

MSx WAN

Managed
SD-WAN



Guaranteed
performance over
the cloud without headaches
like multiple provider footprints,
complex routing, skyrocketing
expense, and connectivity or
redundancy limitations.

Congratulations! You've added new locations and now look to grow on a regional and national stage. Your business is expanding — but can your network keep up?

With MSx SD-WAN, you can count on guaranteed performance delivered over the cloud that creates seamless enterprise connectedness.

We'll take deployment headaches like multiple provider footprints, complex routing, skyrocketing expense and limited connectivity and redundancy options off your desk.

Migraine-inducing spotty Internet performance, inflexible static architecture and slow response times for critical apps can be distant memories. Distance, network hops, slow run times and bandwidth issues can go away.

The business map today reflects the greatly expanded, increasingly complicated world out there — and that presents challenges and opportunities that demand new tools, responses and approaches. MSx SD-WAN gives you the resources you need to successfully navigate it, prosper and grow.

SD-WAN is
game-changing
technology

Centralized installation, configuration and monitoring software orchestrates the data flow through the cloud network. It enables one-click provisioning of virtual services in the branch, the cloud, or the enterprise datacenter.

Managed Services Router provides secure optimized connectivity to private, public and hybrid applications, computing and virtualized services.

- TPx circuit
-  Customer-provided circuit
-  SD-WAN virtual circuit

MSx SD-WAN uses our state-of-the-art managed platform to deliver three key advantages that make your life less stressful:

Assured application performance

Transport-independent performance leverages economical bandwidth and enables Internet as enterprise grade WAN (Over-the-Top or OTT)

Business policy automation Simplified IT operation, zero-touch deployments and one-click service insertion

End-to-end management Direct cloud access with performance, reliability and security enable powerful end-to-end management

FEATURES & BENEFITS

Any transport MSx SD-WAN supports all Internet transport options (EoX, Fixed Wireless, TDM, DSL/cable, and 4G LTE)

MPLS Integrates IPVPN and MPLS into a single private network. This includes both TPx MPLS, ①Net, and third party MPLS solutions

Any network Flexibility to leverage any Internet access regardless of service provider

Nationwide availability Option to “Bring your own Bandwidth” allows for national off-net connectivity

Quality performance We provide QoS over any network — no “best effort” here

Cloud VPN Dynamic edge-to edge communication

Active-active Leverage the total bandwidth of dual Internet connections

Flexible continuity options Failover options in the event of an unplanned circuit outage is bi-directional; both circuits back up each other

Inbound continuity Provides static public IPs between core network and gateway so internal devices can always be reached by remote users

Application aware/smart QoS Customized prioritization of key application data traffic

WAN optimization Forward error correction improves circuit performance, reducing jitter, packet loss, and latency of apps

Orchestrator read/write access Self-manage your SD-WAN orchestrator with Read/Write access or let TPx manage it for you

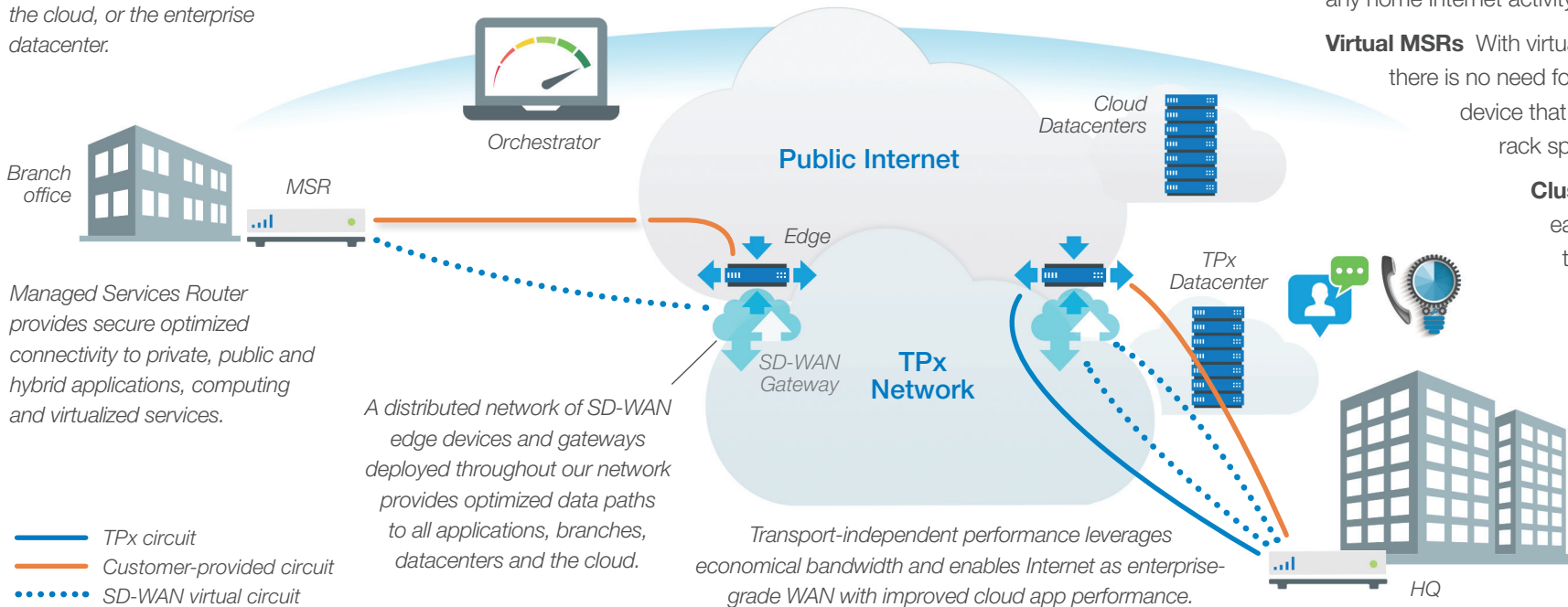
3rd Party vendor management Our support team is already working with customr providers, so they will make circuit repair calls on behalf of customers and are more experienced in getting escalation/resolution

