NIC

EMPOWER

November 13-15, Oslo Spektrum

Sami Laiho

Zero Trust – Dope or Nope?

NIC
EMPOWER

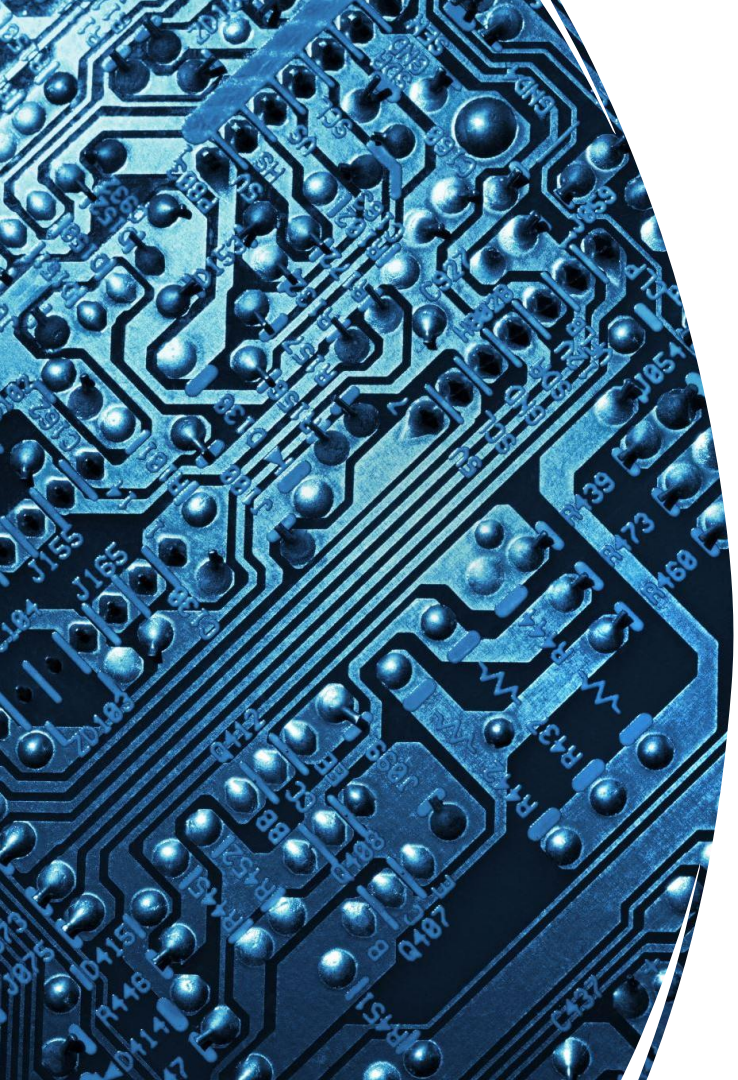
Sami Laiho

Chief Research Officer / MVP

- IT Admin since 1995 / MCT since 2001
- MVP in Windows OS since 2011
- ”100 Most Influencial people in IT in Finland” – TiVi’2019→
- Specializes in and trains:
  - Troubleshooting
  - Windows Internals
  - Security, Social Engineering, Auditing
- Trophies:
  - Best Session at Advanced Threat Summit 2020
  - Best Speaker at NIC, Oslo 2016, 2017, 2019, 2020, 2022 and 2023
  - Ignite 2018 – Session #1 and #2 (out of 1708) !
  - TechEd Europe and North America 2014 - Best session, Best speaker
  - TechEd Australia 2013 - Best session, Best speaker


X (ex-Twitter): @samilaiho
Bluesky: @samilaiho.com
LinkedIn

Zero Trust Principles



In April 1994, the term "zero trust" was coined by Stephen Paul Marsh

- Wikipedia: There are several ways to implement all the tenets of ZT; a full ZTA solution will include elements of all three:
  - Using enhanced identity governance and policy-based access controls.
  - Using micro-segmentation
  - Using overlay networks and software-defined perimeters
- NCSC
  - Single strong source of user identity
  - User authentication
  - Machine authentication
  - Additional context, such as policy compliance and device health
  - Authorization policies to access an application
  - Access control policies within an application

