AI-FIRST APPLICATION MANAGEMENT SERVICES WITH GENERATIVE AI

Abstract

Enterprises across the globe are reimagining their business processes and reshaping their business models using the power of cloud, digital, and artificial intelligence (AI). Information technology (IT) service providers too must refresh and elevate their service offerings to help their clients unlock efficiencies at scale, deliver superior experiences, and thrive in connected ecosystems using the power of AI and Generative AI. New ways of delivering services and solutions are emerging around application management services driven by AI and Generative AI, that can drastically enhance the productivity, effectiveness, efficiency, and experience across relevant personas, resulting in enhanced business resilience. Infosys calls this **'AI-first application management'.**

This paper describes how Infosys is applying AI-first solution principles to infuse the power of AI and generative AI into its solutions and platforms. It outlines the methodology and the framework needed to build these solutions and platforms within certain technical and policy-driven guardrails. This is imperative to safeguard enterprises and societies from the potential risks of generative AI and large language models (LLM) such as copyright infringement, privacy, and security violations, or spreading misinformation and hallucination among others.

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The Relevance of AI-first in Application Management

Over the past few years, automation has been a key focus in the area of application management for enterprises looking to optimize costs and improve the quality of services. Many Infosys clients have achieved significant outcomes from conventional, rule-based, and deterministic automation.

However, application systems are becoming more complicated due to a mix of hybrid cloud and on-premise applications. Moreover, most opportunities in conventional automation have already been tapped to their full potential. Hence, enterprises want to identify other areas to transform their application management services to meet expectations of superior **experience** and application **resilience** in addition to cost optimization. This is where AI solutions become imperative.

Over the past year, Generative AI has evolved at a significant pace. The launch of ChatGPT heralded a new era, enabling innovations such as over 35 LLMs and more than 100 specialty applications and platforms that use generative AI. Now, enterprises can choose from several closed proprietary tools and models that can be integrated into existing as well as new tools and services. Further, there are many open models that can be finetuned for enterprise knowledge and codebase and can be made available as plugins for existing tools. These can significantly improve efficiency, productivity, and user experience in large enterprises, particularly around IT application management.

At Infosys we have been reimagining and refreshing our NextGen application management services (AMS) to make everything AI-first with the following solution tenets:

Reimagine and refresh its NextGen application management services to make everything AI-first.

Consider all the different personas in application management services such as support engineers, production support managers, client line managers, and client CXOs.

Create solutions that unlock value for these personas using tools (such as ITSM tools, monitoring tools, etc.), enterprise knowledge (such as SOPs, application manuals, etc.), and enterprise data (such as logs).

These generative AI solutions leverage AI-led analytics as well as AI-driven prediction and recommendation models for automated ticket resolution in addition to prediction and prevention of disruptions or incidents. By extracting the right content and information from the diverse knowledge systems in the enterprise landscape, these solutions empower end/ business users to handle anomalies themselves.

The objective is to create **exponential business impact**. This can be achieved through **radical improvements in productivity, fostering additional or enhanced revenue, prevention of cost leakage,** etc.

Overview of an AI-first Application Management Platform

The Infosys Live Enterprise Application Management platform (LEAP), a NextGen AMS platform by Infosys, has been augmented with advanced AI and Generative AI capabilities. The platform has been developed using the Infosys Applied AI platform and Responsible AI framework, and is part of the Infosys Topaz suite of solutions, frameworks, and models. These capabilities will future-proof AMS for enterprises.

The platform integrates with IT service management (ITSM) tools

like ServiceNow as well as industry-leading tools for application performance monitoring (APM), batch management, and robotic process automation (RPA) tools, thereby allowing enterprises to achieve holistic outcomes like zero-touch automation. These outcomes are driven by advanced ticket analytics and ready-to-use cognitive bots that enhance resiliency through AIOps using alerts from multiple sources and align run service outcomes to business expectations by using a business command center as well as advanced process mining capabilities.

