

AIOps Operating Model & Its Economic Benefits

for Edge, Hybrid and Multi-Cloud Data Centers

WHITEPAPER

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Executive Summary

Digital Transformation is driving the move from static, dedicated 3-Tier datacenter to Edge-Cloud, Hybrid-Cloud, and Multi-cloud datacenters. Businesses are increasingly realizing the benefits of cloud adoption - whether it be the agility, the on-demand self-service, or the scale and economic benefits it brings. However, this transformation is also driving fundamental changes in the way data centers are architected. This change in paradigm is putting tremendous pressure on operational teams.

AIOps Operating model ties the Operational and Developmental functions to a profit center, with its direct impact on focusing on enabling and accelerating the business. AIOps Operating model thus needs to span across people, processes and resources to implement these changes

- ▶ People - Self-service based agile principles - Enable by bridging the Skills Gap by delivering Low Code / No Code environments, to bring velocity, scale and automation
- ▶ Intelligent Services - Composable, Services based, infused with Data and AI/ML and democratizing the use of Data-First, AI-First and Automate Everywhere strategies.
- ▶ Resources (Systems and Software) - Optimizing the resources as a Platform with Cost Optimization, Operational Excellence, Performance Efficiency, Reliability and Security.

AIOps Operating Model & Its Economic Benefits



ROI

457+ %



Benefits PV

\$6.49M



NPV

\$5.3M

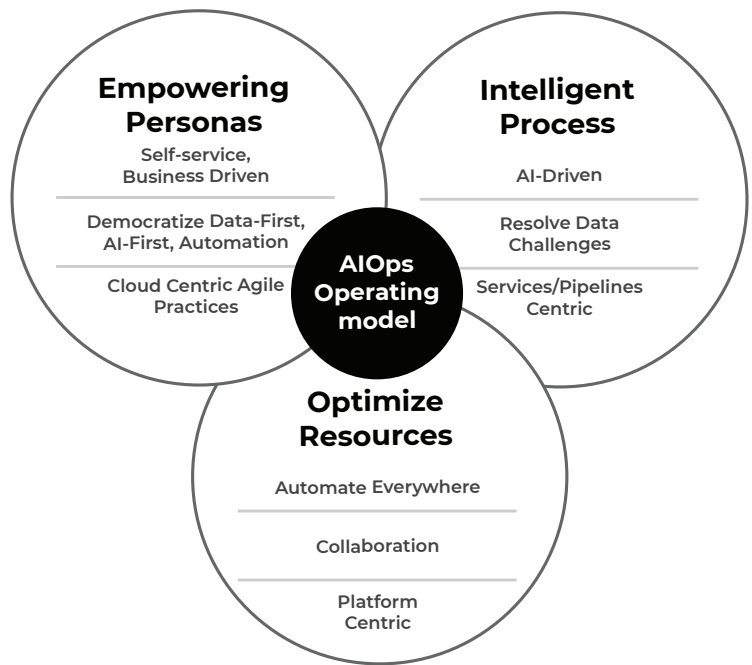


Payback

<4 Months

AIOps Operating Model serves 3 high-level objectives

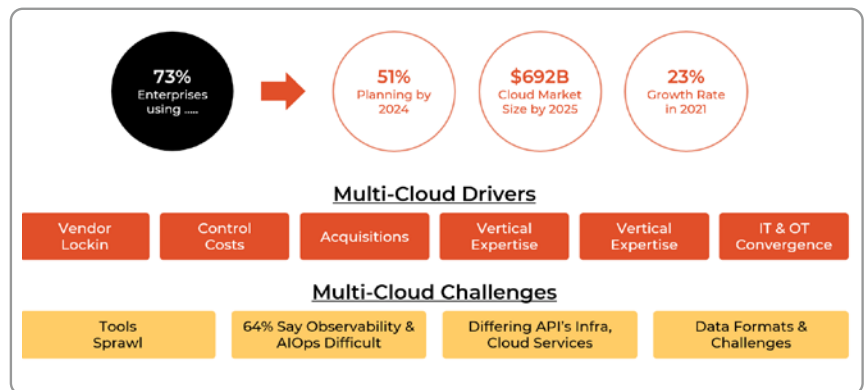
- ▶ Democratizes Data-First, AI-First, and Automate Everywhere strategies
- ▶ provides a blueprint for embarking on your autonomous journey - operationalizing Edge, Hybrid, and Multi-cloud deployments
- ▶ Quantifying the value and economic benefits of using AIOps



Why AIOps Operating Model?