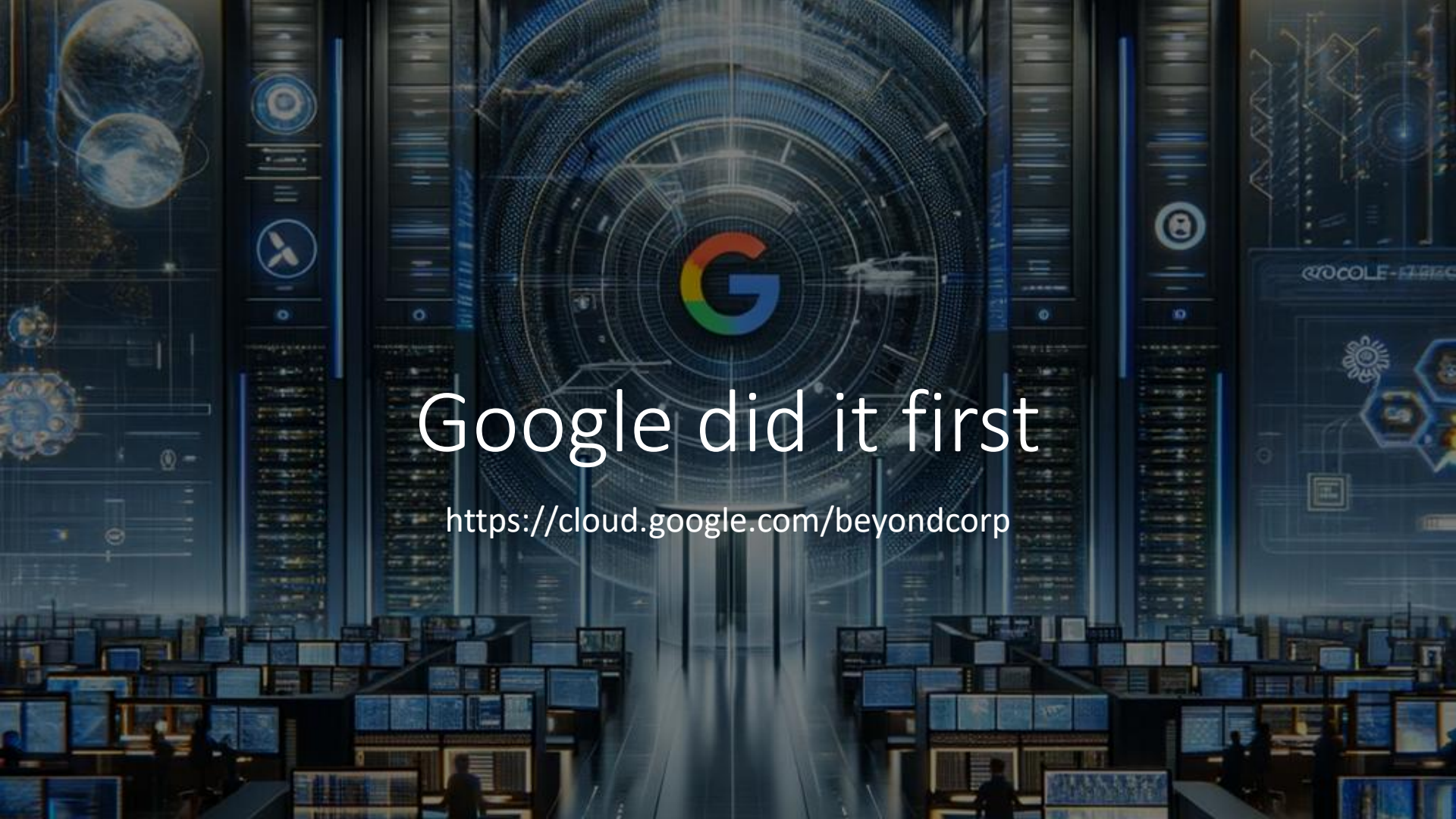
ZeroTrust is the worst name ever…

Zero Trust principles

Verify explicitly

Use least privileged access

Assume breach



Google did it first

https://cloud.google.com/beyondcorp

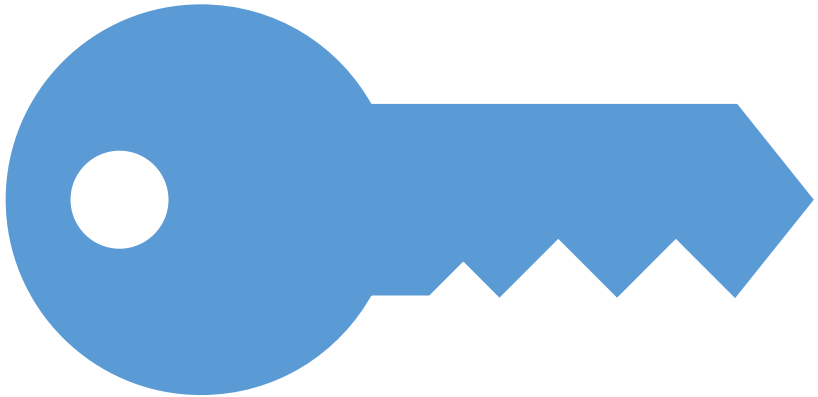
MFA

Verify Explicitly

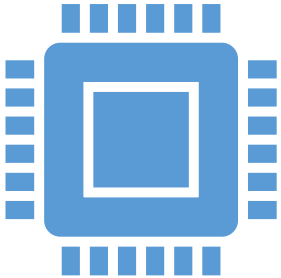
MFA

- Always verify → MFA everywhere
- Has changed the most used attack vector from Phishing → Unpatched Vulnerabilities
- Can be made accessible and easy enough to use
- Passwordless / Passkeys are the future but we can’t wait

Factors



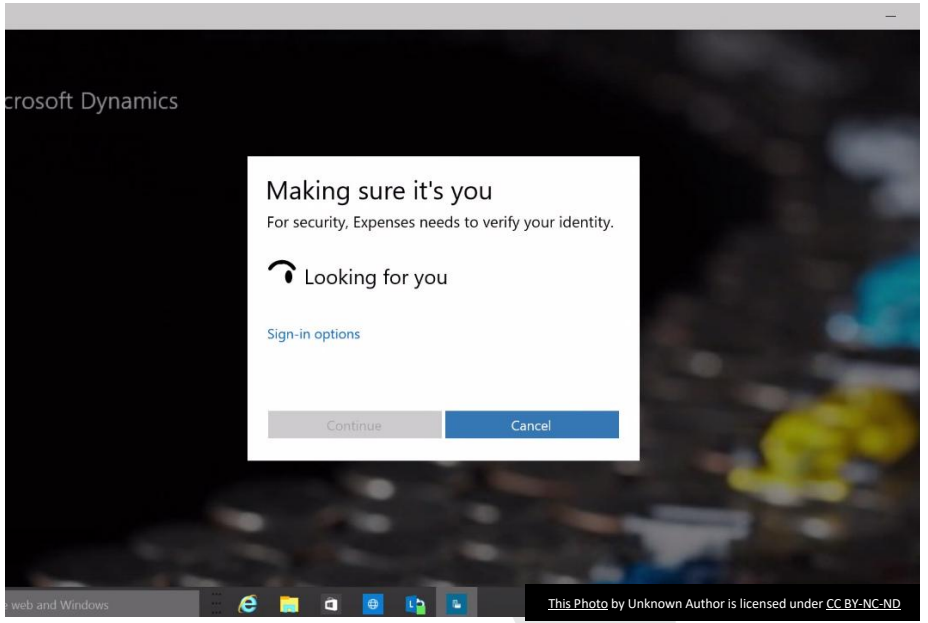
PIN-codes



Windows with PIN is MFA!

Why a PIN is more secure than a password

Biometrics



2 Factor Authentication!

Smart Cards are difficult, Virtual Smart Cards will be deprecated… So let me introduce the Future of 2FA……..

