



# Global Pricing Strategies for SD-WAN Services

## SUMMARY

SD-WAN services are becoming increasingly popular globally. The worldwide market for SD-WAN is \$2.1 billion in 2021, growing to \$3.4 billion in 2024. SD-WAN penetration rates are 58% in the Americas, 26% in EMEA, and 5% in APAC. Global penetration rates are still low at 7%. Although some enterprises build and manage their own SD-WAN networks, many are considering managed SD-WAN services. Flexibility, value-added services, and service provider expertise in building and managing SD-WAN networks are primary reasons.

SD-WAN can include basic SD-WAN connectivity services and more advanced services provided by virtual network functions. Services are broken down by features and bandwidth. Although both features and bandwidth levels can vary, ACG has defined a common set of features: SD-WAN Basic, SD-WAN Premium, Enhanced Security, WAN Optimization, LTE/5G Backup, and High Availability CPE. Depending on which service features and options are selected, the monthly recurring cost generally varies based on network bandwidth. The levels of bandwidth defined in this report are 10, 100, 500, 1,000, and 10,000 Mbps. Most branch offices use lower bandwidth services; large headquarters and data centers utilize higher bandwidth services.

As service providers design and roll out SD-WAN services a key question is how should services be priced? Different service providers have taken distinctive approaches, and pricing generally varies in regions because of unique economic circumstances. This ACG report is a detailed study of SD-WAN service features and pricing and provides aggregated and averaged service features and pricing for North America, Europe, Asia Pacific, Latin America, and India.

## Report Highlights

SD-WAN service offers vary between different service providers and regions

Pricing is based on features and network bandwidth

Key service offerings are SD-WAN Basic, SD-WAN Premium, Enhanced Security, WAN Optimization, LTE/5G Backup, and HA CPE

Juniper Session Smart (128T) SD-WAN solution has ROI of 392% and 3 year payback on investment

This report also provides a business case analysis on SD-WAN service profitability using the Juniper Session Smart (128T) SD-WAN solution. Juniper uses a unique approach to SD-WAN: Secure Vector Routing. This approach eliminates tunnels, reducing traffic by 40%, which in turn decreases the network total cost of ownership. Our business case analysis shows a strong business case with a three-month payback on investment, an ROI of 392%, and positive cumulative cash flows starting in the first year of operation.

## SD-WAN SERVICE OVERVIEW

Many service providers worldwide are offering SD-WAN services. The features and pricing structures for SD-WAN services vary between service providers and regions. This section provides a brief overview of the key drivers, features, and benefits of SD-WAN services<sup>1</sup>.

For many years enterprise networks have been based on Multiprotocol Label Switching (MPLS) services provided by communication service providers. MPLS networks are typically hub and spoke networks that connect branch offices to one or more central hubs that are headquarters or data centers. Internet connections and firewalls are typically located in these central locations. Over the last decade the flow of enterprise traffic has changed. Traffic now flows to multiple end points:

- Internet
- Public Clouds
- Private Clouds
- Peer to Peer

SD-WAN is a virtual overlay network that is better suited to diverse applications, multicloud connectivity, internet connectivity, and customized traffic management. Traffic is transported across a diverse set of network transport options (Figure 1). The underlay transport network includes options such as:

- Broadband Internet (Cable or xDSL)
- Direct Internet Access (DIA)
- MPLS
- Wireless (LTE or 5G)

A benefit of SD-WAN is that it allows smaller managed service providers to offer services outside of their market. This is easy to do because SD-WAN is a virtual overlay; smaller service providers do not need a large physical network to offer SD-WAN services.

SD-WAN also provides traffic flexibility supporting connectivity to the internet, public, and private clouds. Some of the key features of SD-WAN services are:

- Secure network services over any transport
- Application-aware network services providing priority to important applications
- Network bandwidth management and optimization
- Fault recovery using redundant links or LTE/5G backup
- Redundant customer premise equipment (CPE) in key branch offices

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<sup>1</sup> More details on SD-WAN services and technologies can be found on the ACG Research web site <https://www.acgcc.com/>.

