cisco life!

GO BEYOND

Agenda

- 1400 OT War Stories
- 1445 Capture The Flag: a playful way into Cybersecurity
- 1530 Introduction to Splunk
- 1550 iTalents: Boosting your career
- 1605 Awards
- 1620 Closing Notes
- 1630 Conference Visit

1830 Cisco Live Celebration

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OT War Stories

Tijl Deneut Security Engineer and Teamlead Security – EBO Enterprises





Tijl Deneut, Security Engineer and Teamlead Security

Over 10 years of experience in IT-Security, i.e. as a Certified Ethical Hacker and with a strong focus on Industry 4.0, ICS and Industrial network security. Was and is still active as a guest professor for Howest and Ghent University.









Ostend

Ypres

- + 20 years of experience
- Delivering Trust for your Critical Business
- 24/7 Service Center
- Organized around
 - ISO 9001
 - ISO 27001
 - ISO 45001
 - IEC 62443

Headquarters Belgium

Offices Germany France UK



Delivering services in 300+ locations across Europe

How do we secure?

Industrial cybersecurity

- Industrial Security Assessments
- OT security solutions
- Structured & measurable Security strategy
- Highly Intelligent and automated technologies
- SOC services also for Industrial security systems
- Team of Industrial Cyber security Experts

OT Security solutions

- OT EDR
- OT NDR
- Intelligent network design
- Remote Access control
- Disaster Recovery solutions
- OT Asset management

Structured & measurable Security Strategy

- Gain control over the security in your production facility
- Online Security Control platform for all your systems
- Manage your security in a structured way
- Constantly measure your Security Protection level



We integrate



Hyper Converged Infrastructure in a virtualized environment

All-in one cybersecure solution for digitalization of the OSS

Health monitoring & control system

Peace of mind during commissioning

According IEC 62443 - ISO 27001 - NIS2 ready

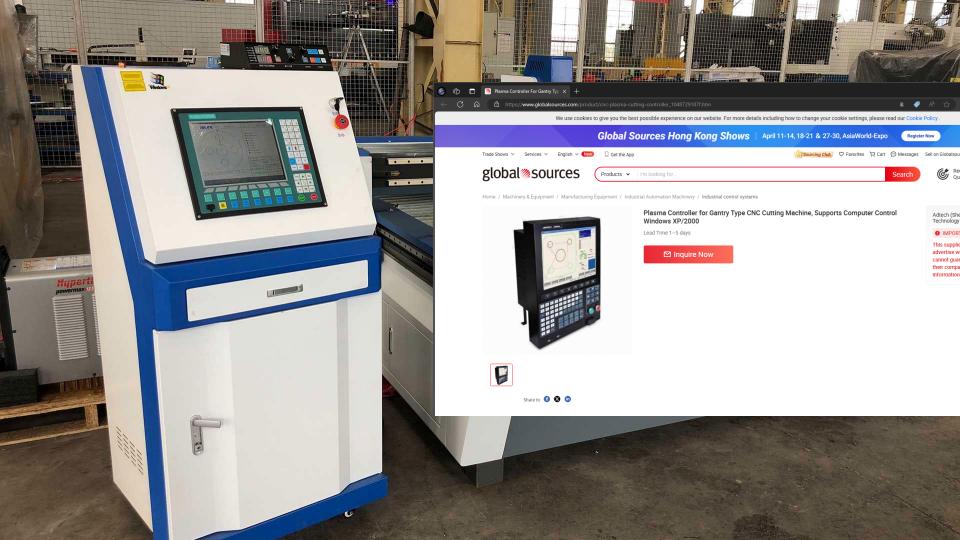
Supported by offshore experienced GWO certified engineers



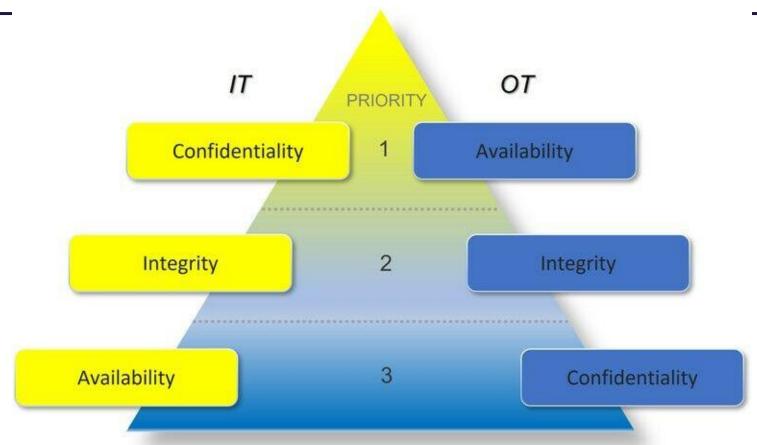








CIA / AIC





OT: The 24/7/365 problem

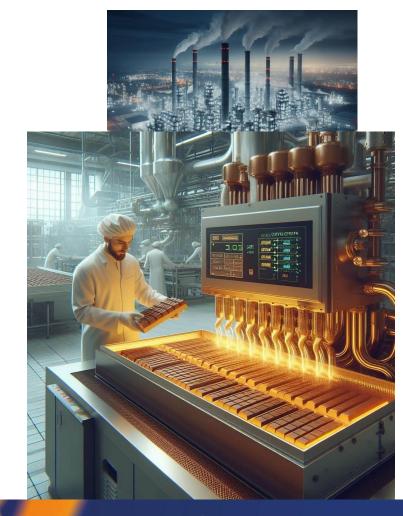
OT is active 24/7, anything that might disturb this idea is a **no-go** in industrial environments

