



sify

THE FUTURE OF

# SD-WAN:

Emerging Technologies & Trends



In today's digital landscape, organizations face unprecedented demands for reliable, scalable, and secure network connectivity. As traditional Wide Area Networks (WANs) struggle to keep pace with the evolving needs of modern business operations, a revolutionary technology has emerged: Software-Defined Wide Area Networking (SD-WAN). This innovative network connectivity and management approach enables organizations to dynamically optimize their wide-area networks, providing enhanced performance, agility, and cost efficiency.



The emerging trends of SD-WAN, driven by its characteristics and rapid market growth, are attracting the attention of more businesses and IT professionals.



The market is projected to reach USD 13.7 billion by 2027, with a CAGR of 31.9%.

**This growth is reshaping network connectivity and helping organizations stay ahead in the era of digital transformation. Here are a few noteworthy trends to watch for in the future of SD-WAN services:**

### **AI-driven Network Intelligence:**

The integration of artificial intelligence and machine learning into SD-WAN services will enable intelligent network optimization, predictive analytics, and proactive issue resolution. AI-enabled SD-WAN unifies all traffic, regardless of the connection type, onto a single network platform for central management by IT professionals. Furthermore, it enables businesses and SASE vendors to gather vast amounts of networking and cybersecurity data. When businesses and SASE providers implement AI in SD-WAN, they can interpret and learn from the enormous amount of collected data to obtain a thorough picture of the network.

Automating the diagnosis of networking faults and security issues by AI algorithms saves engineers from sifting through countless log files and alerts and allows them to focus on more complicated tasks. These AI-powered security measures enhance threat detection, response, and safeguard networks against evolving cyber threats. With AI in SD-WAN, organizations can achieve improved network efficiency, reduced downtime, enhanced user experience, and better utilization of network resources, ultimately driving digital transformation and supporting the demands of modern, cloud-centric environments.



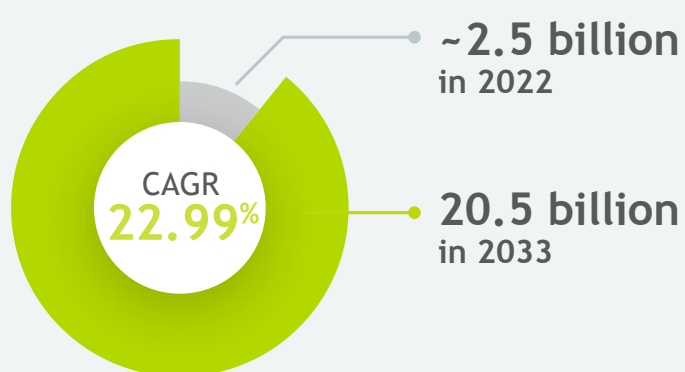
An AI-driven SD-WAN assures consistent application performance and resiliency, automates traffic steering in an application-driven manner based on business intent, improves network security, and simplifies the WAN architecture

-Robert Sese, Senior Director, Global Strategy & Innovation at ConnX

## Secure SD-WAN:

As businesses increasingly rely on cloud services and face evolving cyber threats, the importance of secure SD-WAN solutions has become even more critical. Moreover, the growing demand for enterprises to improve network security is a significant driver for the adoption of SD-WAN. With the ever-growing complexity of cybersecurity threats, secure SD-WAN solutions are gaining prominence. Secure SD-WAN integrates robust security features into the network infrastructure, ensuring the protection of sensitive data and mitigating the risk of cyberattacks. These security features include encryption, advanced threat detection, secure access controls, and security policy enforcement.

Secure SD-WAN enables organizations to maintain secure and reliable network connectivity across geographically dispersed locations, supporting remote workforces and facilitating seamless access to cloud resources. SD-WAN solutions provide enhanced security features, such as integrated firewalls, encryption, and threat intelligence, ensuring secure communication across the network.



### SD-Wan Security Market Outlook

The SD-WAN security market revenue totalled ~2.5 billion in 2022 and is expected to reach 20.5 billion by 2033, at a Compound Annual Growth Rate (CAGR) of 22.99%.

