

**INFOSYS CONNECTED
DEVICE TESTING:
BUILDING A SMART
ECOSYSTEM WITH
CONFIDENCE**



Introduction

The connected device market is booming. Smart devices now outnumber the world's population. This presents an opportunity for accelerated business growth. But organizations must act swiftly. The scope of connected device implementation is vast and complex. Therefore, smooth integration of system components and their compatibility with different platforms and operating systems is essential. With dynamic and growing market demands as well as business needs, connected solutions require a sound end-to-end testing strategy for stability, scalability, and interoperability, in order to provide a rich user experience.

Connected Ecosystem: Factors Driving Innovation

A connected ecosystem involves four primary factors interacting to create innovative smart services. Figure 1 depicts this complex amalgamation driving the emergence of the new service types.

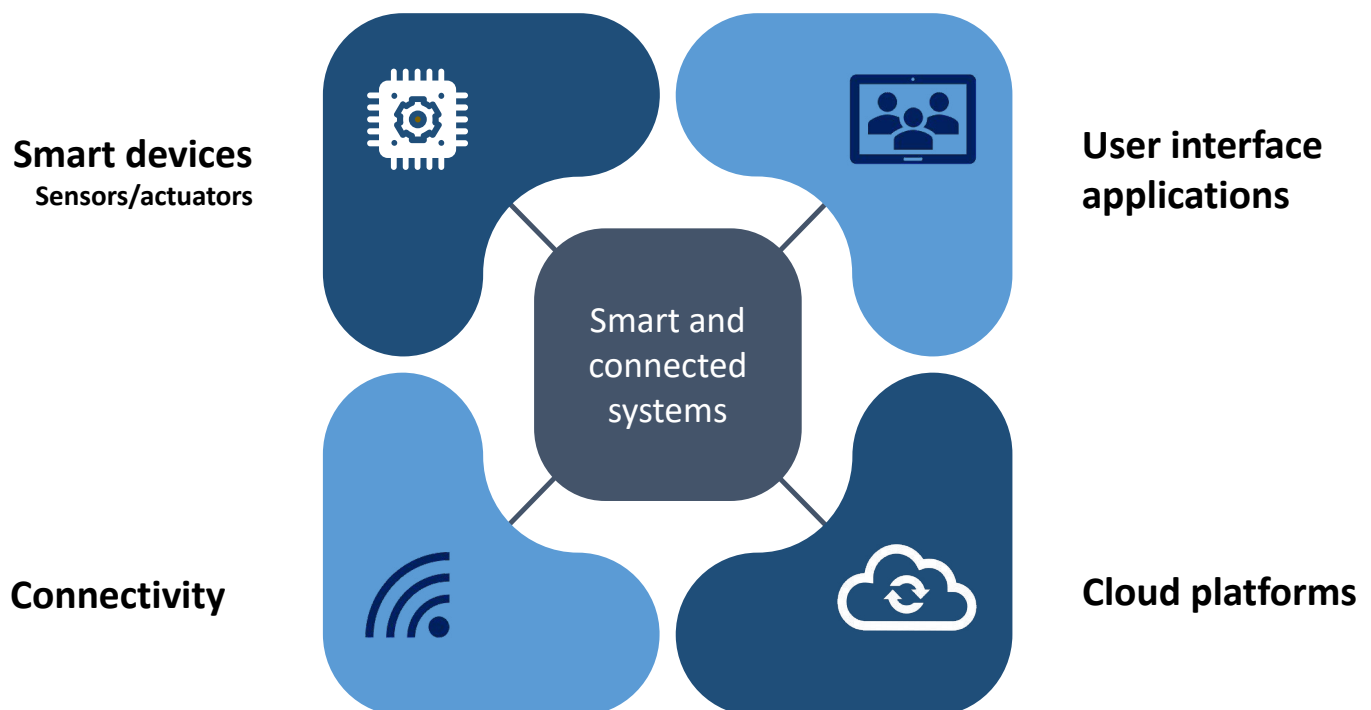


Figure 1: Combination of factors that empower the smart and connected system

Infosys Connected Device Testing: Addressing Industry Challenges

Infosys Connected Device Testing uses a structured approach to address industry challenges related to the usage of various devices, network options, protocols, and businesses use cases. Infosys validates smart scenarios and ensures optimal user experience to satisfy business needs. Additionally, we prioritize scalability and performance testing to ensure system efficiency under load. Our testing portfolio includes system cohesiveness, device interoperability, and compatibility with different technologies and protocols. We leverage device and data virtualization as well as automation to enhance value.