→ Many production facilities have a whole chain of systems interacting and building on each other

A small disturbance might cause this chain to come to a halt and force a restart of the production; sometimes taking days

- Reboots?
- Production changes?
- Just changing a small configuration that requires the device to reboot?

Often, anything that requires the system to be offline for even a minute, is not allowed

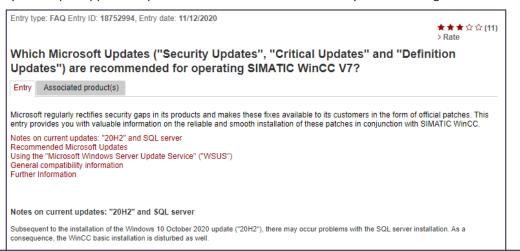


The update problem

В

Some updates might just break your production

For example: Siemens only allows pre-approved updates to be installed on Windows systems running their software.



	Knowledge	Security	Microsoft Description	Microsoft Product	Released	Test Status	Test Result	Comment
1	Base	Bulletins			(dd.mm.yyyy)			
2	KB4524570	-	Windows 10 Version 1909 Update KB4524570, "•Updates to improve security when using Internet Explorer and Microsoft Edge" (https://support.microsoft.com/en-us/help/4524570/windows-10-update- kb4524570)	Windows 10 Version 1903, 1909	12/11/2019	not approved	Open	Avoid installation until further notice
3	KB4480970			Windows 7 SP1 and Windows Server 2008 R2	8/01/2019	not approved	Failed	solved with KB4487345 from January 11, 2019 (see also https://support.microsoft.com/en-us/help/4487345)
4	KB4056888				3/01/2018	not approved	Failed	
5	KB4056890				3/01/2018	not approved	Failed	

D

G

The update problem

Some updates might just break your vendor support.

For example: Siemens only allows pre-approved updates to be installed on Windows syste



Software compatibility tool: https://support.industry.siemens.com/compatool/ →

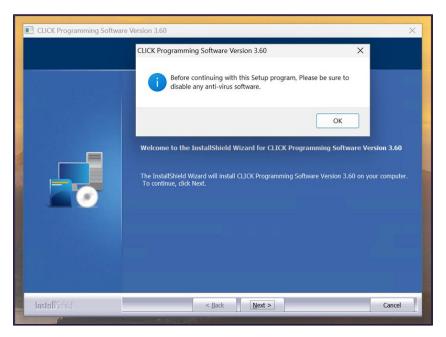
Selected: WinCC RT Adv v12SP1

- Further Products
 - + Browser
 - + Printer
 - + Network Cameras
 - OPC
 - + PDF
 - + Remote Software
 - Application Whitelisting
 - > McAfee
 - Backup and Restore
 - Virus Scanner
 - Trend MICRO
 - > Trend MICRO Enterprise Security V10.x for Endpoints
 - > Trend MICRO OfficeScan
 - Trend MICRO ServerProtect
 - > Trend MICRO OfficeScan NT
 - > Trend MICRO OfficeScan Client-Server Suite
 - > McAfee
 - > Symantec
 - Kaspersky
 - > 360 Total Security
 - > Microsoft Windows Defender
 - Virtualization
 - > VMware
 - > Microsoft Hyper-V
 - > virtual Hardware (vHW)
 - > HP HOST (Virtualization Server)
 - Encryption Software
 - > Utimaco SafeGuard Easy
 - > Microsoft Bitlocker
 - + Oracle
 - > PKZIP
 - ▶ DCE77Client

The AV problem

Some software is just not meant to work together

E.g., installing PLC Programming software in 2025 be like →



This is a popular, Free PLC Programming Software (source), with the latest release on Sep 11, 2024