Multi-Cloud Adoption

Businesses are adopting clouds due to the benefits of economies of scale, agility, and a self-service model. These could be Edge Clouds, Hybrid and / or Multi-cloud environments. A recent Forrester survey highlighted 73% enterprises using 2 or more clouds and that number moving to 81% by 2024. This is clearly evident from the cloud market growth as well as the growth rate.



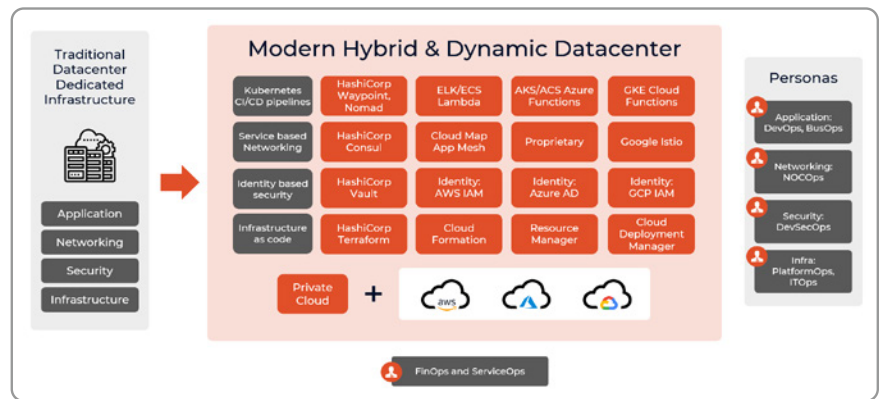
Some of the drivers for the rise of multiple clouds are as follows:

- ▶ Prevent Vendor Lock-in
- ▶ Control Costs
- ▶ Multiple acquisitions
- ▶ Vertical expertise of some clouds
- ▶ Rise of Edge Computing and
- ▶ IT and OT convergence to name a few

Multi-cloud is also bringing multiple challenges like:

- ▶ Tools sprawl
- ▶ 64% saying Observability and AIOps becomes difficult
- ▶ Differing API's, infrastructure and cloud services
- ▶ Differing data formats and Challenges

With cloud adoption, technology building blocks are moving from static and dedicated stack to an on-demand, ephemeral stack as follows -

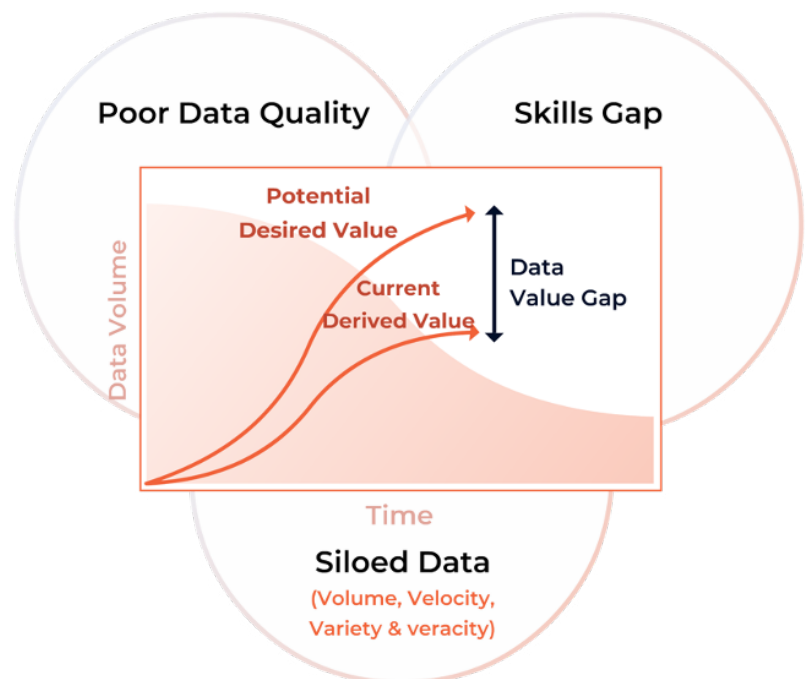


- ▶ The static infrastructure layer moves to infrastructure as code where infrastructure is deployed on-demand, is ephemeral and dynamic.
- ▶ The security layer moves from static IP-based security to an identity-based security layer,
- ▶ The networking layer moves from a static host-based, IP address based to services based where services are discovered, cataloged, and communicate among each other via service meshes and sidecars
- ▶ The applications are now deployed as CI/CD microservices running on the Kubernetes layer

Data Value Gap

Data Value Gap quantifies well these challenges - Data Integration, Data Normalization, Data Enrichment and Data Automation