In summary, Infosys delivers end-to-end functional and non-functional validation services for all connected and smart scenario implementations.

Infosys Connected Device Testing has the following key features:



1. Smart scenario and user experience testing →



Seamless integration of smart devices with multiple network operators, connectivity protocols, cloud services, and end-user applications

Functional testing of Android, iOS, and other smart device applications

Usability and accessibility testing

Evaluating user experience under different application conditions and across multiple channels

2. Device interoperability testing →



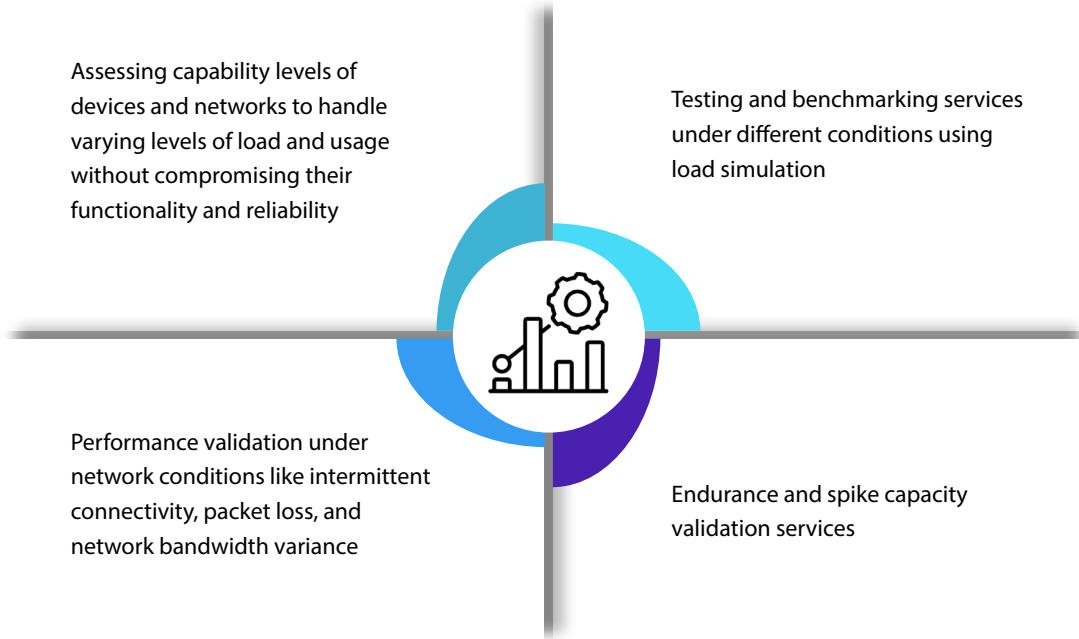
Seamless integration of smart devices with multiple network operators, connectivity protocols, cloud services, and end-user applications

Integration with multiple devices to ensure functional compatibility

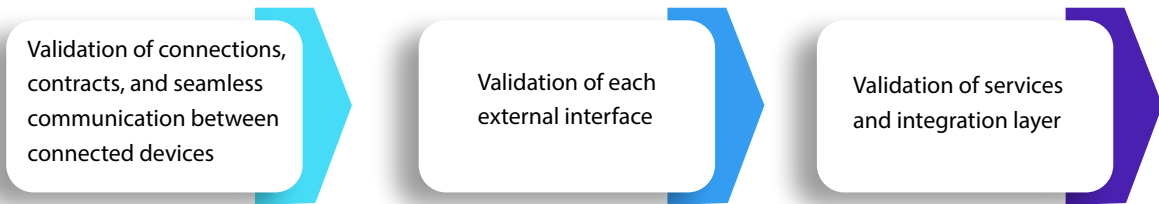
Validation of device-to-device and device-to-cloud communication for cloud integration