The legacy problem

Some Operating Systems are outdated and/or break your vendor support

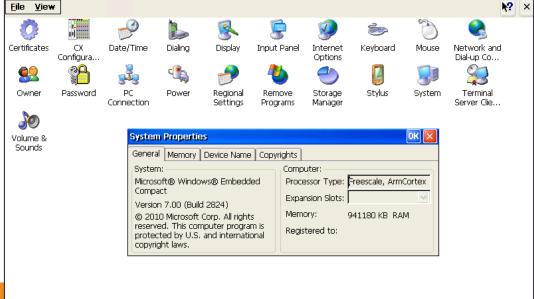
Rockwell Automation Compability	RSLogix 5000	RSLogix 5000	RSLogix 5000	RSLogix 5000	Studio 5000 Logix Designer
	14.01.00	18.02.00	19.01.01	20.01.01	21.03.02
Windows 7 Enterprise SP1 32-bit		8		②	
Windows 7 Enterprise SP1 64-bit		8			
Windows 7 Home Premium (32-bit)		8		②	
Windows 7 Home Premium (64-bit)		8	②	②	
Windows 7 Home Premium SP1 32-bit					②
Windows 7 Home Premium SP1 64-bit					
Windows 7 Professional (32-bit)		8			
Windows 7 Professional (64-bit)		8		②	
Windows 7 Professional SP1 (32-bit)		8			
Windows 7 Professional SP1 (64-bit)		8			②
Windows 7 Ultimate SP1 32-bit	•		1	1	()
Windows 7 Ultimate SP1 64-bit					•
Windows 8 (home) 32-Bit		8	8	8	()
Windows 8 (home) 64-Bit		8	8	8	
Windows 8 Enterprise 32-Bit		8	8	8	
Windows 8 Enterprise 64-Bit	•	8	8	8	()
Windows 8 Professional 32-Bit		8	8	8	
Windows 8 Professional 64-Bit	•	8	8	8	()
Windows 8.1 Enterprise 32-Bit		8	8	8	
Windows 8.1 Enterprise 64-Bit		8	8	8	()
Windows 8.1 Professional 32-Bit	•	8	8	8	0
Windows 8.1 Professional 64-Bit	()	8	8	8	0
Windows Vista Business (32-bit)	•	②	②	②	0
Windows XP Pro (32-bit)	•	⊗	€3	8	8
Windows XP Pro SP1 (32-bit)	•	8	8	8	8
Windows XP Pro SP2 (32-bit)	1	3	8	8	8
Windows XP Pro SP3 (32-bit)	0	O	O	O	8

The legacy problem²

Many Operating Systems that are shipped on PLC's are outdated

E.g., The cheapest Industrial and Panel PC's from Beckhoff that are being shipped today, run Windows Compact Embedded

Which is outdated and filled with vulnerabilities



OT Security Mitigations



OT Security The difficulties



Example OT / ICS / Industrial / Factory layout



In modern age, everything is connected

Not all network traffic originates from the IT department

Example issues

- External machines (suppliers) cannot be trusted
 (4G, VPN, maintenance ...)
- Human mistakes occur (bring-your-own-virus)
- Engineers take the easy route by adding network devices (shadow IT)
- ...
- → Visibility is needed,Endpoint Protection alone is not enough



OT Network Security



The IEC 62443-1-1 Purdue Model

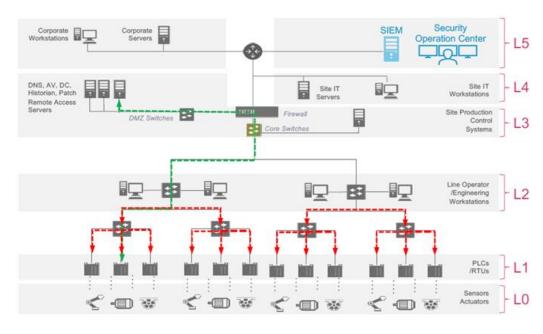
An industrial network is rarely simple

And so does increasing its security, it seems

And so does **convincing** the OT engineers

For example: how do you protect an environment you are not "allowed" to touch?

(One of the) answers: Network Intrusion Detection



---- IT Traffic: NTP, DNS, SNMP, etc.

OT Traffic: variables and commands between PLCs, and PLCs and HMIs. Diagnostics, configuration commands from Engineering workstations and PLCs



OT Network IDS

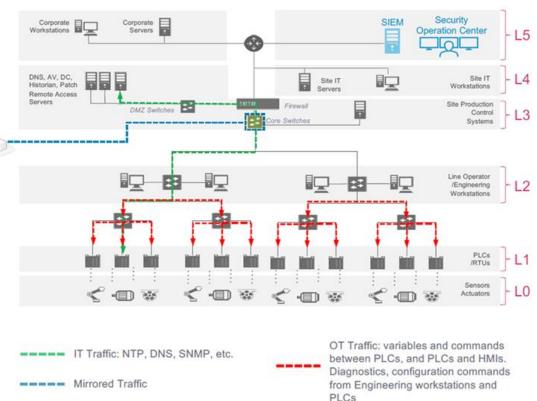


The Purdue Model

A mirror port is configured on the switch, sending a copy of all traffic passing through the switch to the network monitoring device.

