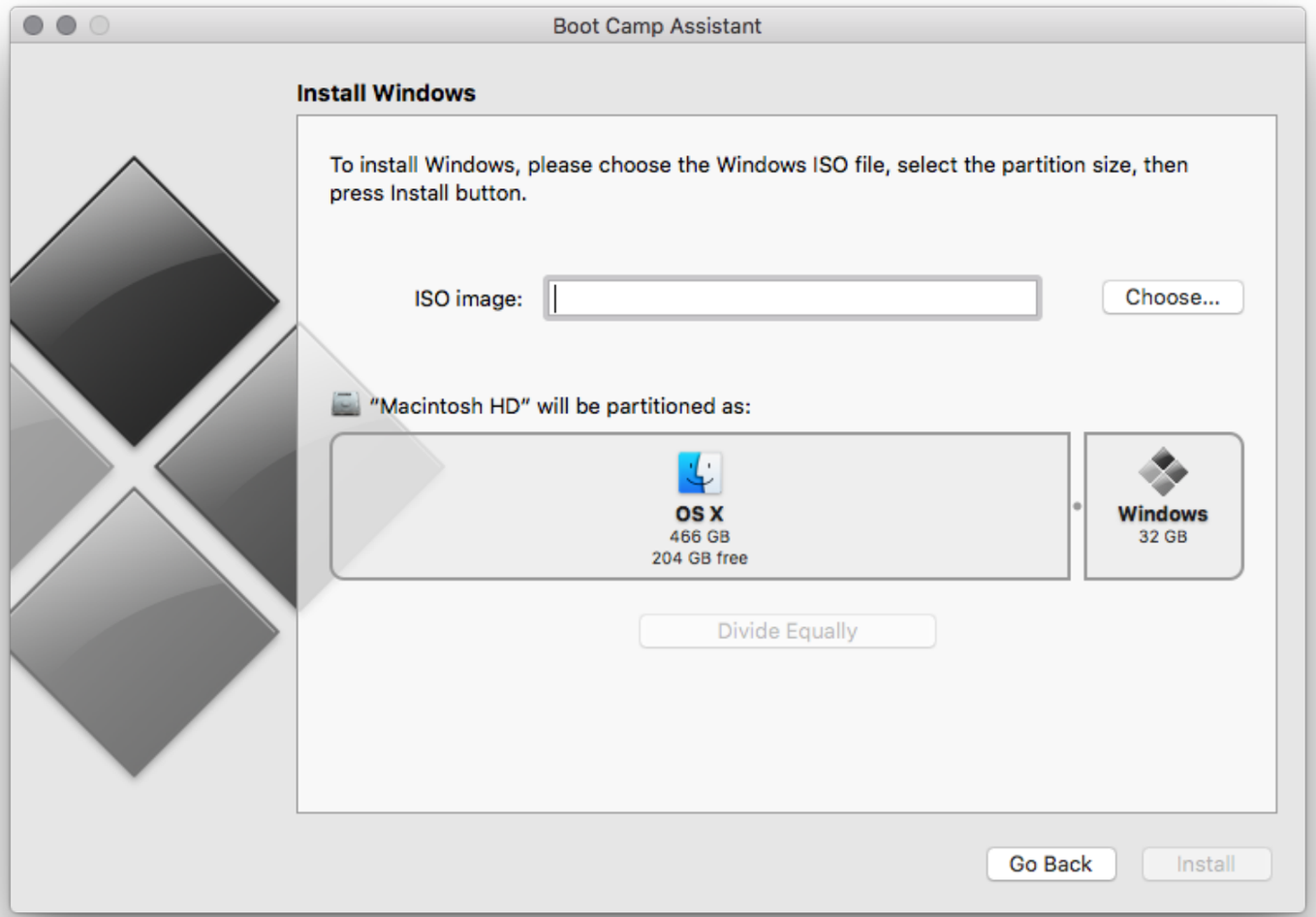
Bootcamp



Local Windows installation

Bootcamp

Local Windows installation

Bootcamp

Pros:

- Simple for users
- In-house experience of managing Windows workstations
- Low Cost

Cons:

- Non-standard (compared to other Windows desktops)
- No in-house support experience in dual-booted lab environments.
- Complexity & infrequent update cycle (e.g. if not used for a while, the first person to boot into it would have to deal with OS updates, AV scans, application updates)

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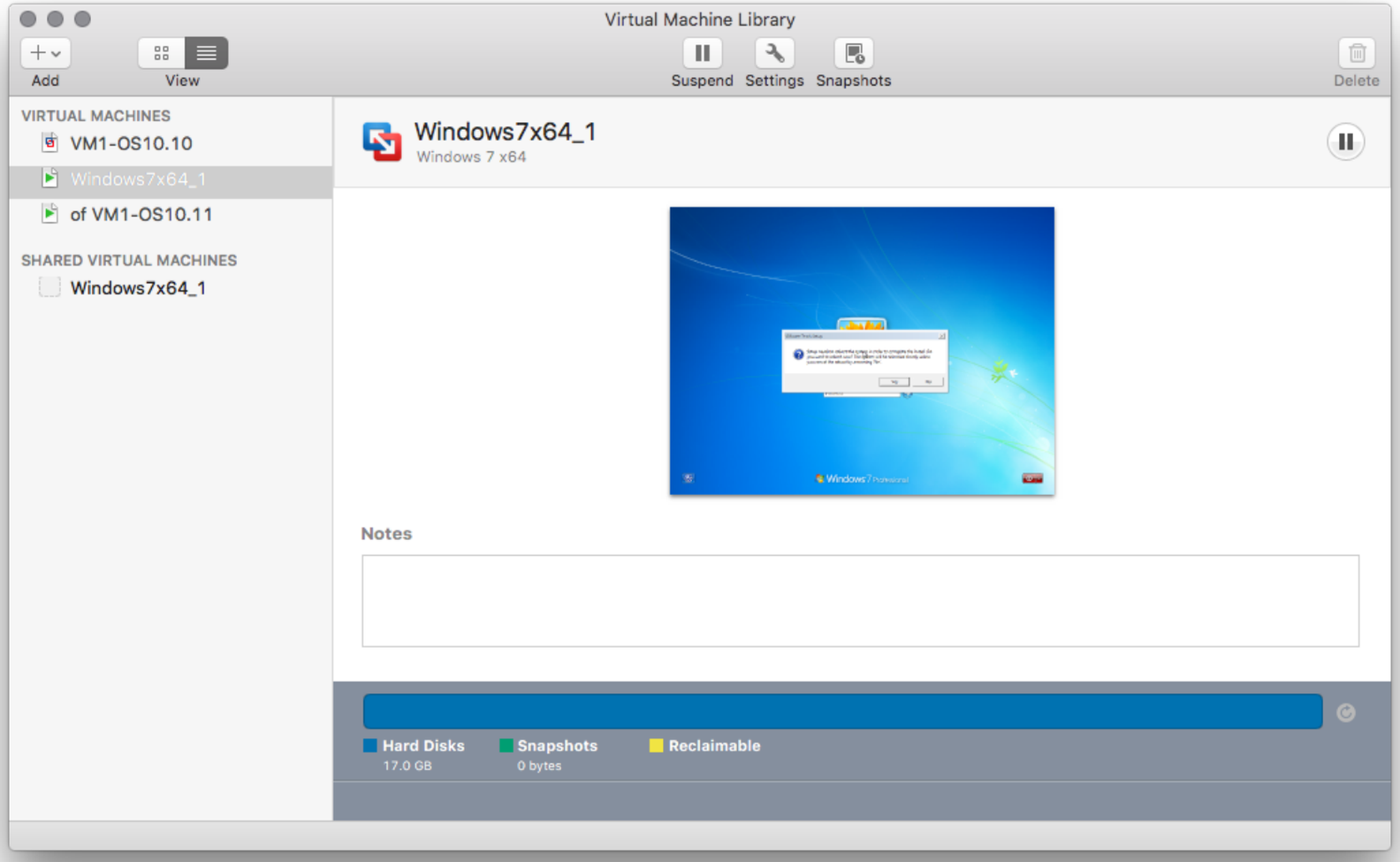
Local Virtual Machines



Local hypervisor > multiple Operating Systems

(VMWare Fusion, Parallels Desktop, Virtual Box)

