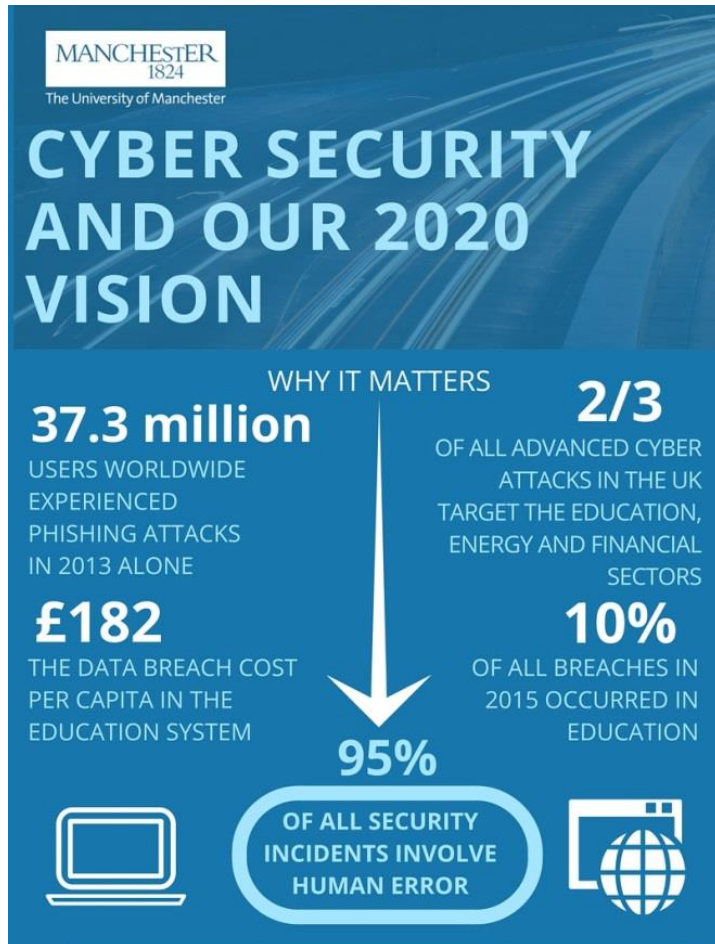


# **Two Factor Authentication (2FA) and network security zones at the University of Manchester**

**Mike Elliott  
Solutions Architect - Cyber**

# Cyber Security Programme Background



## TalkTalk

101K customers lost  
£60M costs

Birmingham student jailed  
for changing grades using  
