StreamScape™

Leveraging Cognitive AI
for IT Operations

Automate Operations with Cognitive Technology
for Real-Time Incident Response

*C*loud computing has changed the way enterprises build, manage and deploy applications. Companies of all size have reorganized IT and re-tooled their development centers to evolve with application needs. As a result, IT Operations and DevOps teams are scrambling to keep up with the pace of modernization and losing the race with complexity.

Hybrid and multi-cloud environments as well as new technologies like server-less computing, application containers, data virtualization and microservices overload IT support teams with error logs, application health, user behavior and telemetry data from an increasing number of new components while hiding the root cause of problems.

The struggle to assure reliability, availability and performance of new services and legacy applications dramatically increases IT Operating Expenses (OpEx) and leads to staffing issues. Not surprisingly, in one study by McKinsey & Company[1] over 60% of executive respondents agreed that finding, training and retaining experienced IT operations talent is their biggest challenge. An EMA[2] study shows organizations are lacking tools and process, and still managing complex applications with a mix of "tribal knowledge" and "all-hands-on-deck" marathons.

Operational Automation AI
Improves Quality
and Consistency
of a Support Team's Decisions
with Machine Guided Outcomes

To bridge the knowledge and technology gaps operations teams are turning to solutions and practices that reduce the number of products and experts needed to identify problems and take corrective actions. IT Operation and Analytics Automation (ITOA) is an evolving discipline that lets teams of all size scale out their infrastructure management capabilities at the pace of changing technology.

ITOA tools that leverage *Cognitive Automation AI* (sometimes called AIOps) help IT organizations manage cloud and on-premise systems. Cognitive technologies augment IT and DevOps capabilities by turning Big Data Analytics inward to *drive* and *automate decisions* about the underlying infrastructure that runs the business.

The Future of Ops is Cognitive AI

Cognitive Automation systems are a subset of *artificial intelligence* (AI) that augments human decision making by automating tasks requiring judgement and perception. For IT Operations and DevOps this can be a *transformative technology* that takes over tasks like monitoring of application logs, infrastructure, telemetry data and system health.

Problems can be analyzed as they occur and with potential solutions identified in real-time. Corrective actions can be automated via user-defined rules in a *transparent* and *controlled* manner or delegated to smaller teams that handle remediation in a *machine-guided* fashion. Cognitive systems are extremely effective in the following scenarios:

Data Velocity + Variety
When Judgement + Perception must be applied across silos of Disparate Data – Quickly

Complex Cognition
When Judgement + Perception Fails to Identify Critical, Useful Patterns

Timeliness
When Judgement + Perception must be Applied at the Inflection Point of Data Change

Cognitive Technologies are an essential part of the ITOA tool set that improve *quality* and *consistency* of support decisions. Organizations of all size can accelerate incident management, automate problem detection, resolution and documentation keeping up with the pace of digital transformation.

Most importantly, cognitive systems learn from a mix of user actions and outcomes of their own operations, improving productivity and freeing up IT Ops and DevOps to engage in more high value activities.

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[1] Khan and Sikes (2014). "IT under pressure: McKinsey Global Survey results." McKinsey & Company.

[2] Enterprise Management Associates (2015). "Application Performance Monitoring (APM), 2015 Industry Challenges, State of the Art, and the Case for Unified Monitoring."

Incident Response Improvement

Monitoring and incident response inside the enterprise continues to be a costly, inefficient and mostly manual process. Although some automation has been introduced in larger organizations, the benefits are limited and do not significantly reduce incidents or workloads.

Research indicates that operations support teams typically divide their time between the following tasks:

20%
Managing Application Data Flow
Capacity Planning, Hardware + Software Restarts, Recovery, Failures or Backlog

25%
Handling Data Preparation Process
Daily Batch Cycles, Exceptions – Error Identification Tracking + Correlation, Capacity Planning

15%
Responding to Data Quality Issues
Data Gaps or Bad Format, Unusual Volumes, Authoritative Data Source Issues, 3rd Party SLA

35%
Root Cause Analysis + Problem Resolution
Error Classification, Log File Aggregation, Research Call Center + Documentation (ie. JIRA, ServiceNow)

Cognitive systems use *Machine Learning* and *Knowledge Modeling* to automate incident response, allowing machines to understand a problem, identify the steps and systems required for remediation, and recommend a possible course of action. They do this by analyzing and correlating *telemetry metrics* from error logs, application streams and machine data; to prioritize issues, reduce the noise of duplicate alerts and extract critical context information essential to root cause analysis. Problem resolution steps codified in an Operational Runbook can then be guided by the AI system or fully automated.

