

RCN Metro Optical Networks is a regional, facilities-based network services provider in the 12-state Northeast and mid-Atlantic region offering alternative access services including: True Diversity (through unique rights-of-way); SONET Services (DS-3; OC-n); Metro Ethernet (GigE; Fast Ethernet); DWDM; Connections to IXCs/ISPs; Long-haul; Private Networks; Colocation; Custom Applications; Disaster Recovery (Hot Site Connectivity; Remote Storage Connectivity; CO Diversity); Managed Services (NOC Services); and Local Access (3:1 Muxing).

RCN Metro Optical Networks



Ethernet Private Line

RCN Metro Optical Networks offers carrier class Ethernet transport services to meet the varying connectivity needs of carriers, ISPs, and large scale enterprise networks. Our Ethernet Private Line Service is both MEF-9 and MEF-14 certified ensuring that that our service will conform to a set of standards specified by the Metro Ethernet Forum.

RCN Metro Optical Networks' Ethernet Private Line Service offers dedicated, point-to-point connectivity at Fast Ethernet (50 Mbps or 100 bps) as well as Gigabit Ethernet (600 Mbps or 1000 Mbps). Ethernet can be used to support applications such as LAN-to-LAN connectivity, storage area networking, Internet access, or disaster recovery solutions.

To meet the needs of its customers, RCN Metro Optical Networks has designed the service so that it can be provisioned over a single path or, for added reliability, over a diverse path.

Ethernet Private Line Service is available at most of RCN Metro Optical Networks' locations in both metro and long-haul configurations.

Connection Model

Fast Ethernet handoffs will be provided via copper 100BaseTx interface over category 5 twisted pair cable (Cat 5). Gigabit Ethernet handoffs will be provided via 1000BaseLX.

Service Level Agreement

Offered via On-Net Service

- **Network Availability**
 - Diverse Path
≥99.99% measured annually
 - Single Path
>99.9% measured annually
- **Throughput**
 - Fast Ethernet
100% (45 Mbps and 100 Mbps)
 - Gigabit Ethernet
100% (600 Mbps and 1000 Mbps)
- **Mean Time to Repair**
4 hours
- **MEF Certifications**
 - MEF-9
 - MEF-14

Note: The demarcation point for evaluating performance is the RCN Metro Optical Networks Ethernet port and does not include any media converters or connections beyond the Ethernet port.

Features, Advantages, and Benefits

- **Ease of Use** - RCN Metro Optical Networks Ethernet Private Line Service eliminates the need for additional WAN protocol layers
- **Cost Savings** - Ethernet equipment interfaces are lower cost equipment interfaces
- **Reliable** - Carrier grade 99.99% availability (over a diverse path) and 50 ms recovery
- **Scalable** - Fast Ethernet from 50 Mbps to 100 Mbps and Gigabit Ethernet from 600 Mbps to 1000 Mbps
- **Flexible** - The service can be designed to utilize a single path or diverse path
- **Dedicated Path** - Ensuring private line security

Technical Specifications

	Fast Ethernet	Gigabit Ethernet
Network Technology	Fast Ethernet over RCN Metro Optical Networks' SONET network	Gigabit Ethernet over RCN Metro Optical Networks' SONET or DWDM optical network
Throughput	50/100 Mbps	600/1000 Mbps
Handoffs	Category 5, RJ-45	Single mode fiber
Protection	Unprotected handoff with full SONET protection on the RCN Metro Optical Networks network	Unprotected handoff. Can be designed as single path or diverse path over a SONET or wavelength infrastructure
Network Management	24x7 monitoring and surveillance	24x7 monitoring and surveillance
Network Options	Long-haul and metro configurations	Long-haul and metro configurations
Availability	Most on-net locations throughout the RCN Metro Optical Networks network	Most on-net locations throughout the RCN Metro Optical Networks network

RCN Metro Optical Networks



SONET Private Line

RCN Metro Optical Networks offers a regional network supporting long-haul and metro SONET private lines. SONET private lines on RCN Metro Optical Networks' network provide a highly reliable complete network solution for carriers and service providers. RCN Metro Optical Networks' network connects Tier 1 cities over our Express long-haul network and also provides connectivity from key Tier 2 and 3 cities to Tier 1 cities. This regional connectivity combined with RCN Metro Optical Networks' metro connectivity and connectivity to Incumbent Local Exchange Carrier (ILEC) central offices provides a capillary network for carriers and service providers to expand their footprint in order to reach all of their customers in the Northeast and Mid-Atlantic region.

Long-Haul SONET Private Line

RCN Metro Optical Networks' Long-Haul Express SONET Private Line Service provides connectivity to major Tier 1 cities including Boston, New York, Philadelphia, Baltimore, and Washington, DC. The Express Service offers scalable, reliable, high bandwidth solutions throughout one of the most bandwidth intensive telecommunications markets in the world.

RCN Metro Optical Networks' Long-Haul Regional SONET Private Line Service provides connectivity to Tier 2 and Tier 3 cities throughout the Northeast and Mid-Atlantic region.

RCN Metro Optical Networks' network incorporates intercity, regional, and metropolitan ring architecture, providing significant reach and market coverage and high reliability throughout the network.

Metro SONET Private Line

RCN Metro Optical Networks' Metro SONET Private Line Service provides an efficient solution to access key carrier hotels, Internet peering and transit points, as well as the Public Switched Telephone Network (PSTN) in metropolitan areas. RCN Metro Optical Networks has built metro networks in Tier 1 cities to deliver maximum capillarity. RCN Metro Optical Networks metro capillarity also includes suburban cities and towns as well as metro networks in select Tier 2 and 3 cities.

Features and Benefits

When you connect into RCN Metro Optical Networks' network, you are connecting into the highest density, most valuable telecommunications market in the world, with extensive on-net long-haul, regional, and metro connectivity including key central offices, tandems, and carrier hotels.

- **Flexible Bandwidth** - DS-3, OC-3, OC-12, OC-48
- **Deafed OC-192 System Solution** (4xOC-48 handoffs)
- **Multi-Application Support** - SONET supports all common networking requirements: circuit switched voice, Asynchronous Transfer Mode (ATM), frame relay, and Internet Protocol (IP)
- **Reliable** - Physically diverse, self healing, protected SONET architecture
- **Survivable** - Highest level of survivability
- **Available** - 24x7 network surveillance

SONET Private Line Service Specifications

	Long-Haul	Metro
Bandwidth	DS-3 Dedicated OC-192	DS-3 Dedicated OC-192
Protection	Full SONET protection with route diverse ring architecture in most areas	Full SONET protection with route diverse ring architecture in most areas
Network Technology	Utilizes RCN Metro Optical Networks' diverse DWDM network	Utilizes RCN Metro Optical Networks' diverse metro DWDM network and traditional metro fiber
Availability	Portland, ME - Washington, DC	Over 200 POPs including tandems, central offices, and carrier hotels from Portland, ME - Washington, DC
Management	24x7 monitoring and surveillance	24x7 monitoring and surveillance
Protocol Support (Over SONET)	Circuit switched voice, ATM, frame relay, IP, and video	Circuit switched voice, ATM, frame relay, IP, and video

Protection Specifications	ON-NET	OFF-NET Local Loop
Availability	99.999%	99.99%
Bit Error Rate	1x10-9	1x10-9
Error Free Seconds	1x10-9	1x10-9
Mean Time to Repair (MTTR)	3 Hours	4 Hours

RCN Metro Optical Networks



SONET Virtual Private Network

RCN Metro Optical Networks' SONET VPN is exactly what this global ISP is searching for.

