Course Wrap Up Topics

3 Pillars of a Cyber Security Organization

Governance

Ensures security program meets strategic business requirements

- Steering Committee
- Resource allocation and annual objectives
- Define and approve policies and standards
- Assess risks and remediation progress
- Review reporting and metrics for compliance and risk
- Monitoring operational performance

Security Management

Identify and oversees the security program

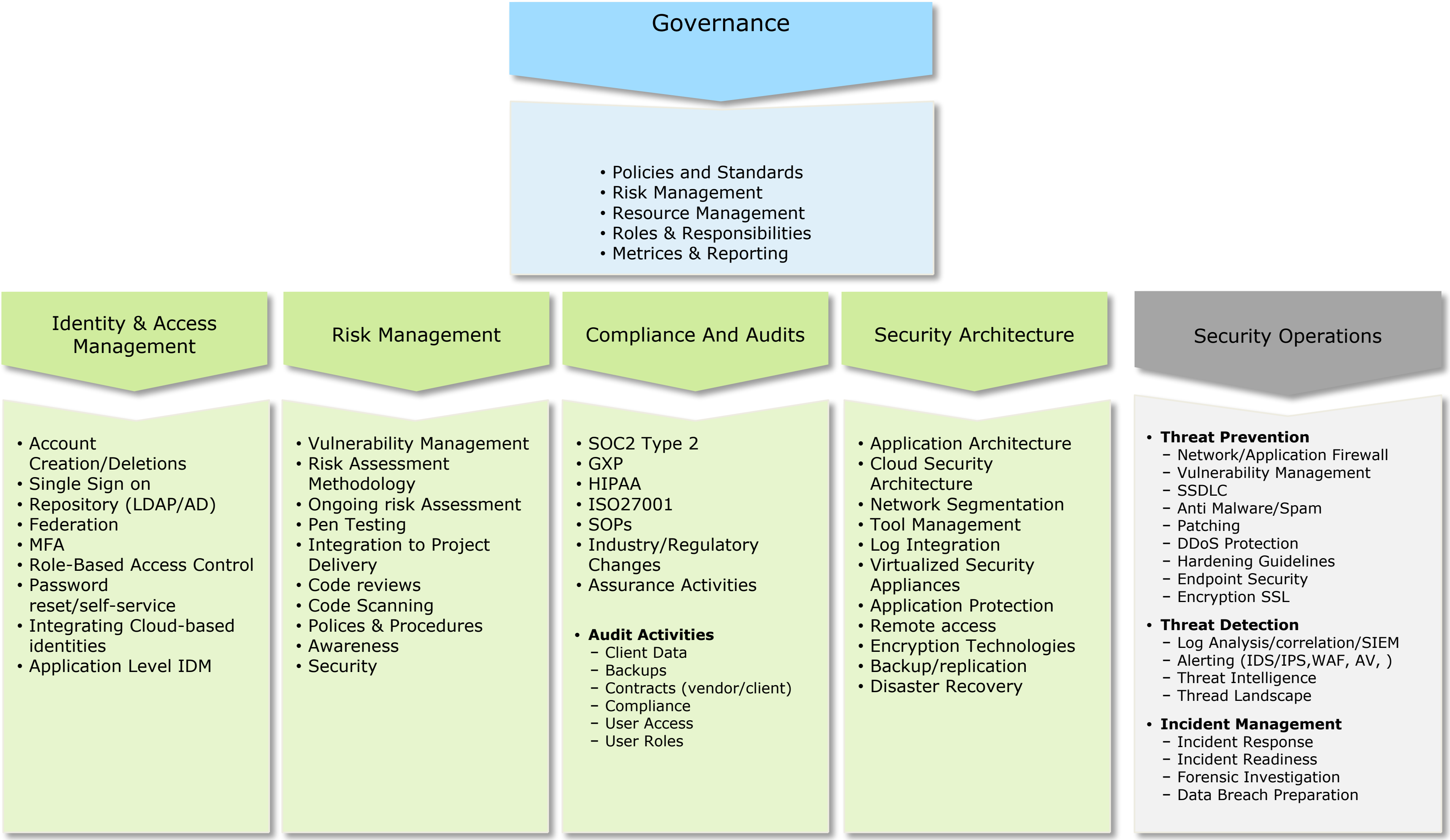
- Management of the security program
- Security policy/standards development and implementation
- Security architecture across cloud and assets
- Security awareness and education
- Projects to implement new security infrastructure
- Security guidance for non-security projects
- Security testing, audit and assurance
- Industry compliance programs

