A Hanumayamma Innovations and Technologies, inc White Paper

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Murai Data Analytics Tool – MDAT ©

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Introduction

Murai Data Analytics Tool (MDAT) is a pioneer software data intelligence tool that helps developing effective software solutions for IT departments. MDAT uses linear data analysis to identify the software components that can be improved or re-engineered so that these components play an effective integral role in delivering the ***optimal*** enterprise software performance. MDAT facilitates organizations to achieve huge return on IT investments ***(ROA)*** by providing industry proven solutions to planning & scheduling, demand planning, contingency planning and software governance requirements.

MDAT combines statistical regression modeling, software component architectural principles and data intelligence techniques to develop models to effectively forecast demand, capture trends, compute asset utilization and identify architectural components that can be improved to address changing IT application demands and / or strategic business needs.

Problem Statement

IT managers bear huge responsibility for developing and delivering applications on time to meet strategic vision of the business. Meeting schedule and releasing software on time not only require perpetual managerial effort but also managerial propensity to

tackle risks and challenges that may arise during any phase of software development life cycle (SDLC). Even after overcoming these challenges, once a golden cut is made, i.e., the application is ready to be deployed on the enterprise central, IT managers face entirely a new set of challenges associated with deployment and post release activities.

The post deployment issues stem from facts such as *lack of accurate forecasted demand for the application, inadequate computing resources to handle capacity needs, under estimated contingency measures and non-holistic analysis of seasonal factors affecting the application.*

IT Managers need data intelligence framework to effectively forecast and engineer post-deployment before releasing to enterprise central.

In my consulting work, I have come across following problem statements from several managers:*"we hardly have IT resources to fire-fix triage of P1 ("Priority One") issues relating to the deployment. For sure, we know many of these issues aren't related to development. However, a substantial items stem from environmental impacts to our enterprise application on which we have no control and no through framework to pre-analyze."*

Similarly, corroborating to managers' experience, during my consulting work, I was pulled into several tiger team initiatives either by enterprise architecture teams or by program management offices (PMO) to address (fire fix) issues related to performance, security and availability of the enterprise application. It's astonishing that several of these companies *lack any forecasting models* to gauge how a new release would experience in the post release phase. Primarily, these companies barely have any data gathering at enterprise level.

However, some companies do have data dispersed across organizational department silos, copying both transactional and master data, even though official source of truth was entirely at a different place. Each department IT works extensively to create scripts that periodically run to copy delta and/or new master data into its department's data sores. The IT overhead and maintainability complexity boggled me but that was the modus of operand at these organizations.

One thing for sure, given "***Departmental Data (D)^2 Myopia",*** is to keep extra budget and resources to handle data issues during ***System Integration Testing (SIT) and Business Acceptance Testing (BAT) as*** IT ***seldom interface with data coming from external systems during development testing"***

Innovations and Technologies for Helping Humanity.

Data Intelligence "*The Panacea*" to D^2 Myopia©

I definitely sympathize with those IT managers who were/are on the hot seat for the actions they are not directly responsible. In my opinion, rather than taking fire on such issues, the IT managers should bring to management's attention regarding lack of data intelligence that their organizations embroiled in. Many of these firms are either "Stage 1 or Stage 2 on enterprise data analytics (Thomas, Jeanne and Robert, 2010)" and they require adopting policies to centralize data intelligence to work for their core business and strategic needs.

D^2 Myopia = **D**epartmental **D**ata Myopia

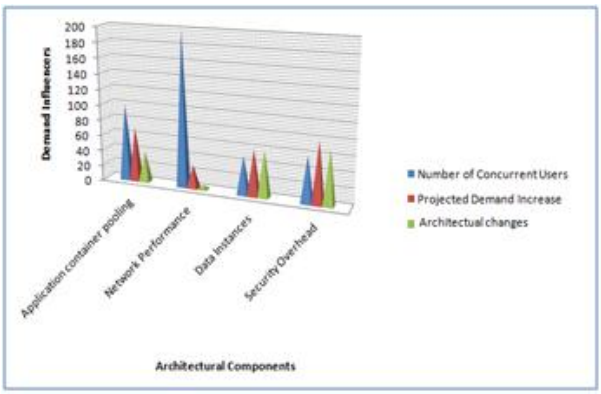
What IT managers require is a framework that concretely identifies required capacity for IT deployments and effectively predicts impact of changing and seasonal factors on demand planning. ***The Murai Data Analytics Tool (MDAT) provides the required solution.***

Murai Data Analytics – MDAT © ®

Murai Data Analytics uses regression models to predict the demand and capacity planning to assess infrastructure needs. MDAT may not be applicable for "Stage 1 and Stage 2 companies (Thomas, Jeanne and Robert, 2010)". However, for data mature companies, companies that are already embarked on capturing data at central and enterprise level, MDAT framework could be used to effectively analyze demand and capacity planning and predict the new or incremental needs to cater changing capacities.

