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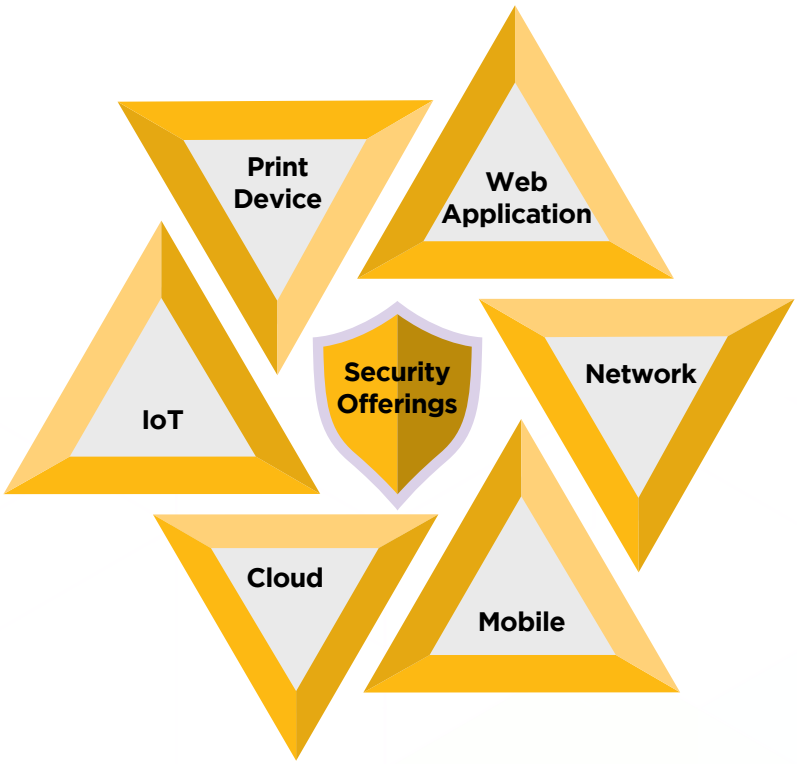
Security test services

Digital and print technology

#DoMoreWithHCL

#GoDigitalWithHCL

Securing the digital world requires diverse expertise



25
Client Relationships

40+
Collaborative Partner Alliances

150+
Dedicated Professionals

15+
Years of Experience

Security challenges on Print Devices

Updates and Firmware
- Trusted Operation

Management Services
- SNMP
- Telnet

Printer Services
- Fax Separation
- Print/Copy/Scan/Fax job protection

Printer Attack Surfaces

Platform Services
- Linux
- RTOS
- Windows
- Android

Web Application & Services
- Default Credential / Weak Configuration
- Cross-Site Request Forgery (CSRF)
- Broken access control
- Cross site scripting issues
- Insufficient logging and monitoring
- Components with known vulnerabilities

Printer Networking
- Wifi
- LAN

70% Organizations in US agree that print security is important to Information Security strategy

68% Report at least one Denial-of-Service (DoS) or Malware attack

65% Reported at least one data loss, an increase from 60%

Test approach to secure Print Devices

01 Planning Stage

- Identifying Assets
- Define Scope
- Penetration Test Plan
- Estimation

02 Infrastructure & Deployment

- Test setup and target
- Infrastructure
- Product inputs and KT

03 Information Gathering & Scan

- Gather required device inputs in all the Device Layers
- Dynamic Scan

04 Test Execution and Vulnerabilities Simulation

- Decomposing target application,
- Dataflow, workflows and execution of test
- Identifying business logics, Design / Architecture Vulnerabilities

05 Report

- Calculating Risk Rate, CVSS
- Report creation

Key Test Services

Threat Modelling	Ethical Hacker led dynamic Penetration and Intrusion Testing	Best practice led Secure Code Solution	Automated Industry Tool Scans and HCL Security Test Automation
Compliance with Security Standards and Guidelines	Data Security, Firewall Sufficiency	Expert led Vulnerability Assessment and Reporting	Active Network Security Monitoring