Security Operations

Mitigates security risks on a daily basis

- Monitoring and responding to security events
- Provisioning and deprovisioning access rights
- Providing input on the deployment of patches
- Monitoring vulnerability management processes and technologies
- Keeping current on changes to the threat landscape
- Maintaining and monitoring the technical security architecture
- Planning and participation in response to incidents
- Deploying patches for security products

Organization Expanded View



Governance

- Policies and Standards
- Risk Management
- Resource Management
- Roles & Responsibilities
- Metrices & Reporting

Identity & Access Management

- Account Creation/Deletions
- Single Sign on
- Repository (LDAP/AD)
- Federation
- MFA
- Role-Based Access Control
- Password reset/self-service
- Integrating Cloud-based identities
- Application Level IDM

Risk Management

- Vulnerability Management
- Risk Assessment Methodology
- Ongoing risk Assessment
- Pen Testing
- Integration to Project Delivery
- Code reviews
- Code Scanning
- Polices & Procedures
- Awareness
- Security

Compliance And Audits

- SOC2 Type 2
- GXP
- HIPAA
- ISO27001
- SOPs
- Industry/Regulatory Changes
- Assurance Activities

- **Audit Activities**
  - Client Data
  - Backups
  - Contracts (vendor/client)
  - Compliance
  - User Access
  - User Roles