Challenge

A global Internet Service Provider (ISP) focused on serving the business marketplace was looking to connect multiple locations within a major metropolitan market in the Northeast. Because they were providing services to business customers, they needed reliable network solutions with the ability to easily add locations to the network and reallocate bandwidth.

Solution

Aware of the ISP's intent for a SONET ring, the RCN Metro Optical Networks account team proposed a SONET VPN network as a way of providing connectivity to these locations.

Combining the reliability and availability associated with dedicated SONET rings and the ease and flexibility of ordering individual circuits, RCN Metro Optical Networks' SONET VPN is provisioned over multiple shared SONET rings – offering a fully protected service with SONET reliability.

The service provides an OC-48 or OC-12 virtual SONET ring connecting a predetermined set of locations. Once the service is established, any combination of DS-3s through OC-12s can be added between locations, up to the total capacity of the network.

Benefits

- **Flexible & Scalable** –With SONET VPN, the ISP doesn't need to know the exact service mix upfront. They can add bandwidth where they need it and when they need it. Also, unlike a dedicated SONET ring, with SONET VPN the ISP can easily add locations to the network
- **Cost-Effective** – With SONET VPN, the service provider gets the same functionality of a dedicated SONET ring, but because it is delivered over a shared infrastructure, they avoid paying for fixed dedicated equipment, fiber, and nodes
- **Reliable** – 24x7 network monitoring and technical support are offered by RCN Metro Optical Networks

RCN Metro Optical Networks



Custom Private Optical Network Solutions

Networking requirements have become more complex as multiple protocols and applications need to be supported across a wide area network. Standardized, off-the-shelf service offerings from the local phone company no longer meet the needs of many carriers and businesses. Often what they need is a network designed and built to support their specific networking requirements. However, the time and costs associated with building a private network, along with the level of specialized knowledge and expertise required to undertake this endeavor, make it unfeasible for most companies even to consider. If you are faced with this situation, RCN Metro Optical Networks can offer your company an innovative way to get the specific optical networking solutions needed to achieve your business objectives.

Design

RCN Metro Optical Networks will work with your team to gain an understanding of your networking requirements. RCN Metro Optical Networks will then move into the design phase, which includes establishing the physical routes the network will take, determining the SONET and optical layer design as well as specifying the equipment configuration. RCN Metro Optical Networks will deliver a comprehensive plan which includes detailed configurations for each site, fiber maps, time lines, and cost estimates.

Build

RCN Metro Optical Networks will assign a Project Manager to over see the construction of your network. This individual will be your single point of contact working to coordinate the efforts of the various groups involved in the project and to ensure that it stays on track. Also during this phase, RCN Metro Optical Networks will secure the elements required to implement the design, which could include negotiating rights of way, leasing space, and procuring equipment.

Maintain

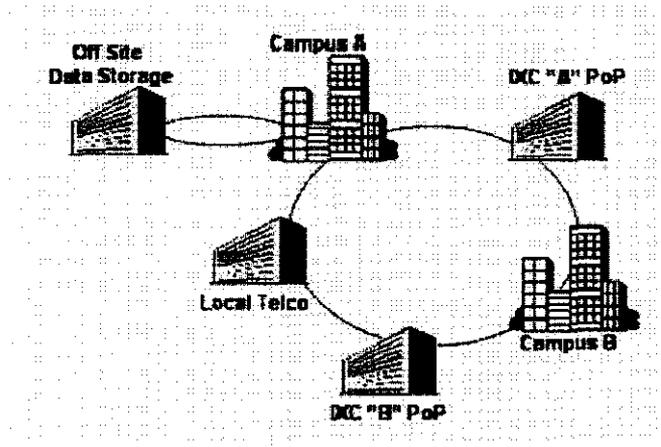
Once your network is built, RCN Metro Optical Networks offers a full suite of managed services, including the monitoring of the SONET and optical layers to ensure that the network performs at the high level your business demands.

Features and Benefits

- **Experienced** – Leverage the knowledge of our skilled team of communications professionals. RCN Metro Optical Networks designed and built its network from the ground up and can do the same for your company. You will be dealing with a team that knows the local market and knows how to complete projects on time and on budget.
- **Established** – RCN Metro Optical Networks is a well established regional carrier which provides services to some of the largest carriers and businesses along the East Coast.
- **Carrier Neutral** – RCN Metro Optical Networks has connectivity to most major carriers and Tier 1 ISPs throughout its region so you can be assured that RCN Metro Optical Networks can connect you to the carrier of your choice.
- **Cost-Effective** – RCN Metro Optical Networks saves you the time and expense associated with building your own network or acquiring it from the local phone company.
- **Unique Rights-of-Way (ROW)** - RCN Metro Optical Networks' use of electric utility ROWs enables it to offer an unparalleled level of diversity.
- **Turnkey Solution** – RCN Metro Optical Networks manages your project from the design phase all the way through to the maintenance of the network.

Availability

RCN Metro Optical Networks offers Custom Private Optical Network Solutions on an individual case basis. The foundation for any solution can either be at the SONET or DWDM layer. RCN Metro Optical Networks can support multiple protocols such as Fast Ethernet, Gigabit Ethernet, ATM, as well as storage protocols such as Fibre Channel.



In this example, RCN Metro Optical Networks was able not only to provide a network that connected the customer's campuses and off-site data storage, but also connected them to multiple carriers. This allowed the customer to choose which carrier they wanted to purchase services from, on an application-by-application basis.

RCN Metro Optical Networks



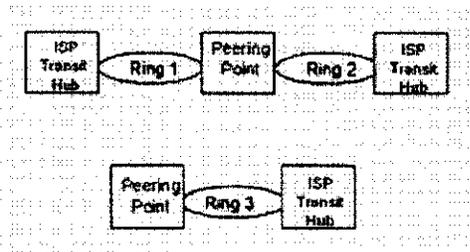
Custom Private Optical Network

A custom private optical network opens the door to new customers for an ISP.

Challenge

A Tier 1 Internet Service Provider (ISP) was looking for a network that would allow them to increase the scalability of its Internet network and allow them to connect to new peering partners throughout NY and the mid-Atlantic region. They needed an extremely reliable network and were looking for a carrier that could build and manage it on their behalf.

This network needed to be geographically diverse, capable of providing enough bandwidth to meet today's demands, and offer the ability to scale as traffic grows.



Solution

RCN Metro Optical Networks was able to design, build, and manage multiple SONET networks that provided connectivity to multiple peering points. Working closely with the customer, the RCN Metro Optical Networks account team created a network design that was flexible, highly scalable, and offered them the level of diversity they demanded.