stolen staff credentials



The FBI estimate  
ransomware will be a  
\$1 billion market this year

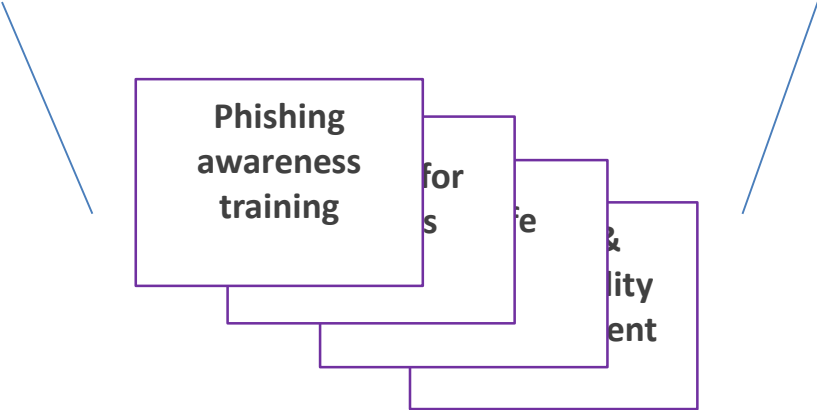


# Cyber Security projects



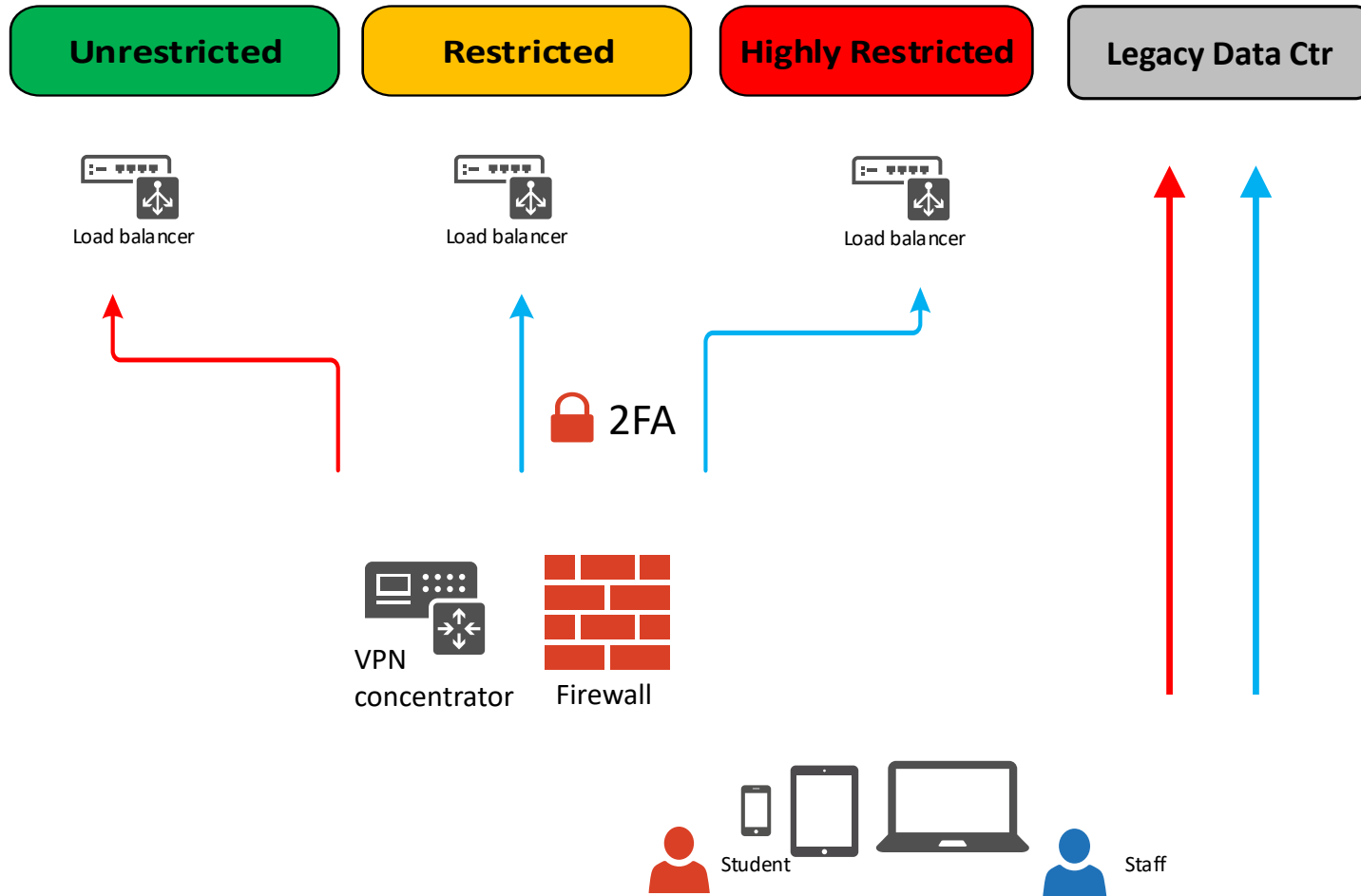
**Two Factor Authentication (2FA)**  
Strong(er) authentication to protect against credential theft

