The Threat Landscape is Transforming: Understand The Importance of Business-Critical Application Protection

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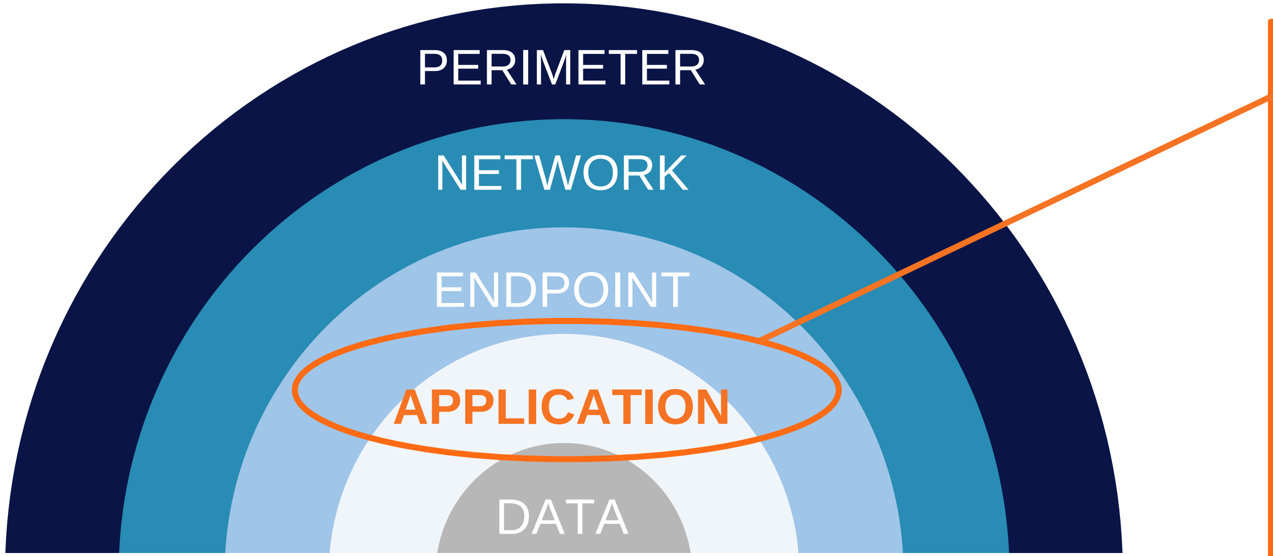
Traditional Defense-in-Depth Models Surround But Ultimately Neglect That Critical Application Layer



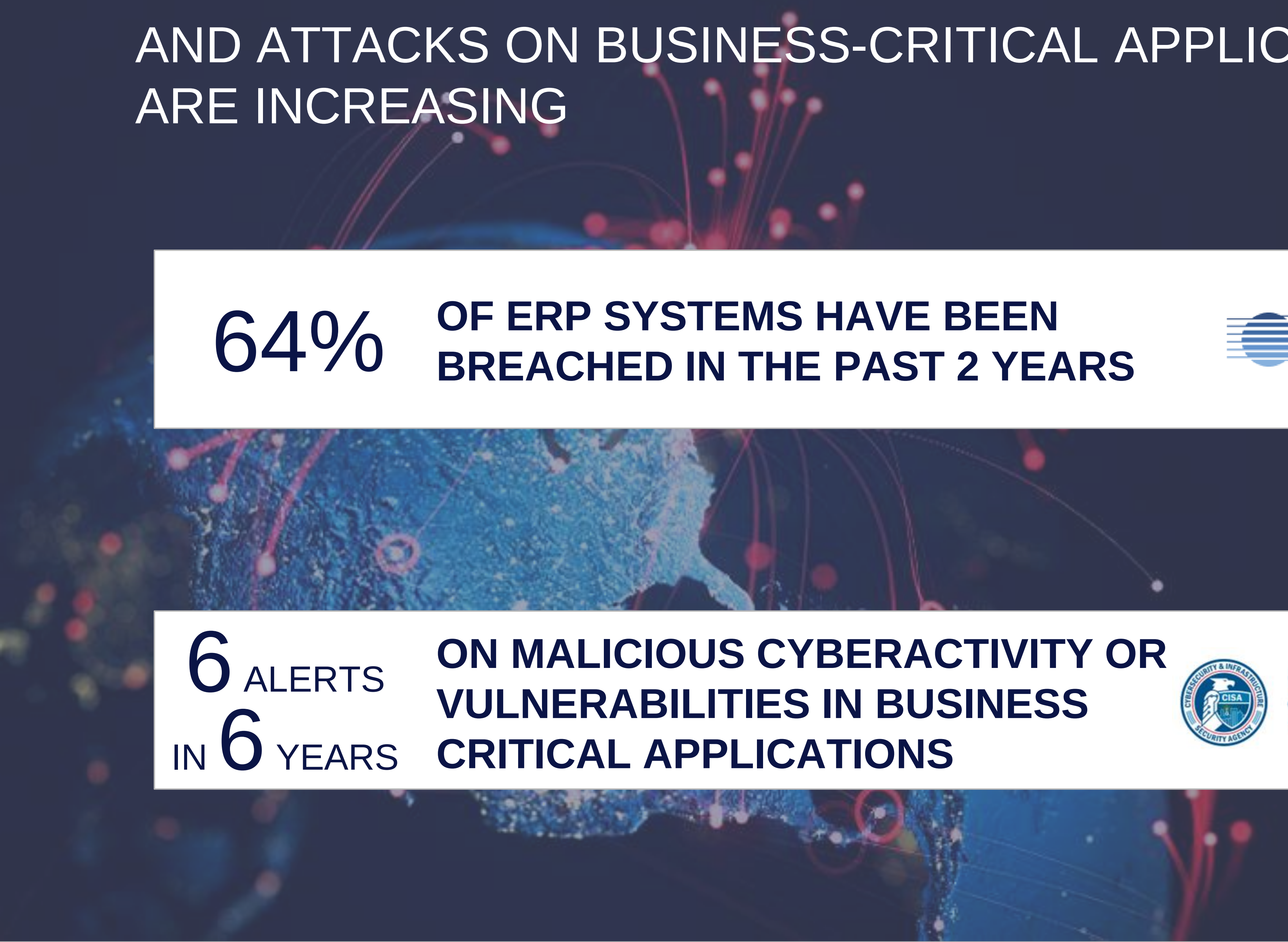
- **Attacks on the application layer** are the #1 concern of CIOs, YoY
- **Over 70%** say their application portfolio has become **more vulnerable** in the past year
- Almost **two-thirds of organizations have a backlog** of app vulnerabilities