Benefits

- **High Availability** – Utilizing our unique ROWs, RCN Metro Optical Networks was able to provide the ISP with a network that is truly diverse. That level of diversity combined with RCN Metro Optical Networks' network protection switching, ensures the ISP will achieve maximum network availability for the peering connections transported
- **Rapid Response** – RCN Metro Optical Networks was able to quickly mobilize resources and build this complex network within the ISP's aggressive timeframe. In addition, the RCN Metro Optical Networks design allows for additional bandwidth to be provisioned in an extremely short interval
- **Scalable** – RCN Metro Optical Networks has pre-planned the network to anticipate and facilitate smooth, linear growth. This ensures that the customer can rapidly increase capacity as business needs dictate
- **Cost-Effective** – RCN Metro Optical Networks' design was able to meet all of the customer's stringent requirements while still being a cost-effective solution

RCN Metro Optical Networks



Wavelength

RCN Metro Optical Networks' innovative Wavelength Service provides a flexible and scalable high capacity transport solution with the benefits of competitive costs, improved speed to market, and enhanced network control. RCN Metro Optical Networks' Wavelength Service is a "virtual fiber" service, providing transponder-based 2.5 Gbps and 10 Gbps optical wavelength capacity. RCN Metro Optical Networks' Wavelength Service can be configured as either a protected or unprotected wavelength. The Wavelength Service can be used in applications such as supporting layer two and three data networks, or, alternatively, providing route diversity or ring closure for layer one SONET networks.

RCN Metro Optical Networks offers two types of Wavelength Service to address both the long-haul and metro markets:

Express Service

RCN Metro Optical Networks' Express Service provides long-haul 2.5 Gbps or 10 Gbps Wavelength Service among RCN Metro Optical Networks' Tier 1 city colocation Points of Presence (POPs). Express Service provides connections between Boston, New York City, Philadelphia, and Washington, DC.

Metro Service

RCN Metro Optical Networks' Metro Service connects RCN Metro Optical Networks' colocation POPs to other RCN Metro Optical Networks POPs within a metro region. Metro Service is a point-to-point solution with options for protected and unprotected connectivity to POPs on the RCN Metro Optical Networks network. Metro Service provides for 2.5 Gbps and 10 Gbps wavelengths.

RCN Metro Optical Networks' Wavelength Service allows customers to lease individual wavelengths as a secure, private resource for an alternative to capital intensive and resource intensive dark fiber builds. RCN Metro Optical Networks' Wavelength Service uses Dense Wave Division Multiplexing (DWDM) technology and involves unique wavelength optical signals that are multiplexed and transmitted over a single fiber. At the receiver end, the composite signal is de-multiplexed and the individual unique signals are recovered. An optical channel consists of two wavelengths to deliver bi-directional communications. Transponders at end locations are connected directly to RCN Metro Optical Networks' DWDM optical layer and provide a non-proprietary, open interface to customer network elements, thereby achieving virtual fiber connectivity between the customer's elements.

Features and Benefits

- **Scalable** - Long term access to scalable high bandwidth capacity as needs expand; 2.5 Gbps & 10 Gbps
- **Easy to Deploy** - Dark fiber features with the ease of a lit service
- **Cost-Effective** - Bulk point-to-point bandwidth at competitive rates
- **Reduces network management requirements and resources**
- **Customizable to Meet your Business Objectives** - Available in both protected and unprotected configurations
- **Diverse Routes** - Available to improve customer network reliability and survivability
- **Close your SONET rings with clear channel capacity**
- **Supports Multiple Protocols** - Seamless support for your IP, ATM, frame relay, and circuit switched voice services
- **24x7 network surveillance**

Wavelength Technical Specifications

	Express	Metro
Bandwidth	2.5 Gbps (OC-48) 10 Gbps (OC-192)	2.5 Gbps (OC-48) 10 Gbps (OC-192)
Protocol Independent	Open interfaces support all major transport protocols: ATM, SONET, IP, etc.	Open interfaces support all major transport protocols: ATM, SONET, IP, etc.
Handoff Optical Reach (fiber dependent)	2.5 Gbps 30 miles 10 Gbps 20 miles	2.5 Gbps 15 miles 10 Gbps ICB
Optional Route Diversity	Yes	Yes
Optional Optical Protection on Diverse Routes	Yes	Yes
Availability	Boston, MA New York, NY Philadelphia, PA Washington, DC	Baltimore, MD Boston, MA Burlington, VT Hartford, CT Manchester, NH McLean, VA New York, NY Newark, NJ Philadelphia, PA Portland, ME Providence, RI Springfield, MA Washington, DC White Plains, NY Worcester, MA

Protection Specifications	Point-to-Point	Optically Protected Route Diverse
Availability	99.9%	99.99%
Bit Error Rate	1x10 ⁻⁹	1x10 ⁻⁹
Error Free Seconds	99.9%	99.9%
Mean Time to Repair (MTTR)	8 hours	3 hours

RCN Metro Optical Networks



Central Office Access

RCN Metro Optical Networks' Central Office (CO) Access Service provides wholesale, high bandwidth SONET private line connectivity to key Incumbent Local Exchange Carrier (ILEC) COs for carriers and service providers serving the enterprise market. SONET private lines can support multiple service types including voice, private data, and Internet access. RCN Metro Optical Networks offers SONET private line connectivity from OC-3 through OC-48 as well as electrical DS-3s.

Carriers can connect to RCN Metro Optical Networks from their colocation within the CO or order ILEC services directly to the RCN Metro Optical Networks presence in the CO at the DS-3 level and above for virtual colocation.

RCN Metro Optical Networks' CO Access Service is ideal for carriers and service providers who want to:

- Aggregate CO traffic from their presence in the CO over RCN Metro Optical Networks' fully protected SONET network
- Create a virtual presence in a CO by utilizing RCN Metro Optical Networks' presence to aggregate traffic back to a central location/carrier hotel
- Cross Local Access and Transport Area (LATA) boundaries with aggregated traffic via a single carrier

Benefits

How can you benefit from RCN Metro Optical Networks' CO Access Service?

- **Market Reach** - Expand your market reach without having to colocate in every CO and market by utilizing RCN Metro Optical Networks' presence and interLATA backhaul capabilities. RCN Metro Optical Networks has a dense footprint spanning from Maine to Washington, DC.
- **Capital Savings** - Instead of investing time and capital in expensive network infrastructure, you can utilize RCN Metro Optical Networks' network infrastructure to build your network. Customers can leverage RCN Metro Optical Networks' high-tech optical network as a low cost way to aggregate traffic from the CO and backhaul over RCN Metro Optical Networks' regional or long-haul network.
- **Tandem Access** - RCN Metro Optical Networks has established connectivity to many of the key ILEC tandems in each market.
- **Availability** - RCN Metro Optical Networks' network is available today connecting to over 90 COs throughout the mid-Atlantic and Northeast.
- **Customer Support** - 24x7 network monitoring and trouble resolution.
- **Flexibility** - RCN Metro Optical Networks can provide an end-to-end solution for DS-3 and above providing circuit provisioning and management. The demarcation can be at your end customer location or at a CO with you controlling last mile access.

