TEC103 – Overview of Features, Functions and Services in Security Products from SAP

SAP TECHED

Speakers

Las Vegas, Sept 19 - 23

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Bangalore, October 5 - 7

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Barcelona, Nov 8 - 10

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Agenda

Introduction and the SAP security products portfolio

Platform security capabilities

SAP on-premise solutions for identity & access governance

- SAP Single Sign-on
- SAP Identity Management and SAP Access Control

SAP Cloud Identity Access Governance: services

Cyber security

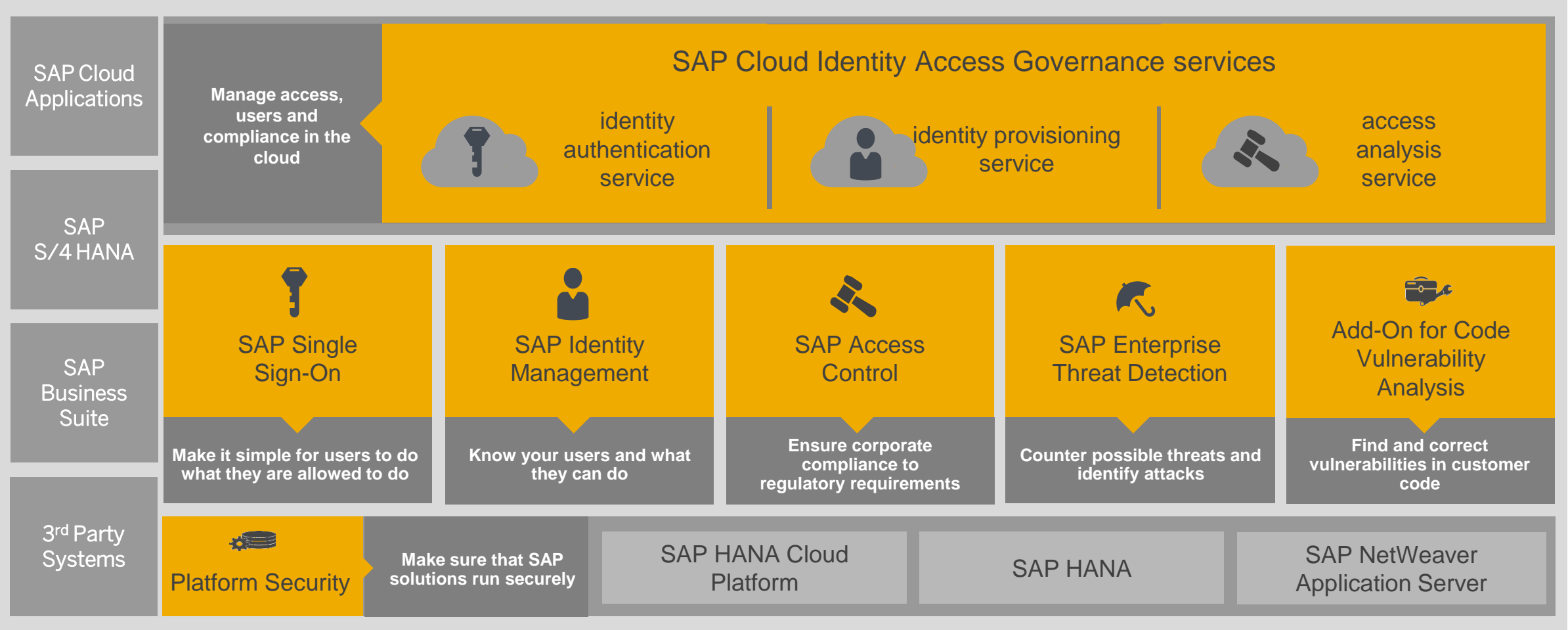- SAP Enterprise Threat Detection

Secure software development

- SAP NetWeaver Application Server, add-on for code vulnerability analysis
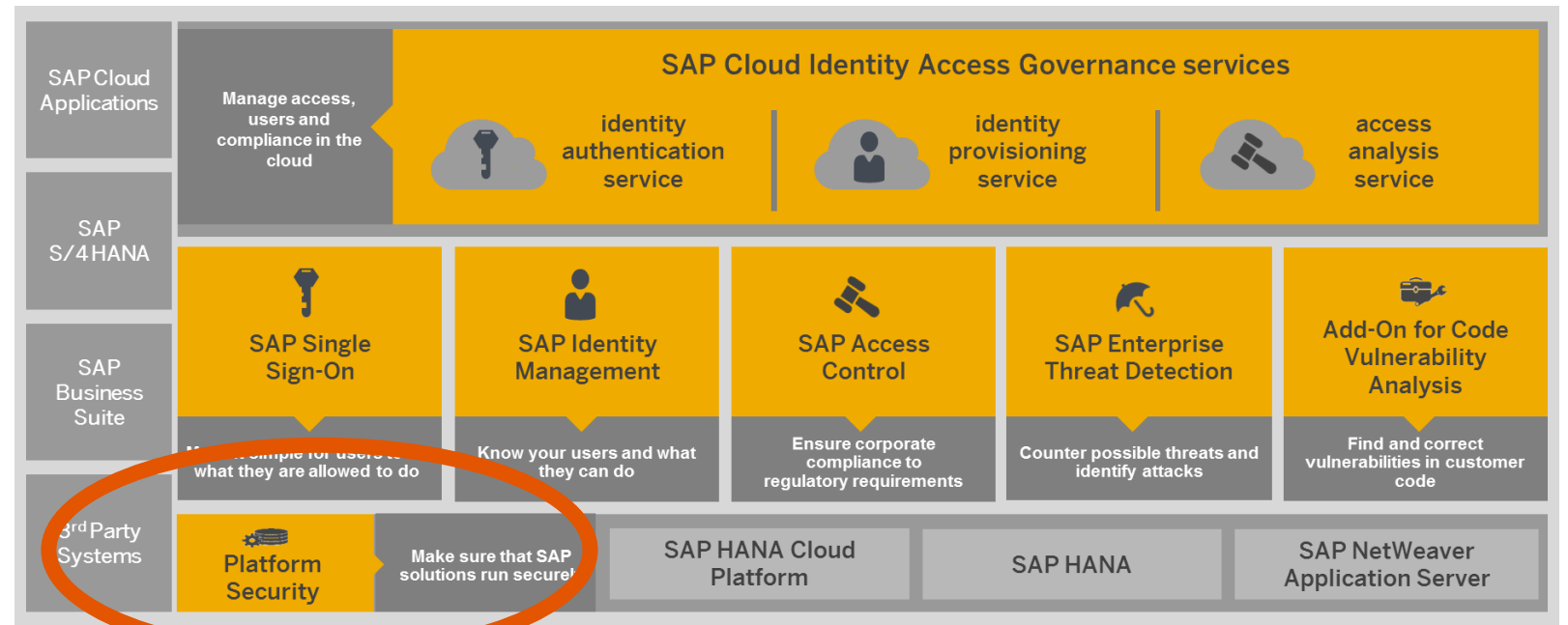
Protecting your SAP systems

- Cloud and infrastructure security
- Secure product development
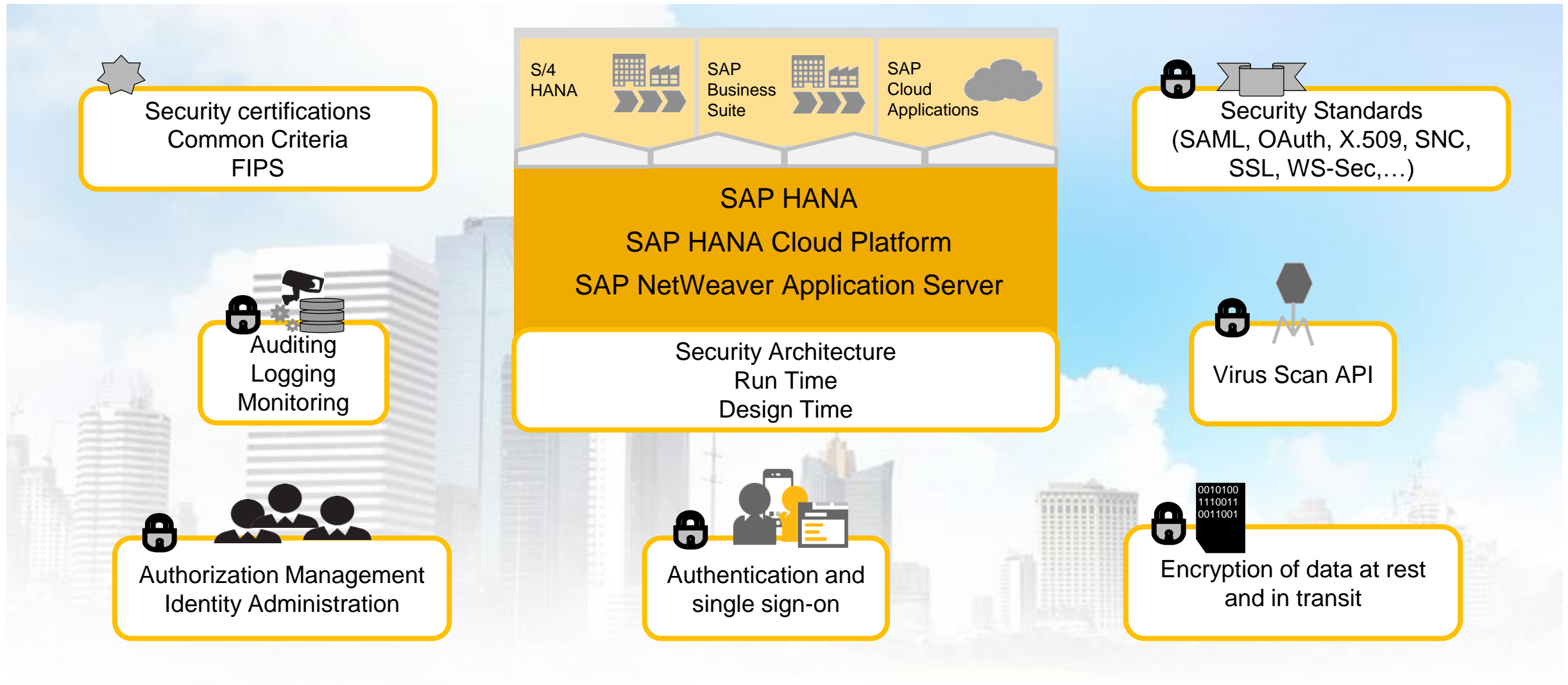
SAP security and GRC access governance portfolio

SAP Cloud Applications	**Manage access, users and compliance in the cloud**	SAP Cloud Identity Access Governance services		
		identity authentication service	identity provisioning service	access analysis service
SAP S/4 HANA				
SAP Business Suite	**SAP Single Sign-On**	**SAP Identity Management**	**SAP Access Control**	**SAP Enterprise Threat Detection** / **Add-On for Code Vulnerability Analysis**
	Make it simple for users to do what they are allowed to do	**Know your users and what they can do**	**Ensure corporate compliance to regulatory requirements**	**Counter possible threats and identify attacks** / **Find and correct vulnerabilities in customer code**
3rd Party Systems	**Platform Security** **Make sure that SAP solutions run securely**	SAP HANA Cloud Platform	SAP HANA	SAP NetWeaver Application Server

