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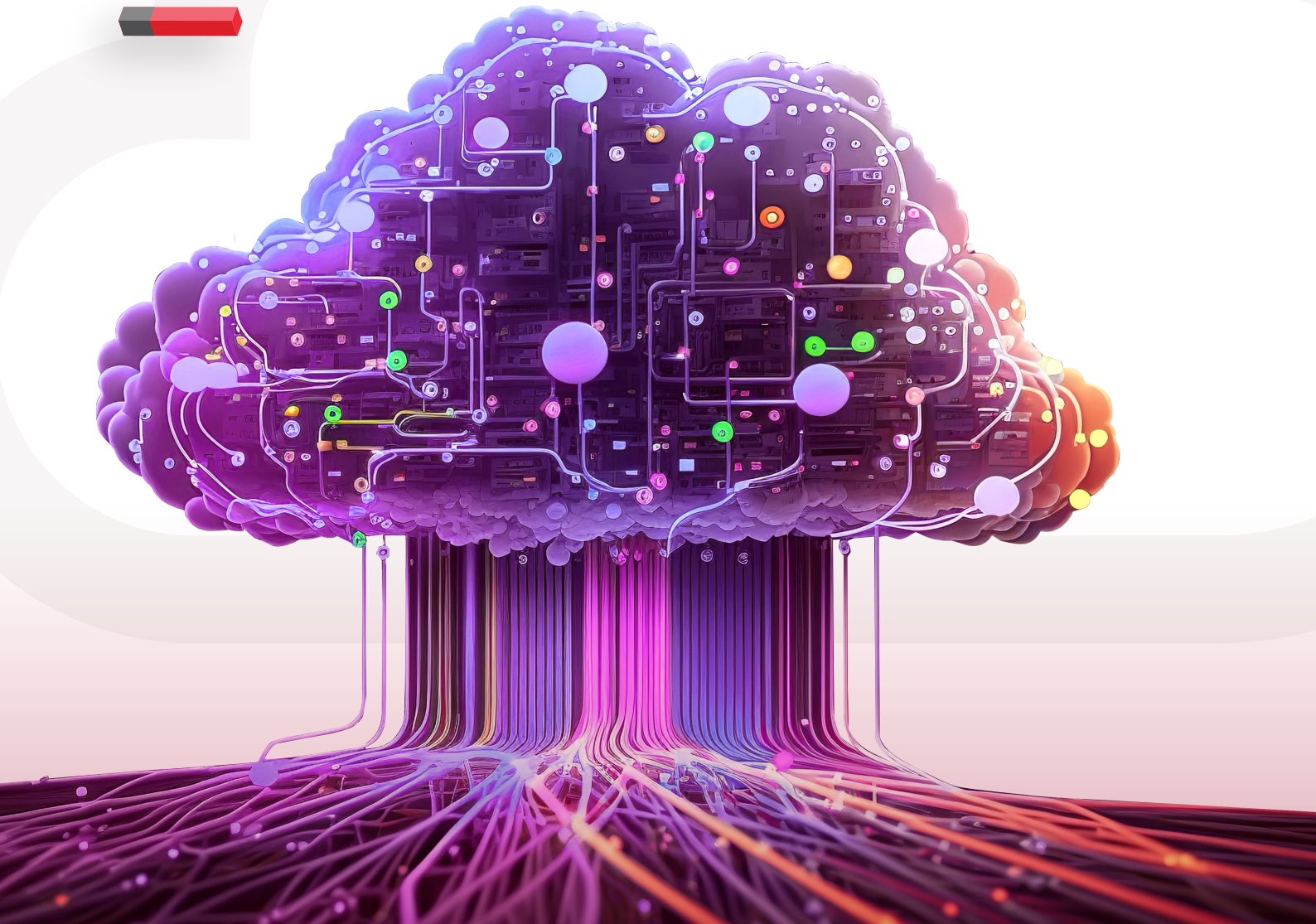
WHITEPAPER

Network Automation and AI Transforming the Future of Networking

Network automation and AI networking are at the forefront of innovation in the rapidly evolving infrastructure and cloud operations landscape. As we move into 2025, these technologies enhance efficiency and redefine how networks are managed and secured, particularly in industries like Manufacturing, BFSI, ENU, etc



Challenges

The complexity and scale of enterprise networks are growing exponentially, which also means the issues and challenges are growing. Embracing network automation and AI networking is a strategic advantage and a necessity for maintaining optimal performance and resilience in an increasingly connected world. In today's complex networking, businesses face multiple issues.

