Plan for performance testing

The one thing everyone should do but never does

Client experience is a hot topic trending in business across North America. How can companies better ensure consistent client experience? *Wow* consumers. Make their operations more efficient while delivering consistent high-quality service. Multinational organizations looking to maintain an edge are investing in new contact centers and deploying new telephony infrastructure that helps service their clients while making their organizations more efficient. During this process most, if not all, are forgetting one crucial part of successful system deployment…Performance testing!

100% of contact center and telephony infrastructure deployments have performance issues. If found early these issues can be resolved without having a detrimental impact on operations, client services, and ultimately revenues. Whether it is to validate that your system can handle the capacity of calls you have planned, or to simulate contact center agents logging into the contact center platform or even for the testing of outbound IVR applications; testing reduces the chance of issues, and is more cost effective than finding these issues after 'go live'.

Companies you know are choosing performance testing!

Some major organizations are choosing performance testing for their contact centers and telephony infrastructure and their choices are making a difference in the efficiency of their operations.

Worldwide aerospace organization

This organization is a world-recognized manufacturer of both planes and trains; from regional aircraft to business jets, mass transportation equipment to recreational vehicles and even financial services. With over 74,000 employees worldwide, this company is a large player on the international market. When the organization went live with their new enterprise telephony infrastructure an issue arose…Dropped calls…for no apparent reason. In partnership with IBM (System Integrator), Nu Echo was called in with the NuBot platform to generate the load to the system that would reproduce the issue in an effort to pinpoint the root cause. With the ability to generate the capacity required, Nu Echo and NuBot recreated the issue which allowed this organization to implement corrective actions. The testing project found other issues involving the PRI configuration, cascading and congestion that had not yet been detected by the organization. What made this project a success and what should you look for in a performance testing supplier? Fast turn around time, flexibility, agility and knowledge.

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CN – Transportation Services

CN is a transportation company offering integrated transportation services, including but not limited to: rail, inter-modal, trucking, freight forwarding, warehousing and distribution. To speak to its success, CN is the only North American rail network touching three coasts. Its revenue was in excess of 10 billion in 2013, and it employs more than 25,000. Their project? A new contact center and telephony infrastructure involving a migration from TDM to SIP with Interactive Intelligence and Oracle's ACME session border controller. The system consisted of 350 agent and multi-sites across Canada. This system ensures and supports business continuity. Nu Echo was contacted to manage the testing project once again. The determining factors for this supplier selection again was the ability to realize the project quickly and the organizations proven approach. What type of testing was conducted? 13 test sessions over a two-month period identified problems ranging from SBC anomalies to impacts on the network provider as well as Q0S/jitter issues. Corrective actions were taken with suppliers and bug fixes in software were also required.

Videotron

Videotron is a wholly-owned subsidiary of Quebecor Media Inc. They are an integrated communications organization engaged in cable television, interactive multimedia development as well as internet access, cable and mobile telephone services. They were working to deploy a new infrastructure for customer support which required a migration from TDM to SIP trunking, new contact center components integration and a virtualized infrastructure. It was the largest Genesys SIP server deployment in Canada with 2000 ports on two redundant sites. Videotron was focused on testing its infrastructure to ensure the SIP server would be able to handle the load. When considering a supplier, Videotron's top demands were the ability to generate 2000 concurrent calls, direct integration with a mediant gateway. Flexibility, expertise and pricing also all came into play. They needed a supplier who could take the project in hand and ensure end-to-end testing. Again Nu Echo was called, and over the course of two months, issues regarding the network configuration, hardware defects, connectivity issues and DTMF handling were found. If issues exist and are found, they do not affect business. This is the key and biggest reason for testing!

Now that we have checked out some example of companies that are choosing performance testing and their reasoning, let's explore some of the concrete benefits of automated performance testing.

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Testing success factors

Clients looking to do performance testing generally expect to ensure system efficiency while reducing costs, working within the set deadlines for deployment. They want to validate the quality of their deployment by testing the performance as well as find the sources of any potential failures/ruptures in system functionality and flow. There are three primary factors that contribute to effective testing: The Team. The Approach. The Tools.

The Team. The choice of team or organization to work with should be heavily influenced by their performance testing experience, their knowledge of the automated testing platform being used to test the system, as well as a strong knowledge of the type of system being tested (ex. Contact Center, telephony infrastructure, or other).

The Approach. The approach should lay out a clear process and associated documents that will guide the performance testing project to ensure that client activities and expectations are met.

The Tools. In this instance, there are three characteristics to consider: The functionality that allows for the development of the tests, the dashboards available that allow you to visually interpret the results as well as diagnose the issues, and finally the interface and the platform capacity when launching and executing tests.

Why clients opt for outsourcing?

It isn't everyday that an organization will implement a new contact center or telephony infrastructure module. And once deployment has taken place it is rare that regular interval testing is required. Therefore, it is often easier for organizations to hire a firm with professional services expertise in performance testing to manage their given testing project in a timely and efficient manner.

A full-service testing approach allows organizations to focus on their core competencies/business so they can leave testing to the experts. Nu Echo is an organization with a well established testing platform, practice and approach. Choosing to outsource a testing project means companies like Nu Echo will manage test design & development, testing platform operation, results collection, results summary production, and final reporting. Project management services are provided to coordinate activities for clients. There is no need for the client to invest time and effort to learn how to design test projects, develop test scenarios, or operate the testing platform. Often choosing to outsource testing is just the most efficient and viable option.