- Connectivity to public, private, and hybrid clouds
- Zero-touch provisioning, simplifying installation
- A large range of white-box CPE with different bandwidth and features

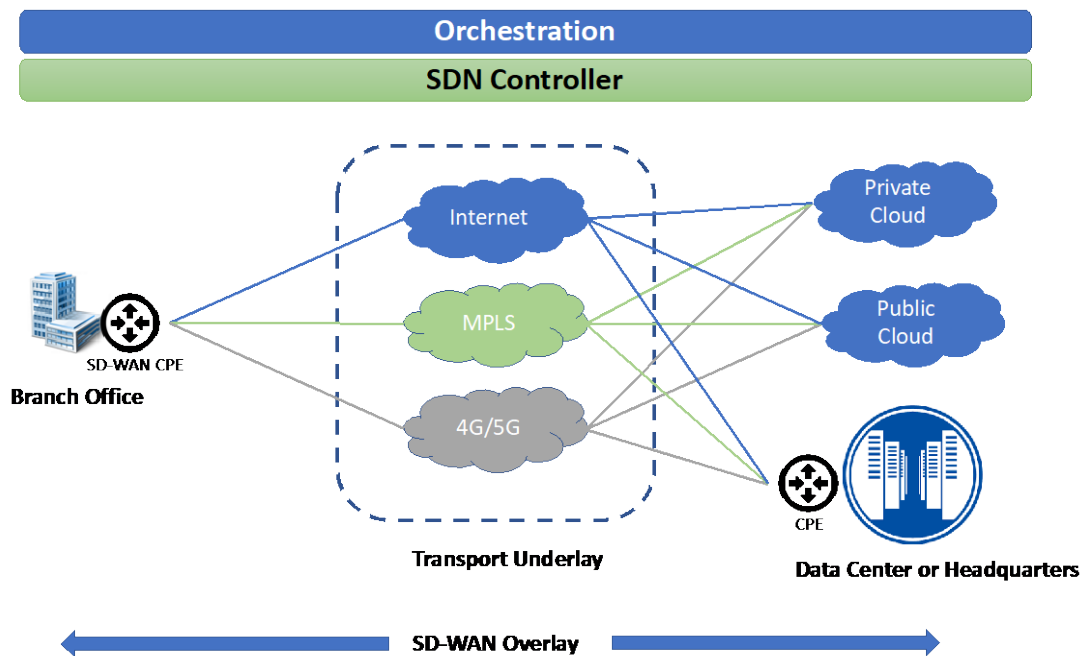


Figure 1. Network Transport Options

SD-WAN services are continuing to experience dramatic growth because they:

- Reduce network transport expenses by replacing MPLS with lower-cost internet access or a combination of MPLS and internet
- Improve network performance and availability
- Deliver application performance monitoring and tuning
- Provide advanced network analytics and management
- Offer better architecture for multicloud connectivity
- Decrease operations expenses because of zero-touch provisioning

Additionally, basic SD-WAN services can be augmented with virtual network function (VNF) services. VNFs are software-based network functions that can be deployed on CPE or deployed in the cloud (Figure 2). Examples of VNFs are:

- Virtual Next-Generation Firewalls
- Virtual WAN Optimization
- Virtual Session Border Controllers
- Virtual Routers

When SD-WAN services are combined with VNFs richer more complex networks and services can be created. VNFs also allow for additional services to be layered on top of existing services, which enables service providers with opportunities to up-sell services.