Platform security capabilities

Explore the built-in security features of our technology platforms

SAP platforms: common security capabilities

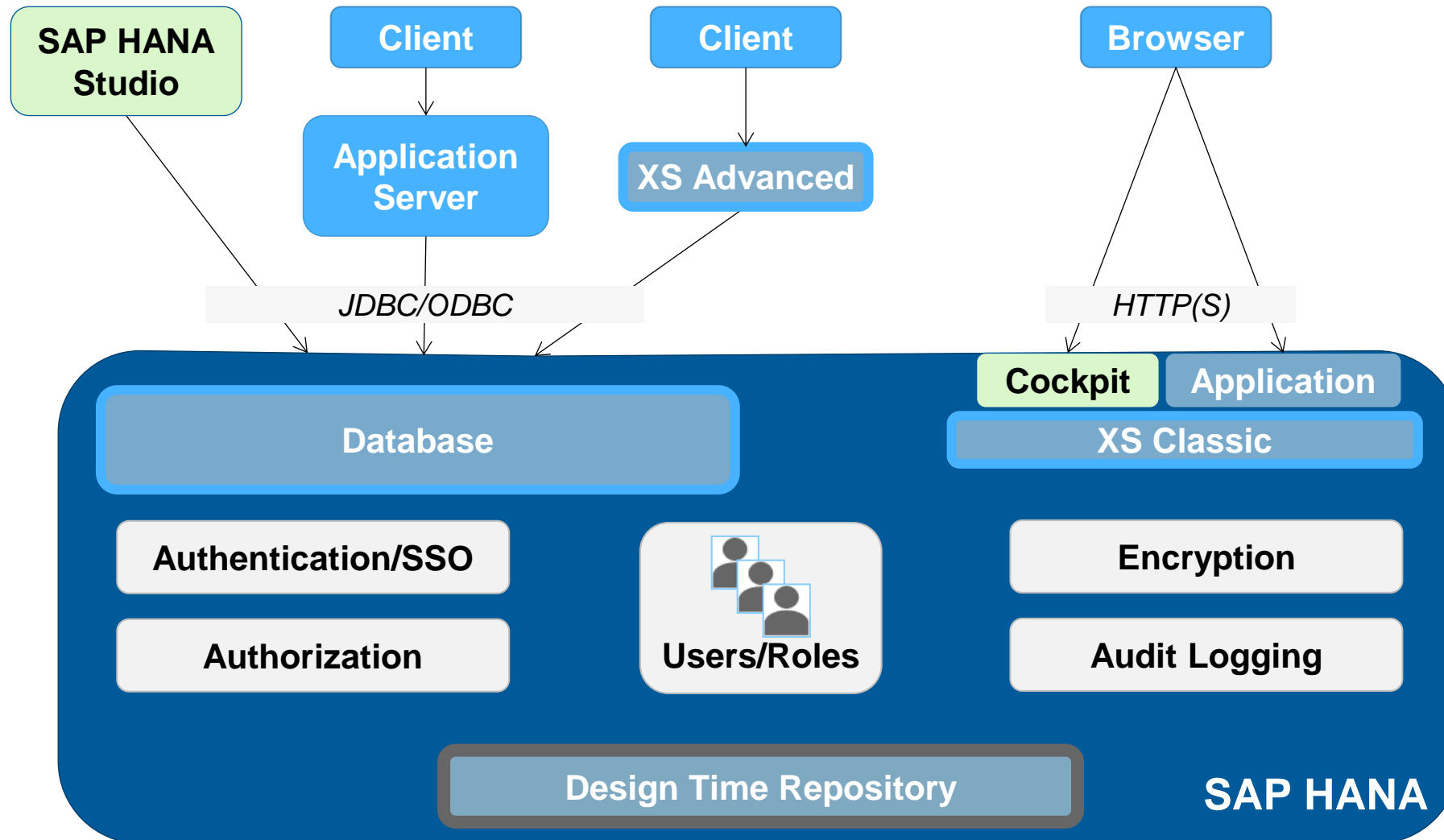

Security certifications
Common Criteria
FIPS

Auditing
Logging
Monitoring

Authorization Management
Identity Administration

S/4
HANA

SAP
Business
Suite

SAP
Cloud
Applications

SAP HANA

SAP HANA Cloud Platform

SAP NetWeaver Application Server

Security Architecture
Run Time
Design Time

Authentication and
single sign-on

Security Standards
(SAML, OAuth, X.509, SNC,
SSL, WS-Sec,…)

Virus Scan API

Encryption of data at rest
and in transit

SAP HANA security

Meet compliance requirements, implement different security policies, and integrate SAP HANA into the existing security infrastructures
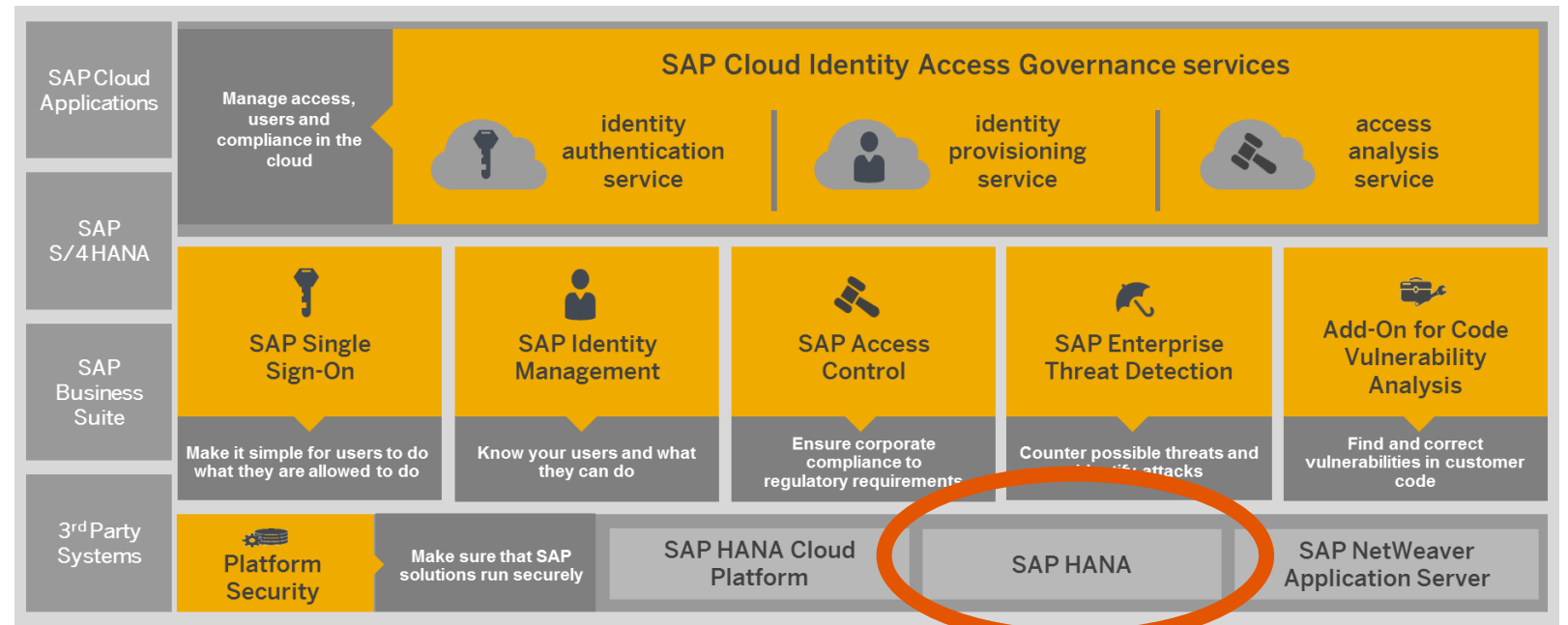
SAP HANA's unified security architecture

SAP HANA Studio

Client → Application Server

Client → XS Advanced

Browser

JDBC/ODBC

HTTP(S)

SAP HANA

Cockpit | Application
XS Classic

Database

Authentication/SSO

Authorization

Users/Roles

Encryption

Audit Logging

Design Time Repository

SAP HANA Cloud Platform

Leverage the security features of SAP HANA Cloud Platform to ensure security in cloud and Internet of Things (IoT) scenarios

SAP HANA Cloud Platform security services

The SAP HANA Cloud Platform security services provide delegated authentication and authorization services across applications

Key capabilities

- Identity federation with SAML 2.0-based identity providers

- Flexible groups- and role-based authorization management

- Secure API protection with OAuth 2.0

- Protection against common web attacks (XSS and XSRF)

- Secure end-to-end identity propagation to on-premise systems

- On-premise user directory integration via SCIM 1.1 (e.g. for user search)

- Full automation and integration of the service via platform APIs

Benefits

- Out-of-the-box identity federation without changing a single line of code

- Easy-to-use security mechanisms to protect and control application access in pure cloud and hybrid scenarios

Access protected resource

User Authentication

Applications on SAP HANA Cloud Platform

Delegate Authentication

Identity provider
(SAP HANA Cloud Platform services: identity provisioning service, identity authentication service, single sign-on, 3rd. party identity provider)
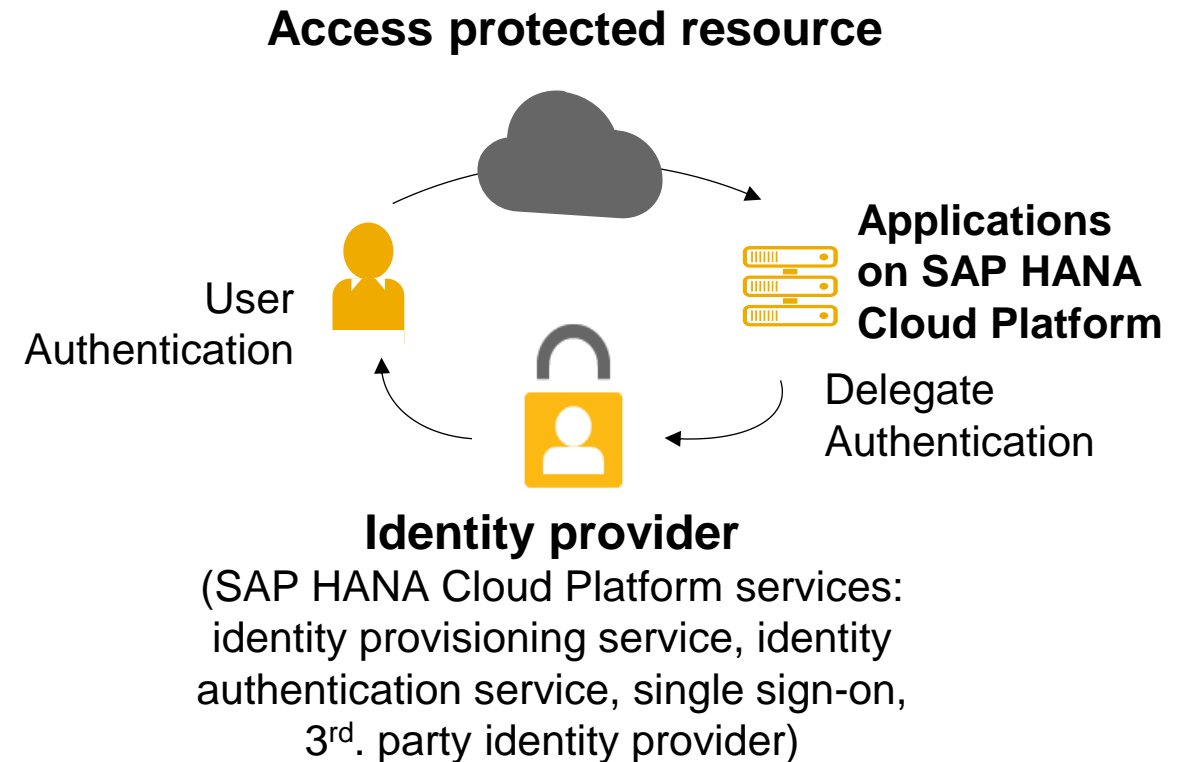
SAP NetWeaver platform

