Product Catalog: Carrier

Astound
Business Solutions

Astound Business Solutions

A top-tier, national network solutions provider

We are a national telecommunications company that delivers advanced solutions over a diverse, carrier-grade network that provides high-speed, reliable, and secure connectivity for mission-critical business applications.

The Astound Fiber Network
Powering businesses across the U.S.

20+
METRO AREAS IN 12 STATES

42,000+
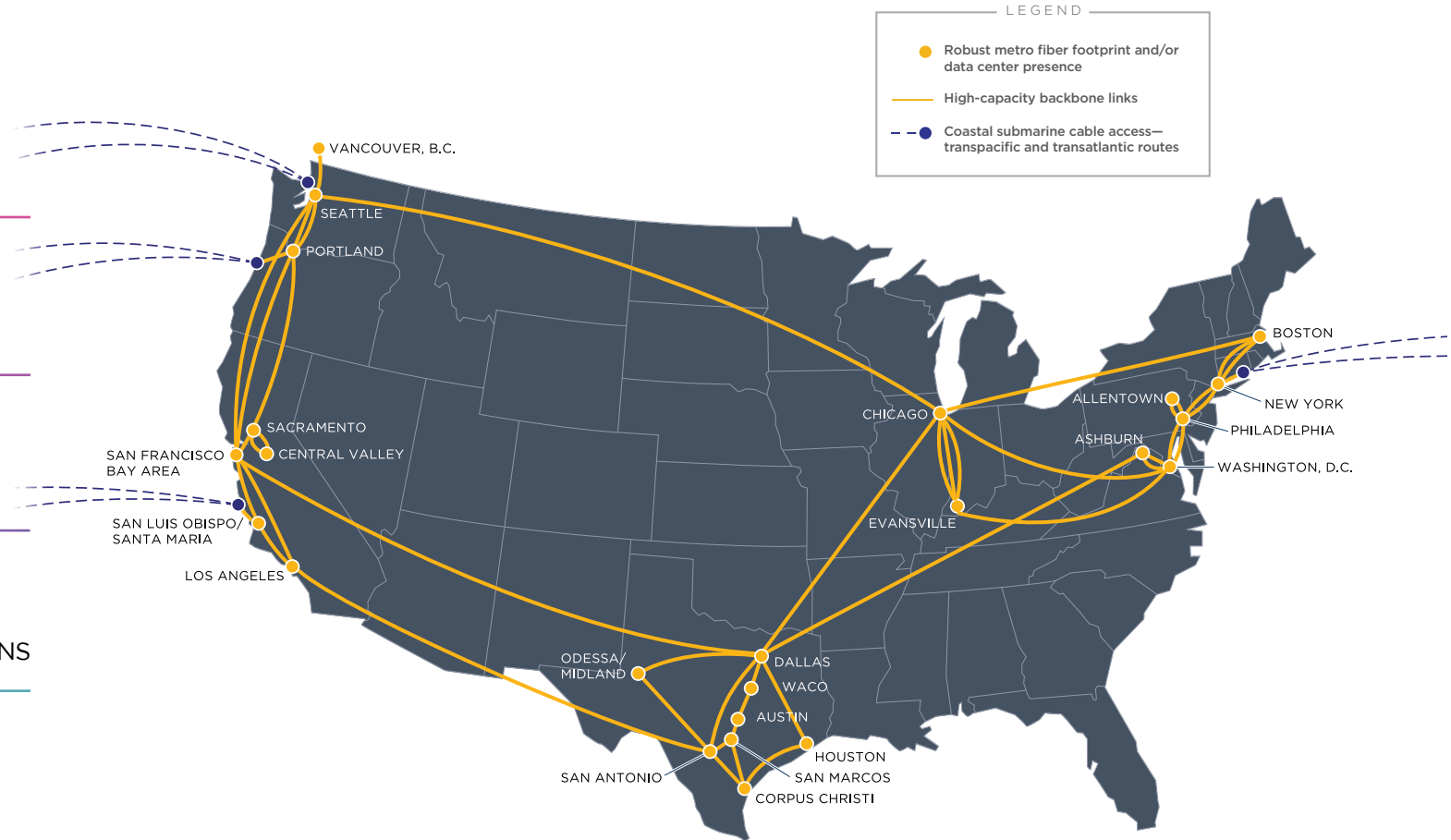FIBER ROUTE MILES

20,800+
ON-NET BUILDINGS

262,000+
VETTED NEAR-NET LOCATIONS

120+
DATA CENTERS

2,000+
CELL TOWERS

VANCOUVER, B.C.
SEATTLE
PORTLAND
SACRAMENTO
CENTRAL VALLEY
SAN FRANCISCO BAY AREA
SAN LUIS OBISPO/ SANTA MARIA
LOS ANGELES
ODESSA/ MIDLAND
DALLAS
WACO
AUSTIN
SAN ANTONIO
HOUSTON
SAN MARCOS
CORPUS CHRISTI
CHICAGO
EVANSVILLE
ALLENTOWN
ASHBURN
BOSTON
NEW YORK
PHILADELPHIA
WASHINGTON, D.C.

We Deliver Solutions Over the Most Reliable Network:

- Connectivity
- Internet
- Voice/Unified Communications