HCL Application Security Test Methodology

Application Scope

- Denial of Service
- Access Control
- Authentication
- Configuration Management
- Error Handling
- Data Protection
- Input Validation
- Butter overflow

Static Analysis

- Secure Code Review is performed on the Customer Specific Application source code to uncover code level vulnerabilities

Dynamic Analysis

- Vulnerability Analysis and testing is conducted on runtime based on HTTP request and responses.
- Simulate the actions of actual attacker

Manual & Automated Penetration Testing

- Exploit manually the vulnerabilities discovered in Dynamic Analysis
- Removal of False positives to confirm the authenticity of vulnerability

Vulnerability Report Analysis

- Expert analysis of the vulnerability reports
- Add remediation and recommendation techniques

Compliance Determination

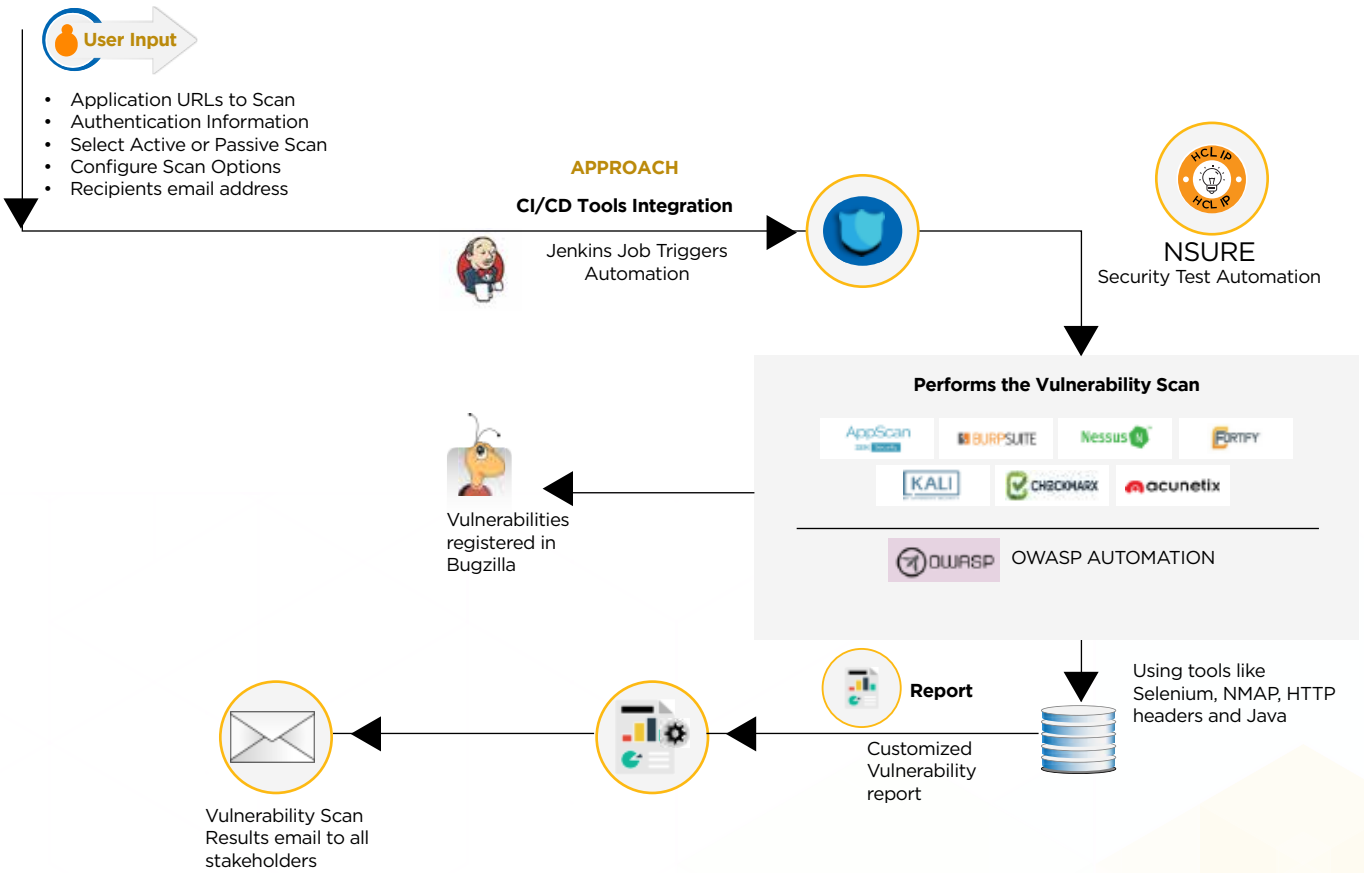
Adhere to

- PCI DSS
- P II
- HIPAA
- FDA

Continuous Security Testing using various Tools & HCL Frameworks

NSURE, Cyber security test automation solution

NSURE, The Cyber Security Test Automation Framework automates the vulnerability assessment on target applications across web/mobile and cloud



- Integrated with AppScan, BurpSuite. OWASP ZAP
- OWASP Test Scenarios Automation
- Seamlessly integrates with Agile and DevOps-CI/CD
- Plug and Play architecture for new tool integrations viz., Security Test Tool, CI/CD, Defect Management etc.
- Customized remediations for quick and effective fix of the vulnerabilities
- About 30% to 35% of effort savings per Vulnerability Assessment Cycle
- Single framework addressing Cyber Security Testing with Tool Based Scan and OWASP Test Automation

Case Study: Multi-Function Print Device Security Test for a Leading Imaging & Electronics Organization