Current Central Offices

State	City	Address
Connecticut		
CT	Bridgeport	365 John
CT	Danbury	39 West*
CT	Greenwich	16 Sherwood
CT	Hartford	111 Trumbull
CT	New Haven	400 State
CT	New London	26 Washington*
CT	Norwalk	2 Washington
CT	Stamford	555 Main
CT	Wallingford	89 N Main*
CT	Waterbury	348 Grand*
District of Columbia		
DC	Washington	30 E SW
DC	Washington	1200 H/730 12 th *

New York		
NY	Albany	158 State
NY	Armonk	23 Whippoorwill E
NY	Bronx	3050 Cruger
NY	Croton-on-Hudson	81 Riverside
NY	Freeport	120 S. Grove/120 Guy Lombardo*
NY	Garden City	741 Zeckendorf*
NY	Greenburgh	545 Saw Mill River
NY	Jamaica	8963 163 rd *
NY	Mahopac	136 Buckshollow
NY	Manhattan	104 Broad
NY	Manhattan	1095 Ave of Americas
NY	Manhattan	140 West*
NY	Manhattan	193 Manhattan
NY	Manhattan	204 2nd*
NY	Manhattan	208 E. 79th
NY	Manhattan	210 W. 18th
NY	Manhattan	221 E. 37th
NY	Manhattan	227 E. 30th
NY	Manhattan	228 E. 56th
NY	Manhattan	230 W. 36th*
NY	Manhattan	435 W. 50th
NY	Manhattan	33 Thomas/323 Broadway*
NY	Monroe	145 N. Main
NY	Mt. Kisco	45 E. Main
NY	Ossining	162 Main
NY	Peekskill	1023 Brown
NY	Poughkeepsie	20 S. Hamilton
NY	Putnum Valley	196 Peekskill Hollow
NY	Spackenkill	15 Stuart
NY	Tarrytown	19 Central
NY	Wappingers Falls	10 South
NY	White Plains	111 Main
NY	Yorktown Heights	2750 Hickory
Pennsylvania		
PA	Ambler	20 N. Spring Garden
PA	Philadelphia	1631 Arch
PA	Philadelphia	900 Race
PA	Philadelphia	423 S. 17 th
Rhode Island		
RI	Cranston	56 Phenix
RI	E. Providence	789 N. Broadway
RI	Providence	1096 Broad
RI	Providence	234 Washington
RI	Warwick	2557 W. Shore
Virginia		
VA	Arlington	1025 N. Irving*
VA	Falls Church	2935 Gallows*
VA	Herndon	472 Elden*
VA	McLean	1701 Chain Bridge*
Vermont		
VT	Brattleboro	213 Main
VT	Burlington	266 Main
VT	White River Junction	29 Gates

*Planned expansion

RCN Metro Optical Networks



Colocation

RCN Metro Optical Networks' Colocation Service provides secure, high-tech colocation centers strategically located to facilitate high bandwidth connectivity to the RCN Metro Optical Networks network, carrier hotels, local switch offices, and numerous service providers.

Locating your equipment in RCN Metro Optical Networks' colocation centers ensures fast provisioning without expensive and time-consuming buildouts. We take care to house your equipment in a fully monitored facility that provides secure and reliable high bandwidth access to RCN Metro Optical Networks' network and common carriers.

RCN Metro Optical Networks offers Colocation Service in 22 facilities located throughout the Northeast and mid-Atlantic states. Our high-tech carrier-class colocation centers are fully secure, temperature controlled, and offer power ready racks, cabinets, and bulk space.

Features and Benefits

- **Valuable Locations** – RCN Metro Optical Networks' colocation centers are strategically located in key downtown metropolitan areas within close proximity to all major carrier and Internet facilities, ensuring easy connectivity to the highest value communications markets in the United States.
- **Highest Connectivity** – RCN Metro Optical Networks' colocation centers have full connectivity to RCN Metro Optical Networks' metropolitan loops and backbone network, providing connectivity to central offices, long distance carriers, carrier hotels, and Internet network access points.
- **Scalable Bandwidth** – RCN Metro Optical Networks' metro and long-haul optical network is ready to provide high capacity scalable SONET bandwidth in increments of DS-3, OC-3, OC-12, OC-48, and OC-192, and managed wavelengths in both 2.5 Gbps and 10 Gbps. Ethernet Private Line transport services with point-to-point connections at either 50 Mbps or 100 Mbps are also available. We utilize dense wave division multiplexing in both metro and long-haul networks to ensure availability and scalability.
- **Available** – RCN Metro Optical Networks' colocation centers are built and fully equipped with all systems including racks, AC/DC power, HVAC, backup generators and batteries, and full RCN Metro Optical Networks network connectivity.
- **Unparalleled Security and Reliability** – RCN Metro Optical Networks' colocation centers employ the latest in controlled access systems and security, ensuring the highest level of security. Reliability is designed into the facilities with 24x7 surveillance, fully redundant systems, and local field technicians, ensuring carrier class facilities.