Gartner®

> “*In-depth assessments of databases and applications, such as ERP systems (e.g., SAP or Oracle), are **not widely supported in traditional Vulnerability Assessment solutions**.*”

https://www.gartner.com/en/newsroom/press-releases/2021-05-17-gartner-forecasts-worldwide-security-and-risk-managem

AND ATTACKS ON BUSINESS-CRITICAL APPLICATIONS ARE INCREASING



64% **OF ERP SYSTEMS HAVE BEEN BREACHED IN THE PAST 2 YEARS**

IDC ANALYZE THE FUTURE

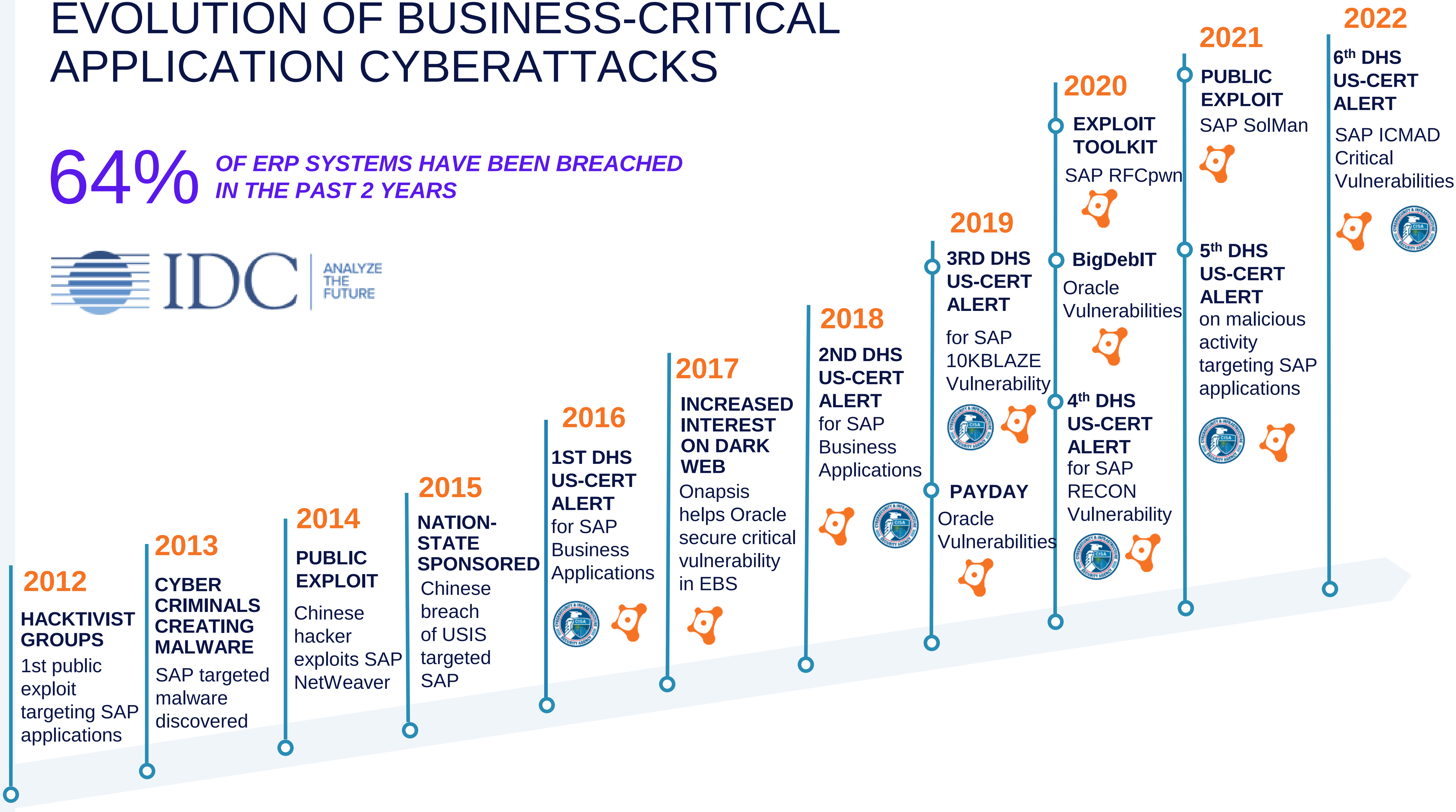
6 ALERTS IN 6 YEARS **ON MALICIOUS CYBERACTIVITY OR VULNERABILITIES IN BUSINESS CRITICAL APPLICATIONS**