Work from Home private segmentation

WFH users are able to leverage segmentation to separate work-related network traffic from any home Internet activity.

Virtual MSRs With virtual MSR deployment, there is no need for additional physical device that takes up valuable rack space.

Clustering Used to easily expand the tunnel capacity and bandwidth by creating a cluster of edges for greater scalability and risk mitigation.



MSx SD-WAN USE CASES

Custom Profiles

A TPx Managed Services Router (MSR) enables your most critical applications, using smart control customer profiles that take the load off of your IT department. Out-of-the-box defaults set the Quality of Service (QoS) policies for common business objectives so IT simply has to establish traffic priority. Knowledge of application profile enables automation of QoS configurations and bandwidth allocations.

UCx/SIP Over the Top (OTT)

Get our UCx Unified Communications solutions coast-to-coast anywhere there's a broadband connection. All voice traffic has a high priority policy so that it doesn't compete with public Internet traffic. The circuit may not be TPx, but the Managed Services Router and UCx are — and we guarantee our performance.

Hybrid WAN

Our customers depend on us to provide them with secure, reliable VPNs leveraging an MPLS network. Expand your networking options with a hybrid private network by adding to or replacing expensive T1s with a low-cost, high-bandwidth Internet connection on your existing MPLS network. The resulting solution enables superior customer engagement and end-user experience while removing geographic barriers coast to coast. And you'll have the ideal foundation for future SD-WAN solutions as your needs and applications evolve.

WAN Optimization

WAN connections don't always perform as we expect. When performance degrades there is a hit to your productivity and revenue streams. We can help make sure your connections are optimized by maximizing the efficiency of data flow across your WAN. SD-WAN technology allows the MSR at your site to mitigate packet loss and latency to the managed services network and helps increase the speed and quality of access to critical apps and information.

Multi-circuit Connectivity/Continuity

Mix and match any type of transport provided by TPx or your local Internet or wireless provider to securely and seamlessly fail over to any or all of our core services — MPLS, DIA, and UCx.

Two Circuits In this setup, both connections, are in active/active mode. That means that the MSR decides, for each traffic session, which path is the best path in that moment. You do not need to feel like you are paying for bandwidth you aren't using.

Three Circuits For added peace of mind, you can utilize three circuits — all active or one in standby mode — for the ultimate measure of connection certainty.

4G LTE TPx offers SD-WAN over 4G LTE as primary, secondary and redundant options to reduce or eliminate the need for wireline connectivity. In primary configuration, all traffic SD-WAN is transported over the 4G network. In secondary mode, the 4G circuit is active but sharing throughput with a primary wired circuit. In failover mode, the 4G link is dormant until needed for automated failover of the primary circuit.

Inbound continuity This provides static public IPs between core network and gateway to support inbound Internet failover for remote users and web traffic. Without it, inbound traffic is limited to one circuit, which means that if it goes down, external sources can't reach the site or VPN.

Our managed services architects will work with you to build a customized solution

Your WAN can become a symphony of private network and OTT Internet connectivity.