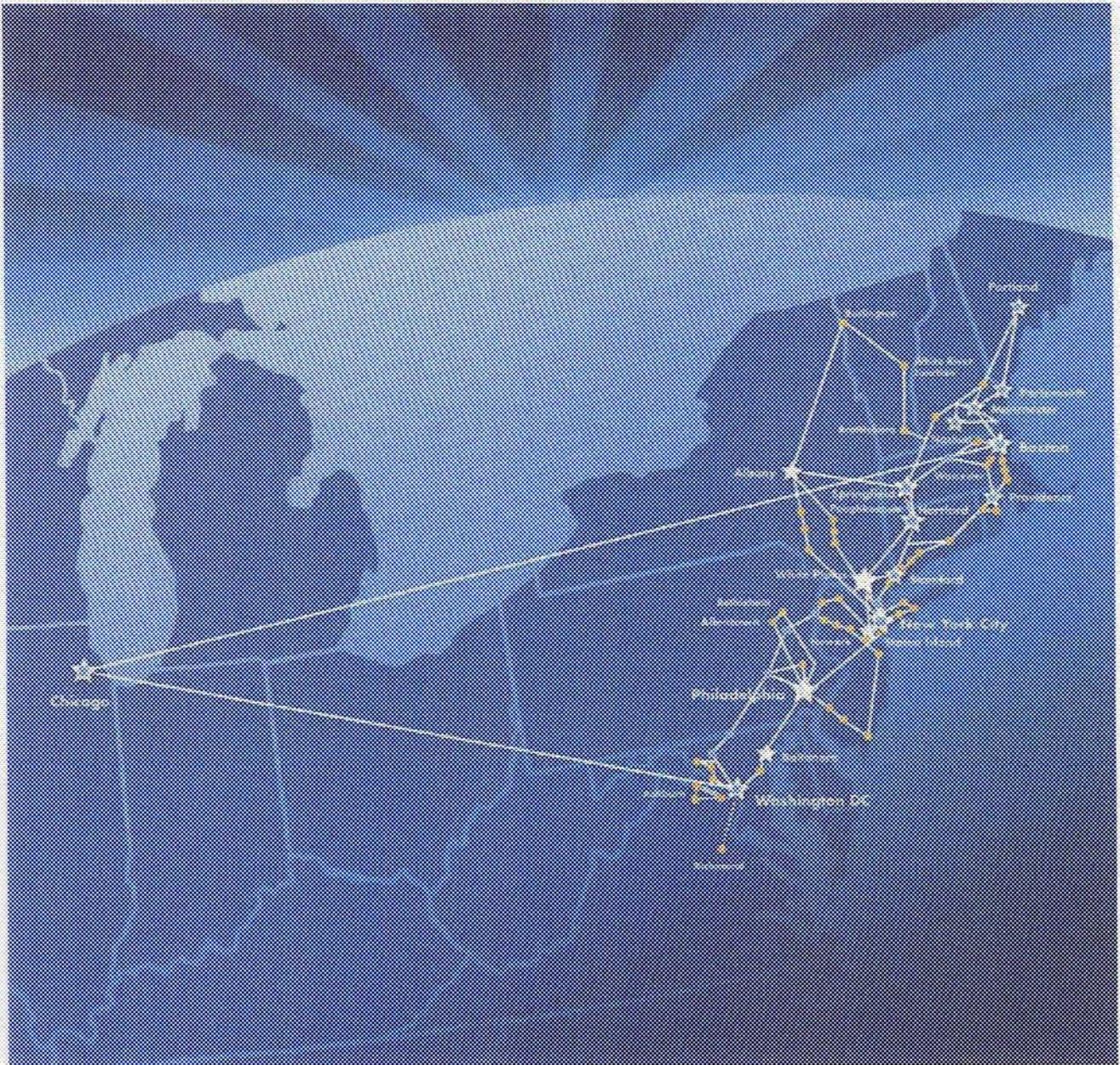
Colocation Service Specifications

Racks	Standard 23x84
Cabinets	Standard 23x36x84
Floor Space	450-10,000 Sq. Ft.
Power DC	15 Amps/30 Amps/60 Amps
Power AC	120V Convenience Outlets
Backup Generators	72 Hour Min. Run Time Diesel Generators
Battery Backup DC	4 Hour Min.
Grounding	Separate Equipment and Building Grounds
Cooling Systems	Fully Redundant HVAC
Building Fiber Entry	Dual Diverse Fiber
Access to Facility	24x7
Remote Monitoring	RCN Metro Optical Networks NOC
Availability	Boston, MA (multiple sites) Chester Springs, PA Hartford, CT Hellertown, PA Manchester, NH Nashua, NH New York, NY (multiple sites) Owings Mills, MD Plainfield, NJ Portland, ME Portsmouth, NH Providence, RI Rising Sun, MD Springfield, MA Stamford, CT Washington, DC White Plains, NY Worcester, MA

RCN Metro Optical Networks

State	City	Address	Zip	RCN Metro CLLI Code	Floor	NPA/INXX	Building Type	Common Carriers	Status	LATA	Ready Date	C-60	E	DS3	OC3	OC12	OC4B	Waves	
PA	Bethlehem	1425 Livingston St.	18017	BHLHPAMM			Enterprise		Existing										
PA	Bethlehem	1525 Valley Center Parkway	18017	BHLHPALJ			Enterprise		Existing										
PA	Bethlehem	1560 Valley Center Parkway	18017	BHLHPAAA			Enterprise		Existing										
PA	Bethlehem	1621 Catasauqua Rd	18017	BHLHPAAS			Enterprise		Existing										
PA	Bethlehem	1650 Kenwood Drive	18017	BHLHPA11			Enterprise		Existing										
PA	Bethlehem	1815 Main Street	18018	BHLHPAMT			Enterprise		Existing										
PA	Bethlehem	1820 Burztown Rd.	18017	BHLHPAML			Enterprise		Existing										
PA	Bethlehem	2121 Abington Road	18018	BHLHPAMU			Enterprise		Existing										
PA	Bethlehem	3144 Linden Street	18017	BHLHPADK			Enterprise		Existing										
PA	Bethlehem	3148 Chestnut Avenue	18020	BHLHPACT			Enterprise		Existing										
PA	Bethlehem	3890 Jacksonville Rd.	18017	BHLHPA12			Enterprise		Existing										
PA	Bethlehem	3900 Burgess Place	18017	BHLHPA04			Enterprise		Existing										
PA	Bethlehem	3949 Scheiden Circle	18017	HVTPPABW			Enterprise		Existing										
PA	Bethlehem	404 E. North St.	18018	BHLHPAMV			Enterprise		Existing										
PA	Bethlehem	47 Commerce Way	18017	BHLHPABW			Enterprise		Existing										
PA	Bethlehem	520 East Broad St	18018	BHLHPADP			Enterprise		Existing										
PA	Bethlehem	525 N. New St	18018	BHLHPABE			CO		Existing										
PA	Bethlehem	551 Thomas Street	18015	BHLHPAGN			Enterprise		Existing										
PA	Bethlehem	81 Highland Ave	18017	BHLHPAAB			Enterprise		Existing										
PA	Bethlehem	815 Pennsylvania Avenue	18018	BHLHPAMW			Enterprise		Existing										
PA	Bethlehem	86 S. Commerce Way	18017	BHLHPABL			Enterprise		Existing										
PA	Bethlehem	801 North Blvd	18017	BHLHPA15			Enterprise		Existing										
PA	Bethlehem	909 W. Union Blvd	18016	BHLHPAMN			Enterprise		Existing										
PA	Blue Bell	950 Harvest Drive C	18422	BLBPA10		610-458	Enterprise		Existing	228	Now								
PA	Chester Springs	1885 Trondinga Blvd	18425	CSSPPASS			Node		Existing										
PA	Darby	1501 Land Drive Ave	18023	DRBYTAAJ			Enterprise		Existing										
PA	Easton	2040 Washington Street	18042	WLSNPAAL			Enterprise		Existing										
PA	Easton	2403 Butler Street	18042	WLSNPABL			Enterprise		Existing										
PA	Easton	250 S. 21st Street	18042	ESTNPAAI	3		Enterprise		Existing										
PA	Easton	2860 Morgan Hill Rd.	18042	WILTPAAE			Enterprise		Existing										
PA	Easton	56 N. 4th Street	18042	ESTNPAEA			CO		Existing										
PA	Easton	58 N. 4th Street	18042	ESTNPAEA			CO		Existing										
PA	Easton	869 Washington St.	18042	ESTNPA0V			Enterprise		Existing										
PA	Easton	7036 Wm. Penn Highway	18045	BHLHPANA			Enterprise		Existing										
PA	Edlystone	1510 Chester Pike	18022	EDDYPAAD			Enterprise		Existing										
PA	Folsom	1001 Morton Ave	18033	FLSMPAAD			Enterprise		Existing										
PA	Fremansburg	501 Monce St.	18017	BHLHPAMM			Enterprise		Existing										
PA	Hellertown	155 Woodland Rd	18055	HLTWPAMR			Node		Existing	228	Now								
PA	Morton	200 Yale Ave	18070	MRTNPAAB			Enterprise		Existing										
PA	Nazareth	100 Graecdale Ave.	18064	UZTPPAAA			Enterprise		Existing										
PA	Philadelphia	1631 Arch St.	18103	PHILPALO		215-231	CO		Existing	228	Now								
PA	Philadelphia	401 N Broad St	18108	PHILPAFG	9	215-413	Gateway-T1		Existing	228	Now								
PA	Philadelphia	423 S 17th St	18146	PHILPAPE		215-520	CO		Existing	228	Now								
PA	Philadelphia	900 Race St	18107	PHILPAMK		215-238	CO - Tandem		Existing	228	Now								
PA	Plymouth Meeting	680 West Germantown Pike	18462	PLWGPASA			Enterprise		Existing	228	Now								
PA	Sharon Hill	3000 Henderson Drive	18079	SRHLPAAX			Enterprise		Existing										
PA	Trooper	1000 Adams Ave	18403	TRPRPAAC			Enterprise		Existing										
PA	Whitehall	2004 Eberhard Rd	18062	WHLEPA0V			Enterprise		Existing										
PA	Woodlyn	1855 Constellation Ave	18052	WDLYPAAC			Enterprise		Existing										
RI	Cranston	56 Phenix Ave	02920	CNTNRIPH		401-275	CO	VZ	Existing	130	Q108								
RI	Providence	300 Carpenter St	02909	PRVDRIOD		401-421	Gateway-T2		Existing	130	Now								
RI	Providence	3 Regency Plaza	02903	PRVDRI0B	1	401-222	Access Point	VZ,Verizon Business	Existing	130	Now								
RI	Providence	234 Washington St.	02903	PRVDRI0A		401-222	CO - Tandem		Existing	130	Now								
RI	Providence	1096 Broad St	02905	PRVDRI0R		401-328	CO	VZ	Existing	130	Q108								
RI	Providence	375 Promenade St	02903	PRVDRI0D	1	401-222	Access Point	Level 3	Existing	130	Now								
RI	Warwick	2557 W Shore Rd	02889	CNTNRIPH		401-463	CO	VZ	Existing	130	Q108								
VA	Arlington	1025 N Irving St	22201	ARTNVAAR		703-478	CO - Tandem	VZ	Planned	238	Q407								
VA	Asburn	21715 Filigree Ct	20147	ASBNVAAS	1	703-723	Node	Equiux	Existing	248	Now								
VA	Reston	11680 Saille May Dr	20190	RSTNVAAD	1		Enterprise		Existing										
VA	Falls Church	100 E Broad Street	22046	FLCHVANS	1		RCN HUB		Existing										

