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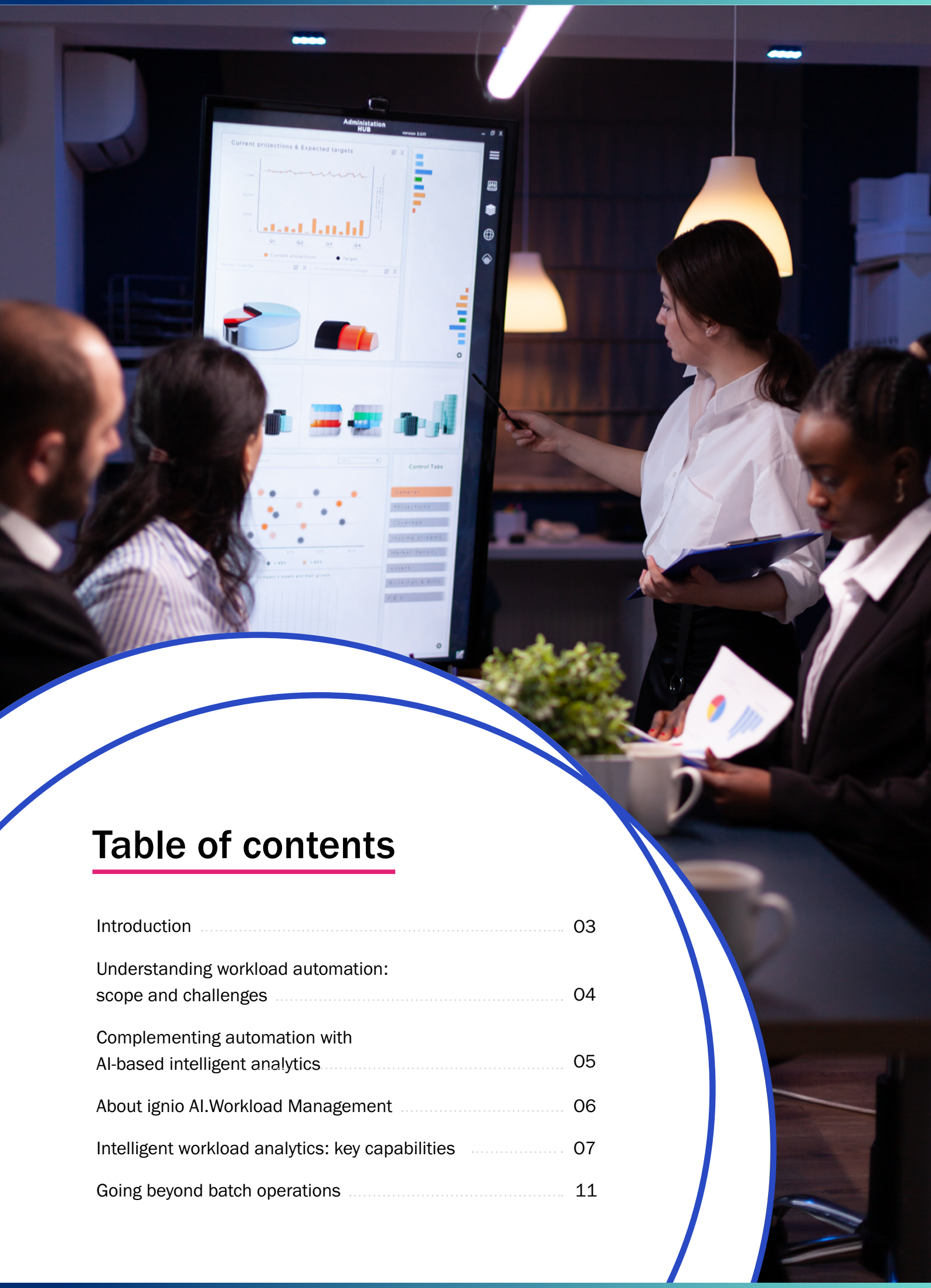
POINT OF VIEW

Workload automation re-imagined with **AI-based analytics**



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Introduction

Over the last few years, modernization of the IT ecosystem has driven workload automation tools to re-invent themselves, positioning it as one of the key IT automation tools in every organization. However, due to the primary focus on automation and monitoring, workload analytics has taken a back seat.

