



SAP solutions for cyber security and data protection

Arndt Lingscheid
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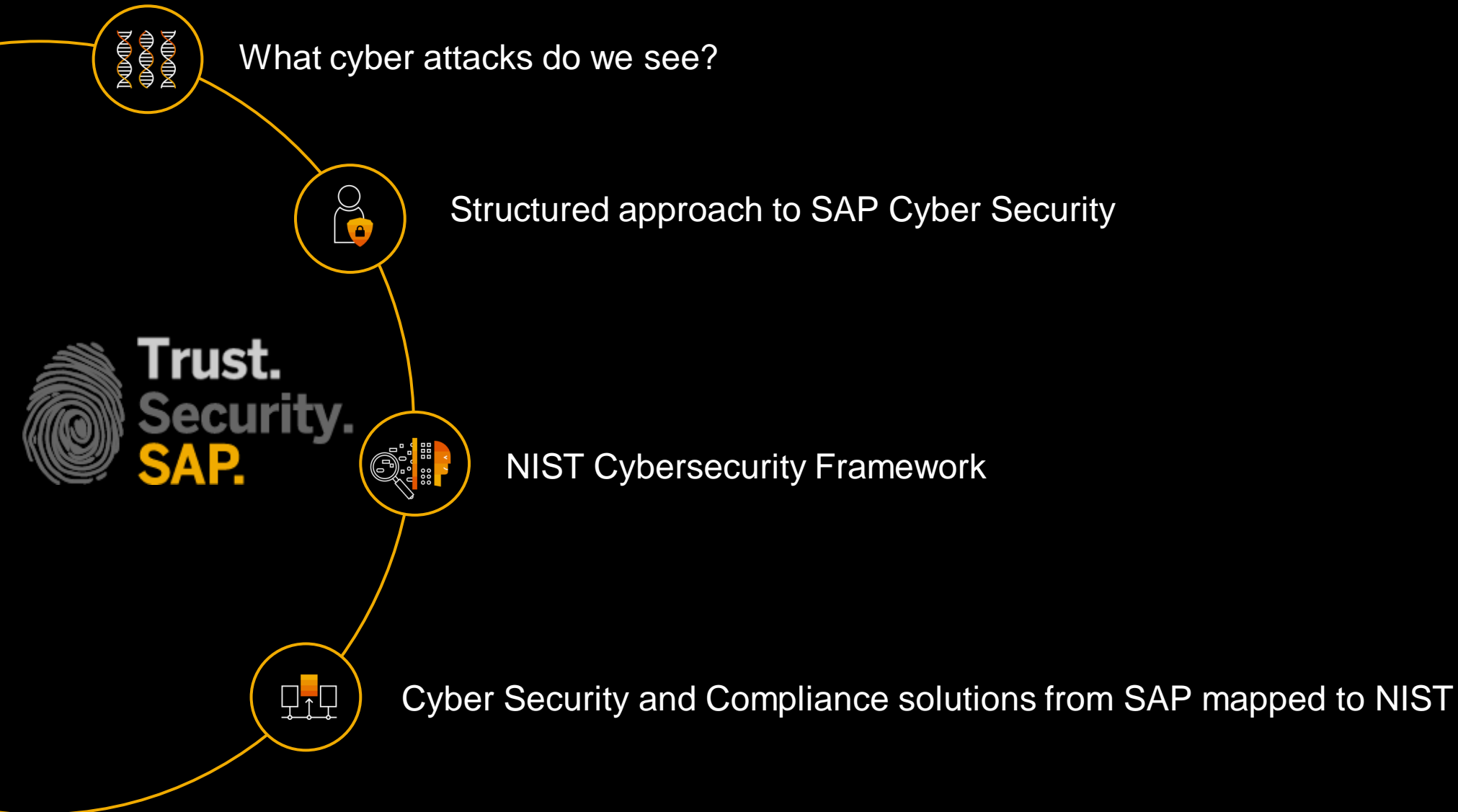
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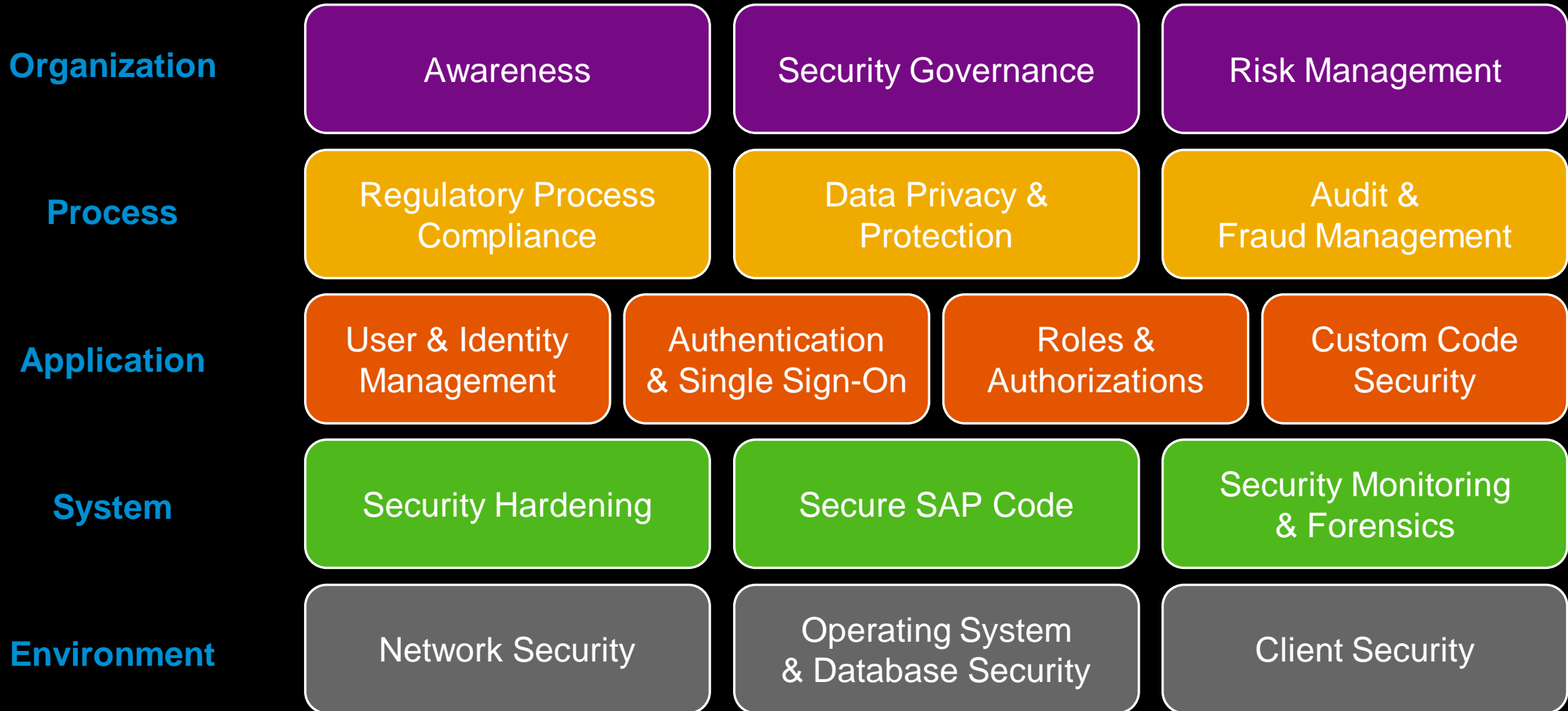
SAP solutions for cyber security and data protection



