RSA®Conference2019

San Francisco | March 4 – 8 | Moscone Center

BETTER.

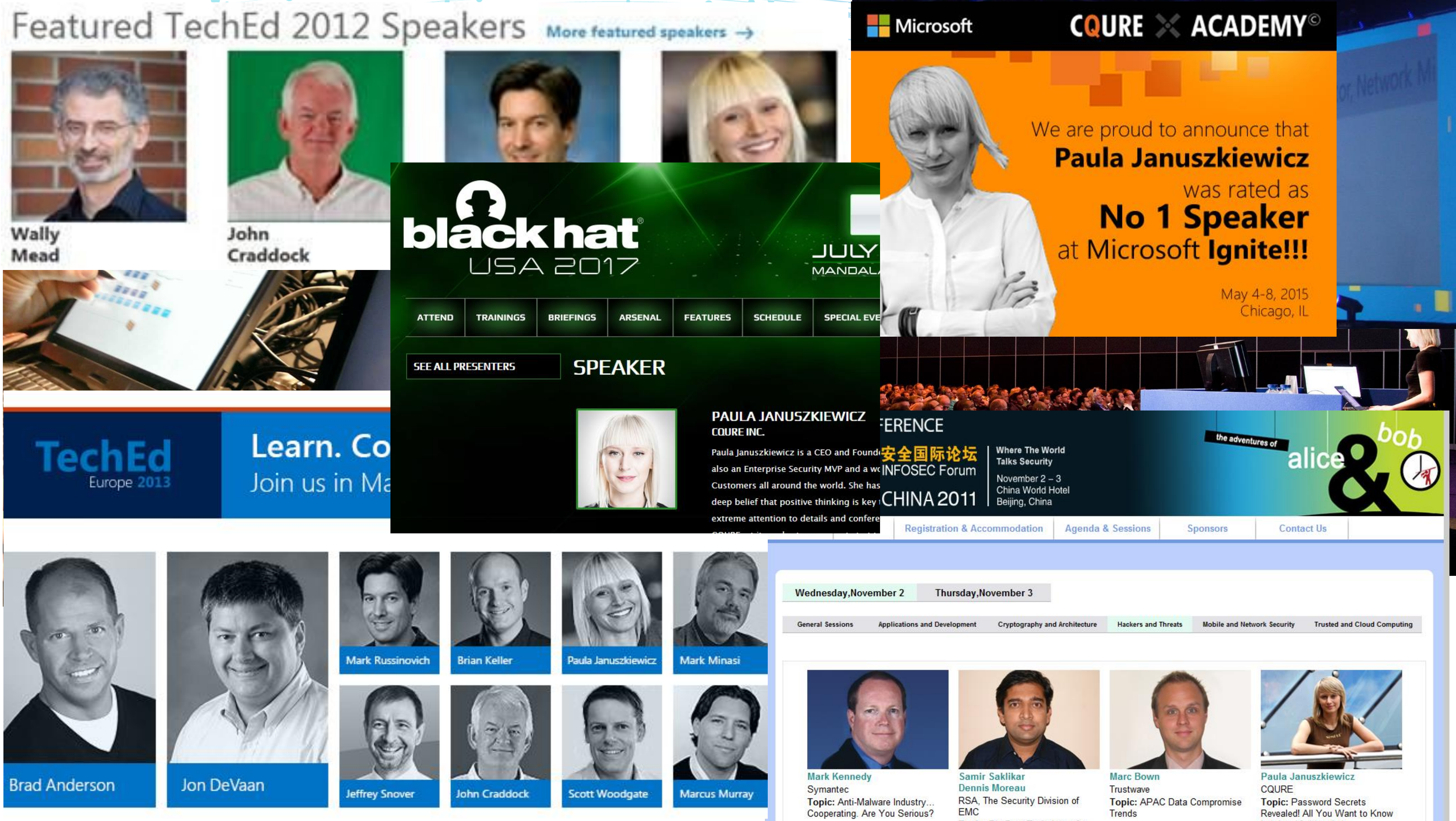
SESSION ID: KEY-T06S

Top 10 ways to make hackers excited: All about the shortcuts not worth taking

Paula Januszkiewicz

CQURE: CEO, Penetration Tester / Security Expert
CQURE Academy: Trainer
MVP: Enterprise Security, MCT
Microsoft Regional Director
Contact: paula@cqure.us | http://cqure.us

#RSAC



Featured TechEd 2012 Speakers More featured speakers →

Wally Mead

John Craddock

black hat USA 2017

JULY MANDAL

ATTEND TRAININGS BRIEFINGS ARSENAL FEATURES SCHEDULE SPECIAL EVE

SEE ALL PRESENTERS

SPEAKER

PAULA JANUSZKIEWICZ
CQURE INC.