CYBERSECURITY & INFRASTRUCTURE SECURITY AGENCY

EVOLUTION OF BUSINESS-CRITICAL APPLICATION CYBERATTACKS

64% *OF ERP SYSTEMS HAVE BEEN BREACHED IN THE PAST 2 YEARS*

IDC ANALYZE THE FUTURE



2012
HACKTIVIST GROUPS
1st public exploit targeting SAP applications

2013
CYBER CRIMINALS CREATING MALWARE
SAP targeted malware discovered

2014
PUBLIC EXPLOIT
Chinese hacker exploits SAP NetWeaver

2015
NATION-STATE SPONSORED
Chinese breach of USIS targeted SAP

2016
1ST DHS US-CERT ALERT
for SAP Business Applications

2017
INCREASED INTEREST ON DARK WEB
Onapsis helps Oracle secure critical vulnerability in EBS

2018
2ND DHS US-CERT ALERT
for SAP Business Applications

2019
3RD DHS US-CERT ALERT
for SAP 10KBLAZE Vulnerability

PAYDAY
Oracle Vulnerabilities

2020
EXPLOIT TOOLKIT
SAP RFCpwn

BigDebIT
Oracle Vulnerabilities

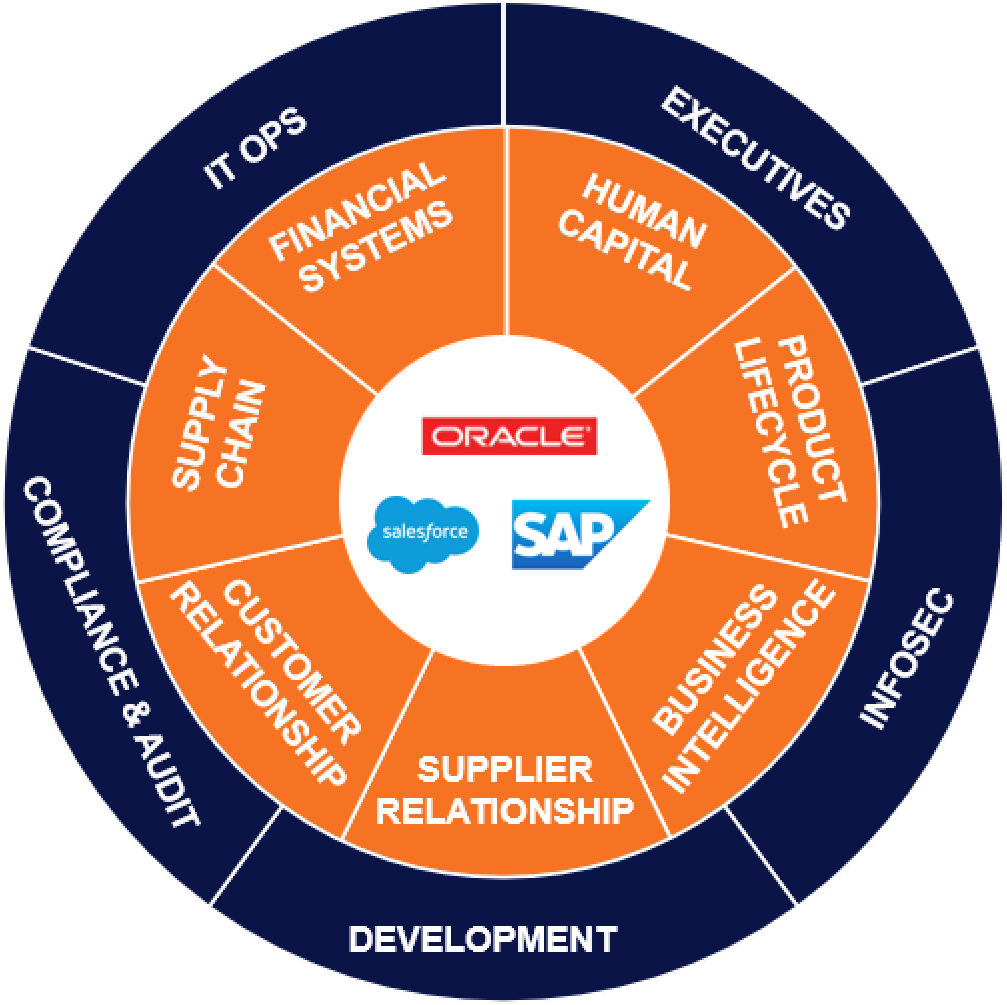
4th DHS US-CERT ALERT
for SAP RECON Vulnerability

