NISHANT RAJAK

Performance **E**ngineering | **A**pplication **P**erformance **M**anagement | **P**erformance **T**est **E**ngineer | **C**apacity **P**lanning | **A**pplication **M**onitoring

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Professional Summary

Expertise in end to end **Performance & Availability Engineering** with over 10+ of IT experience holding measurable achievements in Test Delivery and Management. Proven track record of design & delivery of cost effective, high performance testing solutions through continuous process improvements and implementation of QA best practices within HealthCare, Insurance and Banking Domains. Currently leading a Horizontal Global Delivery Testing COE (10+ resources) for Customer Facing Critical Web Apps across multiple LOBs. Responsibilities include evaluating and implementing an efficient testing service, quality gates, engagement models, SLAs and SLMs for high quality software solutions to Clients.

Seeking an entry-level position in the capacity of:

Senior Performance Engineer Lead / Performance Engineering Manager Or Equivalent

- Performance & Availability Engineering End to End experience of handling 200+ live applications.
- Managing 50000+ JVMs of different applications using DynaTrace (On-Premise) both QA and Production.
- Handling Monitoring and Diagnostic infrastructure (20+ DT servers, 100+ DT Collectors).
- High level scripting knowledge using C, Java script with many protocols e.g. Web http, Citrix, Flex, Web services, AJAX true client, RDP, MQ/JMS, SAP web, Oracle NCA and Winsock.
- Expertise in building performance testing test bed/ Framework for fast & efficient performance engineering/tuning.
- Ability to setup lab environments Or Testing Ecosystem for AUT using Splunk for Log monitoring, DynaTrace for Diagnostics, HPOV- Infrastructure, Controller/Performance Center for Live Test.
- Ability to work in agile process or shared services.
- Offering an expected degree in Computer Application, academic achievements and valuable internship experience.
- Analytical, detail oriented with strong programming skills; work diligently on long, tedious assignments.
- Maintain excellent interpersonal communication, time management, and problem resolution skills.

CORE COMPETENCIES

- **Expertise Software Performance Testing Or Capacity Planning**
  - Work Load Modeling and application usage model analysis
  - good working knowledge in translating Application Non-Functional Requirements into development of performance test plans, test scripts, test scenario design and test execution, results analysis & summary reporting
  - Load, Stress, Capacity, Spike, Endurance, volume and latency testing.
  - Breaking point analysis, Benchmark Testing, Delta Analysis and Base lining.
  - Bug tracking, debugging, Root Cause Analysis, App Bottleneck identifications.
  - Defining SLA and Performance Acceptance Criteria.

- **Expertise Application Performance Management | Monitoring | Diagnostics**
    - Performance Testing and Engineering Recommendations across large scale Enterprise J2EE and .Net Applications
    - Enterprise Synthetic Monitoring, URL monitoring, User Experience Management (UEM).
    - Infrastructure and JVM instrumentation with Monitoring and Diagnostic tools.
    - Extensive knowledge of thread (deadlock/blocked thread) and memory analysis (leak).
    - Performance Analysis, Performance Tuning and Profiling.
    - Expensive Query Identification, Query Optimization, DB Pool Usage
- Provide Quantifiable Benefits and Value Addition of Testing Services to Senior Leadership through Scorecards.
- Proven record of setting up and managing independent Testing COE and defining and implementing QA Framework at offshore and multiple locations across US.
- Expertise handling complex Test Programs.
- Experience in Cloud and Mobile Testing.
- Experience in Software Development using MS Web Technologies, C, C#, VB 6.0 etc.
- Proficient in Process Management and maturing organization test services in accordance to TMMi framework
- Experience managing activities for large and complex testing programs with multi-party / multi-site interactions

Add-On COMPETENCIES

- Knowledge of Web Trends, BIG DATA Analytics using Splunk.
- Knowledge of IT Financial Management.
- Familiar with ITIL Concepts with detailed implementation of ITSM across Organization IT function
- Multi-Location Global Delivery Management with **US Onsite Experience of 4 months.**
- Strategic Planer aligned with Continuous Organization Improvement.
- Goal Orientation with Score Cards / Executive Dashboards / KPI / Metric Measurements
- Diverse Leadership and multitasking skills : Build/develop high-performance global teams from scratch, and align teams with customer business goals
- Talented in Human Performance, Coaching and Mentoring. Trained 50+ distributed testers (multiple US Locations and offshore locations)
- Highly organized, self-motivated and skilled people manager/leader in orchestrating deliverables to achieve client goals.
- Adept in maturing projects and organizations to improve quality, delivery accuracy, productivity and effectiveness.
- Exposure in Pre-sales of Testing Services : Requests for Quotation (RFQ), Request for Information (RFI), Request for Proposal (RFP), Statements of Work (SOW) and Due Diligence phases as an IT service provider.
- Knowledge of HP PPM report extracts for improved resource utilization and lesser operational expenditure.
- Global Sourcing Exposure : Project and Engagement Models, Captive Models, Vendor Partnership Model, Shared Service Models.
- Excellent written , verbal communication skills and good presentation skills.