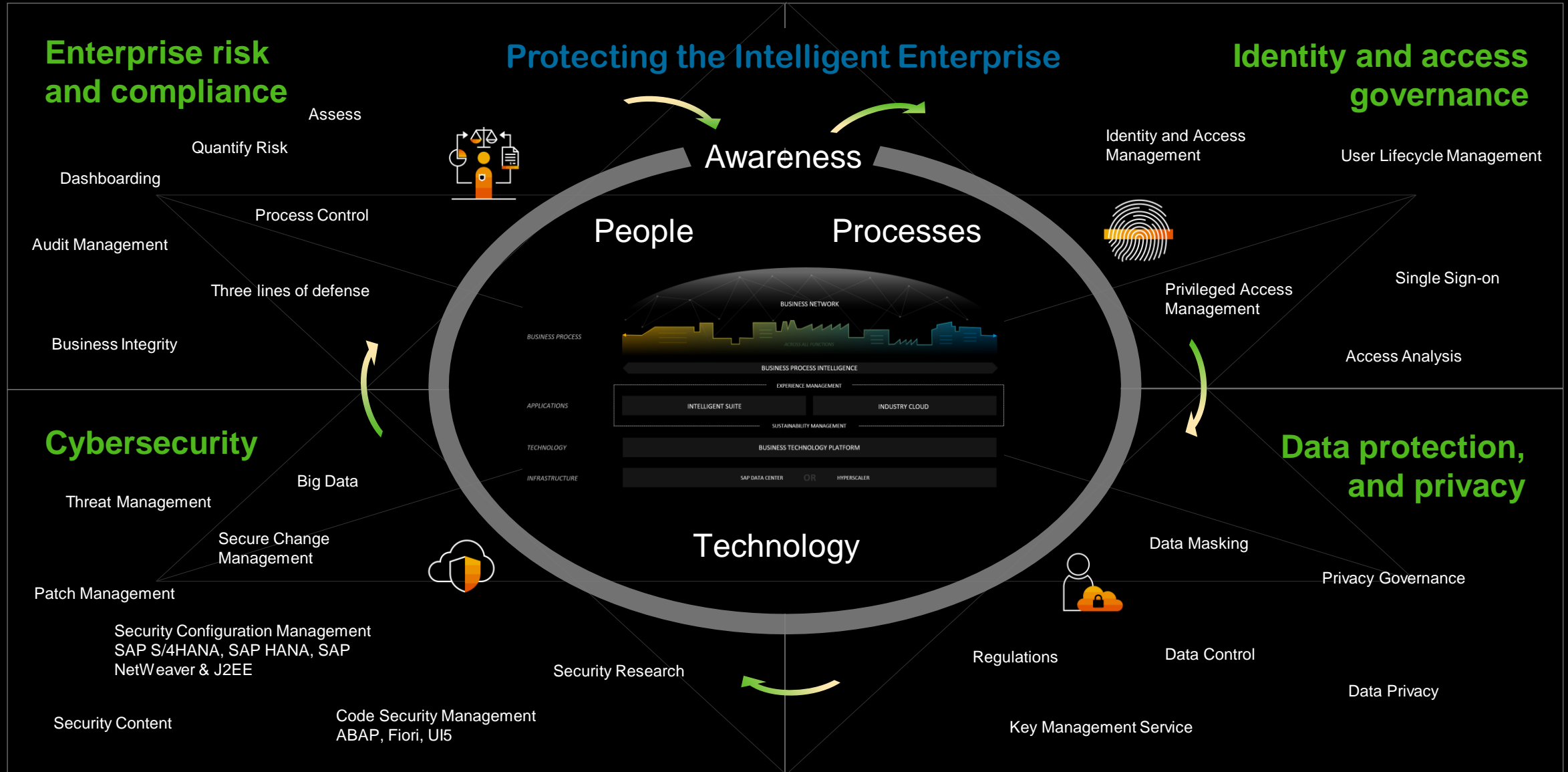


Systems are under attack

SAP Secure Operations Map



SAP Depth and Breadth, supporting the Intelligent Enterprise



NIST Framework



Identify



Protect



Detect



Respond



Recover

NIST

National **I**nstitute of **S**tandards and **T**echnology Cybersecurity Framework

It "provides a high level taxonomy of cybersecurity outcomes and a methodology to assess and manage those outcomes"

NIST Framework



Identify

Asset Management
Business Environment
Governance
Risk Assessment
Risk Management Strategy
Supply Chain Risk Management



Protect

Access Control
Awareness and Training
Data Security
Information
Maintenance
Protective Technology