How Infosys is Building AI-first AMS

Infosys has reimagined and renewed its suite of application management solutions to become AI-first, as described below:

AI-first experiences

AI twins deliver superior experiences to end users. For example, intelligent conversation AI chatbots powered by LLMs can help business users and support agents provide instant self-service at a much larger scale instead of simply raising tickets and waiting for an agent to resolve the issue. It can provide human-like responses to questions, offer guidance on next best actions, and generate reports and data inquiries.

A leading supermarket chain faced challenges with vehicle movements within their warehouses that caused delays in replenishment. Business users had no visibility into the problem. Infosys created a solution that could identify the choke points by using AI and video analytics. It also generated alerts for vehicle drivers and recommended alternative navigation options. The solution not only improved goods movement but also enhanced the experience and productivity of business users.

AI-first insights

While the numerous telemetry tools hosted in multi-cloud environments provide views into IT health and IT service-level agreements (SLAs), these have nevertheless made the enterprise landscape very complex. Infosys enables enterprises to extend their views into business process value streams, customer journeys, and business key performance indicators (KPIs) overlaid on top of the IT health and SLA metrics. Advanced correlations and deep learning models help predict and prevent IT anomalies that may disrupt underlying business processes. Further, the solutions provide IT operations teams with a single view of the entire vertical stack with the business processes and KPIs on top along with their correlation to the underlying applications, middleware, databases, and infrastructure components such as database or application servers.

Infosys enabled a large health insurance payer to leverage AI-first insights and proactive monitoring, which helped them prevent regulatory penalties amounting to **millions of dollars** *in the claim adjudication process. In another example, Infosys helped a large utilities company reduce delays in billing of key customer accounts by* **54%.**

AI-first innovation

The speed at which AI and generative AI capabilities are being developed is a key driver for enterprises to invest in innovation so they can rapidly apply new AI capabilities to their application domains. Solution aspects such as model selection, model finetuning, implementing guardrails, etc., must follow a rapid experimentation approach, which can be enabled through an AI living labs environment. Moreover, forging the right partnerships with industry-leading solution providers, hyperscalers, and AI infrastructure OEMs can create an innovation ecosystem that greatly accelerates the time to value for these transformative solutions.

For a large energy company, Infosys has setup an innovation lab and created multiple innovative solutions and proofs of concept (POCs) to address various business challenges. For instance, the client's system was receiving input data from multiple vendors in different formats. The data was processed and stored in various IT tools like Troux, CMDB, Flexera, BRIMS, Excel as a database, etc. Correlating the data to get insights on IT strategy and formulating estimates and plans had become a time-consuming and cumbersome process. Infosys used AI-first insights to automate the end-to-end process of

consolidating the IT assets information and ticket data to predict future application support volumes.

