



www.pipelinepub.com

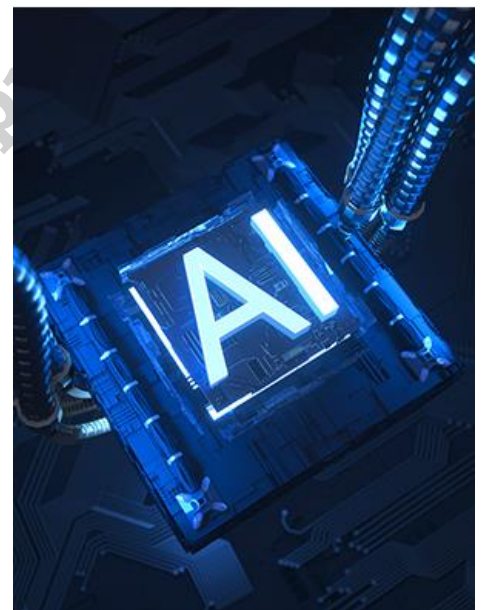
Volume 20, Issue 10

AI for Network Intelligence

By: [Jason Gintert](#)

Networking has often been a daunting subject area reserved for only those “in the know,” usually in some sort of technical role. But as networking becomes a more essential part of business operations and business success, the need for the business owner or business-oriented staff with little or no technical background to be able to interact and understand it more thoroughly could represent a huge step forward for IT leaders everywhere.

By now, most everyone has heard something about Artificial Intelligence (AI). We’ve heard it applied in many ways to a variety of different industries, from retail to supply chain to manufacturing to media and publishing. Similarly, the networking world is exploring ways for AI to help improve networking solutions and ultimately deliver services that help businesses perform better.



Interestingly, network service providers have lots of accumulated data about the network and its performance and usability. It would therefore seem natural that AI, which relies on providing “actionable intelligence” based on historical, prescriptive, and predictive data, could prove to be an immensely powerful tool for network service providers. AI capabilities in the network can deliver reliable decision-making capabilities from both the enterprise’s need to understand the network’s functionality to the actual network provider improving operations to better service customers. What we have found as we explore the application of AI in networking is there are several aspects of the

network that one must understand to determine how AI can make a significant impact that can be felt all the way to the business owner’s topline and bottom line.

The application of AI capabilities can make an impact in five key areas: 1) how does it improve usability; 2) how does it help improve service delivery, billing, network monitoring, reporting, hardware integrity, and more; 3) how can AI positively affect network design to better support business success; 4) in what ways can it help ensure the latest security methodologies and applications are in place for the enterprise; 5) in what manner can it enhance business intelligence, particularly from the edge, and apply that intelligence to improve customer businesses.

Let's take a look at each application "prompt" to understand the diverse possibilities associated with applying AI to the network has in these five areas.

Usability

Usability from a business owner's point of view when it comes to network management has not been very common. Most business owners have to rely on an IT or a networking consultant to help them understand the basic operation of their network service. This may go by the wayside with the iterative capabilities of AI to provide information to the owner with natural language. Instead of highly technical acronyms the network service provider can use common language to interface with users to provide understanding of the network and its performance using an iterative process. Simply, understandable language prompts such as "reboot your router to improve your connection" can make operations seamless, with no need for costly consultants to get involved. Second, problem solving can be made easier and more effective with the iterative nature of AI. Iterative questioning of inquiry can be made simple and will allow the user to get to the root of the problem quickly and understandably. Easy access to the network from one's desktop allows for direct interactivity with network operations. This allows for self-performing network involvement, much as a user might access his/her bank account or inventory management system. It would provide another tool in the business owner's arsenal to keep operations at all levels running smoothly and without interruption. Finally, AI- developed user interfaces and technology can be created to better work with AI applications to make network interaction seamless and not as daunting as before.

Service Delivery

AI can make network services management easier and more actionable. The most significant application AI can help with is examining business operations and then allowing customers to adjust services according to save money and/or improve performance. From the business owners' point of view, this is significant as they work to manage their balance sheet or monthly budget. AI helps customers have more direct control over their network solutions. They will no longer have to solely rely on the NOC or core network operations to monitor the network and make changes for positive outcomes. In addition, reporting will be made easier through natural language to provide customers updates simply and clearly through comprehensive and easy-to-understand reports. Finally, hardware integrity worries will become a thing of the past as real-time monitoring and reporting through AI provides a view of the hardware throughout the network from premise to core. In the final analysis, AI can improve overall service delivery by providing more accurate and thorough analytics on operations in a way that is easy to understand and act upon.

Network Design

There is a lot of data that is in the hands of network operators and business owners. It is what they do with that data that makes a difference, particularly with network design. AI can have a huge impact. With such tools as predictive and prescriptive analytics, operators can present what if scenarios – the ability to ask "what if" to assess and evaluate the design of the network to make improvements to reduce cost, improve performance, and deliver smooth operations. Re-configuration of the network will be made simple as AI will not only provide intelligence on what to do but execution on how to get it done. Network operations can experiment with new and improved implementations of new network design practices in real time and in a simulated fashion that can be implemented quickly and seamlessly. Optimization will be a real-time executable with AI throughout the network from core to premise. Finally, true network optimization becomes a greater reality with the capabilities that AI can deliver to operators and customers.

Security

As new technologies such as SASE for security enter the networking equation, the bigger question around secure networking becomes paramount, particularly with large customers with vast amounts of their customers' data. AI can build on and prove out security solutions to make the business operations less vulnerable. AI will be able to run security breach scenarios in a simulation fashion to look for potential breaches and vulnerabilities. AI will allow network operators to look at how modern technologies such as SASE may perform to improve security in an enterprise's network environment, particularly SD-WAN environments. Peace of mind on the customer's part will become commonplace as AI provides a full and unadulterated view of one's network security. If a breach occurs, AI will be able to provide information on the occurrence and how to fix it immediately and in the future faster than ever before. Secure networks have never been more important as business operations expand and more vulnerabilities can be a reality. AI can help improve the never-ending quest for fully secure network operations.

Business Intelligence

We mentioned earlier the vast amount of data the network holds, much of which can directly affect business operations. As AI becomes more of a reality in all kinds of application prompts, the business intelligence (BI) it can better help provide is unfathomable. It could be the lifeblood of organizations today and in the future. New AI implementations will be able to provide any intelligence about the network that is needed in real time from premise to core. AI-driven BI will identify business vulnerabilities associated with the network and its operations so things can be addressed in advance. Predictive and prescriptive analytics, the core of BI, will offer information about the network based on business operations that will help the customer plan better, adjust operations when needed, and prescribe ways to improve the network to help the business. AI in BI will also provide answers to time management to improve business operations by analyzing network data. In summary, AI can enhance BI applications at the network level and provide insight to improve network operations to help customers improve and enhance business operations.

Conclusion

As with many other applications of AI, the opportunities are limitless when it comes to network solutions. It can simplify communications and understanding of the network through natural language, allow for direct interaction with the network management from the desktop, leverage the generative aspect of AI, significantly improve the network's ability to self-heal, identify (and potentially solve) problems, spot opportunities for improvement, and more effectively seek out and evaluate anomalies that could be associated with a security issue. AI can have a profound impact on the network in a number of ways to help enterprise customers make their businesses perform better.