How to approach a Zero Trust security model

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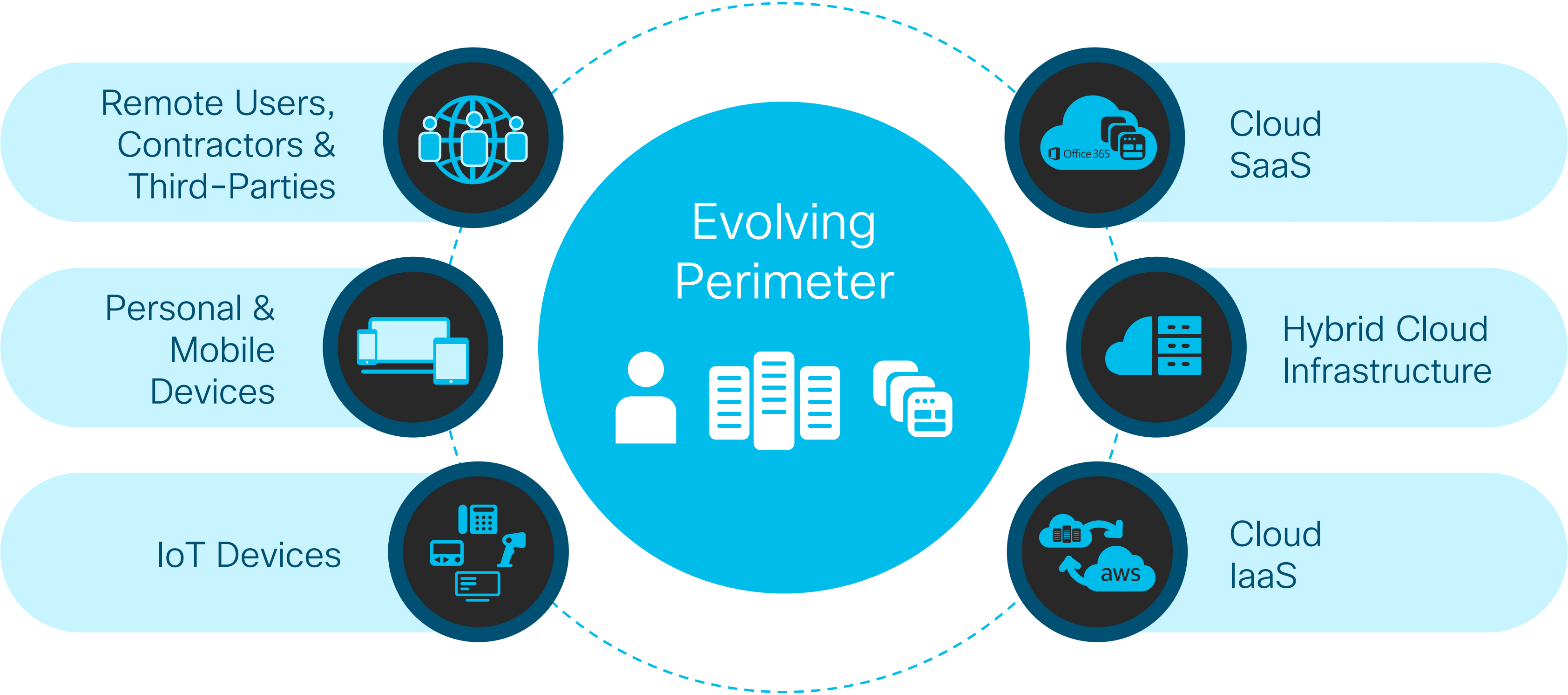
Agenda