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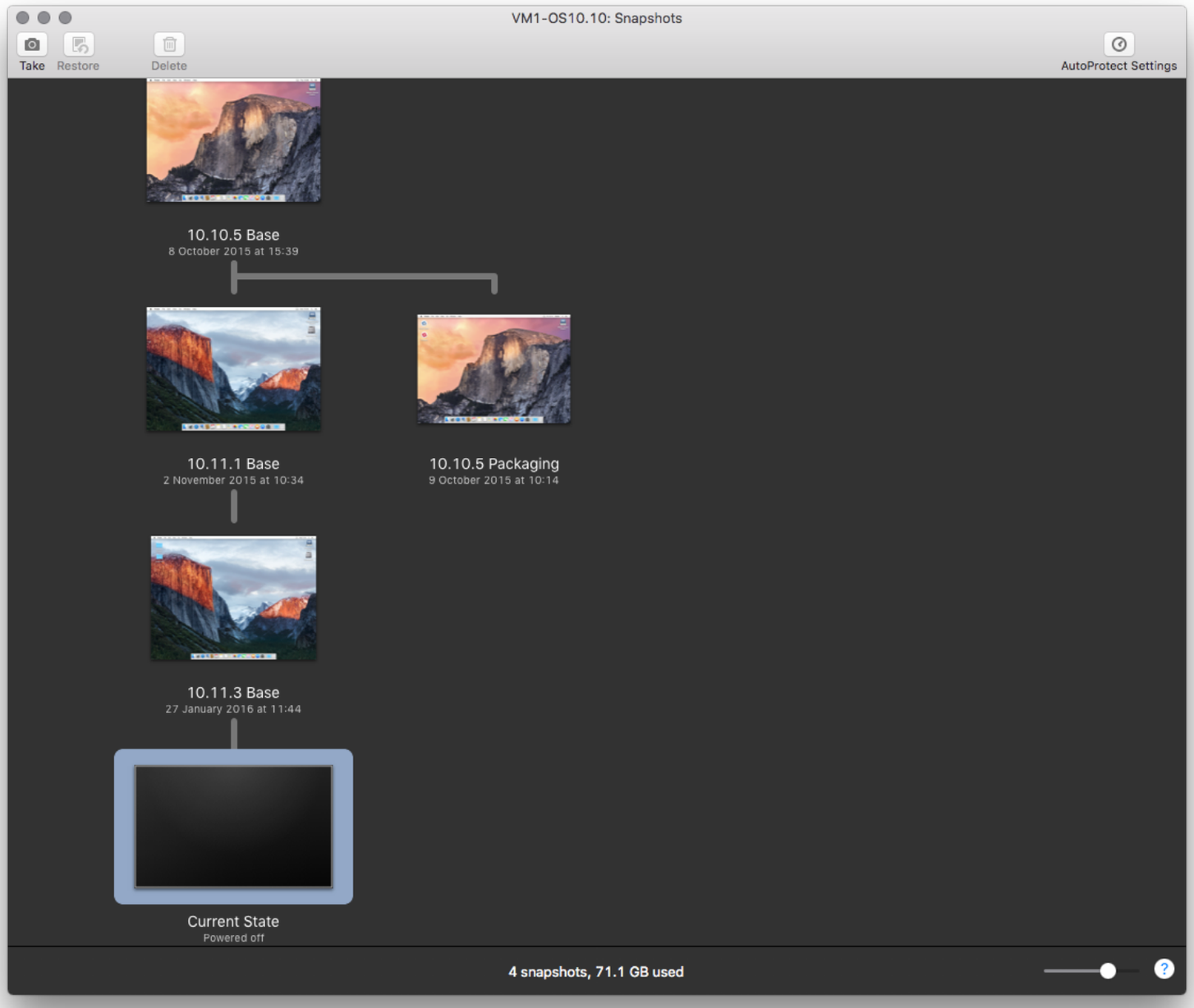
Local Virtual Machines



Local hypervisor > multiple Operating Systems

(VMWare Fusion, Parallels Desktop, Virtual Box)