Strong points for this approach:

- Very limited actions are required. No change in network layout nor devices nor production settings is required.
- We are working on a copy of the traffic. There is (close to) zero chance of interruption
- Has several non-security upsides too:





OT Network Visibility

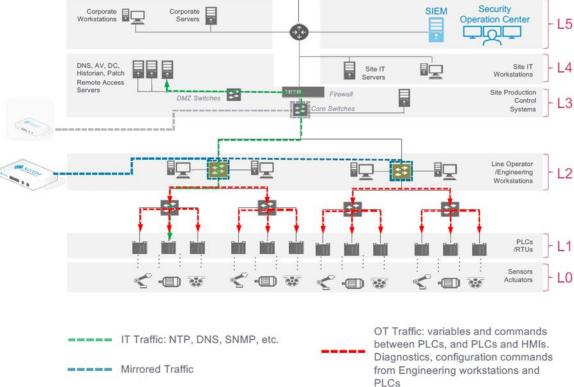


The Purdue Model



Excellent but limited inventory / visibility

→ OT/upper layers plus Operator layer is visible





OT Network Visibility



The Purdue Model



Excellent with full inventory / visibility

Global Nozomi CMC Security SIEM Corporate Servers Corporate Workstations **Operation Center** L5 (optional) DNS, AV, DC, L4 Site IT Site IT Historian, Patch Workstations Remote Access Servers Site Production DMZ Switches ore Switches Systems Line Operator ----/Engineering Workstations Sensors LO Actuators

→ Note: these boxes can also be collectors forwarding

the traffic to a central box securely

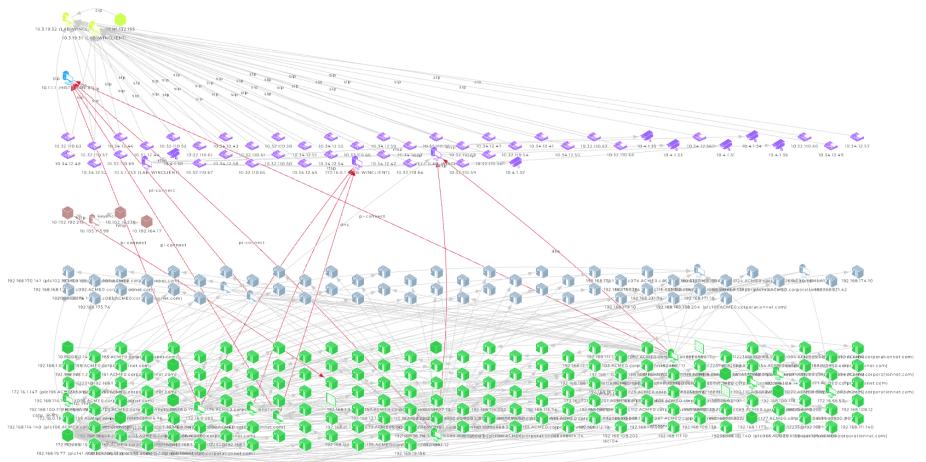


OT Traffic: variables and commands between PLCs, and PLCs and HMIs. Diagnostics, configuration commands from Engineering workstations and PLCs



Analyzing the data







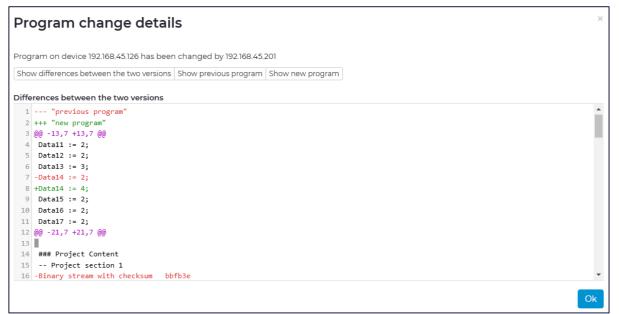
Analyzing the data



PLC Programming

Useful analysis tool: Understanding the industrial (and usually plaintext) PLC Programs

- → From the packets the original industrial controller program can be extracted
- → A subsequent change in that program can be viewed in comparison with the original one



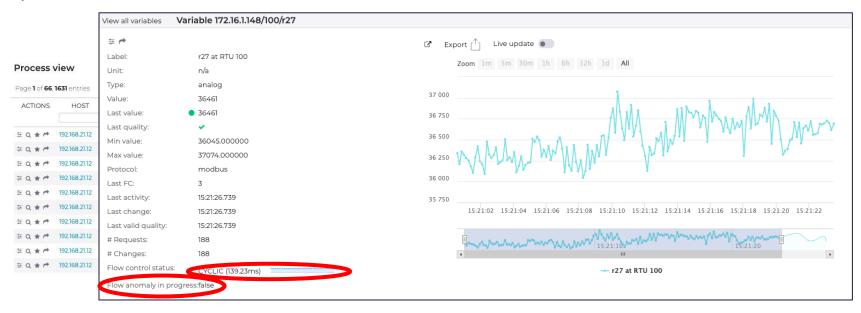


Analyzing the data



Variables

Useful analysis tool: List and follow variables



- List the industrial variables (sensor values, pressure, voltages ...) over time (if enabled)
- On its own not so extremely usable, but (intelligent) alerting makes it better



Alert example 1



Variables Latency

Alerts; not only for security



-> Latencies and therefor potential networking issues might be detected and resolved before they get problematic