2021
PUBLIC EXPLOIT
SAP SolMan

5th DHS US-CERT ALERT
on malicious activity targeting SAP applications

2022
6th DHS US-CERT ALERT
SAP ICMAD Critical Vulnerabilities

BUSINESS-CRITICAL APPLICATIONS POWER YOUR BUSINESS



92% of the Global 2000 use SAP or Oracle[1]

77% of the world's revenue touches these systems[2]

1 in 5 enterprise applications are SaaS-based[3]

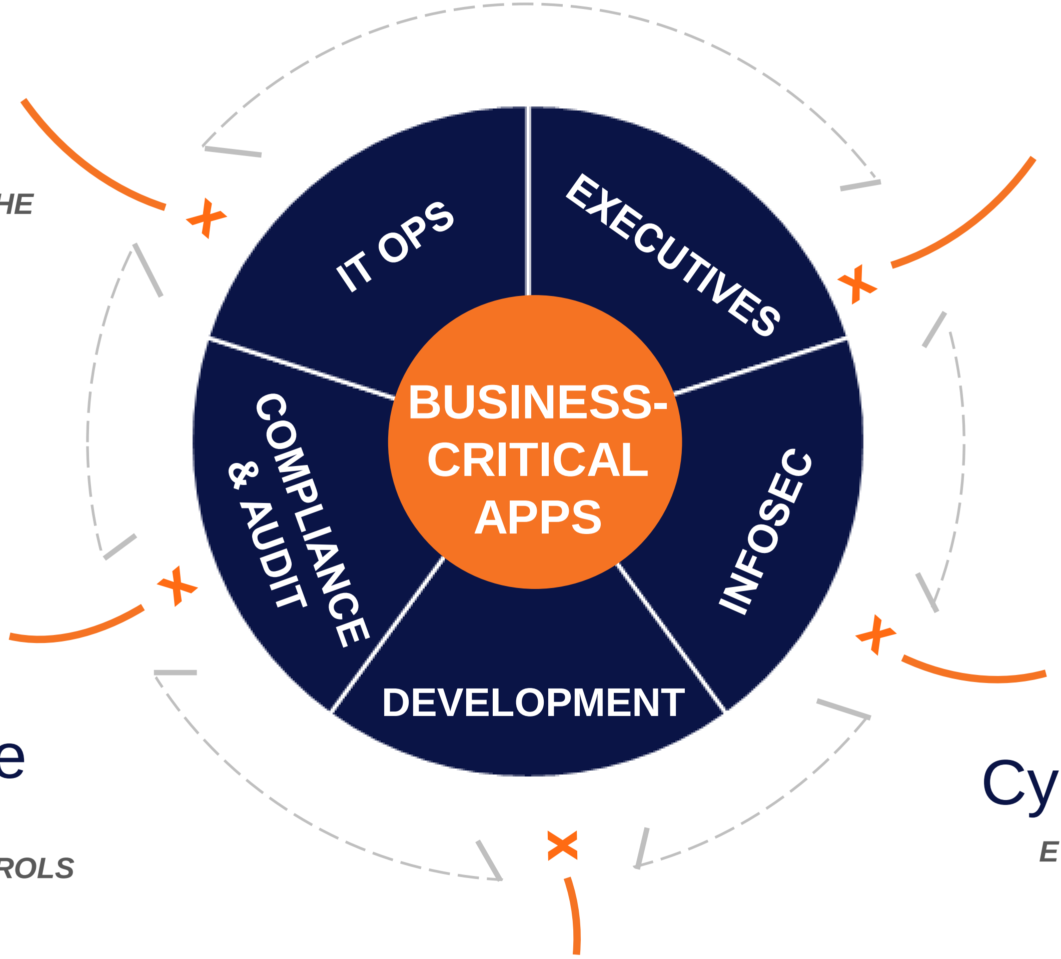
WE’RE FACING A PERFECT STORM OF COMPLEXITY

Cloud

IS EVAPORATING THE PERIMETER

Digital Transformation

FORCING VELOCITY NOT SECURITY



Compliance

DRIVING STRICTER AND AUTOMATED CONTROLS

Cyberattackers

EVOLVED TO TARGET THE CORE

Constant Change

ERRORS CAN DISRUPT BUSINESS OPERATIONS

ONAPSIS RESEARCH LABS

Stay ahead of ever-evolving cybersecurity threats with the world's leading threat research on business-critical applications