Access Point = no current add/drop
Node = address available
CO = Central Office
Gateway = Main switching point for the NEON network (Tier 1 or Tier 2 site)



Towerstream

Our Menu
What We Do
Tail - 512Kbps - 3Mbps
Grande - 8Mbps - 12Mbps
Venti - 25Mbps and Faster
Backup Solutions
Current Promotion
More Information
Service Areas
Frequently Asked Questions
Service Level Agreement
Reliability
Scalability
Redundancy
Rapid Installation
Speed

What we do . . .

Towerstream delivers reliable, high-speed internet access seamlessly and securely without the telephone or cable company to businesses in major metropolitan markets. Because Towerstream owns its entire network, it is not dependant on the phone company and it is able to deliver high quality symmetrical bandwidth to customers with faster installation at a significantly lower price than the competition.

Using WIMAX technology, Towerstream delivers a wide variety of features including:

- **Speed and Scalability:** With bandwidth options ranging anywhere between 0.512Mbps and 10Gbps Towerstream can create the customized broadband solution to meet your business's needs.
- **Guaranteed 99.99% Reliability:** Towerstream delivers a very reliable last mile solution. We are the first wireless broadband provider to offer the "Five 9's" Guarantee to our customers.
- **Fast and Simple Installation:** By completely bypassing the local phone company and using multiple broadcast sites in several major cities, service is often installed in 3-5 business days or less.

Current Coverage Locations



△ Click on a city to view coverage information.

Current Promotion

Now get 8Mbps
for only
\$999 per month.



Includes free installation . . .



Request a Service Quote

Contact us with this [simple online form](#) or call 1-866-848-5848.



*** Call now: 1-866-848-5848

Home | About Towerstream | What we do | Need help? | Corporate Relations | Talk back | Jeff's blog

Our Menu

What We Do

Tall - 512Kbps - 3Mbps

Grande - 6Mbps - 12Mbps

Venti - 25Mbps and Faster

Backup Solutions

Current Promotion

More Information

Service Areas

Frequently Asked Questions

Service Level Agreement

Reliability

Scalability

Redundancy

Rapid Installation

Speed

Tall 512Kbps - 3Mbps Solutions

Towerstream's Business Class Plan offers a range of services from a Fractional T (0.512Mbps) up to 3.0Mbps, starting as low as \$256.00 a month (with a 2 year agreement).

Service Plans

- Fractional T (512Kbps)
- T1 (1.5Mbps)
- Flex3-T (up to 3.0Mbps best effort)
- 1.5 Hi-VI (1.5Mbps with 99.999% guaranteed uptime)
- 2.0Mbps
- 3.0Mbps

With Towerstream you will benefit from our advanced technology and high performance equipment. Unlike cable and DSL providers, we own our entire network and do not rent wires from the local phone company in order to install your service. This means we can offer our customers faster installation, guaranteed 99.99% uptime, faster speeds, and lower prices.

*** Call us at 1-866-848-5848 or [Request a quote](#) to schedule an on-site survey.

*** Check out our current [Service Areas](#) to see if Towerstream can service your building.

Customer Testimonial

"Because of the nature of our business we cannot suffer much downtime and Towerstream has delivered on their promise to insure that we don't."

- **Madeleine B. Telfeyan**

EMJ Residence / Newport

Daily News

**Now get 8Mbps
for only
\$999 per month.**

Includes Free installation >>



The Advantage of Using Towerstream

- **Fast Installation.**

Service is often installed in 3-5 business days or less.

- **True Redundancy.**

Towerstream's advanced technology provides a backup/failover connection that guarantees their customer's 99.99% uptime.

- **Speed & Scalability**

Towerstream doesn't have to go through the standard infrastructure the phone company uses, a customer's bandwidth can be increased with just a quick phone call.

- **Symmetrical Connection.**

Towerstream's technology offers equal upload and download speeds.

- **24-Hour customer support.**

Towerstream's live technical support is available 24/7 to help their customers.



Request A Service Quote

Contact us with this [simple online form](#) or call **1-866-848-5848**.

*For all the details on current promotions, please call (866) 848-5848 to talk to one of our knowledgeable representatives. *Prices based on a two year agreement.*

[Contact Us](#) | [Careers](#) | [Corporate Relations](#) | [Privacy](#) | [Conditions of Use](#) | [Webmaster](#) | [Sitemap](#)

Towerstream is a registered trademark of Towerstream Corporation. © 1999-2007 Towerstream Corp. All Rights Reserved.



... Call now: 1-866-848-5848

Home | About towerstream | What we do | Need help? | Corporate Relations | Talk back | Jeff's blog

Our Menu

- What We Do
- Tall - 512Kbps - 3Mbps
- Grande - 6Mbps - 12Mbps
- Venti - 25Mbps and Faster

- Backup Solutions
- Current Promotion

More Information

- Service Areas
- Frequently Asked Questions
- Service Level Agreement
- Reliability
- Scalability
- Redundancy
- Rapid Installation
- Speed

Grande - 6Mbps - 12Mbps Solutions

If a single or multiple T1's are not enough, Towerstream has the answer. The High Capacity Plan offers a range of services from 6Mbps to 12Mbps, starting at \$999 a month (with a 2 year agreement). High Availability broadband with 99.999% guaranteed uptime with redundancy.