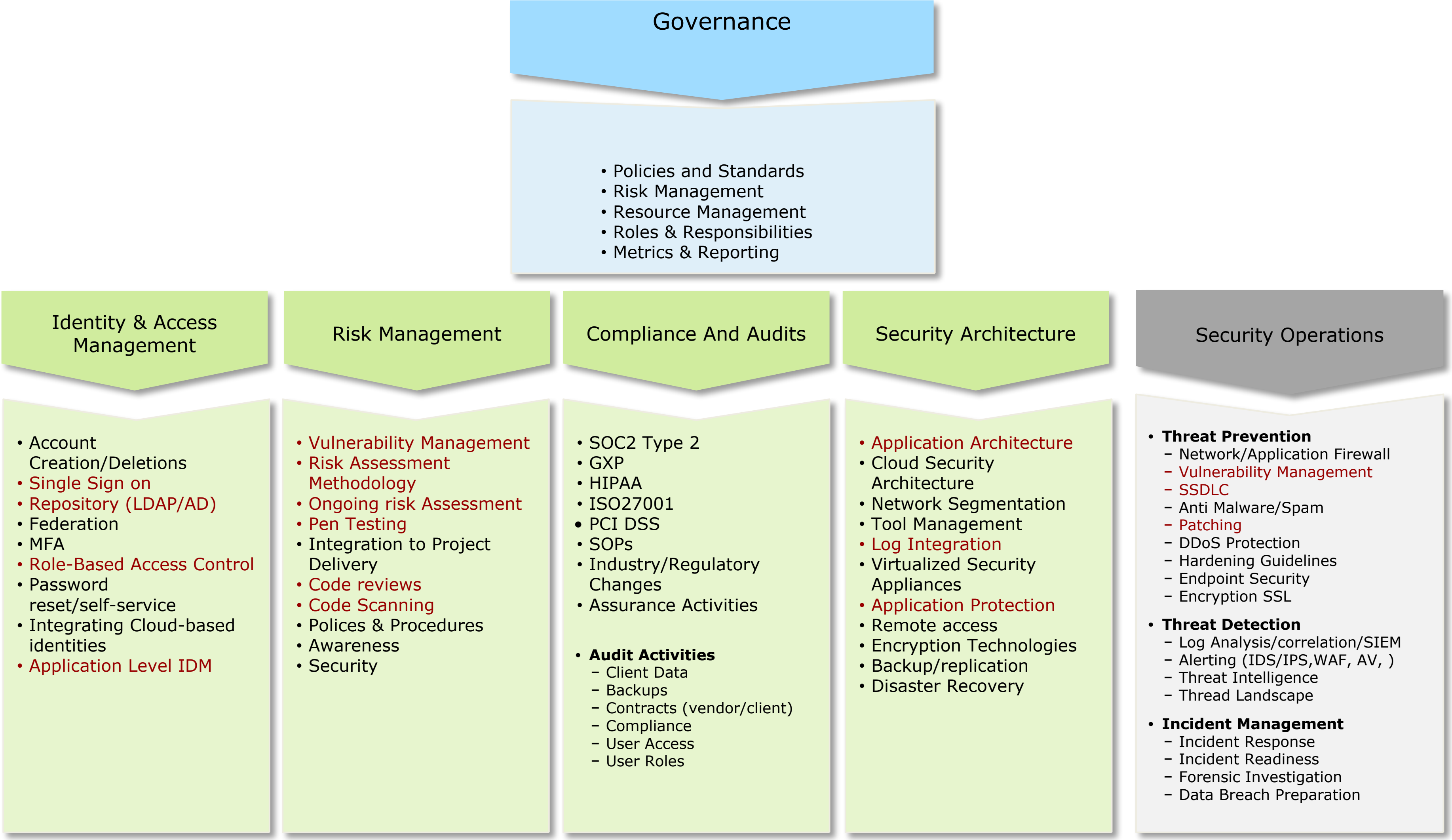
Security Architecture

- Application Architecture
- Cloud Security Architecture
- Network Segmentation
- Tool Management
- Log Integration
- Virtualized Security Appliances
- Application Protection
- Remote access
- Encryption Technologies
- Backup/replication
- Disaster Recovery

Security Operations

- **Threat Prevention**
  - Network/Application Firewall
  - Vulnerability Management
  - SSDLC
  - Anti Malware/Spam
  - Patching
  - DDoS Protection
  - Hardening Guidelines
  - Endpoint Security
  - Encryption SSL
- **Threat Detection**
  - Log Analysis/correlation/SIEM
  - Alerting (IDS/IPS,WAF, AV,)
  - Threat Intelligence
  - Thread Landscape
- **Incident Management**
  - Incident Response
  - Incident Readiness
  - Forensic Investigation
  - Data Breach Preparation

Organization Expanded View



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Security as a Software Engineer

- Threat landscape changes continuously
  - Technology changing more rapidly than ever
    - New languages, stacks, cloud services, apps
  - Systems are becoming more open and spread across services
    - Driven by cloud adoption and pervasiveness web applications in business and person lives
    - Technologies such as micro services, cloud services, multi-cloud create new thread landscape areas

- Assessing Risk plays an important part
  - Security testing needs to be driven by evaluating the areas that can potentially cause harm if breached.
  - Compliance risk, data leakage risk, open source risk, supplier/3rd party risk, reputation risk, etc.
  - Drives security tools that need to be employed

