

CLOUDGENIX

Introducing CloudGenix Clarity

Actionable insights for your applications, sites, and networks

Business Challenges

Two fundamental shifts have occurred in the past decade which have changed the way applications are deployed and managed: cloud computing and the availability of low-cost, high performance Internet connections. I/T organizations deployed robust MPLS-based WANs to provide secure connectivity from remote offices to a small set of data centers where applications were hosted. These legacy architectures present a series of debilitating limitations when attempting to migrate to cloud computing or take advantage of commodity Internet connections for remote office high availability or performance.

With a legacy network architecture, traffic is sent from the remote office to the data center over private WAN connections. While these networks set the standard for security, they are also an order of magnitude more expensive than standard Internet connections. Further, cloud-hosted and software-as-a-service (SaaS) applications do not reside in the data center, and often, a direct path to the Internet from the remote office would provide better performance and substantially lower cost.

I/T organizations have become accustomed to managing networks by configuring a series of fragmented, fragile, and sometimes non-interoperable features on low-level networking devices. Businesses today are demanding that the inherent complexity be reduced or eliminated in favor of company-wide policies that map to intent rather than elements that only seasoned veterans understand. Policies today map to IP addresses, ports, queues, and interfaces, where they should map to applications, networks, sites, and profiles for performance, compliance, and security.

With cloud applications becoming the new normal, I/T also needs a way to see end-to-end performance and availability for every application and network, whether it is deployed in the data center or in the cloud. While numerous, mature solutions exist as an add-on to the network, these require additional software, servers, and agents to meet the full spectrum of visibility needs, and often lack when dealing with applications that could use a variety of network links or have applications deployed in the cloud.

Networking must change to accommodate the new normal of cloud applications.

Solution Requirements

In order to adequately solve the challenges listed above, any solution needs to meet criteria in five key areas.

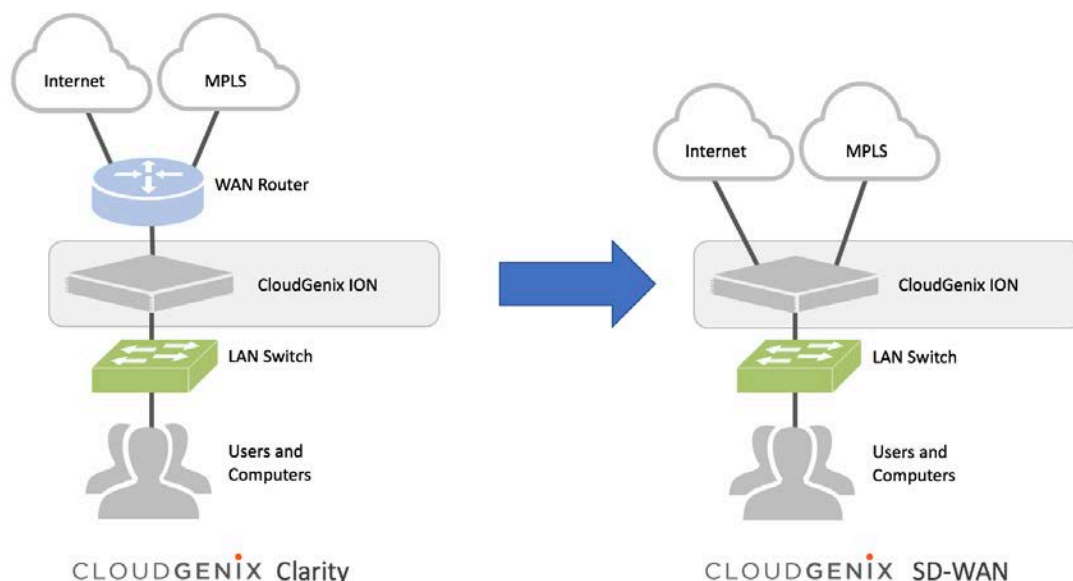
- **Complete Visibility** – the solution must see all applications, over all networks, using any WAN link, and provide visibility into performance, health, and quality

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- **Actionable Data** – analytics and information presented by the solution must be useful and actionable while providing guidance based on machine learning
 - **Native Solution** – the solution must be native to eliminate complexity and require no additional hardware or software, connectors to third-party systems, agents, or new protocols or interfaces
 - **Cloud Delivered** – the solution must be fully cloud-delivered to eliminate the otherwise substantial server and storage cost while also providing simple data access through export functions and a RESTful API
 - **Self-Healing Network** – actionable data gleaned from application, site, and WAN link visibility must also be able to be used to drive policy enforcement decisions to automatically heal the network according to policy