Interoperability testing with multiple communication and data protocols to address potential technology or protocol issues

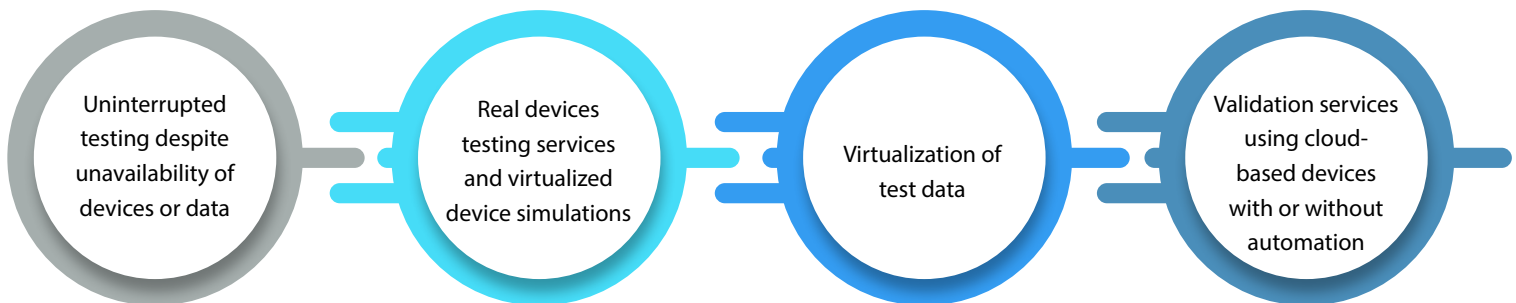
3. Performance and scalability testing →



4. API/microservices testing →



5. Device and data virtualization →



6. Test automation →



Accelerating testing, particularly for end-to-end and regression test scenarios, for more accurate and reliable results

Automation for edge-to-cloud end-to-end test scenarios

Automation for regression test scenarios for each layer

Infosys Differentiators



Infosys' edge-to-cloud testing solution offers comprehensive automation for connected device testing. Our optimized solution comprises seven components that cater to various types of testing requirements for connected devices. Table 1 lists and describes the seven components.

Table 1: The seven components of Infosys Connected Device Testing

Infosys Connected Device Testing Solution		
 Testing problems solved	 Components	 Description
Accessibility testing compliance across mobile and web applications	Infosys Accessibility Testing Tool (IATT)	IATT is a web application that enables enterprises to plan their web, mobile, and PDF accessibility strategy. It considers dimensions such as legal, economic, and corporate social responsibility. It supports automated accessibility checks for guidelines, including the WCAG1.0, WCAG2.0, WCAG2.1, DDA Australia, DDA UK, SECTION 508, STQC Guideline, and BITV Germany.
User journey experience testing	Infosys customer experience testing framework	<i>Customer Experience (CX) Index:</i> Validates various aspects of customer experience, including functional, performance, usability, security, and accessibility. It provides a unified score of perceived CX across web and mobile platforms. <i>Customer Sentiment Analytics:</i> Utilizes machine learning techniques to analyze customer feedback and derive insights.
Interoperability testing across device/cloud platform/protocol Automated device and data virtualization	Infosys Internet of Things (IoT) testing framework	Infosys IoT testing framework offers end-to-end test automation, covering the edge of the device to the IoT hub in the cloud. It supports testing for smart and connected device implementations and includes features such as device simulation and automated supervisory control and data acquisition (SCADA) testing.
Network and performance testing	Infosys Network Testing Solution (INITS)	INITS facilitates testing a connected device under various network conditions. It allows users to emulate actual end-user conditions.
Security testing	Infosys security assurance framework	Infosys security assurance framework assists in evaluating vulnerabilities and security threats across the device layer, gateway, back-end enterprise components, and connected system application layers. It enables assessment of the security implementation in alignment with the Open Web Application Security Project's (OWASP) top 10 risks.
API and microservices testing	Infosys API/microservices testing framework	Infosys API/microservices testing tool is a lightweight framework that simplifies API/microservices testing. It provides a single interface to orchestrate testing activities, reducing time required for test planning and execution. The tool is highly customizable and can be easily enhanced to adapt to evolving trends in the API world.
End-to-end test automation	Artificial intelligence (AI) and machine learning (ML) based testing framework	The AI and ML-based testing framework utilizes generative AI and ML models for regression test automation. The framework helps in optimizing test cases based on risk-based assessment, past performance data and the most probable cause of failure. It performs requirement traceability and identifies gaps in test coverage.



