



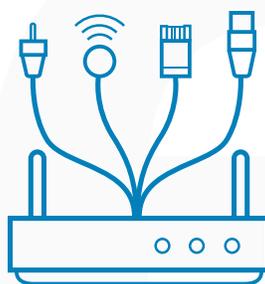
# Bonded Internet

*Time For a Change*

*You're frustrated with your network. You expect more bandwidth, greater reliability, improved quality and lower costs.*

## ***Limitations of Traditional Network Delivery***

Traditional network delivery is no longer adequate to power your business. Your organization uses cloud-based business applications to maximize resources and increase productivity. However, the resulting usage demands are putting immense strain on your existing network connections that are already too slow, harmful, or unreliable. As a result, your connection becomes a critical bottleneck that negatively impacts your bottom line.



## ***iTel Bonded Internet***

iTel Bonded Internet is a comprehensive network solution to improve your network resilience and performance. It's a fully scalable, packet-level balancing protocol that combines multiple connections into one and shapes traffic to deliver optimum user experience across your Wide Area Network (WAN).



# Bonded Internet

*Time For a Change*

*Bonded Internet is a proprietary, over-the-top networking software designed to deliver advanced features and functionality to business customers:*

- ⬡ Point to Point VPN
- ⬡ Packet-Level Link Balancing
- ⬡ Network Connection Monitoring

*All three combined allows us to provide:*



**Bandwidth Bonding** - Customers large and small are able to combine bandwidth of multiple network connections for increased speed.



**Lossless Failover** - If an outage occurs over an Internet connection, traffic will dynamically and seamlessly re-route over online connections ensuring calls aren't lost.



**Site-to-Site QoS** - Bonded Internet allows customers to enjoy clear transmissions of data and voice by allowing for customizable queues and filters.



**Data Acceleration** - Additional performance enhancement can be achieved by applying data acceleration to compressible data traveling over the bond.



**Transmission Security** - Customers have the ability to encrypt traffic between sites using 128-or 256-bit encryption standards.



# Bonded Internet

*Time For a Change*

## *Benefits:*



**Combine Multiple Connections** - Create a single-IP connection from many lines to give you more bandwidth.



**Increased Uptime** - Intelligent packet-level distribution ensures application sessions are not dependent on uptime of a single connection.



**4G/LTE Back-up Support** - Manages the failover of your bond to a supplemental connection (usually 3G/4G/LTE) for ultra resilient networks.



**Turbo Data Acceleration** - Additional performance enhancement can be achieved by applying data acceleration to compressible data travelling over the bond.



**Voice & Video Clarity** - Assigns unlimited priority layers inside the bond to ensure consistent delivery of important data from VoIP and other real-time applications.



# Bonded Internet

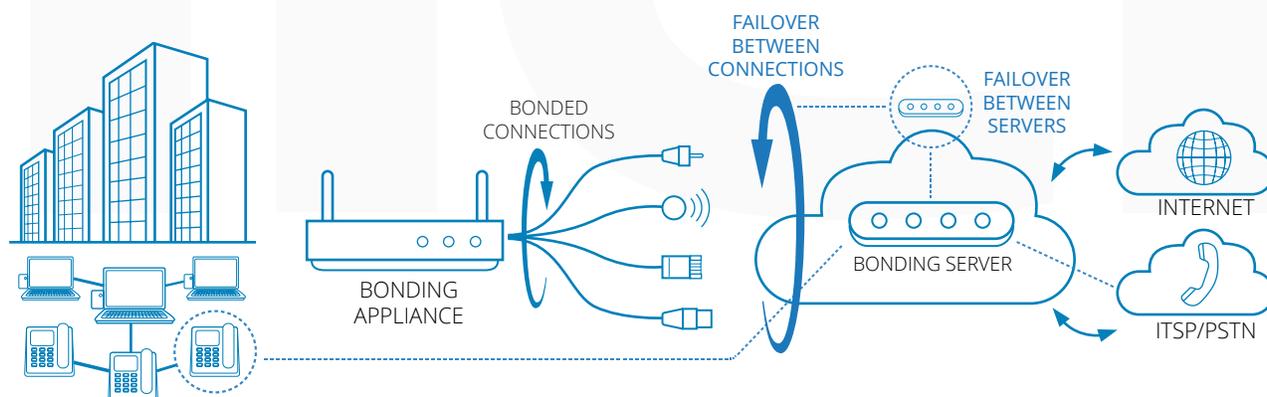
*Time For a Change*

## **How it works:**

iTel Bonded internet takes multiple ethernet connections and merges them into one - giving customers the total combined bandwidth of every line. In addition to increasing bandwidth, it also acts as a LAN-Optimization and SDN tool.

1. Bonded internet requires our bonding hardware that you plug your ethernet connections into, but it isn't just a piece of hardware on site.
2. The bonder also connects to aggregator hardware that we've established at all major peering points across Canada and in a ring throughout the US.
3. At each of these points, there's a stack of servers that run our proprietary aggregator software.
4. From there, the bonders create tunnels across all the different upstream providers, turning them into dumb pipes. We can then wave those connections and round-robin the packets based on connection speeds and latency so the user gets the true throughput of every link.