Manual Configuration and Management

Manually configuring and managing network devices is time-consuming and prone to human error.

Scalability Issues

As enterprises grow, their network infrastructure becomes more complex and difficult to scale efficiently.

Network Downtime and Outages

Network downtime can lead to significant business disruptions and financial losses.

Security Threats

Enterprises face constant threats from cyberattacks, which can compromise sensitive data and disrupt operations.

Complex Troubleshooting

Diagnosing and resolving network issues can be complex and time-consuming, especially in large-scale environments.

Resource Optimization

Efficiently managing network resources to avoid congestion and ensure optimal performance is challenging.

Compliance and Regulatory Requirements

Ensuring compliance with industry-specific regulations and maintaining data privacy is critical but challenging.

The journey towards the AI-Networking / Path to AI-Driven Networking

The first step: Network Automation, Streamlining Operations

Network automation is becoming indispensable for modern enterprises. Automating routine tasks such as configuration management, traffic routing, and performance monitoring is the first step to reducing operational costs and minimizing human error.

Use case

Automated Compliance Monitoring, where network automation tools can continuously monitor network configurations and ensure they adhere to regulatory standards.

The next: AI Networking, the Intelligent Management

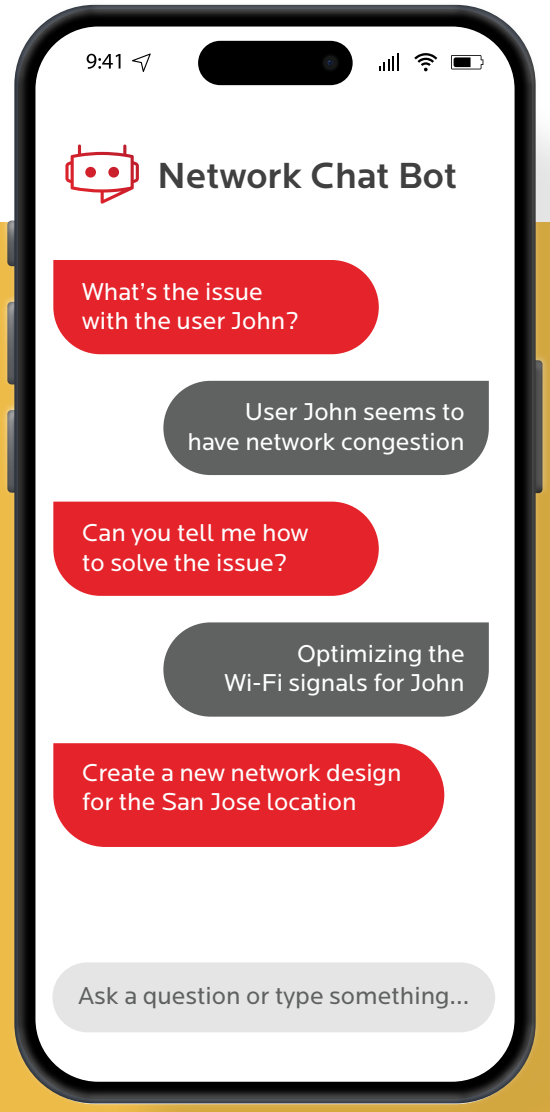
AI revolutionizes network management by introducing advanced capabilities like predictive analytics and real-time monitoring. AI-powered systems can proactively identify and resolve issues before they escalate, ensuring minimal downtime and optimal performance. This approach may require transforming your networking systems, such as SD-WAN, SD-LAN, etc., to an AI-powered system. Some of the industry-leading systems, like Juniper Mist, Cisco, and Arista, can help here.

