Businesses of all size are able to dramatically simplify their WAN, reduce their dependency on legacy WAN routers, and reduce both cost and complexity using CloudGenix AppFabric.
The Problem with Routers

Legacy WAN architectures built using traditional routers create material challenges for today’s modern businesses that want to adopt cloud applications, deploy new and immersive digital experiences, and reduce their total cost of ownership. Routers are generally deployed discretely and use packets as the fundamental unit of operation, leading I/T organizations to build bottom-up configurations which are disconnected from the overarching business objective.

These crippling limitations hinder I/T’s ability to adapt to the continually evolving needs of the business. With a router-centric legacy WAN, I/T is continually forced to manage connectivity amongst a series of disjoint devices with inconsistent configuration and features that are frequently incompatible. In order to more quickly adapt to changing business needs, a secure, application-centric WAN fabric must be in place; one that is deployed as a system and managed using policies that are relevant to the business.

Introducing CloudGenix AppFabric

CloudGenix AppFabric provides a fundamentally different approach to building your WAN. CloudGenix ION devices deployed in branch offices, retail stores, data centers, and other locations, automatically connect to form a secure application-defined fabric. Unlike traditional WAN routers, AppFabric is application-centric, having a thorough understanding of applications in use on your network, giving you the power to build top-down policies for how traffic is handled based on the application in use. Further, AppFabric allows you to dictate which types of WAN links are appropriate for each application, which are primary, and which are backup.

AppFabric provides the following advantages when compared to a traditional router-based WAN:

<table>
<thead>
<tr>
<th>SIMPLE, CENTRALIZED CONFIGURATION</th>
<th>APPLICATION AWARENESS</th>
<th>HIGH AVAILABILITY AND LOAD-BALANCING</th>
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<tbody>
<tr>
<td>manage global policies for all or a subset of devices using a simple, intuitive user interface</td>
<td>define and enforce business-level application policies for performance, security, and compliance with ease</td>
<td>take advantage of all available WAN links with automatic path selection and failover</td>
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With AppFabric, businesses are able to:

- **CONFIDENTLY ADOPT THE CLOUD** support applications with any deployment model, including data center, cloud, and SaaS
- **INTEGRATE BROADBAND INTERNET** reduce dependency on MPLS by adding lower-cost, higher-performance broadband Internet
- **UNIFY WAN CONFIGURATION WITH BUSINESS NEEDS** policies built for applications and sites for performance, security, and compliance
- **GAIN ACTIONABLE INSIGHTS** understand health and performance of your applications and WAN links, reduce time to issue resolution
- **REDUCE COST ACROSS THE BOARD** eliminate unnecessary branch office hardware, maintenance, management, and support cost

AppFabric features the following capabilities which allow you to reduce your dependency on traditional legacy WAN routers.

**Zero-Touch Provisioning and Deployment**

Traditional legacy WAN routers are deployed discretely and are often configured using a decades-old command line interface. Configurations for interfaces, capabilities, and routing protocols are centered around the packet being the fundamental unit of operation, leading to a low-level, plumbing-centric view of the network.

CloudGenix ION devices are easily deployed in the branch office using zero-touch provisioning and deployment. ION devices are connected inline between the branch office LAN switch and WAN termination devices and automatically connect to the Internet. From the CloudGenix Portal, devices can be claimed and authorized, added to a site, and have policies for performance, security, and compliance applied.
Top-Down Policies

With a packet-centric unit of operation, configuring policies for performance, security, and compliance on a legacy WAN router involves issuing a series of low-level commands to define classification, specify desired quality of service levels and queuing, and enforce traffic handling. CLI-based configurations of this kind usually end up being hundreds of lines long, differ from device to device, and are unruly to manage and maintain, especially with multiple sites and devices.

Configurations of this kind are inflexible and make it difficult for businesses to adapt when conditions change, including new application deployment models, adding new sites, and changing business priorities. To remedy this and provide business with the flexibility, agility, and efficiency needed to adapt, CloudGenix AppFabric provides a top-down application-aware model for defining and enforcing policies for performance, security, and compliance. Applications are dynamically identified on the network by a variety of methods, including address/port/protocol, DNS response caching, server name identification, and deep packet inspection. Using these consistent, accurate definitions, policies can be defined tied to the application rather than using arbitrary and often inaccurate definitions as is typical in legacy WAN router products.