- ▶ According to Forrester 60-70% of collected data is unused due to data quality As per Accenture
- ▶ 80% of the time is spent in data preparation
- ▶ 55% used manual approach and 50% see talent gap 4) Data is siloed and only 16% say they have agile data supply chains



Challenges with Data 4V's

Service assurance needs full-stack observability; along with this comes the challenges around 4V's of Data. Customers need an approach to handle these 4V's of data

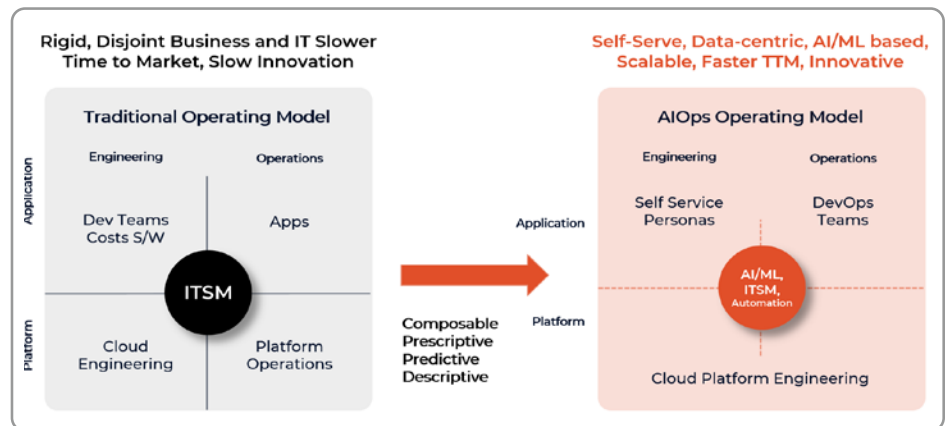
- ▶ **Volume**, tame the data deluge,
- ▶ **Velocity** - handle streaming datasets,
- ▶ **Variety** - different data types - JSON, Structured, Unstructured etc. and
- ▶ **Veracity** - Quality and Accuracy of Data to gain actionable insights

This change in paradigm is putting tremendous pressure on operational teams. In addition, they must deal with the fact that these data centers are increasingly complex, and a small change in the infrastructure, security, networking, and application layers can cause a “butterfly effect” of unintended consequences. These data centers have also led to a drastic increase in IT assets, numerous operational tools, and exponential growth in data, creating challenges in the following areas

- ▶ Data preparation, DataOps Skills Gap, and Data Silos
- ▶ Ever-increasing IT Operational alert and event noise
- ▶ Complex and lengthy IT problem resolution
- ▶ Unable to predict IT service degradations, security breaches, and outages

Rise of Platform Teams and Self-service personas

These challenges around Multi-cloud, Data Challenges are resulting into the platform teams taking a centralized role, where they are responsible for shared services, centralized governance and compliance while making it easier for other operational personas to be self-service and collaborative.



Current Operational Domains fall short!



Some Enterprises try to overcome the above challenges by implementing Observability, Security, and Automation tools which are siloed and result into more issues than solutions

Observability Tools

- ▶ Result into domain-specific silos, which can only work on certain MELT (Metrics, Events, Log, Traces) data types
- ▶ Result into Tools sprawl and alert noise fatigue
- ▶ Make it difficult to correlate across domains, due to differing data formats

Security Tools

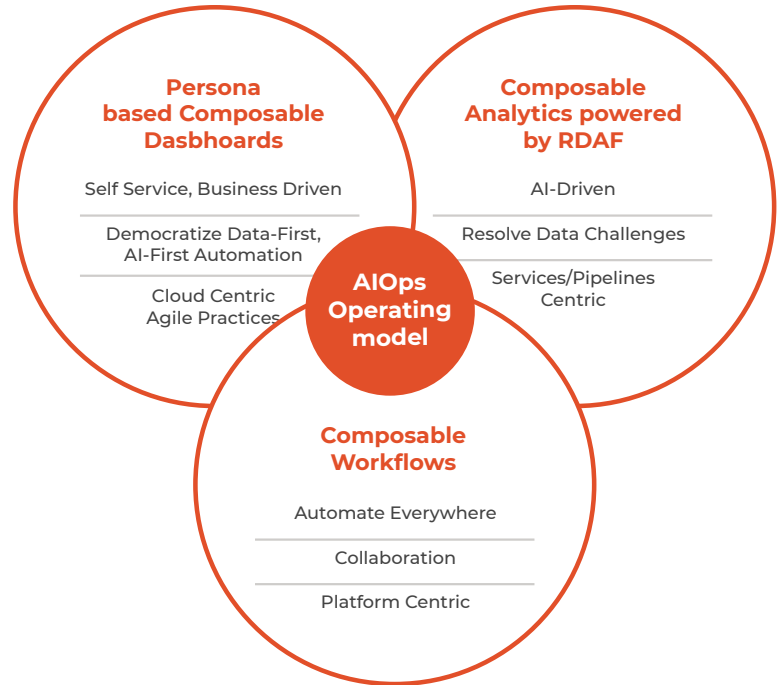
- ▶ Security tools need to store full fidelity logs into a low cost object tier, so all data is available for analysis. These logs should be time stamped with the ability to replay on a security breach or compliance need.
- ▶ The ability to enrich security logs as well as be compliant with PII information masking requirements.
- ▶ Full stack asset discovery and context