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An approach that sets best testing practices

Nu Echo's methodology for performance testing for contact centers and telephony infrastructure sets best practices for testing. The Nu Echo methodology is based on an iterative approach, consisting of five stages:

Design **Implement** **Execute** **Analyze** **Report**

Each of the above-mentioned stages requires information or action from the customer and deliverables from the supplier. Several iterations of the *Execute* and *Analyze* stages can occur in a project and the decision to perform an additional iteration is part of the Planning and Coordination that are decided between the client and supplier.

The process starts with a Discovery & Business Process Review with the client. Prior to designing or executing a test plan, it is important that any supplier gets to know the client, their business, and objectives with regard to their contact center. The goal should be to clearly understand what is important for the client from their system in order to effectively propose ways to test and achieve optimal system performance. Choosing a supplier with extensive experience in testing, who is flexible and rigorous will ensure the test project is a success.

Design

The *Design* stage brings together elements that are likely to influence and shape subsequent stages of the pipeline. Client input at this stage includes test requirements and objectives, client architecture, key performance indicators, as well as any relevant client specific constraints.

Implement

The *Implement* stage is triggered by the design sign-off, which signifies that the deliverables produced in the previous stage have been accepted by the client. During this stage, test scenarios and test descriptors are scripted and configured into the Platform, resulting in a test project. At this stage, all scenarios are tested at low call density, which implies that the customer infrastructure must be able to handle test calls during test project development and testing.

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Execute

The *Execute* stage starts with a test work session, which requires that a testing time slot be reserved by the client. During the session, several test executions are conducted as per the performance testing specifications document. During test executions, both client's and supplier's operations teams collect relevant statistics.

Analyze

The *Analyze* stage occurs after each *Execute* stage. Two different activities occur at this stage following a test work session.

1. Budgets are evaluated. Budgets are most often exceeded when unanticipated issues arise during test executions or if issues are more difficult to resolve than initially anticipated. This often implies the addition of extra iterations (i.e., additional occurrences of *Execute* and Analyze stages). Depending on the client's decision, the project can exceptionally move to the *Report* phase even if the test objectives have not all been met.

2. Results and analysis are discussed and three outcomes to the discussion are then possible:

   • All test objectives are considered met.

   • It is decided to return to the *Execute* stage.

   • Considering the results from the previous test executions, corrective actions are to be taken by the client before another *Execute* stage is started.

Report

At the *Report* stage, a final report is produced, including an executive summary, a review of the project's objectives and how they were met, known remaining issues, technical highlights, and an aggregation of summary results produced after each *Execute* and Analyze iteration.

Automated Performance Testing: The Benefits

There are many Corporations that conduct manual testing of their contact center systems. Though this can find some issues, it leaves the system open to risks with a 'go live' that will no doubt result in a higher call volume than can be produced manually.

There are several very clear benefits in opting for automated performance testing:

   • The number of simulated callers and agents can easily be increased as needed.

   • A test using the same calling pattern can be repeated several times to reproduce a problem or to verify that a fix corrects a problem found in a previous test execution.

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- All calls can be recorded along with a call event history for future listening or inspection.

- Various filtering criteria are available when listening to calls or analyzing their event history.

- Precise statistics from the caller's point of view can be systematically collected, including success/failure rate per scenario, application response time to caller actions, call setup time, and others.

There are several performance testing platforms on the market that allow clients to test their contact centers and telephony infrastructure. However many still opt to have their systems tested by experts in testing since this isn't often part of their core set of strengths, even if there is a technical expert on staff. Contact center and telephony testing platforms can be mastered but it is typically system integrators who opt for this line of training.

5 most common testing errors

Through an analysis of client experience through various performance testing projects, we have observed several errors that take place because of a lack of experience with this type of testing. Here are some traps to avoid:

1. **Planning performance testing last minutes**: Planning testing in advance allows you to increase your benefits and decrease costs.

2. **Overestimating the capacity and performance of the infrastructure**: Manufacturers' specifications are not always reliable, and when architecture is complex it is even harder to validate each element's performance.

3. **Thinking that because you know the system installation that you can efficiently carry out the performance testing**: What can really help is experience in conducting the given type of tests, repeating those types of tests regularly and building a practice to manage those testing activities. Understanding your installation certainly helps a lot, however this is only one element of the knowledge required to efficiently manage performance testing.

4. **Thinking that everything will work seamlessly in the first set of tests**: Even in projects where the performance testing is identified as important from the start, we often make assumptions that there will be a limited numbers of issues. This often results in underestimating the time and cost required for testing.

5. **Underestimating the impact of your telephony provider and the need for collaboration**: Many issues detected in performance testing are associated with poor configuration or poor service on the carrier side of the infrastructure.

Conclusion

Performance testing is necessary to ensure the quality of new services deployed on more and more complex infrastructure. The idea that performance testing is costly is a misconception, especially when compared to the cost of discovering issues after deployment, which leads to lost revenue, additional expenses, and effort to correct.

Plan for performance testing for your next contact center or telephony infrastructure deployment and you will end up ahead of the game!