- **Onapsis influences 40%+ of SAP's critical notes and 60% of ALL Hana notes**
- Onapsis products automatically updated with latest threat intel and security guidance
- Receive advanced notification on critical issues and improved configurations
- **Get pre-patch protection ahead of scheduled vendor updates**

Discovered

800+

zero-day vulnerabilities in business-critical apps

14

Out-of-the-box compliance policies, plus ability to customize

6

US DHS critical alerts based on our research

17

Patents, 8 issued & 9 pending

Knowledgebase of

10,000+

vulnerabilities and attacks on business applications

Threat Intelligence from Onapsis and SAP

THREAT ACTORS ARE MORE SOPHISTICATED…

400+
CONFIRMED EXPLOITATIONS

107+
HANDS-ON ATTACKS

18
UNIQUE COUNTRIES
* may include VPS / TOR

…AND THE WINDOW TO DEFEND IS SHRINKING

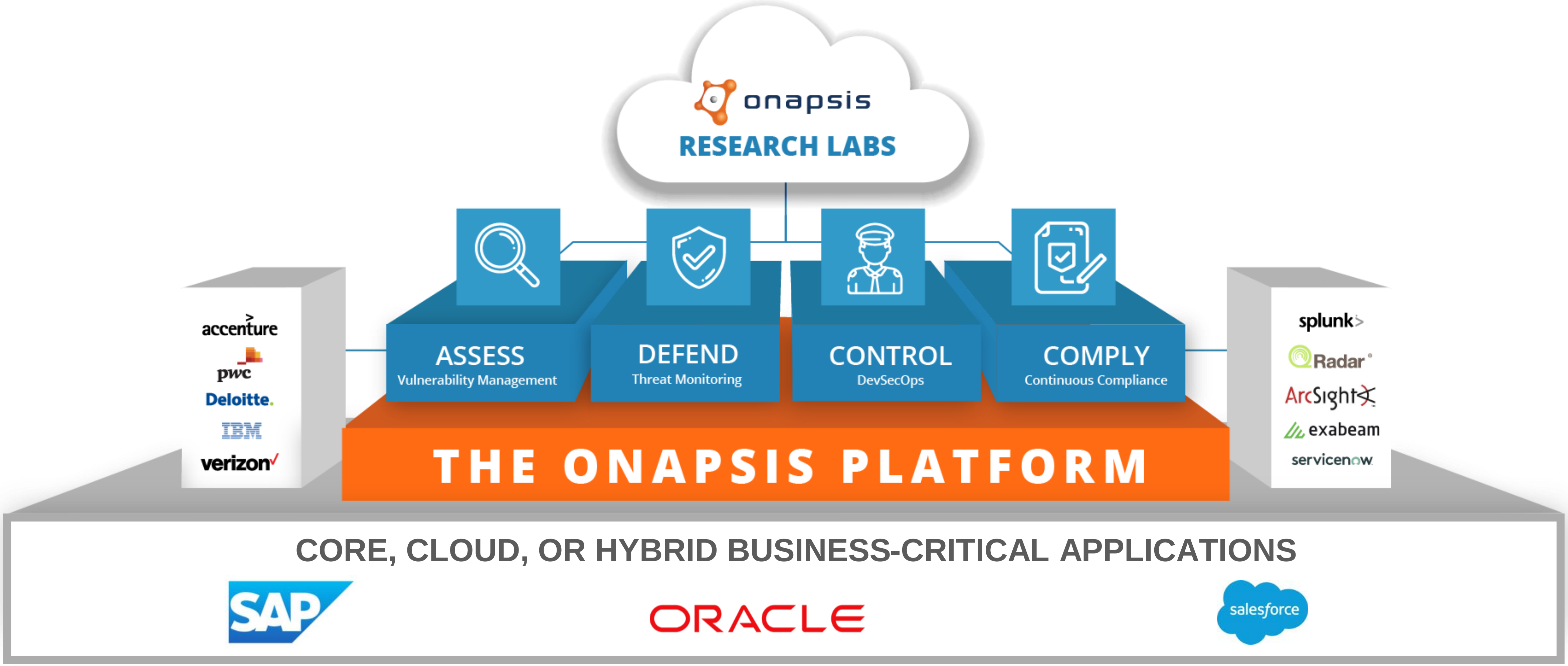
<72hrs
SAP PATCH RELEASE TO EXPLOITATION

<3hrs
NEW SYSTEM ONLINE TO BEING EXPLOITED

Data based on direct observation of threat activity against OTIC, upon unmarked systems becoming online. Data is not based on exploitation on SAP customers' environments.