Security as a Software Engineer

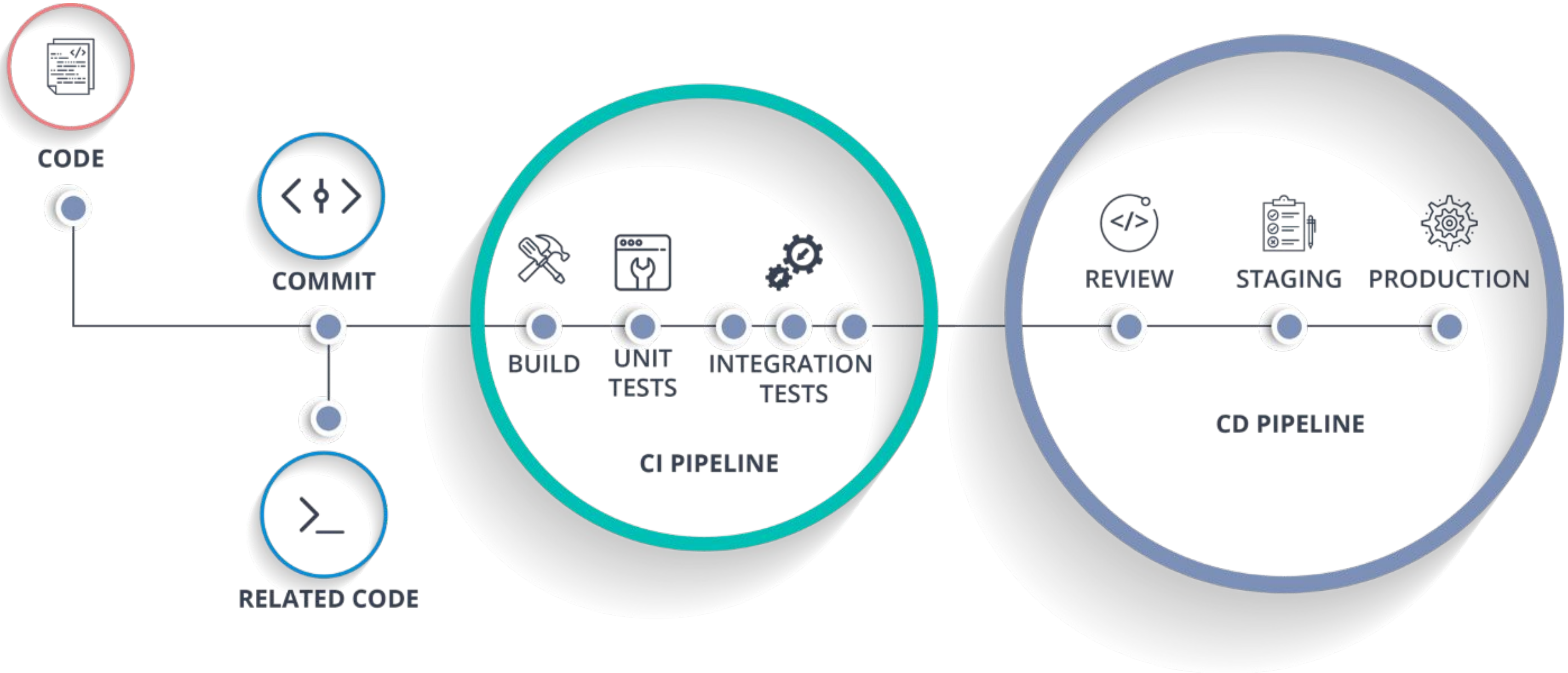
- Risk assessment and security tools allow development teams to identify, classify, and remediate weaknesses found during automated analysis & testing
  - Code review and inspection with security lens
  - Dependency scanning to verify software composition
  - Static application security testing (SAST)
  - Dynamic application security testing (DAST)

- Expect pushback when trying to adopt new security tooling, especially when impacting the Agile development process.
  - Educate teams that the benefit of using these tools is in the analysis coming from the tool and not the automation that runs the analysis.
  - Integrating security within the CI/CD pipeline helps streamline your DevSecOps tool chain.