- Cloud Networking
- Custom Solutions/Advanced Services

Connectivity

With our connectivity solutions, we provide reliable, state-of-the-art transport technologies over our 100% fiber optic network. And with guaranteed performance and responsive, local service, we help businesses be ready for anything.

Why do you need connectivity?

• Growing bandwidth demands

• Connectivity is the infrastructure of networks; foundational to online presence

• Scalability

Connectivity Solutions at a Glance

Ethernet

Dedicated point-to-point or multi-point connectivity backed by carrier-grade fiber to meet the demands of high-bandwidth applications.

Wavelength

Secure end-to-end connectivity up to 400 Gbps.

Dark Fiber

Secure, scalable bandwidth on your own private network. Manage control and security with no equipment or protocol restrictions.

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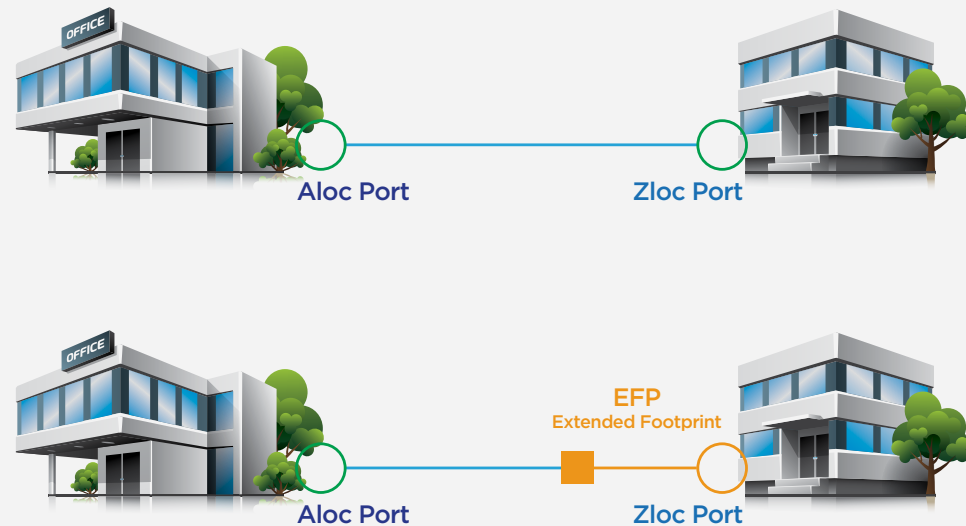Astound was able to provide us the services that no one else was able to.