Introducing CloudGenix Clarity

CloudGenix Software-Defined WAN (SD-WAN) is the industry's most complete solution for customers that want to build hybrid networks consisting of MPLS private WANs and commodity Internet connections for cloud application adoption, remote office high availability, application performance, and end-to-end visibility. Powered by CloudGenix Instant-On Networks (ION) devices deployed in locations where visibility and control are desired, CloudGenix SD-WAN allows you to create policies based on business intent rather than a series of fragmented networking features, enables dynamic path selection using the highest performing network, and provides visibility into performance and availability for applications and networks.

CloudGenix Clarity is a foundational component of the CloudGenix SD-WAN solution that provides end-to-end visibility and analytics for your applications and networks, and operates independently of the full suite of CloudGenix SD-WAN capabilities. When the full suite of SD-WAN capabilities are added, CloudGenix begins using the actionable data gleaned from Clarity to self-heal your network in an automated manner.



How It Works

CloudGenix ION devices are deployed in the network near the WAN edge and automatically begin examining application data on the network to identify the application and measure several key performance indicators of each session. Statistics from your network are stored securely in the CloudGenix cloud management portal, which can be used to configure ION devices, define applications and sites, and monitor end-to-end application performance and availability.

CloudGenix Clarity is completely passive, integrates into your networks in a fault-tolerant manner, and does not manipulate or modify traffic patterns. The full suite of SD-WAN capabilities provided by CloudGenix can easily be enabled after deployment of CloudGenix Clarity.


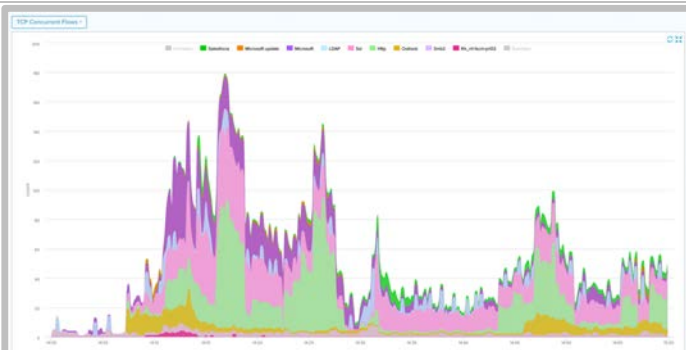
Benefits

CloudGenix Clarity provides a wealth of visibility benefits to help you understand your network, quickly diagnose and resolve problems, and identify anomalies.

Understand Network Usage and Health

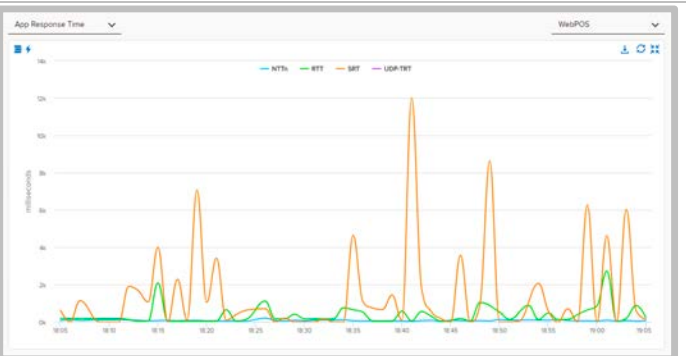
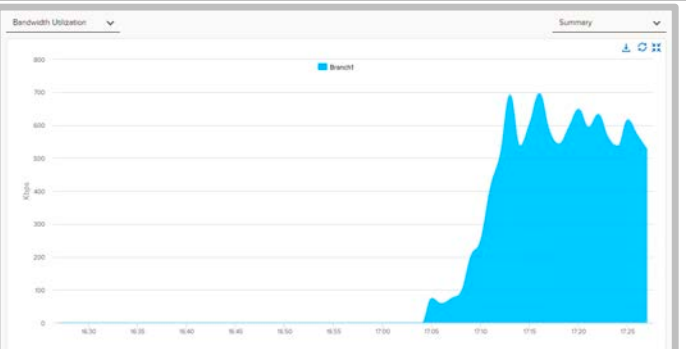
CloudGenix Clarity gives you an instant overview of the usage and health of each of your WAN links to see how they are utilized and how they are performing.