Service Plans

- 6.0Mbps
- 7.0Mbps
- 8.0Mbps
- 12.0Mbps

With Towerstream you will benefit from our advanced technology and high performance equipment. Unlike cable and DSL providers, we own our entire network and do not rent wires from the local phone company in order to install your service. This means we can offer our customers faster installation, guaranteed 99.99% uptime, faster speeds, and lower prices.

- • • Call us at 1-866-848-5848 or [Request a quote](#) to schedule an on-site survey.
- • • Check out our current [Service Areas](#) to see if Towerstream can service your building.



The Advantage of Using Towerstream

Customer Testimonial

"We would like to thank you and your team for all the work you put in beyond the call of duty. Because of the work you did, we were able to find and fix a rogue system that was not only slowing down our network, but was also a potentially serious security risk"

- Paddi McHugh
America's Test Kitchen /
Boston Common Press

Now get 8Mbps
for only
\$999 per month.

Includes Free installation >>

- **Fast Installation.**

Service is often installed in 3-5 business days or less.

- **True Redundancy.**

Towerstream's advanced technology provides a backup/failover connection that guarantees their customer's 99.99% uptime.

- **Speed & Scalability**

Towerstream doesn't have to go through the standard infrastructure the phone company uses, a customer's bandwidth can be increased with just a quick phone call.

- **Symmetrical Connection.**

Towerstream's technology offers equal upload and download speeds.

- **24-Hour customer support.**

Towerstream's live technical support is available 24/7 to help their customers.



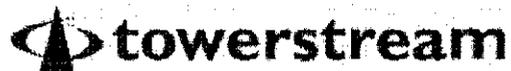
Request A Service Quote

Contact us with this [simple online form](#) or call **1-866-848-5848**.

*For all the details on current promotions, please call (866) 848-5848 to talk to one of our knowledgeable representatives. *Prices based on a two year agreement.*

[Contact Us](#) | [Careers](#) | [Corporate Relations](#) | [Privacy](#) | [Conditions of Use](#) | [Webmaster](#) | [Sitemap](#)

Towerstream is a registered trademark of Towerstream Corporation. © 1999-2007 Towerstream Corp. All Rights Reserved.



*** Call now: 1-866-848-5848

[Home](#)

[About Towerstream](#)

[What we do](#)

[Need help?](#)

[Corporate Relations](#)

[Talk back](#)

[Jeff's blog](#)

Our Menu

[What We Do](#)

[Tall - 512Kbps - 3Mbps](#)

[Grande - 6Mbps - 12Mbps](#)

[Venti - 25Mbps and Faster](#)

[Backup Solutions](#)

[Current Promotion](#)

More Information

[Service Areas](#)

[Frequently Asked Questions](#)

[Service Level Agreement](#)

[Reliability](#)

[Scalability](#)

[Redundancy](#)

[Rapid Installation](#)

[Speed](#)

Venti - 25Mbps and Faster Solutions

Large enterprises often require multiple high speed Internet connections. Complex network architecture is required to manage varied applications and the support and continuity of these applications are key to the growth and success of the enterprise.

Service Plans

- 25.0Mbps
- 50.0Mbps
- 100.0Mbps

Many Fortune 500 companies, cities, hospitals and universities are using Towerstream's super high-speed Internet connections for business continuity and disaster mitigation.

Often beginning in a backup, secondary or tertiary provider role, TowerStream provides true redundancy through an entirely different point-of-entry to the Internet via our secured, wireless technology.

*** Call us at **1-866-848-5848** or [Request a quote](#) to schedule an on-site survey.

*** Check out our current [Service Areas](#) to see if Towerstream can service your building.

Key Points of Interest

- Bypasses the phone company with our own "Last Mile" network.
- We offer an isolated connection for true internet redundancy.
- Reliable microwave technology that has been in use for decades
- NO single point of failure, even our backbone is redundant.
- Speeds between 12 and 1000Mbps, scalable with a phone call.
- Unlimited IP Addresses
- Support for Voice, Data, Video, and most failover/load balancing systems, including



The Advantage of Using Towerstream

- **Fast Installation.**

Service is often installed in 3-5 business days or less.

- **True Redundancy.**

Towerstream's advanced technology provides a backup/failover connection that guarantees their customer's 99.99% uptime.

- **Speed & Scalability**

Towerstream doesn't have to go through the standard infrastructure the phone company uses, a customer's bandwidth can be increased with just a quick phone call.

- **Symmetrical Connection.**

Towerstream's technology offers equal upload and download speeds.

- **24-Hour customer support.**

Towerstream's live technical support is available 24/7 to help their customers.



Request A Service Quote

Contact us with this [simple online form](#) or call **1-866-848-5848**.

*For all the details on current promotions, please call (866) 848-5848 to talk to one of our knowledgeable representatives. *Prices based on a two year agreement.*



... Call now: 1-866-848-5848

Home | About Towerstream | What we do | Need help? | Corporate Relations | Talk back | Jeff's blog

Our Menu

What We Do

Tall - 512Kbps - 3Mbps

Grande - 6Mbps - 12Mbps

Venti - 25Mbps and Faster

Backup Solutions

Current Promotion

More Information

Service Areas

Frequently Asked Questions

Service Level Agreement

Reliability

Scalability

Redundancy

Rapid Installation

Speed

Current Promotions

8Mbps FOR ONLY \$999 PER MONTH!

For a limited time only, get full duplex (symmetric) 8Mbps broadband for your business for only \$999 per month. Your Towerstream link will be **Installed Free** within days not weeks like the phone company! This price will only be offered for a limited time so call us today to lock in your low monthly rate!



Lookup Service Availability:

Zip Code:



Request a Quote

Contact a sales rep with this [simple online form](#) or call **1-866-848-5848**.

Multimedia



CNBC Maria Bartiromo interview w/ Jeff Thompson



Towerstream CEO Barreling Into Broadband



TheStreet.com : What's Next for WiMax?



Intel / WMAX Case Study



WGN Interviews Jeff Thompson, Towerstream CEO

Service Level Agreement

Technical Support

Towerstream supports and monitors its service up to the Customer Demarcation point 24 hours per day. Towerstream Technical Support is available toll-free 24 hours per day. A Customer Ticket is opened when Towerstream monitors a Customer service issue or Customer reports trouble to Towerstream Tech Support ("Ticket Open").

Towerstream Standard Installation

Customer Standard Installation includes antenna and radios, non-penetrating sled or J-bar antenna mount, up to 250 feet of standard cable weather-sealed and run from the antenna to the Customer Demarcation, service turn-up and testing. In the unlikely event of additional installation costs, Towerstream will notify Customer prior to installation via email detailing such costs and Customer will have 7 days to accept additional charges or terminate this contract without penalty and receive a full refund of any payments made to Towerstream in connection with this Agreement. Towerstream owns all equipment that it supplies to the Customer. If service is discontinued for any reason, Towerstream has the right to remove any or all of its equipment in a workmanlike manner upon 10 days advance notice. Customer Demarcation is defined as the location where Customer plugs into the Towerstream equipment and is generally located in the Customer equipment room.