Potential security alert

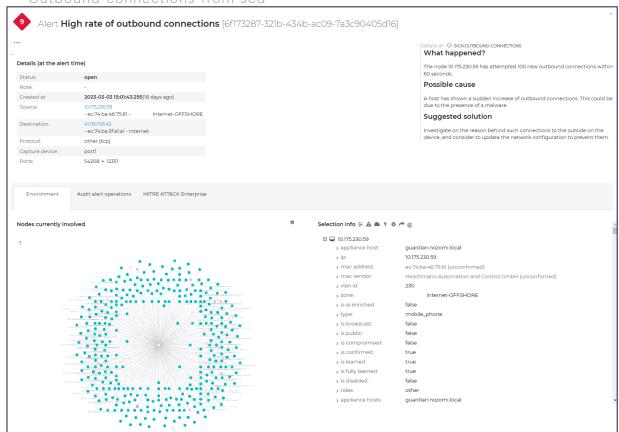
- → "High rate of outbound connections"
- → An OFFSHORE device (on the Wind Turbine) was creating hundreds of connections to several internet hosts
- → Was this a malware?
 We downloaded the PCAP file (Wireshark) and it became clear:

BitTorrent was installed and running on this laptop from a third party supplier

Alert example 2



Outbound connections from sea





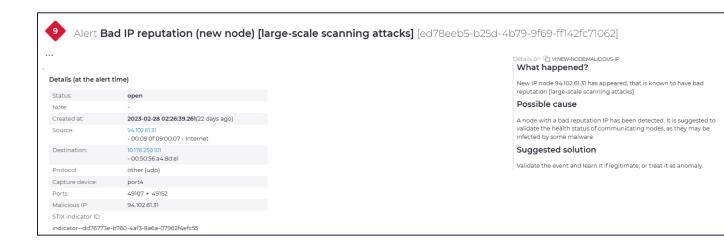
Alert example 3



Firewall Checks

Full on Security Alerts

- → Traffic **coming** from the Internet seems to find its way **directly** to this internal device
- → The source IP "94.102.61.31" resolves to "criminalip.com"
- → It "should" not be internet accessible



- > It turned out there actually was an old UDP Firewall rule in place for a decommissioned device that was replaced with this one
- > And the criminalip.com is actually a Shodan-like service which indeed performs "large-scale scanning attacks"

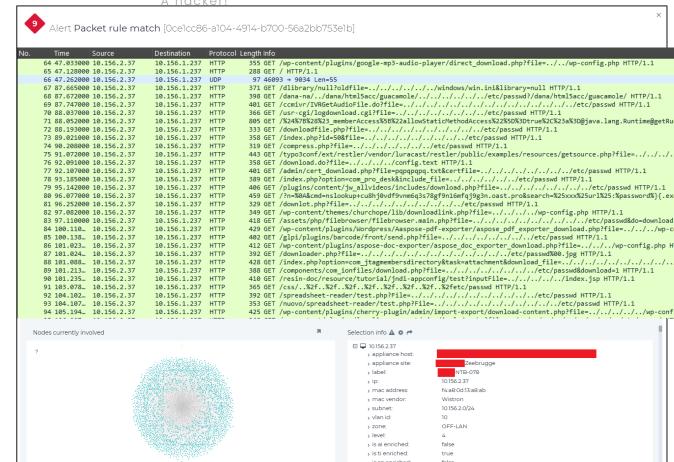


Alert example 4

A hacker!

Full on Security Alerts

- → Sudden flood of connections and attempts to exploit various systems! Log4J, WordPress, Guacamole ...
- → This can only be a (simulated) hacker
- → Investigation time, download PCAP → 25 requests in 60 seconds
- → IP and MAC address = notebook of company CFO
- → Then we look at the DHCP leases
 - → Our hacker has a name ©
 - → Senior pentester at a Belgian company





CONTACT

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44000 Nantes South Cave HU15 2HG

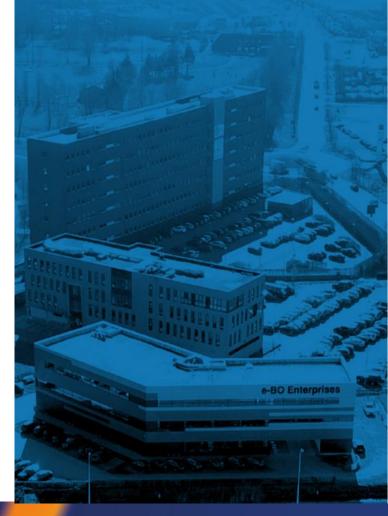
UNITED KINGDOM

YOUR CONTACT

Tijl Deneut

e-BO Industries LTD

tijl.deneut@ebo-enterprises.com





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Capture The Flag: a playful way into Cybersecurity



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Introduction to Splunk

Antonio Forzieri Principal Architect – Learning at Cisco



Splunk introduction





The evolving world has created new demands.



Downtime is detrimental

Large companies lose \$200M/year in costs from downtime.¹



Cyber risk is business risk

Cyber is now the #1 risk and a growing problem thanks to Al.²



Resilience is regulated

Governments have enacted stiff penalties for non-compliance.



Innovation velocity is essential

Getting products to market faster is a competitive advantage.

It's hard to be resilient.



Complex environments expand attack surface and failure points.