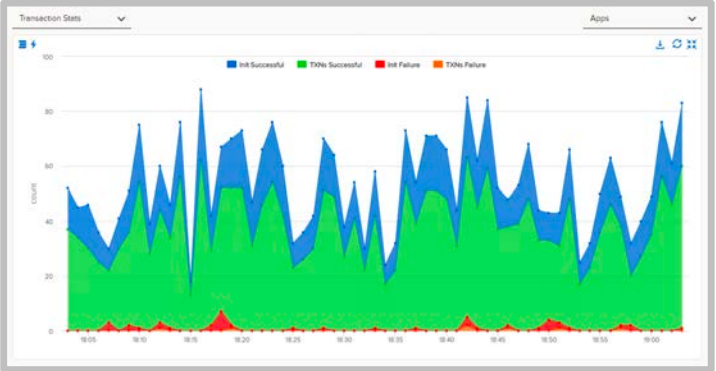

Usage Overview	Understand how much data is being transmitted over each WAN link type	<div><div>Sites 15 Active 12 Monitoring</div><div><div>Direct Internet</div><div>Internet VPN</div><div>Private WAN</div></div><div><div>138.2 GB</div><div>443.9 GB</div><div>325.3 GB</div></div></div>
Link-Level Statistics	Visibility into bandwidth usage, packet loss, latency, jitter, and MOS score	<div><div>Ingress</div><div>Egress</div></div>

Top Applications	See which applications are active on the network	 <p>The screenshot shows a line chart titled 'Top Applications' with the y-axis labeled 'Mbps' ranging from 0 to 300. The x-axis shows time from 20:00 to 18:00. Multiple colored lines represent different applications. A tooltip for 'Skype' at 16:13:00 shows statistics: Size: 106.8770, App: 0.0065, Amazon web services: 1.8107, Smb: 1.8896, Lync: 8.12844, Ssl: 75.839, Http: 12.0195, NetFlow: 2.2927, and YouTube: 3.6320.</p>
Concurrent Flows	Understand how many connections are active on your network by application	 <p>The screenshot shows a line chart titled 'TCP Concurrent Flows' with the y-axis ranging from 0 to 100. The x-axis shows time from 16:00 to 17:00. Multiple colored lines represent different applications, showing peaks in concurrent flows throughout the day.</p>

Instant Visibility into Application Performance

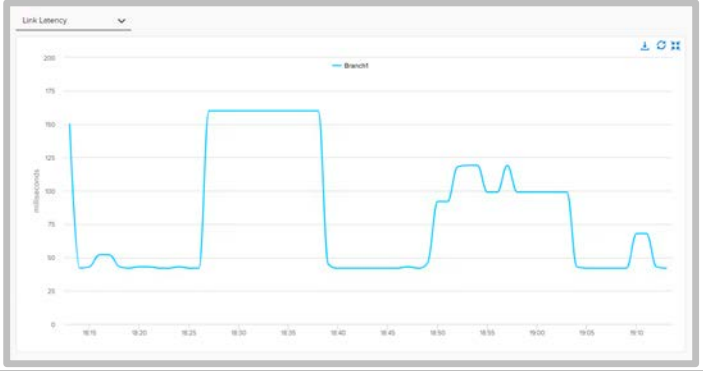

CloudGenix Clarity provides granular visibility into how your applications are performing over your networks, identify cases where application transactions are failing, and understand what factors are contributing to any performance-related issues encountered.

Response Time Analytics	See the distribution between roundtrip time, network transfer, and server response time to identify source of poor performance	 <p>The screenshot shows a line chart titled 'App Response Time' with the y-axis labeled 'milliseconds' ranging from 0k to 14k. The x-axis shows time from 16:00 to 16:55. Multiple colored lines represent different components: RTT (blue), RTT (green), RTT (orange), and UDP-TST (purple). The chart shows several peaks in response time, with the highest peak reaching nearly 14k milliseconds around 16:40.</p>
Application Throughput	Visibility into the amount of throughput for a specific application	 <p>The screenshot shows a line chart titled 'Bandwidth Utilization' with the y-axis labeled 'Gbps' ranging from 0 to 800. The x-axis shows time from 16:30 to 17:25. A single blue line represents the bandwidth utilization for a specific application, showing a significant increase starting around 17:00 and peaking at approximately 700 Gbps.</p>