Security engineered from the ground up: benefit from the comprehensive security infrastructure and innovative features of the SAP NetWeaver technology platform
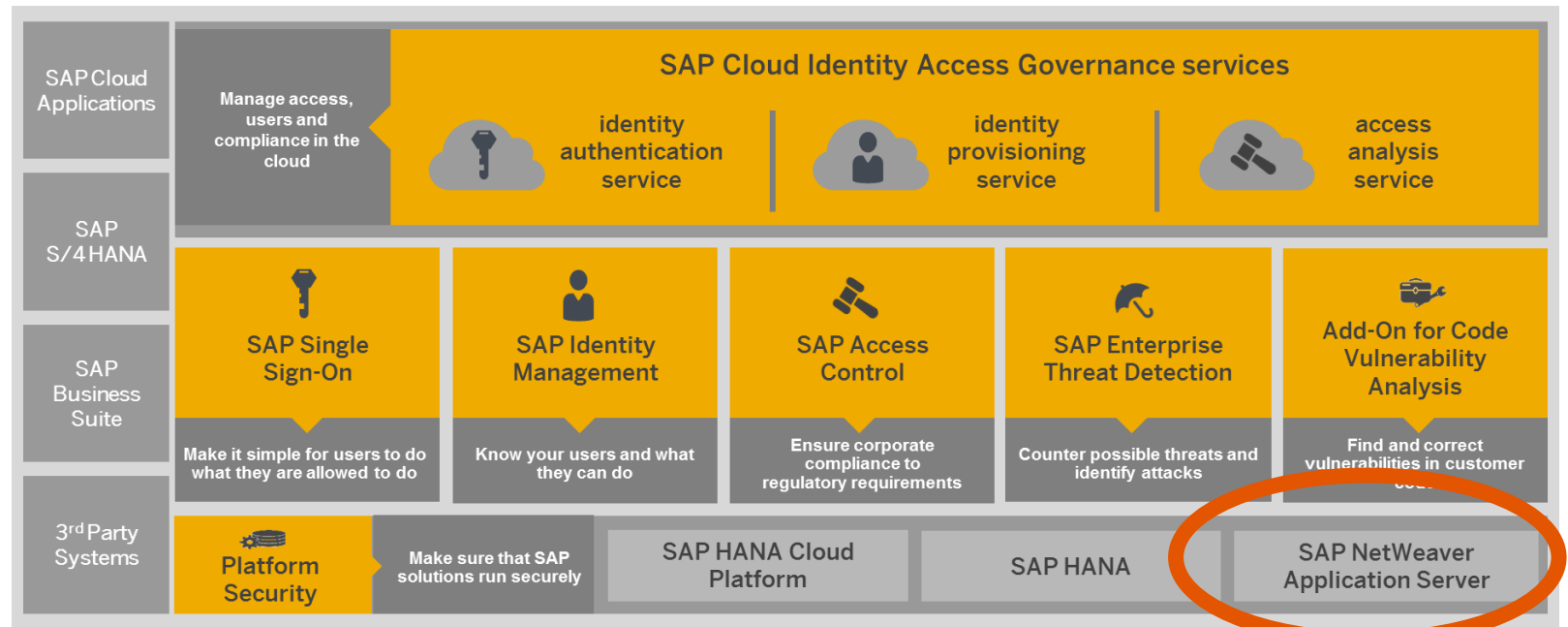
Spotlight on: Unified Connectivity (UCON)

Reduce the overall attack surface of your remote-enabled function modules (RFMs). Enhance RFC security by blocking the access to a large number of RFMs

- Most SAP ERP customers run just a limited number of the business (and technical) scenarios for which they need to expose some RFMs
- A lot of RFMs are only used to parallelize within a system
- Find out which RFMs need to be exposed for specific customer scenarios
- Block access to all other RFMs

Logging of RFMs called from outside → Evaluation / Simulation → Runtime checks active
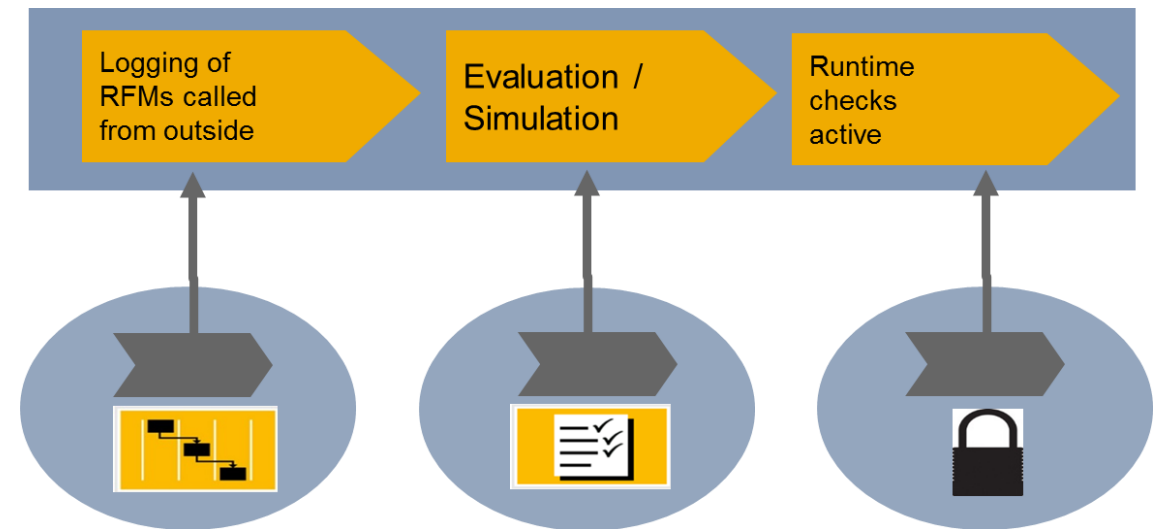
Spotlight on: Read Access Logging

Log all access to classified or sensitive data and support the evaluation of these events

Read access logging allows you to track
- **Who** accessed the data
- **Which** data was accessed
- **When** was the data accessed
- **How** was the data accessed,
  (which transaction or user interface was used)

Amount of detail to be logged is customizable
- **User interfaces** used to access the data
- **Operations** executed on remote APIs
- **Users** using remote APIs / user interfaces
- **Entities and their content**

Entry points	Read access log framework		
UI channel	Configurations	Log writer	Log data in database
Remote API channel	Log conditions		Log monitor
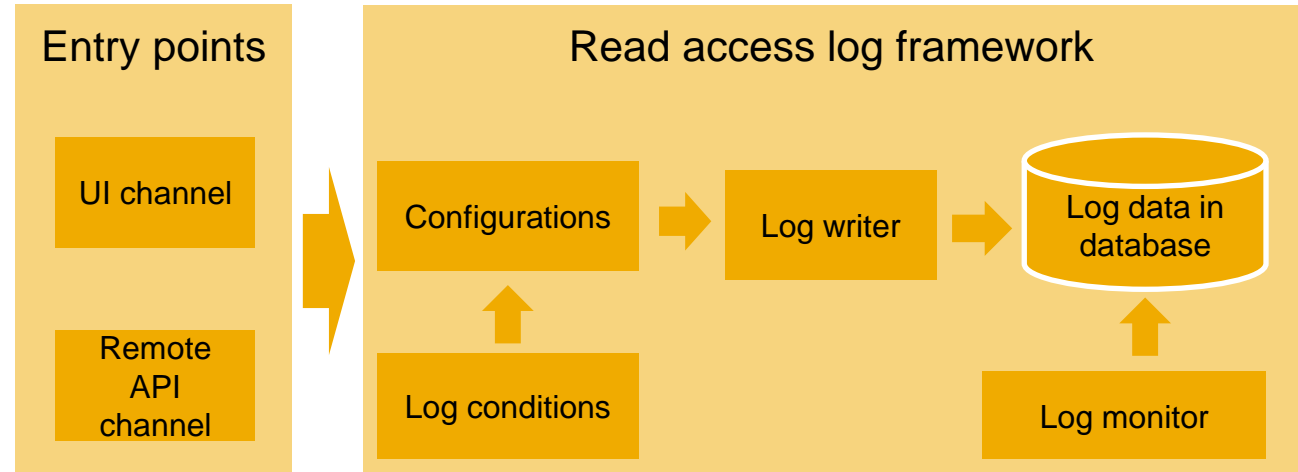
SAP on-premise solutions for identity and access governance
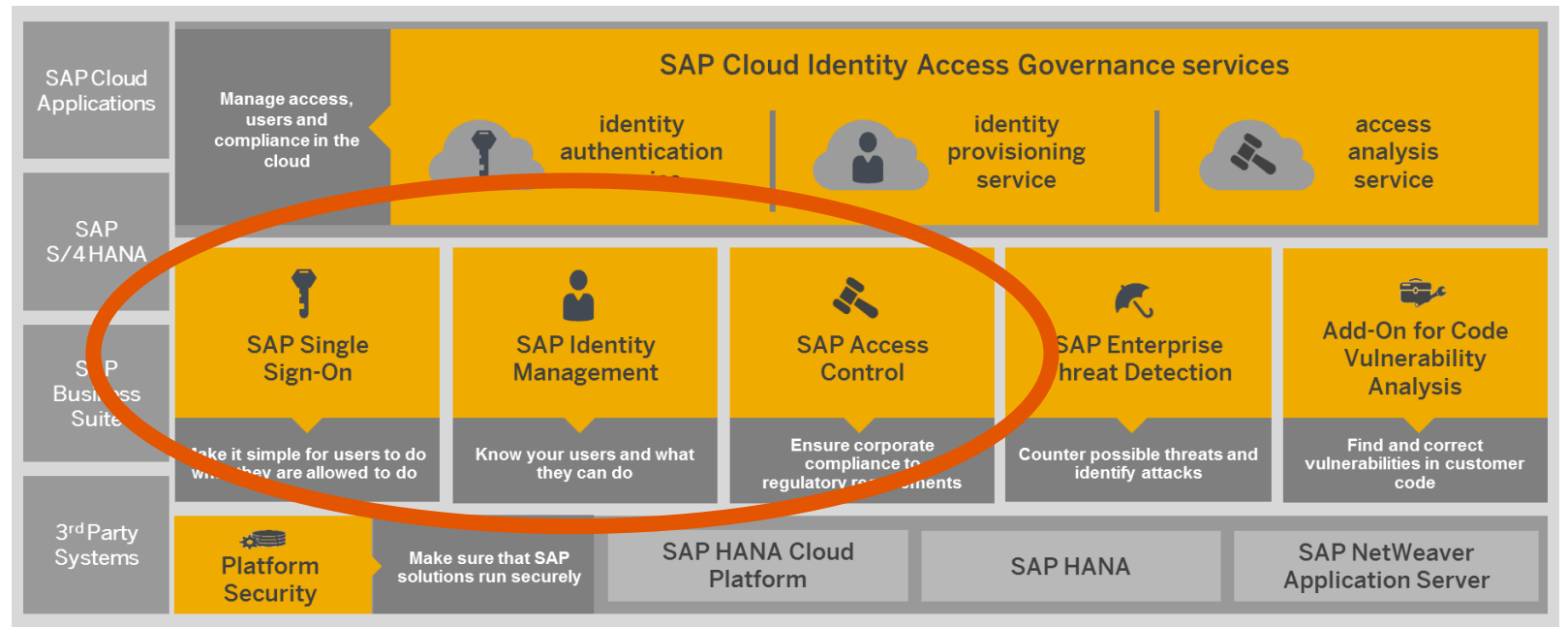
SAP Single Sign-On

SAP Single Sign-On provides simple, secure access to IT applications for business users. It offers advanced security capabilities to protect your company data and business applications

Simple and secure access

- Single sign-on for native SAP clients and web applications
- Single sign-on for mobile devices
- Support for cloud and on-premise landscapes

Secure data communication

- Encryption of data communication for SAP GUI
- Digital signatures
- FIPS 140-2 certification of cryptographic functions