— Alden Gleason, Assistant Director of IT, City of Celina, TX

Ethernet Private Line (EPL)

Get the most flexible point-to-point configurations backed by reliable, carrier-class fiber. Our EPL service meets the demands of high-bandwidth applications over Ethernet, so you can expand to new locations, connect new offices and data centers, and run bandwidth-intensive applications with confidence. We stand behind our solutions with an end-to-end, industry-leading Service Level Agreement (SLA) that extends across our backbone, metro core, and last-mile network for fiber-based services.

Ethernet Private Line — Point-to-Point Ethernet Connectivity

- Powers high-bandwidth applications, so you can expand to new locations, connect new offices and data centers, and run any application with confidence

- Dedicated connectivity between two locations across our Ethernet network

- Ideal for companies that need a secure, private connection between two locations; transparent plug and play

Aloc Port   Zloc Port

EFP
Extended Footprint
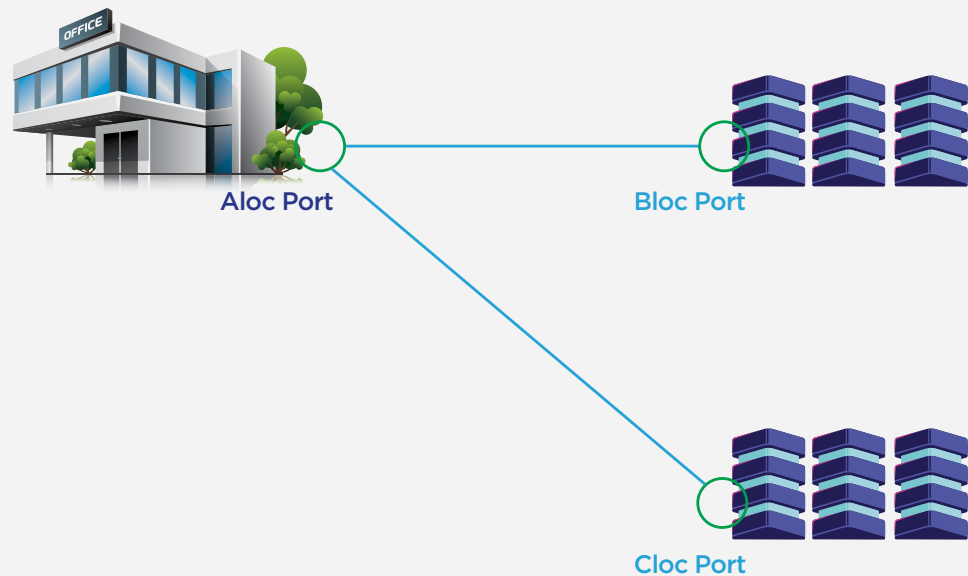
Aloc Port   Zloc Port

Ethernet Virtual Private Line (EVPL)

Connect multiple sites to a single hub with a dedicated high-speed private network for transferring data, voice, and video communications. EVPL streamlines your network management across multiple locations, with configuration options to support your offices anywhere.

Ethernet Virtual Private Line

Point-to-Multipoint Connectivity:

- Dedicated connectivity between more than two locations, with a "hub-and-spoke" topology

- Ideal for multi-location companies that want to maximize network control at one primary location, or that have a designated HQ and branch office structure; reduces number of network ports required

Aloc Port

Bloc Port

Cloc Port

Ethernet Solutions

Benefits of Astound Business Solutions Ethernet Products

Unlimited Scalability – Speeds that support any size application from regional to global scale, with the ability to grow your public domain

Flexibility – Increase bandwidth dynamically

Consistency – Supports features designed to guarantee predictable levels of network performance

Comprehensive SLA - You can run your business with confidence, knowing that your Internet service is monitored and assured

Strong Support – You have peace of mind with a local, responsive team, and we monitor our networks through our Commercial Network Operations Center to provide complete customer service 24/7/365

Resiliency - Most reliable infrastructure; drastically reduces downtime

Quality of Service - Full redundancy ensures improved reliability and disaster recovery ability

Cost-Effective - Networks are less complicated and easier to maintain than traditional networks