Detect

Anomalies and Events
Continuous Security Monitoring
Detection Processes



Respond

Response Planning
Communications
Analysis
Mitigation
Improvements



Recover

Recovery Planning
Improvements
Communications

Cybersecurity- and Compliance Solutions from SAP based on NIST



Identify



Protect



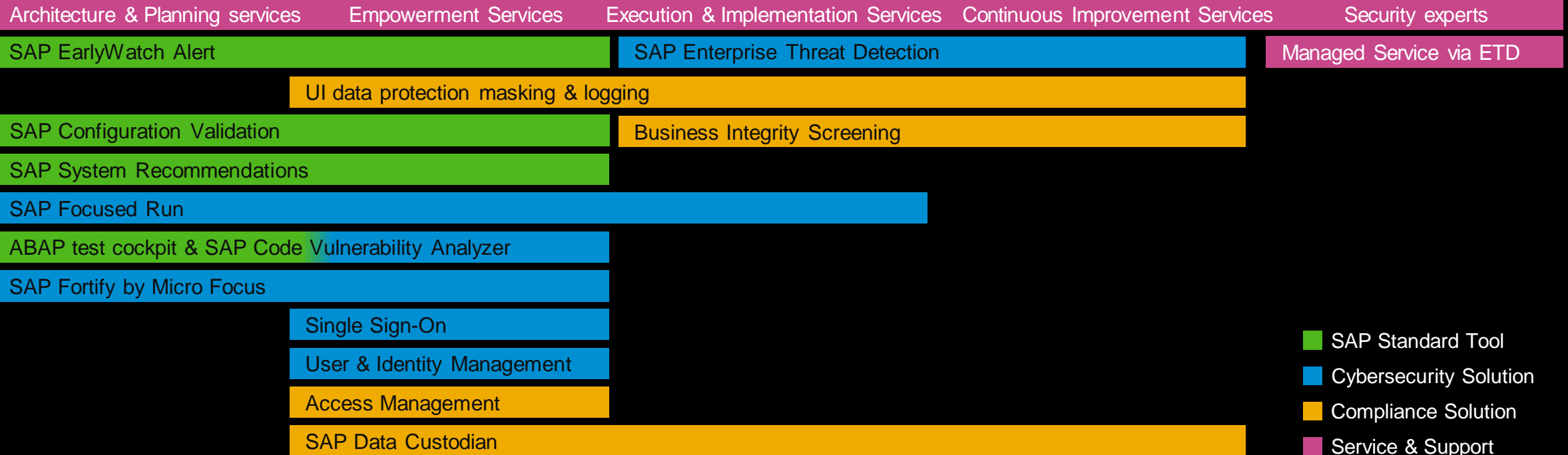
Detect



Respond

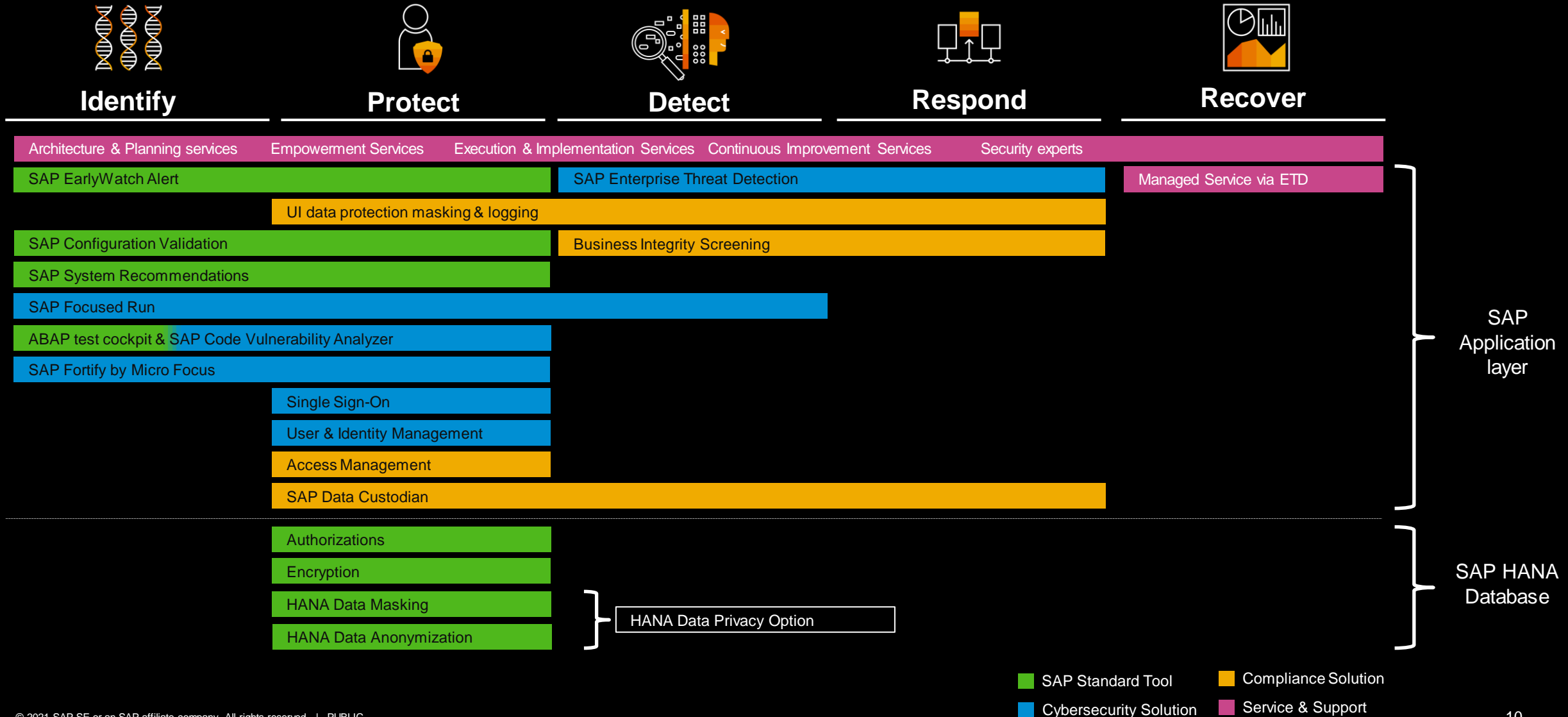


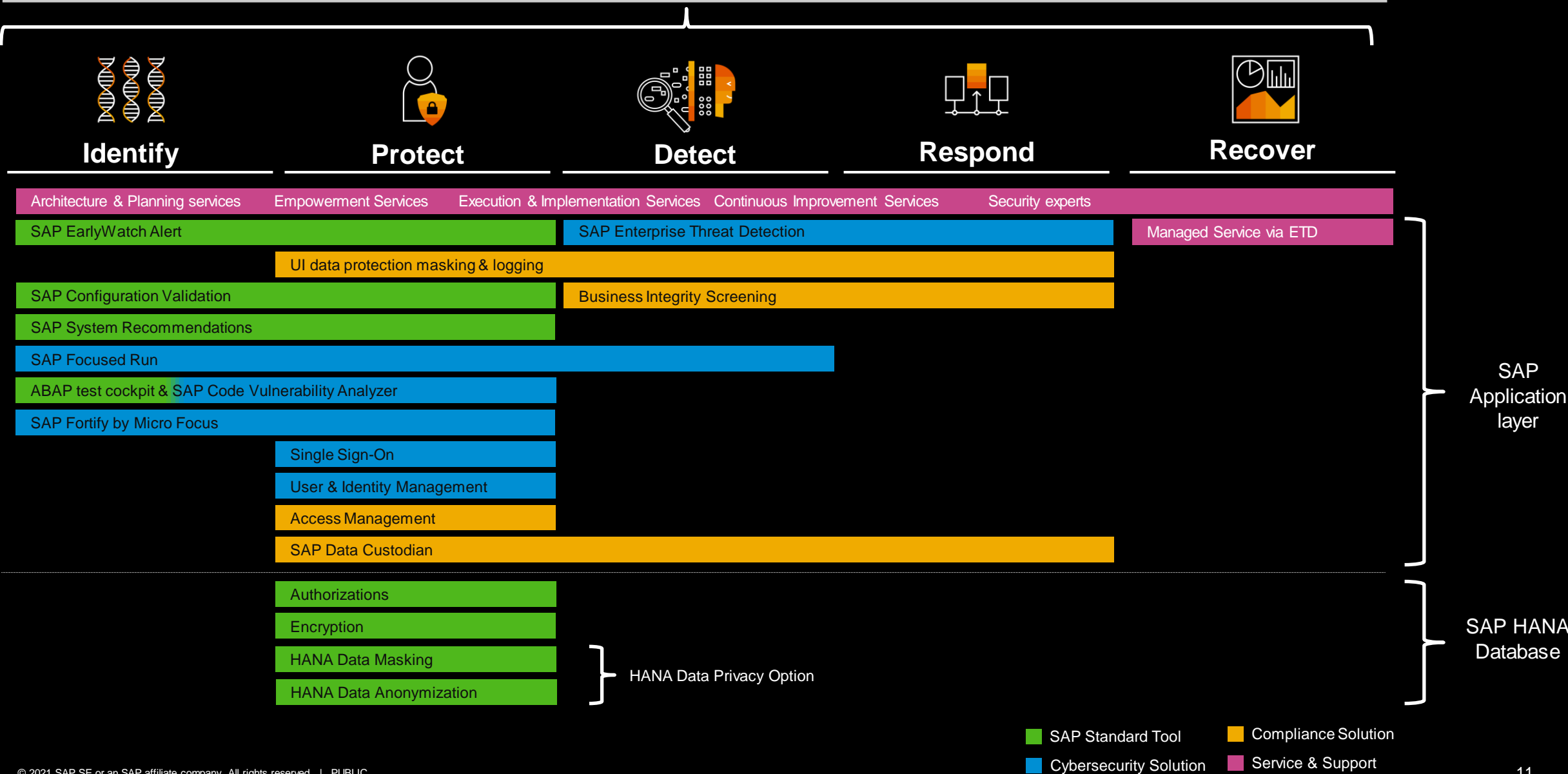
Recover



- SAP Standard Tool
- Cybersecurity Solution
- Compliance Solution
- Service & Support

Cybersecurity- and Compliance Solutions from SAP based on NIST





Cybersecurity- and Compliance Solutions from SAP based on NIST



Identify



Protect



Detect



Respond



Recover

Architecture & Planning services