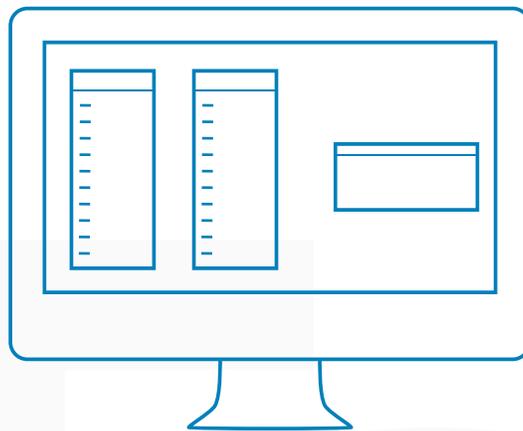
Another superior feature is WAN-optimization through in-line compression and in-line encryption. Compression reduces the number of bits needed to represent data. For example, if you bond several small rural DSL connections, you not only get the full line speed of all those DSLs, but the aggregator and bonder do on-the-fly compression and decompression to give you even more speed across the link.





# Bonded Internet

*Time For a Change*



## ***Portal:***

All of this information is tracked and recorded in a carrier-agnostic user portal. Here, you can view how many minutes of downtime you saved, which legs have problems and which legs have jitter to take to the upstream for resolution.

The portal is also handy for multiple bonded sites because it allows customers to create SD LANS, dynamically. With the click of a button you can make fully-meshed IP VPNS across all of their endpoint bonders, choose Quality of Service (QoS) levels and prioritize traffic.



# Bonded Internet

Bandwidth

## *What Internet Speed do I need for My Business?*

How fast and how much bandwidth do I need? It's a common question asked by small and medium business owners. Decision-makers should be able to answer this fundamental question so that they don't overspend on bandwidth they don't need or under-service their offices. However, it's becoming increasingly difficult to plan for future needs with the rapid pace of cloud migration. The soaring rise in demand for bandwidth comes with more users, more information and non-linear complexity.

## *Bonded Internet Delivers: Speed & Bandwidth*

There's a good chance that you already have more than one connection to supply the redundancy or uptime your organization needs, but what if those connections could be combined to provide more bandwidth as well?

We can combine two or more connections to create a single connection that delivers fast download and upload speeds. Our cutting-edge technology is an advanced bonding solution that allows you to aggregate the bandwidth of all your connection regardless of type or provider to give you the speed and scalability you need without a fus

### *Benefits:*



- **Increased Bandwidth** - Enough for all your cloud and business critical applications.
- **Works with Any Connection** - Get the aggregate bandwidth of all connections no matter which type of providers you use: DSLs, cable, fibre, fixed-wireless, 4G, LTE, T1, etc.
- **Turbo Data Acceleration** - Additional on-demand performance enhancements can be achieved by applying data acceleration to compressible data travelling over the bond.
- **Scalability** - Adaptively increase network bandwidth by layering on additional lines, so the network scales to meet your business needs when necessary, at a price you can afford.

## Bonded Internet

*Encryption*

### ***We Live in the Digital Age***

Organizations are challenged with putting safeguards in place to protect valuable digital information. However, the reliance on connectivity in today's business environment means an ever-increasing pace of data creation and dissemination. As data zaps around the globe in milliseconds, it needs to be shielded. Your network needs to be secure. You need to protect your many sensitive communications, whether in the form of video, voice, or text - not only from criminals, but also from your competitors and any other unforeseen breaches of your network. The need for precaution is further heightened by growing concern for potential damage to your reputation resulting in unknown consequences.

### ***Encryption Protects Your Data***

Encryption is the most important privacy-preserving technology available. It protects your data when it's sitting on your computer and in data centres, and also when it's being delivered around the internet. Implementing encryption is essential and we offer a range of solution including IPSec, SSL, and 128 and 256-bit AES encryption to guard the packets that pass over your various network connections.



# Bonded Internet

Security

## *You Take Network Security Seriously, So Do We*

In addition to standard encryption, by its nature our technology spreads traffic around multiple internet connections. Even if an attacker manages to capture one of your individual connections, they will only see a small fragment of your entire traffic. Bonded traffic is authenticated by the receiving server with a hash-based message authentication code (HMAC, from RFC 2104). This prevents an attacker from intercepting, modifying, understanding, or forging messages sent between your sites.

### **Benefits:**



- **Firewall** - Monitor and control incoming/outgoing network traffic to identify overall network capacity and enforce entry/exit rules associated with applications
- **Traffic Distribution** - Breaks up sessions into its smallest possible component and distributes information down multiple connections to add an extra layer of security
- **Encryption Levels** - Provides comprehensive and affordable protection to secure all communications:
  - AES 128
  - AES 256
  - SALSA20 256



# Bonded Internet

*Quality of Service*

## ***Bonded Internet Delivers: Quality of Service (QoS)***

We're pretty excited about our ability to deliver crystal-clear voice over internet connections. Not only is our QoS feature completely customizable to fit your business, it's also dynamic to accommodate real-time fluctuations in applicable usage.