- Intro to Zero Trust
- Cisco’s Zero Trust Architecture
- Where to start

Shift in IT Landscape

Users, devices and apps are everywhere



Remote Users, Contractors & Third-Parties

Personal & Mobile Devices

IoT Devices

Evolving Perimeter

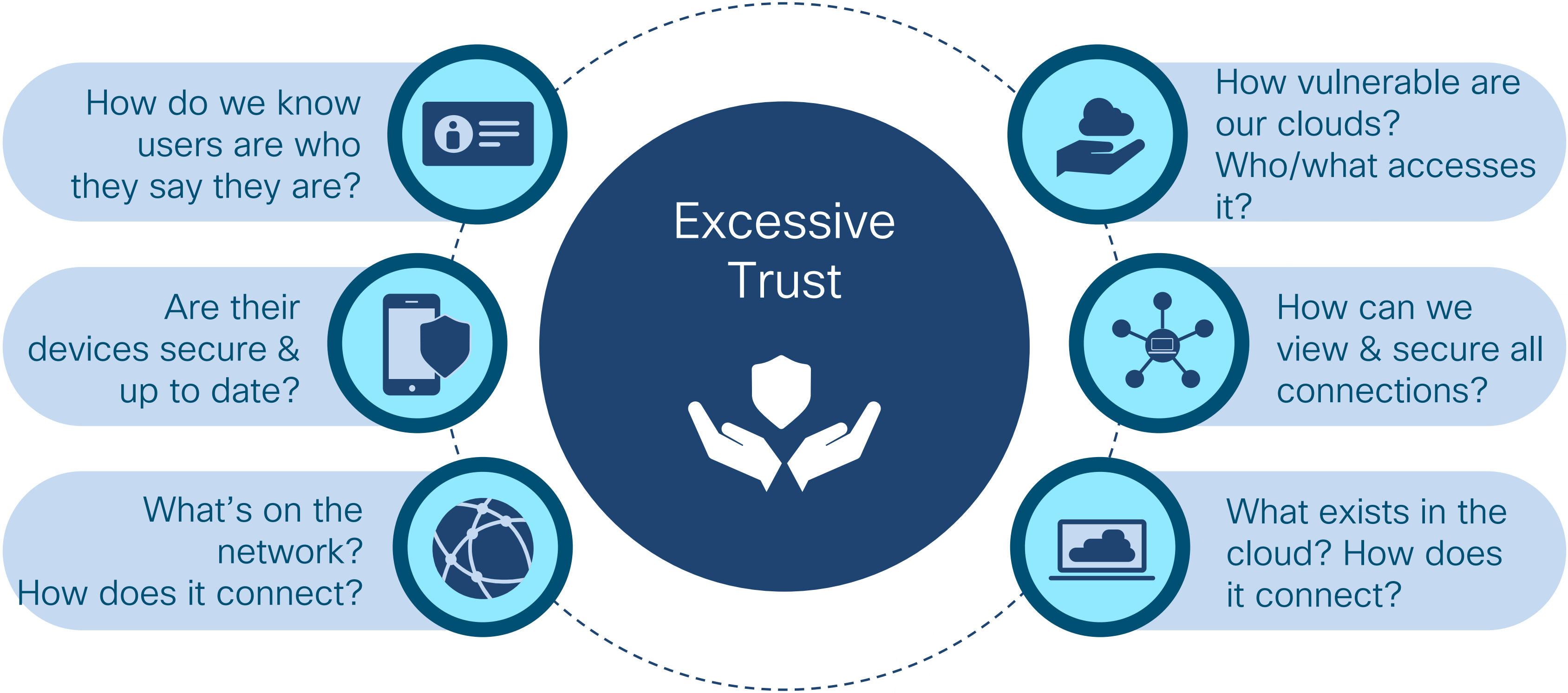
Cloud SaaS

Hybrid Cloud Infrastructure

Cloud IaaS

IT Challenges

Increased diversity in access & gaps in visibility



How do we know users are who they say they are?

Are their devices secure & up to date?

What's on the network? How does it connect?

Excessive Trust

How vulnerable are our clouds? Who/what accesses it?

How can we view & secure all connections?

What exists in the cloud? How does it connect?

Security Challenges

Increased attack surface, deficient access control & gaps in threat protection

Incident response way too slow 10K devices encrypted in <10mins!

300% Increase in malware for IoT devices

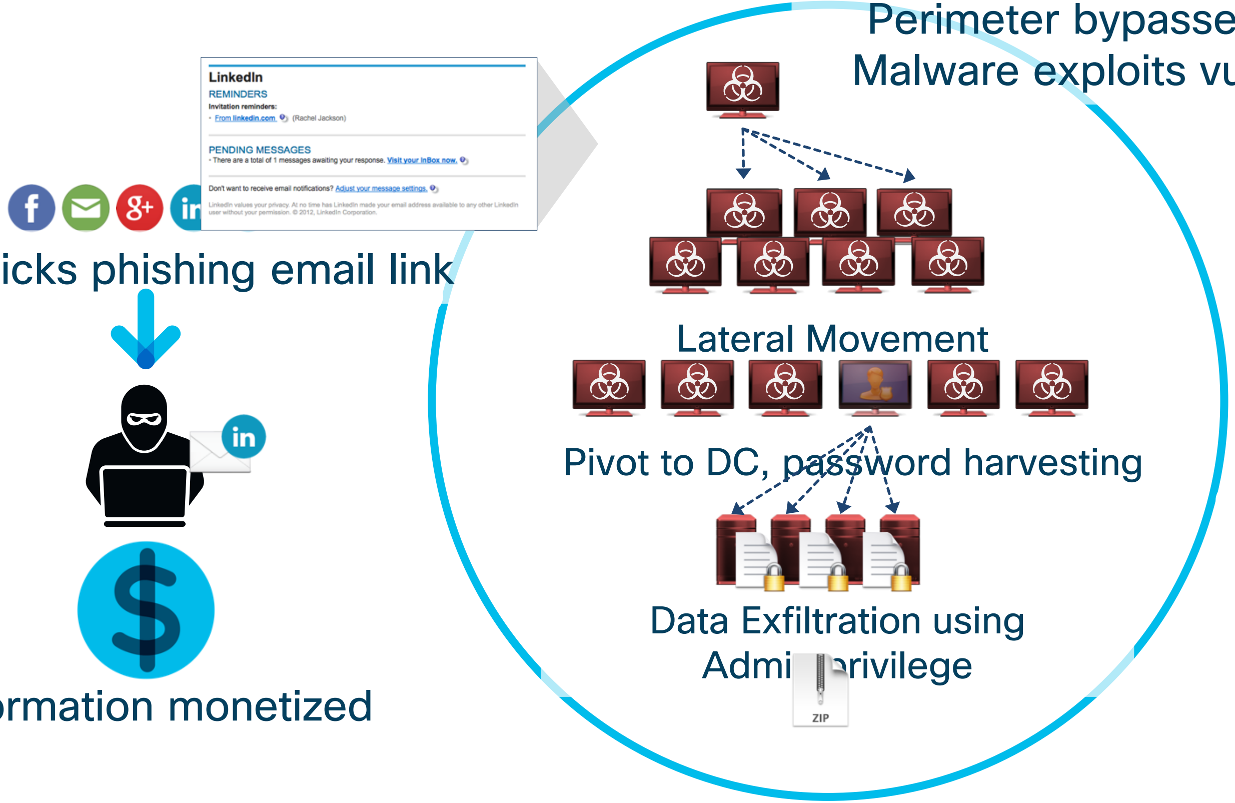
Business impact of a breach rising

81% of breaches involved weak or stolen passwords

Security tools going blind due to privacy and encryption methods

Zero Trust

When we trust too much...



LinkedIn

REMINDERS

Invitation reminders:

- From linkedin.com (Rachel Jackson)

PENDING MESSAGES

- There are a total of 1 messages awaiting your response. Visit your InBox now.

Don't want to receive email notifications? Adjust your message settings.

LinkedIn values your privacy. At no time has LinkedIn made your email address available to any other LinkedIn user without your permission. © 2012, LinkedIn Corporation.