Objective

- To protect the Printer Embedded System and Application from internal & external threats

Benefits

Uncovered the complex vulnerabilities

- Missing Secure boot
- Insecure SSH versions
- Unauthorized resource access with weak security configuration
- Firmware signing issues
- Missing Disk Encryption

Applications (HTTP, SMB, FTP/SFTP, SSH, Telnet, SMTP, SNMP, LDAP, Kerberos)	Application authentication and authorization bypass on serverJailbreak, session related replay attacks, Reverse engineering, weak encryption keys handling and storage, Weak encryption algorithm, weak session / connection management, Insecure protocols version
Framework (Java frameworks, Framework APIs, Display monitor framework)	Security misconfiguration, unauthorized resource access, insecure version of components and libraries
Native Libraries and runtime (Cryptographic libraries, encryption Keys, Android runtime)	Security misconfiguration, insecure components and libraries, known vulnerability, unauthorized resource access
Hardware Abstraction Layer (HAL) / System Calls (Android, Libraries)	Components known vulnerabilities, Weak Encryption Key management and handling, Security Misconfigurations, Framework level user broken access and controls
Linux Kernel (Drivers for WIFI, BLE, USB, Camera, IPC, Display, Memory management)	Weak version of Kernel, Weak version of drivers, unauthorized resource access, Sensitive data exposures, Insecure logging
Boot Loader	Missing secure boot, Bootloader tampering attacks, Unauthorized BIOS configuration access, Missing BIOS authentication
Hardware (Chipset, EEPROM, RAM, BLE, WIFI, Cellular, USB, Camera hardware chip)	Unencrypted sensitive data, Missing Disk encryption, Processor Meltdown attacks, hardware safety risks