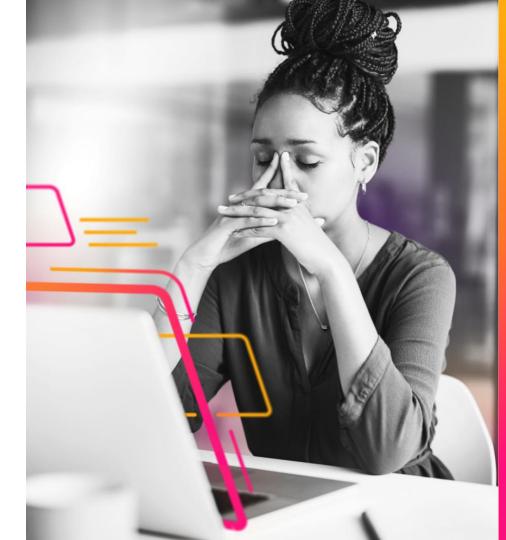


Growing data volumes sit in silos and are increasingly hard to manage.



Regulations require real-time risk assessments.

The AI era is accelerating all these challenges and creating entirely new ones.



Build digital resilience with Splunk.

Splunk brings SecOps, ITOps and engineering together to...



Prevent major issues

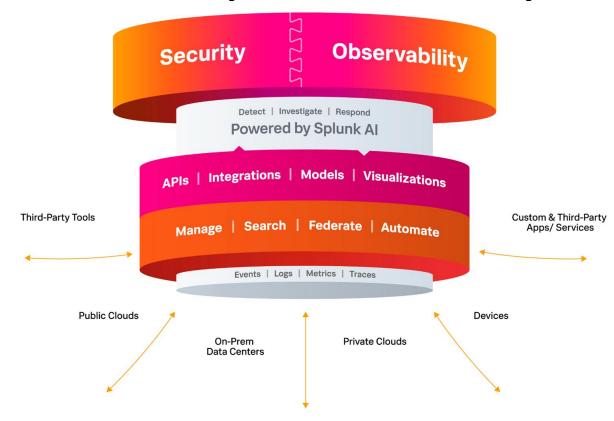


Remediate faster



Adapt quickly

The Unified Security and Observability Platform



Splunk delivers unparalleled digital resilience.

Providing **end-to-end visibility** and insights across your entire digital footprint

Powering the **SOC** of the future with unified threat detection investigation and response, enhanced with network insights

Delivering observability for the entire enterprise to prevent unplanned downtime across all environments

Unified by a flexible platform that provides enterprise scale data management

Splunk as a Service

Fastest time to value | Minimum Infrastructure | Maximum Value

3 Simple Steps: 1. Onboard data 2. Onboard users 3. Get value from your data





Flexible options for data collection and forwarding



Splunk Cloud Service Description: https://splk.it/SplunkCloudServDesc

Splunk high level architecture

C1 C11 SVA model



Gartner. 10th consecutive

time v a s ia Quadrant for Security Information and Event

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This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from Splunk.3

Figure 1: Magic Quadrant for Security Information and Event Management



Gartner

Splunk is a recognized leaden cybersecurity

Splunk Security provides an unparalleled foundation to power the SOC of the future

Gartner

A Ten-Time Leader

2024 Gartner® Magic Quadrant™ for SIEM

Ranked #1 in all three **Use Cases**

2024 Gartner® Critical Capabilities for SIEM

FORRESTER®

Leader

Forrester Wave[™]: Security Analytics Platforms, Q4 2022



Leader

Omdia Universe: Next-Generation SIEM Solutions



Leader

2024 IDC MarketScape for SIEM for Enterprise

Ranked #1

2023 IDC Market Share for SIEM



5 awards for SIEM and SOAR



Leader Award SIEM and SOAR



A leader in **SOAR**

Trusted by leading organizations















Thank you



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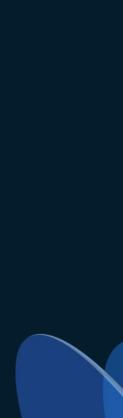