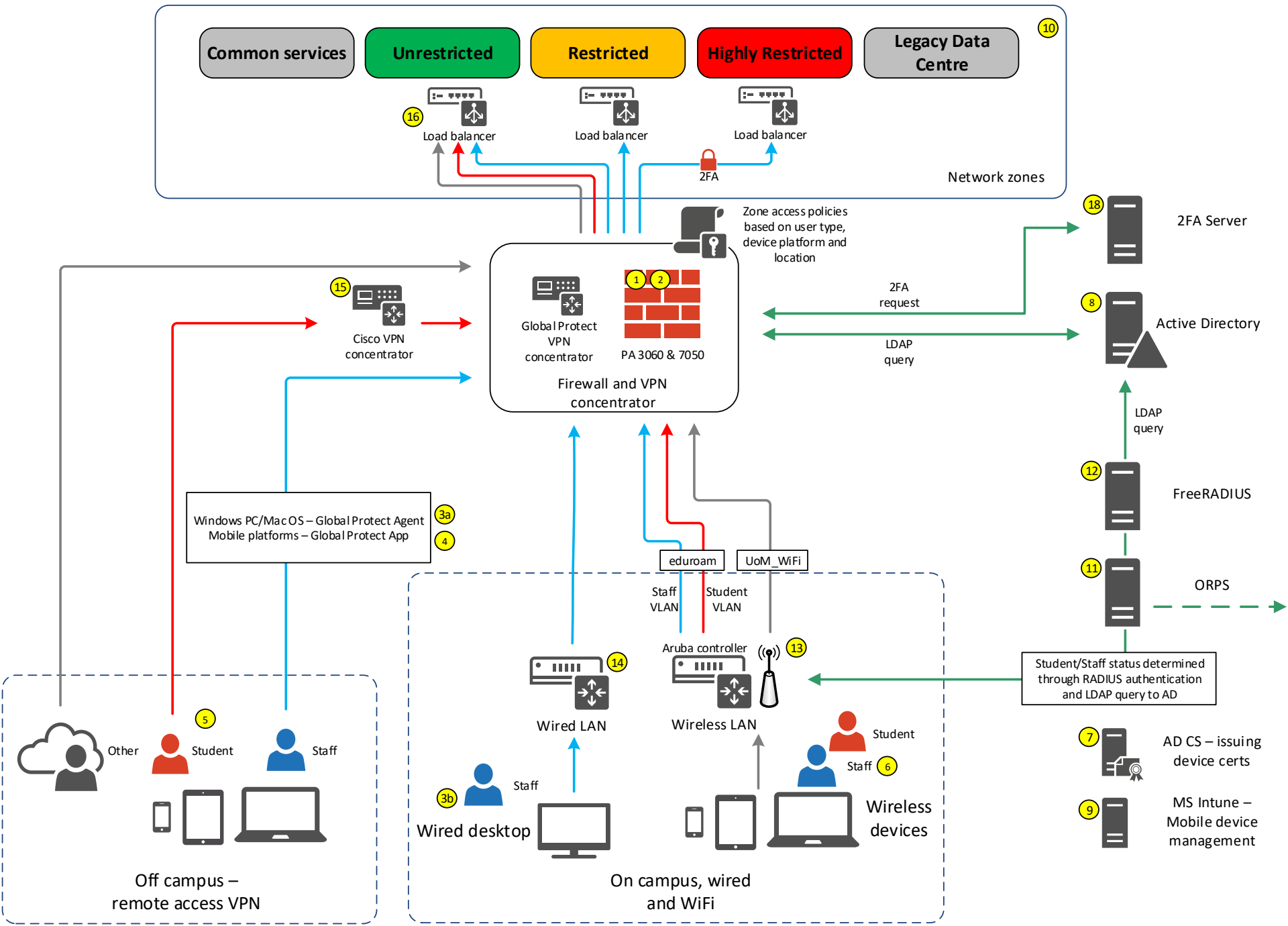
**Network Access Control (NAC)**  
Network zoning to segment systems based on information security classification



# Network Access Control (NAC)

# Network Access Control (NAC)





# Two factor authentication (2FA)

# What is it?

## Something you know

Password

## Something you have

Soft token (smartphone), hard token (fob), mobile phone etc.