Victim clicks phishing email link

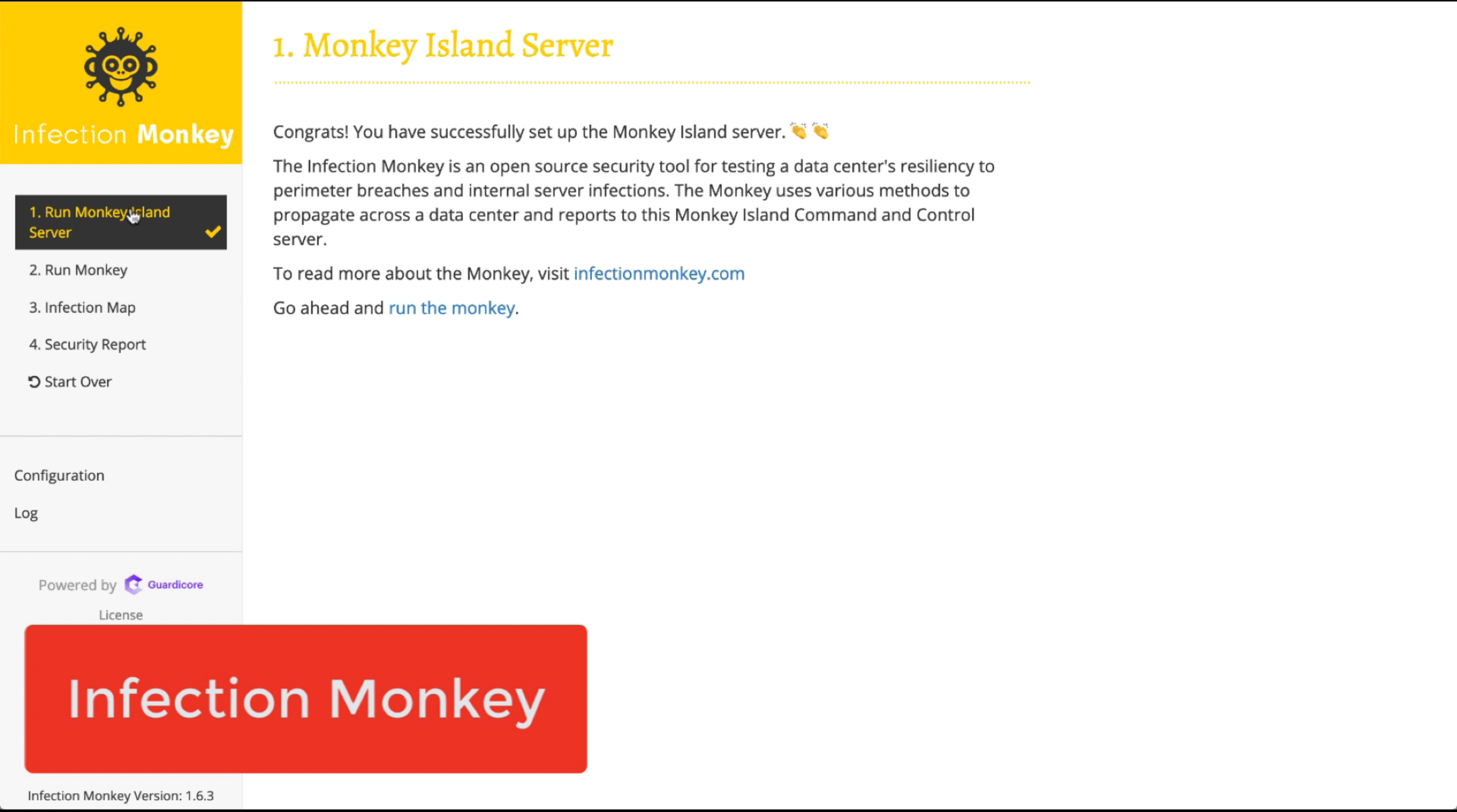
Information monetized

Perimeter bypassed
Malware exploits vuln

Lateral Movement

Pivot to DC, password harvesting

Data Exfiltration using
Admin privilege



1. Monkey Island Server

Congrats! You have successfully set up the Monkey Island server. 👏 👏

The Infection Monkey is an open source security tool for testing a data center's resiliency to perimeter breaches and internal server infections. The Monkey uses various methods to propagate across a data center and reports to this Monkey Island Command and Control server.

To read more about the Monkey, visit infectionmonkey.com

Go ahead and run the monkey.

A Little Bit of Zero Trust History

Jericho Forum	ZT	BeyondCorp	ZTX	ZTA
2004	2010	2014	2017	TODAY

De-perimiterization

An international group of corporate CISOs and vendors (Cisco hosted initial meeting)

Focused on solving “de-perimiterization” problem

Early output calling for “the need for trust”