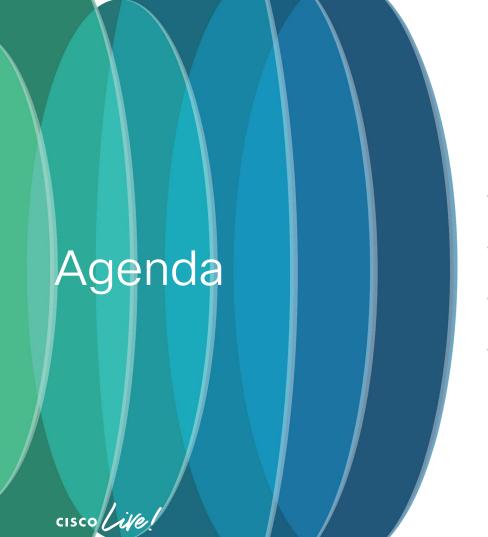
iTalents

Boosting your Career

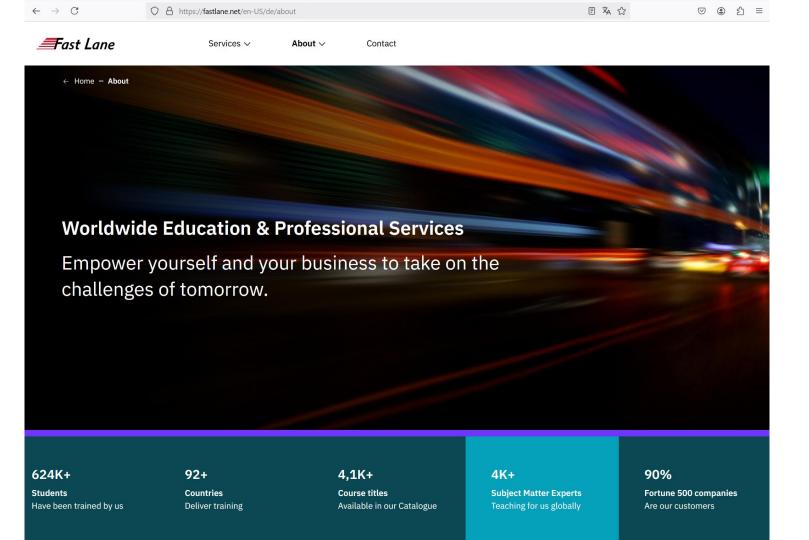
Andre Brugman, Director iTalents







- Fast Lane, NetAcad & iTalent
- Partner Talent Program
- iTalents voor uw organisatie
- iTalents voor jou



Fast Lane Partners

Partnerships with leading vendors and organizations



















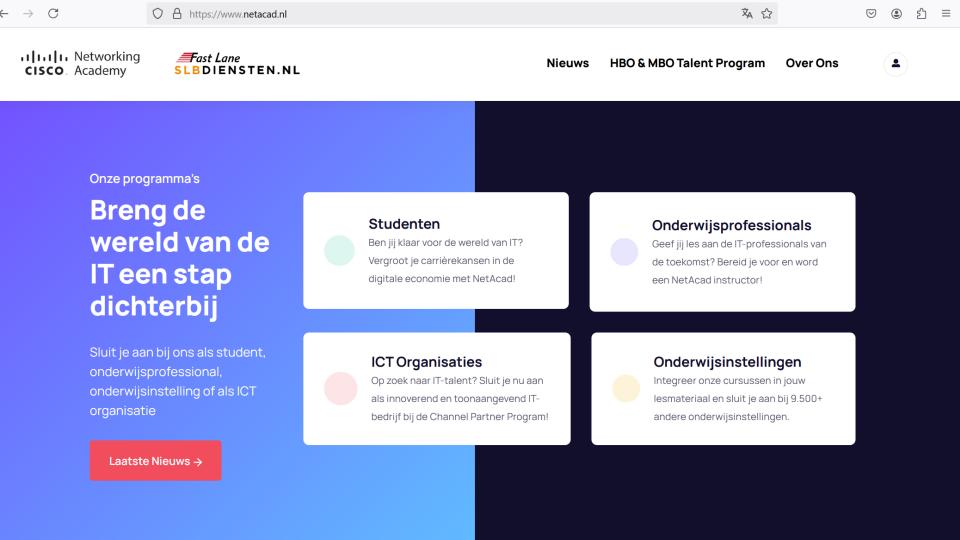














.IIIII Networking

CISCO. Academy

Fast Lane
SLB DIENSTEN.NL

Nieuws HBO & MBO Talent Program Over Ons

⊗ (£) ≦

HBO en MBO Talent Program



In dit programma krijg je de kans om je (afstudeer)stage te lopen en een uitdagende baan te krijgen bij belangrijke partners van Cisco. Wij werken samen met de volgende toonaangevende en innovatieve IT-bedrijven in Nederland.

- Axians
- Conscia
- · Simac
- · Spie

Meld je aan voor dit programma en wij nemen direct contact met je op! Of bekijk alvast een aantal vacatures en meld ie aan voor de stage van jou

Wat heeft het Talent Program mij te bieden?

- 1. We bekijken samen welke wensen en ambities je hebt en zoeken ee passende stageopdracht en locatie.
- 2. Je krijgt een uitdagende stage bij een toonaangevend IT-bedrijf in
- 3. Behaal tildens of na je afstudeerstage gratis twee hoogwaardige Cisco certificaten op het gebied van Networking, Security en/of Programmability.
- 4. Geef jouw carrière een kickstart door deel te nemen aan ons programma. Bij een goed verloop van dit traject land je meteen in een uitdagende functie in de organisatie.
- 5. Een stagevergoeding maakt onderdeel uit van dit traject.
- 6. Maak onderdeel uit van onze Talent Community en doe mee aan gave Cisco-events!

Afgestudeerd en opzoek naar een carriere?! Ook dan gaan we graag in gesprek!