Largest R&D service provider across the globe in Digital and Print Technology

12+
Years Experience in Digital and Print Technology Products

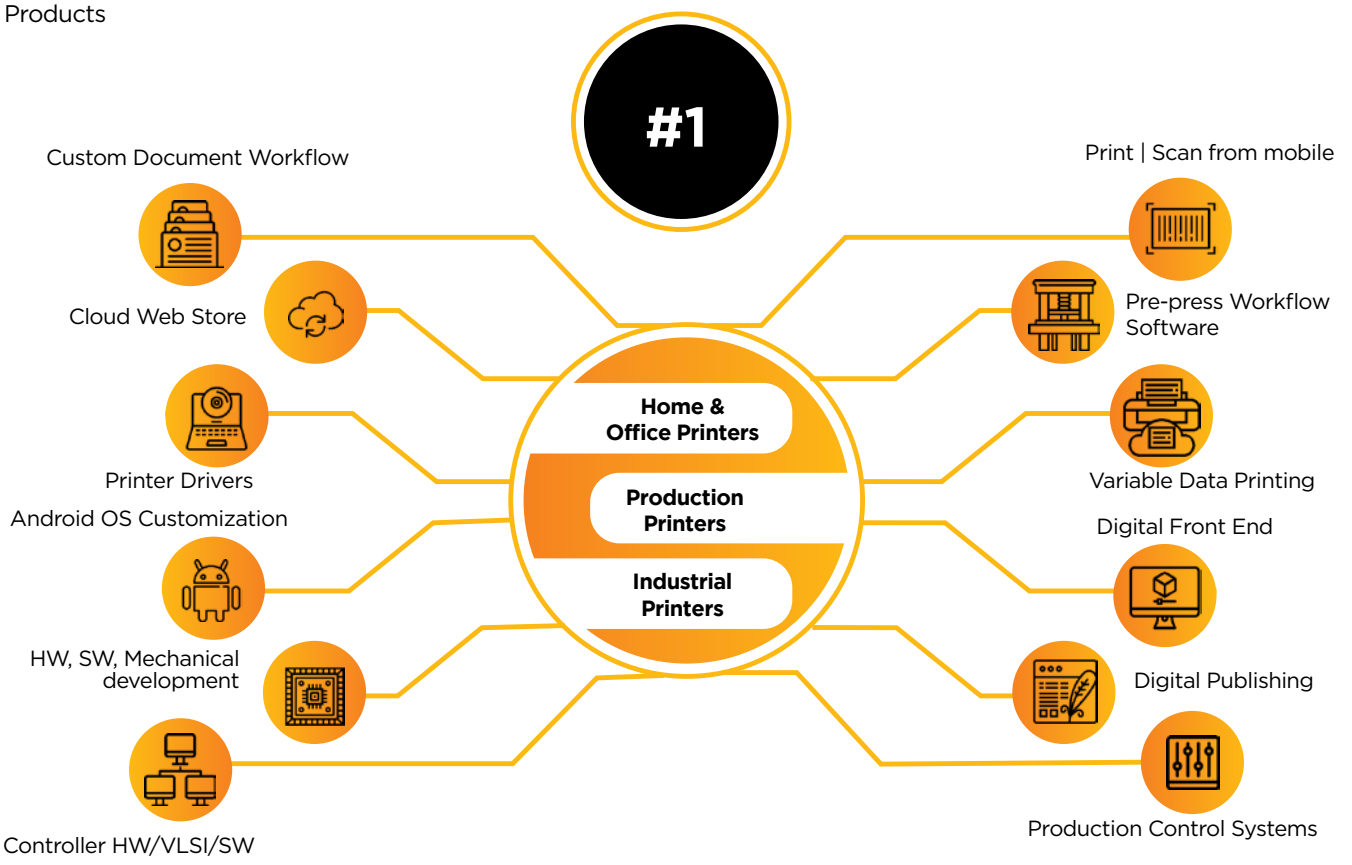
40+
Partnerships across Digital and Offset Print Technology

10+
Products Launched Successfully with over **100K installations**

2500+
Highly experienced group of professionals globally with deep domain expertise

$600M
R&D savings in 9 years

500+
Patentable Ideas generated



New Product Development | **Digital Solutions** | **Verification and Validation** | **Security** | **Digital Product Support**

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