Multiple models emerge

Forrester coined Zero Trust. NGFW biased

Google cloud first ZT arch, BeyondCorp

Forrester then expands to Zero Trust eXtended

Generalized

The industry has largely accepted Zero Trust Architecture as the general term

Customer Interest

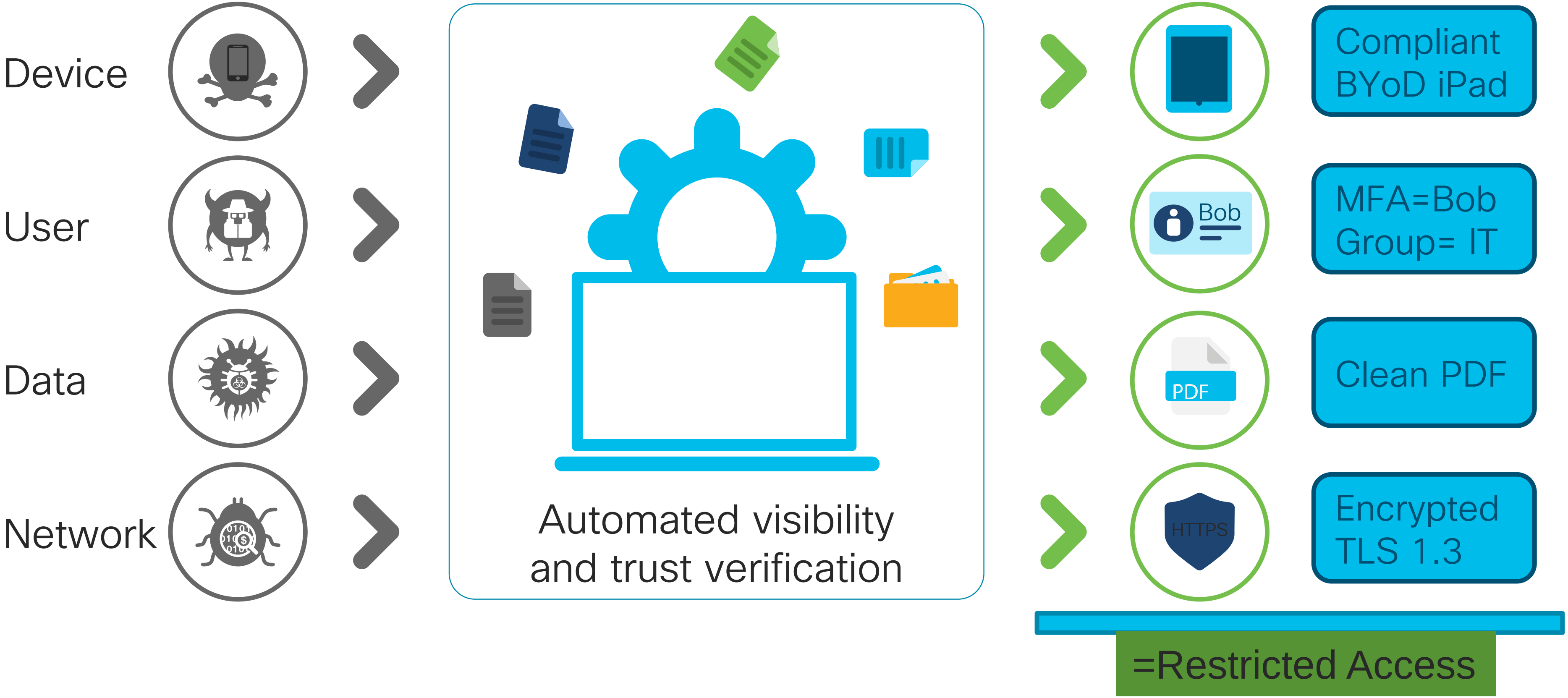
Basic Tenet of Zero Trust

The effect of Zero Trust is

Ubiquitous Least-Privilege Access

(i.e. grant access, but make it specific!)

Zero Trust: Assume Malicious Until Proven Otherwise



Device

User

Data

Network

Automated visibility and trust verification

Compliant BYoD iPad

MFA=Bob Group= IT

Clean PDF

Encrypted TLS 1.3

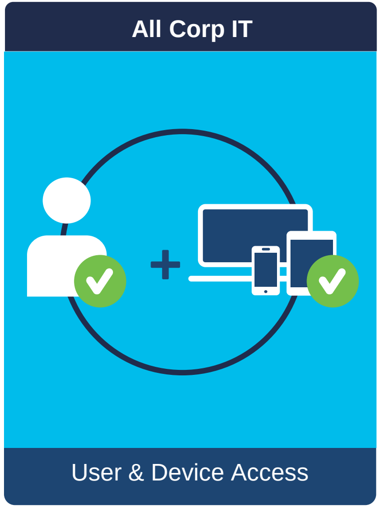
=Restricted Access

Cisco's Zero Trust Architecture

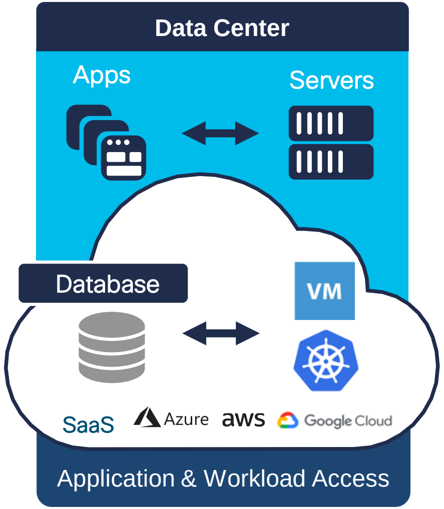
Securing Access

Access happens everywhere – how do you get visibility & ensure secure access?

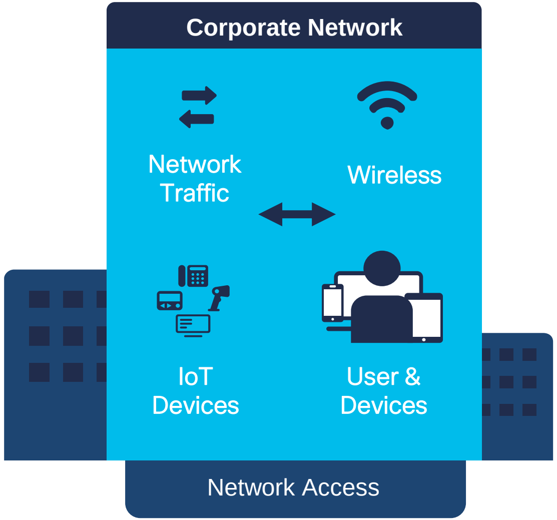
Workforce



Workload

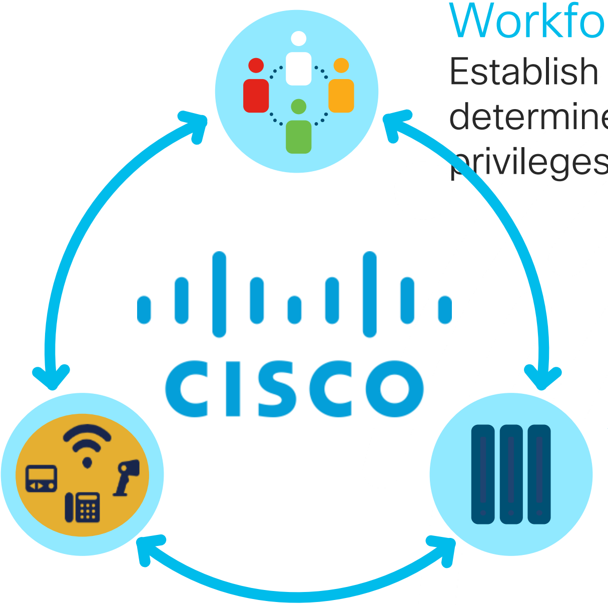


Workplace



Cisco Zero Trust Architecture

Simplifying the Journey: Cisco Zero Trust architecture in 3 critical areas



Workforce

Establish trust of users and devices to determine their application access privileges