- Expert in creating an environment with work life balance , performance quality and resource utilization.
- Recipient of multiple awards and client appreciations for out of the box support and winner of "**Above and Beyond**", "**Extra Mile Award**"(twice), "***Best of Class Team Award***" from **CIO** – IT at BNY Mellon; as well **Star Performer Award** from **CTO** of BNY Mellon.
- Multiple monetary , WOW and appreciation from BNY Mellon's business partners.

TECHNOLOGY COMPETENCIES

- **Specialization in Application Performance Management**
  - Performance Testing - HP LoadRunner, Performance Center, Jmeter, NeoLoad.
  - Performance Engineering (APM) - DynaTrace , App Dynamics, PinPoint.

- **Web Development and Middleware**
  - ASP, XML, DHTML, JavaScript VB, ASP.Net and C#, SQL Server, Oracle, DB2, PostGreSQL, MySQL, MQ, Web Services.

- **Infrastructure Monitoring**
  - HP BSM (BPM) , HP Open View and Sitescope, PerfMon.

- **Analytics**
  - Splunk, HP RUM , Web Trends, ELK, Grafana, Prometheus.

- **Project Management**
  - MS Project , HP PPM (project and portfolio management)
  - Tracking using JIRA, Incident using Remedy
  - Project content management: Atlassian confluence, MS SharePoint

- Excel VBA Macros

PROFESSIONAL HISTORY

Company	Duration	Last/ Relieving Role
BNY Mellon Technology (iNautix Tech. Pvt. Ltd.)	July-2011 to Present	Project Leader
Cognizant Technology Solution	Oct-2009 to July-2011	Programmer Analyst
Smart Solutions and Publications	May-2008 to Oct-2009	Assistant Programmer

RELEVANT EXPERIENCE/ PROJECT'S

Current Employment	
Employer Name:	BNYMellon Technology (iNautix India Pvt. Ltd.)
Work Location:	Pune, India

Designation:	**Project Lead** - Performance & Availability Engineering
Team Size:	18

Portfolio Detail:

Enterprise Delivery Services Division has established a Testing COE for improved quality and seamless usability of their Customer Facing Web Based Application Portfolio. The group is engaged in delivering best practices, tools and consultation in the areas of Manual, Automation, Performance Testing & Engineering, Monitoring and Analytics. This shared testing service covers all LOBs across the enterprise. In conjunction with the other groups the service offers guidance to reduce cost of quality and improved time to market.

Managerial Responsibilities:

- Managing and Maturing Testing COE services for gaining efficiency and effectiveness.
- Provide Leadership and strategic direction to multiple SDLC Execution teams, including Test Execution Phases to ensure quality deliverables, maximization of resource utilization, and continuous improvement of processes for Applications
- Understand and analyze gaps across various testing projects
- Oversee the program, engagement, processes and communication, and report status to the user community
- Publish Goal Oriented Dashboards to Respective Division CIOs
- Establish project tasks, timelines and budgets and effectively managed them
- Continuous Process Optimization
- Guide and Accelerate Automation for Improved ROI
- Closely Monitor Customer Incidents and facilitate RCA and fill in testing related process gaps
- Execute Complex Testing Programs Involving Multiple Application Interactions
- Provide a Road Map for Increased Maturity Per Service to Senior Leadership
- Financially Quantify the Value Addition Of TCOE to Senior Leadership

Technical Responsibility:

Non -PROD / QA Environment: [Performance Testing/ Engineering]

- Performance Testing, Log Analysis using Splunk for finding application usage model
- Requirement gathering for Non Function Requirement, Performance requirements
- Use of statistical functions to correlate various data elements to establish trends and forecast of capacity and scalability.
- Test planning, Work load modeling of AUT
- Scripting in VuGen(Load Runner) or Jmeter
- Performance test execution and Result Preparation using Load runner Analysis, DynaTrace reporting and HPOV exports.
- Root Cause Analysis (RCA), Bottleneck Identification.
- Performance testing analysis using DynaTrace, HPOV and PerfMon.
- Memory leak analysis and Thread Dump analysis.
- Work closely with SMEs/ BAs in order to understand business requirement and their performance oriented goals.
- Defining Acceptance Criteria of SUT (System Under Test) or Application Under Test (AUT).