SD-WAN Security Market Projected year (2033) Value

US\$ 20.5 Billion

SD-WAN Security Market estimated year (2023) Value

US\$ 3.0 Billion

SD-WAN Security Market CAGR% (2023 to 2033)

21.2%

Top 5 Vendor Market Share

Around 35%

Fig 1.1

Source: FutureMarketingInsights - SD-Wan Security Market Outlook Report

## Increased adoption of cloud-based SD-WAN

The convergence of SD-WAN with cloud services is another significant trend in the industry. SD-WAN technology is designed to seamlessly integrate various cloud environments, enabling efficient and reliable connectivity to cloud resources. Organizations adopting multi-cloud strategies can leverage SD-WAN to optimize traffic routing, prioritize critical workloads, and ensure consistent application performance across different cloud platforms. This integration also simplifies the deployment of applications and services to the cloud, improves scalability, and provides organizations with the flexibility to dynamically scale their network resources based on demand. Cloud integration empowers businesses to leverage the benefits of cloud computing, such as scalability, agility, and cost-effectiveness, while ensuring a high-quality user experience.



### (SD-WAN) market revenue from 2019 to 2027

(In million U.S. dollars)

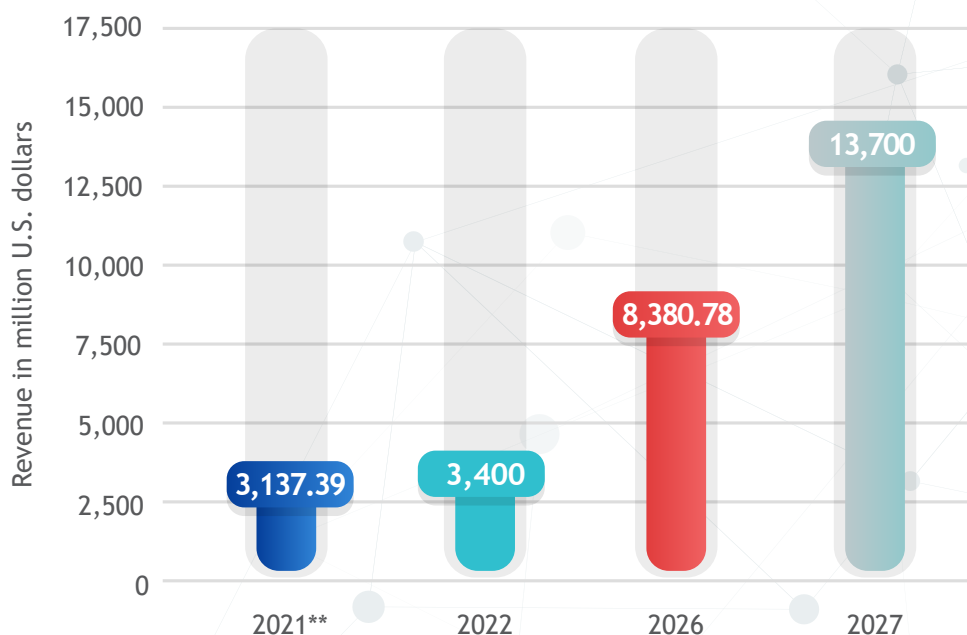


Fig 1.2

## Edge Computing Enablement:

The rise of edge computing continues to grow, as shown in Fig 1.3, and this has opened up new possibilities for network infrastructures, especially those such as SD-WAN, which play a crucial role in enabling edge computing capabilities. By bringing computing resources closer to the network edge, SD-WAN facilitates the processing and analysis of data in real time at the point of origin. This reduces latency, improves application performance, and enables organizations to deliver timely insights and actions.

SD-WAN’s ability to dynamically route traffic based on application requirements allows for efficient data processing and analysis at distributed edge locations. This trend supports the increasing demand for low-latency applications, IoT deployments, and real-time analytics, enabling businesses to capitalize on the benefits of edge computing.

### Edge-Enabled (IoT) Devices by region and share of all IoT devices, 2020-30

[Source: Transforma Insights, 2021]