Local Virtual Machines

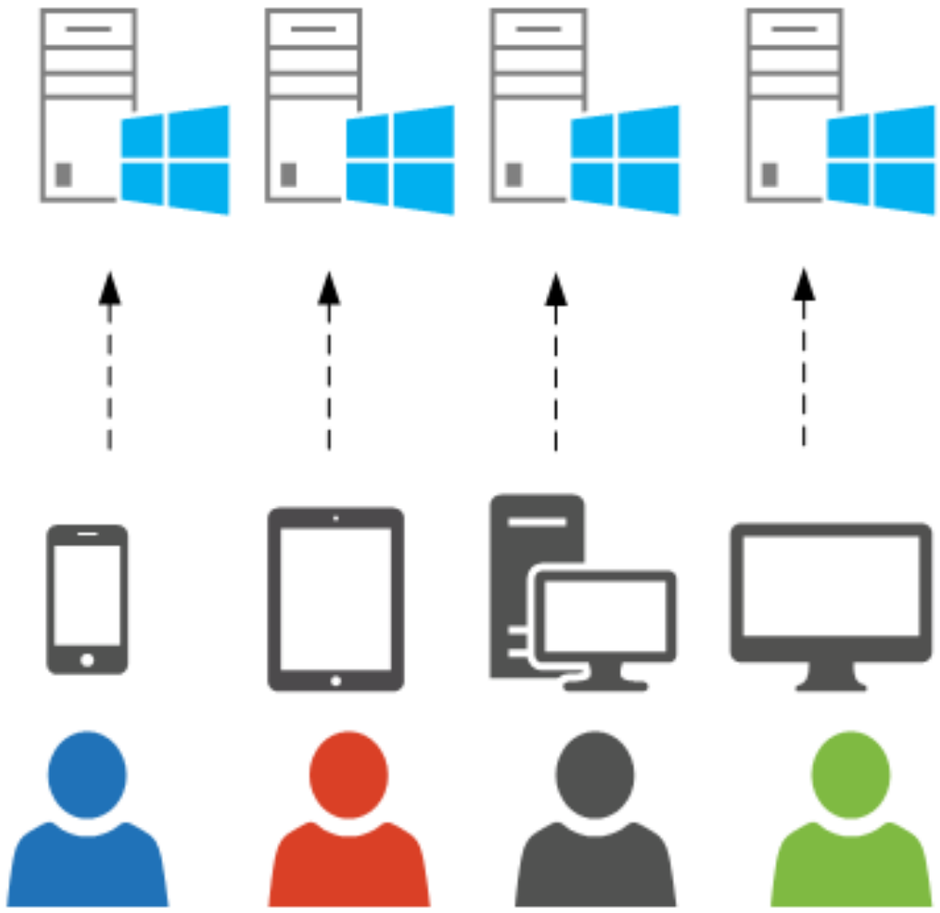
Pros:

- VM Benefits (i.e. snapshots, clones, linked clones etc…)
- Copy a file (albeit a large file) to deploy.
- Flexibility (multiple VMs can be configured with different software)
- No persistent network connection is required

Cons:

- High complexity for end-users
- Lack of centralised VM management tools
- Challenges around ensuring VMs are powered-on often enough to keep up-to-date with OS and Application updates.

Virtual Desktop Interface (VDI)



Remote provisioning:1 VM > 1 user

Virtual Desktop Interface (VDI)

Pros:

- VM Benefits
- Running client OS (Win 7, 8,10)
- Client Machines that are always on, always up to date
- Centrally run (i.e. We can log in at any time to troubleshoot or update)

Cons:

- Resource-intensive. 1VM = 1 session
- Cost (one Windows OS per user)
- Persistent network connection is required

