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WHITEPAPER

GenAI-driven Network Automation

Think about a world where enterprise networks are not just managed, but also understood and changed to meet the demands of their users.

Picture a world where human settings and troubleshooting are things of the past, and intelligent systems can detect and fix problems before they happen. This is what network automation and AI networking promise to change. As we get closer to this technological revolution, it's important to think about how these new technologies will change the future of business networks. Let's look at the exciting new things and benefits of using AI in network management, from the current state of network automation to the most advanced uses of Generative AI.

How network automation is doing right now

In the last few years, network automation has come a long way, but not all businesses have adopted it equally. In 2021, the global network automation market was worth $2.58 billion. It is predicted to increase at a compound annual growth rate (CAGR) of 22.9% from 2022 to 2030. Even while this growth is promising, many businesses still have trouble completely deploying network automation.

A number of companies have effectively used network automation and gotten a lot out of it. Many clients were able to shorten the time it took to set up their networks by using automation. This freed up precious resources and made sure that their networks stayed stable across their large campuses. After using network automation solutions, several businesses have had fewer network disruptions and lower operating costs. Many firms even utilize automation in their security systems, which makes them respond faster to security risks and follow the rules better, especially in healthcare.

But not every network automation project has worked out. Some of the reasons why it hasn't been adopted evenly are:

- **Network systems are complicated:** Modern networks are naturally complicated, and they sometimes include older technologies that don't work well with automation solutions. This intricacy makes it hard to use automation well.
- **Skill Gap:** To work with network automation, you need to know both traditional networking and programming. A lot of companies have a hard time finding people with the right skills.
- **Cultural Resistance:** It's hard to change, especially in big, old companies. People often don't want to use new technologies and methods.
- **Trust Issues:** People don't trust automated systems to run important network operations without help from people.
- **Money Problems:** Setting up network automation can be expensive, and not all businesses have the money to buy these tools.

Even with these problems, network automation is still a very important field for continued investment and research because of the many benefits it may bring, such fewer mistakes by people, more efficiency, and better security. As the technology gets better and businesses get beyond these problems, network automation is likely to become more popular.

AI Networking Systems Approach

AI networking is the process of adding artificial intelligence to network management to make it work better, more securely, and more efficiently. Some of the main methods are Predictive Analytics, where AI systems look at past data to guess how the network will behave in the future so that problems can be fixed before they happen; Real-Time Monitoring, where network traffic and performance are constantly monitored to find problems and improve operations; and Autonomous Decision-Making, where an AI system can make decisions without human help, like changing traffic routes or changing bandwidth.

A few of the best AI networking systems are changing how networks are managed. Some of the biggest names in this market are Juniper Mist, which uses AI to give you information about how well your network is working and how users are using it; Cisco, which has an AI assistant that helps you manage your network with AI-driven analytics and automation; and Arista Cloud Vision, which uses AI to make network operations easier and more scalable.

How GenAI is helping Enterprise Networking

Generative AI (Gen AI) changes enterprise networks by developing new data patterns, modeling network situations, and making it easier to make decisions. This technology can help you guess when a network might break, improve design, and make user experiences more personal.

There are two ways to use GenAI Networking: by using some of the platforms that are already available or by combining well-known GenAI platforms with enterprise networking.

Use the solutions that are already out there.

Some OEMs offer networking solutions that come with GenAI networking agents.
Here are some instances.

1

Marvis by Juniper Networks

An AI-driven virtual network assistant that uses natural language processing to provide insights and troubleshoot network issues.

2

Cisco's AI Systems

Cisco's AI solutions include predictive analytics and real-time monitoring to enhance network performance and security.

Gen AI can predict network problems and suggest ways to avoid them by using these systems that are already connected. This cuts down on downtime and maintenance expenses. For instance, Marvis Mini can guess when something might break and recommend maintenance activities before things get worse. Even tailored encounters based on past behavior make users happier and more involved. For instance, Cisco's AI technologies can make network experiences better for each user, which makes everyone happier. Network managers can design networks that work better by simulating alternative setups to see how they will work in different situations. AI tools may simulate numerous network scenarios to identify the best design for your needs.

Putting a well-known GenAI system into networking.

Integrating generative AI platforms with business networks can greatly improve the networks' capabilities.

Microsoft's Azure OpenAI Service

Microsoft adds OpenAI models like GPT-4 and GPT-3 to its Azure platform to make automation work better. With Azure OpenAI Service, you can use REST APIs to access powerful language models that make workflows smarter and let you monitor things in real time. You can connect this to a network management or service management (ITSM) system to get log summaries, analyses, or responses to

ChatGPT for Network Automation

You can use ChatGPT with network management tools to do a lot of different things automatically. For instance, ChatGPT can use the Power Automate plugin to set up and monitor

HPE Aruba Networking Central

Hewlett Packard Enterprise uses GenAI to improve AIOps features in its cloud-native network management solution, which is housed on the HPE GreenLake platform.

Birlasoft's Approach

Birlasoft uses its knowledge of AI and smart automation to assist businesses reach their digital transformation goals. Their method includes:

Intelligent Automation on a Platform

Using AI and machine learning to automate digital tasks and improve the way a business runs. Birlasoft's several platforms combine the GenAI platform with network management tools for both traditional and software-defined networks (SDN). This lets businesses get the most out of GenAI-based automation for their business networks.

1

Birlasoft's Sigma and Solución platform

combines the correct network use cases and AI algorithms to improve the performance of the customer's network. The platform can also use the OpenAI-based framework to add any client network and service management platforms.

2

Customized Solutions

Solutions are made to fit the needs of a certain industry so that they may get a better return on investment and be more productive. This includes their Network-as-a-Service (NaaS), which has a built-in platform-based operation that makes sure networking and automation are done with AI. Birlasoft not only provides the unique solution with NaaS, but they also make sure that GenAI and AI Networking function together with the as-a-service approach.

3

Holistic Expertise

Offering full assistance for all levels of automation maturity, from the first steps of using automation to more complex AI-driven automation. The technology practice team at Birlasoft focuses on a Gen-AI-based strategy and integration. They assist customers connect their old and new systems to get the most out of their investments in network

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Author

Ramesh N.G

AVP & Head of Network Practice, ICTS

Ramesh is an Associate Vice President at Birlasoft, leading the Network Practice within the Infrastructure Services division. A seasoned expert in enterprise networking, he brings a wealth of experience in designing, building, and transforming large-scale network infrastructures for global enterprises.

At Birlasoft, Ramesh drives the development of intelligent, AI-led network solutions that enable agility, security, and operational excellence. His focus areas include software-defined networking (SDN), SD-WAN, SASE, cloud networking, and secure access architectures. He is a strong proponent of automation-first strategies, leveraging NetDevOps, observability, and AI-Ops to deliver resilient and self-healing network environments.