Name: Token

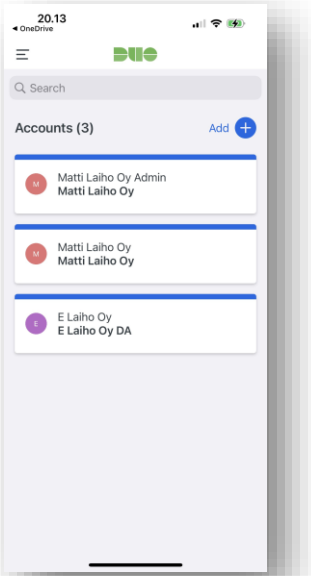
Token Type: Live, Hedgehog

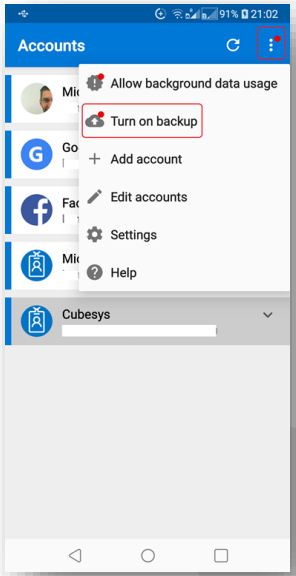
Token lifetime: 5-8 years

Tamper Protection: Yes

Authenticator Apps

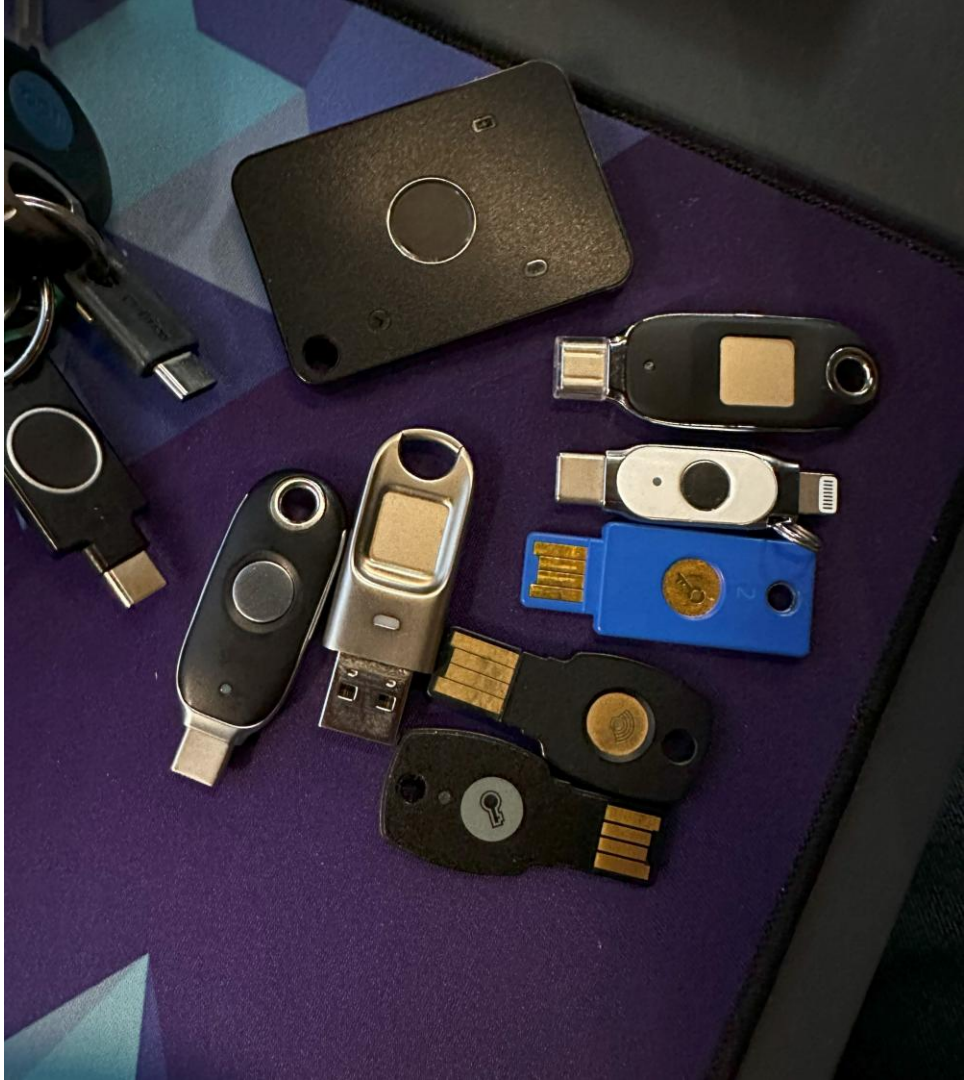
Requires a Smartphone





Physical Tokens

- Smartcards?
- Phishing resistant MFA
  - Plug in or NFC
  - Biometrics or PIN



If Nothing Else

RDP

182

Vendors Log into a Typical Org each Week[1]

76%

of Cloud Accounts Sold on Dark Web = RDP[2]

80%

of Ransomware Attacks Exploit RDP[3]

Ransomware Deployment Protocol

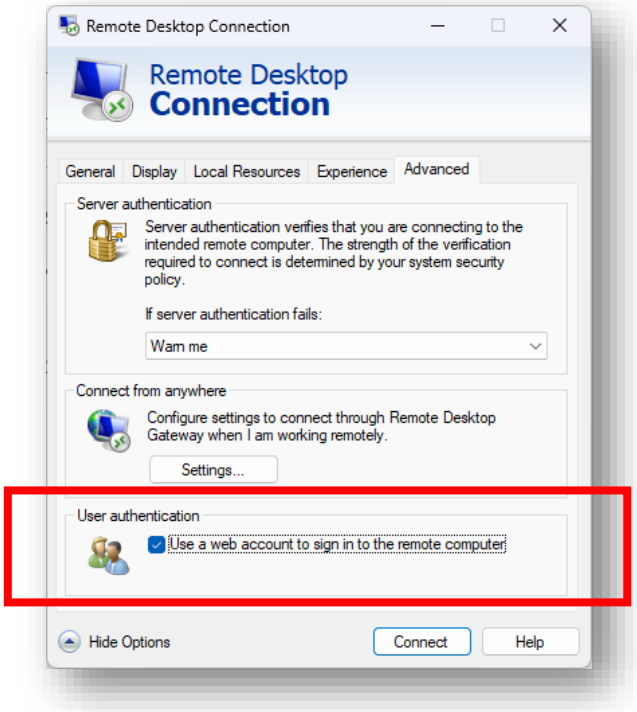
"The two connections that are available with Terminal Services in Remote Administration mode are intended for administrative purposes only. You can use these connections for ***emergency administration****"*

The statement is from the chapter titled "Terminal Services in Remote Administration Mode" in the Microsoft Windows 2000 Server Resource Kit1. The chapter number is 14 and the page number is 14-2.