Production Environment: [Monitoring and Diagnostics] - DynaTrace/AppDynamics

- New applications JVM on-boarding, enhancing the instrumentation using custom sensors and CPU sampling.
- Designing dashboard for various application using suitable measures as per App Team requirement.
- Setting incident and email alert facility for the production team and all stake holders -So they can aware of any production issue immediately
- High level analysis of any application performance issue in production using DynaTrace.
- Memory Leak analysis, Thread Dump Analysis for production issues.
- Pure path, Pure stack, Purelytics using Pull and Push model, Business Transaction Creation.
- License Management.
- Handling Different Services - SMTP, REST API, Memory Analysis Server.
- Providing REST API monitoring solution to APP Team in different format CSV, HTML, XLS, XML.
- Support application team to build their own REST API based monitoring solution.
- Task Schedule, UEM, URL Monitoring.
- JVM monitoring, Infrastructure Monitoring.

PROJECT DETAILS

Project #1: Code RAP | Web application Performance Testing

Code RAP is a business survey website used by BNY Mellon internal users. The website activity will increase once any new survey will launch and will get deactivate after completion of the survey. This kind of application will face seasonal user base (scale up/down) activity. This will stress the infrastructure for some time and scale up/down the user activity for short time.

Performance Requirement: Every year, the COMPLIANCE team will send out and set of Questionnaire (it has around 120 questions, a kind of survey) in accordance with Code of Ethics. During that launch the application will receive maximum number of consecutive hits. Since the Questionnaire is mandatory for all the 50000 (Aprox.) employees of BNYM.

Challenges: Scale Up and Scale down activity. No# of users. Sudden utilization and de-utilization of resources. Capacity of server.

Performance Test: Spike up and Spike down performance test will nail down all the performance-oriented issue.
Issue/ Resolution: Identifying capacity, Connection pools (app & db). Resource saturation points.

Awards: Appreciation from the application development team.

Project #2: Decision Support Platform | Management Analytical Cube (MAQ) | Citrix Perf. Testing

BNY Mellon's Decision Support Platform is a collection of applications that provide budget planning and actual data for all of the company's businesses and business partner groups. The platform is owned and managed by Finance, specifically by the Finance Management & Analysis (FM&A) group. MAQ (Management Analytics Qube) is a solution for business analysis, planning, simulation, budgeting, forecasting, performance measurement and reporting. Decision support platform also comprises Legal Entity (LE) and Foreign Exchange (F/X) functionalities that provides reporting and analytics from a multi-currency perspective, including the ability to run functional reports and drill down to the booked currencies. DSP facilitate legal entity reporting and features for accurate and consistent legal entity plan and

forecast in other currencies. DSP also provide ability to meet Internal Capital Adequacy Process (ICAAP) requirements and additional affiliate reporting.

Performance Requirements: Application team procured 4 citrix servers and want to scale up till 450 users. At initial level, they were able to Ramp up only 280 users and were facing multiple performance related issue. App team appointed PE team to find out the bottleneck pertaining to performance and to fix it. In worst case, management were also planning to buy two more servers to meet their requirement (450 users). These two servers were very costly and App team was looking

Challenges: This application was using multitier architecture. Users were using web browser to access the virtual environment (Citrix) which was as published desktop. Inside the virtual environment, users were launching MS-Excel application. Excel application was again using one plug-in which was calling TM-1 (Cognos) for data mining and presenting the fetch information Inside the excel sheet.
Writing Citrix base scripts and managing the same is always a tough task. Even the citrix based application test execution tougher than any other protocol execution. Hung citrix session always tough to handle.

Performance Test: Capacity planning, Scalability, Memory consumption of Citrix server.

Issue/ Resolution: Identifying capacity, Citrix Connectivity issue. Resource saturation points.

Awards: Received "Above and Beyond" award from CIO of BNY Mellon (Certificate+$100).

Project #3: DPX [Derivatives Pricing Exchange] | MQ Performance Testing

DPX (Derivatives Pricing Exchange) is a centralized hub for OTC derivative prices, taking in position information from STAR accounting systems, security master information from Summit DLC, and transmitting this information out to 3rd party pricing vendors and other systems to obtain pricing data. This information is served back to the STAR accounting platform as a report called FINAL PRICE to STAR and to Summit as FINAL PRICE to SUMMIT.

SUMMIT DLC provides the OTC contract trade instructions which require pricing from DPX.ESB (Enterprise Service Bus) will transform the SUMMIT OTC-XML to DPX-TVP format.

Following systems will be responsible for processing Summit-OTC-XML from Summit DLC and setting the OTC contracts in DPX application for pricing.
1. Summit to DPX -ESB Service.
2. DPX Auto-Asset Service.