For a large retail company, Infosys created an innovation lab that allowed them to quickly implement an AI-first insights capability for modelling their entire complex order fulfillment process, which traversed through multiple ERP systems such as Manhattan, customized products like Auto pick, and bespoke apps on Java. The Infosys team quickly piloted one KPI for 'orders shipped' and proactively monitored that. Soon, this expanded to five KPIs on inbound, outbound, and orders cancelled, among others.
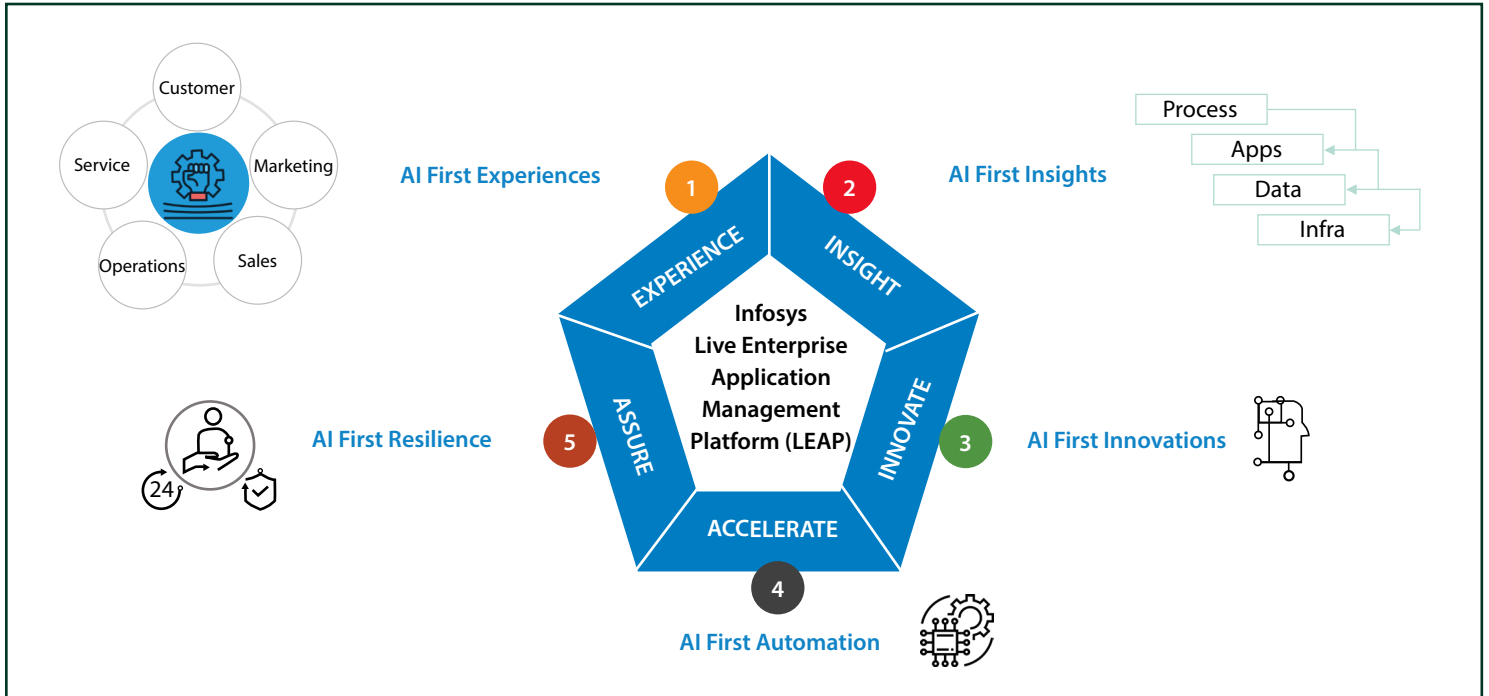
AI-first automation

Enterprises have achieved significant benefits from benefits from RPA and script-based, deterministic automation. The need of the day is to implement cognitive bots that can achieve zero-touch resolution. These bots, powered by AI analytics and AI recommendation engines, have reasoning capabilities, and can perform the required remedial actions without any human intervention. They also extract inputs from enterprise tools like ServiceNow and email systems, determine what actions need to be performed, and automate the execution of actions using digital workers.

For a large confectionary foods enterprise, Infosys developed 125 micro-bots and used these to assemble 20 digital cognitive workflows. With the power of AI, the cognitive workflows can pick up a ticket, decide what SOPs need to be performed to resolve the ticket, and run the resolution steps without any human intervention.

Application availability, performance, and reliability are critical for enterprises with digital business models whose customers demand anytime/ anywhere products and services. This is where the AIOps and site reliability engineering (SRE) solutions of the Infosys Live Enterprise Application Management Platform (LEAP) and the associated tools within the Infosys Topaz suite come into play. These tools create self-healing applications that can predict and prevent disruptions before they impact business. Infosys has also developed a joint go-to-market (GTM) solution with a few industry-leading full stack observability (FSO) providers like AppDynamics, Dynatrace, and Datadog. The Infosys solution extends their telemetry and insights to apply correlation, de-duplication, and other AI algorithms to create auto-healing systems.

An Infosys client in the postal service domain was using a commercial tool that offered rudimentary monitoring of critical applications but could not provide any actionable insights and automated remediation. Infosys replaced this commercial tool with Infosys Live Enterprise Application Management Platform (LEAP) and leveraged our AIOps solution to enable proactive monitoring, automated application health checks, and automated remediation for many application failure causes.

