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CYBER SECURITY OXFORD

CYBER RISKS: A (SOMEWHAT) TECHNICAL PERSPECTIVE

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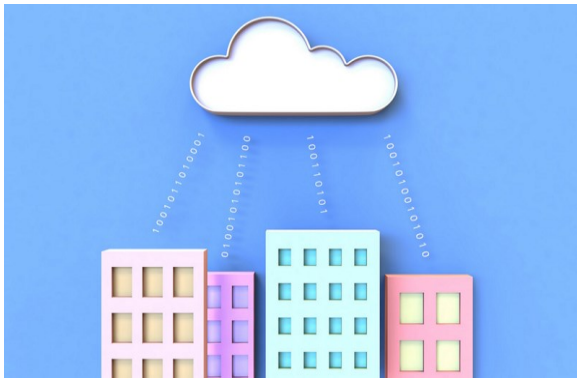
TODAY'S TECHNOLOGY LANDSCAPE



The Cloud – Storage, IAAS, SAAS

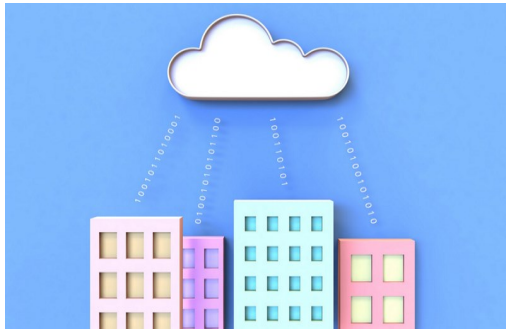
Big data & the analytics opportunities

Users and their devices

The wonderful world of IoT

THE ATTACK SURFACE – MANY RISKS

Data leaks via third-parties



Denial-of-service attack