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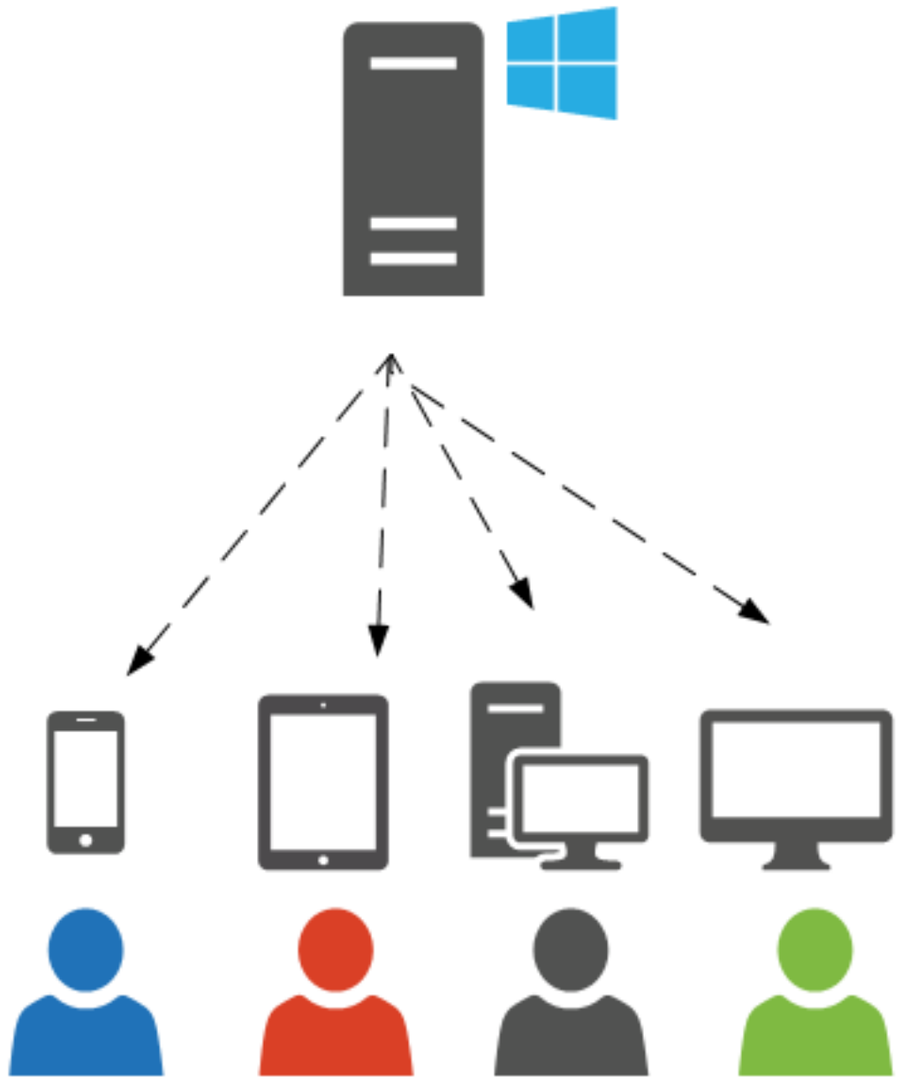
Remote Desktop Services (RDS)



Remote provisioning: 1 server > many users

Remote Desktop Services (RDS)

Pros:

- Efficient (1:many)
- Centrally managed.
- We have significant in-house experience running RDS hosts.

Cons:

- Server OS (does not run on client Operating Systems)
- Persistent network connection required
- High dependency (With RDS you may have 1 server that hosts 100 sessions!)