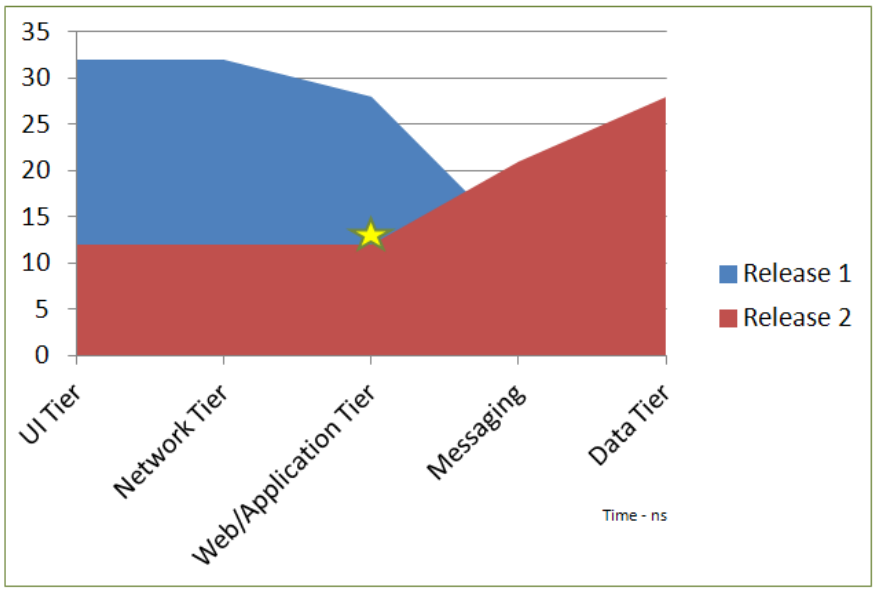
Demand & Capacity Planning

For enterprise applications, MDAT derives demand forecasting model by regressing through historical data. MDAT's unique data engineering process identifies a) software architectural influencers and b) data correlation factors to the architectural components.



By varying parameters of the demand forecasting equation, IT department could forecast different levels demand planning data. In addition, with the help of demand equation, IT departments can identify performance changes in various deployments due to architectural changes.

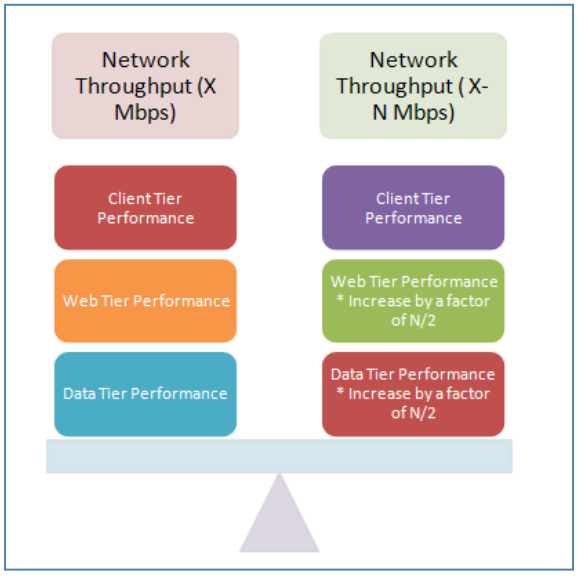
The Demand models provide salient IT Deployment's pointers such as break-even demand point, performance eco-zone and IT system optimal operating profile. Through Demand Models, IT Teams can gauge the performance footprint of a new IT deployment that has undergone changes to architecture, hardware, and / or environment.



For instance, MDAT provides enterprise application specific demand profile at each tier level. Also, MDAT includes demand break-even point analysis for provisioning capacity planning needs.

Technology Stack Performance Analyzer

In a multi-tiered enterprise application deployment, the challenge to meet the user demand not only originates from increased business growth (demand), a good to have problem, but also from the lack of performance of other tiers in the technology stack. MDAT address this issue by applying data intelligence to the interactions among different tiers of the enterprise technology stack.