ONAPSIS BRINGS BUSINESS-CRITICAL APPLICATIONS INTO SCOPE

Unprecedented visibility into business-critical applications across your enterprise



onapsis RESEARCH LABS

ASSESS Vulnerability Management

DEFEND Threat Monitoring

CONTROL DevSecOps

COMPLY Continuous Compliance

THE ONAPSIS PLATFORM

CORE, CLOUD, OR HYBRID BUSINESS-CRITICAL APPLICATIONS

THE ONAPSIS PLATFORM | PRODUCTS & FUNCTIONALITY

ASSESS

Vulnerability Management

- System misconfigurations, missing patches
- Authorization issues, default accounts/roles
- Assess if systems are configured in line with best practices

Integrations with workflow services:

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DEFEND

Continuous Threat Monitoring

- Real-time attack alerts
- Monitor for exploits, user activity / transactions, privilege misuse
- Alert for dangerous program executions

Integrations with SIEMs:

splunk> ArcSight Radar exabeam

CONTROL

Application Security Testing & Transport Inspection

- Identify security, compliance, and quality errors in SAP custom code
- Identify SAP transports that would cause import errors, outages, downgrades, security or compliance issues

Integrations with change management and development environments:

SAP CharM, TMS, HANA Studio, Eclipse, Web IDE, ABAP development workbench

COMPLY

Continuous Compliance

- Evaluate compliance impact of system vulnerabilities, misconfigurations, patches, authorizations, deployed code (SAP)
- Out-of-the-box & custom policies
- Evaluate and verify IT controls

Integrations with compliance automation solutions:

SAP SAP Process Control

MANAGEMENT FUNCTIONALITY

- Reporting & Analysis
- Ticketing/SOC Integration
- Scheduling & Workflows
- Asset Discovery
- Users & Role Management

WHY ONAPSIS?

- Gain visibility into risk and business impact
- Monitor for internal and external threats
- Build security into app development lifecycle
- Maintain compliance and enforce baselines

PROTECT YOUR BUSINESS-CRITICAL APPS.
PROTECT YOUR BUSINESS.

ONAPSIS HIGHLIGHTS

#1
Market Category Leader

400+
Global Employees

300+
Customers, 20% Fortune100

94%
Customer Retention

SAP® Endorsed App
Premium Certified

AMERICA'S FASTEST-GROWING
Inc. 5000
PRIVATE COMPANIES

INFOSEC AWARDS
WINNERS
CYBER DEFENSE MAGAZINE
2020

CYBERSECURITY
BREAKTHROUGH
AWARD
2020

ONAPSIS PARTNERS | APPLICATION PROTECTION ECOSYSTEM

TECHNOLOGY ALLIANCES

SAP Endorsed App
Premium Certified

ORACLE Gold Partner

ArcSight
An HP Company

servicenow

splunk>

QRadar

Azure Sentinel

exabeam

CLOUD PROVIDERS

Microsoft Azure

Google Cloud

amazon web services

SAP HANA

ORACLE ERP Cloud

SYSTEM INTEGRATORS & MSSP

IBM

Deloitte.

pwc

accenture

Infosys
Navigate your next

verizon

THANK
YOU

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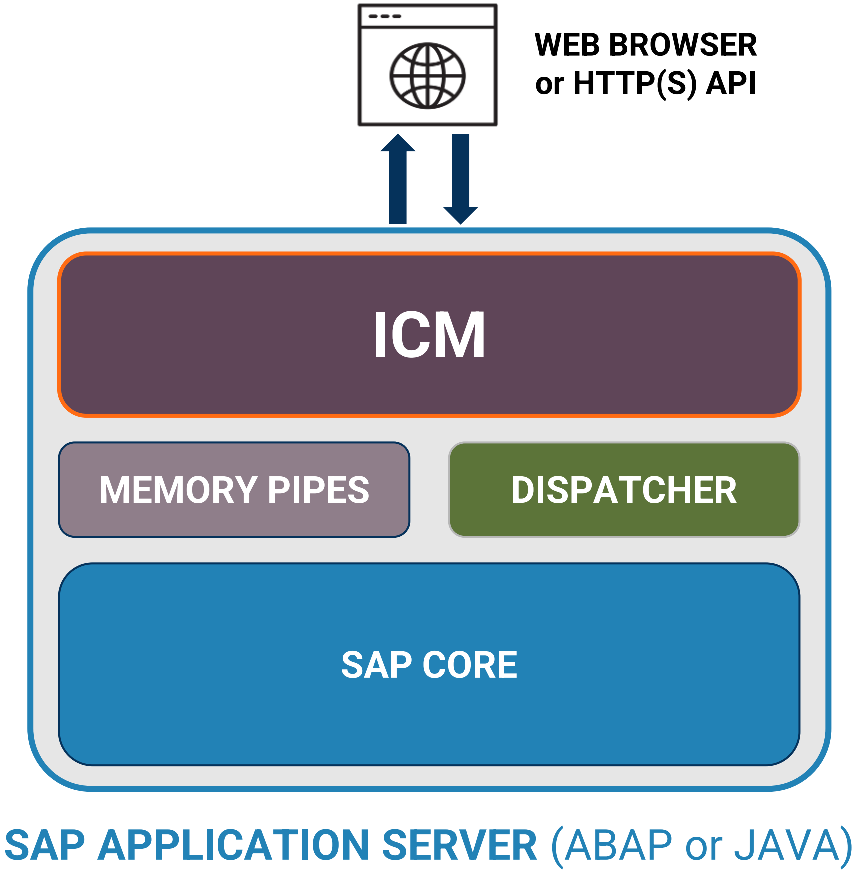
The SAP Internet Communication Manager (ICM) Is Everywhere…



