

A large, hollow blue arrow graphic pointing to the right, with a thin blue outline. It is positioned behind the main title text.

ACCENTURE STORMTEST

WHITE BOX TESTING

GETTING A GOOD LOOK “UNDER THE HOOD”

To gain insights on the inner workings of a device and its firmware stack, testers often use a special menu-driven interface accessed over a debug line. This approach is effective on individual devices. However, a number of testing and efficiency shortcomings limit its use:

- Due to reliance on vendor-specific diagnostic tests, test coverage is inconsistent. Additionally, the tools’ adequacy depends highly on the vendor’s or device’s maturity
- Efficiency is limited by ad-hoc tests that are written in different formats and test libraries that can’t be re-used or shared
- Storage of test results in different spreadsheets and databases makes it difficult to get a holistic and integrated view across tests

WHITE BOX TESTING

Accenture StormTest from Accenture Digital Video, helps Video Service Providers overcome these shortcomings. This video test platform automates White Box testing—i.e., the validation of a system’s or a component’s internal software stack. White Box testing assesses the code from the developer’s perspective, executing a series of tests to probe for memory leaks and code bottlenecks, and to facilitate adequate code coverage. Such testing is key to understanding the functionality and performance within the device and firmware stack.

There are three possible approaches to White Box testing, all of which StormTest supports. The appropriate approach will depend on the functionality being tested, test coverage required, and capabilities of the device under test. The first involves **embedded test cases**, in which an Agent and the test cases themselves are compiled into the Set-Top Box (STB) target image, similar to diagnostics software. These are written in a low-level language, typically C or C++, and can be run from an external command (e.g., sent over RS232). The second approach involves **downloaded test cases**, in which tests are written in a high-level language (e.g., Python), downloaded to the device, and executed on the device. The third involves **external test cases**, in which the device offers an API that can be accessed remotely using web services that support the testing of the API’s functionality.

StormTest gives operators a reliable, repeatable, and automated way to understand the behavior of the device and its firmware stack—and whether it meets functional and non-functional requirements—by:

- Using a standard test script format to create re-usable White Box test scripts
- Creating standardized test suites for use across different vendor components
- Integrating results with the same StormTest database used for Black Box testing
- Creating reports that show trends in test results over time
- Making test log data viewable externally and securely
- Verifying test cases for correct Audio/Video (A/V) output
- Supporting the management of large numbers of devices under test
- Automating the dispatch of tests to multiple devices under simultaneous test
- Pinpointing specific failures and probing the logs to uncover root-causes of failure

COMPREHENSIVE, ACCURATE, AND FASTER TESTING

White Box testing with StormTest delivers powerful benefits to Development teams responsible for functional and non-functional testing. Specifically, StormTest:

- Tests complex scenarios that are difficult or impossible to emulate in a “Black Box” environment
- Provides access to any level of embedded firmware APIs
- Uses the same test script interface for all multiscreen Customer Premises Equipment (CPE) devices
- Supports communication to devices under test via a variety of technologies (e.g., RS-232, Ethernet)
- Accelerates problem isolation and diagnosis with integrated logging
- Can be used in combination with StormTest Black Box testing to achieve “inside-and-out” test coverage

SOLUTION DETAILS

StormTest includes numerous advanced features that support improved White Box testing:

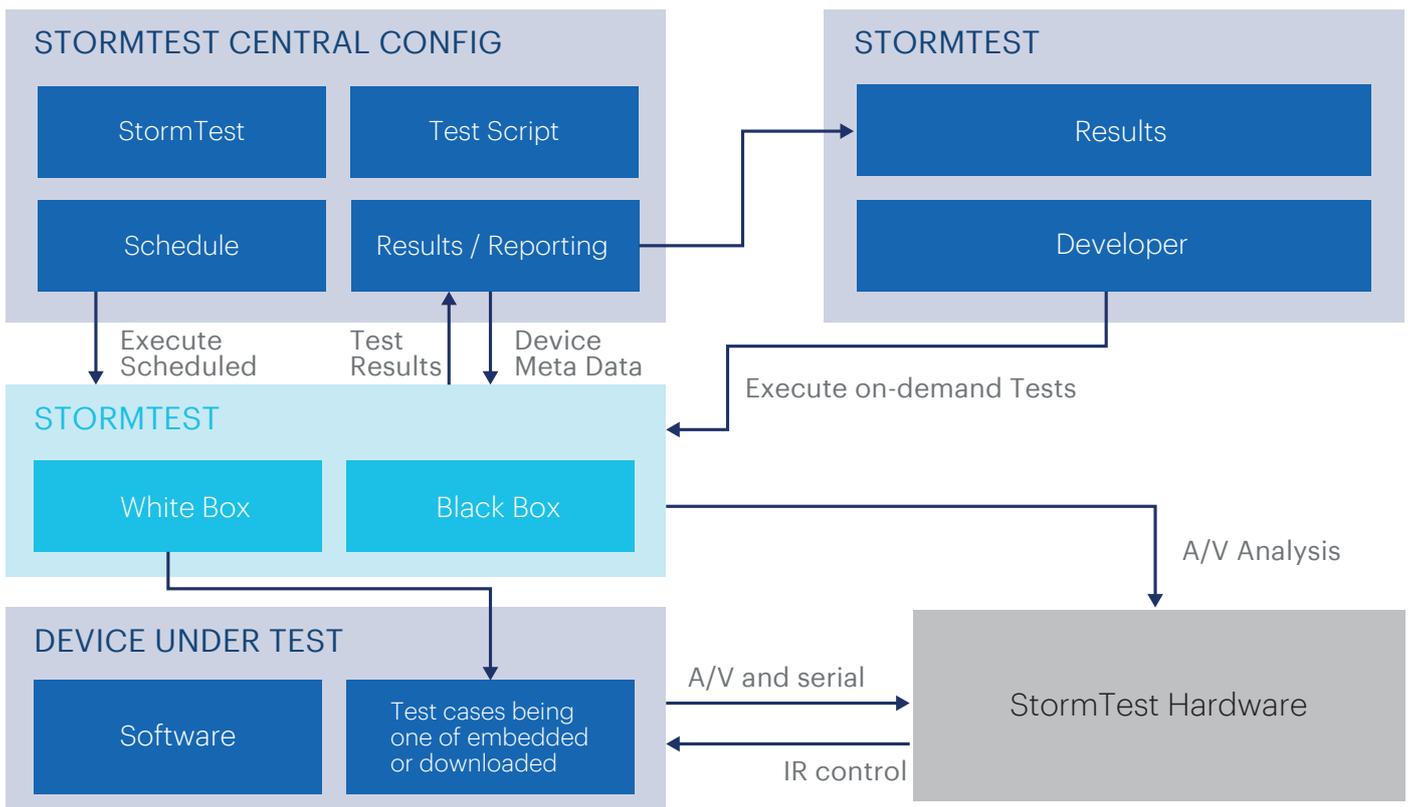
- It supports multiple approaches to accessing internal APIs
- Facility-wide test scheduling supports numerous types of scheduling from one-off to regular
- It's device interface-agnostic
- Advanced image handling enables comparison of expected versus actual on-screen graphics
- It maximizes the use of devices and slots to add, reserve, and schedule slots for test
- Synchronized and integrated video logging combines and synchronizes video file, serial log and test script
- Centralized results storage and reporting provides detailed report generation and export capabilities across all test activities

A TRUE END-TO-END VALIDATION PLATFORM

Accenture StormTest uses advanced automation technologies to continuously and actively test new service releases across platforms and devices, in development and deployment. The insights it provides helps organizations to accelerate service innovation, optimize development processes and ultimately improve the viewer Quality of Experience.

STORMTEST GIVES OPERATORS A RELIABLE, REPEATABLE, AND AUTOMATED WAY TO UNDERSTAND THE BEHAVIOR OF THE DEVICE AND ITS FIRMWARE STACK.

ACCENTURE STORMTEST: WHITE BOX



ABOUT ACCENTURE DIGITAL VIDEO

Accenture Digital Video is a business unit within Accenture. We deliver business results for companies where video is of strategic importance, helping them pivot to capture new growth opportunities in an ever changing market. Partnering with clients, we use our agile methodologies, deep skills, and open technology platforms and apply them in every phase of a change journey—from thinking to doing. The end result: more predictability in the face of a complex and volatile landscape. Accenture Digital Video has a 20 year track record in driving video innovation through a global workforce of more than 2,000 dedicated professionals across strategy, delivery, business services and operations, all dedicated to helping clients grow profitably.

ABOUT ACCENTURE

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions – underpinned by the world’s largest delivery network – Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With approximately 442,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at www.accenture.com.