



From Reactive to Proactive IT Operations Management: Leveraging Predictive Analytics to Build Service Intelligence

- GAVS Technologies

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Next generation technologies are transforming the way business is done, compelling organizations to adopt and optimize their IT infrastructure to stay competitive and meet customer demands. Understanding issues in real time is critical to managing IT operations effectively, before they cause significant disruptions and impact the business adversely. Businesses are, therefore, realizing the importance of proactive IT operations management in ensuring superior customer services.

However, organizations are challenged by the need to handle complex and expansive technology ecosystems and the exhaustive amounts of data produced. Predictive analytics addresses this need by providing proactive fact-based intelligence to identify patterns, relationships, and dependencies within the data, ahead of time.

This paper discusses the use of predictive analytics in IT operations management to help businesses gain a deeper understanding of their operations and leverage the insights to proactively solve IT operational problems.

Addressing Operational Challenges with ITOA

Information is growing exponentially at a rate that was unimaginable even a few decades ago. IT environments that once supported an organization's internal processes, today, often support the business itself. This makes it necessary for the companies to manage their services from a business service perspective. With multiple types of technologies generating massive amounts of data, operations teams are challenged to keep pace with and proactively solve issues before they arise. IT Operations Analytics (ITOA) makes it possible for teams to assess event data, performance metrics and other operational data, thereby, enabling rapid resolution of multiple issues. It also facilitates a high level of accuracy in identifying and addressing anomalies.

ITOA is vital to managing today's IT environments that are complex, virtualized, dynamic, and distributed, including cloud and third-party environments. It allows services to be controlled from a fact-based business perspective. Rather than reacting to issues, an IT organization can gain predictive capabilities to ensure better service levels and meet user expectations, no matter where users are located or how they access their services.

According to an IDC forecast, the ITOA market is expected to grow at a CAGR of 18% between 2014 and 2018*. As ITOA gains popularity, businesses are recognizing the need to acquire a deeper understanding of how analytics can help them improve IT operations in specific ways.

Extracting the True Value of Data with Predictive Analytics

Every component, application and resource within a business' IT infrastructure provides terabytes of data. The key is to glean meaningful insights out of the information in order to avoid outages, and resolve those that do occur quickly and efficiently. Using predictive analytics reduces the time spent on addressing application outages and performance issues, and makes it possible to provide a high uptime of business services.

While use cases can help reactively identify outages that occurred, analytics can help pinpoint what actually caused the outage. Predictive analytics takes this a step further by providing insights for the future, based on an organization's specific needs. It uses historical data, statistical algorithms,

and machine-learning techniques to draw inferences about the future.

An effective predictive analytics engine automatically scans the IT infrastructure, analyzes associations and dependencies, and predicts events via underlying probabilistic models. This makes it possible to proactively identify anomalies and potential risks.

IT Operations Teams need to Identify and Address the following Issues to Implement Robust ITOA Solutions:

- Clearly identify what teams need to know about the future based on historical data, and understand specifically what they want to predict. They must also specifically pinpoint what they will do with these predictions, what decisions will be driven by the insights and what actions will be taken
- Prepare the raw data for analysis. Expertise on both the data and the business problem is helpful to get the data ready for predictive modeling

Once these preliminary steps are in place, predictive models can be built and deployed.

Applying Predictive Analytics to IT Operations

New generation ITOA solutions leverage predictive analytics to raise alerts in real-time about specific Key Performance Indicators (KPI) that need attention. Predictive analytics can be applied to various areas of IT operations including:

Capacity Management

IT capacity management is an area that allows businesses to project performance metrics months or years ahead of time. Capacity analytics uses current and historical trends to project what-if scenarios. Performance management data and service models can be used to forecast the impact of growth in the future. It also helps define ideal utilization rates, anticipate stresses and vulnerabilities, and model methods to meet anticipated demand. With insight into the current and future IT infrastructural needs, businesses can make better decisions and avoid risks. Predictive, business-centric capacity management

*<http://www.bloomberg.com/news/articles/2015-04-27/counting-the-economic-cost-of-natural-disasters>

makes it possible to customize the service delivery chain and fine-tune workload allocations as required.

Threshold Management

Developing problems are identified by detecting changes in the environment. This can be recognized with the help of machine learning techniques to understand normal behavior and deviations. Performance data from disparate systems is analyzed to find anomalies. The anomaly detection system then determines threshold levels for acceptable behavior. Such an analytics-based system does not require explicit threshold settings or manual intervention, which ultimately helps the business reduce costs.