Symmetrical - Upload speeds match download speeds

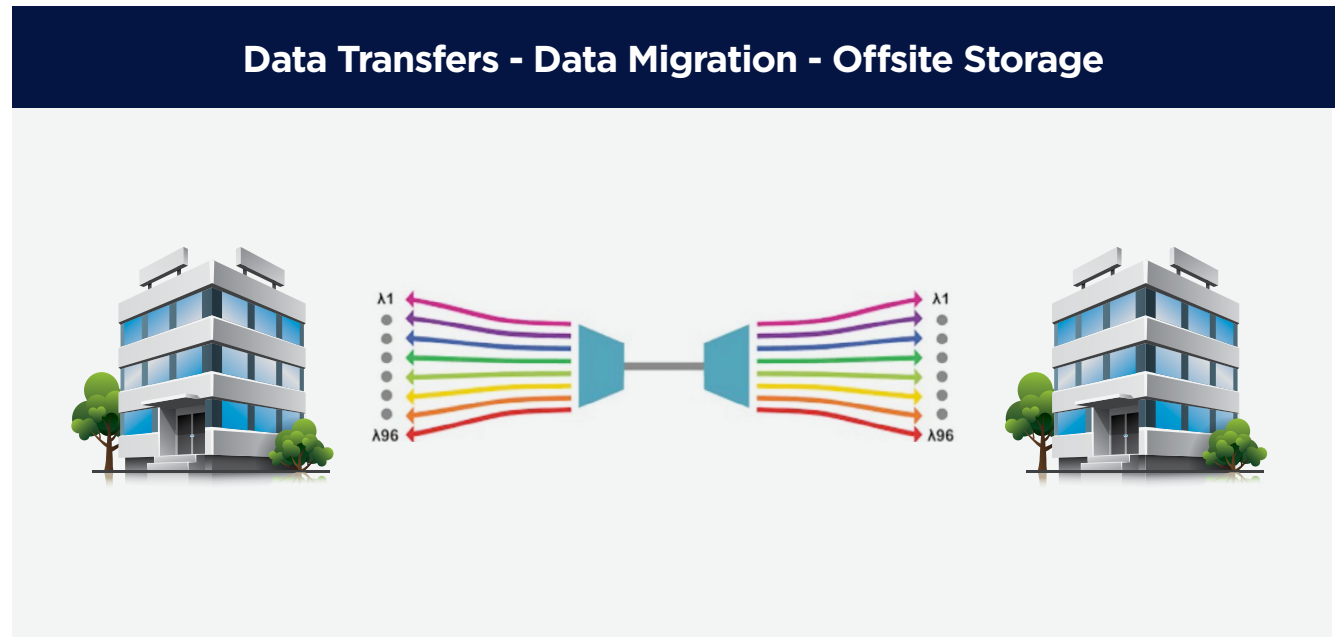| Standard Offerings		
50 Mbps, 100 Mbps	2 Gbps	20 Gbps
200 Mbps, 300 Mbps	3 Gbps	30 Gbps
500 Mbps	5 Gbps	50 Gbps
1 Gbps	10 Gbps	100 Gbps
1 GB Port	**10 GB Port**	**100 GB Port**

Wavelength

A partially meshed, intra-region, high-performance network that produces unsurpassed connectivity with elegant simplicity. The technology of choice for transporting large amounts of data between sites. Facilities-based network delivering proven optical performance that links high-traffic locations with key data centers and fiber-fed access points for seamless connections. Priced per endpoint (no standard price).

Standard Symmetrical Offerings
10 Gbps | 100 Gbps | 400 Gbps

Wavelengths have fewer points of failure and provide better security compared to switched/routed IP services

- Service level agreements
- Predictable performance
- No variance in latency or jitter
- Dedicated capacity that assures application performance
- Protected routes are available
- DWDM - Dense Wavelength Division Multiplexing
- Simple point-to-point pipe

Data Transfers - Data Migration - Offsite Storage

Dark Fiber

Dark Fiber is a dedicated strand of fiber optic cable that connects your locations within the same metro areas, and it allows you to increase connectivity, network efficiency, and speed for your customers.