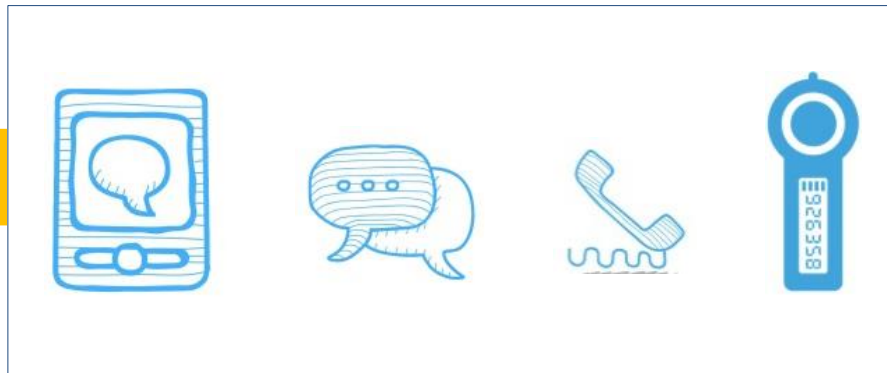
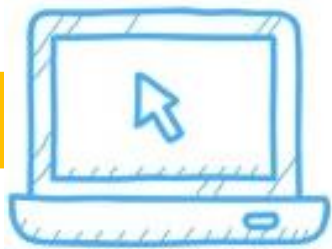


## Something you are

Biometric or behavioural characteristic  
e.g. fingerprint, iris scan, facial recognition



# How it works



**Something  
you know**

Enter password

**Something you have**

Respond to challenge prompt, provide code from Soft token (smartphone), hard token (fob), mobile phone etc.

**Done!**

# 2FA - Choosing what's right for you



## Smart phone on Android, iOS, Windows Phone

Tap 'Accept' on your  
smartphone

OTP code option can be  
used with no  
connectivity



## A traditional mobile phone

Use a text message or  
phone call to generate  
your passcode



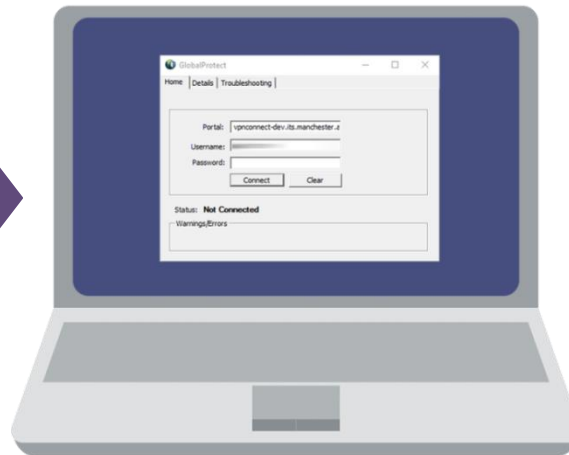
## Hardware token / keyfob

No connectivity required

# What will you see: Desktop



Login with username and password as usual



Log in to Global Protect (the virtual private network) when prompted using username and password