Performance Requirements: DPX (Derivatives Pricing Exchange) is a messaging based system using Websphere Application Server for serving and processing all kind of messages. The objective of the test would be to measure Average Traversal Time/Message and Total Processing Time for all messages injected via Summit to DPX ESB Inbound Q up until message reaches DPX DB.

Challenges: Performance measurement of an asynchronous system is always a challenging task, and when it is using multiple message queues, this becomes toughest. DPX was using various MQs where output of one MQ was becoming input for other MQ. Application team owners were interested to know how fast each processing units are performing and what is the TAT(Turn Around Time) of entire messages present in MQ. They were also looking for the average waiting time of MQ or if there is a choking point for messages while load is occurring. Load testing tools does not provides any facility to measure the processing time of MQs hence we develop a tool which was using load runner logs to fetch the message injection time of all messages, it was parsing the timestamp of entire message and after applying certain formulas we were able to get processing time of each messages. We were also able to find out performance capacity of MQ servers and all its component. This test was perfect example of performance testing, log analysis and diagnostics using DynaTrace.

Performance Test: Processing rate with normal, 10x and 100x messages, Hammer test, Choking points.

Issue/ Resolution: MQ processing time, choking points, cache managements, E2E performance measurement.

Awards: Received best Proof Of Concept (POC) award from Performance Engineering team VP.

Project #4: AIJ AVJ (Advance / NOM Imaging - Indexing & Workflow) | Web

The Advance (AIJ) Application is an internet application used for imaging, archival, retrieval of documents for Corporate Trust Business of Bank of New York Mellon. The BNYM internal users use the application to upload the document as per deal in to the content manager. These documents can be pulled from the content manager whenever required by the BNYM.

As a result of merger between BNY and Mellon this Advance Application is also made available to Mexico and Japan Trust Business based on requirements from the Business to process the Mexico and Japan documents respectively. The documents of Mexico and Japan Trust Business are encrypted by encryption server and then moved to Content Manager by a scheduled Job.

Basically two types of documents are uploaded using the application a PDF and TIF Format. The application gives the flexibility to the user depending on the documents they have either the Paper Document (Hard Copy Document) or the Electronic document (Soft Copy Document). The Electronic documents can directly be uploaded by the users with the help of Advance Application. For Paper document, user generates a barcode of the document and sent the barcode sheet along with the documents to the scanning Hub. Here the documents are scanned and uploaded into content manager via Advance.

Performance Requirements: Corporate Trust Global Debt system with two major components: Nom Imaging and Advance Compliance. The system combines imaging and workflow technologies. The purpose of the system(s) is to manage trust deal documentation (Nom) and to correspondingly process and monitor the Bank's trustee compliance responsibilities (Advance Compliance).

Challenges: Application team was uploading, downloading, searching and maintaining multiple business documents in this website. App team was facing various performance related issue while performing these operations. Different sizes of documents was also affecting the performance and health of server. Upload download activity was blocking connection pools and the remaining users waiting for connection was either facing timeout issue or they were going on infinite wait state.

Performance Test: Load test with various file sizes to check the process(upload/download) busyness and the connection pool utilization. Also to identify the standard wait time of process to establish a standard timeout settings

Issue/ Resolution: Connection pool busyness, Process wait time. Upload and download response time of various transactions. Server, database and storage health monitoring. App and DB pool usage.

Awards: Appreciation from application team.

Project #5: DLC- Summit [Derivatives Life Cycles] | MQ Performance Testing

DLC Summit serves functionality that allows BNY Mellon Asset Servicing to offer Middle and Back Office Outsourcing Services to our Asset Servicing clients as part of a suite of Derivatives services. These services include the following components:

- Trade Capture
- Trade Affirmation /Confirmation
- Settlement
- Reconciliation
- Life Cycle Management, and
- Reporting

The objective is to have the ability to offer these services either as standalone services or as bundled services as a component of a larger multiproduct platform. The processes supporting these services are linked seamlessly, along

with a high level of automation, between platforms/applications and the elements of the Derivative suite of products. The SUMMIT platform from Misys has been used to provide the Trade Capture and Life Cycle Management services. SUMMIT data can also be used to meet internal and client reporting requirements. SUMMIT will serve as the source for existing as well as future accounting platforms.

Currently DLC SUMMIT server DMAC program and will be used for the Project L (Bridgewater) client as well.

Performance Objective: DLC Summit is a messaging based system using Web sphere Application Server for serving and processing all kind of messages. TradeFlow is the entry point for Summit application. The objective of the test would be to measure Average Traversal Time/Message and Total Processing Time for all messages injected via TradeFlow to Summit to Inbound Q up until message reaches back to TradeFlow. Load injection will be normal, 10x and 100x.