WHY TPX

We're implementing MSx SD-WAN so that you can stay ahead of evolving next-gen networks and take full advantage of the latest SD-WAN technology.

- Easily turn on new service
- Enjoy even better customer support
- Have increased application awareness
- Use whatever transport makes the most sense for your enterprise

Network flexibility

- Use our superior network or go over the top of any carrier — all with guaranteed performance since we manage the delivery
- We prioritize the cloud traffic according to your business priorities
- UCx is always high priority
- Adjust bandwidth capacity seasonally with our flexible bandwidth option

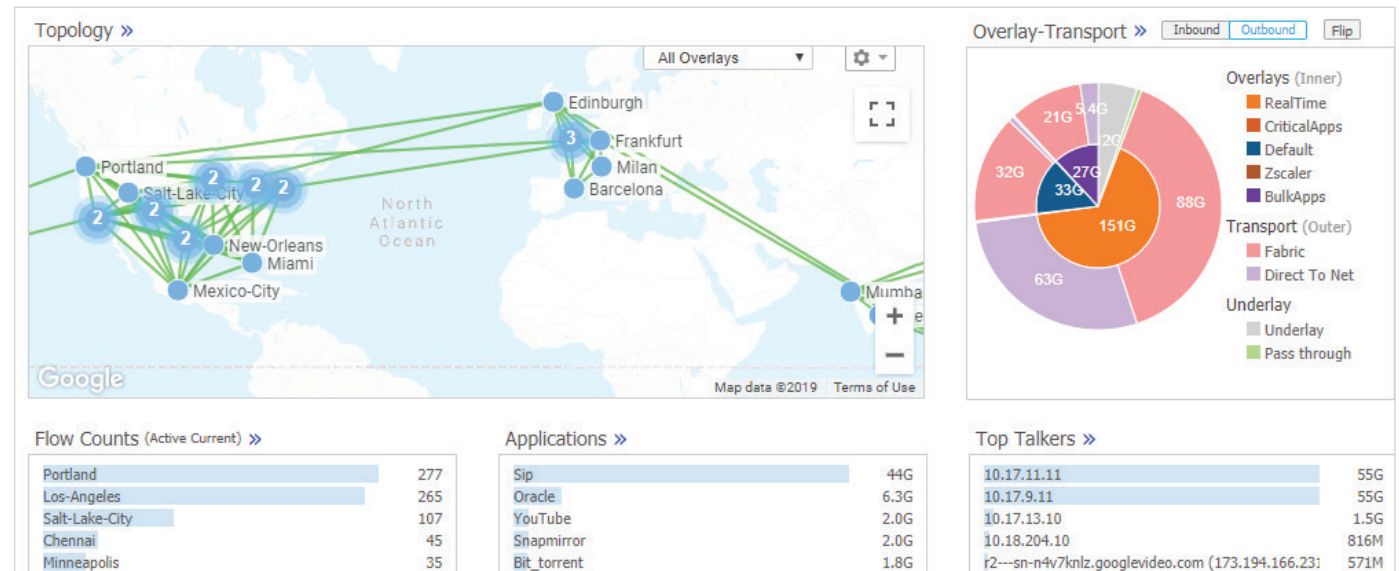
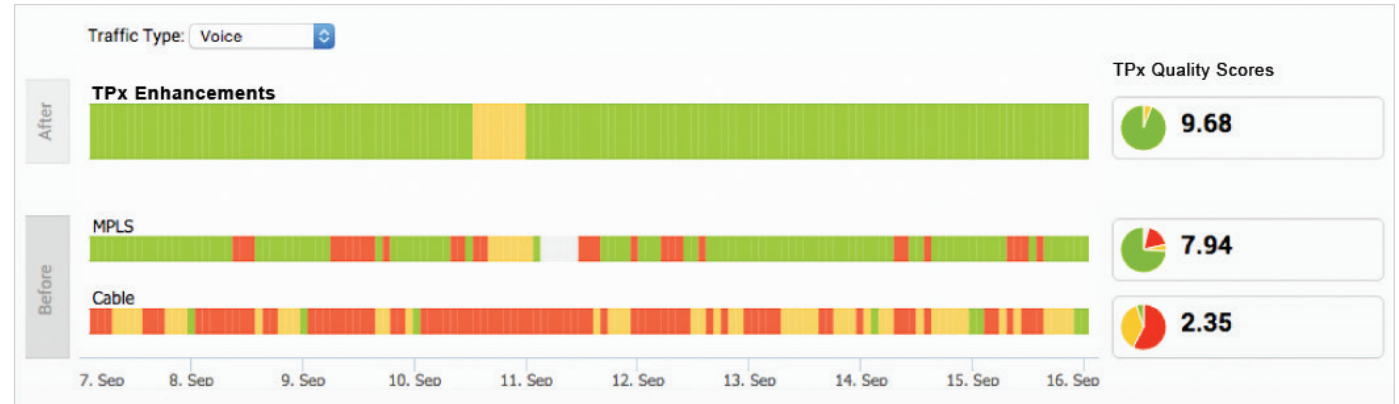
Continuity service options