Workplace

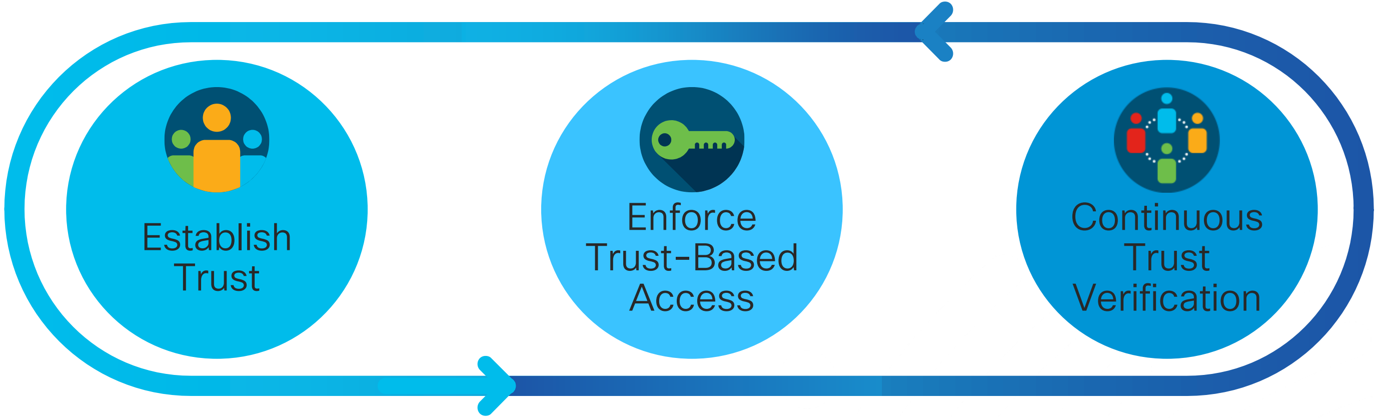
On networks you control, establish trust-based access control for users/devices and including IoT.

Workload

Minimizing the attack surface while enforcing least privilege access to/from our workloads

How does Cisco Zero Trust work?

3 Step Cyclical Process



Establish Trust

Enforce Trust-Based Access

Continuous Trust Verification

We establish trust by verifying:

- Multi-factors of User Identity
- Device context and Identity
- Device posture & health
- Location
- Relevant attributes and context

We enforce least privilege access to:

- Networks
- Applications
- Resources
- Users & Things

We continuously verify:

- Original tenets used to establish trust are still true
- Traffic is not threat traffic
- Behavior for any risky, anomalous or malicious actions
- If compromised, then the trust is broken

Cisco Zero Trust Journey

Primary Solutions

Duo for Workforce

Establish trust level for users and their devices accessing applications and resources

Tetration for Workload

Restrict access to workloads based on risk, contextual policy and verified business need

SD-Access for Workplace

Establish least privilege access control for all users and devices, including IoT, accessing your networks.

How does Cisco compare?

Cisco Zero Trust Architecture Differentiators

- ✓ *Time to Value*
- ✓ *Leaders in networking and Access*
- ✓ *Unrivaled Integrated Architecture*
- ✓ Usability and Automation
- ✓ Broadest End-to-End ZT Coverage
- ✓ Broadest Visibility and control of hosts

Microsoft
Google
kubernetes
aws
UNIX
vmware
IBM
vmware {api}
ORACLE
Symantec.
MobileIron
Azure
Ping Identity
SDK
okta
FORGEROCK
splunk>

Cisco Zero Trust Portfolio Depth

+ Enhance & Extend Trust

- Umbrella
- AMP
- Meraki
- AnyConnect
- SD-WAN
- Email Security
- Next-Generation Firewall
- ACI

+ Detect & Respond

- Cisco Threat Response (CTR)
- Stealthwatch

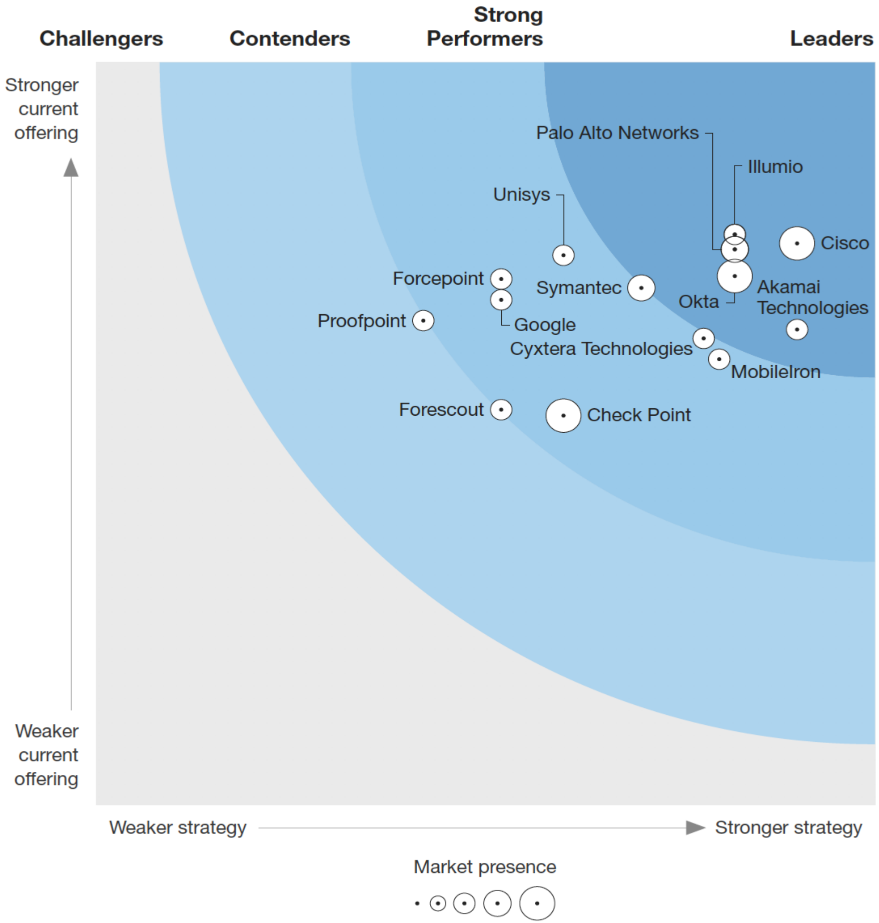
Cisco is the leader in ZT

- Q4 2019
- “Deployment and ease of use are strengths across the portfolio.”
- “Cisco excels in Zero Trust, with a renewed and targeted focus.”