Automation Tools

- ▶ The 1st step in automation is the ability to diagnose the root cause and then workflows to remediate.
- ▶ Automation should be across the pipelines right from data automation to service automation
- ▶ Ability to leverage context and sentiments, using advanced NLP techniques

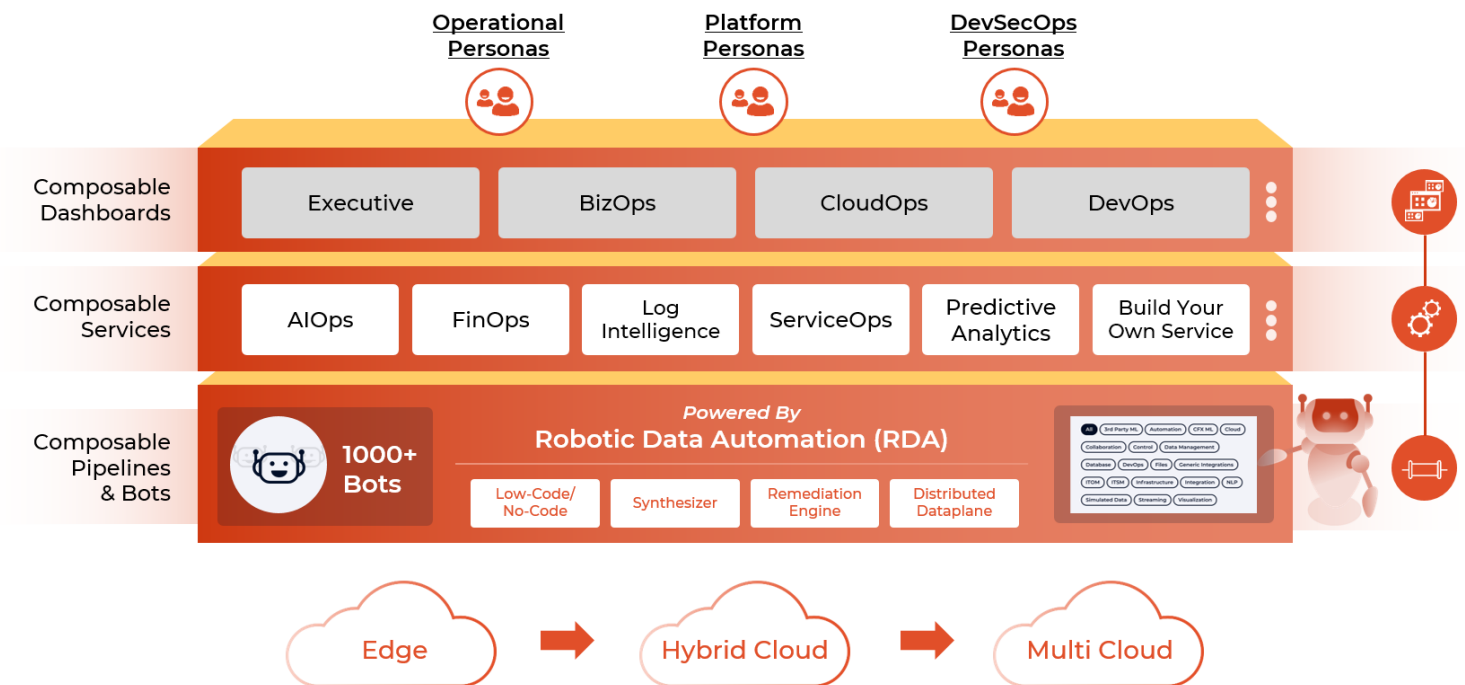
CloudFabrix Enables AIOps Operating Model

CloudFabrix delivers Composable Analytics primarily to address the above challenges and enable the AIOps Operating Model. CloudFabrix's Data-centric platform specifically addresses the goals set forth by the AIOps Operating model across People, processes, and Resources as follows