Challenges: DLC (Derivatives Life Cycles) performance engineering was actually a testing of multiple applications sharing a common trade message. It was a MQ testing were complete life cycle of derivatives was involved. Due to asynchronous nature of messages we cannot test complete life cycle at a glance, therefore we split-up the testing into SILOs. We break the application flow at various entry and exit points and calculated the performance of every individual and independent flow separately. This performance engineering was hybrid in nature and web and MQ both testing were involved. Main objective of Performance engineering was to calculate TAT and processing time of a message. Performance oriented bottlenecks and efficiency of system. This test was perfect example of performance testing, MQ log analysis using Splunk and diagnostics using DynaTrace.

Performance Test: Processing rate with normal, 10x and 100x messages, Hammer test, Choking points.

Issue/ Resolution: MQ processing time, choking points, cache managements, E2E performance measurement.

Project #6: Adobe Media Servers | Real Time Media Protocol (Flex) Performance Testing

This is a video Streaming Application with videos mostly from Executives to communicate with a 2 to 4 minute message to their staff. The Internet environment will stream video of a marketing nature to customers as well as potential customers. We have multiple environments including Intranet and a separate environment for Internet. Video streams will be RTMP (1935). ADO server is going first time for performance test.

Performance Objective: Company procured Adobe media servers to share the company's videos. This videos could be anything; either recorded or live feed. As per vendor the capacity of single server is 200 simultaneous sessions. Application owners were interested to validated the capacity of servers and were interested to know the resource utilization of adobe servers during peak load. Objective of performance testing is to ensure the un-interrupted video play and also test the capacity of media servers.

Challenges: Generating proper load that can engage servers constantly for several time period was challenging. On boarding adobe server with diagnostic tools was another challenge.

Performance Test: Spike, load, stress and capacity test.

Issue/ Resolution: Connection pool, cache issue, interrupted videos.

Project #7: CT Deal On boarding | Web application Performance Testing

The Deal Onboarding Solutions program intends to develop solutions that automate the end to end process of onboarding new business (and subsequent transactions) from initial mandate to the configuration of all supporting applications. This includes:

1. Capturing the Mandate and Pricing Proposal
2. Negotiation and Approval
3. Pre-Close and Post Close on boarding
4. Post Close and BAU Transactions and Amendments

5. Termination
This project is a component of the overall Deal Onboarding Solutions program. Through it, we intend to deliver tangible benefits by automating the various checklists and tracker applications; the at-a-minimum state will provide Corporate Trust with a backbone for the program's longer term objectives.
The product capabilities selected for inclusion in Stage 1 reflect four driving needs:
1. The need to eliminate the risks from the onboarding process like those posed by the use of UDTs and legacy tools (like Lotus Notes).
2. The need to reduce the work required to mitigate risks in the deal lifecycle.
3. The need to increase the transparency of deal setup information (which will provide a baseline of information for future efficiencies).
4. The need to eliminate the inefficient use of email traffic in the management of deal onboarding.
5. The need to improve the employee morale regarding the deal Onboarding experience.

Performance Objective: CT deal team enhancing the business and adding new functionality in the existing application. This is an intranet based application built on Lombardi platform. Application team is developing the application in incremental model, and this is the iteration one in which we are planning to cover existing Right Start Business Acceptance process with its new functionality.

Challenges: CT deal application requires very high level of scripting skill because it was accepting every data in name value pair. Secondary; the name and values both were not in standard format. IBM Lombardi platform was not robust and was causing multiple memory issues.

Performance Test: Spike, load, stress, endurance and capacity test.

Issue/ Resolution: Connection pool, memory leak issue identified.

Awards: **WOW** award from Application team.

Project #8: BDC [Broker Dealer Clearance] | MQ Performance Testing

The Broker Dealer Services Clearance facility has grown substantially in the past 5 years and along with that growth the element of risk has also substantially increased. As a result, the business and technology sector have proposed a migration to a more resilient platform running more robust software in order to mitigate current risks. In the recent past, we have experienced WMQ outages on the OpenVMS platform with unsuccessful recoveries causing large business impacts

The existing application runs on HP Alpha systems under OpenVMS with IBM's WebSphere MQ and in-house developed applications. Approximately 80 client connections currently exist with an anticipated growth of 10% per year. The current application supports MQ-to-TMX bridging, message transformations and routing. The application has been successfully providing interfaces between customers and business applications.