“If you RDP, you MFA”

Yubikeys

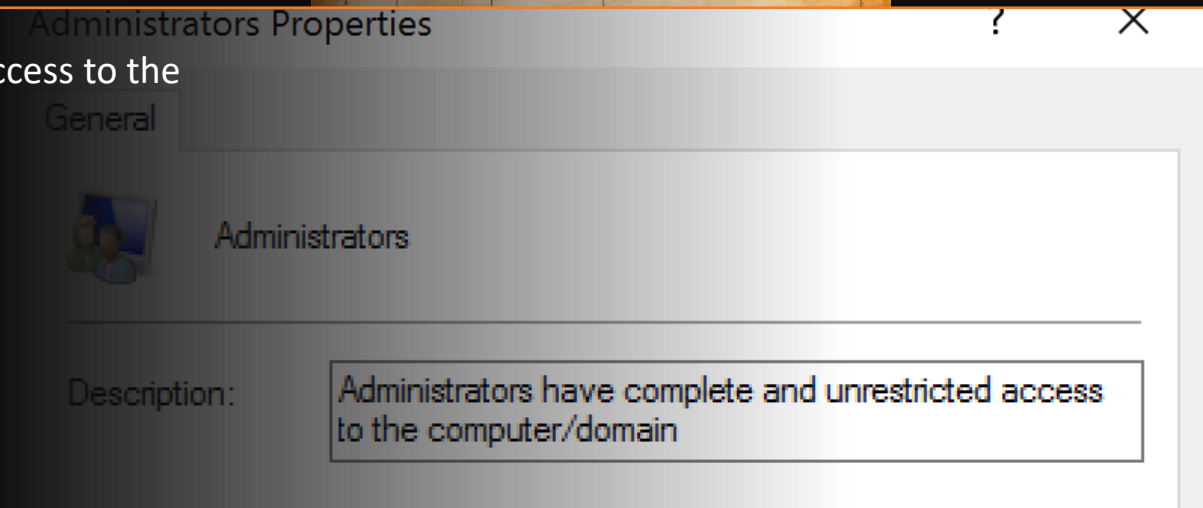
https://swjm.blog/the-complete-guide-to-rdp-with-yubikeys-fido2-cba-1bfc50f39b43



Least Privilege

NT 3.1 Security Guide

States that local admins have full access to the computer. FULL STOP.



Critical risks of Administrative Rights

The risk increases dramatically from loss of one user's assets, to losing the whole company operations.

It allows the malicious tools to operate on Windows deeper and at hardware levels.

It prevents the company from controlling the computer settings and data, therefore managing risk.

It allows for identity theft.

Shadow IT is rampant as the end user controls the device

The Principle of Least Privilege is a Core Component of Zero Trust

Why Shouldn't Users Want to Have Administrative Rights?

- Performance of systems is improved without local administrator rights
- Installation of various software causes slowdowns and reliability issues.
- SSD lifespan increases
- Decreases the need for reinstallations.
- Due to more reliable systems productivity is increased
- The attack surface of malware is greatly reduced and helps limit propagation
- Because it decreases the amount of money needed in extra security solutions
- Because it mitigates more vulnerabilities than patching

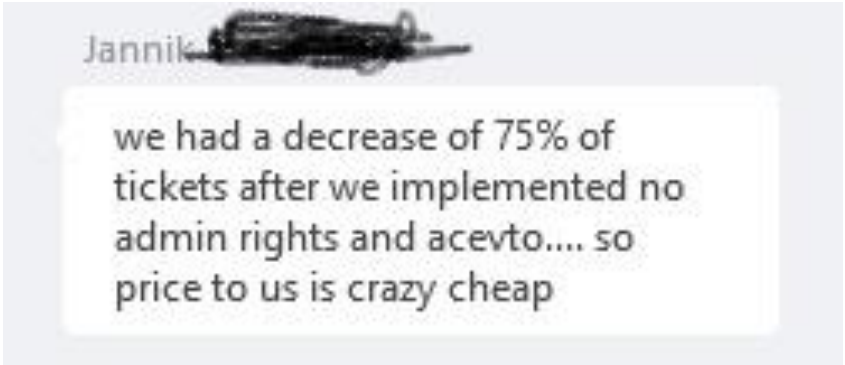
Users: “If I don’t have admin rights, I can’t fix my computer”

Reality: “If you don’t have admin rights, you can’t break your computer”