Infosys Connected Device Testing solution provides comprehensive test coverage and significant return on investment (ROI) for end-to-end connected device implementations.

The testing process is accelerated 7x through parallel device testing and reusable components for smart app testing.

The solution ensures 100% accuracy in validating accessibility standards with over 60% automated testing of WCAG guidelines.

Why Choose Infosys?

Infosys has a team of seasoned professionals known for their expertise and trustworthiness. We take a tailored approach to address the unique requirements of all our clients, ensuring that our testing services meet their specific needs with the highest quality. We leverage state-of-the-art testing tools to ensure that devices function seamlessly, delivering optimal performance and complete security.



Smart Facilities

A collaboration between Infosys and a multinational conglomerate resulted in remarkable outcomes for the company's smart facility project. By automating 80% of test requirements, the solution significantly reduced implementation time by 25%. This enabled the development team to deliver more releases and features at speed.

Infosys partnered with Microsoft Azure to build smart spaces leveraging AI and IoT. With AI-based validation solutions, the team ensured the seamless testing of digital twin validation use cases such as smart parking, smart meeting room, and lobby management. This highly successful testing implementation resulted in the delivery of the smart facilities project with zero-failure and high-reliability.

Connected Vehicles

Infosys played a pivotal role in helping a car manufacturer optimize its after-sales vehicle servicing platform. By leveraging Bluetooth and Wi-Fi technologies, Infosys developed a solution to efficiently manage the platform and collect crucial vehicle information, including parts, control unit software, and diagnostic fault-tracing data.

Automated daily regression through continuous integration and continuous delivery (CI-CD) implementation achieved **100% test coverage** with zero production defects. This robust testing approach ensured the stability of the platform and enhanced customer satisfaction by delivering a seamless after-sales experience.



Infosys enabled a leading broadband connectivity and cable company to enhance their video capabilities across multiple platforms. By developing applications for smartphones and tablets on iOS, Kindle, and Android platforms as well as Roku devices, Samsung TV, Apple TV, TV Everywhere (TVE), and online video portals, Infosys enabled seamless video streaming experiences for over 32 million customers.

The company witnessed a 30% reduction in cycle time for releasing content and new application features. Additionally, the application received a reputation boost, with the App Store rating increasing to 4.4 out of 5. The improved customer experience was key to driving rapid business growth.

Infosys achieved 75% regression automation within the agile sprint using the Espresso, Appium, Selenium, and Kotlin frameworks, in collaboration with Mobile Labs and Sauce Labs partners.



Multi-device Testing





Infosys played a crucial role in transforming the digital insurance experience for a leading insurance providing company. They merged multiple standalone applications into a unified platform, offering policy details and payments services. This innovative solution enabled flawless trip recording and management for customers through a single application available on both Android and iOS devices.

By implementing automated regression testing, Infosys significantly reduced the cycle time for releasing updates and enhancements while achieving a notable 30% reduction in effort.

The incorporation of trip simulation, we ensured accurate tracking of trips and events based on GPS, enhancing the reliability and functionality of the application. This successful collaboration empowered the client to provide insurance services more efficiently to their customers.

Multi-platform Mobile App Testing



For more information, contact askus@infosys.com



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