THE FORRESTER WAVE™

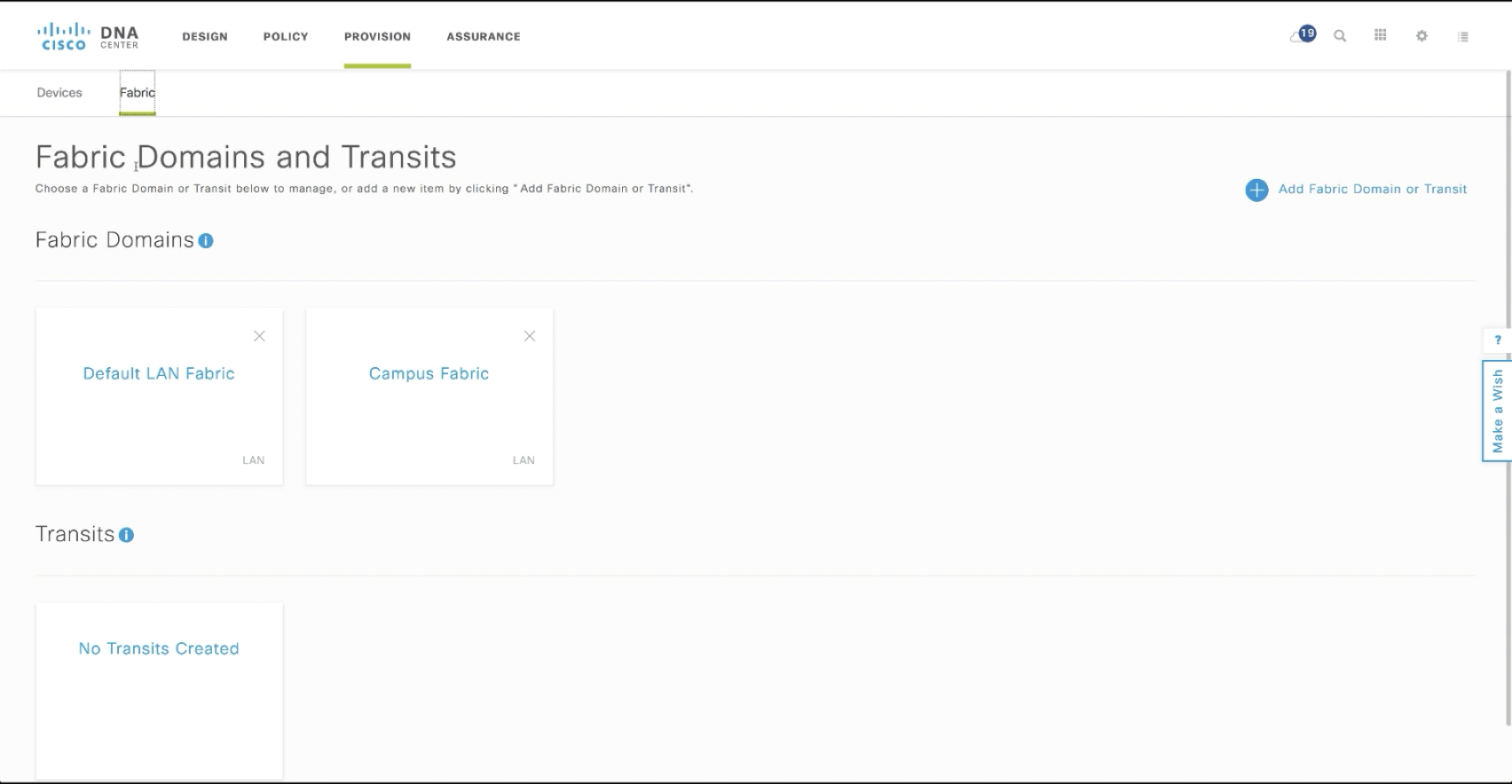
Zero Trust eXtended Ecosystem Platform Providers

Q4 2019



Demo: End-to-End Cisco Zero Trust Architecture

What’s the customer problem?	How Cisco helps:
I need to discover and classify my devices and application everywhere	Cisco SDA, Tetration, Duo
I need zero trust access control policy everywhere	Cisco SDA, Tetration, Duo
I need constant verification my users, devices and applications are trustworthy	Cisco SDA, Tetration, Duo



Fabric Domains and Transits

Choose a Fabric Domain or Transit below to manage, or add a new item by clicking "Add Fabric Domain or Transit".

Fabric Domains

Default LAN Fabric

LAN

Campus Fabric

LAN

Transits

No Transits Created

Let’s recap...

Customer problems: Solved!

1. Workplace - SD-Access
   - DNAC and ISE really streamlines deployment,
   - New ML profiling
   - Dynamic SGT-based access rules, integrated NGFW.
2. Workload – Tetration
   - Auto-Clustered apps together including ISE context
   - Dynamic, least-privilege application policy with one-click
   - Continuous trust with dashboard attack surface report
3. Workforce – Duo
   - Simple, powerful setup
   - Built-in integrations with tons of applications
   - One-click app enforcement: MFA, Biometric, device health, device trust

Establishing Trust

Cisco Zero Trust for Workforce

How to establish trust with Duo

Verify identity of users

WITH

Multi-factor authentication (MFA)

Ensure trustworthiness of devices

WITH

Endpoint posture & context visibility

Enforce risk-based and adaptive access policies

WITH

Per application access policies that vary based on risk tolerance levels

Zero Trust for the Workplace

How to Establish Trust with SD-Access & ISE

Establish Trust

Discover and classify devices

WITH

IoT device profiling
BYOD lifecycle management
User/device Posture

Enforce Trust-Based Access

Context-based network access control policy for users and things

WITH

Dynamic precise policies
Group-based (SGT)

Continuous Trust Verification

Continuous security health monitoring of devices

BY

Continuous Posture
Vulnerability assessments
Indications of compromise

Cisco Zero Trust for Workload

How to Establish Trust with Tetration

SaaS entry ~$35 Per workload/month!
$40K to start for 100 workloads
One license for workloads, all-in