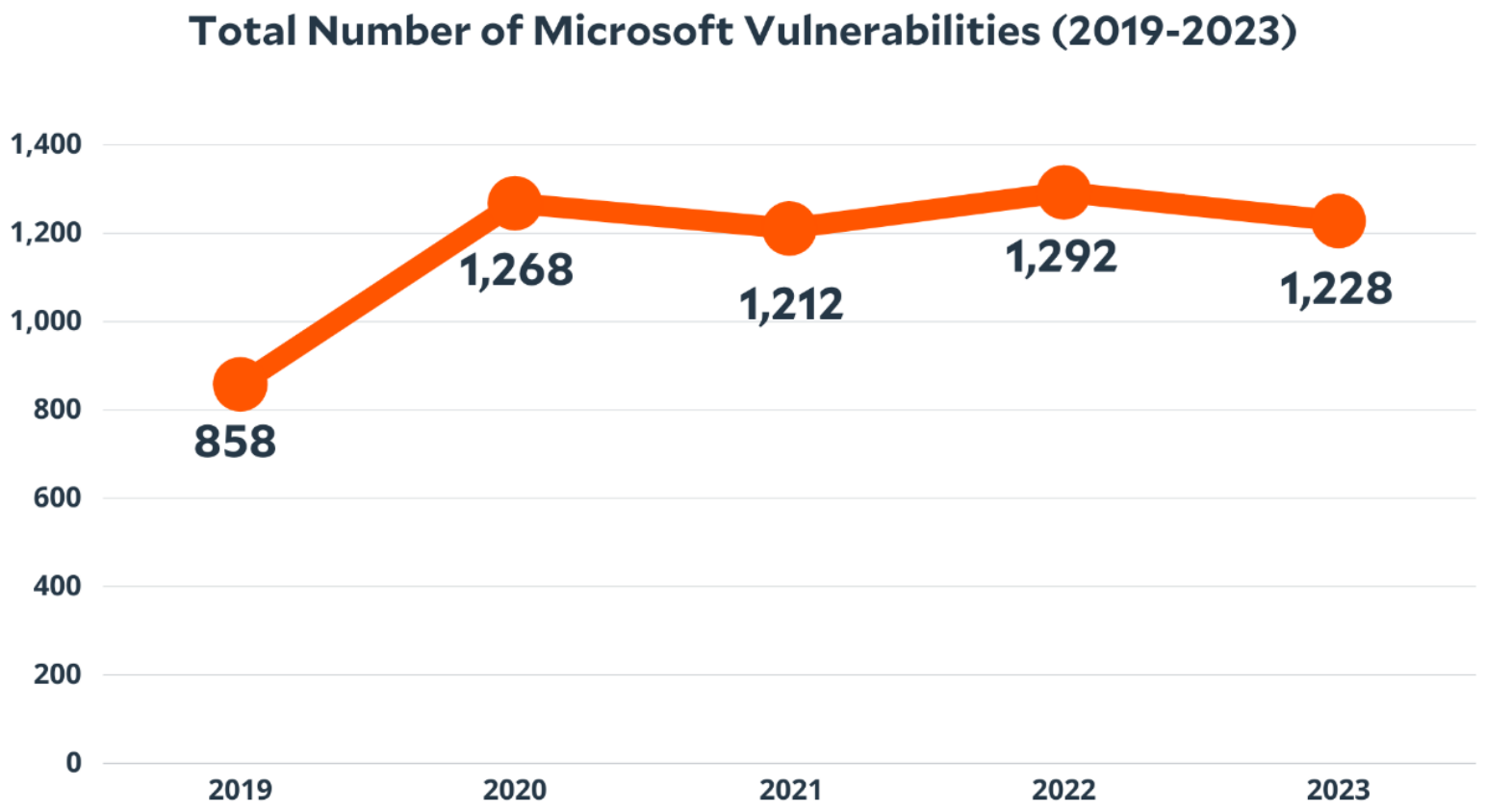
Admin Rights are not Human Rights

https://www.zazzle.com/store/adminize/products

Stop endusers from hurting their computers



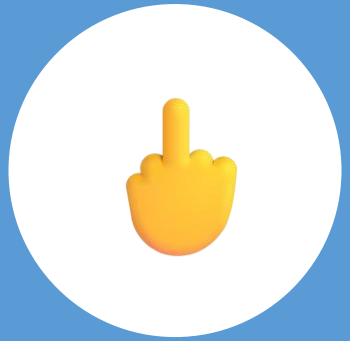

US Customer: 65% less reinstallations


Total Number of Microsoft Vulnerabilities (2019-2023)
1,400
1,200
1,000
800
600
400
200
0
858
1,268
1,212
1,292
1,228
2019
2020
2021
2022
2023

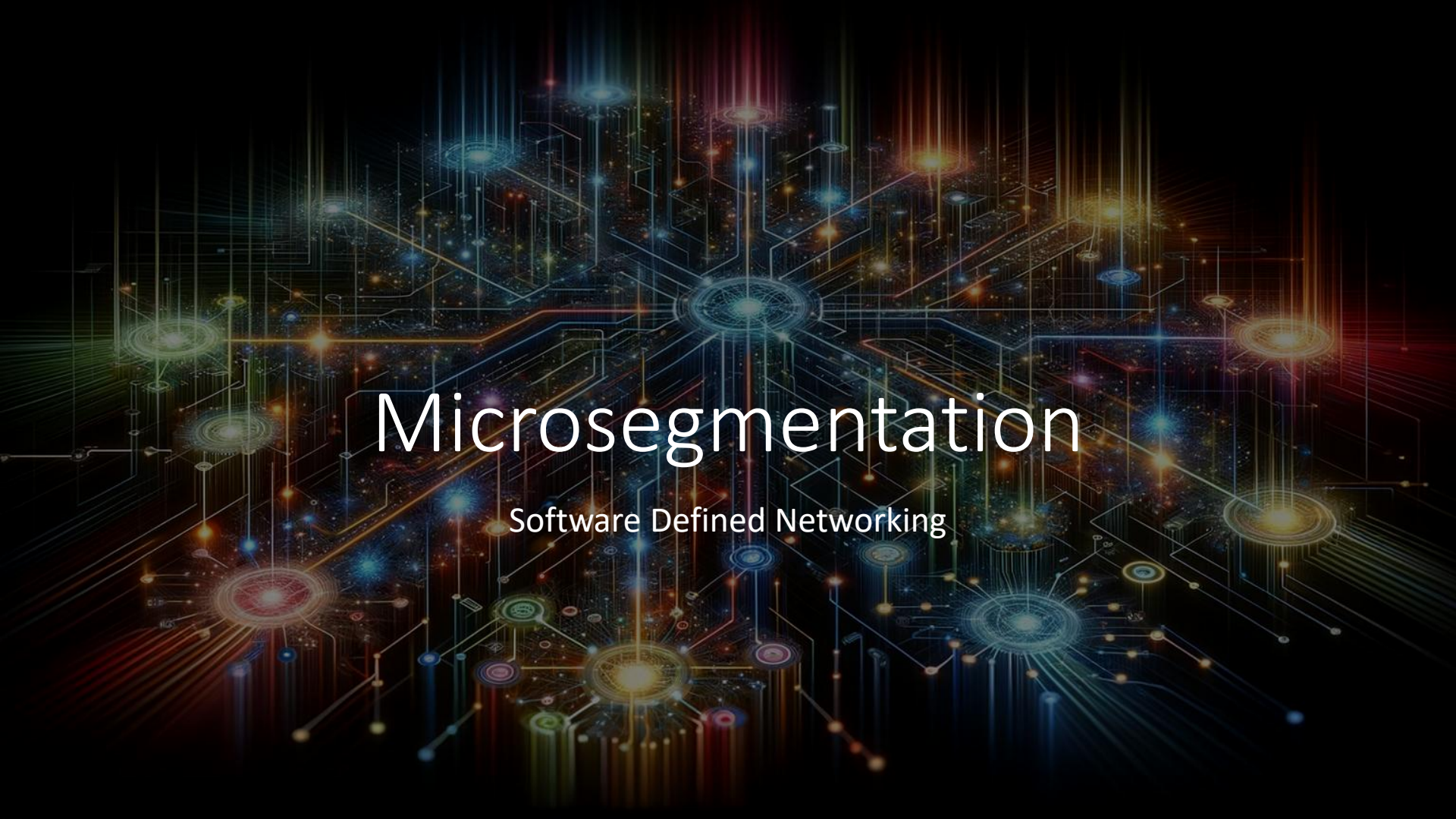

How do we fix this?