You have end-to-end control, unlimited bandwidth, and the flexibility to run unique protocols and use your own equipment. A Dark Fiber network offers maximum security, since you are not running through someone else's network.

Typical bandwidth plans often do not address the increasing demand for bandwidth or account for secure Internet capabilities to transmit large files and sensitive data. They also do not consider the need for scalable, end-to-end network control that requires instant response times for point-to-point communications.

Workloads and operational demands continue to increase while budgets decline. This drives you to improve efficiencies and cut costs. However, leasing more line capacity on existing networks or purchasing more bandwidth presents economic challenges when faced with return on investment pressures.

DARK FIBER

Standard Offerings

STRAND	PAIR

Unlimited Bandwidth - Ensures the necessary bandwidth, with optimal connectivity

Secure - Your sites are directly connected and avoid any outside network traffic

Scalability & Flexibility - Increase bandwidth as you grow or reduce when necessary

Control - Create a network strategy and structure for your needs

Reliability - Full redundancy ensures improved reliability and disaster recovery

Why Choose Dark Fiber from Astound?

Our extensive fiber footprint, assets, routes, and secure rights-of-way provide your network infrastructure with the reliability, scalability, and flexibility to support mission-critical applications. It also enables you to support different configurations, services, and applications that standard bandwidth plans cannot handle. Dark Fiber is an affordable strategy to ensure your business maintains complete control over your network infrastructure.

Astound is the #1 Business Internet Service Provider

Astound has been recognized by PCMag's Business Choice readers as the **top Business Internet Service Provider (ISP) in the nation,** ranking #1 in:

- Overall Satisfaction
- Speed
- Reliability
- Ease of Use
- Likelihood to Recommend

We maintain a local, customer-centric approach, with dedicated industry experts on-hand 24/7, as we partner with businesses and help them grow and remain competitive.

Our NOC and U.S. call center, along with our local Sales Reps and Account Managers, provide excellent support to our customers.

Dedicated Internet Access (DIA)

Speed. Reliability. <u>Guaranteed.</u>
Dedicated to your Success.

With DIA, you're guaranteed to receive the exact bandwidth you purchased, 100% of the time. It's a great fit for businesses that:

- Use or host cloud-based applications
- Require dedicated bandwidth
- Need high-bandwidth upload and/or download capability

Fast, Secure Connections

Astound's DIA enables mission-critical business activities via:

- Dedicated, reserved, symmetrical high-bandwidth Internet speed
- Secure connections with guaranteed up-time and always-on connectivity
- Scalable solutions

Non-shared, direct connection to our fiber network

- Symmetrical upload and download
- Reliability backed by Astound's 99.99% Service Level Agreement
- Speeds up to 100 Gbps
- IPv4 blocks up to /24 w/ IPv6 support
- DDoS Mitigation
- 24/7/365 expert support

Standard Symmetrical Offerings

50 Mbps, 100 Mbps	2 Gbps	20 Gbps
200 Mbps, 300 Mbps	3 Gbps	30 Gbps
500 Mbps	5 Gbps	50 Gbps
1 Gbps	10 Gbps	100 Gbps

Key Attributes:

- Redundancy
- Private Network
- Dedicated Symmetrical Connectivity
- Service Level Agreement

ADD-ONS

- SD-WAN
- Static IP & Subnets
- Business Router, Managed Router
- Business Wi-Fi
- Bursting
- Border Gateway Protocol (BGP)
- Wireless Internet Backup

Cloud Networking

Secure, reliable connections to enable your business operations

Experience our Cloud Networking solutions to gain access to a global network of over 120 data centers, and leverage premier services that are optimized to support cloud-based applications. Our high-performance routes are engineered to accommodate any configuration, ensuring that your network runs smoothly and efficiently.