Transaction Statistics	Identify successful and failed transactions that were encountered	 <p>The Transaction Stats chart displays the count of transactions over time. The Y-axis represents the count (0 to 100), and the X-axis represents time (18:05 to 19:00). The legend indicates four categories: Init Successful (blue), TXNs Successful (green), Init Failure (red), and TXNs Failure (orange). The chart shows a high volume of successful transactions, with a significant peak in Init Successful transactions around 18:15 and 18:45.</p>
Application Quality and Health	Overview of the user experience for a given application	 <p>The Application Quality and Health chart displays the overall user experience for a given application. The Y-axis represents the count (0 to 100), and the X-axis represents time (21:30 to 22:30). The legend indicates four categories: Good (green), Partially Good (yellow), Unreachable (red), and No Data (grey). The chart shows a high volume of 'Good' transactions, with a significant peak in 'Good' transactions around 21:45 and 22:15. The 'Unreachable' category is visible for a short period around 22:10.</p>

Understand Voice, Video, and Collaboration Quality

With CloudGenix Clarity, quality metrics related to voice and video are available at your fingertips to understand the user experience and identify any issues with quality or dropped calls.

Link Statistics	Visibility into the latency, jitter, and packet loss encountered	 <p>The Link Latency chart displays the latency in milliseconds over time. The Y-axis represents the latency in milliseconds (0 to 200), and the X-axis represents time (18:15 to 19:10). The legend indicates one category: Latency (blue). The chart shows a high volume of latency, with a significant peak in latency around 18:30 and 18:45.</p>
MOS Score	Instantly see the MOS score for sessions on your network	 <p>The Link MOS chart displays the MOS Score over time. The Y-axis represents the MOS Score (0 to 5), and the X-axis represents time (18:15 to 19:10). The legend indicates one category: MOS Score (blue). The chart shows a high volume of MOS Score, with a significant peak in MOS Score around 18:30 and 18:45.</p>

Self-Healing Network

Actionable data gleaned from CloudGenix Clarity over your applications, networks, and sites is used to automatically heal the network according to policy when moving from CloudGenix Clarity to CloudGenix SD-WAN. With CloudGenix, a unified policy based on business intent encompassing application performance, security, and compliance is defined and enforced based on actual measurements taken by CloudGenix Clarity. Unlike other systems, CloudGenix does not require you to use data insights from a separate monitoring platform to create or enforce policy.

Fully Delivered from the Cloud

CloudGenix Clarity is fully delivered from the cloud using the CloudGenix Controller and management portal. Traditional visibility solutions require deployment of multiple servers and significant data storage capacity. With CloudGenix, no additional servers or storage are required; all Clarity functionality including data management and data storage is handled by CloudGenix in the cloud which helps reduce overall cost and operational expenditure.

Programmable Interface, Third-Party Tool Integration

Statistics for applications, sites, WAN links, and network flows are stored in the CloudGenix Controller, accessible via the management portal, and available for export in CSV or Excel format. Further, a complete RESTful HTTPS API is available that allows you to access your data programmatically, allowing integration into third party tools and dashboards.

Deployment

CloudGenix ION devices are deployed in your network in a passive, fault-tolerant manner. The ION 2000 series and 3000 series of remote office devices are equipped with fail-to-wire inline ports that allow for direct insertion between the LAN switch and WAN router. The ION 7000 series data center devices integrate between the EBGp and IBGP boundary. Data center devices are not required when using CloudGenix Clarity, but are required when taking advantage of the full suite of SD-WAN capabilities provided by CloudGenix.

For more information on CloudGenix ION hardware, please refer to the data sheets for the CloudGenix ION device family.

See For Yourself

See CloudGenix in action for yourself! Visit www.cloudgenix.com/trial to register for a no-risk free trial and WAN assessment today.

About CloudGenix

CloudGenix provides a software-defined WAN solution with AppFabric technology that enables you to build a global WAN based on business policies for application performance, compliance, and security, across all sites and users. Unlike router-based solutions, CloudGenix AppFabric allows you to define top-down global policies based on business intent rather than fragmented bottoms-up configuration changes based on technical implementation. With CloudGenix, you can easily integrate heterogeneous WAN connections for any site, take advantage of cloud and SaaS applications, improve visibility for app performance and SLAs, and dramatically simplify network operations.