Advanced security capabilities

- Two-factor and risk-based authentication
- Authentication with smart cards or RFID tokens
- Hardware security module support
- Simplified management of backend security capabilities

Cloud and cross-company

SAP and non-SAP applications

SAP Business Suite
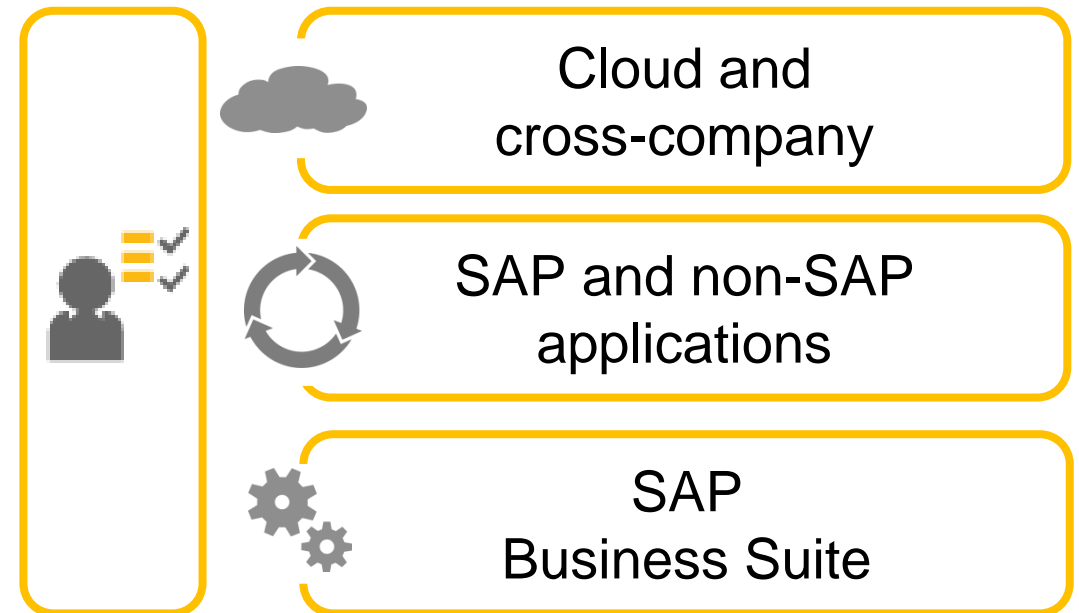
SAP Identity Management

Grant and manage user access to applications securely and efficiently while meeting audit and compliance requirements

Full identity lifecycle support

- Integration with SAP ERP HCM and SuccessFactors
- Central workflows for permission requests
- Context/rule based permissions and roles
- Integration with SAP Access Control for compliance checks
- Identity analytics

User interfaces

- Flexible identity schema via configuration only
- RESTful interfaces for SAP UI5 on different devices
- Eclipse-based development environment

Connectors

- Connectors and connector framework
- Support of new cloud-based applications
- Simple Cloud Identity Management Schema (SCIM) support

Virtualization and Federation

- Virtual directory server
- Identity federation

SAP cloud identity provisioning service

SAP Business Suite

SAP Access Control

SAP Identity Management
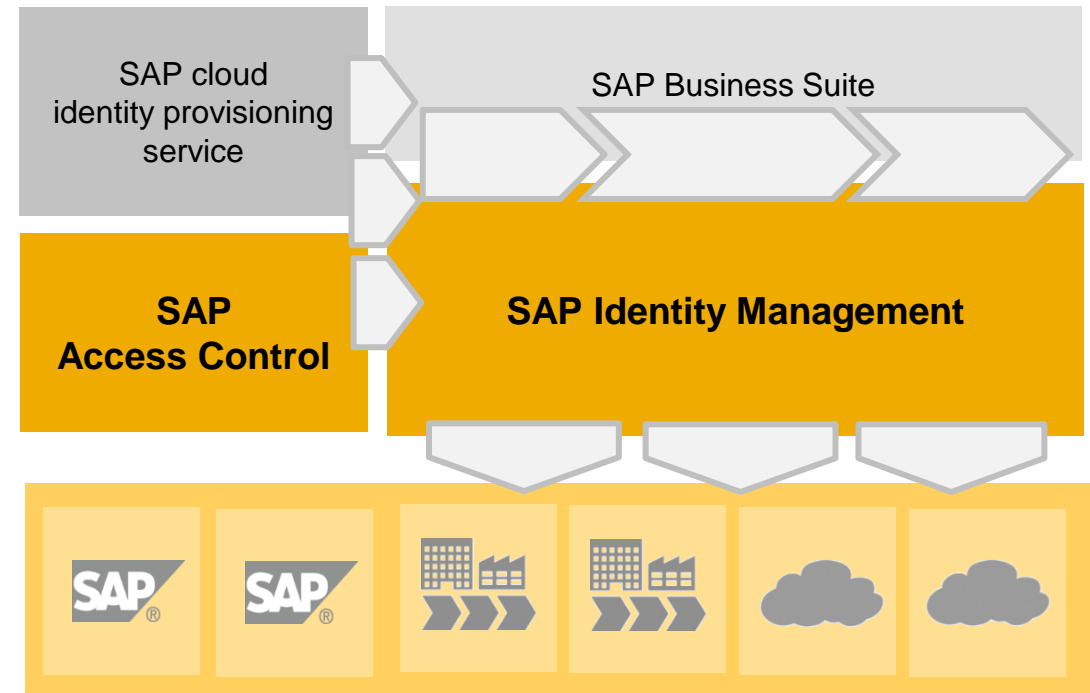
SAP Access Control
Manage access risk and prevent fraud

Monitor emergency access and transaction usage

Certify access assignments are still warranted
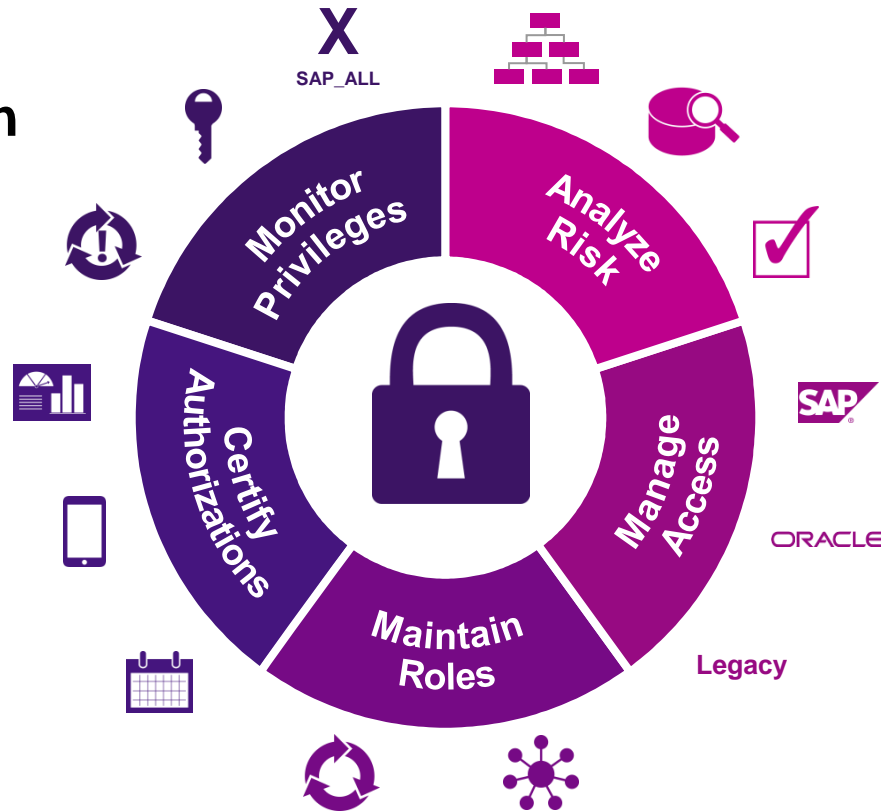
Find and remediate SoD and critical access violations

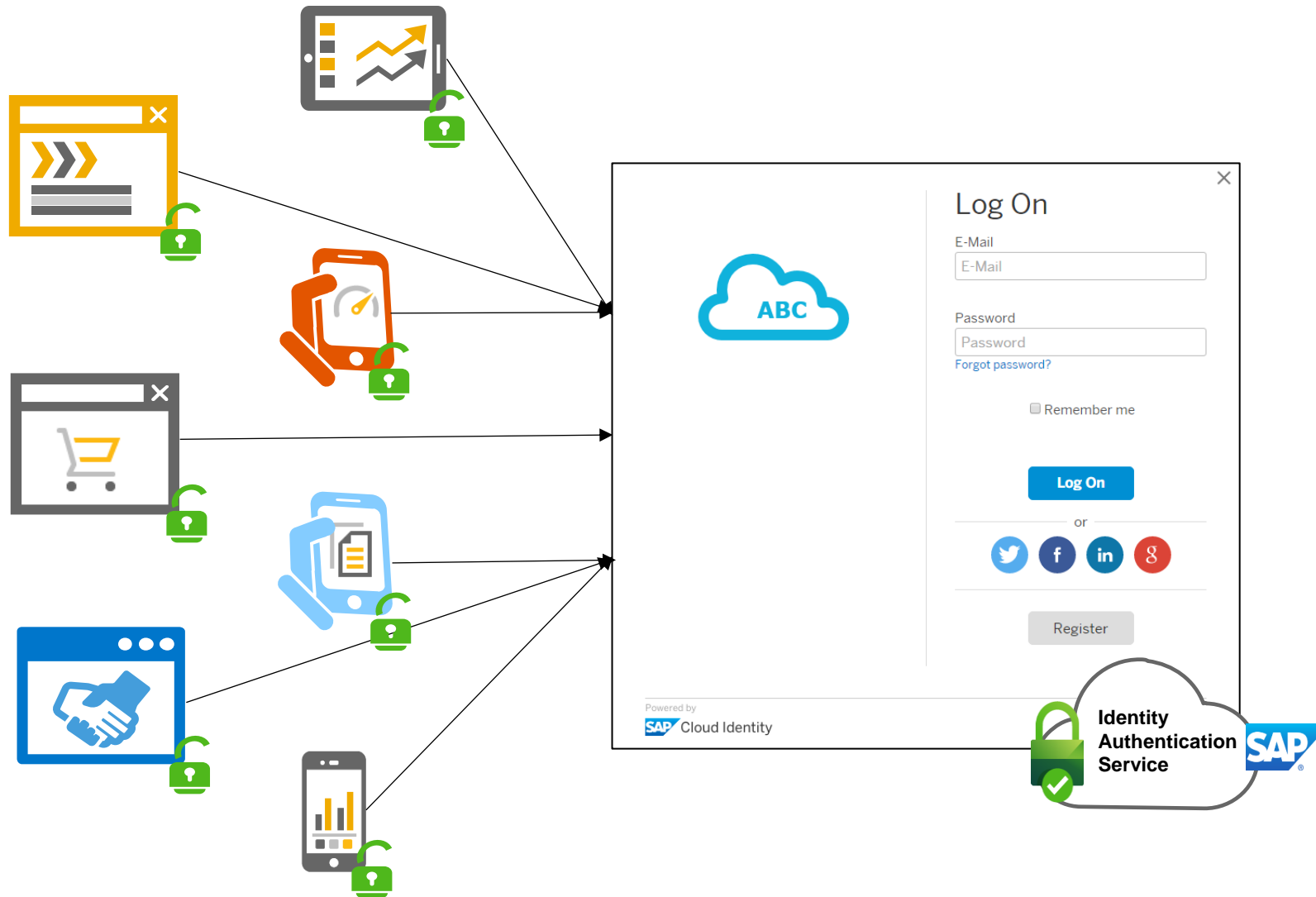Automate access assignments across SAP and non-SAP systems