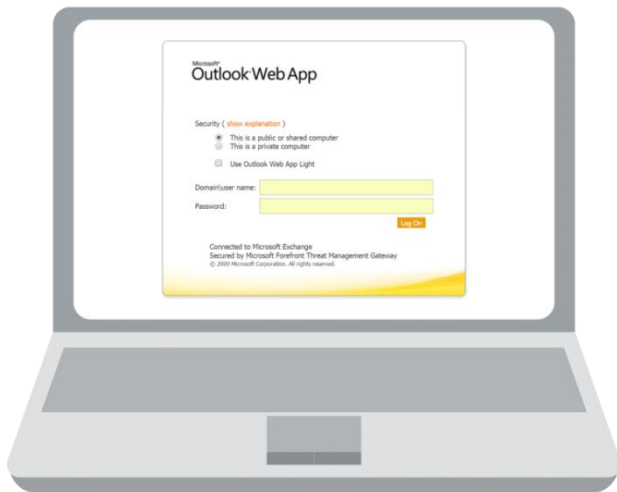


Authenticate with 2FA

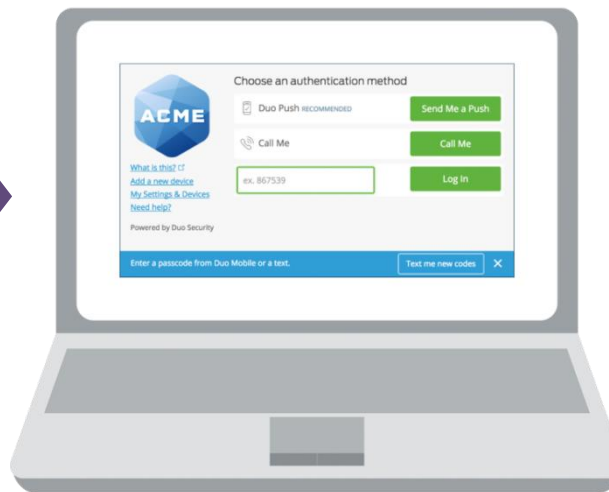


Access granted

# What you will see: Outlook Web App



Login with your username and password as usual

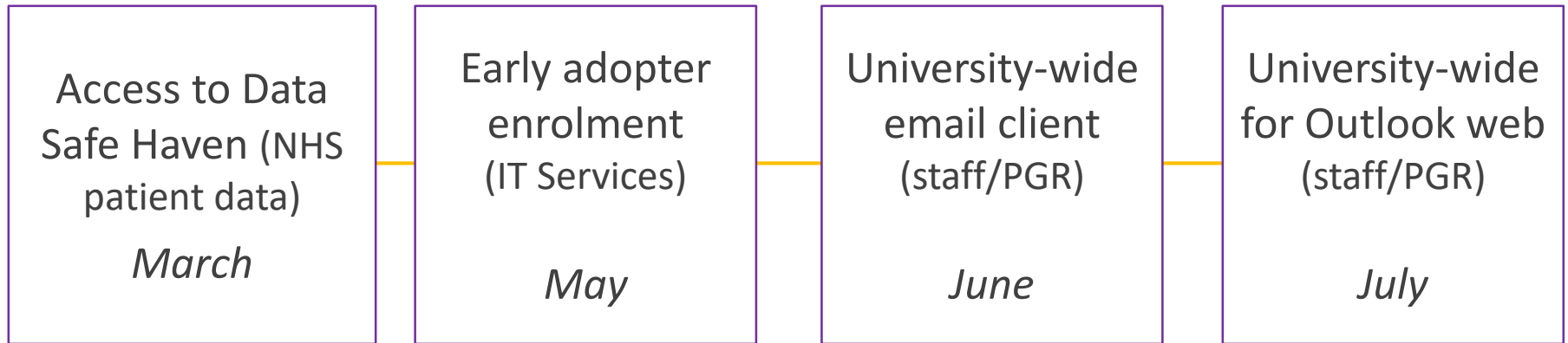


Choose authentication method

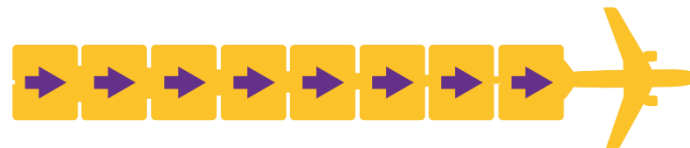


Authenticate using 2FA

# Timeline...



**FASTEN YOUR  
SEAT BELT  
AND COME  
FLY WITH US**



## Further information

Cyber security website

<http://www.itservices.manchester.ac.uk/cybersecurity/>

Mailing List

[csp@manchester.ac.uk](mailto:csp@manchester.ac.uk)