### PERFORMANCE POLICIES
specifying the tier of service required (platinum, gold, silver, bronze) and the resources available to each tier

### COMPLIANCE POLICIES
dictating which WAN links are appropriate and allowable for each application

### SECURITY POLICIES
defining which applications are allowed to traverse the device or interface

AppFabric considers both the health and performance of the underlying WAN links and the application itself when making enforcement decisions on application flows. While WAN bandwidth, latency, loss, and jitter are effective metrics for determining the quality of a WAN link, the overall user experience with a given application is not always directly correlated to these
metrics. AppFabric also considers application metrics, including transaction response time, mean opinion score (MOS), and goodput when enforcing policy, which helps to ensure the best possible user experience.

In addition to simplifying the process of defining and enforcing policies, AppFabric provides automatic high availability and load-balancing across available WAN links in the branch office. Application flows are automatically distributed across allowed WAN paths according to health and performance metrics collected. Should a link fail, remaining primary paths are used, and should all primary paths fail, backup paths are used.

**Consistent Security Perimeter**

Rather than demanding that administrators spend countless hours defining, deploying, and testing VPN configurations and rules across devices, CloudGenix ION devices automatically establish VPN tunnels to enable secure connectivity amongst sites. AppFabric VPN connections meet and exceed the security requirements of the most stringent organizations and are appropriate for businesses that face strict regulatory compliance including PCI and HIPAA.

Further, AppFabric ensures a consistent security perimeter for each site. Traditionally, I/T organizations would deploy a comprehensive set of security technologies in the data center, through which all remote office traffic would flow. In today’s distributed business, replicating this security perimeter at each site—physically or virtually—would involve a tremendous amount of cost, coordination, and complexity. CloudGenix ION devices provide a built-in application-aware zone-based firewall (ZBFW) to protect the branch Internet connection. With simplified integration to third-party cloud access security brokers (CASB) such as Zscaler, Palo Alto Networks, and Symantec, specific applications can be directed through these platforms to ensure compliance and employ the same security techniques that would otherwise be employed within the data center.
Having VPNs that are automatically established and per-application controls with integration to cloud security are practically impossible with legacy WAN routers, meaning that, in addition to aligning the WAN with the goals of the business, SD-WAN simplifies the deployment of an end-to-end secure enterprise.

**Actionable Analytics**

With traditional WAN routing products, information and statistics are exposed through standard protocols such as the Simple Network Management Protocol (SNMP) and NetFlow. However, additional systems have to be deployed to collect and visualize this data, adding cost and complexity when I/T organizations wish to be able to see what’s happening within their environment.

CloudGenix ION devices automatically collect health and performance metrics from each network and application in use. Several key indicators are measured and collected, and then stored persistently in the cloud-delivered CloudGenix Controller, meaning no additional systems or management is required. This information is used in making intelligent decisions on how best to handle applications according to the configured policy and also based on real-time conditions found within the application’s performance and the underlying networks. The information is also exposed through intuitive dashboards, allowing administrators the ability to see exactly how their networks are being used, how they are performing, and information relevant to the health of their networks and devices.

Unlike traditional WAN routers which are designed to expose data to other systems that you have to purchase, CloudGenix AppFabric natively allows you to:
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.

Reducing Cost and Complexity with AppFabric

Deploying AppFabric provides businesses a tremendous opportunity to dramatically reduce costs related to branch office hardware, maintenance, and support, while also simplifying operational headaches associated with deployment, maintainability, and troubleshooting. In many cases, the branch router can be removed in favor of CloudGenix ION, particularly when the branch WAN connection handoff is Ethernet. AppFabric helps reduce cost and complexity in the following ways:

- **REDUCE DEPENDENCY ON MPLS**
  - by introducing broadband, expensive private WAN circuits can be offloaded or even decommissioned

- **FEWER DEVICES TO DEPLOY AND MANAGE**
  - CloudGenix ION can effectively replace the router and zone-based firewall, thereby reducing cost

- **DRAMATICALLY SIMPLER CONFIGURATION**
  - rather than relying on detailed understanding of routing protocols and often incompatible low-level networking features, configure AppFabric using business rules for performance, compliance, and security

- **NO ADDITIONAL VISIBILITY AND ANALYTICS REQUIRED**
  - with built-in actionable analytics over both network and application health and performance data, no additional systems for visibility are needed

- **FASTER TIME TO RESOLUTION**
  - with a broader set of performance and health indicators exposed centrally, businesses can more rapidly identify issue root cause and resolve them

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