Building Service Intelligence with GAVel: A Robust Predictive Analytics Platform

A next generation ITOA platform from GAVS, GAVel, uses predictive analytics to help organizations shift from reactive to proactive risk management. The platform uses an advanced approach to monitor system performance. Based on the analysis of historical data on past performance of servers, key applications, network and storage, it predicts probable system failures. This provides better visibility into operations and helps prevent high risk incidents, thereby, improving operations and service levels.

The platform monitors the events, removes false positives and highlights critical events which might potentially cause failures. This reduces the manual effort spent on closing the non-critical events.

In addition to the machine-generated data which flows into GAVel, the platform also uses human-generated data to correlate between human intelligence and machine intelligence to provide meaningful insights.

GAVel TVM uses predictive algorithms, which run on human-generated data that enable users to pre-empt and resolve incidents, while GAVel ETC uses statistical model and dynamic visualization to accurately estimate resolution time. It also provides a holistic experience to the user. GAVel BOT, an interactive channel for query resolution, offers customized self-help to the users, which enables them to resolve the issues themselves without raising a ticket for the service. Web-based dashboards provide complete transparency into the ticket status and accessibility across data points, thereby, helping to resolve tickets quickly and minimize overall tickets.

Delivering on the Promise of ITOA: Case Studies

Here is a look at how GAVel enabled resilient process and operational decisions based on predictive analytics, and helped organizations optimize infrastructure and respond quickly to the unexpected market changes.

Benefits
▶ Approximately \$200,000 per annum savings in operating costs
▶ 30% reduction in support and maintenance cost for hardware and software
▶ Up to 25% rack space reduction
▶ Redundancy of applications in virtualized environment

A non-profit health organization transforms and optimizes its data center

A non-profit health organization was seeking to optimize its data center and reduce service outages. Their IT landscape included:

- Two in-house non-scalable data centers
- 126 applications with more than 10 critical clinical applications
- 150 TB SAN storage
- Netscaler 7000 for SSL VPN and application load balancing

With GAVel's predictive analytics the client was able to transform its infrastructure, making it more scalable and resilient. It helped the client enhance service availability and optimize data center efficiency.

Benefits of Integrating Predictive Analytics with ITOA

Leveraging predictive analytics in ITOA provides a multitude of benefits such as preventing IT outages, reducing high-risk incidents, and enhancing command center productivity by reducing turn-around times (TAT), and offering better visibility into TAT. In addition, businesses can also derive the following benefits:

- **Easily Analyze Massive Amounts of Data:** Application of big data analytics helps organizations easily analyze significant amounts of operational data stemming from organization's IT infrastructure in real-time. It helps identify critical inconsistencies that indicate the health of IT infrastructure ahead of time, enabling organizations to manage day-to-day operations effectively.
- **Improves Visibility:** ITOA solutions helps visualize the IT environment, enabling teams to detect any disruptions that may occur. The predictability of potential issues helps analyze their impact, and makes it easier to prioritize and troubleshoot with an appropriate strategy to improve performance.
- **Facilitates Service Intelligence:** Data aggregation helps IT operations teams gain comprehensive insight into IT infrastructure performance. It enables organizations to understand the impact of the issues on the business, and helps optimize IT and application infrastructure. Timely information helps ensure reliable service delivery and superior decision-making.
- **Superior Control over IT Investments:** ITOA solutions are scalable and can monitor any number of applications within the infrastructure. Contextualizing all transactions and events across varied infrastructure helps improve productivity across different teams for better workflow efficiency.

Enhancing Availability and Decision Making with ITOA

ITOA helps protect and maximize IT investments and identify operational trends as they emerge. Adding predictive analytics to the mix allows IT teams to identify issues pre-emptively and move from reactive to proactive incident management. ITOA helps identify inconsistencies within the system and optimize it before symptoms manifest themselves, preventing disruptions to ensure business continuity and seamless end-customer experience. Such complete visibility into IT operations empowers teams to make faster and smarter decisions, improve best practices and optimize IT infrastructure for achieving business goals

About GAVS

GAVS Technologies (GAVS) is a global IT services & solutions provider for customers across multiple industry verticals. GAVS offers services and solutions aligned with strategic technology trends to enable enterprises take advantage of futuristic technologies such as Cloud, IoT, Managed Infrastructure, and Security services.

GAVS has been recognized as an emerging player in the Healthcare Provider IT outsourcing sector by Everest Group, and as a prominent India-based Remote Infrastructure Management player by Gartner.

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