First, fully customizable QoS profiles ensure that your most important applications are prioritized over less-sensitive traffic. Our QoS feature eliminates latency, jitter, and packet-loss problems by prioritizing applications by class and other criteria designed with your business in mind.

Second, our dynamic QoS system adapts to how your network is used. In particular, varying application load requirements and fluctuations in network load are considered. Our system anticipates these factors and smooths out any disturbances so that you always get crystal-clear voice and crisp video.

## ***So You've Got Poor VoIP Call Quality?***

If you're using a VoIP phone system, there's a good chance you've experienced poor call quality. Broadly speaking, choppy and dropped calls happen because of the unpredictability of mixing voice packets with data traffic in a network that was originally set-up to handle only data. As a result, you get jitter and latency when the voice information gets received out of order or delayed. Now, with the ubiquity of VoIP, you need a network solution that can eliminate call quality issues.

### ***Benefits:***



- **Customization** - Assign unlimited priority layers inside the connection to ensure consistent delivery of important VoIP and other real-time application data.
- **Expandable Class Priority** - Allows for bursts in use of prioritized applications to manage the flow of traffic between sites.
- **Site-to-Site QoS** - As your business dependence on IP or hosted voice and video applications increases, so does the need for those calls to be crisp and clean. Get the peace of mind that packets will make the trip free of any disturbances.

## Bonded Internet

*Reliability*

### ***Keep Productivity Flowing with NO Downtime***

On most days, the internet and the innumerable systems it powers can be relied on to work well enough; however, network failures are inevitable, often caused by the way of accidently cut lines, weather and environmental issues, hacking, or other unforeseen issues beyond the control of the service provider. When your connection is down, it means dropped VoIP calls, cancelled transactions, and widespread inconvenience and frustration. Instead of setting everything up and hoping it won't fail, businesses should be able to rely on a system that can respond quickly and gracefully to those inevitable failures.

### ***Bonded Internet Delivers: Reliability with Failover***

We can provide an internet failover service like no other. This unique service allows any business to combine multiple internet connections (regardless of provider or type) to create reliable internet connectivity. If one connection suddenly degrades or goes offline, your data will continue to flow to its destination uninterrupted. When the problem connection is fixed, the system will automatically add it back to its pipeline. No special configurations or specialists required. That simple.



# Bonded Internet

*Reliability*

## *Take Your Internet to the Next Level*

With robust reliability, businesses can extend their networks to provide customers and users with near 100% uptime. Our internet failover service gives you the confidence to run your business without the risk of downtime. You'll now have the ability to focus on what matters - your business. This always-on feature lets you create the network that's right for your business and saves you time and money in the process.

### **Benefits:**



- **Network Redundancy** - Providing a failsafe for when an internet connection suddenly degrades or drops. Your data continues to flow through the remaining healthy links.
- **Simple No-Touch** - No need to reconfigure network settings. You could be on a VoIP or video call when a link degrades or dies and you won't even notice.
- **Same-IP Failover** - each appliance maintains its own IP address in the event of a failover. No more DNS round-robin time delays.

# Bonded Internet

MPLS Add-on

## ***Limitations of Traditional MPLS***

Enterprises have typically connected their office through a private Multi-Protocol Label Switching (MPLS) data service. While reliable, traditional MPLS-based Wide Area Network (WAN) have two clear limitations:

- Cost prohibitive: up to 10x the price of typical internet connections
- Lack of general availability: coverage issues, local loop installation

We've found roughly 8% of MPLS-based WAN branches aren't actually MPLS at all; they're over the public internet because of reach or high cost. Almost 1 in every 10 MPLS branches don't adhere to corporate WAN policies (security, application assurance, redundancy, etc.) Enterprises that can spend more than twice as much to incorporate remote sites compared to urban sites.

## ***Enterprise-Class WAN, Leverage the Internet***

Today, savvy network administrators are looking for creative ways to get all the benefits of MPLS, while controlling costs and maintaining uniformity across the WAN. To satisfy these requirements, we offer a solution to create a consistent network platform that enhances communication and coordination to include the troublesome 8%. Our cutting-edge technology combines multiple low-cost internet connections into a single, faster, more reliable connection onto which we layer a centralized firewall, end-to-end Quality of Service (QoS), and WAN monitoring management.



# Bonded Internet

MPLS Add-on

## *Prepare for the Future*

Network technology enables people to communicate to one another. It allows devices to speak to each other in the form of data transmission. With the average enterprise projected to manage 50x more data by 2020, the infrastructure supporting the flow of traffic needs to be simple, scalable, and secure. MPLS is one way to ensure real-time application quality on increasingly congested networks, but for a complete solution you need to supplement MPLS.

### **Benefits:**



- **Cost Reductions** - Additional on-demand performance enhancements can be achieved by applying data acceleration to compressible data travelling over the bond.
- **WAN Link Redundancy** - Adaptively increase network bandwidth by layering on additional lines, so the network scales to meet your business needs when necessary, at a price you can afford.