Applications within the scope of this project include GSCX, SOSA, Procfi, Repoedge, Accessedge and CLASS. Transparency will be maintained for all interfacing business applications in order to avoid any modifications therein. However, an extensive testing cycle will be required to demonstrate a "no harm" affect on these business applications. The goal will also include transparency for the client base for similar purposes, that is, to demonstrate a "no harm" affect to external applications.

The normal volume of the current systems will be migrated to the new environment. The existing volume is about 1 million transactions on a normal business day and about 3 million transactions on a industry settlement day.

Performance Objective: BDC (Broker Dealer Clearance) is a messaging based system using custom stand-alone JVM processes for serving and processing all kind of messages. BMC is the entry point for BDC application. The objective of the test would be to measure Average Traversal Time/Message and Total Processing Time for all messages injected via BMC to BDC.

Challenges: BDC application was using multiple components to clear the brokers deal and were interested to know the performance of all its components. Input for BDC application was from an another application BMC and there was not

direct interface so that we can measure the performance of BDC. BDC was using streamline process to receive message from BMC, it was using processing unit to convert BMC data into BDC format, again there was a DBIN and DBOUT process that was executing the query and receiving the data from Database. One more component was publishing unit which was publishing the processed messages into portal.

Performance Test: We used custom log generation technique to measure the performance of BDC application due to unavailability of direct interface. We customized the application code with the help of application dev team and provided multiple entry and exit point between each components. This points were writing the input and output time of each processing component into the timestamp format. We develop a inhouse tool to parse these logs and compile the entire timestamp data to measure the performance of BDC system.

Issue/ Resolution: No direct interface to application. customization of log. Creation of in house tool to parse and drill down the performance related issue.

Awards: **STAR** performer award from **CTO** of BNY Mellon.

Project #9: FTSI [Fund Transfer Special Investigation] | Hybrid Performance Testing

Workflow application built on Pega PRPC for Funds Transfer Investigation Process. The FTSI PEGA user interface system was created to save time, paper, and workflow distribution. Analyses in 2012 determined that FTSI should be relieved of this manual intensive process. Using PEGA, FTSI can process, complete, assign, verify, and approve work seamlessly.

This application users having three roles that has been given below :
1) Investigator
2) Senior Investigator
3) Manager

Investigator is the users that create a case and forward the case to Senior Investigator for review. After second review Senior investigator either approve the case for management review or reject the case. After Sr. Investigator approval manager receive the case for his approval/ rejection. If manager approves any case it goes back to Investigator for investigation. On successful investigation, Investigator once again submit the case to Manager for marking resolved or rejected. After management action (resolved) the case closed successfully.

Challenges: FTSI application is based on producer & consumer based architecture where one module will produce a unique key and the next component will consume the same key. This key will be unique and will be proceed only once throughout its lifecycle. Producer and Consumer based application requires a high availability of test data as it cannot be reuse. We also have to execute the test in synchronous mode so all component can execute in parallel order and one can produce a key that can be consume by other.

Performance Test: Producer & consumer based application always need enough test data for a synchronized performance test execution hence requires high availability of data. Either we need to execute multiple individual test to produce test data or we need to find a solution that can provide test data during the run-time to the consumers.

Issue/ Resolution: We introduced a middleware MSMQ based message queue solution that was acting as broker between consumer and producer and handling the complete test execution. All producers were submitting a copy of key to the broker and consumers were reading the same from them.

Awards: **WOW** award from PE manager for innovative approach.

Project #10: BlackRock API | Web Services Performance Testing

Client Overview: BlackRock, Inc. is a publicly owned investment manager. The firm primarily provides its services to institutional, intermediary, and individual investors. It also manages accounts for corporate, public, union and industry pension plans, insurance companies, third-party mutual funds, endowments, foundations, charities, corporations, official institutions, and banks. The firm also provides global risk management and advisory services. It manages

separate client-focused equity, fixed income, and balanced portfolios. BlackRock is a Platinum Client here at BNY Mellon.

Transaction Overview: The asset class is consumer loans funded through a peer to peer lending portal. Prosper is the sponsor of the P2P Portal, the originator and servicer of the loans. The funds between borrower and lender are flowing through Web Bank. In September 2013 BlackRock started investing into Prosper. On behalf of BlackRock, BNYM - AIS passes the funds onto Prosper to purchase the loans. Their P2P AV account has 3 sources of cash: BlackRock, Citibank and Collections Account. BlackRock funds are credited directly to AIS P2P AV account. The other 2 sources of funds flow through accounts administered by the SPV Admin team.

Challenges: Injecting the required load and achieving the required TPS.