You Need a PAM!

Privileged Access Management



How I’ve lived without admin rights for 22 years?


Microsegmentation
Software Defined Networking

Micro-Segmentation

Controlling flow between every node or every app

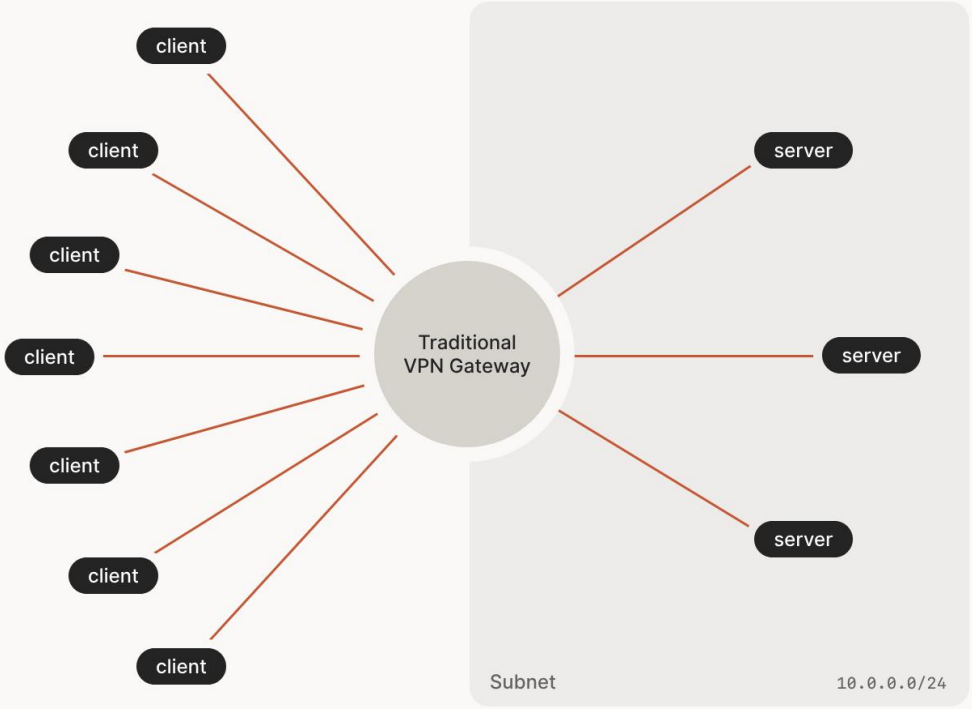
Controlling “East-West”, instead of “North-South”

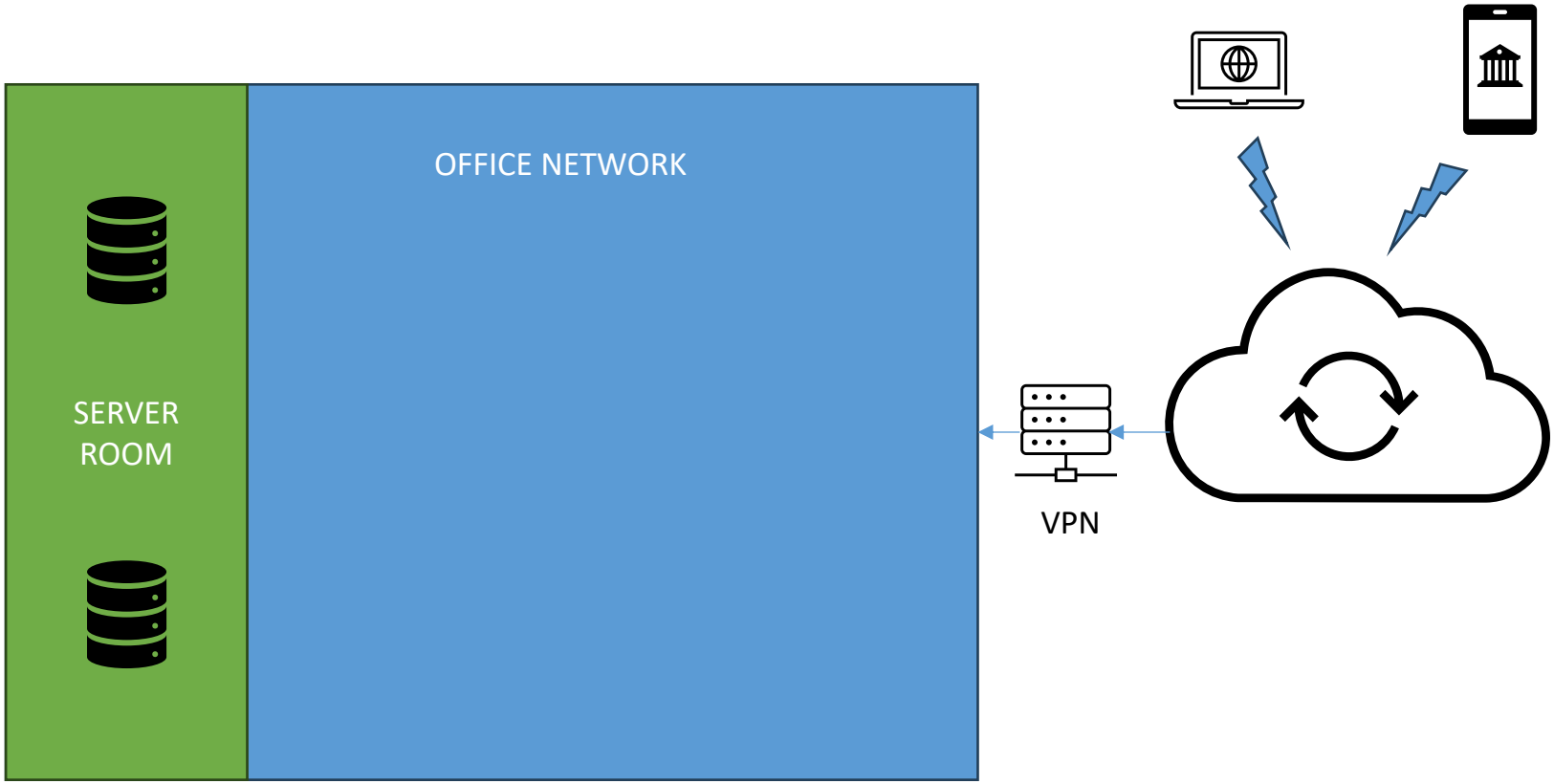

What are we Being Offered?