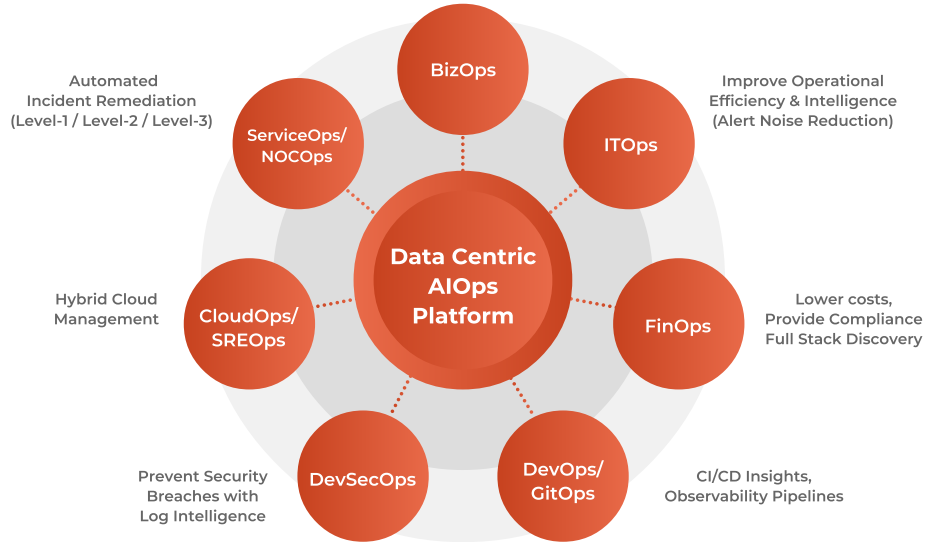
Empowering Personas

CloudFabrix's Data-centric AIOps platform specifically empowers the Operational and the Platform personas delivering Composable Analytics.



CloudFabrix's Data-centric AIOps platform specifically empowers the Operational and the Platform personas.

- ▶ Gain value and insights using full stack observability dashboards
- ▶ Democratize AI and data for different operational personas
- ▶ Predictive insights and anomaly detection for millions of business & IT metrics

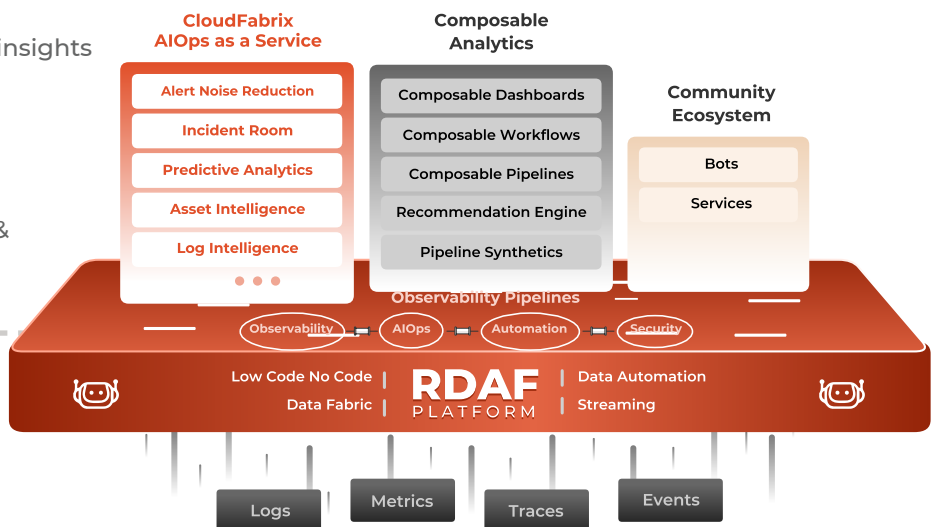


Intelligent Services

CloudFabrix's Data-centric AIOps delivers composable services to meet the Edge, Hybrid and Multi-Cloud needs.

AIOps Services

- ▶ Alert Watch: Alert Noise Reduction & Event correlation
- ▶ Log Intelligence: Log noise reduction & insights
- ▶ Asset Intelligence: Full Stack service mapping & relationships
- ▶ Incident Room: Automated Incident Diagnostics & Remediation
- ▶ Predictive Insights: Anomaly detection & predictive alerting from large ops data