Performance Requirement: Application team was trying to test the performance of 7 Black Rock APIs, which is hitting to the server with several parameter value(s) for below performance objectives ;

1. Inject 10,000 transactions by using 100 users load for 1 Hr
2. Measure the average response time of all 7 APIs in individual as well as mix mode.
3. Measure the performance utilization of CPU, memory and Disk for all 7 APIs in individual as well as mix mode..

Issue/ Resolution: Achieving the required TPS. finding Memory leak and deadlocks.

Project #11: iConfirmation, iTraders, iClients | Web/Flex Performance Testing

Originally designed to eliminate fax and postal confirmations, iConfirm allows clients to affirm Foreign Exchange trades soon after trading. In addition to trade affirmations, iConfirm provides the utility to send out Execution Notification (SWIFT, FAX) messages to client's Custodian for 3rd Party FX trades, along with an additional service to upload Standard Settlement Instructions. Various reports are available to users, along with a routing facility to Harmony for Prime Broker "Give Up" transactions. iConfirm re-engineering envisions to provide clients with a more usable and better performing application which could be accessed through bank's GM Portal offering. It also includes a number of new features such as Alerts, Reporting etc. which would provide a better iConfirm experience to users.

Performance Requirement: Re-engineering of iConfirm (to iConfirm 2.0) aims at complete revamp of the existing application. The re-engineering will not only provide a better user experience through vastly improved interfaces but will also enhance the application performance by adopting a new SOA based architecture. Application migrated to Flex technology which was doing heavy activity on server side as well as client side.

Challenges: Flex scripting, memory health checkup, CPU monitoring

Issue/ Resolution: Memory related issue reported. Cache mechanism improved.

Project #12: IPA - Issuing and Paying Agency | Citrix Performance Testing

IPA (Issuing and Paying Agency) is an application which manages the life cycle of bond securities floated in the market. An Organization can raise funds by issuing security which can be broadly divided into bonds and equity. For the corporate entity floating a new Issue in the market, a Financial Institution (FI) can act either as a Trustee or an Issue and Paying Agency (IPA) on behalf of the corporate (Issuer) in addition to many other participants like Custodian, Depository, and Calculation Agent etc. For the purpose of description of IPA application, BNY Mellon acts as an Issuing and Paying agent. IPA acts as Trustee to bond issue. IPA application generates claims on the coupon & Redemption on behalf of and for the benefit of Investors. However, an IPA is still appointed by Issuer and its purpose is to get correct payments made to investors on time so that the Issuer's reputation and financial credibility is maintained in the market. Lost or delayed payments may result in penalties in certain cases in addition to a reputational impact. IPA sends the generated claims to Issuers. IPA claims application is used for issuing claims to the corporations so that the funds can be disseminated to the actual holders of the financial instruments, according to the terms and conditions governing the instrument.

Performance Requirement: IPA (Stands for Issuing & Paying Agency) System is a Citrix based application developed

in power builder technology. IPA is already in production and earlier deployed on Windows Server 2003. Application team is upgrading the platform into Windows 2008 R2. IPA undergoing first time for performance testing hence we need to create benchmark and need to define the SLA for the newer version of application. Application team is also interested to know the delta in terms of performance improvement with respect to the changes. Performance Engineering team need to find out the capacity of single citrix server and the capacity of each VM so they can decide the max count of VM server needed for PROD region.

Challenges: IPA was a Citrix published application that was creating heavy memory footprints on citrix server side. Citrix scripting and execution was another challenge.

Issue/ Resolution: Citrix server memory and CPU utilization monitoring.

Work History and Project Undertaken @ Cognizant

Employer Name:	Cognizant Technology Solutions
Clients:	Metlife, Thrivent, American Health tech, AstraZeneca
Work Location:	Chennai, India
Designation:	Programmer Analyst - Performance Testing COE/ PACE

Technical Responsibilities:

- Involved in end to end application performance testing of multiple projects concurrently
- Translating the non-functional requirements of the target application into meaningful test design
- Gather the environment details and the scale down factor associated when comparing test environment to the live production environment
- Responsible for devising the scenarios under which the load test has to be conducted as per the NFRs. Responsible for creating test plan, developing scripts, test execution, monitoring and identifying the bottleneck and reporting the results
- Develop scripts in VuGen using protocols like: Web(HTTP/HTML), TruAjax Client, Flex and Citrix.
- Enhance scripts by suitably adding transaction points, validations, C functions, parameterization and correlation
- Conduct various tests like load, stress, capacity and memory leak
- Collaboration across technology stakeholders during application tuning activities
- Analyze results to locate bottlenecks, degradations and understand scalability of the application
- Responsible for mentoring and guiding the colleague engineers
- Report weekly test status to various stakeholders and follow escalation model for timely completion of activities

Project #1	
Client: MetLife Insurance	**Project:** KMS Live Link
Duration: Apr 2010 – Jul 2011	**Role:** Performance Tester

LiveLink is an enterprise content management system. This software acts as a repository for multiple types of digital information that is utilized by a number of groups. Currently, there are three instances of this application being supported by the KMS AD team: NSC, Enterprise and Correspondence.