Implementation

Remote Desktop Services

- Server 2008 R2 > Windows 7
- Getting the right specs
- RDS Farm

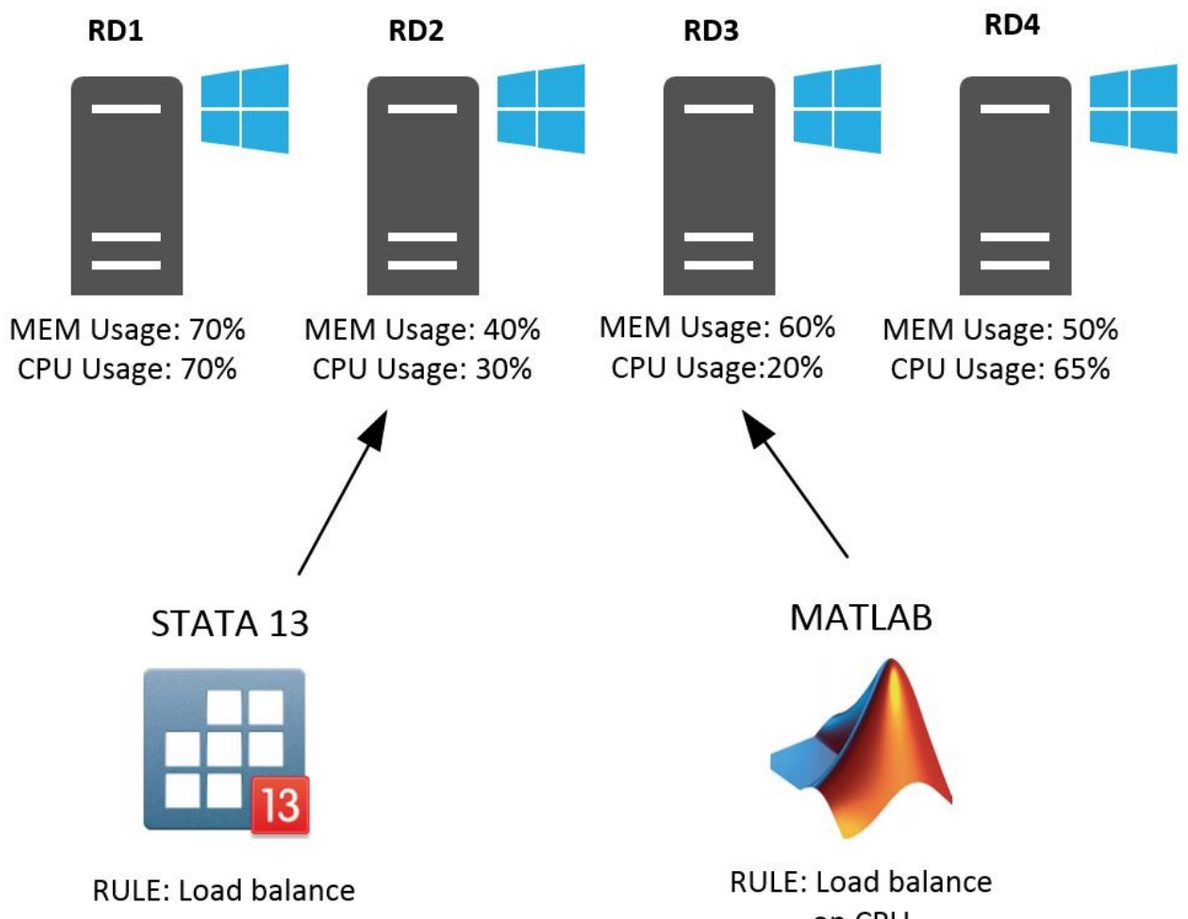
★ Have a test environment

Implementation

vWorkspace

Presentation Virtualisation management tool

- Connection-based load balancing per app



Implementation

vWorkspace

Presentation Virtualisation management tool

- Connection-based load balancing per app
- Advanced targeting
- Fully encrypted sessions
- Granular delegation
- Can present individual application to OS X
- Cross-platform client software

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LSE LAN / V2 DC

Trust

DMZ 3 (Software)

DMZ2 (Software)