Cloud Networking at a Glance

Interconnection
Use Data Center Virtual Interconnect (DC-VI) as a private, transparent, and cost-effective method for point-to-point connectivity between our designated data centers.

IP Transit
Maximize connectivity with our IP Transit, linking data centers to the Internet via shortest routes with stable round-trip times.
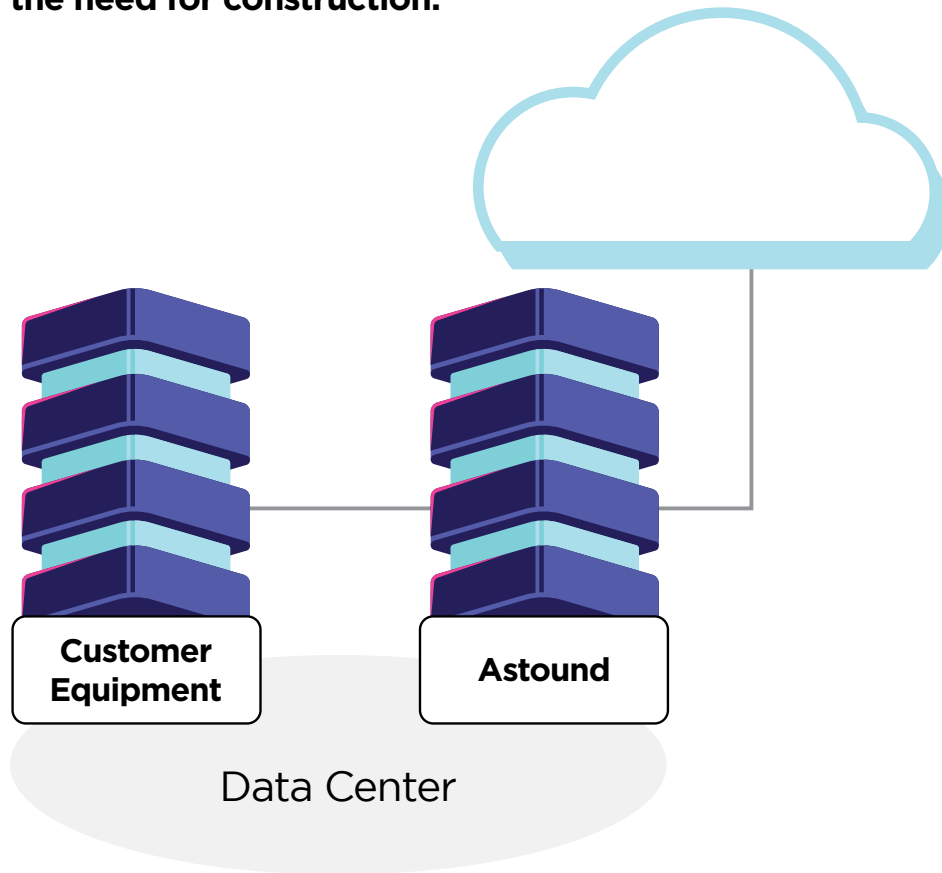
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We don't even talk about downtime at team meetings. It never comes up, because outages don't happen.

— *Eric Matthews, CIO, City of Allen, TX*

Data Center Interconnect (DCI)

We provide interconnectivity between the data centers in our network footprint when you need private, dedicated high bandwidth between data centers.