The Correspondence instance primary function is to store automatically generated correspondence that is sent out to MetLife's customers. MetLife service centers and support groups then access this information via a web browser tool supplied by OpenText (the LiveLink vendor). Users can then upload, download, edit, and view documents to support MetLife customer needs.

The Enterprise instance is widely used by most members of institutional LOBs to store project and application specific data. Additionally, this instance also stores automatically generated correspondence which is sent to customers; however, not in the volume that is on the Correspondence LiveLink instance. The Communities of Practice area is also housed on the Enterprise LiveLink instance

Both of these instances mostly make up what is commonly referred to as "Calligo", however that is not the name of the application nor the vendor. This name comes from an associated product that handles the automated generation of correspondence in a digital format. Additional features of both of these applications are Single Sign On (users do not have to enter a user name or password), security down to the file level, and API interface (applications can interface with the LiveLink ECM programmatically via a programming interface provided by LiveLink).

NSC template applications are NSC Customer, NSC Financial, NSC Focused Reenrollment, NSC Implementation, NSC Renewal, Prospect, CII Template etc. In this engagement, the environment is being upgraded to SQL 2005.

Project # 2	
Client: MetLife Insurance	**Project:** OPAS - Oracle Policy Administration System
Duration: Apr 2010 – Jul 2011	**Role:** Performance Tester

Oracle Insurance Policy Administration for Life and Annuity is a highly-flexible, rules-based policy administration solution that supports policy issue, billing, collections, policy processing, and claims. With Oracle's highly scalable policy administration solution, insurers can rapidly adapt to changing business needs, market dynamics, and regulatory requirements. It enables insurers to accelerate speed-to-market through collaborative product configuration, reduce total cost of ownership through use of a single platform, and drive competitive advantage through rapidly delivery of differentiated insurance and annuity products and customer-servicing capabilities.

Project # 3	
Client: MetLife Insurance	**Project:** Sales Radar
Duration: Apr 2010 – Jul 2011	**Role:** Performance Tester

Sales Radar is a Customer Relationship Management application built on the Oracle Siebel 7.7 platform. SalesRadar application is used by the sales force (Small to Mid-Large Market, National Accounts, Voluntary Benefits, GVUL, among others), to managed their prospects, customers, In force data, and calendar activities. SalesRadar supports Small Market Intake/Close-Out process and GOMR for National Accounts. SalesRadar allows Institutional Sales Management and Sales Force to more effectively manage their Book of Business, Forecasts, Activities and Contacts within one application. Sales Radar integration will include interfaces with CDF/CRDM, iMPAQS, Small Market Sold Case and Sales Support.

Project # 4	
Client: MetLife Insurance	**Project:** ATLAS Ingenium
Duration: Apr 2010 – Jul 2011	**Role:** Performance Tester
For the ATLAS Ingenium - Performance troubleshooting on vmware servers Performance, the PTG mandate is to evaluate the system Performance, Scalability, Capacity, and Reliability under expected load conditions. PTG recommends the following tests to measure system performance. The objective of these tests is to reproduce the issues encountered with Ingenium applications on production vmware servers that are currently being used.	

PROFESSIONAL/EDUCATIONAL QUALIFICATIONS

S No	Branch	University /Board	Institution	Year	Percentage
1	M.C.A.	CSVTU, Bhilai [CG]	BIT Durg [CG]	2005-2008	78.89%
2	B.C.A.	MCRPV, Bhopal [MP]	DP Vipra, Bilaspur [CG]	2002-2005	70.79%
3	H.S.C.	MP Board Bhopal [MP]	Saraswati Vidya Mandir, Bilaspur [CG]	2000-2001	62%
4	S.S.C.			1998-1999	80.6%

TRAINING/ ACHIEVEMENTS

- Two month training at **S.E.C.L, Bilaspur** in **Coal Net** Department (Year 2007).
- Two month training of Hardware assembling in BIT, Durg (C.G.) (Year 2007).
- Four month training/projects in Java core/adavance Technology in Naresh IT at Hyderabad. (Year 2007-08)
- Published a book "Web Based Search Engine - Your personal search engine" ISBN: **3843356106**
- Selected in **GATE – 2007** with rank **1539** in **IT**.

DECLARATION

I vouch for the authenticity of the above-mentioned information.

Date:
Place: Pune [MH] **Nishant Rajak**