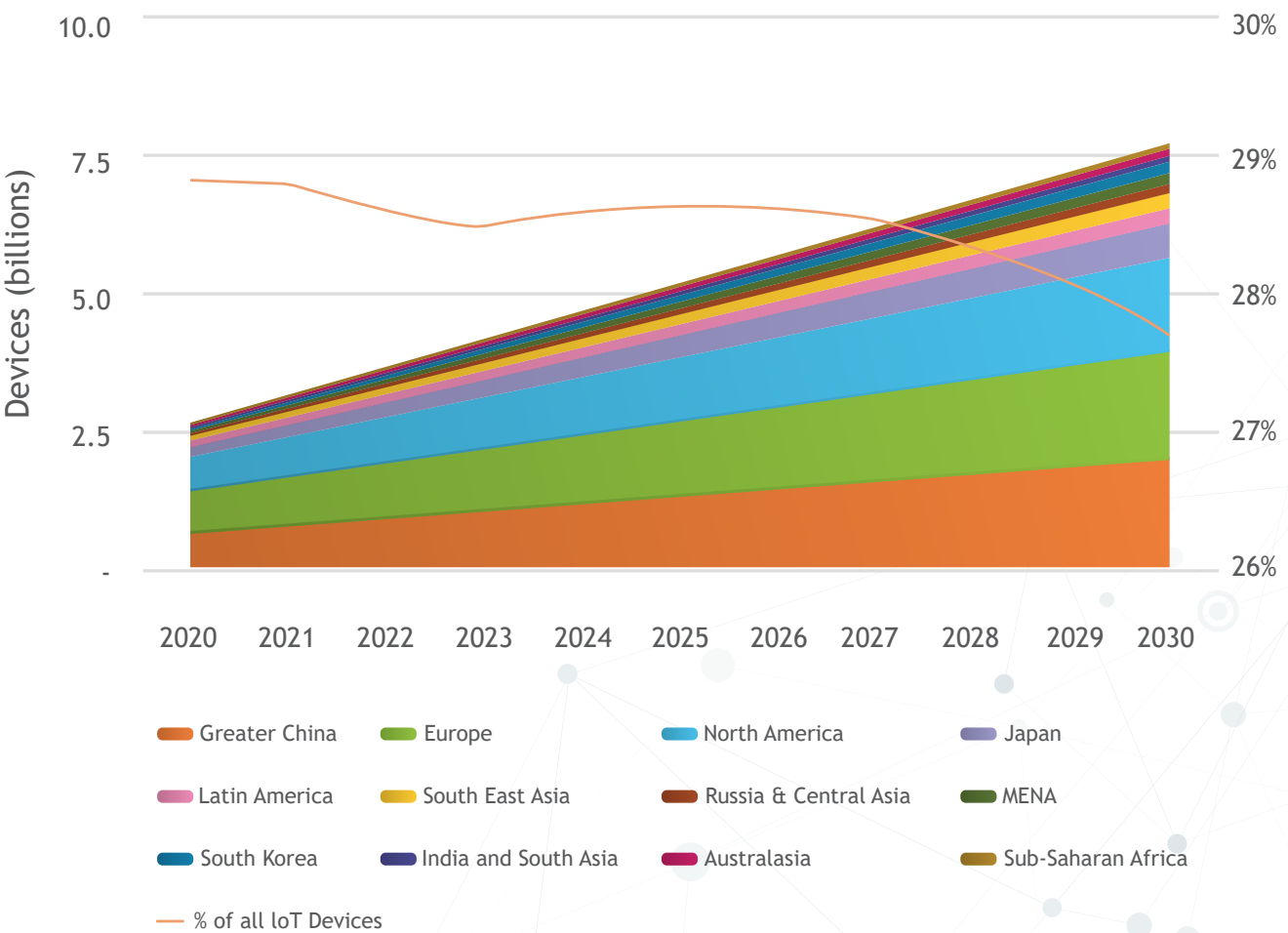


Fig 1.3

## Network Analytics and Intelligent Insights:

Network analytics is becoming an integral part of SD-WAN solutions, enabling organizations to gain deep insights into network behaviour and performance. The SD-WAN leverages analytics tools to monitor network traffic, application usage, and user experience, providing valuable data for performance optimization and troubleshooting. These analytics capabilities enable organizations to identify network bottlenecks, predict network congestion, and make data-driven decisions to optimize network resources. By leveraging intelligent insights from network analytics, organizations can proactively address potential issues, improve network efficiency, and ensure a seamless user experience.