Empowerment Services

Execution & Implementation Services

Continuous Improvement Services

Security experts

SAP EarlyWatch Alert

SAP Enterprise Threat Detection

Managed Service via ETD

UI data protection masking & logging

SAP Configuration Validation

Business Integrity Screening

SAP System Recommendations

SAP Focused Run

ABAP test cockpit & SAP Code Vulnerability Analyzer

SAP Fortify by Micro Focus

Single Sign-On

User & Identity Management

Access Management

SAP Data Custodian

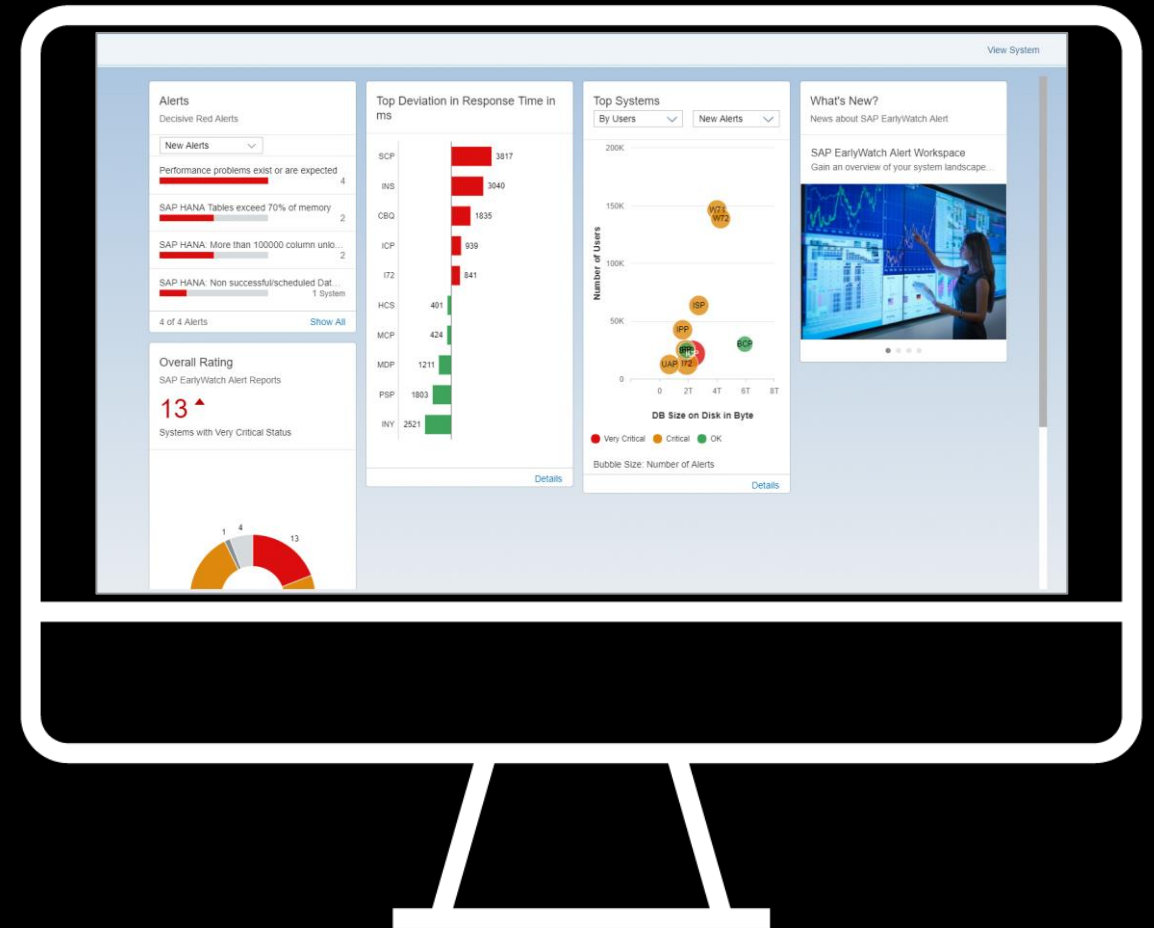
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SAP EarlyWatch Alert Workspace

Centralized application management

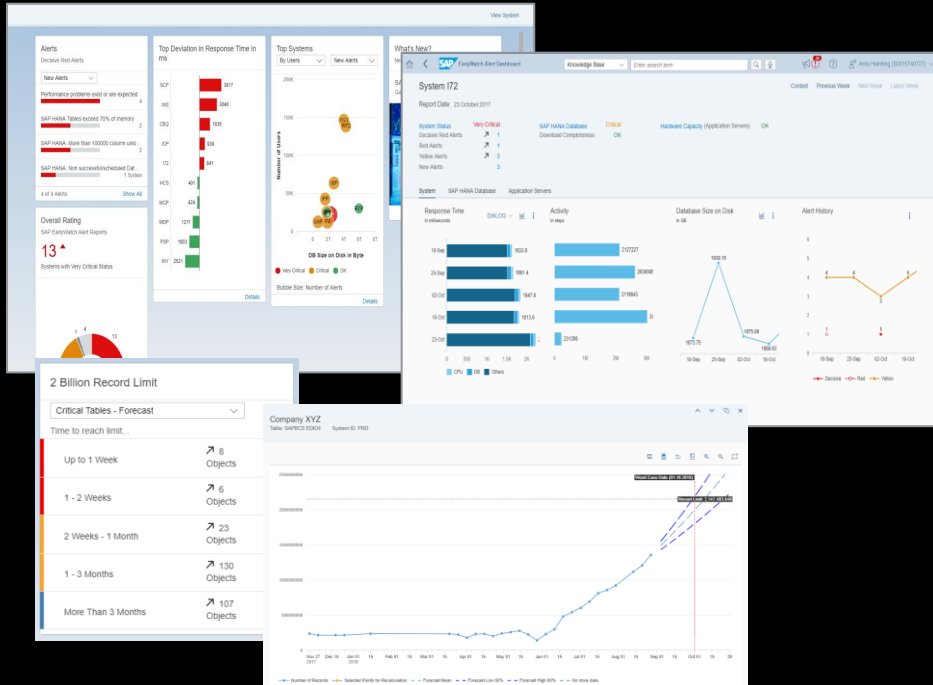
Gain overview on your system landscape health