With OpEx on the rise, cognitive technologies can significantly reduce cloud spend and allow support teams to reclaim nearly 80% of the time spent on managing data flows, data preparation issues and root cause analysis.

Cognitive AI Automation for Ops

Powered by real-time analytics and machine learning, StreamScape's Cognitive Automation platform helps IT Ops, NOC and DevOps teams decrease the frequency of incidents and system outages, reducing the number of support FTEs. Streaming data pipelines cut down on the amount of data retained by IT Ops and improve the quality of incident response.
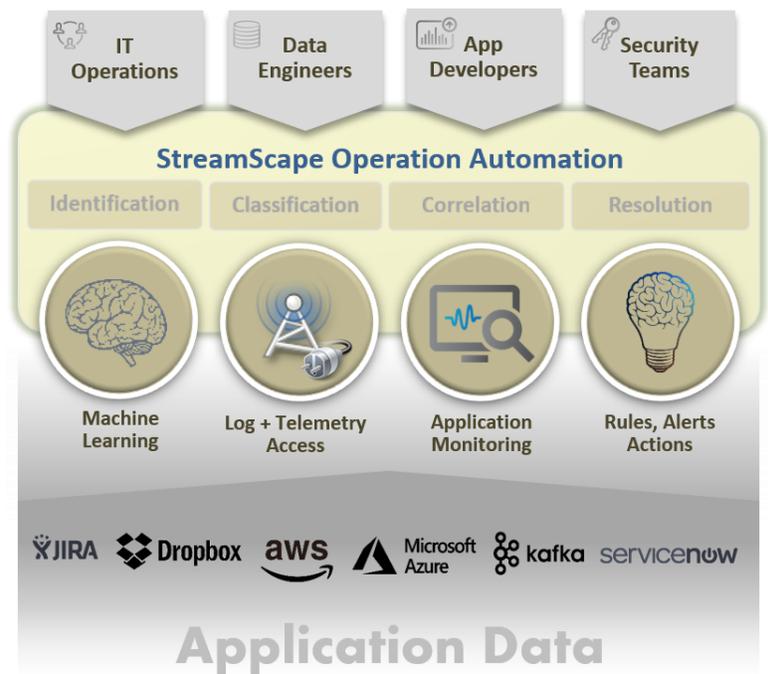
At the heart of the platform is an innovative Dataspace™ technology purpose-built for Cognitive Automation that offers broad connectivity for SaaS infrastructure and hundreds of Cloud Applications. Machine learning and data virtualization services include automation templates and packaged AI models for incident classification and operational insight, making it easy to ingest, enrich and correlate data from your infrastructure monitoring, ITSM and topology tools.

Real-time streaming features make change capture from application logs and sources like AWS CloudWatch or Azure Monitor a simple task. Users can easily mobilize operational data for analysis without the need for deep technical knowledge of underlying systems.

Correlation rules, thresholds and recovery procedures may be defined on-the-fly using intuitive, SQL-like syntax and integrated with any data visualization or reporting tool. StreamScape continuously adapts to changes in your environment, alerting support teams of any suspect conditions and status of corrective procedures as they occur.

Key Benefits

- *Significantly reduce Mean-Time-to-Resolution (MTTR) of Cloud Operation issues and Infrastructure problems*

- *Eliminate the Technical Debt of hindsight (log) analysis with Real-time monitoring and insight into infrastructure events*

- *Automate corrective actions and auto-scaling tasks with AI and machine-guided response to critical conditions*

- *Reduce human errors, improve system reliability and free your support teams to focus on high-value activities*

- *3rd party ITSM and DevOps Tool integration reduces the number of components and experts required*

- *Reduce cost and complexity with Runbook Automation and Task Visibility using our Low Code / No Code tools*

StreamScape™