Use case

Fraud Detection and Prevention, where an AI-driven network monitoring tool can detect unusual patterns of activity that may indicate fraudulent ehaviour.

Gen-AI integration with Network infrastructure

Once the network infrastructure is mature enough with AI Networking, Gen-AI capabilities can be integrated with enterprise networks. By leveraging advanced machine learning models, Generative AI can create new data patterns, simulate network scenarios, and enhance decision-making processes.



Use cases

1 **Predictive Maintenance:** By generating synthetic data and simulating network conditions, Generative AI can predict potential network failures and recommend preventive maintenance actions

2 **Network Experience Enhancement:** Generative AI can create personalized user interactions by analyzing historical data and generating tailored responses on their network experience

3 **Network Design and Optimization:** Generative AI can simulate various network configurations and predict their performance under different conditions

AI-Driven Automation with AI-Ops with Full Autonomous Operations: The Future of Networking

Integrating AI with network automation and AI-Ops creates self-healing networks that dynamically adapt to changing demands. AI-driven automation tools can optimize resource allocation, manage bandwidth efficiently, and enhance network performance. This constructive collaboration between AI and automation paves the way for more resilient and scalable network infrastructures. This can significantly **improve customer experience and provide more use cases.** For example, AI-powered chatbots can handle routine customer inquiries, freeing up human agents to deal with more complex issues.

The Benefits

Integrating automation and AI networking offers numerous benefits for enterprise networks across various industries.

1

Enhanced Efficiency

Automation minimizes manual configuration, enhancing resource efficiency and productivity while reducing human error, leading to more reliable network operations.

2

Improved Security

AI-driven network monitoring tools detect and mitigate threats in real time, ensuring robust security and compliance by responding to anomalies quickly.

3

Operational Excellence

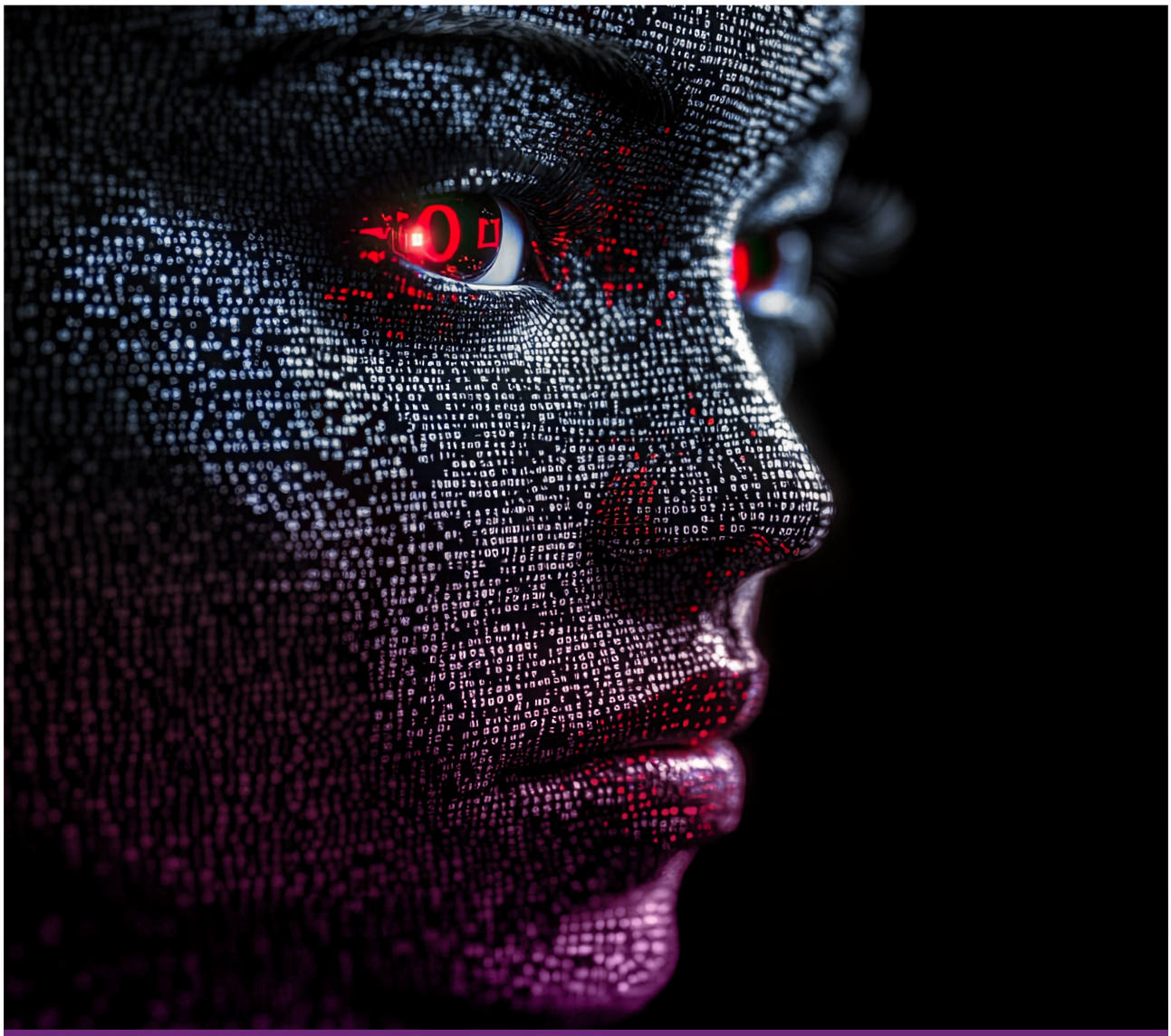
AI-powered systems offer actionable insights for informed decision-making and optimal network performance by promptly identifying root causes, speeding up troubleshooting, and reducing mean time to repair (MTTR).