- Cost free.
- Shows most critical configuration vulnerability's across prod landscape.
- Prioritized Worklist – share and track progress.
- Accesses the most important systems on a weekly base.
- SAP Governance and Risk Management Team use the Security Card to see what urgently is require.



SAP EarlyWatch Alert Workspace

SAP Product Excellence Award 2018 – voted by SUGEN customers



- EarlyWatch Alert workspace
- One data lake with 2+ years history of system data
- Designed for Predictive and Preventive service
- Basis for Continuous Quality Checks
- Build for Simplicity with Design Thinking
- Build on SAP Cloud Platform & SAP HANA
- **Shows critical Security issues across prod landscape**
(Pre-requisite: S-User Authorization Display Security Alerts in SAP EarlyWatch Alert Workspace)
- **Prioritized Worklist – share and track progress. Get Clean!**

~ 76.400
Visits in August 2019

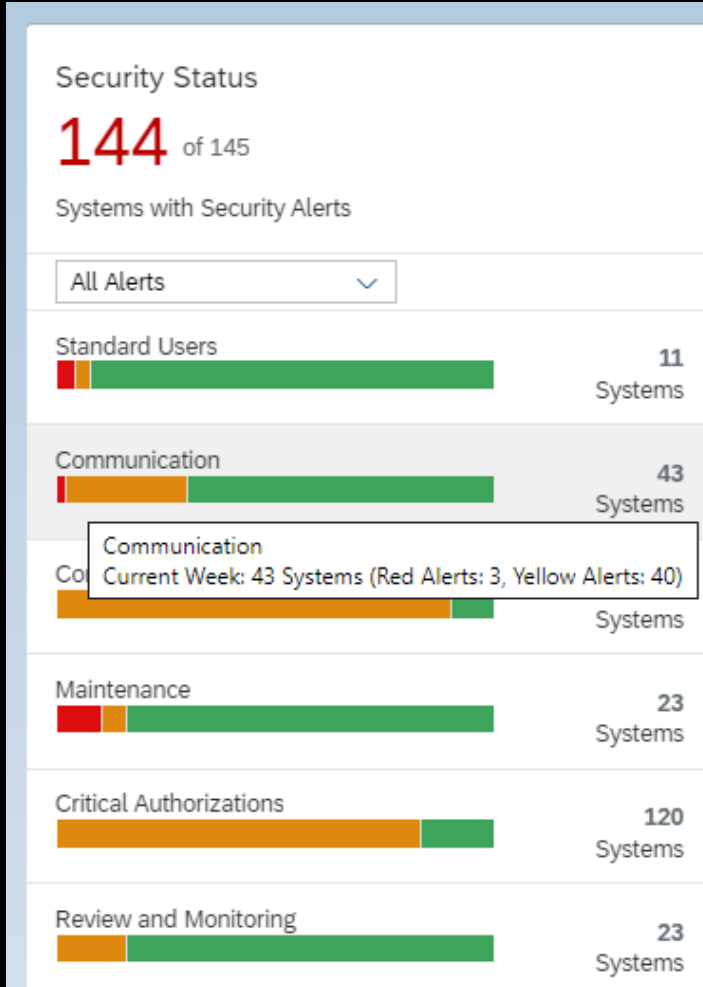
63,000+
Customer systems

17,000+
Systems based on SAP HANA

~ 1 million
SAP HANA objects analyzed
every week to predicted
2 billion record limit

SAP EarlyWatch

Display Security Alerts in SAP EarlyWatch Alert Workspace



How many systems are vulnerable (“**YELLOW**” or “**RED**”)

- Standard Users including DDIC or SAP* have default passwords
- **HANA user SYSTEM is active and valid (6 Systems)**
- **RFC Gateway and Message Server Security – Doors wide open (3 Systems)**
- HANA Internal or System Replication Communication is not secured
- Weak Password Policy (ABAP, HANA)
- HANA: SQL Trace configured to display actual data
- **Systems having an old SPS (no longer supported with new SAP Security Notes) (15 Systems)**
- Users having critical basis authorizations like SAP_ALL, Debug, Display/Change all tables,...
- HANA users having critical authorizations like DATA ADMIN privilege
- Audit Log is not active or written to an unsecure audit trail target

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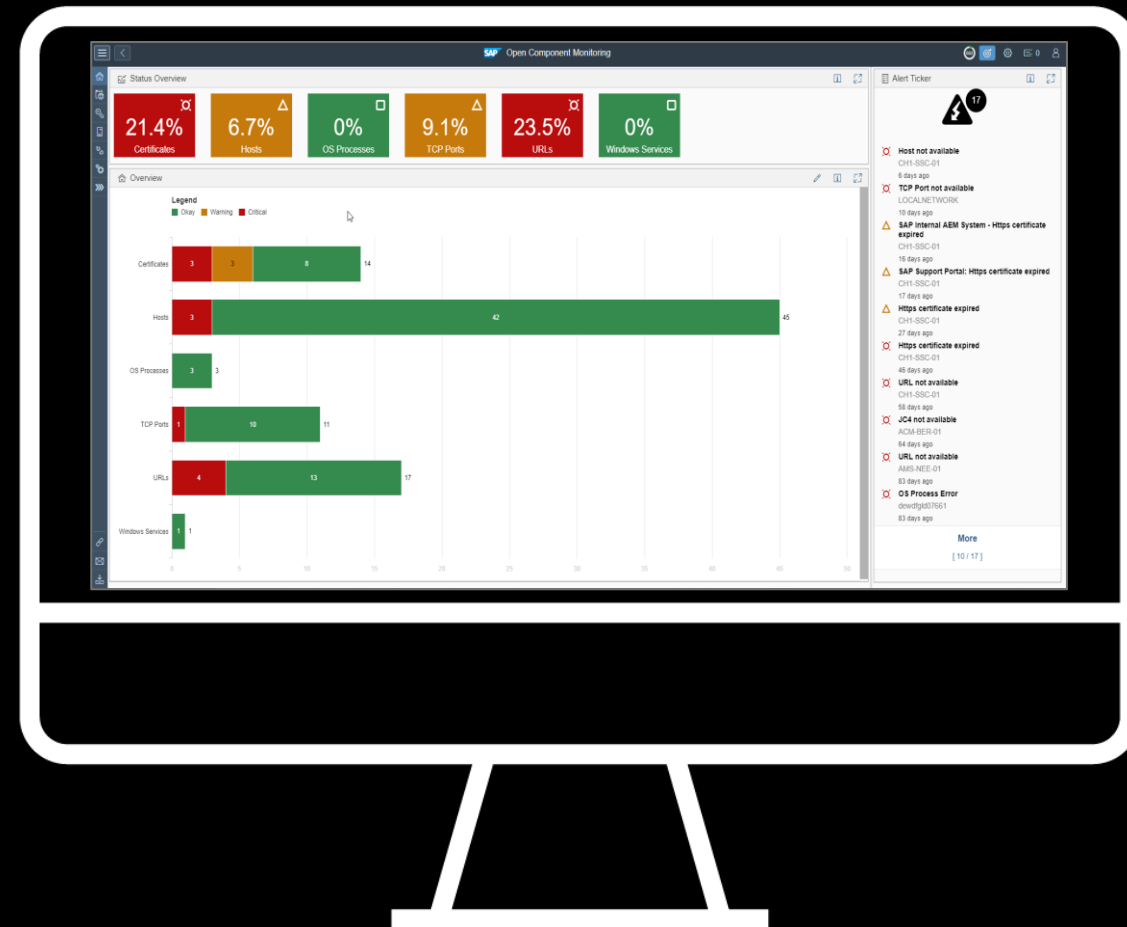
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SAP Focused Run