Establish Trust

Application discovery and dependency maps

All Processes, cmds, files, users and network comms

Enforce Trust-Based Access

Automated, context-based, segmentation policy

Consistent policy:
Any workload, Anywhere

Continuous Trust Verification

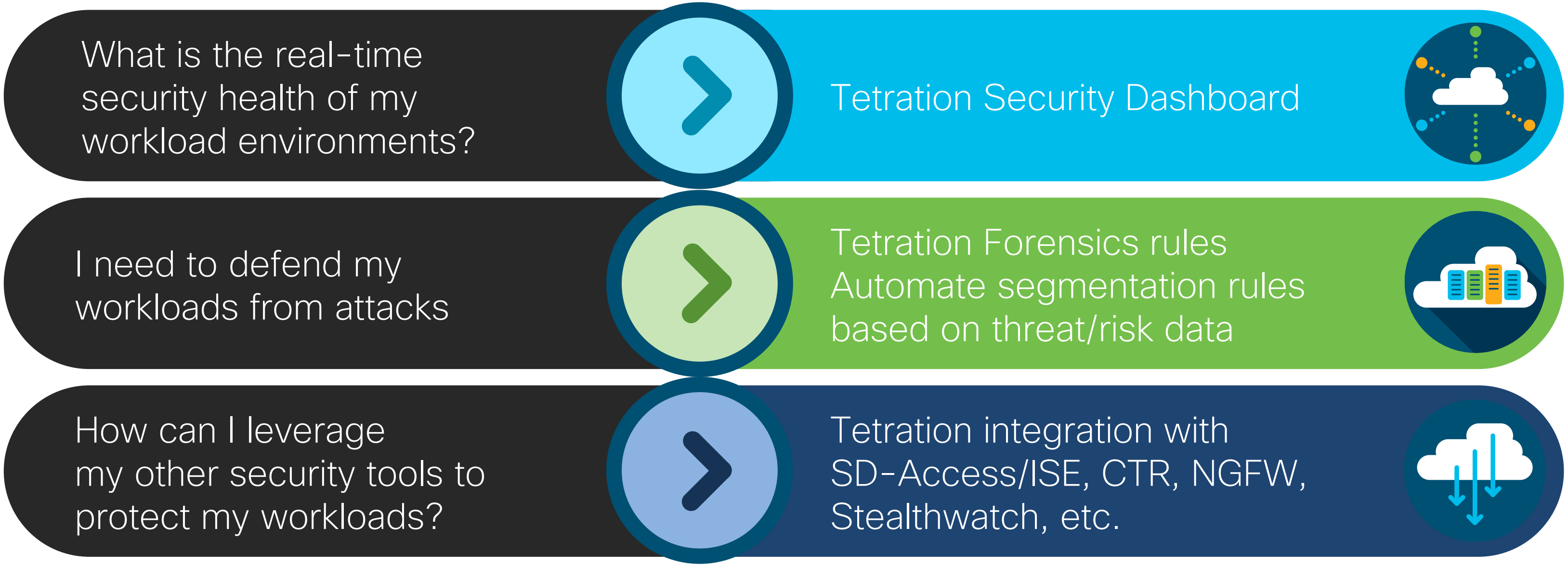
Security visibility and health score

Vulnerability, anomaly, forensic and threat data

Demo: Workload – Continuous Trust Verification

What's the customer problem?

How Cisco helps:



What is the real-time security health of my workload environments?

Tetration Security Dashboard

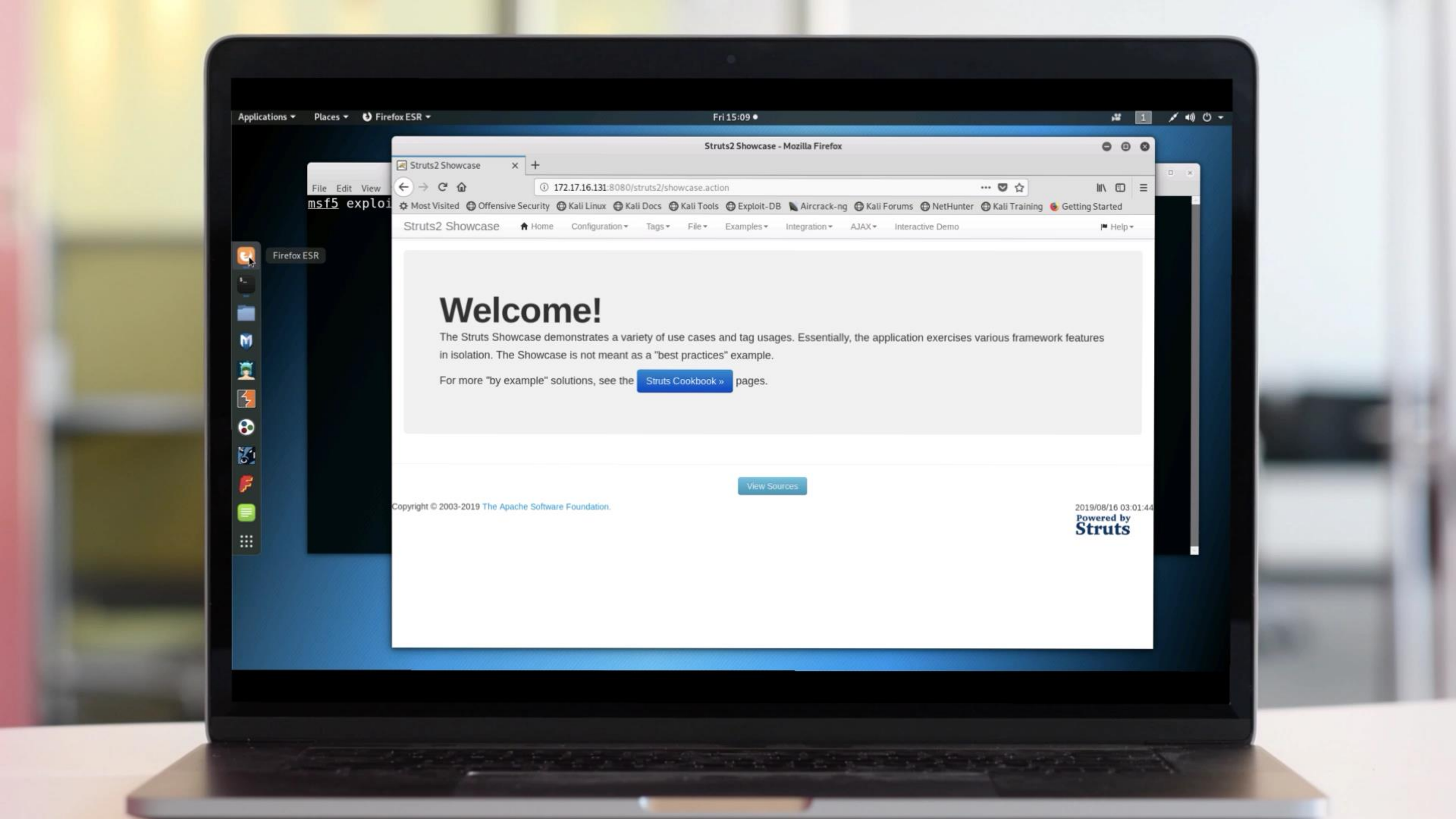
I need to defend my workloads from attacks

Tetration Forensics rules
Automate segmentation rules based on threat/risk data

How can I leverage my other security tools to protect my workloads?

