Aurora™ NETWORKS

From Integrity to Trust:
Rethinking Software Supply Chain (SSC) Security

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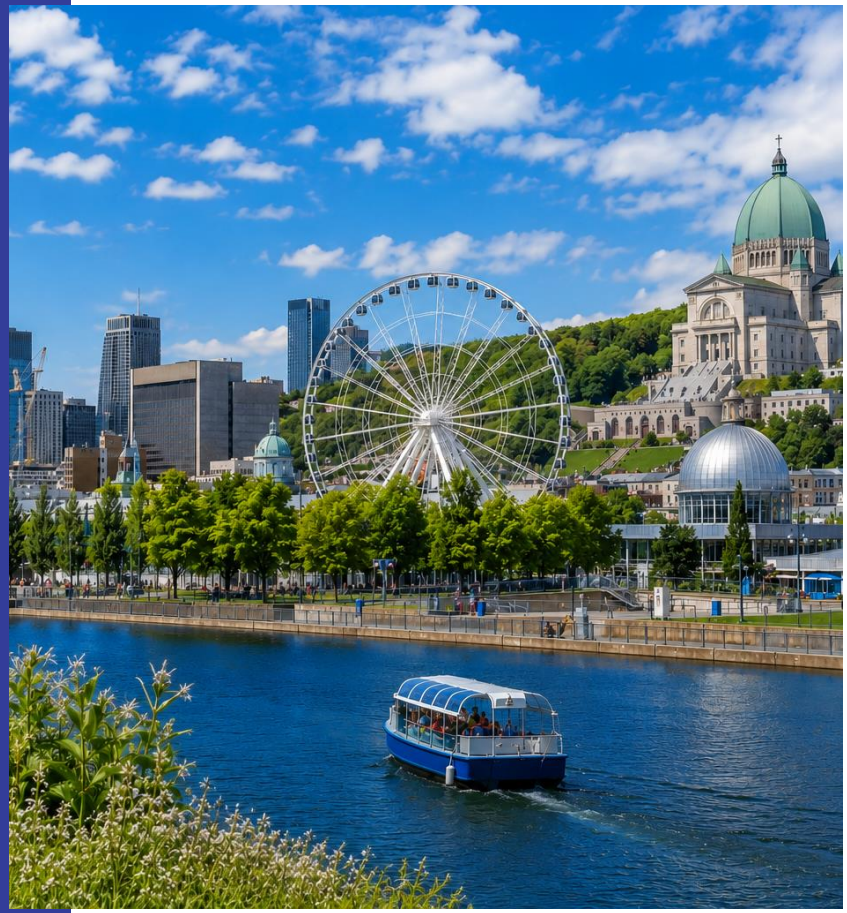

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Dr. Xin Qiu has over 25 years of experience in Public Key Infrastructure (PKI), device and software security, and has generated a global patent portfolio of over 100 assets.

She leads a diverse team across R&D, security operations, product marketing and management, delivering security services to global device manufacturers and network operators.

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Agenda

- Software Supply Chain (SSC) Risk Across the Lifecycle
- Problem: Integrity vs. Trust Gap
- Limits of Artifact-Based Assurance
- Shift to Evidence-Based Trust
- Trust Signals and Correlation
- Trust in Deployment & Runtime
- Operational Impact

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Why SSC Security Matters

Growing Risk

- SSCs are a growing attack vector for Internet abuse
- Compromise enables large-scale abuse and disruption
- Trust failures propagate across ecosystems

Driving Forces

- Regulatory pressure (CRA, NIS2, etc.) and customer expectations
- Increasing complexity and attack automation

Operational Need

- Actionable trust signals, not just compliance artifacts

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Where SSC Risk Enters the SDLC

Software Development Life Cycle (SDLC)

During Development

- Malicious code injected to source and dependencies
- Tampered open-source / 3rd-party components

During Build & Test

- Code modified prior to release - build pipeline compromise
- Signing key compromise makes malware appear trusted

During Release & Deployment

- Compromised repositories / servers deliver malicious updates
- Package substitution/spoofing replace legitimate software

After Deployment - Operation

- Runtime injection enables unauthorized code execution
- Tampering of configuration update

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What We Rely on Today

- Hash validation → detects modification
- Code signing → verifies integrity and origin
- SBOM (baseline) → lists components and dependencies
- Compliance checks → demonstrate policy adherence

Value: necessary foundation

Limit: point-in-time, not operational

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The Core Problem: Trust Gap

Why It Falls Short

- Static artifacts lack operational context
- Software and environments change after release
- New Vulnerabilities and threats emerge continuously
- Integrity ≠ trustworthiness
- Valid artifacts ≠ safe behavior

Key Question: Can this software be **trusted now**?

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Shift: From Artifacts to Evidence-Based Trust

- Static artifacts → Evidence
- Single signals → Correlated signals
  - SBOM • Testing • Vulnerabilities • Provenance • Attestations
- Point-in-time checks → Continuous, contextual validation
- Audit output → Operational decision