# Email and 2FA FAQs

## ➤ How many times will I need to use 2FA?

- At least once a day to access email – stay on for 12 hour period (TBC)
- No need to repeat if you use the same device and stay on campus (even if you move between buildings)
- Do need to 2FA again if you go home or leave campus
- Always need to use 2FA when using Outlook web application (OWA)

## ➤ What if I'm abroad with no network signal?

- Can use Duo mobile application 'OTP' codes, pre-generated SMS codes or key fob tokens

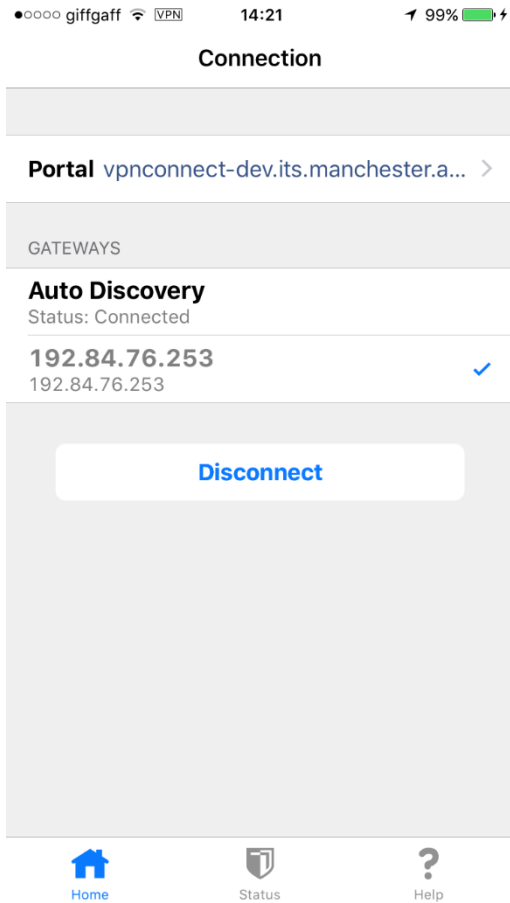
## ➤ Do I have to use 2FA on my ipad or mobile device?

- No if you're using the built-in mail application
- Yes if you're using OWA
- If you want to enrol a new device for ActiveSync email access you will need to use 2FA when you first set it up

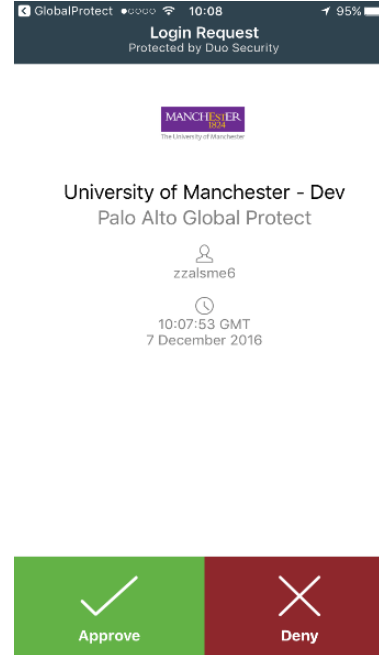
## ➤ What if I can't or don't want to use a mobile for 2FA or I don't want to incur costs (especially abroad)

- Use the key fob type device
- Smartphone users can use OTP for no cost
- For SMS delivery users are not typically charged for receiving SMS messages abroad
- Receiving Duo phone calls will depend on your contract
- Push notifications consume minimal data

## 1 – 'Always on' VPN connection



## 2 – 2FA prompt on initial connection





## 1 – Navigate to OWA web page

Microsoft®  
Outlook Web App

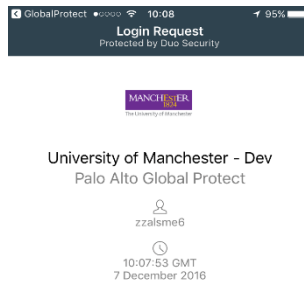
Security ( [show explanation](#) )

This is a public or shared computer  
 This is a private computer  
**Warning:** By selecting this option you acknowledge that the computer complies with your organization's security policy.