Define and maintain roles in business terms

SAP Cloud Identity Access Governance: services
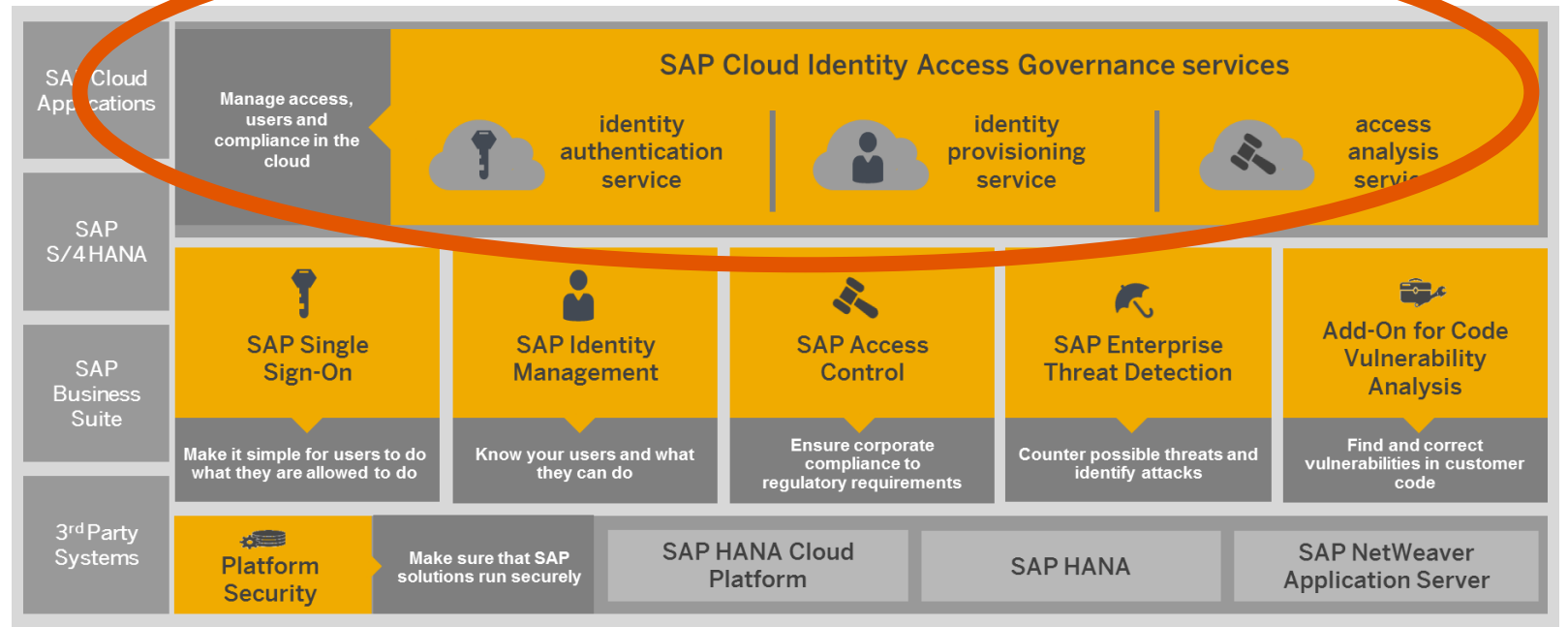
SAP Cloud Identity Access Governance
SAP HANA Cloud Platform, identity authentication service

- ✓ Secure access via the internet
- ✓ Web & mobile single sign-on
- ✓ Identity Federation and Authentication
- ✓ Social and strong authentication
- ✓ Central User Store
- ✓ Branding and policies
- ✓ User self-services
- ✓ On-premise integration
- ✓ SAP Jam integration

SAP Cloud Identity Access Governance
SAP HCP, identity authentication service: Business-to-Consumer scenario
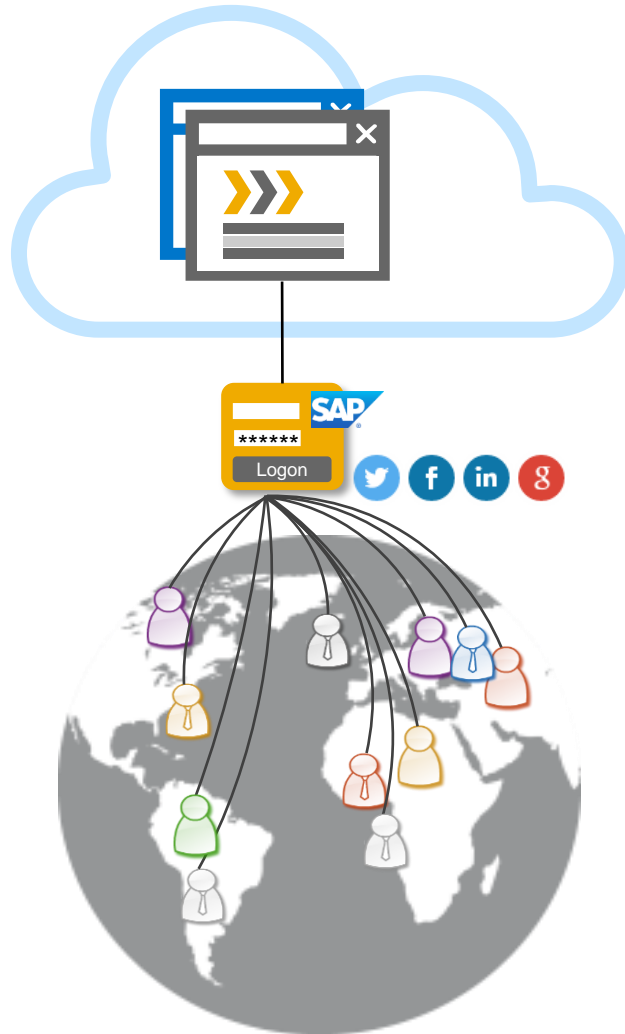
- ✓ Secure access and single sign-on across sites, based on SAML
- ✓ User self-services
  - Configurable user registration form
  - Account activation with email verification
  - Password reset
  - User profile page
- ✓ Social logon – account linking/unlinking
- ✓ Unified user experience optimized for all devices
- ✓ Flexibility out-of-the-box
  - Configurations per web application
  - Branding (logo and colors)
  - Own privacy policy and terms of use
  - Password policy
- ✓ Central user management
  - Import existing users

SAP Cloud Identity Access Governance
SAP HCP, identity authentication service: Business-to-Employee scenario
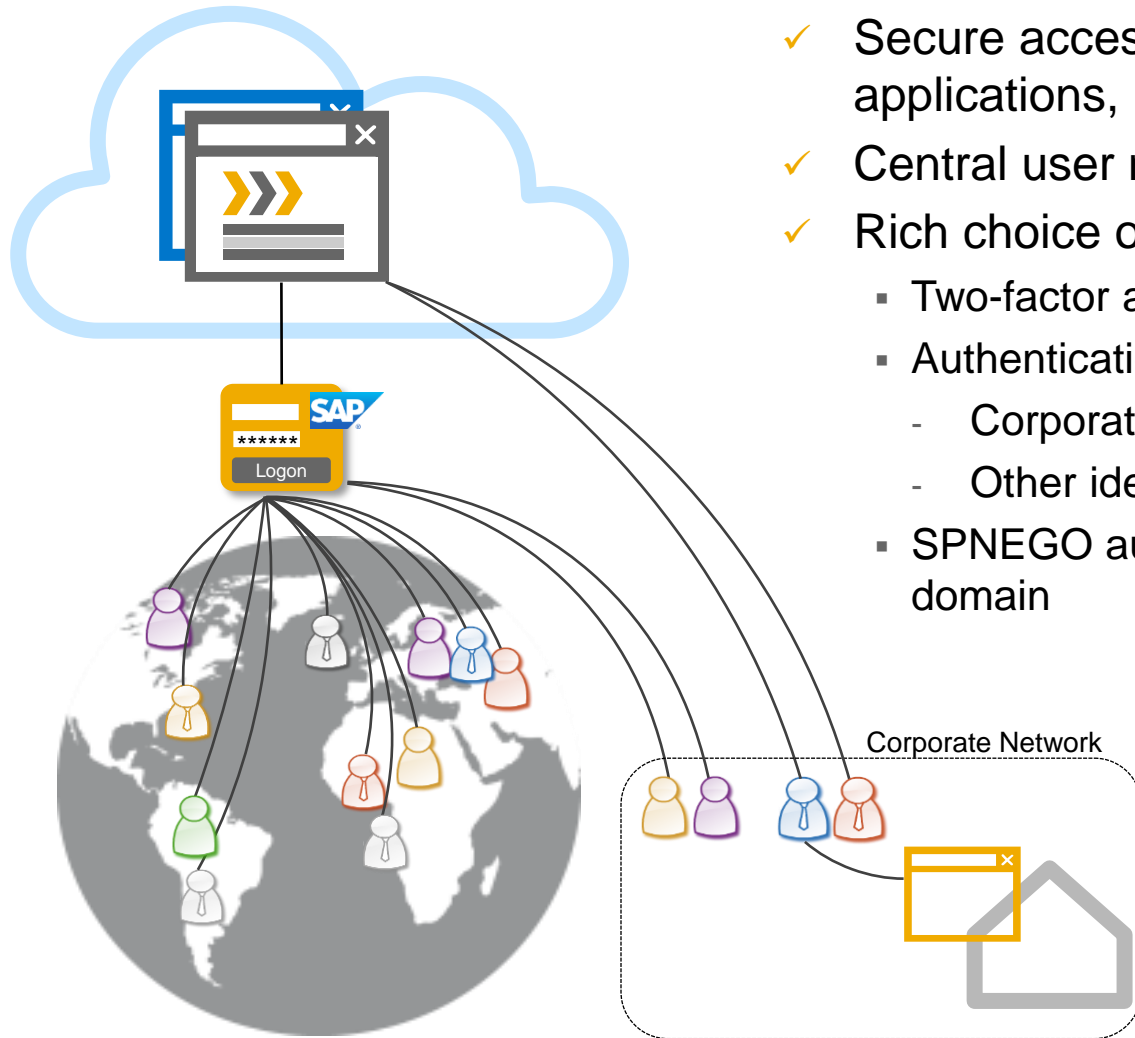
- ✓ Secure access and single sign-on across cloud or on-premise web applications, based on SAML
- ✓ Central user management
- ✓ Rich choice of authentication methods:
  - Two-factor authentication and mobile SSO
  - Authentication against
    - Corporate user store (LDAP, NetWeaver)
    - Other identity provider
  - SPNEGO authentication – no login required after authentication in the corporate domain

Corporate Network

- ✓ User self-services
  - Account activation via email
  - User profile page and password reset
- ✓ Unified user experience optimized for all devices
- ✓ Flexibility of configurations per application
- ✓ Branding and policies
- ✓ Risk-Based authentication

SAP Cloud Identity Access Governance
SAP HANA Cloud Platform, identity provisioning service

The SAP HANA Cloud Platform, identity provisioning service offers a centralized and automated setup of user accounts and authorizations across business applications, ensuring an up-to-date identity lifecycle management

Solution overview

Automatic setup and management for user accounts and authorizations

Optimized for SAP cloud applications

Integrated with single sign-on and governance micro-services

Jointly working with the SAP Identity Management product

Key value proposition

From day one: fast and simple availability of the applications to end users

Centralized end-to-end lifecycle management of corporate identities in the cloud

Automated provisioning of existing on-premise identities to cloud applications

✓ **Account**
✓ **Authorizations**
✓ **Authentication**

SAP Cloud Identity Access Governance
## SAP HANA Cloud Platform, identity provisioning service

Simple and reliable solution for your identity lifecycle management processes

Identity lifecycle management delivered as a service on the SAP HANA Cloud Platform