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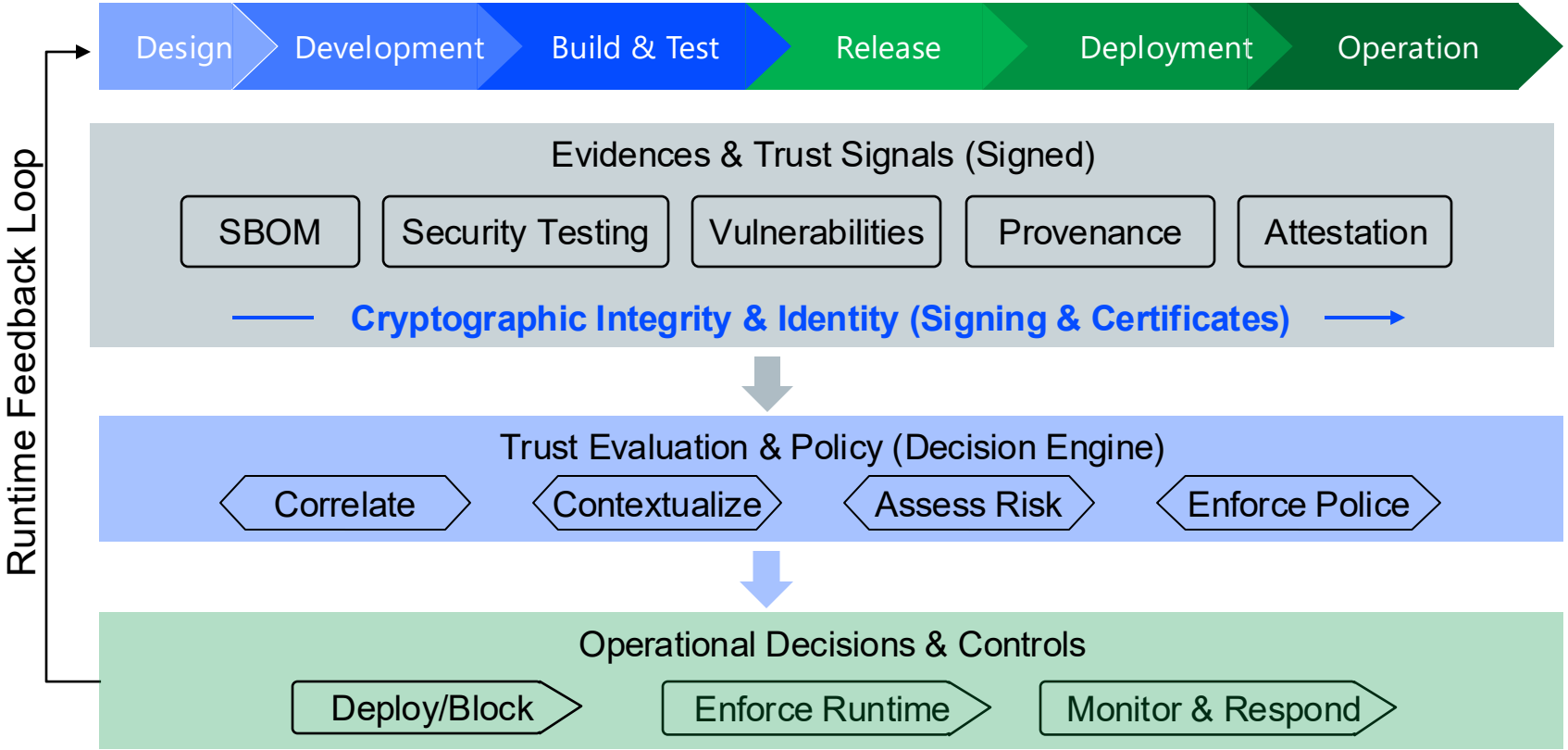
Building Trust in SLDC



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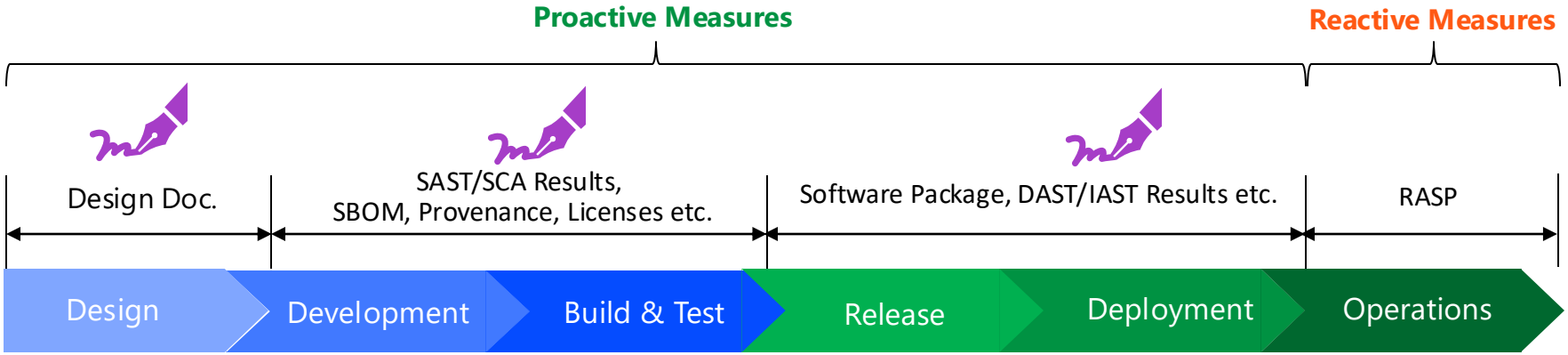
Security Measures in SLDC



SAST: Static Application Security Testing

DAST: Dynamic Application Security Testing

SCA: Software Composition Analysis

IAST: Interactive Application Security Testing

RASP: Runtime Application Self-Protection

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Key Takeaways

Compliance artifacts are necessary—but not sufficient for operations

Trust must be continuously evaluated across the lifecycle

Multiple signals must be evaluated together

Evidence—not assumptions—drives decisions

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