- Seamless failover/continuity
- Active/active circuit design
- Active 4G LTE primary or secondary line
- Inbound continuity
- MPLS, Internet, and voice

Managed services experience

- We know networks
- We know continuity
- We know customer service
- Third-party vendor support
- Smoother implementation
- Much faster trouble ticket resolution

MSx SD-WAN provides optimized data paths across multiple active-active transport options through forward error correction and packet steering to maximize end-to-end quality of service.



Performance monitoring can uncover utilization and throughput issues by tracking application usage and identifying traffic spikes with specific apps.

Service Availability

Worldwide 24/7/365 Support

Administrative Services

Multi Services Router (MSR) Monitoring & Alerting	Utilizes a two-minute threshold that alerts on MSR(s) down status
VPN Tunnels Monitoring & Alerting	Utilizes a two-minute threshold that alerts on Links down supported by the MSR
CPC/OTT Monitoring and Alerting	Notification to let customer know that the WAN interface is unavailable and the customer needs to contact their Internet provider
Hardware Assurance/Equipment RMA	In the event of an equipment failure, TPx will manage the replacement of the MSR
Configuration Management	TPx will respond to customer's requests to make configuration changes

Features

Compliance	TPx's SD-WAN solution is PCI and HIPAA compliant
Physical and Virtual MSR options	
Static routes or dynamic routing protocols such as BGP and OSPF supported	
Orchestrator Access	– Review up/down status of each connection and MSR – Connection overview that shows bandwidth statistics – Quality of Experience (QoE): Voice, Video, and transactional – Monitor WAN connections and total packets received/sent, utilization, jitter, and latency – Monitor network usage of application, app categories, devices, and operation systems – Monitor network usage data of the destinations of the network traffic – Monitor business policy characteristics according to priority and the associated network usage data for a specific MSR
Multiple Circuit Design Options	Active-Active...Active-Active Standby...Active-Active-Active ... Active-Active-Active/Standby
MPLS Integration	
Routing Policies	
Two-Factor Authentication	

Available Features

Dynamic Path Selection	TPx will submit trouble tickets to a customer's third party Internet provider on their behalf when the OTT connection becomes unavailable. The vendor will provide a LOA that they have our mutual customer sign that authorizes us to work with the vendor on the customer's behalf.
Link Steering and Remediation	High availability utilizes two MSRs with mirror configurations to provide redundancy
Forward Error Correction (FEC)	Clustering provides horizontal scalability for throughput and tunnel scale, by clustering multiple MSRs. MSR clustering also provides resiliency via the Active/Active High Availability (HA) topology that a cluster of SD-WAN MSRs would provide.
Jitter Buffering	Ensures the continuity of audio streams by smoothing out packet arrival times during periods of network congestion.
Third Party Vendor Support	TPx will submit trouble tickets to a customer's third party Internet provider on their behalf when the OTT connection becomes unavailable. The vendor will provide a LOA that they have our mutual customer sign that authorizes us to work with the vendor on the customer's behalf.
High Availability	High availability utilizes two MSRs with mirror configurations to provide redundancy
Clustering	Clustering provides horizontal scalability for throughput and tunnel scale, by clustering multiple MSRs. MSR clustering also provides resiliency via the Active/Active High Availability (HA) topology that a cluster of SD-WAN MSRs would provide.
TPx-provided 4G Connectivity	
Inbound Internet Failover Public IPs	
Non-standard MSx SD-WAN IPSec Tunnels	VPN tunnel configurations to access one or more non-VMWare sites
Boost	Significantly improves application response times across the WAN

Installation Options

Remote Installation	The pre-configured MSR will be shipped at the specified customer location
Professional Installation	TPx Technicians will assist with your service installation. If you choose to use TPx Professional Services for your installation we will preschedule a time for a Qualified Professional to arrive at your install address.
Expedited Implementation	An expedited MSx Managed SD-WAN project is based on a twenty-one business day schedule, versus 45 days