The ultimate solution for Operations

Addresses advanced customer needs in scalability, data volumes, security, automation, openness, dashboarding & artificial intelligence

- Manage landscapes with thousands of systems with minimal operations costs
- Monitor real as well as synthetic user requests across systems and technology
- Manage complex landscapes with millions of interface calls and/or message flows
- Efficiently operate thousands of system, user, and integration alerts, including integrated IT infrastructure events
- Enable central governance of software levels and configuration settings
- Deep detailed root cause analysis capabilities tailored to your needs
- Use SAP's out-of-the-box



Focused Run – Security and Compliance Key Features

**Advanced
Event & Alert
Management
(AEM)**

**Advanced
System
Management
(ASM)**

**Advanced
User
Monitoring
(AUM)**

**Advanced
Integration
Monitoring
(AIM)**

**Advanced
Configuration
Monitoring
(ACM)**

**Advanced
Root Cause
Analysis
(ARA)**

**Advanced
Analytics &
Intelligence
(AAI)**

- Pre defined & policy based security & compliance validation of configurations
- Monitoring of server side certificates
- Security note deployment validation / transparency about gaps vs. achievement
- Integration into operational processes
- Insights into actual usage / system communication & document flow & user behaviour
- Great graphical charts and build in dashboarding incl. Management overview

Technology Foundation: SAP HANA / SAP NetWeaver ABAP + SAPUI5

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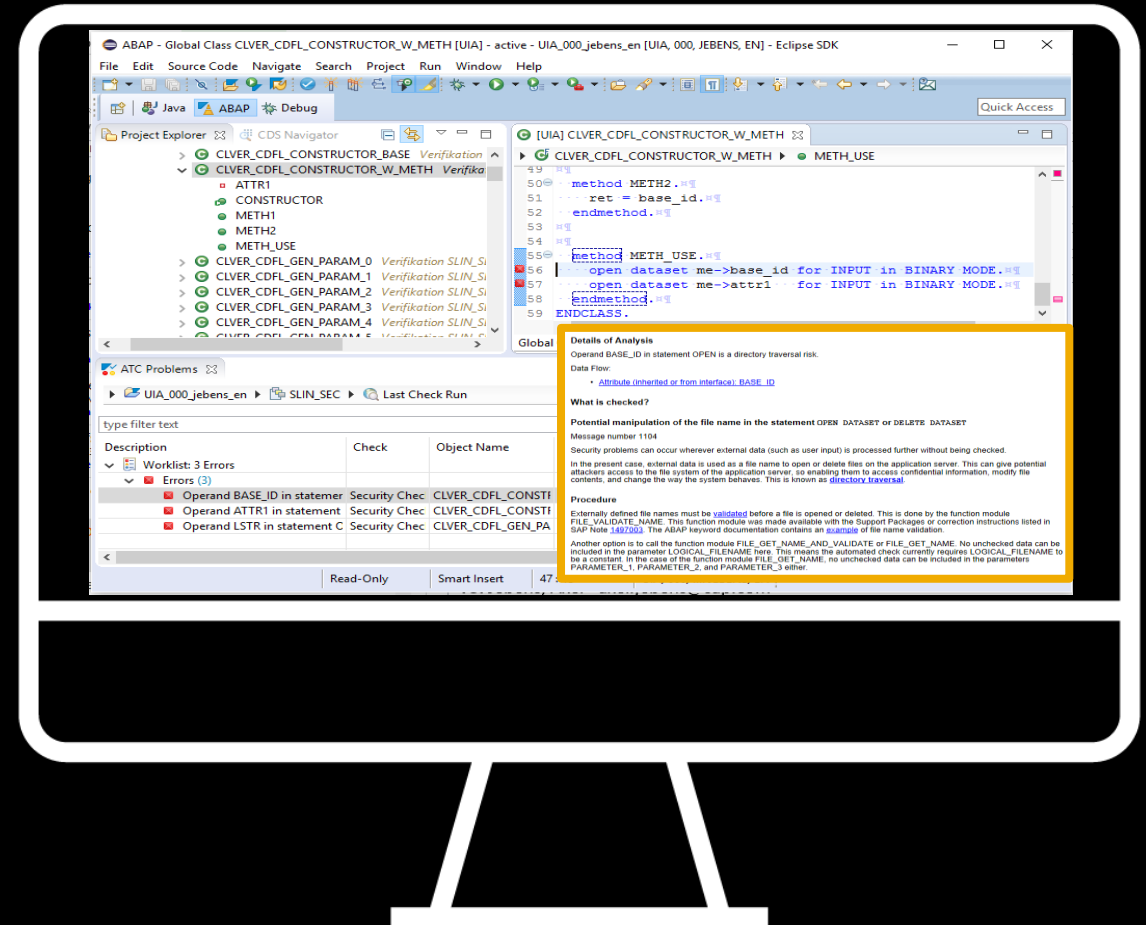
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SAP NetWeaver Application Server, add-on for code vulnerability analysis

Develop highly secure SAP ABAP applications

Identify and remedy security vulnerabilities in ABAP custom code

- Tighten application security by scanning custom ABAP code
- Protect against malicious code attacks and data breaches
- Rely on a solution that has been rigorously tested on a massive