Paula Januszkiewicz is a CEO and Found
also an Enterprise Security MVP and a wo
Customers all around the world. She has
deep belief that positive thinking is key
extreme attention to details and confere

Microsoft CQURE ACADEMY©

We are proud to announce that **Paula Januszkiewicz** was rated as **No 1 Speaker** at Microsoft **Ignite!!!**

May 4-8, 2015
Chicago, IL

FERENCE
安全国际论坛
INFOSEC Forum
CHINA 2011

Where The World Talks Security

November 2 – 3
China World Hotel
Beijing, China

the adventures of alice & bob

Registration & Accommodation | Agenda & Sessions | Sponsors | Contact Us

Wednesday,November 2 | Thursday,November 3

General Sessions | Applications and Development | Cryptography and Architecture | Hackers and Threats | Mobile and Network Security | Trusted and Cloud Computing

Mark Kennedy
Symantec
Topic: Anti-Malware Industry... Cooperating. Are You Serious?

Samir Saklikar
Dennis Moreau
RSA, The Security Division of EMC

Marc Bown
Trustwave
Topic: APAC Data Compromise Trends

Paula Januszkiewicz
CQURE
Topic: Password Secrets Revealed! All You Want to Know

TechEd Europe 2013

Learn. Co
Join us in Ma

Brad Anderson | Jon DeVaan | Mark Russinovich | Brian Keller | Paula Januszkiewicz | Mark Minasi

Jeffrey Snover | John Craddock | Scott Woodgate | Marcus Murray

Technical systems are:

Reviewed

Scanned

Penetration Tested

So?

1st Way: Disabling firewall

Key learning points:

- ✓ Windows Firewall is often misconfigured
- ✓ Firewall is a great segmentation tool
- ✓ You can allow only certain processes to communicate with the Internet or locally
- ✓ No need to know processes to block them, you can operate on the services list

In Windows Firewall there are couple of things missing:

- x Filtering by the group of computers
- x Detailed logging for network traffic
- x Expandability – there are not many options
- x No correlation in between process and network traffic – whose role is this?

Demo: Amplification

2nd Way: Overly simple passwords and security questions

Key learning points:

- ✓ Almost always there are passwords reused
- ✓ Almost always (ekhm… always) there is some variant of company name and some number (year, month etc.)
- ✓ It makes sense to check for obvious passwords and continuously deliver security awareness campaigns

Typical password locations

NTDS.dit, SAM

Configuration files

Registry

Memory dumps, Hiberfil.sys

Databases (DPAPI ?)

Demo: Simple checks needed

3rd Way: No network segmentation

Key learning points:

✓ Network segmentation can be a blessing or a curse

✓ Greater control over who has access to what

✓ Allows to set rules to limit traffic between each distinct subnet

✓ Allows to reduce exposure to security incidents

✓ Performance: allows to reduce Broadcast Domains so that broadcasts do not spread on the entire network

X VLANs limit – only 4094 different VLANs for the same network

X Security limits – geo locations vs. ATM clouds

X Managerial overhead

No-brainer or unseen network security threat?

Demo: ARP Spoofing on Windows

4th Way: Lack of SMB Signing (or alternative)

Key learning points:

✓ Set SPNs for services to avoid NTLM:

SetSPN –L <your service account for AGPM/SQL/Exch/Custom>

SetSPN –A Servicename/FQDN of hostname/FQDN of domain domain\serviceaccount

✓ Reconsider using Kerberos authentication all over

https://technet.microsoft.com/en-us/library/jj865668.aspx

✓ Require SPN target name validation

Microsoft network server: Server SPN target name validation level

✓ Reconsider turning on SMB Signing

✓ Reconsider port filtering

✓ Reconsider code execution prevention but do not forget that this attack leverages administrative accounts

Demo: SMB Relay

5th Way: Allowing unusual code execution

Key learning points:

Common file formats containing malware are:

- ✓ **.exe** (Executables, GUI, CUI, and all variants like SCR, CPL etc)
- ✓ **.dll** (Dynamic Link Libraries)
- ✓ **.vbs** (Script files like JS, JSE, VBS, VBE, PS1, PS2, CHM, BAT, COM, CMD etc)
- ✓ **.docm, .xlsm** etc. (Office Macro files)
- ✓ *.other (LNK, PDF,* PIF, *etc.)*

If **SafeDllSearchMode** is enabled, the search order is as follows:

1. The directory from which the application loaded
2. The system directory
3. The 16-bit system directory
4. The Windows directory
5. **The current directory**
6. The directories that are listed in the PATH environment variable

Demo: Sneaky code runs

6th Way: No whitelisting on board

Key learning points:

✓ Code execution prevention implementation is a must

✓ PowerShell is an ultimate hacking tool, possible solutions: block it for users, use Just Enough Administration etc.