Reasons for Adopting SD-WAN (2022)

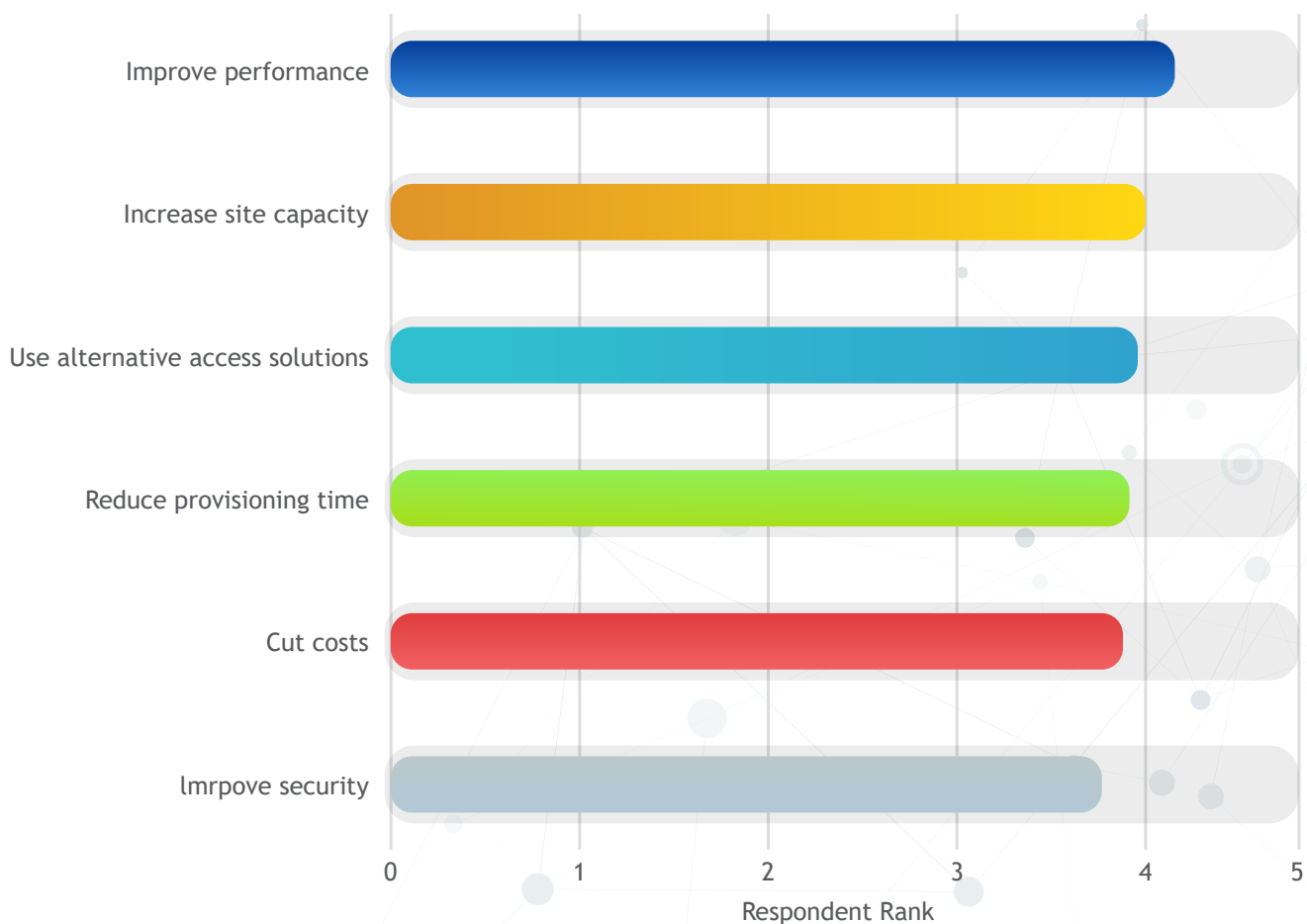


Fig 1.4

# 6 The rise of the zero-touch deployment:

The SD-WAN technology enables organizations to swiftly and effortlessly deploy network infrastructure without manual intervention. By leveraging automation, provisioning, and configuration tasks are streamlined, eliminating the need for on-site technicians. This revolutionary concept empowers businesses to rapidly scale their network capabilities, reduce deployment costs, and enhance operational efficiency.