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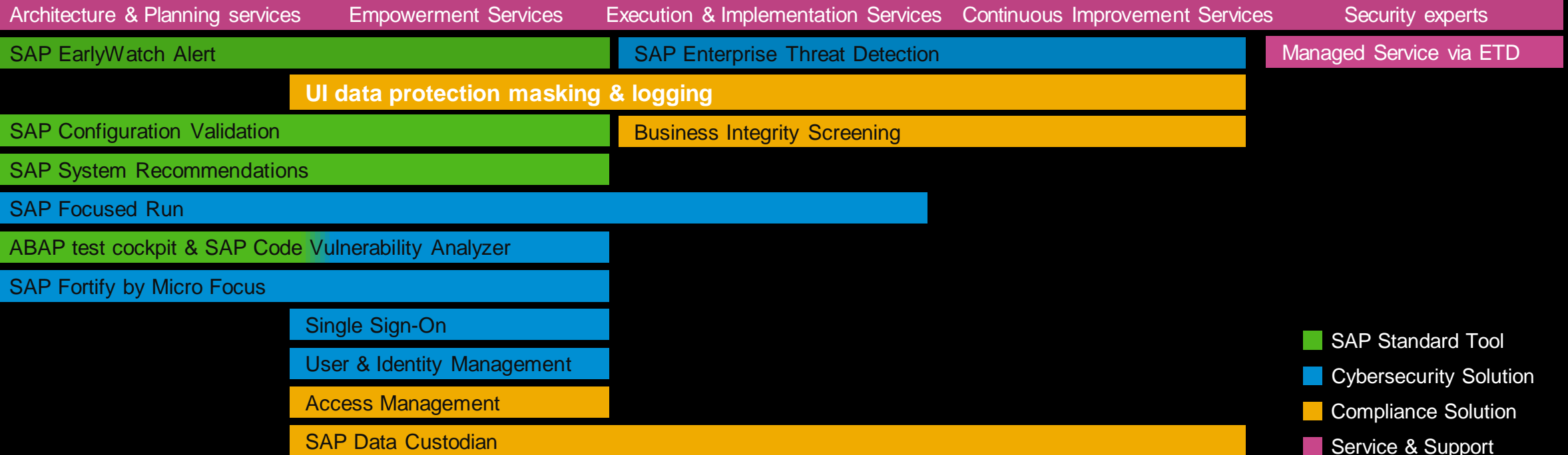
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UI Data Security: **two step approach** to protect data from insiders



UI Masking

**conceal specific data –
unless required for tasks**

→ make sensitive data
unavailable for data abuse



“Lock it”...



UI Logging

**keep data accessible – and create a
broad + deep log of data access**

- induce compliant behavior
- identify & prove irregular data usage
- Baseline for decision on actions



...”or log it!”

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Challenges In the Multi-Cloud Era

Data is Everywhere

IaaS | PaaS | SaaS
Multi-Cloud

Public cloud deployments
are on the rise

New Governance Standards

Compliance | Security
Localization | Audits

Regulatory compliance
driving data protection

New Demands

Access | Control
Geo-Location | Encryption

Shared Responsibility

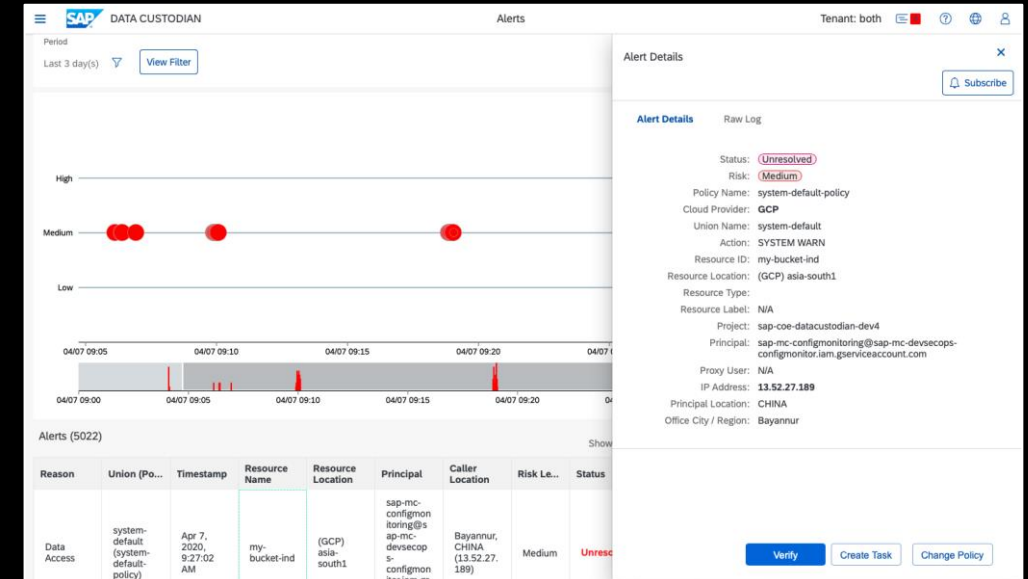
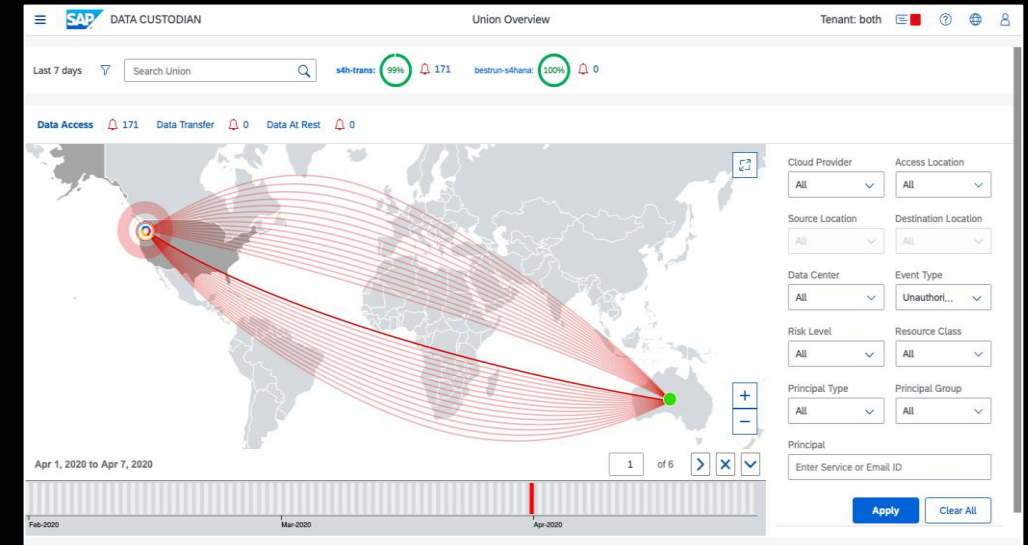


SAP Data Custodian

Multi-Cloud Data Insight and Protection

The SAP Data Custodian solution is a Multi-Cloud SaaS application designed to achieve the following business objectives:

- Multi-Cloud and multi-application data insight and protection (Azure, AWS, GCP, AliCloud, S/4H, ECC)
- Data governance, compliance and audit reporting
- Rapid identification and notification of data protection breaches