- Automatically set up user accounts and authorizations
- Dynamically update authorizations based on business needs and segregation of duty analysis
- Instantly revoke privileges that are no longer required

Simple, seamless, adaptive

- Easy consumption, fast time-to-value, low TCO
- Minimize costly delays in avoidable administrative tasks and lost productivity
- Reduce security risk via transparent and compliant identity management processes

New Employee

Job Change

New Application

New Project

I need …

Centralized, simplified and compliant identity management
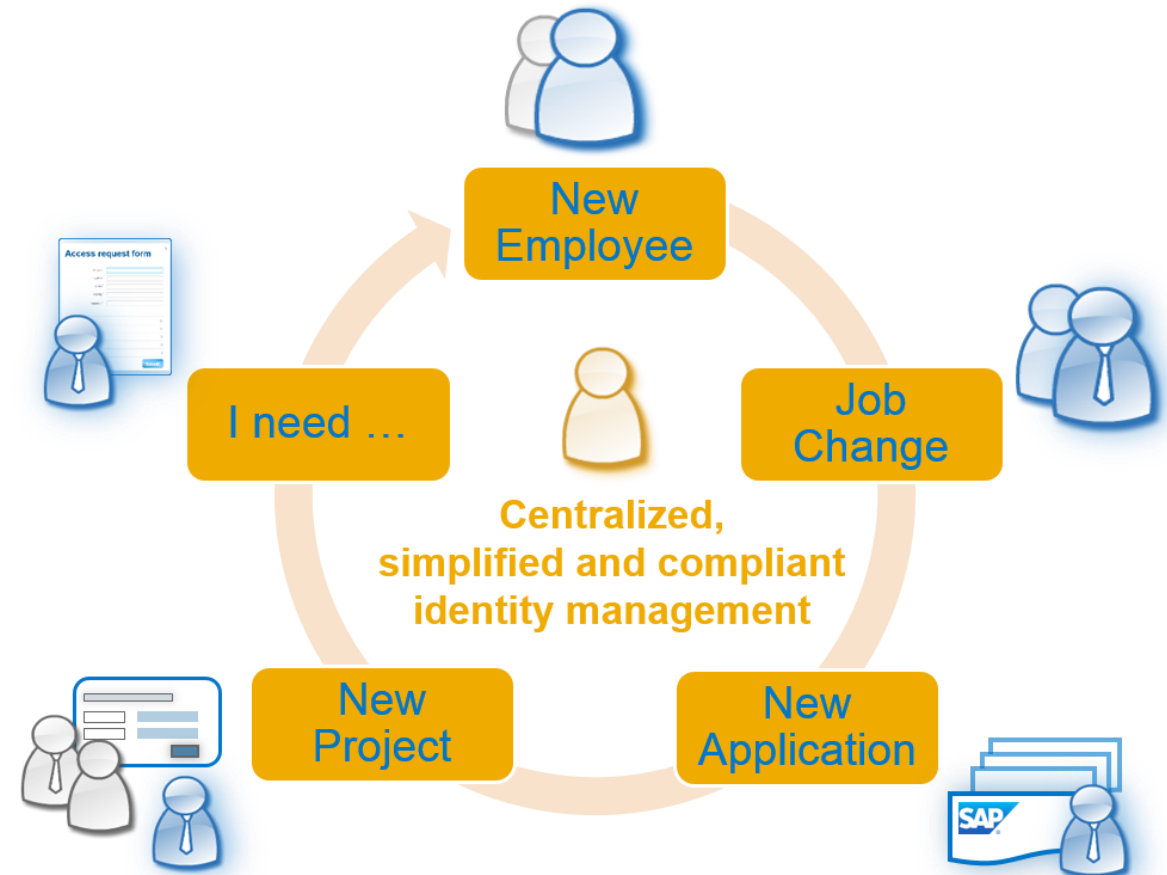
SAP Cloud Identity Access Governance, access analysis service
Simple, seamless, adaptive

Pre-configured audit reporting

Integrated control monitoring and testing
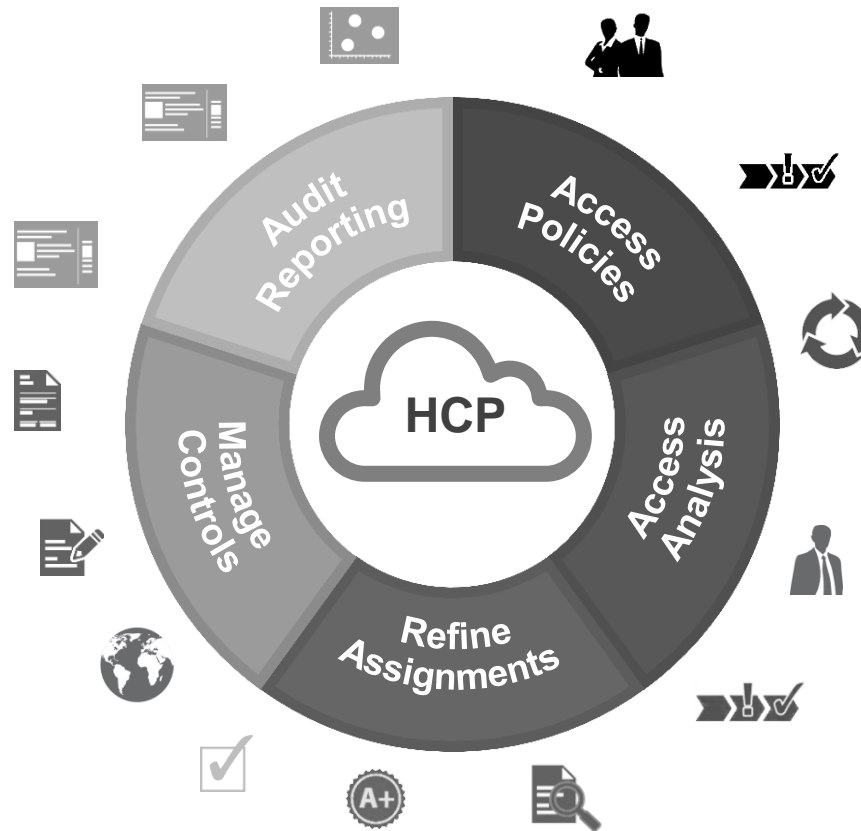
Configurable and pre-defined access policies and rules

Analyze SoD and critical access for on-premise and cloud solutions

Optimize user access for security and compliance

# What can the access analysis service do for you?

SIMPLE

- Simplify and reduce the complexity of access governance and compliance for administrators, auditors and business users

- Achieve greater business agility with ability to dynamically update user access for changing business needs

- Obtain instant value with minimal upfront investment as well as lower ongoing costs

SEAMLESS

- Seamless user experience with dashboard-driven UI, visual prompts and analytic intelligence for timely focus on business-critical issues

- Guided remediation and dynamic access changes make it easier to resolve access risks, while reducing ongoing admin and audit costs

- Optimize security through greater accuracy in access assignments

ADAPTIVE
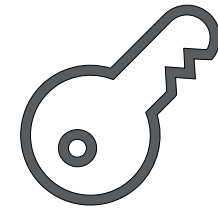
- Adapt and scale to grow with the business cost-efficiently, easily extending control to enterprise apps and users on any device, anywhere

- Gain better visibility of risk remediation and mitigation monitoring process

- Manage and reduce enterprise access risks with immediate insights to control performance at low TCO

Cyber Security

Leverage SAP Enterprise Threat Detection to counter cyber attacks
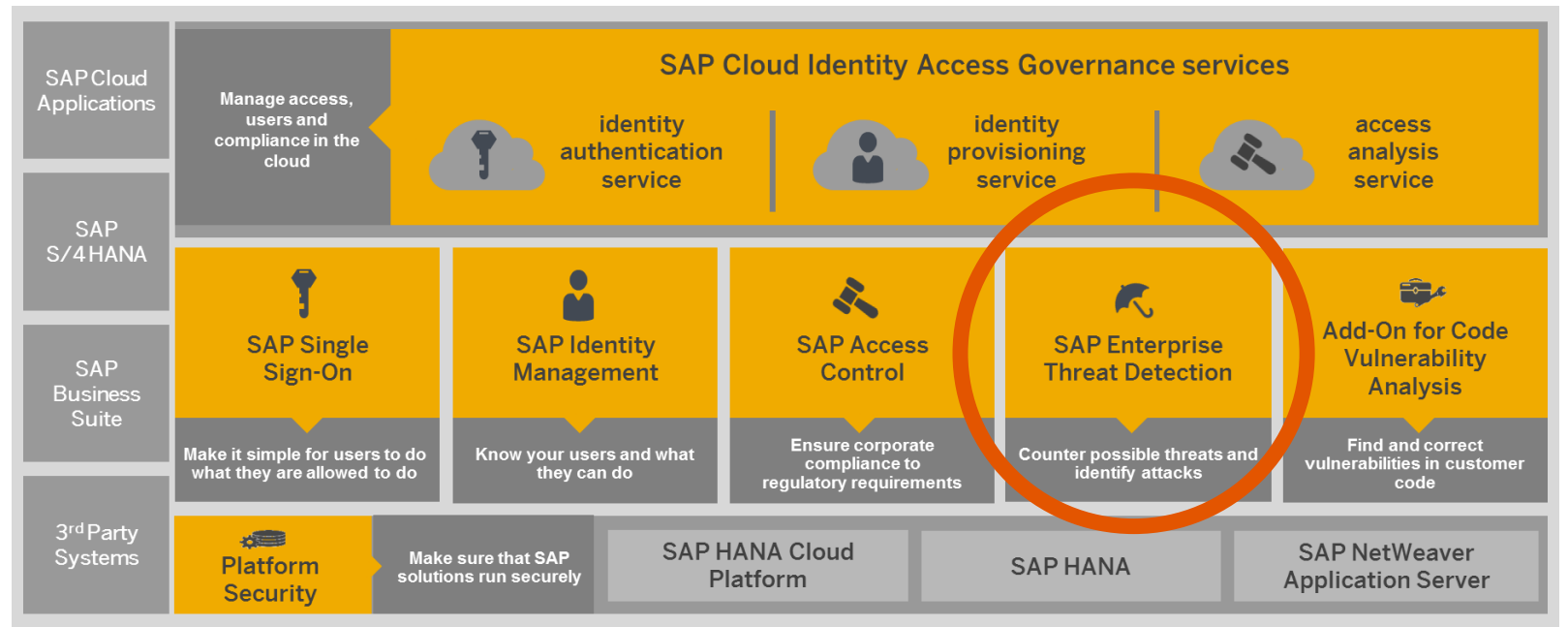
SAP Enterprise Threat Detection

Provide insight into suspicious security events throughout the system landscape
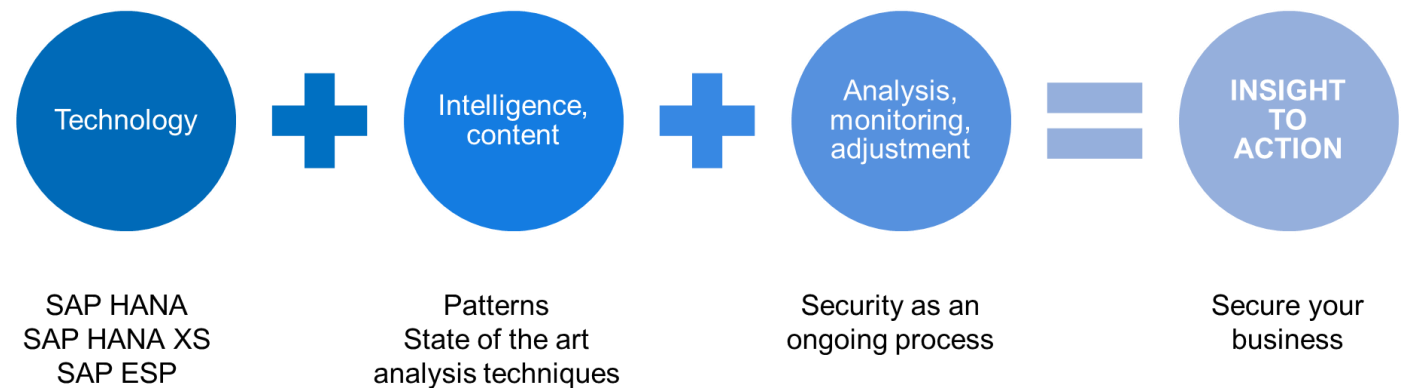
Detection