DMZ 1

Internal / External

Clients

Broker Traffic 8080

8080 broker traffic

Broker Traffic 443

RDSH

SQL Cluster Service

Broker 8080

\\wsBrk1-t

\\wsbrk2-t

RDP Proxy 443

\\wsProxy1-t

\\wsProxy2-t

Web Server 443

\\wsweb1-t

\\wsweb2-t

Broker Proxy 443

\\wsbrkpRoxy1-t

\\wsbrkproxy2-t

LB \\Workspace \\SecureWorkspace 443,4443

\\lb1

\\lb2

Web 443 \\Workspace

RDP SSL 443 \\Secureworksapce

SecureWSB.lse.ac.uk

RDP SSL 443

RDP SSL 443

Web 443

Infinity

Slough DC

SunGard

TC2 DC

SunGard Televault

SunGard

LTC DC

Backup

Backup Replication

SunGard Televault

DS v1.1 04-08-2015

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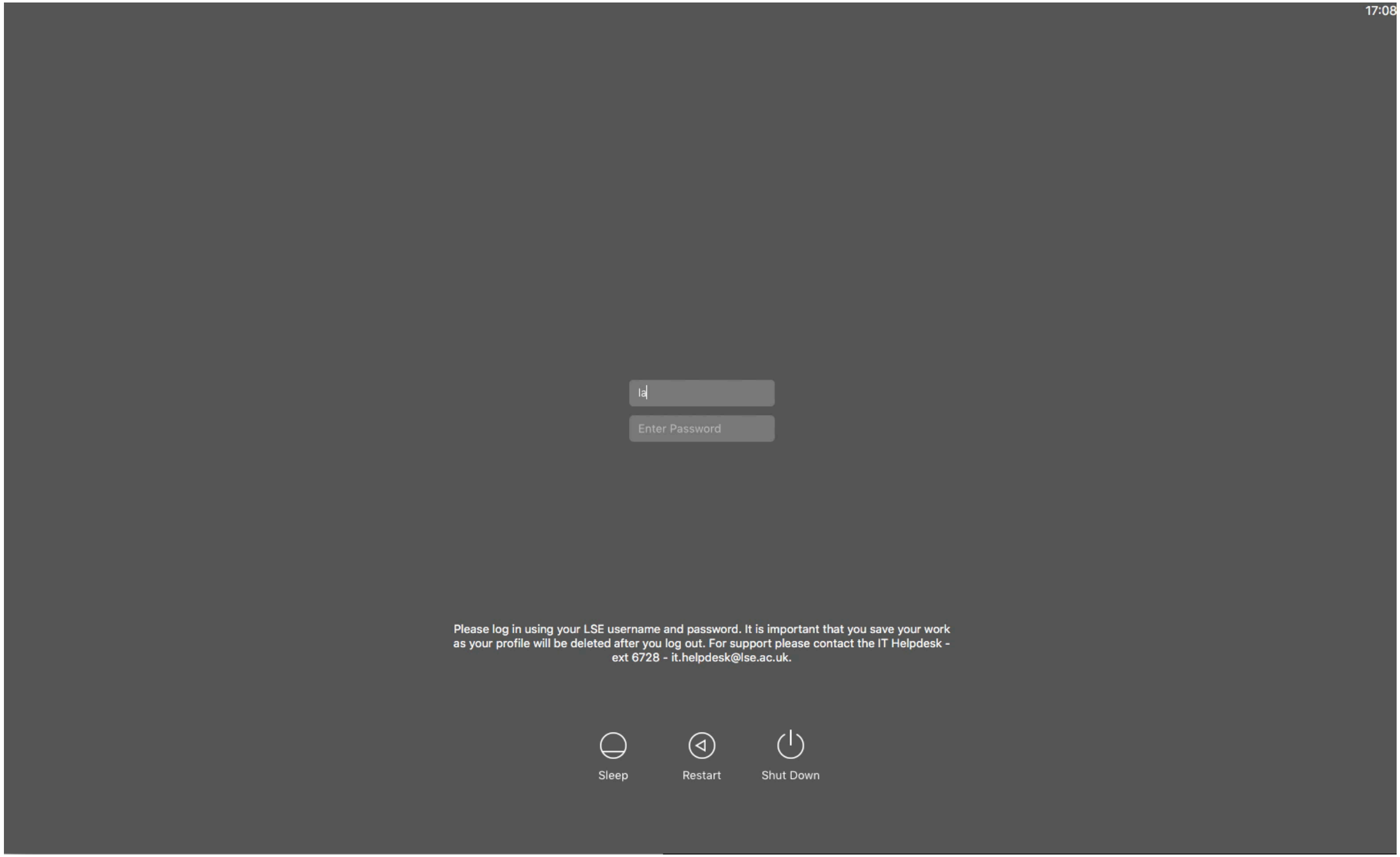

vWorkspace Demo

Challenges, unexpected problems & solutions

- Training software worked ok in RDS but not exam software > assigned smaller dedicated RD servers assigned per session
- File Sharing across platforms > Windows Home drive auto-mount & Dedicated Training shared drive auto-mounting on OS X & Windows
- Limited features with vWorkspace (Mac client) > set the Macs to restart at log out (fixed with most recent version of vWorkspace)
- UI complexity & visual “noise” > customised the desktop environments

Thank You!

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