# SD-WAN Use Case

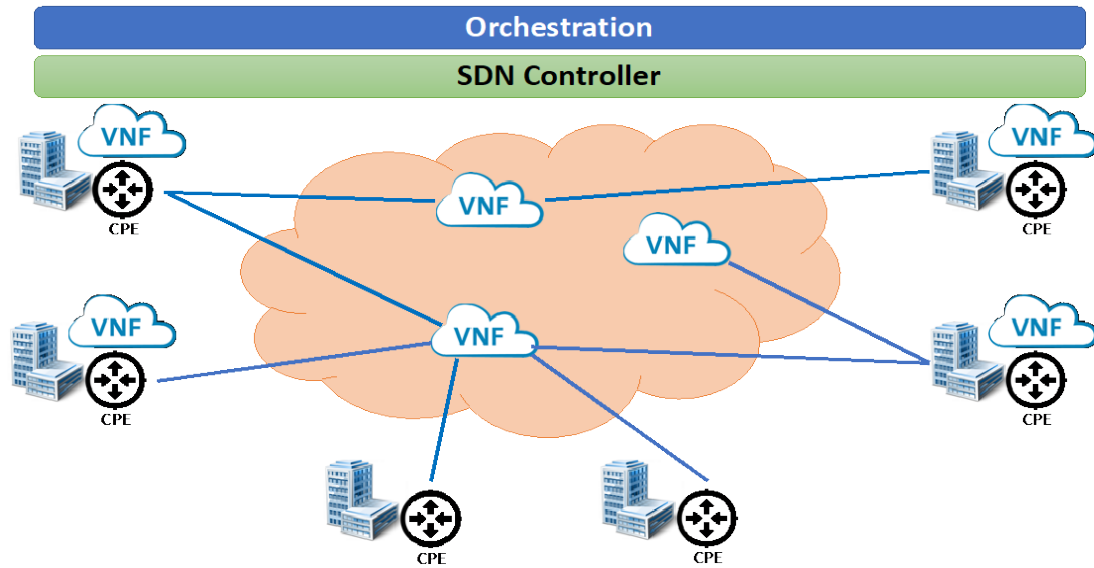


Figure 2. SD-WAN Use Case

## SD-WAN SERVICE PRICING

SD-WAN services and pricing vary based on the region, service provider, and the complexity level of the service. SD-WAN services can be divided into two general categories:

1. Pure SD-WAN services (Figure 1) with pricing models that are relatively simple and easy to consume
2. Complex SD-WAN and VNF services (Figure 2) with a wide selection of SD-WAN, premise, and cloud-based VNFs with more complex pricing models

Many service providers offer simpler, pure SD-WAN services; whereas, the more complex SD-WAN and VNF services are offered by larger Tier 1 service providers. The more complex services are typically consumed by large enterprises. In general, the demand is much higher for the pure SD-WAN service offering because of the relative simplicity of the service offer.

Another important point is that SD-WAN is an overlay service on top of an underlay network transport service. SD-WAN service pricing typically does not include the underlay service pricing. For example, an enterprise customer might purchase network transport services that include internet, MPLS, and 5G from one or more service providers and an SD-WAN service from another service provider. The SD-WAN service pricing is on top of the network transport service pricing. Although there are some service providers that bundle network transport and SD-WAN services at a discount, these services are typically priced and offered as separate services.

Some SD-WAN services use fixed-rate pricing that is independent of network bandwidth; however, these offerings are rare. Service providers more typically price SD-WAN services based on a combination of features and SD-WAN bandwidth.

We have aggregated and averaged SD-WAN service features and pricing for several regions:

- North America
- Europe
- Asia Pacific
- Latin America
- India

The aggregated SD-WAN feature set is defined in Table 1. Although features vary between different SPs, this feature set captures the essence of most SD-WAN service offers. The customer typically will choose either basic or premium service and then select one or more options that include security, WAN optimization, LTE/5G backup or high-availability CPE. Each option adds additional cost to the service.

Service	Functions
SD-WAN Basic	Includes basic SD-WAN features and CPE rental. Also includes basic stateful firewall. Does not include advanced management features and analytics
SD-WAN Premium	All basic features plus advanced management (application traffic control), analytics, and advanced firewall
Enhanced Security	Next-generation firewall VNF. Enhanced security includes full UTM, anti-malware, and other advanced features
WAN Optimization	WAN Optimization VNF
LTE/5G Backup	LTE/5G backup used if there is a network failure
HA CPE	Redundant CPE for high availability
Installation	Nonrecurring charge for SD-WAN installation

Table 1. SD-WAN Feature Set

The key factors that influence the service price in different regions are:

- Labor rates
- On-going support and maintenance
- Taxes
- Competition
- Network transport pricing (MPLS, DIA, Broadband, etc.)
- Discounts for multiyear contracts

Most of the pricing for SD-WAN are monthly recurring charges (MRC) with the exception of installation, which is a nonrecurring charge. ACG has aggregated and averaged SD-WAN pricing for each of the categories defined in Table 1. The average monthly pricing in US dollars for each of the regions is presented in Tables 2–7. This is the average MRC pricing for a one-year contract. There are also discounts for two- or three-year contracts. The average discounts are:

- Two-year term discount of 10%
- Three-year term discount of 17%

Global Average							
	SD-WAN Includes CPE		Premise VNF		Options		
Mbps	SD-WAN Basic	SD-WAN Premium	Enhanced Security	WAN Optimization	LTE/5G Backup	HA CPE	Installation
10	180	216	208	420	44	57	398
100	238	363	238	710	44	63	398
500	610	732	511	1128	48	94	398
1000	744	1096	945	2208	48	303	398
10000	1488	2192	1890	4416	97	607	398

Table 2. Global SD-WAN Pricing

	SD-WAN Includes CPE		Premise VNF		Options		
Mbps	SD-WAN Basic	SD-WAN Premium	Enhanced Security	WAN Optimization	LTE/5G Backup	HA CPE	Installation
10	143	171	165	334	35	45	400
100	189	289	189	564	35	50	400
500	442	530	370	818	35	68	400
1000	540	795	685	1601	35	220	400
10000	1079	1589	1370	3202	70	440	400

Table 3. North America SD-WAN Pricing

	Includes CPE		Premise VNF		Options		
Mbps	SD-WAN Basic	SD-WAN Premium	Enhanced Security	WAN Optimization	LTE/5G Backup	HA CPE	Installation
10	139	167	161	325	34	44	390
100	184	281	185	550	34	49	390
500	431	517	361	797	34	66	390
1000	526	775	668	1561	34	215	390
10000	1052	1549	1336	3122	68	429	390

Table 4. Europe SD-WAN Pricing

	Includes CPE		Premise VNF		Options		
Mbps	SD-WAN Basic	SD-WAN Premium	Enhanced Security	WAN Optimization	LTE/5G Backup	HA CPE	Installation
10	135	163	156	316	33	43	379
100	179	274	180	535	33	47	379
500	419	503	351	776	33	65	379
1000	512	754	650	1519	33	209	379
10000	1024	1507	1300	3037	66	417	379

Table 5. APAC SD-WAN Pricing

	Includes CPE		Premise VNF		Options		
Mbps	SD-WAN Basic	SD-WAN Premium	Enhanced Security	WAN Optimization	LTE/5G Backup	HA CPE	Installation
10	114	137	132	267	28	36	320
100	151	231	151	451	28	40	320
500	619	743	518	1145	49	95	320
1000	755	1112	959	2241	49	308	320
10000	1511	2225	1918	4482	98	616	320

Table 6. Latin America SD-WAN Pricing

	Includes CPE		Premise VNF		Options		
Mbps	SD-WAN Basic	SD-WAN Premium	Enhanced Security	WAN Optimization	LTE/5G Backup	HA CPE	Installation
10	367	441	424	859	90	116	500
100	486	742	487	1451	90	129	500
500	1138	1365	952	2104	90	175	500
1000	1388	2045	1763	4120	90	566	500
10000	2777	4089	3526	8239	180	1132	500

Table 7. India SD-WAN Pricing

There is also a class of more complex SD-WAN and VNF services. Some service providers have taken an approach of creating a similar model to an app store where enterprise customers have a high degree of flexibility and choice in selecting SD-WAN services. For example, it is possible to choose:

- SD-WAN and VNF Vendors
- Cloud or Premise-Based Services
- SD-WAN and VNF Capacity Levels
- CPE Devices and CPE Capacity
- Service Features
- Regions

These pricing models are more complex and cannot be presented in tabular form<sup>2</sup>. These services are primarily offered by Tier 1 service providers and targeted at large enterprises that want to design, control, and manage their virtual networks.