4

Scalability and Flexibility

AI and automation tools dynamically adapt to changing demands, ensuring resilient, scalable network infrastructures with seamless performance.

Adapting to the path: Challenges and Birlasoft's Approach



While the benefits and possibilities are numerous, there are practical challenges in adopting this approach. While the approach is right, many customers find it challenging to have structured data, and a proper CMDB ensures consistent, clean, and well-organized data. AI networking, Gen-AI, and even network automation require different skills. The talent and Skill Gaps increase the disparity between the enthusiasm for AI and the actual capabilities of IT professionals. At the same time, adhering to industry-specific regulations and ensuring data privacy and security are critical challenges, especially in sectors like Banking and Government. While transforming to this system, the integration with Legacy Systems that are not easily compatible with modern automation and AI solutions is also an increased challenge. Also, most of the time, the cost and Investment required for implementing network automation and AI networking can be substantial

Birlasoft approach helps you.

Birlasoft leverages its expertise in intelligent automation and AI to help businesses across various industries achieve their digital transformation goals. By partnering with best-of-breed automation platforms and services, Birlasoft offers a comprehensive suite of solutions that drive operational efficiency, enhance customer experiences, and ensure robust security. Our approach to help you is below.

Platform-based Intelligent Automation

Our Sigma platform leverages AI, machine learning, and cognitive technologies to automate digital processes and workflows, ensuring optimal network use cases and superior operational performance.

Customized Solutions

We provide customized AI and automation solutions for industry-specific needs, ensuring faster ROI and higher productivity, including our NaaS with integrated AI-based networking and automation.

Holistic Expertise

We provide end-to-end support throughout the automation maturity journey, from RPA adoption to advanced AI-driven automation, with our Gen-AI-focused technology team helping customers integrate legacy and modern systems to maximize investments.

EmpoweredByInnovation

Birlasoft combines the power of domain, enterprise, and digital technologies to reimagine business processes for customers and their ecosystem. Its consultative and design thinking approach makes societies more productive by helping customers run businesses. As part of the multibillion-dollar diversified CK Birla Group, Birlasoft with its 12,500+ professionals, is committed to continuing the Group's 161 year heritage of building sustainable communities.

contactus@birlasoft.com | birlasoft.com

RESOURCES