

## Mu Dynamics' Service Assurance Methodology

### Introduction

How do network operators ensure their systems are free of unexpected errors that cause downtime or poor service quality? Do you implicitly trust the software development teams at your device vendors with the financial success of your business? With NGN complexity on the rise, it's nearly impossible to answer both of these questions without a proactive service assurance solution.

While increased attention is being placed on ensuring product reliability, availability and security, high levels of complexity and customization associated with the deployment of networked products and services, makes it almost impossible for vendors to exhaustively view their products in every possible configuration that they might find themselves in when in production.

Network operators and the modern enterprise must be able to validate the availability status of, and ensure the reliability and continual availability of devices manufactured by third parties, in the context of the environment that the enterprise intends to use them. Without performing such validation, the risk of a downtime incident or network outage will remain an unknown and potentially devastating variable in the operation of the business.

The Mu Dynamics Device Service Assurance Methodology helps automate a business' product selection, deployment and upgrade process. Mu adapts to any existing processes through a well-documented set of best practices using the Mu analyzer to help end users factor these vital variables in the context of their own-networked environments. The Methodology begins with best-practices design and ends with device vendor coordination and resultant device software weakness/ flaw remediation

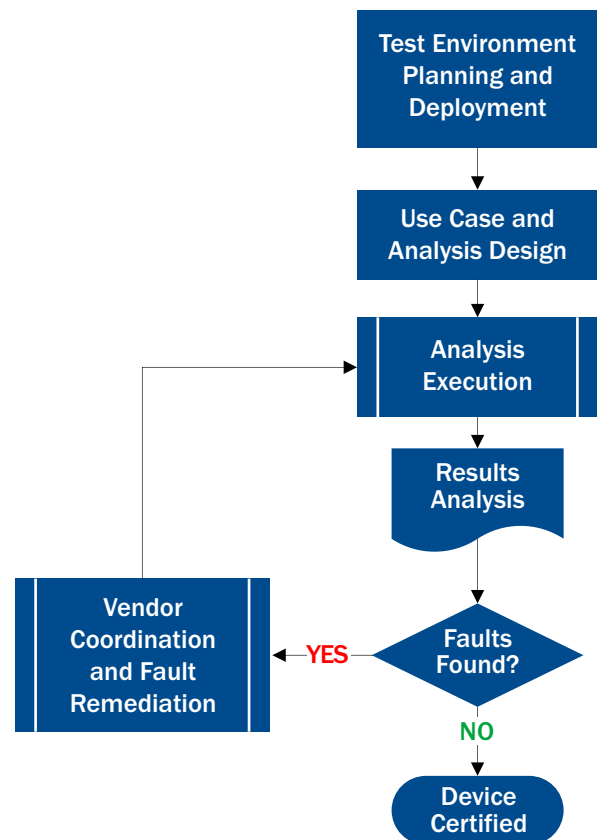
Through providing both a comprehensive service assurance platform, and a methodology that fosters thorough, systematic testing of third party devices, network operators and their vendors are enabled to both weed out and remediate device flaws.

### Overview of the Methodology

Mu Dynamics offers a six step iterative methodology to provide guidelines and best practices used for Service Assurance of vendor products. The methodology uses the highest-level objective of providing a consistent baseline level of analysis from which qualitative performance metrics are derived. The resulting evaluation is repeated during the life of a third party device. These are as follows:

- During product evaluation(s) and comparative 'bake offs'
- User acceptance (UAT) testing
- Product update testing
- Fault remediation verification

The same analysis process applies to all of the above, although may be managed differently based upon business drivers and testing outcomes.



Each of the six steps are documented in a procedural format, and are executed according to the milestones enumerated below:

#### 1. Analysis & Test Environment Planning and Deployment

It is of utmost importance that product analysis and test environments closely reflect the production environment for which the product is ultimately intended, while remaining controlled so not to inhibit the tests conducted. A controlled network operator environment facilitates full use of many Mu analyzer features such as the fault packet capture utility, without having to filter out noise caused by other devices on an uncontrolled network.

#### 2. Use Case and Analysis Design

Use cases must be discussed in order to design XML-based analysis templates that are representative of the scenarios the product faces once deployed in a production network. During this phase, service level traffic variations (e.g. for VoIP, Mu offers SIP and other protocol suites) are configured in order to deliver the maximum possible number of unexpected network traffic variations to the product under analysis - ensuring the product experiences nearly every type of production traffic it will encounter in the network.

#### 3. Analysis Execution

Through leveraging the Mu analyzer's advanced target monitoring channels and protocol instrumentation health checks, tests are precisely executed and monitored to ensure that all weaknesses pertaining to the reliability, availability and security of the product are carefully recorded for later analysis.

#### 4. Results Analysis

Results from the test are thoroughly analyzed and benchmarked to identify their potential impact in the context of the use cases set forward in Step 2 of the process. If necessary, detailed service level traffic, protocol level logs and packet capture files are exported from the Mu analyzer and scrutinized to shed more light on the root causes of enumerated faults. When appropriate, Mu analysis templates may require improvement, and tests re-run as a result of an analysis.

#### 5. Vendor Coordination & Remediation

Validated faults and accompanying technical data are shared with product vendors, and remediation is negotiated. If necessary, this includes providing vendors with specialized programs, generated by the Mu analyzer, which can be used by a vendor's developers and QA department to consistently reproduce flaws.

As previously noted, the Mu analyzer both details and documents the above processes as part of its Professional Services product offering. This methodology is designed to be used by a Network Operator throughout their respective product deployment lifecycle and for a Product Vendor throughout their software development lifecycle (SDLC) to ensure hardened product versions, or fixes for faults. As a result, Mu users are eliminating downtime in their respective NGN service offerings and their SDLC with higher quality products that are less expensive, timelier and more robust.

For more information, read the **Mu-4000 Service Assurance Methodology**.



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