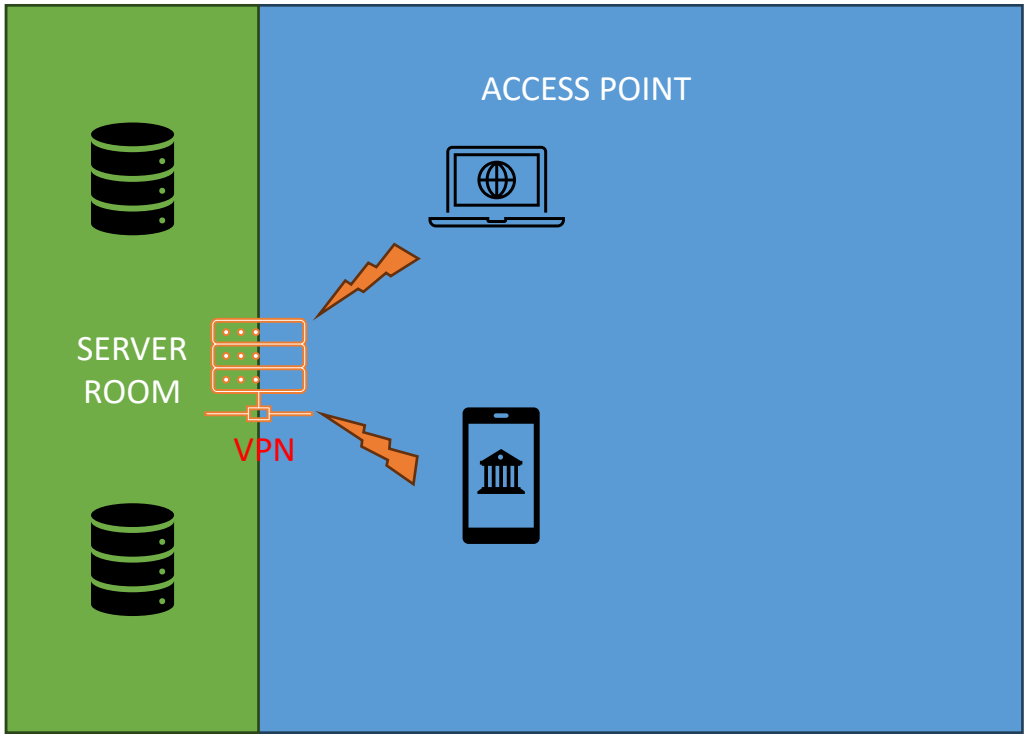
Move the VPN-border

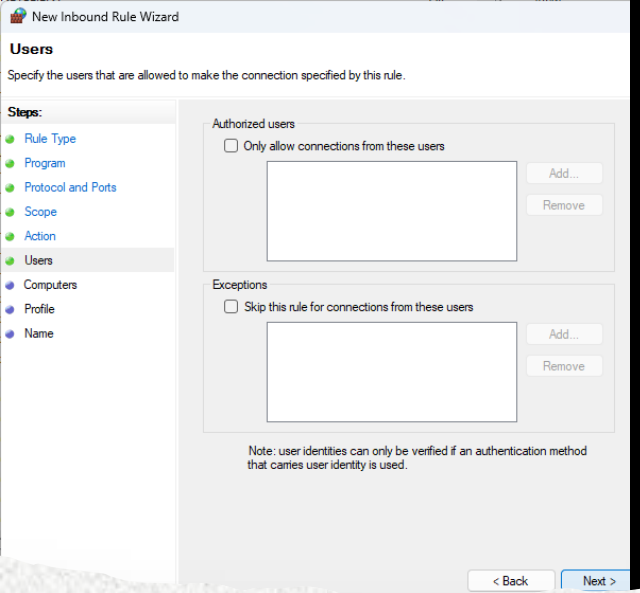
Traditional

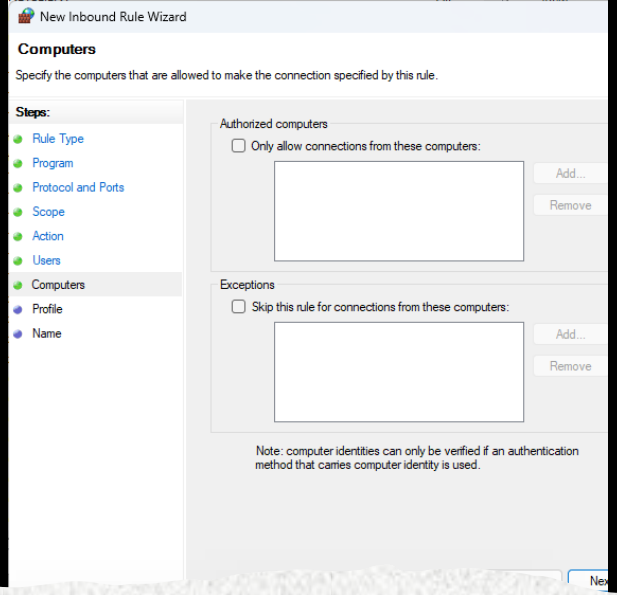
VPN

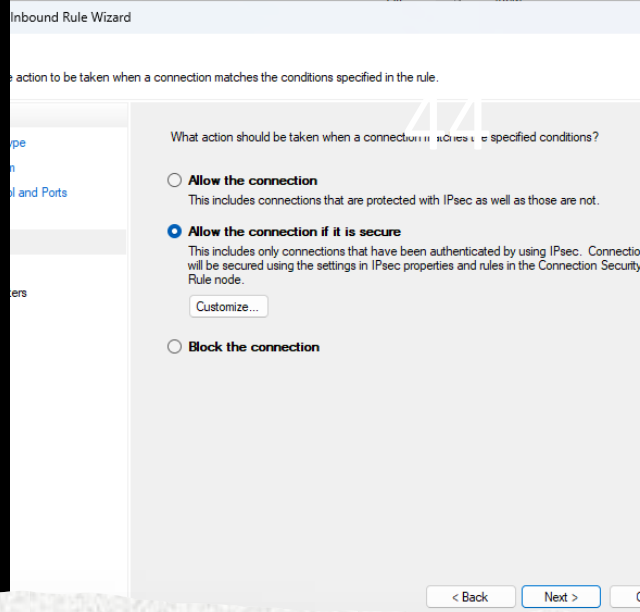



OFFICE NETWORK
SERVER ROOM
VPN


ACCESS POINT
SERVER
ROOM
VPN





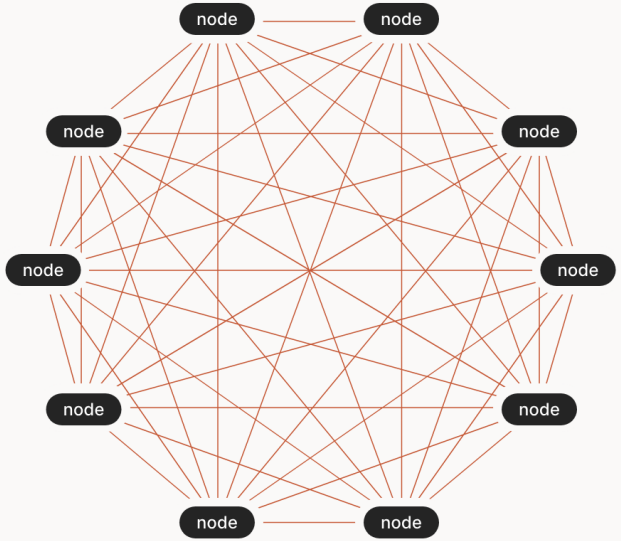


Firewall and IPsec together

- Identity is the new Black

WireGuard

MESH

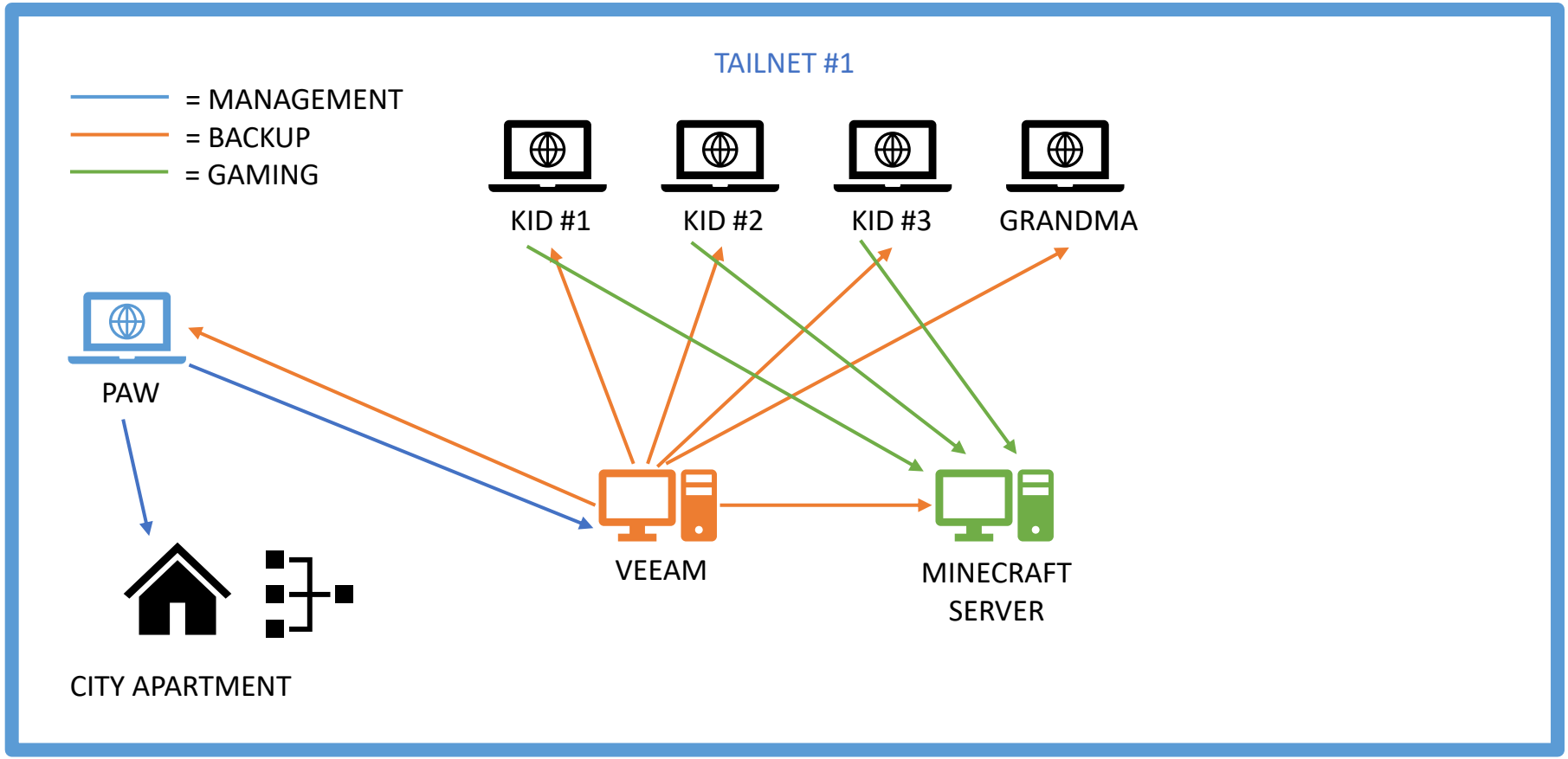


`n(n-1) = 90 WireGuard endpoints (for 45 connections)`


Zero Trust with my Children
Just proves how bad the name is…


Palo Alto

What has an SLA of 3.67s ?


TAILNET #1
= MANAGEMENT
= BACKUP
= GAMING
KID #1
KID #2
KID #3
GRANDMA
PAW
VEEAM
MINECRAFT SERVER
CITY APARTMENT

TAILNET #2

= TRUE ZERO TRUST

WIFE

In ZeroTrust, don’t let Perfect be the Enemy of Good

Thank you!
Remember the Evals

NIC
EMPOWER

Contact

- sami@adminize.com
- Twitter: @samilaiho
- BlueSky: @samilaiho.com
- Free newsletter: http://eepurl.com/F-Goj
- Find me on LinkedIn – Please!
- My trainings:
- Corellia (FIN)
- ETC.at (ENG)
- https://win-fu.com/dojo/
  - Free for one month!!
    - Promo Code: TRIAL2023