The Future of Protected Enterprise Networks
Key Differentiators

Public cloud computing has rendered traditional enterprise wide area networks (WANs) suboptimal, from a price, performance, and security perspective. Software Defined Wide Area Networks (SD-WAN) have revolutionized how enterprises manage their wide area networks. However, SD-WANs significantly increase the enterprise's public exposure and therefore its cyber profile, rendering traditional security methods inadequate. NetAbstraction provides the protection lacking in the traditional SD-WAN and is the next generation of wide area networking. NetAbstraction provides a simple but very effective solution that obfuscates and anonymizes traffic enabling private browsing and private application to cloud connections.

SD-WAN technology enables customers to measure quality, steer traffic, and remediate impairments across multiple network pathways. The benefits to an SD-WAN approach are substantial, including simplified management and operations, reduced costs, and increased visibility and potentially increased security.   Adopters of SD-WAN are experiencing 30 to 40 percent savings in their WAN network infrastructure costs. NetAbstraction can reduce these costs even further and will greatly enhance network protection.

While SD-WAN has made the enterprise's use of their WAN more efficient, it has not solved some of the fundamental issues in today's WAN. Leased lines are static and make a fixed target for cyber attack. They also limit the ability to elastically meet bandwidth demands. In addition, they are expensive. MPLS services are also costly, complicated and largely inflexible resulting in a fixed target. When considering the use of the Internet or cloud, there are significant cost savings, but performance and security are key considerations. NetAbstraction's next generation networking service makes the Internet the preferred solution – NetAbstraction is cheaper, faster, more secure, more resilient, and more flexible.

WAN traffic is continuing to grow over 200 percent on a yearly basis. At the same time, MPLS bandwidth pricing, unlike decreasing cloud pricing, has remained fairly constant, further supporting the shift to SD-WANs. Purchasing lower cost bandwidth is a great way to handle the rise in overall WAN traffic without breaking the bank."

Network leaders must continue to evolve their WAN, driven by the enterprises' needs for digital business transformation, the increasing use of as-a-service models and the increased adoption of real-time applications across the WAN. This is creating a need to incorporate the Internet as an intrinsic part of the enterprise WAN in concert with more traditional (e.g. MPLS) services. Gartner predicts a rapid adoption of Internet services for enterprise connectivity needs. They anticipate that by 2020, more than 60% of enterprises will have deployed direct Internet access, up from less than 30% in 2016.

NETABSTRACTION

Cutting Edge was founded and developed it's flagship service, NetAbstraction, to address the needs of enterprises in this dynamic new environment, offering additional security, performance and significant cost reductions to provide the WAN capabilities that all enterprises need as we continue to move to new business models.

If they can't find you, they can't attack you!

NetAbstraction is a cloud-based, Privacy/Network Security-As-A-Service offering that is the future of wide area networking. NetAbstraction is a Software Defined Network (SDN) overlay on top of commercial provider infrastructure. NetAbstraction's patented capabilities address fundamental deficiencies inherent in most SDN implementations thus delivering improved performance, increased security, and better agility. NetAbstraction provides significantly increased resiliency and a dramatically reduced cyber attack vector. NetAbstraction provides the opportunity for enterprises to leverage the Internet for most, if not all of their WAN requirements.
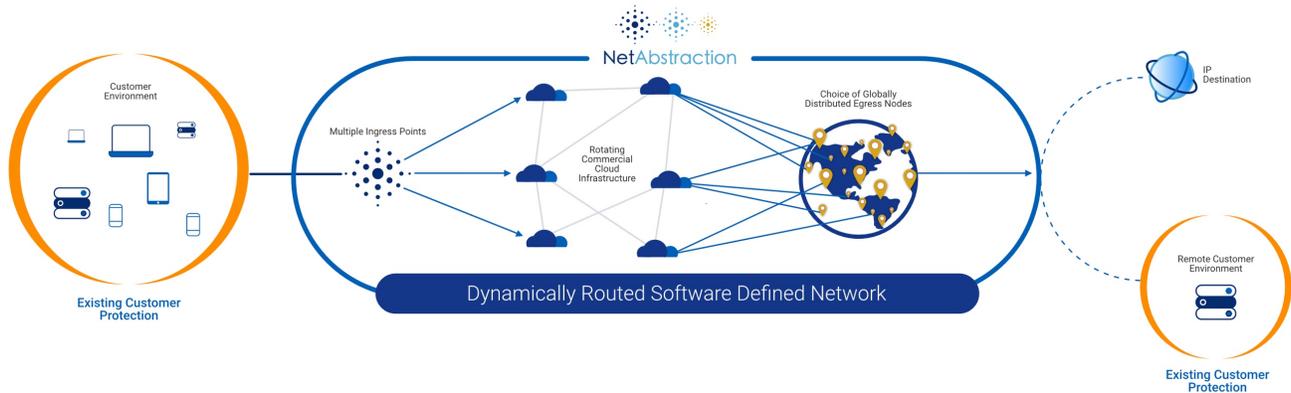
NetAbstraction Overview