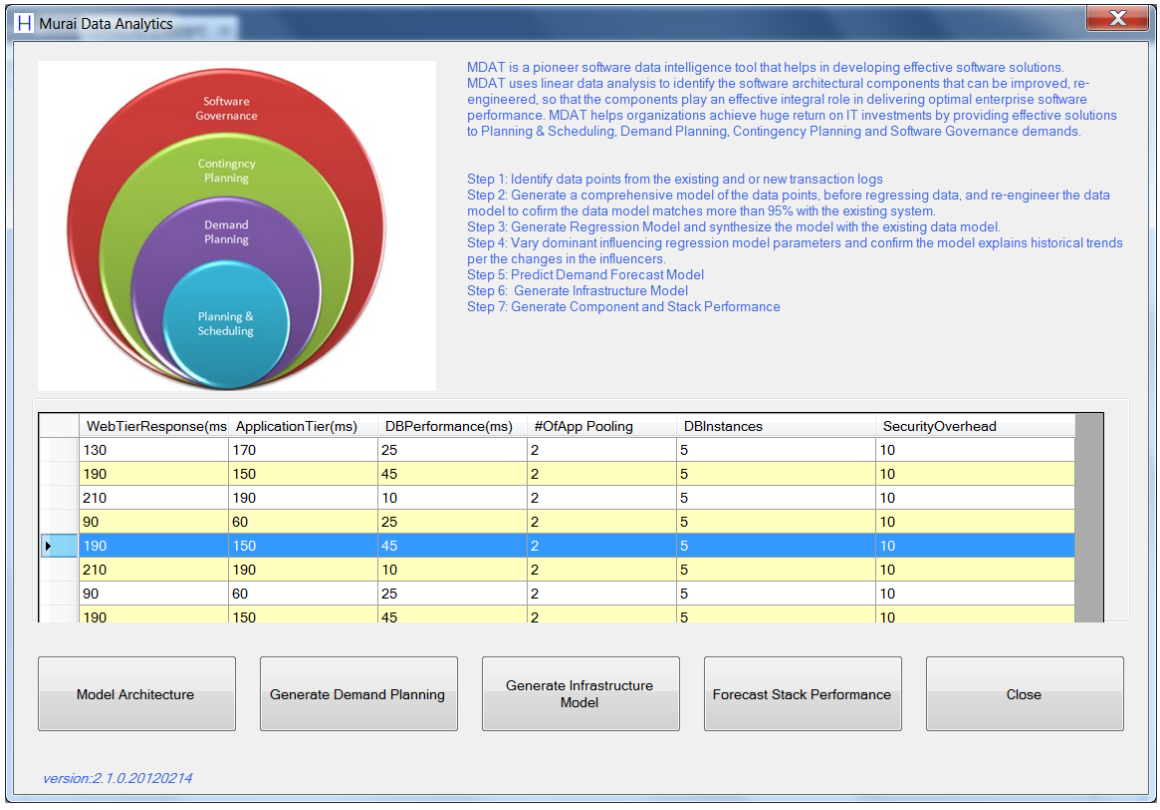
Through effective data intelligence process, a sub-optimal performance of one stack could be mitigated through turbo performance of other elements in the stack. For instance, if the network tier is performing at sub-optimal level, for effective user experience, the improved performance of enterprise application, faster crunching, acts as deterrence to the slowdown of the entire application. Data Intelligence acts as a catalyst process in this pursuit and enhances the Web tier performance by pooling components that improve the overall performance. In this regard,

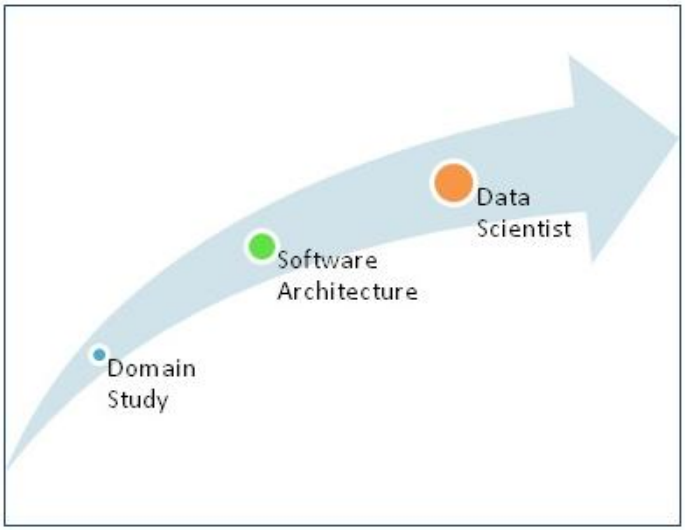
MDAT injects and pool business tier components in the enterprise application container. *(refer application server object pooling).*

MDAT provides performance points of each tier in the Web deployment. That is, throughput of network, enterprise container response and database response. Through performance optimization, IT Teams could improve the performance by adding hardware or other processing resources.

Implementation

MDAT applies both qualitative and quantitative principles to engineer enterprise applications. As a standard industry practice, before applying quantitative techniques, MDAT process enforces a thorough understanding of software architectural components of the system. In this process, MDAT documents current enterprise architecture, deployment container environment, network stack and application interaction modules.





Next, MDAT process goes through system audit or transaction logs. Through these log files, MDAT dexterously apply regression statistical engineering to derive parameters that have substantial influence on the enterprise application. Most of this work is performed by MDAT certified data scientists.

Once regression engineering equations are derived, MDAT validates equations and apply forecasting process to derive demand and capacity planning components.

Summary

In conclusion, MDAT provides great value to IT Departments and provide a cost saving process of engineering demand and capacity planning needs.

Reference

1. Thomas H. Davenport, Jeanne G.Harris and Robert Morison, Analytics at Work, 2010, Harvard Business School Publishing Corporation
2. Java Platform Enterprise Edition Specification, http://jcp.org/aboutJava/communityprocess/final/jsr316/index.html , 2011, Date Accessed: 2012/02/14