As IT complexities grow and layers of schedulers, job dependencies, and infrastructure are introduced, the visibility and predictability of operations are hampered significantly, making it difficult to prevent and resolve IT failures. Such complex ecosystems can no longer be managed by workload automation tools alone and need to be combined with the advantages of artificial intelligence (AI)-based, cross-platform analytics to ensure resilient IT operations.

This paper discusses how workload analytics can fulfill such requirements by complementing workload automation tools with AI-based multi-level analytics that help IT operations become more proactive and strategic.

Understanding workload automation: scope and challenges

Workload automation, as a key technology, evolved from batch job processing of data (using batch schedulers) and currently controls 40% to 45% of all IT workloads, tasks, and activities, making it one of the largest technologies by volume of data.

Previously, the scope of batch schedulers was limited to specific applications or operating systems and meant for time-driven processing of large volumes of data and tasks at the end of each business day, such as database maintenance jobs. Since then, workload automation has constantly evolved, incorporating event-driven process automation, executing processes across distributed systems, and optimizing the old and new infrastructure, including cloud-based systems.

With the rise of digital enterprises, workload automation is at the center of all IT operations today. It schedules, monitors, manages, and optimizes IT processes for critical business functions, providing more power to the IT and business teams to automate and reduce manual processes. To define the digital business' needs in terms of IT deliverables, enterprises depend on IT SLAs (service level agreements), as they provide a clear understanding and benchmarks that IT teams need to adhere to in terms of uptime, process completion time. Workload automation plays a key role in adhering to such SLAs, by laying down strict timelines for batch job completion, prioritizing batch jobs that are tagged with critical SLAs, and so on.

However, digitization has increased the volume and complexity of workload management, as organizations currently use a wide variety of in-house or external batch schedulers. They struggle to find a single version of truth that can provide accurate insights, reduce the clutter, and demonstrate only what warrants their attention. They also need to gather more insight on coping with the prevalent changes in the IT ecosystem while fixing any unseen challenges.

There is also a need to scale the automation of business processes without causing a substantial increase in the size of IT support teams needed to monitor and fix issues. This requires workload automation to be more intelligent – and include autonomous monitoring and predictive analytics capabilities so that a smaller support team can proactively fix issues before they happen.

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Complementing automation with **AI-based intelligent analytics**

Organizations today are looking to transform workload management from a reactive process to a more proactive one, so that incidents are reduced, and support teams have more time to react to issues – removing the need for large teams to monitor and fix issues urgently after something has gone wrong.

This requires better workload analytics – and a few technology providers offer dashboards to provide more visibility – be it to monitor SLAs, analyze capacity requirements, or to perform root cause analysis for any incidents.

However, these platforms still suffer from multiple drawbacks that inhibit their applicability. For instance, most workload automation providers only provide information about the specific batch jobs that are managed by that particular automation provider – without knowledge of other batch jobs that exist and run on the same environment.

Also, these tools are not context-aware, meaning that they do not understand the connections between the batch jobs, their ecosystem, the associated infrastructure, and the various connected business processes.

Even if such tools provide autonomous monitoring , they might not be as effective if they provide an incomplete view of the ecosystem, and hence add to the noise.

Most such providers offer rule-based analytics (using simple statistical averages for benchmark calculations, relying on static values, not incorporating multi-factor analytics) that does not meet the demands of a dynamic ecosystem. The modern workload ecosystem is prone to changes and key metrics like workload volume, start time, and end time may differ based on the day of the week, accommodate peak demands and other such business requirements.

To be effective, a modern workload analytics platform should be able to understand patterns and trends of the workload ecosystem and set benchmarks and thresholds accordingly. This requires intelligence – leveraging AI/ML models to effectively optimize alerts, predict future incidents, or offer diagnostics.

Also, there is an urgent need for autonomous closed-loop capabilities to reduce workforce requirements– i.e., systems that can autonomously monitor, detect, diagnose, and resolve incidents with built-in intelligent automation capabilities.