Our key differentiators that enhance our value proposition for prospective customers:

PERFORMANCE – Because we control the routing through our network, NetAbstraction provides carrier grade performance. We are only throttled by limitations of the commercial cloud providers themselves. This allows customers access to the full capabilities of the Internet, streaming video, social media content, as well as all the features of any applications they are using.

AGILITY – NetAbstraction's ability to dynamically shift network pathways, on the fly, in real-time, without interrupting or degrading customer communications a unique capability. Most SDN implementations must tear down and re-establish a virtual connection and thus have too much latency to keep the communications connections up and running when changing the network communications path. Most other providers establish static, pre-defined connections within the SD-WAN that rely on traffic monitoring to choose the "best" path, whereas NetAbstraction can dynamically establish these connections based on a near infinite number of conditions. We are also able to establish new network nodes and paths on the fly through our network, including deployment of new customer applications and payloads.

SECURITY – NetAbstraction leverages all the security features of traditional SDN technology and the commercial providers, and enhances them through our patented implementation. Some specific benefits provided by the NetAbstraction network implementation:

- We disguise your network communications pathways – if they can't find you, they can't target you!

- We protect your identity by providing alternate subscriber information, which is typically exposed in commercial providers' databases.

- We use multiple providers/technologies and geographic locations to disperse and layer any points of possible attack.

- We regularly rotate and exchange the infrastructure and subscribing identities that we use to establish our physical infrastructure.

- We dynamically shift your network – it is hard to identify or hit a moving target. We shift our customers' communications pathways on a regular basis or dynamically in response to a perceived cyber threat, without interrupting or degrading customer communications.

NetAbstraction™
If they can't find you, they can't attack you!

* We use a new tunneling protocol that is misidentified as normal TCP traffic, enabling the tunnels to hide, (become lost), within the traffic of the commercial provider networks.

* We logically isolate each customer's communications on top of our physical infrastructure, hiding the customer network topology from any external scrutiny and insuring customer data is segregated and not exposed to others.

* Because we control the routing through the network, we provide additional advantages over other SDN implementations:

    * We have the ability to encrypt end-to-end through the network – most SDN implementations require decryption at each intermediary node.

    * We have the ability to establish our VPN without the need to broadcast the identity of participating nodes.

* By creating a virtualized network, we decouple the logical network from the commercial provider's physical network. The logical decoupling of virtual servers from the physical network reduces the opportunity for attackers to reach resources connected to the network. It also isolates the logical network from vulnerabilities inherent in the physical network infrastructure. We work at the core layer 2 and 3 of the technical infrastructure; most SD-WAN implementations work at the Layers 4, 5, and 6. As a result we can support a wider range of activities with less performance impact.

PRIVACY / IDENTITY MANAGEMENT – The NetAbstraction service's operational design is based on using intermediaries (cutouts or surrogates) to acquire the commercial infrastructure used to implement the network. None of the infrastructure has been acquired in the name of Cutting Edge or NetAbstraction (to reduce possible targeting of publically known services). The network also has been implemented with a minimum of three "hops" between customer locations and/or the Internet and we use at least two commercial providers. This alters the attribution of each segment and disguises the customer's presence. We regularly rotate and exchange the infrastructure that we use to establish our network. This makes it very difficult for anyone to trace the operational path of our customers' network connections or associate users – *"If they can't find you, they can't attack you."*

EASE OF IMPLEMENTATION – NetAbstraction is a software-based implementation that seamlessly integrates with existing customer infrastructure and networks. NetAbstraction does not require customers to purchase hardware or work through complex re-configuration of existing resources and no specialized circuit-by-circuit basis, minimizing disruption of on-going operations.

Cutting Edge CA is an Internet and cyber security firm that offers services that lower your organization's systems "visibility" as a target on the Internet. Our management comes from backgrounds working for the federal government, enabling capabilities to support several Intelligence Community missions.

With substantial experience designing, creating, and implementing non-traditional, non-attributable, telecommunications networks, we have a deep understanding of the current state of the art technologies. We are innovating and providing the next generation of privacy and identity protection capabilities while understanding, first hand, the challenges our customers face when meeting today's cyber and privacy needs.

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