## SD-WAN SERVICE PROFITABILITY

An important consideration in pricing SD-WAN services is maintaining service profitability. SD-WAN services are becoming increasingly competitive, which creates challenges for service providers to offer high-growth, profitable, managed SD-WAN services. Some of the factors that are driving competition are:

<sup>2</sup> ACG has developed a calculator to estimate pricing for these more complex services. For information about obtaining and using this calculator please contact your Juniper sales representative.

- SD-WAN is an overlay technology, allowing MSPs to offer services outside of their network footprint using a set of POPs distributed globally
- Large enterprises have the option of using SD-WAN as an overlay technology on top of their internet and MPLS services
- These two factors drive SD-WAN competition

The level of competition for SD-WAN managed services is continuing to drive down pricing for services; therefore, it is critical for MSPs to select network solutions that are both cost-effective while offering a rich set of features. This allows MSPs to tune solutions and services to demand while offering competitive pricing, which allows high margins on services. Juniper’s unique approach to SD-WAN can help MSPs further improve service profitability and even deliver experiences beneficial to IT teams and end users alike.

### JUNIPER CAN FURTHER IMPROVE PROFITABILITY

Juniper’s Session Smart SD-WAN is unlike all other products in that it does not use tunnels to provide an overlay network but instead uses a new technology, Secure Vector Routing (SVR)<sup>3</sup>. SVR utilizes a session-based approach to routing using native IP, which has many benefits:

- 40% reduction in SD-WAN traffic due to eliminating tunnels
- Selective encryption, only encrypt traffic that is not already encrypted at the application layer

As a result, Juniper Session Smart SD-WAN networks have a lower TCO than tunnel-based networks, which drives higher profitability and shorter payback on investments. ACG has created an SD-WAN business case model to calculate service profitability. In this model we model three hypothetical networks represented in Table 8. The business case for these networks are modeled over five years, and we assume that they all start as greenfield networks with zero sites deployed. The sites grow over time using an S-Curve, which uses a logistics function for growth.

Mbps	Small	Medium	Large
10 Mbps	300	1500	10,000
100 Mbps	50	1000	50,000
500 Mbps	0	100	1,000
1 Gbps	10	50	2,500

Table 8. Managed Services SD-WAN Network

The key financial metrics in a five-year business case analysis are presented in Table 9, and the cumulative cash flows are presented in Figure 3. The Session Smart SD-WAN solution results in a fast payback of three

<sup>3</sup><https://www.128technology.com/analyst-white-paper/tunnel-based-versus-tunnel-free-sd-wan-with-acg-research/>.



to four months and an ROI of up to 392%. Also note that the cumulative cash flow is positive in the first year of operation due to the short payback period.

	Small	Medium	Large
ROI	326%	358%	392%
NPV	\$1.35M	\$12M	\$361M
Payback (Months)	4	4	3
Revenue	\$2.33	\$19.9M	\$580M
Cumulative Cash Flow	\$1.6M	\$14.2M	\$429M
CapEx	\$491K	\$3.97M	\$110M
OpEx	\$236K	\$1.73M	\$41.6M
TCO	\$727K	\$5.71M	\$151M