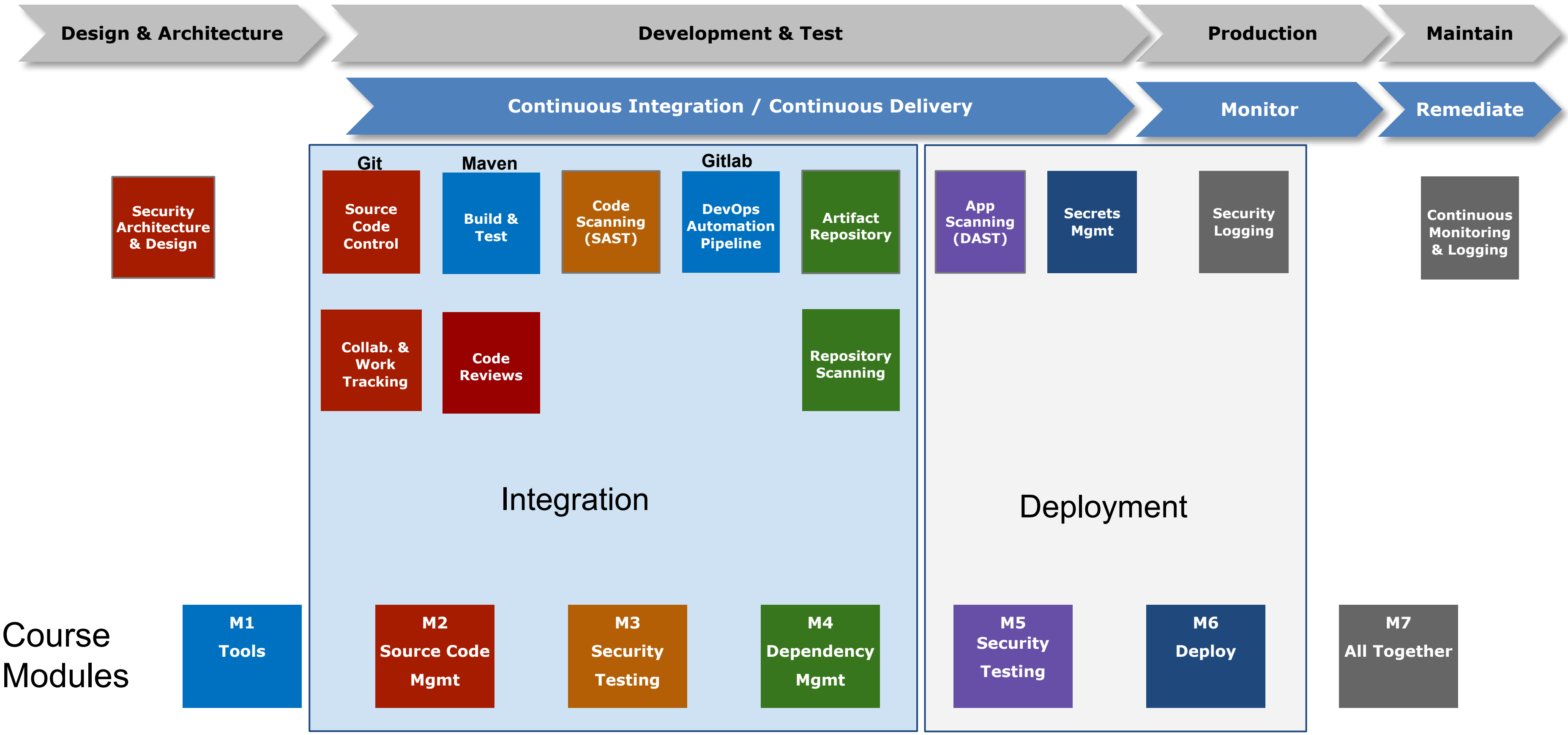
Security as a Software Engineer

- Important to be proactive instead of reactive when dealing with security issues.
  - A reactive organization is responding to ongoing issues as they come
  - A proactive organization is taking necessary steps incorporating security tools to reduce weaknesses before they are live in production.
- Reactive approach - only focus on addressing known Common Vulnerabilities and Exposures (CVEs) in your software
- Proactive approach - focus on Common Weakness Enumeration (CWE) that exist for you specific software system, examining for weakness based on your software technology and structure as developers are coding.
- Build strong security inspection and testing automation from the first line of code.

DevSecOps


CODE
COMMIT
RELATED CODE
BUILD
UNIT TESTS
INTEGRATION TESTS
CI PIPELINE
REVIEW
STAGING
PRODUCTION
CD PIPELINE

DevSecOps Pipeline



Design & Architecture

Development & Test

Production

Maintain

Continuous Integration / Continuous Delivery

Monitor

Remediate

Security Architecture & Design

Git

Source Code Control

Maven

Build & Test

Code Scanning (SAST)

Gitlab

DevOps Automation Pipeline

Artifact Repository

Collab. & Work Tracking

Code Reviews

Repository Scanning

Integration

App Scanning (DAST)

Secrets Mgmt

Security Logging

Deployment

Continuous Monitoring & Logging

Course Modules

M1 Tools

M2 Source Code Mgmt

M3 Security Testing

M4 Dependency Mgmt

M5 Security Testing

M6 Deploy

M7 All Together

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