DERE AFDELINGEN

Word talent bij SPIE (HBO/MBO)

P Utrecht (Hybride werken mogelijk)

Word talent bij Axians (HBO/MBO)

9 Capelle ald Ijssel, Breda, Eindhoven, Nieuwegein, Groningen (Hybride werken moge

Word talent bij Conscia (HBO/MBO)

P Gouda (Hybride werken mogelijk)

Word talent bii Simac (HBO/MBO)

ven, Ede en Velsen (Hybride werken mogelijk)

iTalents:

- Detavast voor 1 jaar, opleiding en Begeleiding

Partner Talent Programma:

- Stage- Afstudeer, daarna in vaste dienst

Ervaring in talent programma's

- Sinds 2005
- Meer dan 600 talenten opgeleid
- Verschuiving naar Cyber Security, loT en Al







De Personele uitdaging

- Tekort aan goed geschoold IT personeel
- Vergrijzing
- Wet DBA
- Lastig om goede kandidaten te werven
- Lastig om goed personeel te binden

De oplossing

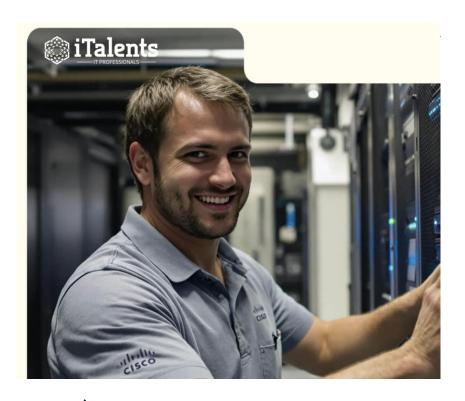
- Werk samen met een ervaren wervings- en opleidingsorganisatie
- Biedt nieuwe medewerkers een toekomstperspectief
- Biedt nieuwe medewerkers ruimte voor ontwikkeling van kennis en vaardigheden



iTalents Jouw snelweg naar succes



De uitdaging



- Een baan met perspectief
- De mogelijkheid om tot ontwikkelen tot ICT specialist
- Een baangarantie





De oplossing

- Samenwerken met iTalents
- Een groot netwerk aan klanten met grote IT infrastructuren
- Ervaring in opleiding
- Ervaren coaches

iTalents Team op CiscoLive!





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Thank you



cisco Live!

Agenda

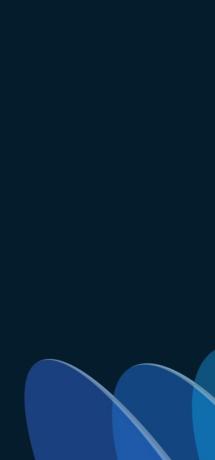
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Awards

Chris Reeves
Vice President - Country Digitization





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Instructor Training Europe North 2024-2025

BiASC

Belgian IT Academy
Support Center vzw/asbl





Pathway	Course	Hours	Start Date	Day	Time (CET)	Recommended Prerequisites
Networking	CCNA 1 Networking Fundamentals with bridge to CCST Networking Pathway	70	15/10/2024	Tue	1830-2000	N/A
	CCNA 2 Switching, Routing, and Wireless Essentials	70	06/03/2025	Thu	1900-2030	CCNA1 required
	CCNA 3 Enterprise Network, Security & Automation	70	08/10/2024	Tue	1900-2030	CCNA1-2 required
	CCNP ENCOR	70	06/03/2025	Thu	1930-2100	CCNA1-3 required
Programming	Python Essentials 1	30	24/10/2024	Thu	1600-1730	N/A
Automation	DevNet Associate (DevOps,Cloud & Infrastructure Automation)	70	04/03/2025	Tue	1900-2030	Some networking and programming
Security	CCST Security Essentials Pathway	70	08/10/2024	Tue	1900-2030	N/A
	Ethical Hacker	70	04/03/2025	Tue	1900-2030	CCST Networking & Security recommended
	CyberOps Associate	70	04/03/2025	Tue	1900-2030	CCST Networking & Security recommended
	Network Security	70	10/10/2024	Thu	1930-2100	CCNA1-3 recommended
NetAcad	Introduction NetAcad	2	21/10/2024	Mon	1600-1730	N/A passagger and the state of
	Introduction Packet Tracer	2	28/10/2024	Mon	1600-1730	

(*) Participation fees are already covered for most instructors affiliated with Cisco Academies in Belgium and the Netherlands. This is because

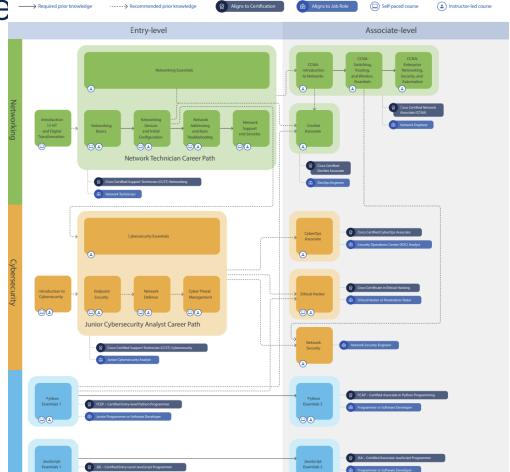
CCNA2, DevNet Associate, Ethical Hacker, CyberOps associa starten begin maart, inchrijven kan nog!



Aligns to Job Role

1 Instructor-led course

Portfolio Poster Update



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Thank you



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