- Readily and efficiently identify security lapses in the landscape

- Use the power of a real-time data platform to detect threats

- Optimally protect your key business data

Insight

- Gain insight into what is happening in your IT landscape

- Integrate with SAP and non-SAP data

- Make use of attack detection patterns

- Enable custom integration and configuration

- Find SAP software-specific threats related to know attacks

Analysis & prevention

- Perform forensic investigations and discover new patterns

- Efficiently analyze and correlate logs

Technology **+** Intelligence, content **+** Analysis, monitoring, adjustment **=** INSIGHT TO ACTION

SAP HANA
SAP HANA XS
SAP ESP

Patterns
State of the art
analysis techniques

Security as an
ongoing process

Secure your
business

Secure software development

SAP NetWeaver Application Server, add-on for code vulnerability analysis
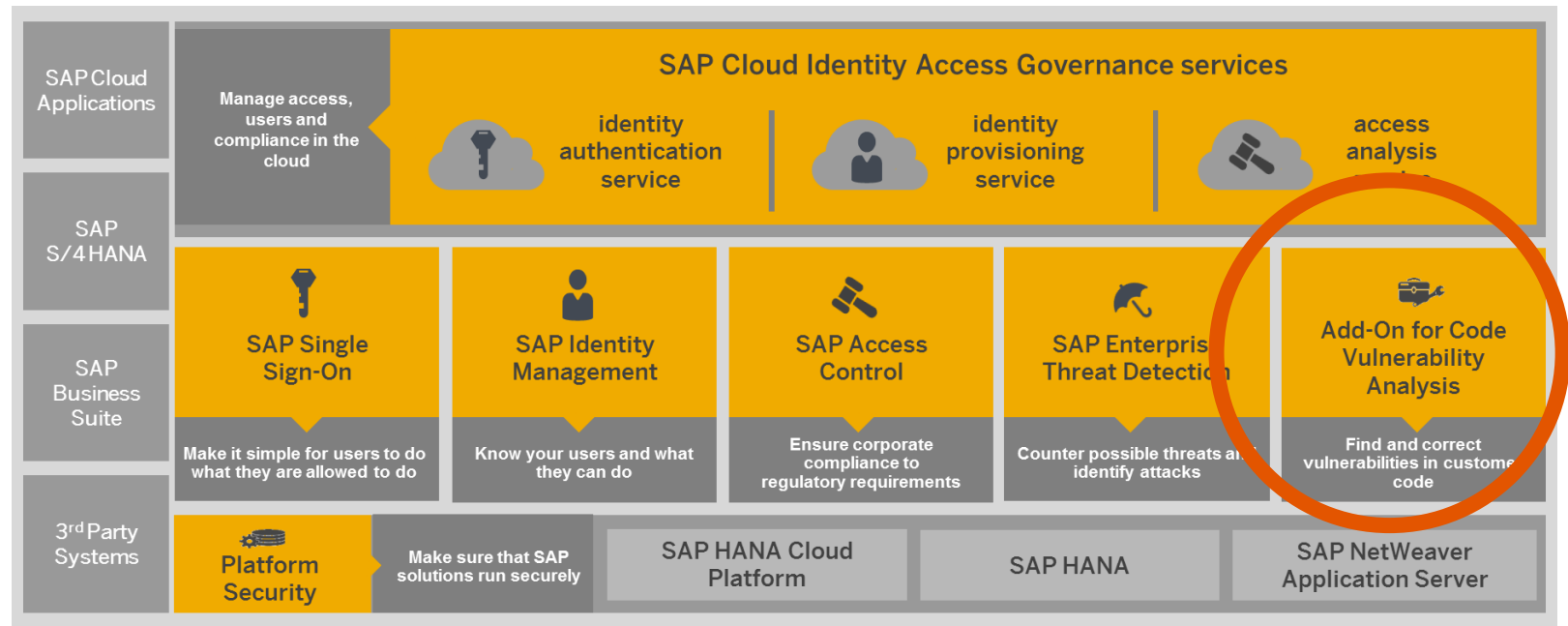
SAP NetWeaver Application Server, add-on for code vulnerability analysis

Find vulnerabilities in customer code to prevent cyber attacks against SAP systems
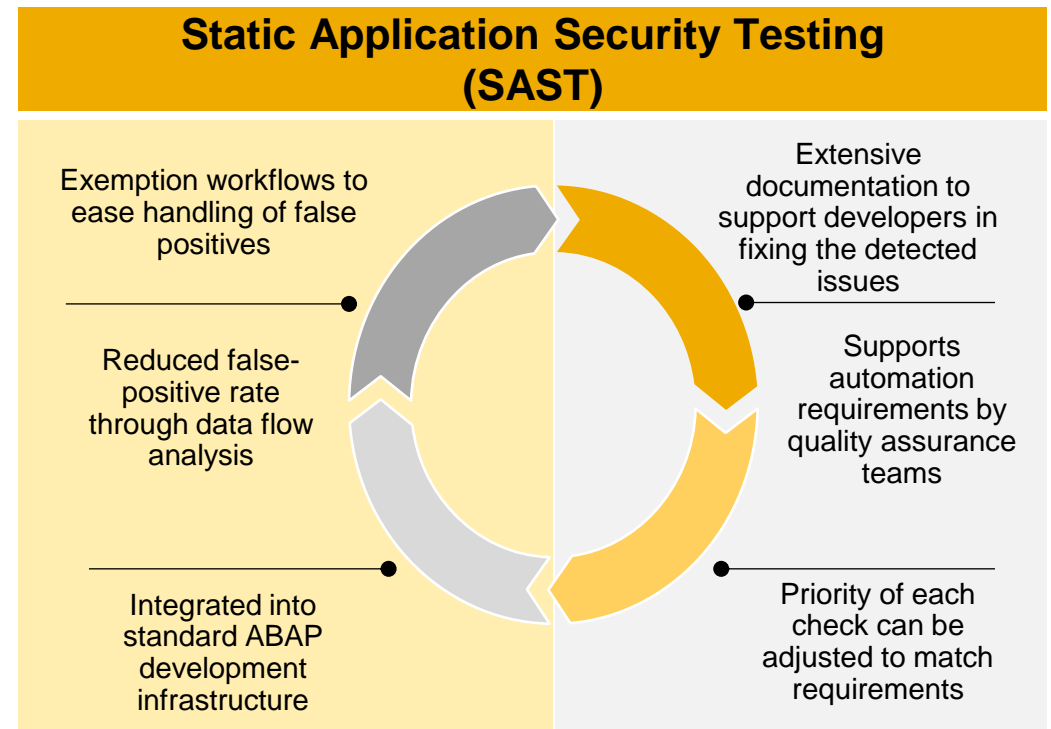
Code scanning

- Checks custom coding for security vulnerabilities
- Includes Open Web Application Security Project (OWASP) top 10, like SQL injection, directory traversal, backdoor & authorizations, web exploits, code injection and call injections

Integration

- Fully integrated into ABAP development environment as part of the automated test cockpit (ATC)

Support

- Supports developer in fixing the vulnerability, and delivers extensive documentation

Static Application Security Testing (SAST)

Exemption workflows to ease handling of false positives

Reduced false-positive rate through data flow analysis

Integrated into standard ABAP development infrastructure

Extensive documentation to support developers in fixing the detected issues

Supports automation requirements by quality assurance teams

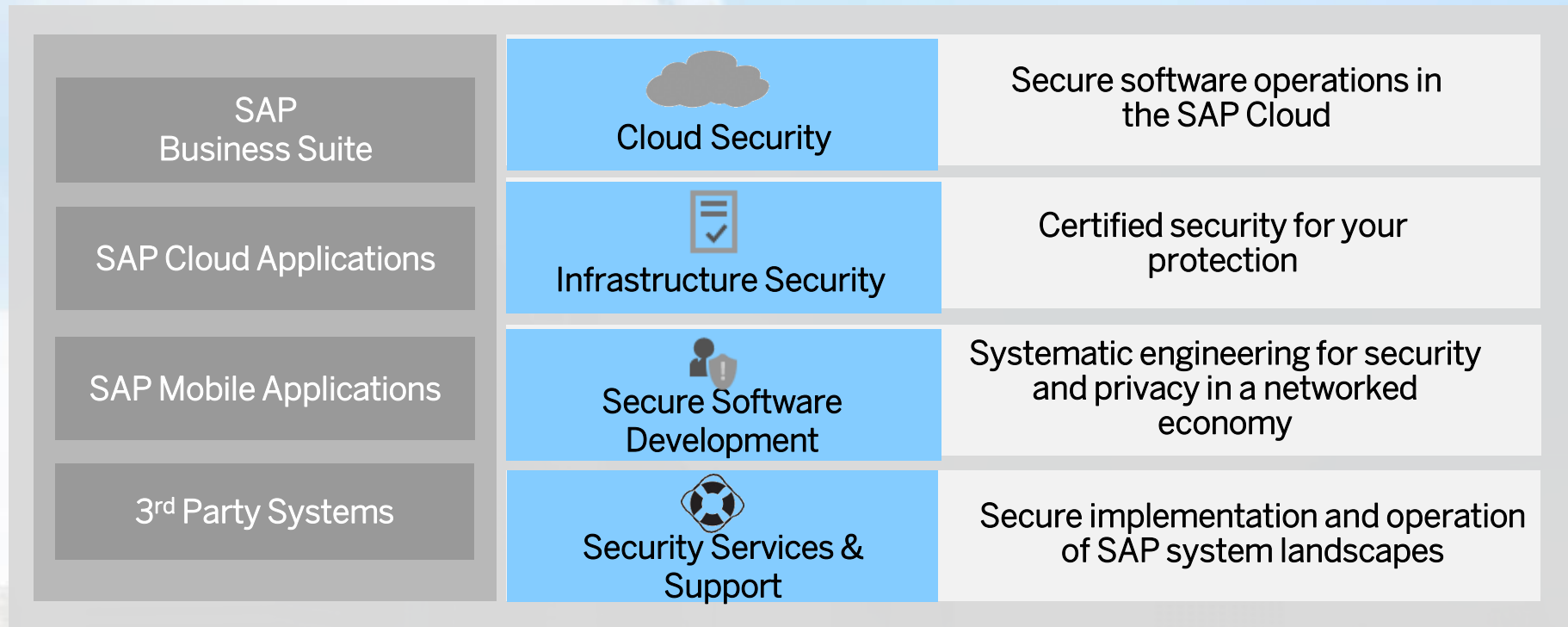Priority of each check can be adjusted to match requirements

Protecting your SAP systems

Cloud and infrastructure security

Secure product development

Security services, support, and consulting

Protecting your SAP systems

SAP Business Suite	**Cloud Security**	Secure software operations in the SAP Cloud
SAP Cloud Applications	**Infrastructure Security**	Certified security for your protection
SAP Mobile Applications	**Secure Software Development**	Systematic engineering for security and privacy in a networked economy
3rd Party Systems	**Security Services & Support**	Secure implementation and operation of SAP system landscapes

Cloud and infrastructure security

SAP Business Suite	Cloud Security	Secure software operations in the SAP Cloud
SAP Cloud Applications	Infrastructure Security	Certified security for your protection
SAP Mobile Applications	Secure Software Development	Systematic engineering for security and privacy in a networked economy
3rd Party Systems	Security Services & Support	Secure implementation and operation of SAP system landscapes