Examples of SAP Systems That May Use ICM to Connect Externally

- Key component of the SAP NetWeaver AS that **ensures communication** between the SAP system and the outside world, as well as other SAP systems over HTTP interfaces.
- Required if the SAP NetWeaver AS needs to **communicate with the Internet via HTTP(S)** and other protocols (e.g., SMTP, IIOP).
- Always present and **exposed by default** in an SAP Java stack
- Required to **run web applications** in SAP ABAP (Web Dynpro) and S/4HANA systems.

The Immediate Business Impact for SAP Customers

40K

POTENTIALLY IMPACTED SAP CUSTOMERS

10K+

SAP APPLICATIONS EXPOSED TO THE INTERNET

- **Exploitation may allow a remote, unauthenticated attacker to:**
  - Hijack cookies/user sessions
  - Steal usernames and passwords
  - Exfiltrate confidential or sensitive information
  - Perform an internal denial of service attack to disrupt operations

- **Prior threat intel from SAP, CISA, and Onapsis** notes that threat actors are **targeting business-critical applications** with more frequency and sophistication.

- **SAP and Onapsis are not currently aware** of known customer breaches related to these issues and they have **not been detected in the wild**.

THIS MEANS BUSINESS-CRITICAL APPS ARE EXCLUDED FROM EXISTING CYBERSECURITY PROGRAMS

VULNERABILITY MANAGEMENT

- Systems managed by other teams, no visibility for InfoSec
- More processes moving to SaaS applications
- Increasing reliance on third-party developed apps

57% *Unable to quickly identify vulnerabilities at application level*[1]

54% *Unable to effectively monitor privileged access*[2]

THREAT DETECTION & RESPONSE

- No continuous monitoring, no visibility for SOC
- Reliance on manual log reviews to identify threat activity
- No ability to establish compensating controls

63% *Unable to monitor & prevent attacks at application level*[1]

APPLICATION SECURITY TESTING

- Reliance on manual code reviews
- Problems aren't identified until they hit production
- Security is a final check, not built into DevOps process

79% *Do not build security features into app development*[1]

[1] https://www.cpomagazine.com/cyber-security/application-security-backsliding-over-70-of-organizations-say-their-portfolio-is-more-vulnerable/

[2] https://www.helpnetsecurity.com/2019/10/15/privileged-user-abuse/

WHAT HAPPENS IF YOU DON'T FIX THIS?

Data Loss or Breach

74% Of breaches involved access to privileged account[1]

28% Of breaches are due to missing application patches[2]

System Outages

52% Of security events caused operational outage that affected productivity[3]

over $50k/ hour Average cost of ERP application downtime[4]

Compliance Findings

$5M Average yearly cost of business disruption due to non-compliance[5]

$2M Average yearly cost of fines and penalties due to non-compliance[5]

Project Delays

52% Of cloud migrations are delayed due to security concerns[6]

Reputation Damage

7.3% Average decrease in stock price following a security breach[7]

[1] Centrify
[2] DarkReading
[3] Fortinet
[4] Onapsis

[5] Ascent
[6] TechRepublic
[7] Forbes

ASSESS | VULNERABILITY & SECURITY POSTURE MANAGEMENT

- **Visibility** into vulnerabilities, misconfigurations and security posture
- **Understand risk** and business impact
- **Manage issues** with built-in workflows and integrations with external ticketing systems

servicenow

- **Streamline remediation** with detailed step-by-step technical solutions
- **Report** on vulnerability and security posture over time via dashboards and exportable exec summaries

60%	Decrease in remediation efforts
75%	Issue investigation time eliminated due to low false positive rate
95%	Less time identifying and investigating vs manual efforts
60%	Time saved preparing executive reports
80%	Time saved scheduling patches with built-in prioritization

DEFEND | THREAT DETECTION & RESPONSE

- **Continuous monitoring** and real-time alerts for over 3,000+ threat indicators
- **Prioritize** alerts based on stakeholder risk posture and/or systems
- **Respond** quickly to active threats via detailed alarm notifications
- **Analyze Root Cause** by sending threat information to SIEMs and correlating with other system logs

splunk> ArcSight Azure Sentinel

exabeam QRadar

75%	Improved incident response times
50%	Reduced forensic investigation time
100%	SAP log forwarding enables correlation with other logs

