

## Does the Bigleaf service create a single point of failure?

We're often asked if adding Bigleaf to your network creates additional risk due to single points of failure. This is a great question to be asking, but the answer can be complex. The following information should help you answer that question for your unique network environment and risk factors.

### The Risks

The major risk factors that can affect Internet service include:

1. Last-mile physical plant failure or degradation (cable cut, car crashing into a phone pole, etc.)
2. ISP middle-mile failure, saturation, or degradation (issues with aggregation routers/switches/interconnects)
3. ISP peering point saturation or degradation (where ISPs connect to other networks)
4. On-site equipment failure (your firewall, your ISPs modem, etc.)

We have found that a vast majority of internet issues are due to last-mile and middle-mile ISP network problems causing outages or severe packet-loss and latency.

### How Bigleaf Protects You

The Bigleaf service helps protect you from all of the risks noted above. The most common issues, last-mile and middle-mile ISP problems, are detected and seamlessly avoided by our Intelligent Load Balancing and Dynamic QoS features. Our SD-WAN software also detects issues in ISP peering points between your ISPs and our gateway clusters. The risk of our on-site equipment failing is very low, but it can also be mitigated with our **warm spare option** or our **high-availability (HA) on-site router option**.

### Does Bigleaf Add or Reduce Risk?

Using Bigleaf service for your internet connectivity protects against the most common issues, but it doesn't entirely eliminate risk. Our system architecture necessitates that 2 risk factors still be considered:

1. On-site router failure
2. Bigleaf network failure

If you have a single Bigleaf on-site router and it fails then you will experience an outage. If this unlikely scenario were to occur we would overnight a replacement to you immediately. In the meantime you could bypass the Bigleaf service and re-program your router or firewall to use one of your ISP connections directly. Even with a single on-site Bigleaf router you have no more likelihood of on-site equipment failure than when using a single ISP without Bigleaf service, since



your ISP's modem or router could fail. If you're concerned about the possibility of on-site equipment failure then our **warm spare option** or our **high-availability (HA) on-site router option** can be used to eliminate this risk.

Since the Bigleaf service makes our network your gateway to and from the internet, our network becomes a single point of failure for your traffic. If our entire network of redundant routers, diverse carrier connections, and hot-standby server clusters failed, then you would experience an outage. However, we have designed our network and systems in a fully redundant and fault-tolerant manner to ensure that no single point of failure exists. The Bigleaf network and system components sit inside temperature-controlled datacenters with backup power and secured access. Contrast that with last-mile networks that include equipment in underground vaults, street pedestals, and on telephone poles.

Based on how the Bigleaf service reduces risk in the most common areas of failure, and how little additional risk is created, the net result is a massive reduction in risk for your internet and cloud connectivity.

## The Ultimate in Redundancy

If Bigleaf with our High Availability option isn't enough, you need ultimate redundancy with absolutely no single points of failure, then you need a high-availability cluster of routers and switches utilizing BGP routing to at least 2 physically diverse ISPs. This type of equipment is expensive, requires significant expertise to implement and maintain, and requires that your ISPs support BGP (no low-cost cable, DSL, or other "business" grade connections). With BGP you can eliminate all single points of failure, but you do lose the optimization and seamless failover that Bigleaf provides.

## We Can Help

Whether you want to discuss our redundant architecture more, you're interested in our high-availability CPE router option, or you want to talk about pros/cons with BGP, we would love to chat. You can email us at [sales@bigleaf.net](mailto:sales@bigleaf.net) or call 1-888-244-3133.