Transforming AMS with the Power of Generative AI

" Establishing ethical frameworks and guidelines for AI development and deployment is important. Governments, industry leaders, and organizations can collaborate to define standards, principles, and best practices to ensure the responsible and ethical use of AI technologies. "

- Balakrishna D. R.

Executive Vice President, Global Head of AI, and the Industry Verticals, Infosys

One of the key observations by Infosys across numerous large application management engagements is that the root cause analysis and triaging of tickets take more than twice the time and effort compared to actual remediation. If this part of the ticket lifecycle can be automated or eliminated, the benefits will be significant. This is where generative AI plays a vital role. The impact analysis, root cause identification, and the determination of the resolution involves analyzing huge amounts of internal data across transaction systems, application user manuals, log files, and historical ticket and resolution details. This normally comprises thousands of data records and numerous terabytes of structured

and unstructured data. Hence, manual analysis is not merely tedious, but also error prone.
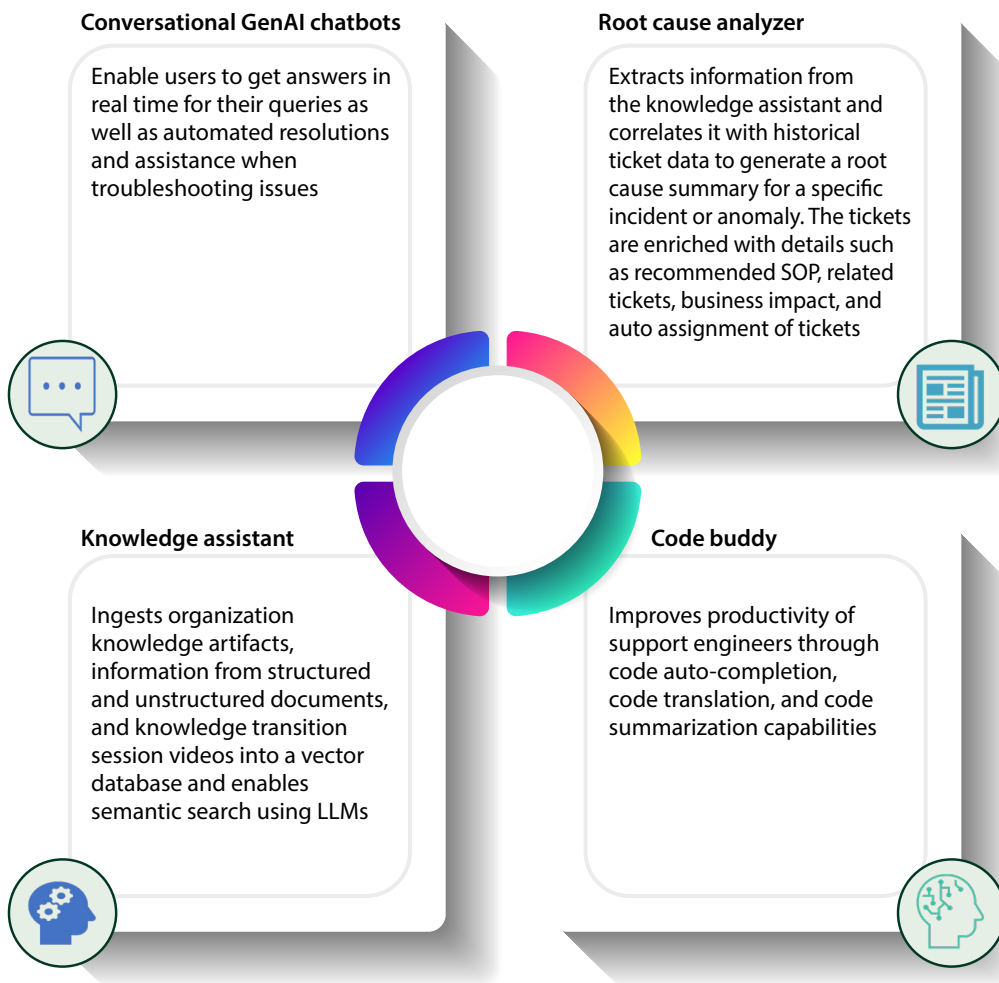
Infosys has developed several generative AI solutions that can extract the required information from these disparate sources of data (such as ticket in hand and the associated applications) and generate concise summaries of the root cause, provide pointers for resolution, and, in many cases, even recommend the best solution. This capability can also be extended to predictive and preventive solutions that generate recommended remediation actions proactively from the alerts as well as other telemetry data from disparate observability tools.