CONTROL FOR CODE | SAP APPLICATION SECURITY TESTING

- **Identify** security, compliance, and quality issues in “real-time” or in batches before release
- **Understand** business risk and criticality
- **Manage** issues via built-in approval workflows
- **Resolve** with detailed step-by-step remediation guidance
- **Mass correction** services available to automate the fix of bulk issues

25x	Faster than manual review processes
1 minute	Scan up to 150,000 lines of code
<5%	False positive rate
75%	Reduction in errors making it into production
50 - 80%	Common findings automatically fixed with optional service

CONTROL FOR TRANSPORT | SAP TRANSPORT INSPECTION

- **Comprehensive inspection** of all SAP transports (including third-party)
- **Resolve** with detailed step-by-step remediation guidance
- **Integrate** with existing change and transport management systems
- **Prevent** import errors, business outages, downgrades, security vulnerabilities, and compliance violations
- **Protect** sensitive data from manipulation and espionage

100%	Automated transport inspection lifts the burden of a manual review process
75%	Reduction of unexpected outages
100%	Visibility into 3rd party transports without importing into SAP
462 Hours	Saved per system per year on investigating and fixing transport errors
$35K	Saved per system per year by eliminating import errors in production

COMPLY | AUTOMATED COMPLIANCE TESTING & VERIFICATION

- **Automate evidence collection** to prepare for internal/external audits
- **Automate testing and validation** of IT controls against customizable policies
- **Prioritize** issues based upon criticality and compliance impact
- **Understand** effectiveness of IT controls and business impact of identified issues
- **Continuously assess** to proactively measure risk, stay ahead of audit cycle, and maintain compliance
- **Avoid** deficiencies and material findings

92%	Of tasks associated with controls testing can be automated
90%	Reduction in time spent testing IT controls
$100K	Saved per year compared to manual audit processes

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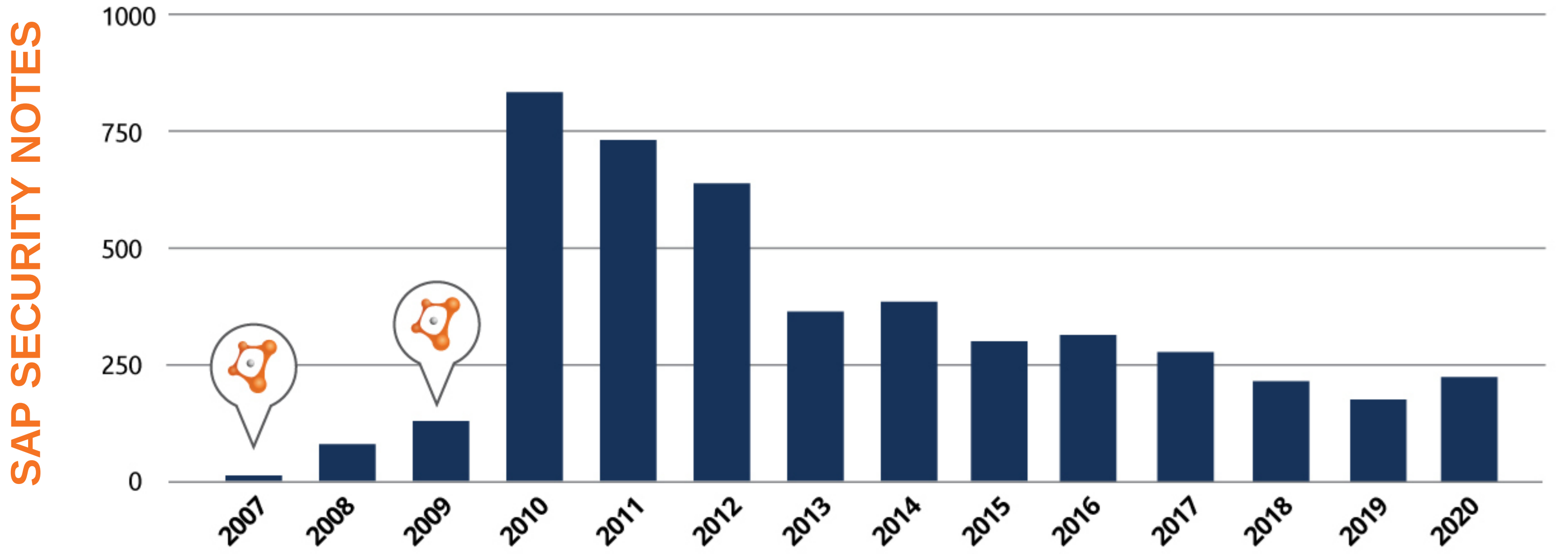

Onapsis researchers 1st to present on SAP security at Black Hat

Onapsis founded

Onapsis Influence on 2020 SAP Security Notes

40% of critical notes

18% of all notes

Discovered

800+

zero-day vulnerabilities in mission-critical applications

Mitigated

60%

of SAP HANA unpatched vulnerabilities

Created

14

out-of-the-box compliance policies for The Onapsis Platform, plus ability to customize

Database of

350+

test cases for performance, robustness, maintainability, security and compliance issues in SAP code and transports