✓ Verify where users have write access to: *accesschk.exe –w .\users c:\windows*

✓ AppLocker can run in the audit mode

x AppLocker is great but not with the default configuration

Machine learning for threat protection:

✓ Modern solutions are capable of machine learning but it takes time

✓ Modern solutions are quire easy to implement bur require a lot of understanding of what do they actually do – your call

Demo: Shares under pressure

7th Way: Old protocols or their default settings

Key learning points:

- ✓ SNMPv3 addresses: user-based system for access control, a means to properly authenticate users, and a method for encrypting SNMP traffic between agent and host
- ✓ SQL issues – TDS provides by default lack of encryption
- ✓ ODBC Driver – check if it has a secure networking layer built into it

NTLMv1 / NTLMv2

- ✓ Security Options in GPO allow to monitor where NTLM is used
- ✓ General direction is to get rid of NTLM

SSL / TLS

- ✓ TLS v1.3 is still an Internet Draft
- ✓ SSL 2.0 and 3.0 have been deprecated by the IETF (in 2011 and 2015)
- ✓ Disable SSL 2.0 and 3.0, leaving only TLS protocols enabled

Demo: Injection for TDS + downgrade attack

8th Way: Trusting solutions without knowing how to break them

Key learning points:

- ✓ The best operators won't use a component until they know how it breaks.
- ✓ Almost each solution has some ‘backdoor weakness’
- ✓ Some antivirus solutions can be stopped by SDDL modification for their services
- ✓ Configuration can be monitored by Desired State Configuration (DSC)
- ✓ DSC if not configured properly will not be able to spot internal service configuration changes

Example: how to I get to the password management portal?

Demo: Sysmon Under Pressure

9th Way: Misusing service accounts + privileged accounts

Key learning points:

- ✓ gMSA can also be used for the attack
- ✓ Service accounts' passwords are in the registry, available online and offline
- ✓ A privileged user is someone who has administrative access to critical systems
- ✓ Privileged users have sometimes more access than we think (see: SeBackupRead privilege or SeDebugPrivilege)
- ✓ Privileged users have possibility to read SYSTEM and SECURITY hives from the registry

Warning! Enabling Credential Guard blocks:

- x Kerberos DES encryption support
- x Kerberos unconstrained delegation
- x Extracting the Kerberos TGT
- x NTLMv1

Demo: Service Accounts + Passwords

10th Way: Falling for hipster tools

Key learning points:

- ✓ Worldwide spending on information security is expected to reach **$90 billion in 2017**, an increase of **7.6 percent over 2016**, and to top $113 billion by 2020, according to advisory firm Gartner
- ✓ With increasing budget the risk of possessing hipster tools increases too – do we know where these tools come from and what are their security practices?
- ✓ Lots of solutions where not created according to the good security practices (backup software running as Domain Admin etc.)
- ✓ Each app running in the user's context **has access to secrets** of other apps – Data Protection API
- ✓ Case of CCleaner

Demo: KeePass Under Pressure

Summary: 10 ways to make hackers happy

Short term

Isolate infrastructure components so that in case of attack they prevent spreading

Engage with the network security guys

Review servers' and workstations' configuration periodically

Medium term

Put on the Hacker's Shoes

External + Internal + Web Penetration tests

Configuration reviews

Long term

Prevention and Vulnerability Management

Start implementing the monitoring and execution prevention

RSA®Conference2019

Thank you!

RSAConference2019

San Francisco | March 4 – 8 | Moscone Center

BETTER.

SESSION ID:

Top 10 ways to make hackers excited: All about the shortcuts not worth taking

Paula Januszkiewicz

CQURE: CEO, Penetration Tester / Security Expert
CQURE Academy: Trainer
MVP: Enterprise Security, MCT
Microsoft Regional Director
Contact: paula@cqure.us | http://cqure.us