> Generative AI creates immense value in all use cases related to NextGen AMS where the requirement is to synthesize large volumes of structured and unstructured data into meaningful and relevant content such as creating a root cause summary for an incident from application data, application user manuals, and historic ticket data.

Snapshot of Infosys GenAI solutions for AI-first AMS

Here are some Infosys solutions developed using generative AI that have changed how enterprises consume Infosys NextGen Application Management Services.
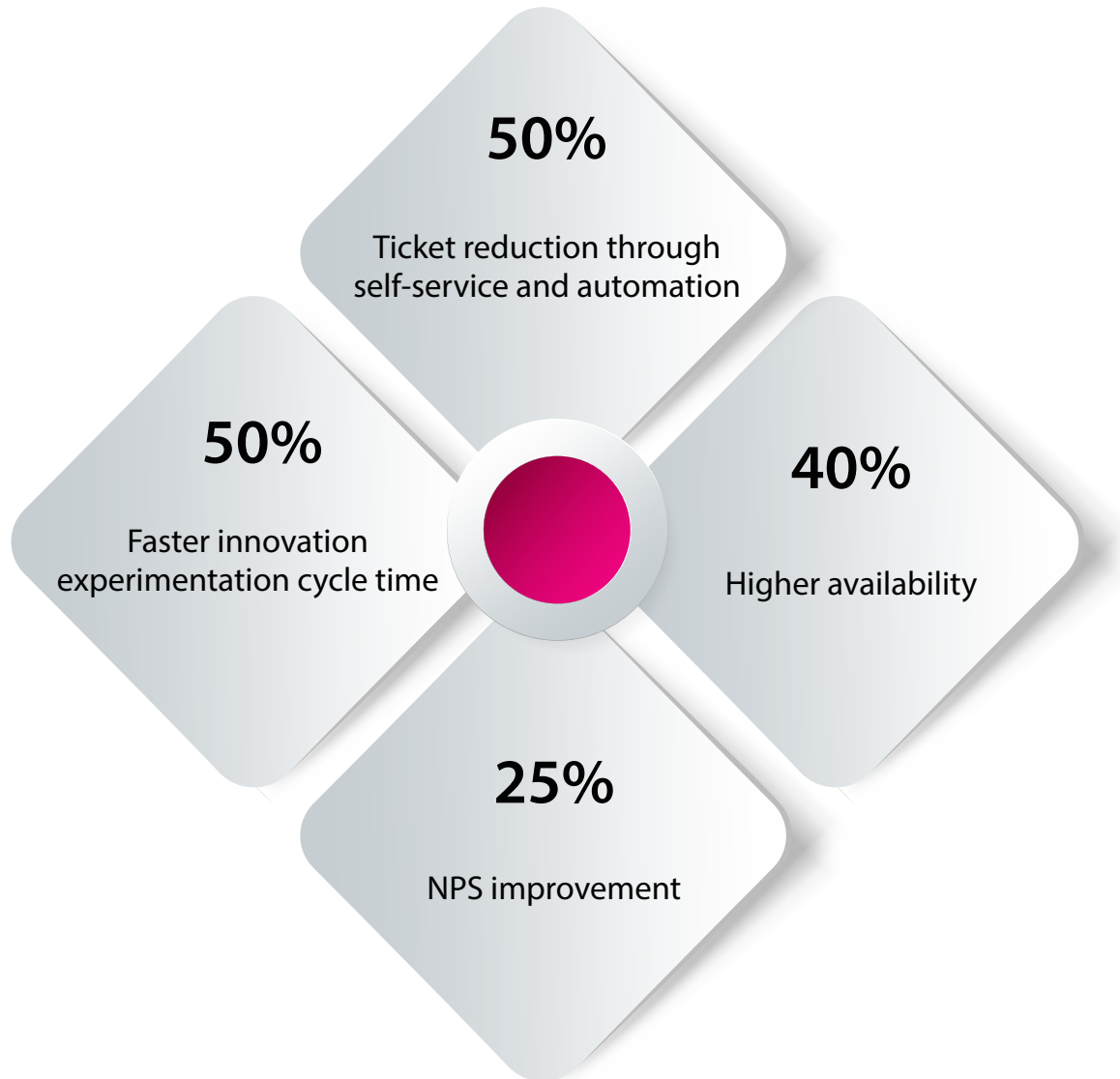
Generative AI-driven solutions for NextGen AMS:

Conversational GenAI chatbots

Enable users to get answers in real time for their queries as well as automated resolutions and assistance when troubleshooting issues

Root cause analyzer

Extracts information from the knowledge assistant and correlates it with historical ticket data to generate a root cause summary for a specific incident or anomaly. The tickets are enriched with details such as recommended SOP, related tickets, business impact, and auto assignment of tickets

Knowledge assistant

Ingests organization knowledge artifacts, information from structured and unstructured documents, and knowledge transition session videos into a vector database and enables semantic search using LLMs

Code buddy

Improves productivity of support engineers through code auto-completion, code translation, and code summarization capabilities

In addition to these, our AI-led batch management, event management, and application availability management solutions can be further strengthened using generative AI capabilities. It can also help develop specific narrow transformer models within the specific enterprise context.

Benefits

Infosys' generative AI solutions have delivered radically superior outcomes and benefits in the recent engagements. The benefits can be seen across the dimensions of **human productivity, application resilience, and user experience.**

50%

Ticket reduction through self-service and automation

50%

Faster innovation experimentation cycle time

40%

Higher availability

25%

NPS improvement

Conclusion

The advent of industry-grade generative AI solutions backed by cost-competitive LLMs is changing the way application management services are delivered. Conventional automation has reached a stage of diminishing returns where it has become difficult to achieve positive return on investment (ROI). Classic AI and generative AI solutions are needed to transform application management services and bring in greater optimization along with superior experience to end users. On the other hand, the risks involved with implementing generative AI solutions, such as privacy, security, explainability and reliability, continue to persist. Hence, it is very important for enterprises to create a strategy that balances risk and reward. Infosys has developed a **Responsible by Design AI framework** that helps create AI-first solutions using defined guardrails. The framework is backed by an approach that methodically assesses the solutions for compliance with ethical, regulatory, legal, and organizational standards across AI model training, inferencing, data privacy, security, and other relevant aspects.

References

https://medium.com/authority-magazine/balakrishna-bali-d-r-of-infosys-on-the-future-of-artificial-intelligence-4e3ca9fa5400

About the Author

Pejaver Praveen Rao
Associate Vice President and Senior Director, Infosys

Praveen Rao Pejaver is an evangelist for next-gen application services at Infosys. As the Unit client solution head, he helps clients create solutions for the Live Enterprise driven by cloud and cognitive first principles. He has 3 decades of experience in the IT Industry across industry domains. Praveen can be reached at praveen_pejaver@infosys.com

Vineeth AV
Senior Practice Engagement Manager, Infosys

Vineeth Veedu is Senior Director in AI and Automation Practice with over 25 years of IT consulting, program management and application management experience. He is the evangelist for AI First Application management and Live Enterprise platform at Infosys, bringing platform led solutions in transforming Operations. He can be reached at vineeth_av@infosys.com

Contributor

Ramakrishna Kurava
Senior Industry Principal

Ramakrishna Kurava is a Senior Industry Principal with 25 years of IT industry experience in program management of Application development and support services for large clients and operations management. He is an evangelist for solutions on emerging technologies and NextGen application management services at Infosys. He can be reached at RAMAKRISHNA_K@infosys.com

For more information, contact askus@infosys.com

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