For customers that have a need to rapidly deploy circuits, paths, or wavelengths without the need for construction.
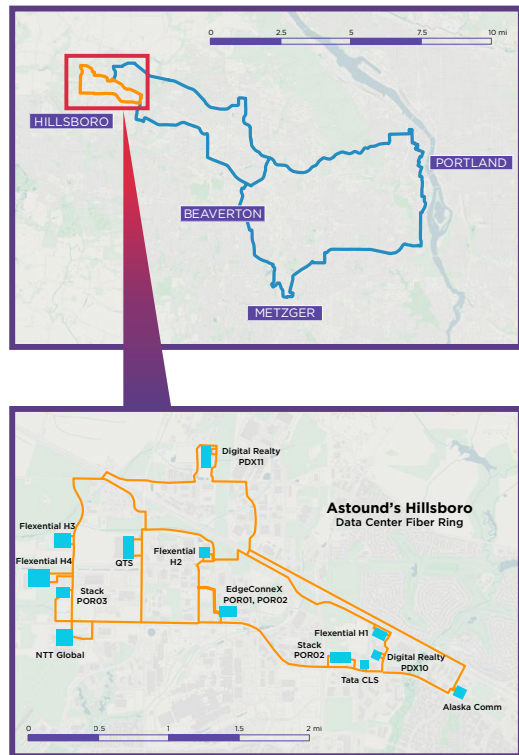
Customer Equipment

Astound

Data Center

Standard Dark Fiber Per Pair Pricing
with Data Center Cross Connect Fees Apply

Portland and Hillsboro Data Center Rings

Your One-Stop Shop for Fiber Connectivity

We have a 66km dedicated, 100% underground, 864-count Dark Fiber ring between Portland and Hillsboro, Oregon.

With dual entries into each data center, we can provide complete geographic fiber connectivity between any two connected data centers in Portland or Hillsboro without traversing any other facility, as well as connect you to any of the seven subsea cables that terminate in Hillsboro.

Standard Dark Fiber Per Pair Pricing
with Data Center Cross Connect Fees Apply

Hillsboro Data Centers

Alaska Communications CLS	Flexential H1
Digital Realty PDX10	Flexential H2
Digital Realty PDX11	Flexential H3
Digital Realty PDX12 (planned)	Flexential H4 (formerly T5)
EdgeConneX POR01	NTT Global HI1
EdgeConneX POR02	QTS Hillsboro1
EdgeConneX POR03 (planned)	Stack Infrastructure POR2
	Stack Infrastructure POR3
	Tata CLS1

Portland Data Centers

H5 Data Center Portland

Lumen Portland1

Pittock (1574 Critical)

IP Transit

Built for performance with the lowest latencies and shortest routes.

Astound provides a highly diverse, densely peered Internet transit product that connects with scalable capacity. To ensure the fastest and most direct route possible, Astound has engineered private and direct connections with destination networks for over 70% of our traffic. Astound peers with seven of the world's biggest Tier 1 providers for global backbone Internet connectivity.

Benefits

Guaranteed performance levels for:

- Throughput
- Packet Loss
- Latency
- Availability

Multiple connectivity options, including:

- Static route connection with IPv4 or IPv6
- Full routing participation using BGP
- Direct traffic to specific BGP partners for direct access to optimize routing

Standard Symmetrical Offerings

With IP Transit from Astound, you'll benefit from:

- Increased security
- Predictive network latency
- Low jitter/packet loss
- A more consistent connection experience than over the public Internet
- Symmetrical bandwidth options up to 100 Gbps
- Backed by Astound's 99.99% Service Level Agreement

Why Astound Carrier Services?

Astound Business Solutions provides IT leaders with high-capacity, secure connectivity for their mission-critical applications, while increasing overall agility and responsiveness.

• **Custom, Robust Solutions**

We take a consultative approach by first understanding your distinctive needs to deliver a unique solution designed especially for you.

• **Speed to Market**

Unlike larger competitors, we focus on rapid installations and upgrades and do not rely on third parties to meet deadlines.

• **Award-Winning Customer Service**

24/7/365 local dedicated support with industry experts on-hand around-the-clock to help businesses stay on top of today's evolving IT technology and remain competitive in their markets.

• **Fiber-Rich Network**

We operate a sophisticated network with a network backbone featuring a smaller node size and robust fiber capacity. See our map and stats on page 2 to get the details of our coverage.

Astound is an Internet, Connectivity, Unified Communications, Cloud Networking, and Solutions company.

Let's talk about your needs.

Astound

Business Solutions

astoundbusiness.com

carrier@astound.com