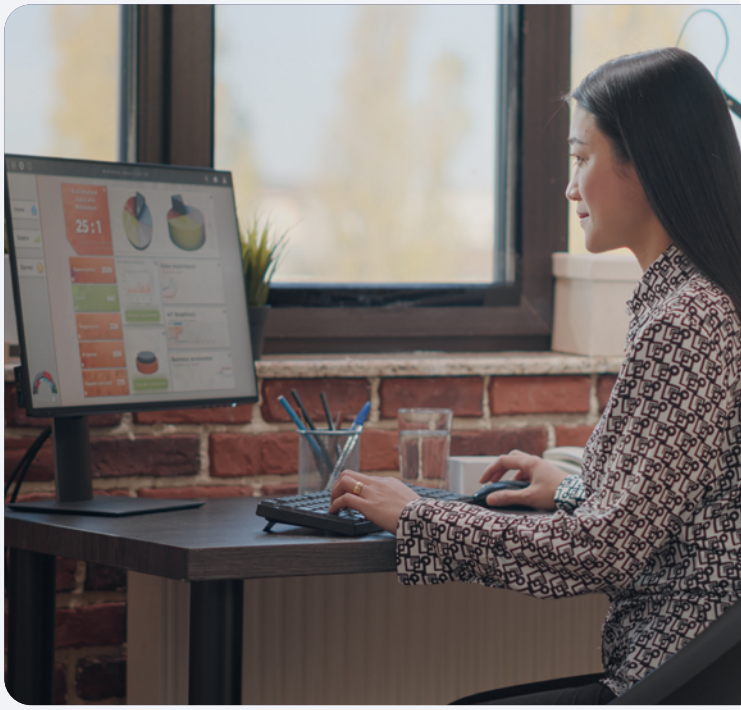
An intelligent workload analytics solution, with built-in automation can truly transform the workload management practice. It can make workload automation more predictable – providing support teams notifications in advance before any failure, as well help teams plan for changes and peak / seasonal demands.

It can provide accurate insights even in dynamic conditions and offer recommendations and fixes to solve issues and make the batch jobs more efficient – enabling agile operations.

It can also set more precise and dynamic benchmarks for alert management, and cut down redundant or false alerts, as well as provide fixes for common incidents proactively, enabling silent operations.

About **ignio AI.Workload Management**

ignio™ AI.Workload Management, developed by **Digitate**, is an AI-based product for proactive workload management, which helps you gain better visibility across a heterogeneous batch ecosystem, including multiple schedulers and associated infrastructure. It autonomously monitors the entire batch ecosystem for hidden anomalies, providing real-time visibility of the current batch operations. It also leverages domain-specific AI/ML models to predict batch delays and failures, and analyze their impact on downstream jobs and SLAs, thus providing timely notifications for corrective actions. Additionally, it diagnoses failures, recommends corrective actions, and leverages self-learning capability to auto-resolve incidents to deliver predictable, agile, and silent batch operations.



ignio AI.Workload Management can be easily implemented in any ecosystem, as SaaS (software as a service), with out-of-the-box support for most common workload automation platforms. It also comes with out-of-the-box reports to assess coverage and effectiveness across key user journeys, helping organizations fast-track their road to success.

Intelligent workload analytics: key capabilities

Here are some of the crucial ways in which an intelligent workload analytics solution can revolutionize workload management:

Autonomous monitoring and optimized alerts

Implement no-eyes-on-glass monitoring to free up the valuable time of IT experts and leverage AI to identify hidden issues that cannot be detected by rule-based mechanisms.

How intelligent analytics can help:

Autonomously monitor batch progress of the thousands of interconnected batches that are part of your workload management ecosystem.

Detect hidden process anomalies based on user-set benchmarks, as well as dynamic benchmarks as per historic trends.

Send critical/warning/info notifications via email and mobile app to the relevant stakeholders.

The Digitate advantage:

Captures a wider blueprint, connecting multiple schedulers, in-house developed batch jobs or custom schedulers, custom dependencies, as well as business workload and hosts used by the batch jobs.

Provides AI-based recommendations for reducing alert noise and suppresses false alerts based on their normal behavior.

Provides intelligent insights such as the impact of anomalies on SLAs and available time to resolve.

Predictive analytics to prevent SLA violations

Identify issues in advance and grow assurance in your IT and business operations.