Table 9. Five-Year Cumulative Financial Metrics

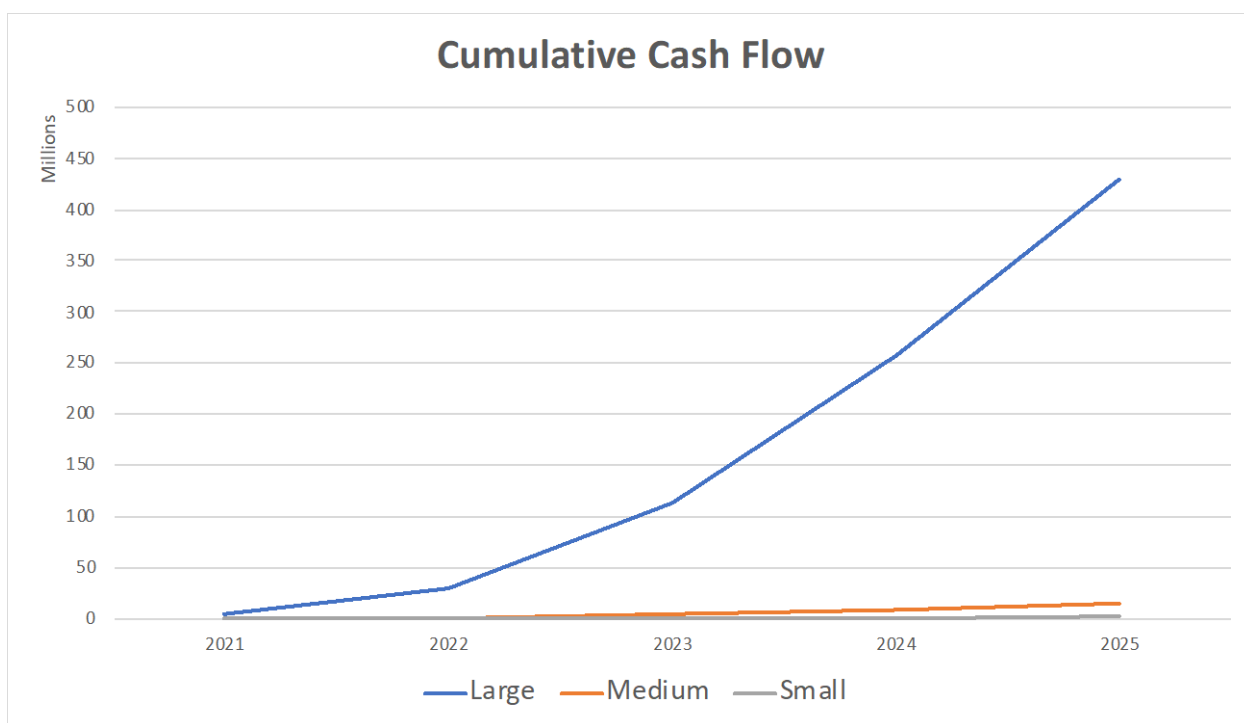


Figure 3. Five-Year Cumulative Cash Flow

Minimal CPE hardware expenses contribute to a positive business case for Session Smart SD-WAN because it does not use tunnels, which potentially can increase traffic by 40%. Session Smart SD-WAN also supports selective encryption. This capability provides encryption of traffic that is not already encrypted because there is no logical reason to encrypt traffic twice. In our model we assume that only 20% of the user traffic needs to be encrypted. This is a conservative assumption because today the lion's share of traffic is already encrypted, and the percentage that needs encryption is probably much lower. However, using this conservative assumption of 20% when we compare Session Smart SD-WAN to a tunnel-based network we

see that the cost of CPE is 15% lower for the Juniper Solution. In our model this results in a cumulative five-year savings of \$3.99M.

Alternative CPE	Session Smart SD-WAN CPE	Savings (\$)	Savings (%)
\$25.9M	\$22M	\$3.99M	15%

Table 10. Session Smart SD-WAN CPE Cost Savings

Another driver of the Juniper Session Smart SD-WAN business case is the reduced OpEx expense due to session-based visibility and control. Our model shows a 48% reduction in WAN operations expenses over five years as compared to a tunnel-based SD-WAN solution without session-based visibility.

**CONCLUSION**

SD-WAN services continue to grow at rapid rates around the globe, either replacing or enhancing existing MPLS services. For service providers to maintain and grow their enterprise network business, SD-WAN service is a must-have service offer. This data provides a framework for service providers to design and price their SD-WAN services based on regional benchmark pricing.

**Peter Fetterolf, Ph. D** (pfetterolf@acgcc.com) is CTO with ACG Research. His primary focus is developing business models for next generation networks which includes IP transport, SDN, NFV, vEPC, vRAN, and optical transport networks. He is also responsible for software development of the Business Analytics Engine (BAE) software network economic simulation tool.

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