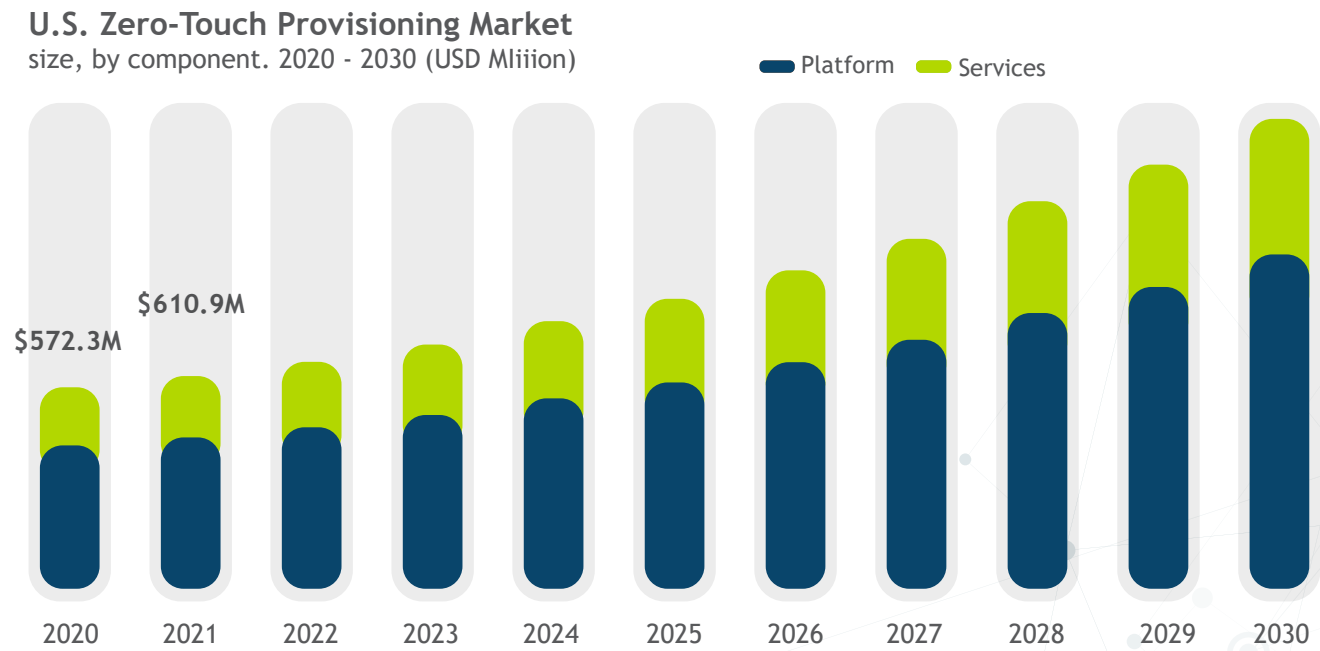


Fig 1.5

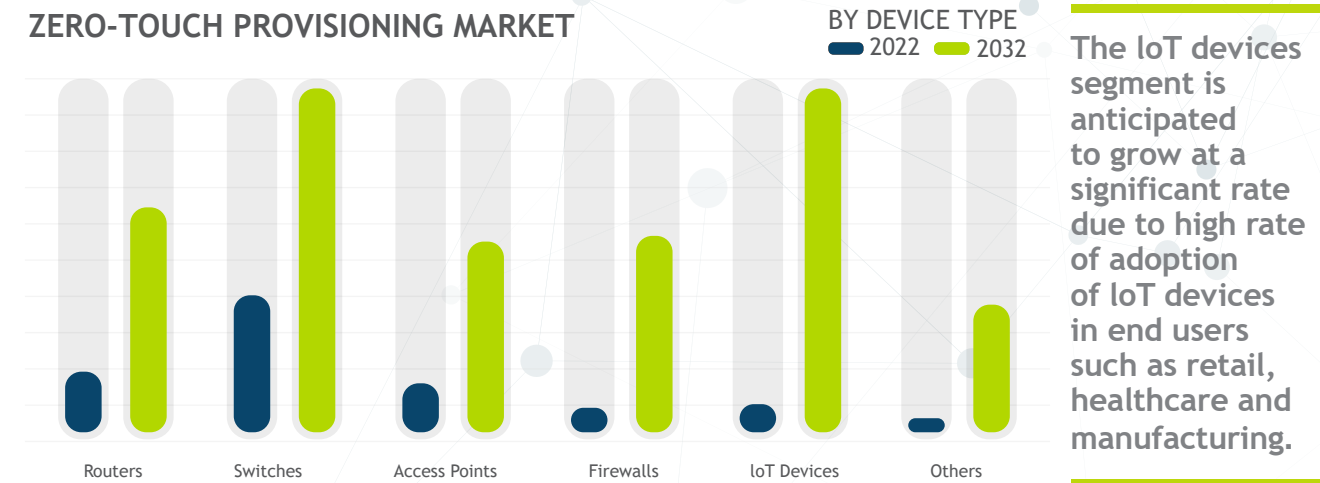


Fig 1.6

The IoT devices segment is anticipated to grow at a significant rate due to high rate of adoption of IoT devices in end users such as retail, healthcare and manufacturing.