Use Outlook Web App Light

Domain\user name:


Password:



## 3 – 2FA push prompt

## 2 – Choose 2FA auth method

Choose an authentication method

 **ACME**

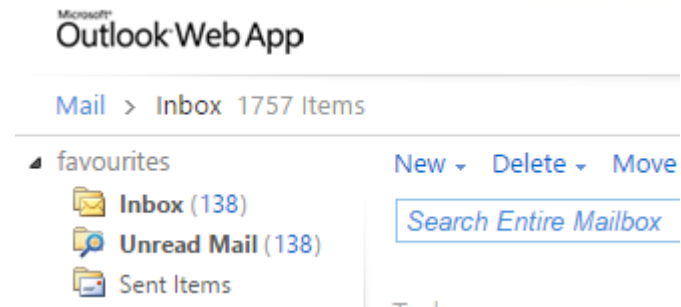
Duo Push RECOMMENDED

Call Me

[What is this?](#)  
[Add a new device](#)  
[My Settings & Devices](#)  
[Need help?](#)

Powered by Duo Security

Enter a passcode from Duo Mobile or a text.



## 4 – Access OWA email

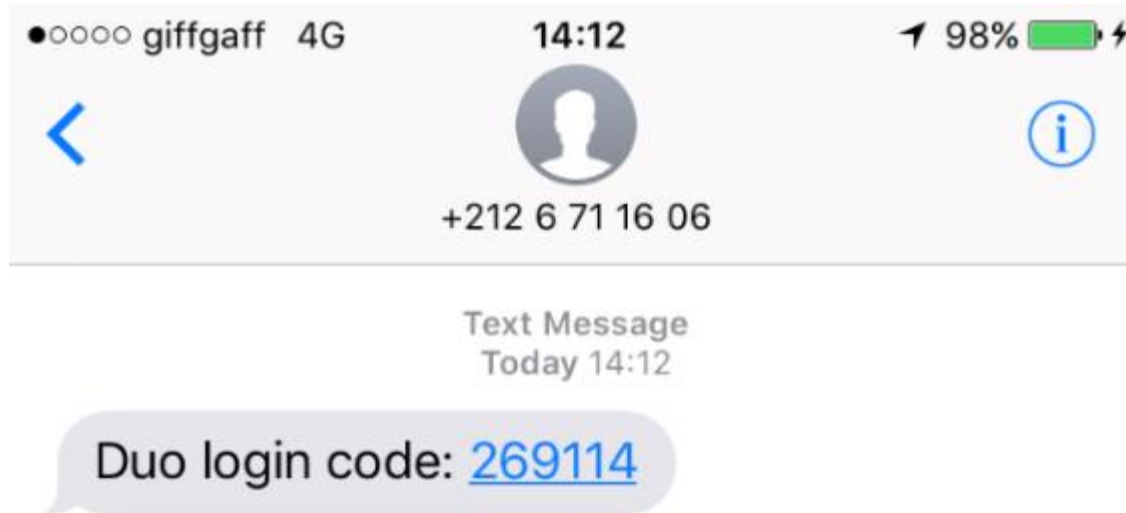
# Duo hard token



# Duo soft token app



# Duo SMS message



# Duo password substitution

Username:

Password:

G3PLK842AEaPT6v → Default to 'push' prompt

G3PLK842AEaPT6v,phone → Phone call

G3PLK842AEaPT6v,sms → Send OTP codes by SMS message

G3PLK842AEaPT6v,214569 → Authenticate user with OTP code