SAP HANA Cloud Platform infrastructure security
Benefits at a glance

- **Certified operations**

- **World-class data centers**

- **Advanced network security**

- **Reliable data backup**

- **Built-in compliance, integrity, and confidentiality**

- **State-of-the-art security platform services**

SAP HANA Cloud Platform security
Physical security

Physical Security

- Planned coverage for SAP Cloud data centers: Two data centers per major region
- SAP HANA Cloud currently hosted in data centers in Germany, Netherlands, Australia, and the USA
- Roadmap for global coverage available from SAP upon request
- Location is subject of choice by customers

BS25999
CERTIFIED

ISO 27001
CERTIFIED

Network Security

- Reverse proxy farms
- Multiple redundant internet connections
- Data encryption
- Intrusion Detection System (IDS)
- Multiple firewalls
- Sandboxed application environment
- Regular third party audits and penetration tests

ISO 27001
CERTIFIED

Backup & Recovery

ISO 27001
CERTIFIED

Compliance

High Availability

BS25999
CERTIFIED

Quality Management

ISO 9001
CERTIFIED

International Accounting Regulations

ISAE3402
TESTIFIED*

SSAE16
TESTIFIED*

Energy Efficiency

GREEN IT
CERTIFIED

IT Operations

ISO 27001
CERTIFIED

Confidentiality & Integrity

- **Role-based access**: On-demand solutions support role-based access with user profiles to allow segregation of duties
- **Audit logging:** On-demand solutions log all user activities
- **Data encryption:** Encryption of confidential data at rest
- **Operations:** Two-factor authentication
- **Authorization** on need-to-know basis
- Minimal privileges and segregation of duties
- Personalized log traces
- Controlling system and regular reviews

Secure software development

Secure software development

Making security a priority

- 3rd largest software company in the world
- SAP systems handle 74% of the world's financial transaction
- Our customers include a majority of Fortune 500 companies
- 1.8 billion text messages pass through SAP Mobile Platform
- SAP Ariba connects more than 1 million companies in 190 countries
- SAP partner ecosystem and open source components extend software security issue exposures
- Most of our competitors have experienced major vulnerability reports
- Internet of Things applications enhance attack surface for SAP software

protect**&&**develop

Prevent, detect, react

PRODUCT SECURITY

SAP Secure Software Development Lifecycle S²DL

- People, tools, and processes for building secure products
- Our guidance: ISO 27034

Enhanced Security Features

- SAP Single Sign-On (Cloud / On-Premise)
- Common Crypto Lib (FIPS 140-2)

Security Research

- Encryption in the cloud
- JavaScript security
- Big Data for security: Content creation for SAP Enterprise Threat Detection

Prevent

Surveillance of Threat Landscape

- SAP Product Security Social Media Analytics
- Security conferences

Customer-Specific Services

- SAP Enterprise Threat Detection solution
- SAP NetWeaver Code Vulnerability Analyzer available for customers
- Automated detection of misconfigurations in customer systems

Detect

Incident Handling

- Security response
- SAP Security Patch Day
- Optimizing patch management

Emergency Handling

Security Service Offerings

- Active Global Support
- Consulting

React

COOPERATION AND CERTIFICATIONS

- SAFECode
- German "Alliance for Cyber Security"
- SAP Security Advisory Board

- ISO 27034 Compliance
- Common Criteria Certification
- ISO 9001 Certifications

SAP Secure Software Development Lifecycle (S2DL)

SAP's standard software development holistically integrates secure development principles in accordance with ISO 27034-1

Start of standard development

Release decision

Preparation	Development	Transition	Utilization

Training	Risk Identification	Plan Security Measures	Secure development	Security testing	Security Validation	Security Response
Security awareness Secure programming Threat modelling Security static analysis Data protection and privacy Security expert curriculum	SECURIM (Security Risk Identification and Management) Data Privacy Impact Assessment Threat Modeling	Plan product standard compliance Plan security features Plan security tests Plan security response	Secure programming Static code scan Code review	Dynamic testing Manual testing External security assessment	Independent security assessment	Execute the security response plan

SAP Secure Software Development Lifecycle S^{2}DL

Common denominator: Product standard security as knowledge base across all phases

Security services and support

SAP security services offerings

SAP Active Global Support best practices are translated into security tools and services:

- SAP Solution Manager System Recommendations
- SAP EarlyWatch Alert (EWA) with security section
- SAP Solution Manager Configuration Validation
- SAP Security Optimization Service (SOS)
- MaxAttention Next Generation with key security elements
- → Remote and on-site delivery remote via Global Security Hub

Security Back Office

- Security Back Office provides security expert knowledge and back office support to customers and SAP employees.

secure&&support

SAP Security Patch Day

- SAP security notes second Tuesday every month

SAP Security Consulting services

- Professional consulting services for SAP security products and service offerings

SAP security training and documentation

SAP Security Training

- Secure operation trainings by SAP
- Secure development trainings by partners

SAP Security Documentation

- Security notes published on Support Portal
- SAP security guides for every product
- SAP security recommendations on some patch days
- Secure programming guides
- RunSAP end-to-end solution operations
- Books published by SAP Press

Summary
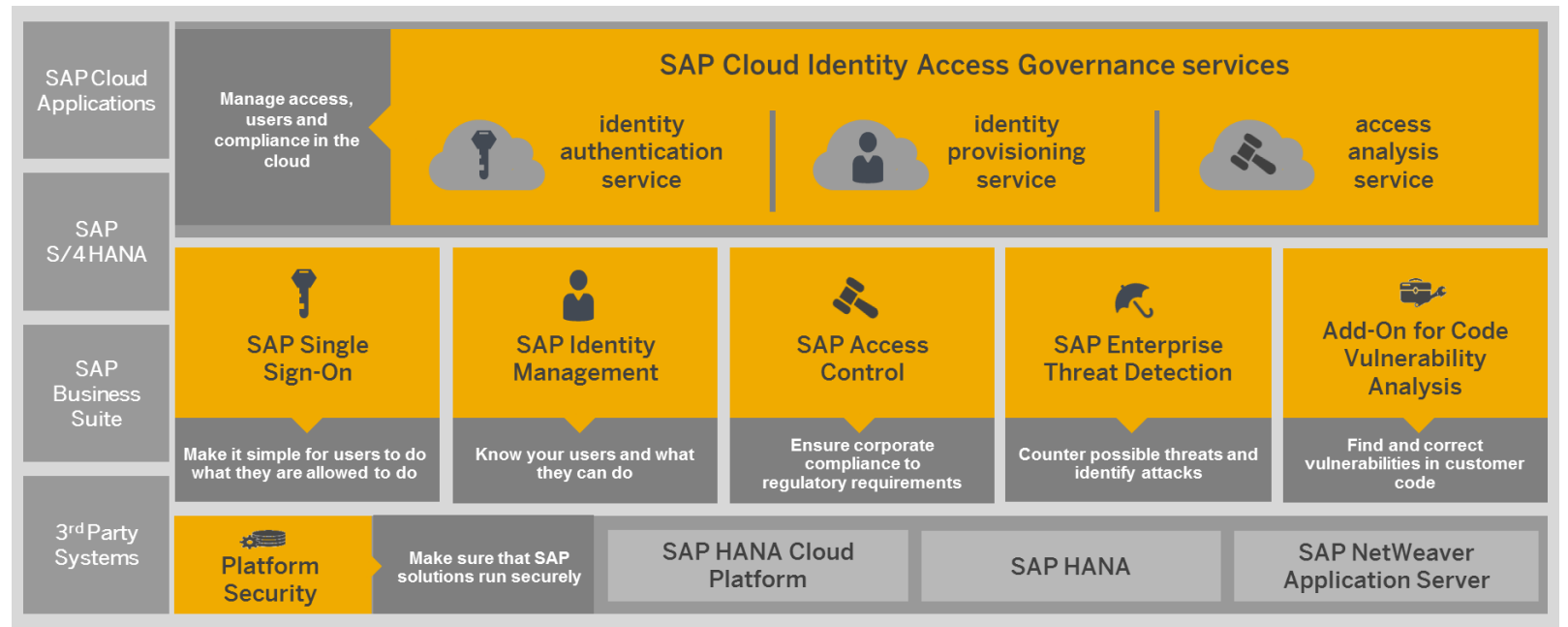
SAP security strategy – solutions, services, infrastructure

Significant investments into security for networked solutions, identity and access governance, and integrated security management allow **customers to implement secure business processes on premise and in the cloud**

Integration is key to simplify security in today's **hybrid IT landscapes.**

Comprehensive security offerings help SAP customers thrive in the networked economy

SAP TechEd Online
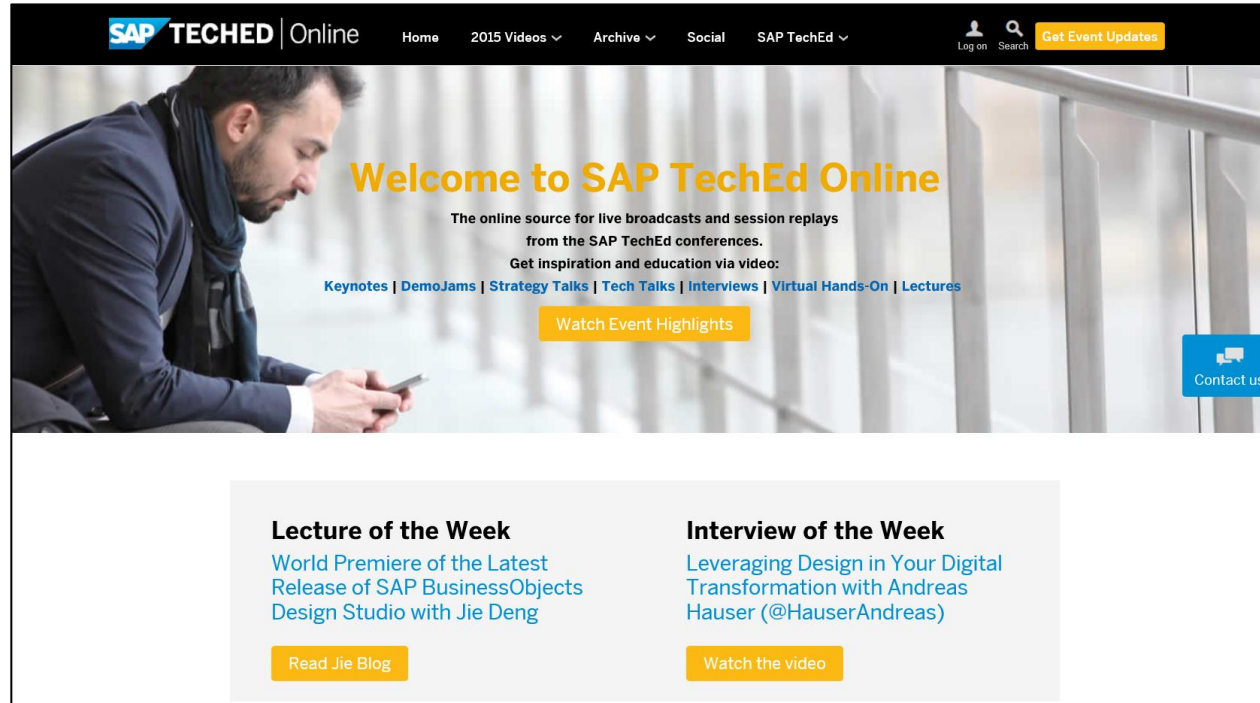
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SAP Public Web

www.sap.com/security

http://scn.sap.com/community/security

http://scn.sap.com/community/sso

http://scn.sap.com/community/idm

https://scn.sap.com/community/hana-in-memory

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