## Increased adoption of 5G networks:

The adoption of Software-Defined Wide Area Networking (SD-WAN) is set to accelerate the deployment and utilization of 5G networks. SD-WAN's agile and flexible architecture seamlessly integrates with 5G infrastructure, unlocking its full potential. With their high-speed connectivity, low latency, and expansive coverage, 5G networks offer a robust foundation for SD-WAN deployments. 5G enables SD-WAN to deliver improved performance, ensuring faster application response times and enhanced user experiences. The scalability and flexibility of 5G make it ideal for connecting remote and mobile locations, enabling SD-WAN to extend its reach and provide seamless connectivity. By leveraging 5G networks, SD-WAN solutions can optimize network performance, increase agility, and support the growing demand for reliable and high-performance connectivity in the digital era.



### 5G Cost and Benefits for Smart Urban and Smart Rural Clusters in Europe

(in billion Euros)

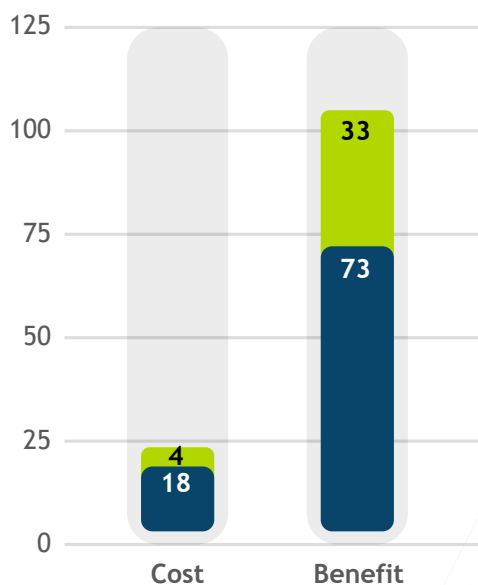


Fig 1.7

### Forecast number of mobile 5G subscriptions worldwide from 2023 to 2027

(in millions)

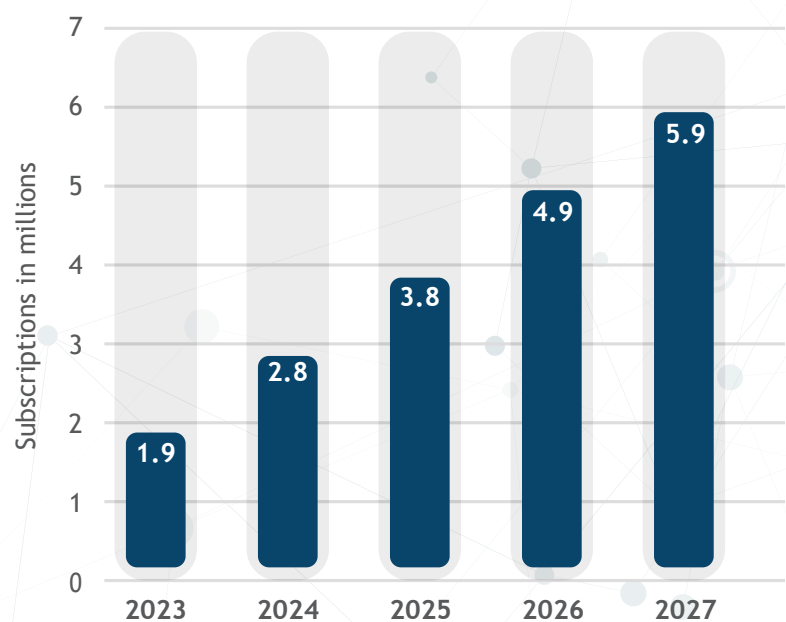


Fig 1.8



## Conclusion



In a nutshell, the emerging trends in SD-WAN are revolutionizing network connectivity, paving the way for more efficient and agile network infrastructure. The integration of AI and ML brings intelligent automation, while secure SD-WAN addresses the evolving cybersecurity challenges. Cloud integration allows seamless connectivity to multiple cloud environments, and edge computing enablement supports real-time data processing.

In addition, network analytics provides valuable insights for performance optimization. These trends collectively empower organizations to optimize their network resources, enhance user experience, and adapt to the evolving demands of the digital landscape. As businesses embrace these trends, they can unlock the full potential of SD-WAN and stay ahead of the rapidly changing world of network connectivity.

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