Tetration integration with SD-Access/ISE, CTR, NGFW, Stealthwatch, etc.

Log and Audit Everything



```
msf5 exploi
```

Welcome!

The Struts Showcase demonstrates a variety of use cases and tag usages. Essentially, the application exercises various framework features in isolation. The Showcase is not meant as a "best practices" example.

For more "by example" solutions, see the Struts Cookbook » pages.

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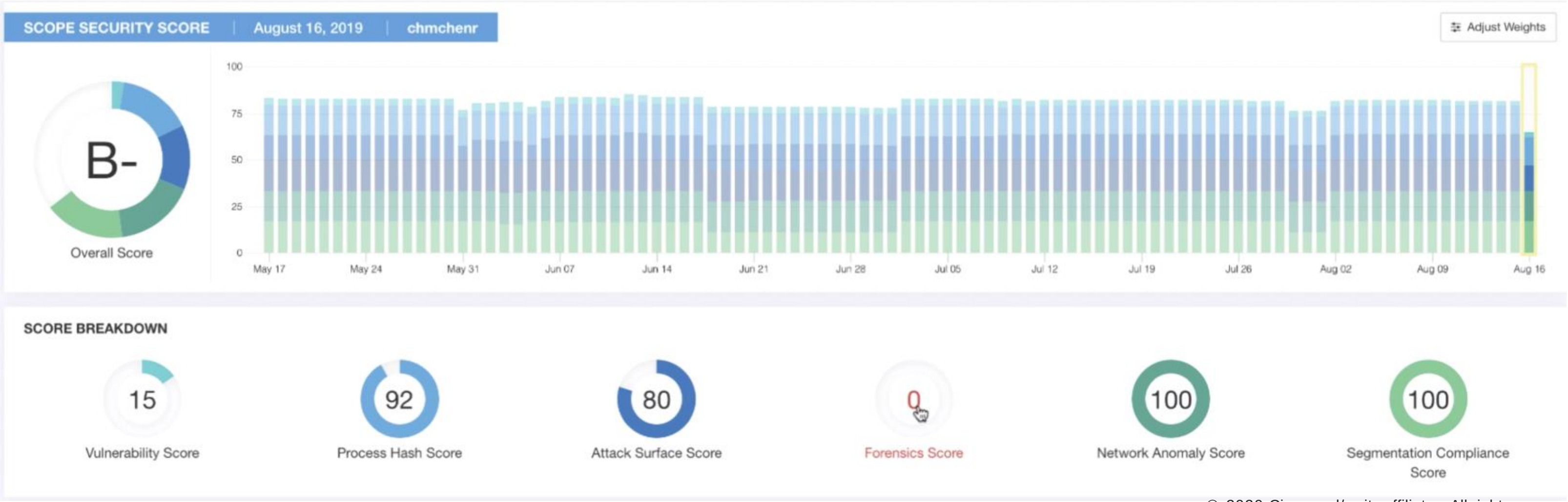
Let’s recap…

- Workload – Tetration – Workload Security
  - Security dashboard provided an overall health score
  - New vulnerability dashboard showed what was most critical to patch
  - Detailed forensics with new Att&ck tactics rules

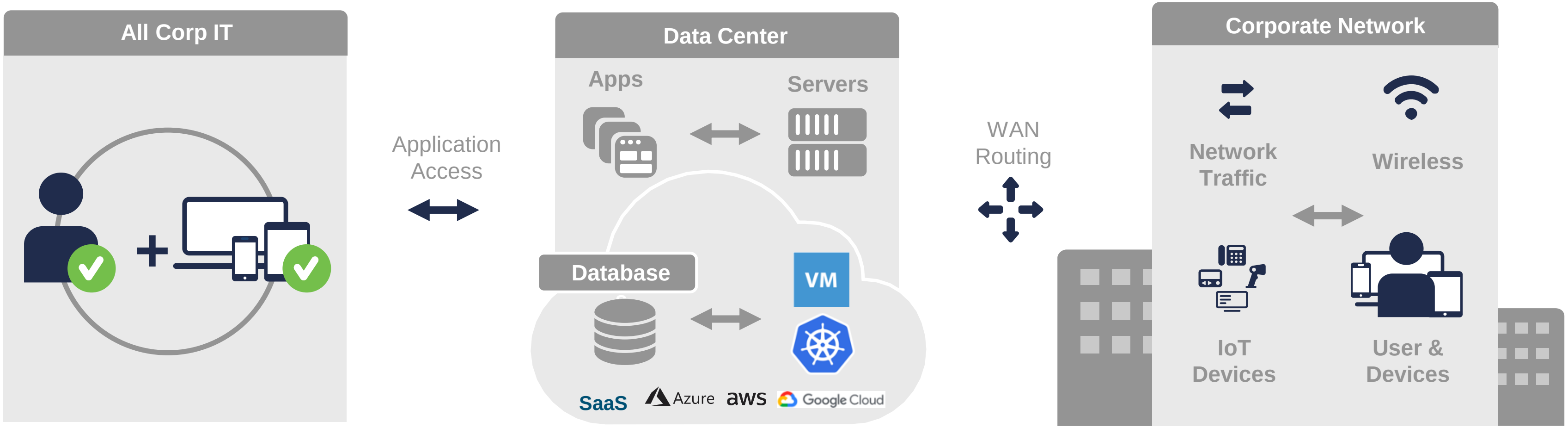


Cisco Zero Trust -Summary

Secure the Workforce
With Duo

Secure Your Workloads
With Tetration

Secure the Workplace
With Software-Defined Access



User & Device Access

MFA + Device Trust

Workload Access

Application Micro-Segmentation

Network Access

Secure Network Access Control

Visibility | **Policy** | **Enforce** | **Report**

Thank you

You make **possible**