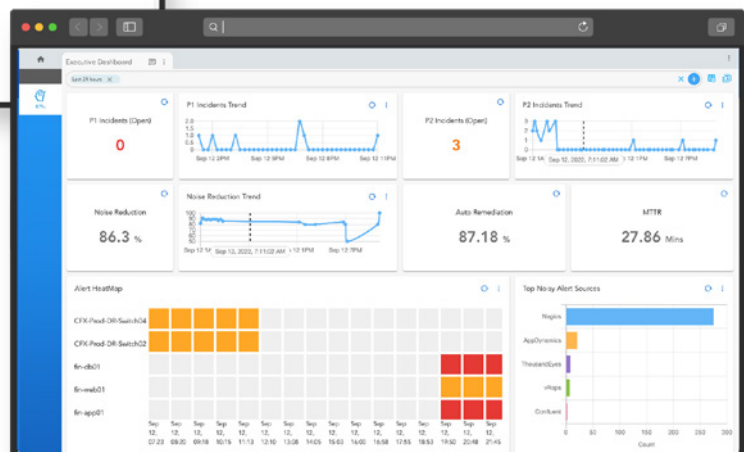
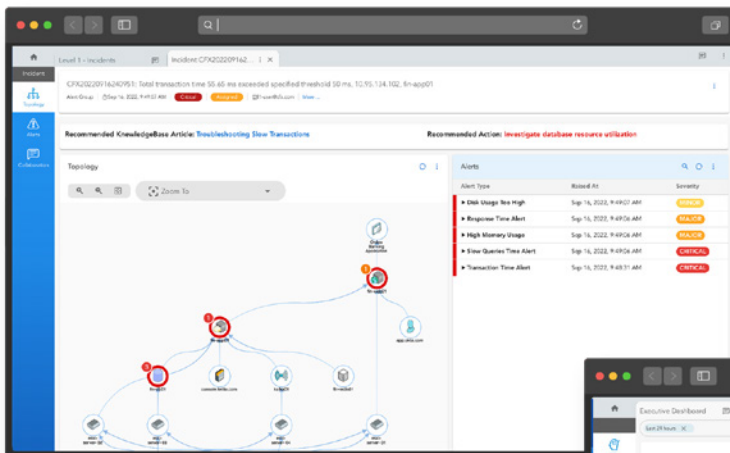
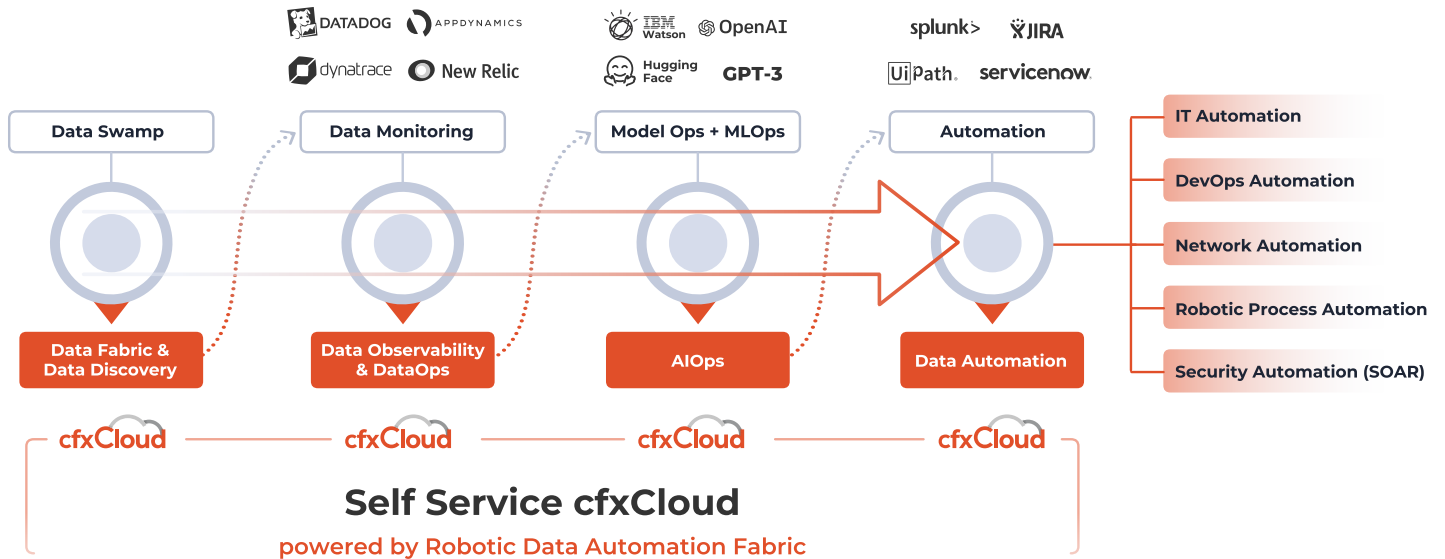
AIOps Foundational Pillars

- ▶ Robotic Data Automation Fabric
- ▶ Low Code/No Code Observability Pipelines
- ▶ Continuous Learning
- ▶ Recommendation Engine
- ▶ Observability & AIOps Synthesizer
- ▶ Full Stack Mappings

Optimize Resources with Dashboards and Workflow automation

CloudFabrix's Data-centric AIOps deliver composable dashboards to empower the self-service personas and enable and assist workflow automation

End to End Automation



Use Cases of CloudFabrix's Data-centric AIOps

Alert Noise Reduction

Map, correlate and reduce overwhelming alerts and events into actionable incidents. Finding signals from the noise using automation and AI makes all the difference to an organization's IT resilience.