How intelligent analytics can help:

Mine trends and model behavioral patterns based on historic data to predict future batch operations, as well as to adapt analytics in near real time.

Diagnose root causes and create information technology service management (ITSM) tickets for resolutions.

Predict potential SLA violations using AI and send early notifications of potential SLA violations to the relevant stakeholders.

Detect failures from ongoing data feeds and identify infrastructure components that may cause issues.

The Digitate advantage:

Supports predictions for files and job-file dependencies to have better visibility across a wider range of IT processes.

Considers changes in volume of workload due to dynamic business requirements, while calculating predictions.

Goes **beyond prediction to diagnosis**, along with detailed root-cause analysis, downstream impact analysis, and recommended time-to-fix, providing teamshwith all the relevant and comprehensive information in real- time.

Automated diagnosis and resolutions

Get intelligent recommendations for fixing any potential issue, or let the product perform automated actions to prevent failures.

How intelligent analytics can help:

Performs health checks to find the root cause of any process delays or failures

Recommends fixes to ensure on-time resolution of issues

Incorporates a wide variety of fixes, including infrastructure fixes, job restarts based on the job's exit code, error message, and so on.

The Digitate advantage:

Provides detailed diagnosis to locate the cause of failure at the job-level, scheduler-level, or in the underlying host or underlying infrastructure components such as databases, services, files, and so on.

Provides intelligent options for fixes based on domain-specific preferences and constraints.

Provides **detailed recommended fixes** with a self-learning recommendation engine to improve recommendations, in line with business preferences.

Performs automated fixes with the help of a rich library of automation options from an extensive library of AI-enriched automation options.

Support for better business decisions

Leverage analytics to help scale operations, perform proactive problem management, improve existing processes, or be ready for the future.

How intelligent analytics can help:

Recommend threshold corrections and provide dynamic alert thresholds.

Highlight anomalies that need attention, such as jobs with frequent outliers, and increasing trends.

Derive problem signatures of events with patterns, co-occurring events, and so on, to estimate inherent risks in the ecosystem.

The Digitate advantage:

Provides the ability to simulate the impact of any change with what-if analysis scenarios.

Supports analytics for the dynamic ecosystem, including start times, dynamic SLAs, and so on.

Supports a wide range of levers to create change scenarios (add/delete jobs, add/delete dependencies, change start time/run time, introduce outage).

Going beyond **batch operations**

In most organizations, workload management acts as the cornerstone for overall IT automation success, representing the largest volume of automated operations. These batch jobs are critical to business operations, since many functions such as order management, payment transactions, report creation, and logistics depend on their timely completion, and any delay can derail the critical business processes.

This provides a unique opportunity for IT teams to extend workload analytics beyond batch jobs and leverage a single solution for IT process monitoring. By enhancing workload monitoring, analytics, and predictions to other IT processes, organizations can increase cooperation between the ITOps and business teams with the ability to cater to their domain-specific requirements.

ignio AI.Workload Management achieves this goal by going beyond workload management and offering the same capabilities to other critical IT processes such as transactions, orders, and requests. Additionally, it supports predictions on files and job-file dependencies, which is key to normal business functioning. This ensures visibility for ITOps across major IT processes, placing workload analytics at the center of all monitoring and anomaly detection activities.

About the Author

Somdipto Ghosh Somdipto is a product marketing manager within Digitate team, focused on ignio AIOps and ignio AI.Workload Management products and related solutions. He is a proven expert in various facets of technology marketing with an experience of over 11 years. Somdipto is also an enthusiastic writer on the importance of AI, automation and the role of technology in shaping business decisions.

About Digitate

Digitate is a leading software provider bringing agility, assurance, and resiliency to IT and business operations. Digitate's flagship product, ignio™, is an award-winning AIOps solution that reimagines the enterprise business landscape with its distinctive closed-loop approach. It combines context, insights, and intelligent automation to resolve and prevent issues autonomously. Our customers span multiple industries and include global enterprises that are leaders and innovators.

To stay up to date on ignio™ news and learn how our clients across the globe have benefited from our innovative solutions, visit us at

https://digitate.com/ignio-ai-workload-management/