Access to Equipment

The Customer agrees to allow personnel of Towerstream and its sub-contractors reasonable access to the Customer's site for the purpose of installing, repairing, and removing the Towerstream equipment and, if necessary, Customer shall obtain appropriate authorization from the landlord.

Performance Guarantee

If Towerstream's network is not performing as stated below, Customer is entitled to a credit. The three components of the Towerstream Service Level Agreement are:

- Service Availability Guarantee: Towerstream guarantees 99.99% network availability, annualized method.
- Network Latency: Less than 75ms round trip delay on Towerstream Backbone, and less than 50ms round trip delay on Towerstream last mile.
- Packet Loss: Packet Loss less than 1% on Towerstream Backbone.

Credit for Loss of Connectivity

Unless stated otherwise herein, the Customer's exclusive remedy for loss of connectivity is repair of service and credit for the period of lost connectivity to the Internet. Credits will be paid for loss of connectivity as listed below if the elapsed time from Ticket Open exceeds the following:

- Exceeding 2 hours: 5% of monthly billed site revenue.
- Exceeding 4 hours: 10% of monthly-billed site revenue.
- Exceeding 6 hours: 15% of monthly billed site revenue.

Every subsequent 4-hour increment shall receive an additional 5% credit, the sum of which is not to exceed 100% of the total monthly bill for that location. The period of lost connectivity to the Internet shall be determined by records kept by the

Towerstream Network Operations Center (“NOC”) and based on measurements to the Customer Demarcation.

Towerstream will incur no liability and issue no credits due to any causes beyond its reasonable control, including, but not limited to, Acts of God, War, Strikes, electrical storm, hurricane and, if needed, lack of access to its equipment at the Customer Site. All monies owed Towerstream and not in dispute must be paid in full before a credit is applied.

Credits must be requested within 30 days of service outage. The Customer is responsible for providing adequate voltage surge protection with a UPS for the Towerstream router/equipment at the Customer Demarcation.

Our Menu
What We Do
Tell - 512Kbps - 3Mbps
Grande - 6Mbps - 12Mbps
Venti - 25Mbps and Faster
Box of Joe - Building-wide
Espresso - Temporary Service
Backup Solutions
Current Promotions
More Information
Service Areas
Frequently Asked Questions
Service Level Agreement
Reliability
Scalability
Redundancy
Faster Installation
Speed

Newport Service Coverage

Request a quote to have a sales rep call you to schedule a survey.

[Request a Quote](#)



[Click here to enlarge](#)

Why businesses choose Towerstream...

Speed and Scalability

With bandwidth options ranging anywhere between 0.512Mbps and 1Gbps Towerstream can create the customized broadband solution to meet your business's needs.

Guaranteed 99.99% Reliability

Towerstream delivers a very reliable last mile solution. We are the first wireless broadband provider to offer the "Five 9's" Guarantee to our customers. Towerstream guarantees 99.99% uptime for all of its products.

Fast and Simple Installation

By completely bypassing the local phone company and using multiple broadcast sites in several major cities, service is often installed in 3-5 business days or less.

Broadband scaled to your needs...



Business Class
512Kbps to 3Mbps starting as low as \$256 per month. Adjust speed as your business grows!



High-Capacity
6Mbps to 12Mbps, starting at \$999 a month. High availability connection with redundancy.

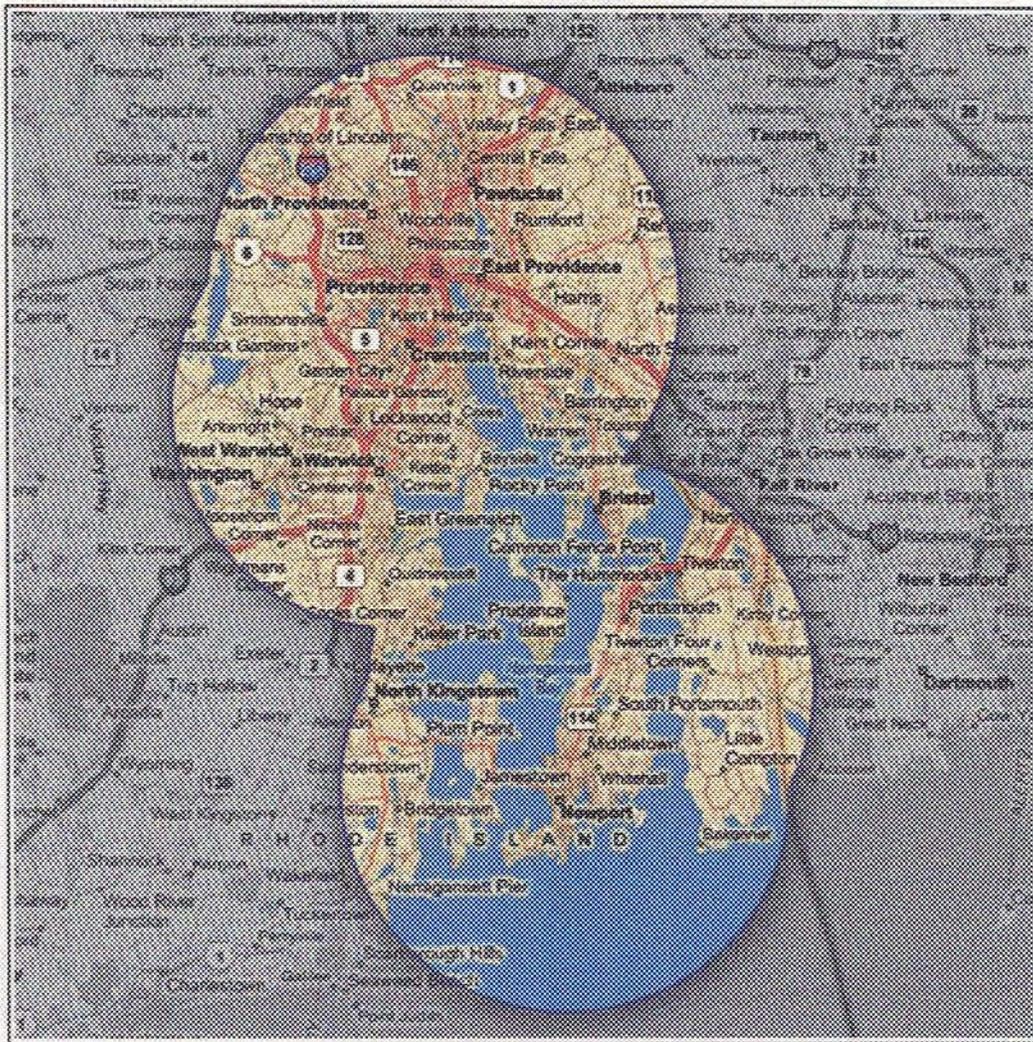


Enterprise
25Mbps to 100Mbps. A full site-wide solution for all your companies bandwidth needs.



Request A Service Quote

Contact a sales rep with this [simple online form](#) or call 1-866-848-5848.



Close Window