AIOps eliminates alerts noise by ingesting alerts and metrics from various monitoring tools and creates actionable incidents for alerts on priority, freeing up the operations team for high-value activities.

Predictive Insights/Anomaly Detection

AIOps enables visibility into the health and outcomes of key IT assets, allowing teams to proactively monitor anomalies, noticeable changes or abnormal usage patterns across full-stack. Forecasting and predictive analytics can prevent capacity overruns, resource exhaustion and other impending issues.

AIOps sets up to automatically create, update & resolve incidents in ITSM

Incident Management

With AIOps, organizations can diagnose and resolve incidents by automatic resolution and extrapolating key impacted assets, retrieving metrics and logs, highlighting anomalies, leveraging insights from ML-generated similar incidents, and automating diagnosis with tools and workflows.

Leverage instant insights and knowledge base from similar and related incidents, automated tools and workflows for resolution

FinOps

360-degree IT asset intelligence enables IT asset tracking and analytics, providing real-time asset visibility, utilization and dependencies with key insights about upcoming lifecycle events.

AIOps allows for maintaining accurate inventory, reducing data collection costs, identifying dependent applications, tracking asset compliance, minimizing asset wastage, identifying aging assets, reducing support costs and planning technology refresh

Log intelligence

Log intelligence reduces noise in IT/logs events without losing their context or the essence of events. AIOps intelligently reduces noise using AI/ML models and configurable rules using data bots and pipelines.

Through data reduction, data enrichment, data replay and data analytics and observability capabilities using AI/ML bots and low-code pipelines, organizations can see widespread advantages of log intelligence

AIOps Operating Model & Economic Benefits

The AIOps Operating Model enables quantifying the value and economic benefits of AIOps in the Edge, Hybrid and Multi-cloud environments over a 3 year period. The following 5 metrics would be used to demonstrate the savings

- ▶ Incident Management Savings
- ▶ Reduced cost to investigate false positives
- ▶ Retired Legacy Solutions
- ▶ Increased revenue from reduced unplanned downtime
- ▶ Increased application visibility

These metrics have been based on a online banking application for an multi-billion dollar organization of 40,000 employees.

Key data points

- ▶ 200 applications across the organization
- ▶ 300 P1 incidents each year
- ▶ 20 FTEs dedicated to incident-response team
- ▶ 250K Assets

AIOps Operating Model delivers business value and not just operating metrics

- ▶ Business Value Dashboard
- ▶ Predictive Analytics and Anomaly Detection
- ▶ Intelligent Remediation using Automation
- ▶ Event Management
- ▶ Improved Innovation and Agility
- ▶ Reduced Costs
- ▶ Improved Customer and Employee Experience (DEX)

Economic quantification of use cases

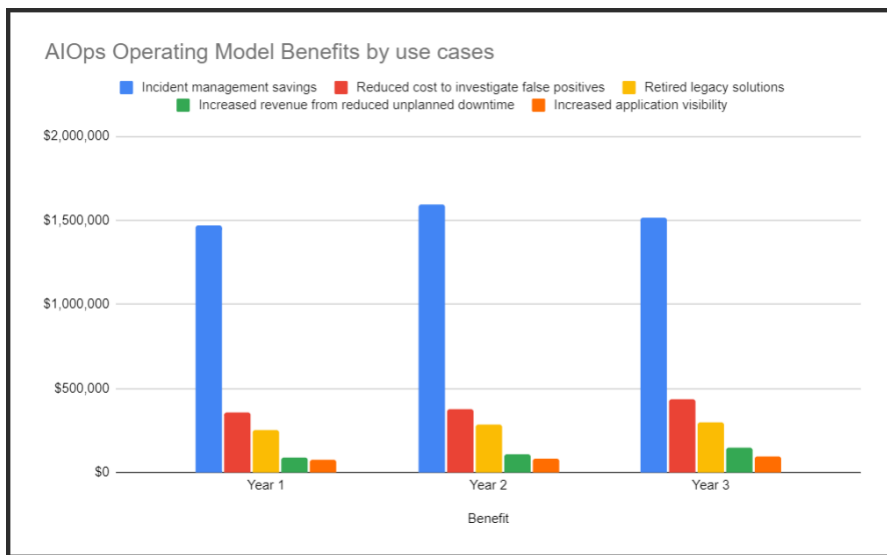
- ▶ Reduced customer incidents by 50%
- ▶ Eliminated 80% of the time spent remediating false positive incidents
- ▶ Consolidated Software vendors by reducing 50%
- ▶ Reduced unplanned downtime, increasing availability for revenue generating applications by 15%
- ▶ Increased visibility into application performance; reduced time to fix issues by 75%