Ransomware

Large hacks

The Cloud – Storage, IAAS, SAAS

Big data & the analytics opportunities

No current use of anti-virus

Device hardware compromise

Infected USBs

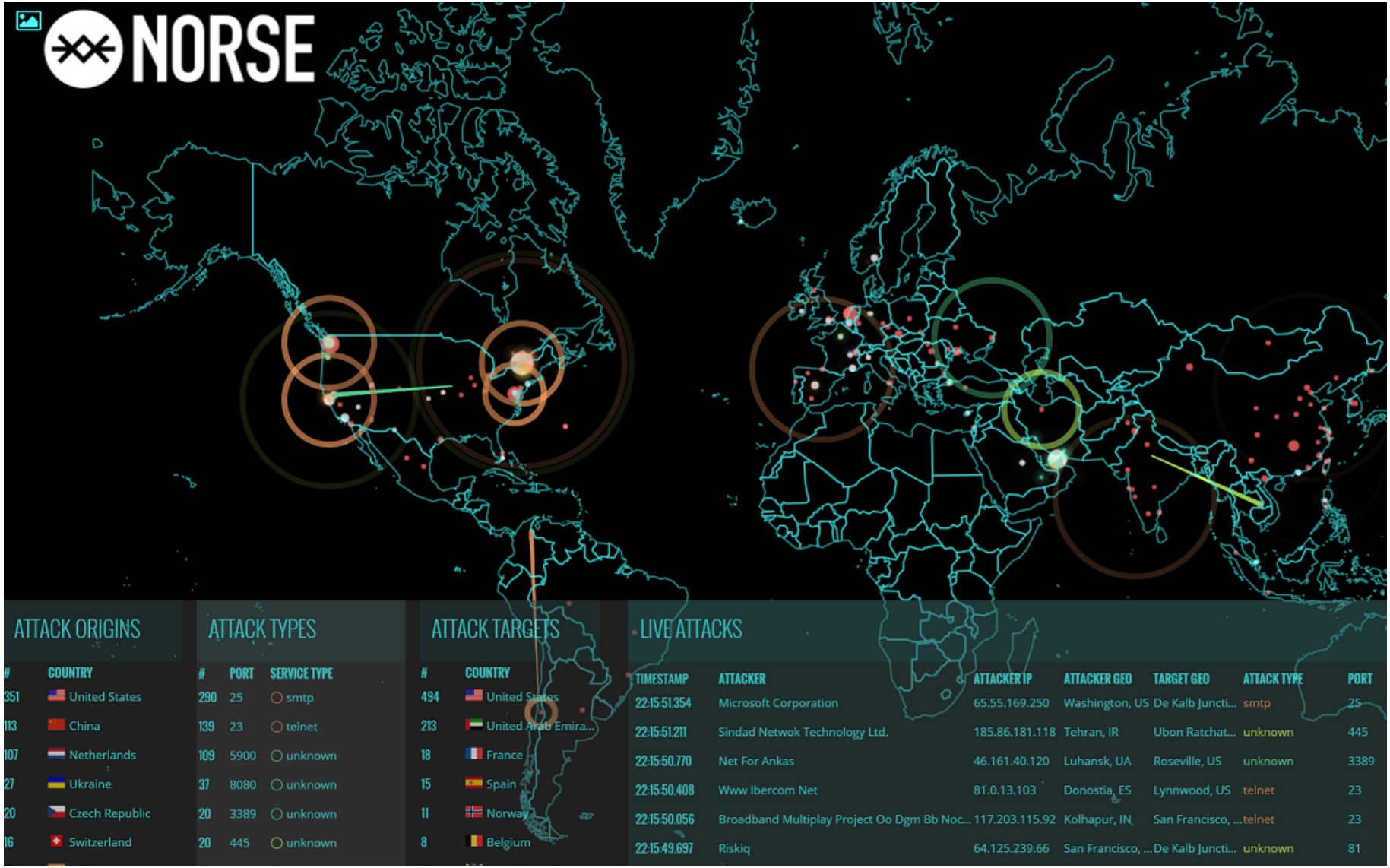
Ransomware

Network hacks

New malware strands

The wonderful world of IoT

Users and their many devices



http://map.norsecorp.com

TWO EXAMPLES...

The wonderful world of IoT

Users and their many devices

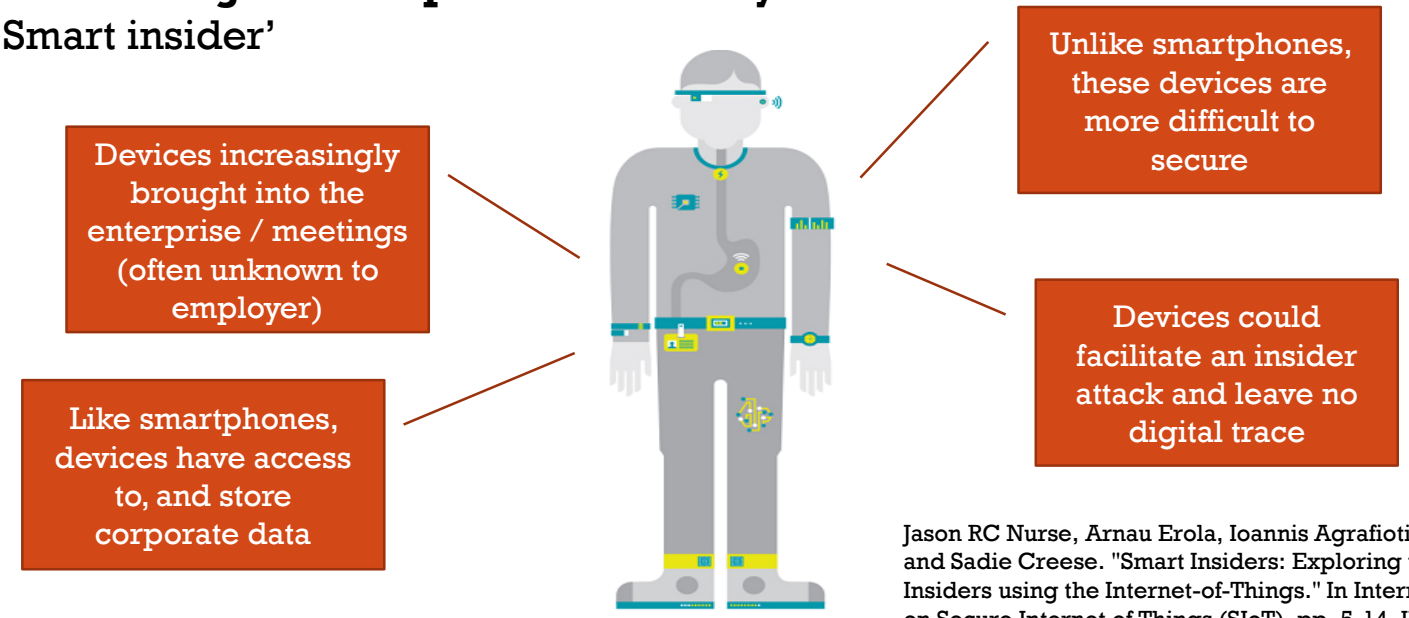
CYBER RISK IN IOT

Some key enterprise risks to consider:

- Disruption and denial-of-service attacks on organisation's IoT devices
- Understanding the complexity of IoT vulnerabilities & vulnerability management
- Identifying, implementing appropriate security controls

One of the largest enterprise risks in my mind:

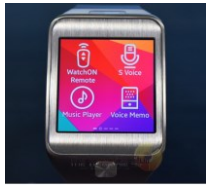
- 'Smart insider'

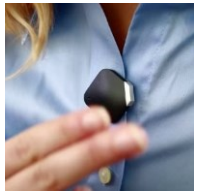


Jason RC Nurse, Arnau Erola, Ioannis Agrafiotis, Michael Goldsmith, and Sadie Creese. "Smart Insiders: Exploring the Threat from Insiders using the Internet-of-Things." In International Workshop on Secure Internet of Things (SIoT), pp. 5-14. IEEE, 2015. http://dx.doi.org/10.1109/SIOT.2015.10

CYBER RISK IN IOT: ATTACK VECTORS

AV1: Discrete audio recording attack





AV2: Discrete video recording attack

https://www.blackhat.com/us-14/briefings.html#my-google-glass-sees-your-passwords

AV3: Discrete backdoor installation / APT

http://www.tunnelsup.com/raspberry-pi-phoning-home-using-a-reverse-remote-ssh-tunnel

CYBER RISK VIA USERS

Most Cyber Attacks Due to Trick Emails, Errors, Not Sophisticated Hacking (Insurance Journal, 2015)

User mistakes aid most cyber attacks, Verizon and Symantec studies show (Reuters, 2015)

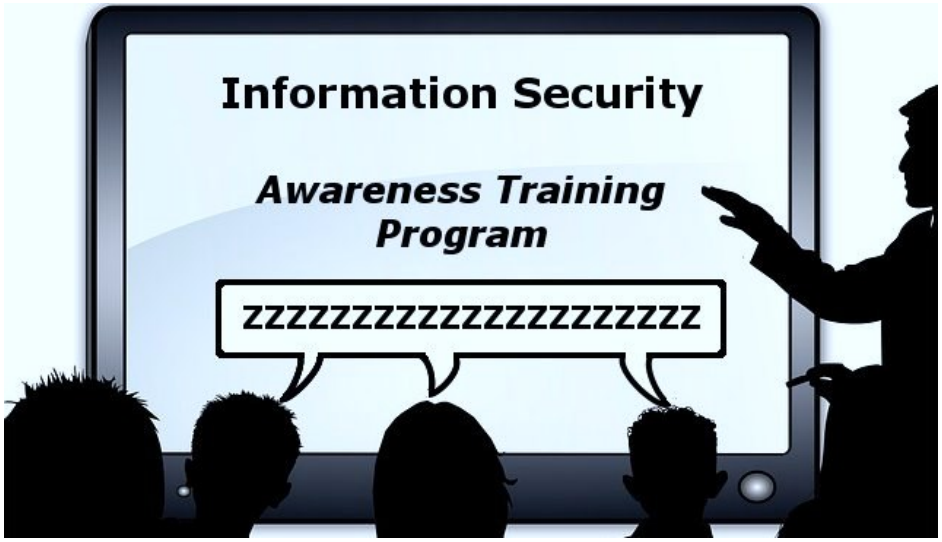
Spear Phishing: The Secret Weapon Behind the Worst Cyber Attacks (Clouldmark, 2016)

http://core0.staticworld.net/images/article/2016/01/hacker-hacked-power-grid-100638396-primary.idge.jpg

Ukrainian power grid hack started with a phishing attack

Sensitive credentials leaked live

USERS… HOW TO GET IT RIGHT?



https://media.licdn.com/mpr/mpr/AAEAAQAAAAAAAAIcAAAAJDkwZDBiNjRlLWZkMzItNDI0Yy1iODQ0LWZmOTU2MDMyNDc3Mg.jpg

Security awareness and training is critical, but still many outstanding questions:

- How often to train?
- Is it better to use the carrot or the stick?
- How to measure effectiveness?
- Building a cyber aware culture is key, but how can this be efficiently achieved?

Maria Bada, Angela M. Sasse, and Jason RC Nurse. "Cyber Security Awareness Campaigns: Why do they fail to change behaviour?." In International Conference on Cyber Security for Sustainable Society. pp. 118–131. 2015. http://www.cs.ox.ac.uk/files/7194/csss2015_bada_et_al.pdf

THERE WILL ALWAYS BE RISKS…

http://independentaudit.com/wp-content/uploads/2014/04/Its-Risky-were-managing-it.jpg

The key is in how they are managed!

THANKS FOR LISTENING!

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