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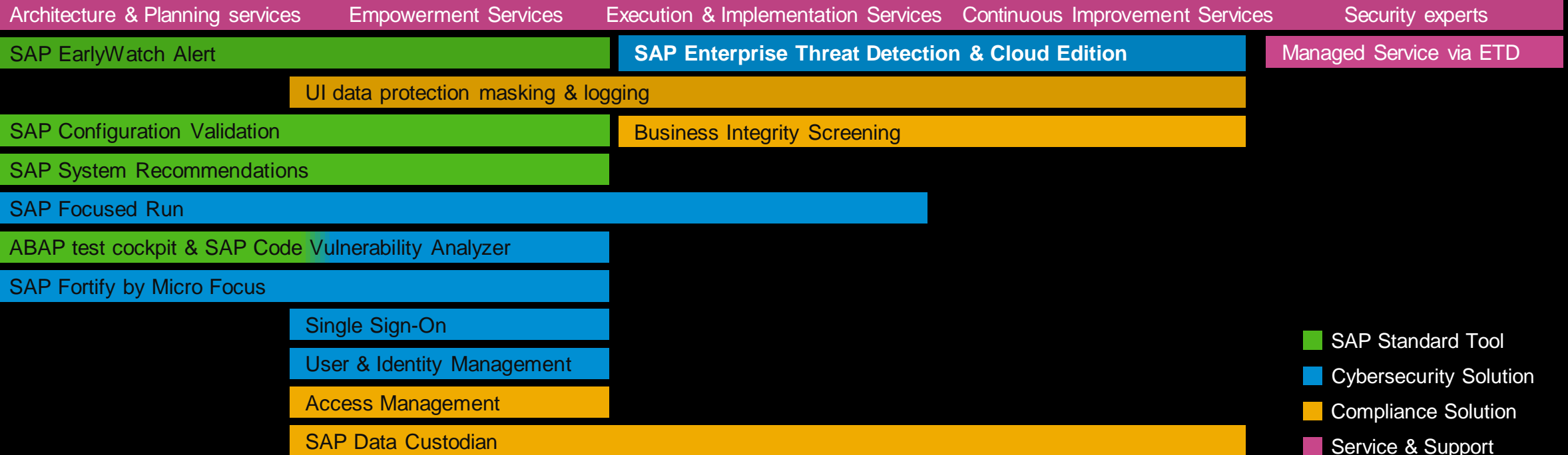
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SAP Enterprise Threat Detection & Cloud Edition



Stop security breaches in today's SAP S/4HANA business applications.

Enterprise Threat Detection gives transparency in to suspicious (user) behavior and anomalies in SAP business applications to identify and stop security breaches in real-time.

Enterprise Threat Detection uses highly efficient and automated processes based on HANA technology and Machine learning to track hacker activity using SAP's predefined and easy customizable attack paths.

Challenge



- Increasing number of hacker attacks
- Regulatory requirements for security and compliance controls.
- Roles and Authorizations only will not protect an SAP S/4HANA environment.
- Perimeter and IT infrastructure security is not sufficient to protect the SAP S/4HANA business core.
- Analyzing the huge amount of events coming from the SAP S/4HANA Business Applications.

Solution



- Stop security breaches in today's SAP S/4HANA business applications.
- SAP system Transparency with respect to Security- and Compliance-Events.
- Correlate the complete picture of an hacker attack, not only a few small puzzle pieces.
- Perform forensic investigations, search for threats and detect anomalies in SAP S/4HANA applications.
- All audit logs available in a central instance (manipulation safe, unfiltered, normalized, readable).

Benefits



- **Detect** threats in your SAP S/4HANA applications to avoid financial loss, legal and reputational damage.
- **Safeguard** the operation of your SAP S/4HANA.
- **Reduce** effort for conducting audits.
- **Gain transparency and simplify** the analysis of suspicious activities,
- **Identify security gaps**, and **understand the impact** on your business.
- **Analyze** huge amounts of information quickly and to take the right decision in time.

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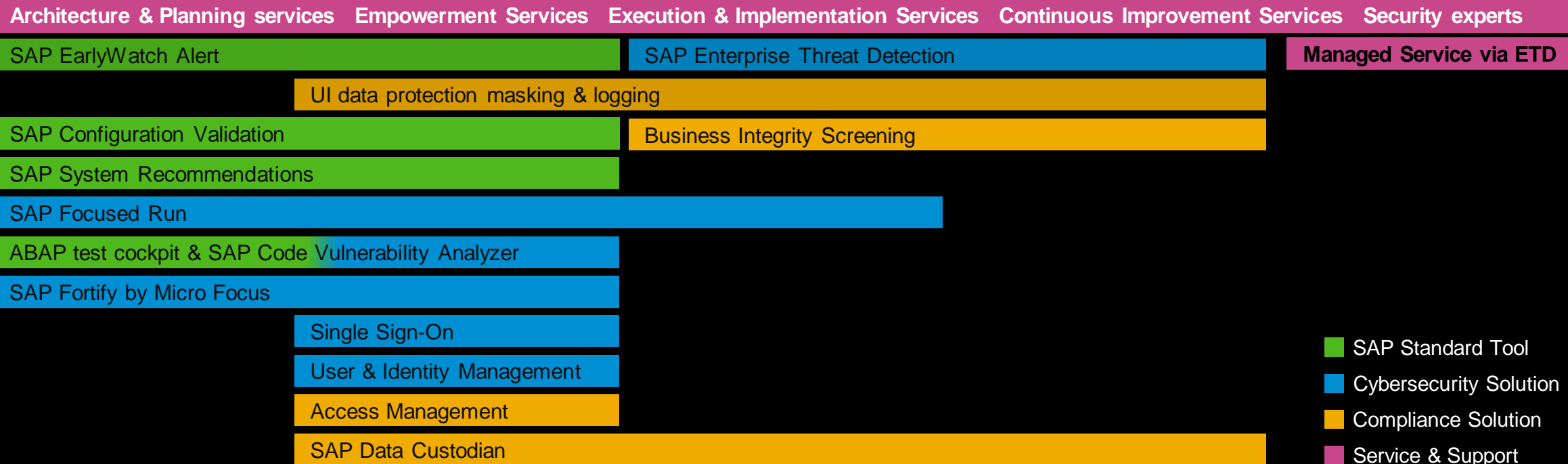
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SAP Cyber Security MaxAttention Services

Cybersecurity and compliance engagement

Service portfolio making the design, build and operation of hybrid landscapes work properly



Strategy and architecture

Develop a strategic road map with respect to security and compliance products from SAP including how to run the hybrid solution in a secure and compliant manner



Continual improvement

Develop a security and compliance improvement road map, safeguard the security aspect of project implementation, and develop a customer-specific security baseline



Transparency and mitigation

Ensure regular updates and customer-specific content to enable and improve the core competence in how to design, build, and run a hybrid SAP landscape in a secure and compliant manner

Useful Links

<https://www.sap.com/about/trust-center.html>

<https://support.sap.com/en/offerings-programs/support-services/security-optimization-services-portfolio.html>

Thank you.

Contact information:

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