Unquantified Benefits

- ▶ Proactively avoid incidents
- ▶ Reduce organizational risks
- ▶ Improve Innovation & Agility

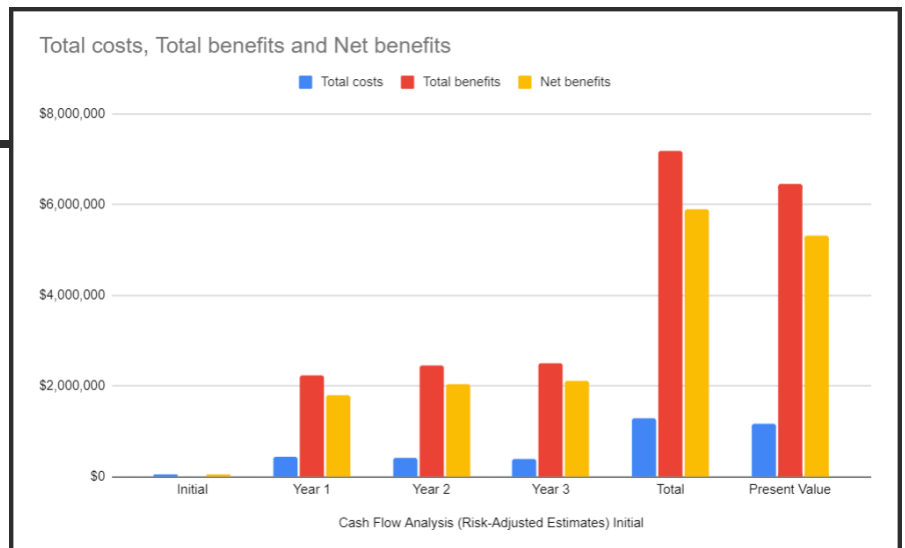
Economic Benefits of Use Cases

Total Benefits Ref.	Benefit	Year1	Year2	Year3	Total	Present Value
B1	Incident Management Savings	\$1,470,000	\$1,592,500	\$1,519,000	\$4,581,500	\$4,123,450
B2	Reduced cost to investigate false positives	\$357,280	\$373,520	\$435,232	\$1,166,032	\$1,049,429
B3	Retired Legacy Solutions	\$250,000	\$287,500	\$300,000	\$837,500	\$753,750
B4	Increased revenue from reduced unplanned downtime	\$87,750	\$108,000	\$148,500	\$344,250	\$309,825
B5	Increased application visibility	\$75,168	\$84,564	\$93,960	\$281,880	\$253,692
Total Benefits		\$2,240,198	\$2,446,054	\$2,496,692	\$7,211,162	\$6,490,046



Benefits by Use Cases

Costs, Benefits & Net Benefits



Cash Flow Analysis

Cash Flow Analysis	Initial	Year1	Year2	Year3	Total	Present Value
Total Costs	-\$55,000	-\$435,000	-\$415,000	-\$385,000	-\$1,290,000	-\$1,161,000
Total Benefits	\$0	\$2,240,198	\$2,446,084	\$2,496,692	\$7,182,974	\$6,464,677
Net Benefits	-\$55,000	\$1,805,198	\$2,031,084	\$2,111,692	\$5,892,974	\$5,303,677

Enterprises Interviewed for the Whitepaper

Vertical Enterprises	Region	Customer Title	Enterprise Size
2 Financial Enterprises	North America / EMEA	IT Ops Director	\$45B
Healthcare	North America	VP IT Operations	\$60B
Federal Government	North America	Application Architect	NA
Logistical Startup	North America	CTO	\$100M
MSP	India	Director of IT Operations	\$20B
Telco	Global	Director	\$100B

Conclusion

This whitepaper has highlighted the challenges driving the rise and adoption of AIOps Operating Model and how CloudFabrix has delivered a technology stack to address the technology and economic challenges. The economic models put forth, highlight the ROI benefits and payback, and MSPs, Edge Providers, and Large Enterprises should evaluate the CloudFabrix platform.