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Request for Information ConnectSuperior Fiber Network Equipment and Services 23-39-IT

ENTRYPOINT
NETWORKS

October 3, 2023

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COVER LETTER

October 3, 2023

Nicole Banyai
Head of Business Development
1949 West Printers Row
Salt Lake City, UT 84119
+1 801 712 7994 | nbanyai@entpnt.com
www.entpnt.com

City of Superior, Wisconsin
c/o Jane Darwin
Contract Analyst
1316 North 14th Street
Superior, WI 54880

Dear Jane,

EntryPoint Networks, Inc. is the leading U.S. firm advancing ethernet fiber-to-the-premise (FTTP) automated open access networks and technologies. We are submitting a response to the City of Superior, Wisconsin's Fiber Network Equipment and Services RFI. EntryPoint understands the scope outlined in the ConnectSuperior RFI and has the technologies, experience, and domain knowledge to effectively assist the City in completing the stated objectives.

EntryPoint is a software-as-a-service (SaaS) solution provider and network development company. We are focused on changing the broadband infrastructure and service delivery model with a technology stack designed to reduce subscriber costs and increase standard bandwidth speeds to 1 Gbps symmetrical and beyond. In addition, this model will enable a new national marketplace for internet service providers (ISPs), internet of things, smart city, smart grid, public safety, telemedicine, and education solutions. EntryPoint's platform is unique because it was the first to deploy automated self-provisioning for users and because multiple services and service providers can operate simultaneously across a single wire.

EntryPoint seeks to design and implement ethernet FTTP networks that bring maximum customer value by leveraging technology tools and open network management systems to dismantle the vertically integrated model and move control to the customer. To achieve ubiquitous access, high-speed, symmetrical service, smart city capabilities, and affordability for all, the network must be built and maintained by a neutral host. The City of Superior is the ideal host to oversee this infrastructure for its residents and businesses.

EntryPoint's goal is to build networks that:

1. Improve affordability and reliability.
2. Enable universal access to fiber-optic infrastructure and position communities for the future.
3. Separate the infrastructure and services (ISP) to enable emerging services and increase competition.

Furthermore, our philosophy aligns with the City's desire to deploy a citywide, turnkey, go-live system that offers automation, supports multiple providers, and local ownership focused on connecting more subscribers at the lowest possible cost. Our approach facilitates digital equity and a smart future fostering universal high-speed broadband access and economic development.

EntryPoint would welcome the opportunity to demonstrate our automated provisioning technology, value-added functionality, and active subscriber package options and pricing.

Thank you for considering EntryPoint Networks, our experienced project management and operations team, and our transformative software for this exciting endeavor. Should you have any questions or require further information, please do not hesitate to contact me at +1 801 712 7994 or nbanyai@entpnt.com.

Sincerely,

EXECUTIVE SUMMARY

EntryPoint Networks Proposed Solution

EntryPoint Networks develops municipal-scale fiber networks and management software for automated open access platforms. Our network management and operations framework is designed for open access networks. It simplifies the management process by automating functions like provisioning, allocating resources, and network monitoring. EntryPoint's customers benefit from a unified network management approach with automation driven by the end user. This overcomes the operational headaches and costs of the systems and portals most commonly available today. Our system fully integrates with customer support, billing, and services management.

In addition to our technology stack, EntryPoint has developed an operational team that has built and operated successful open access networks. This team can provide whatever level of support is needed for network construction and eventual operational phases.

Leveraging Automation and Software-Defined Networking

There are several open access models. EntryPoint's platform is a specific variation that allows for the dynamic allocation of network infrastructure where users of the network drive provisioning. Until now, open access networks have demonstrated value primarily by allowing subscribers to choose from multiple internet service providers (ISPs). Integrating the open access model with software-defined networking (SDN) and automation makes it possible to enable the subscriber to provision services at the push of a button.

The EntryPoint model enables unique and innovative services and solutions from a wide range of sources. When correctly designed and implemented, multiple service providers can deliver services simultaneously and independently across a single wire (i.e., virtualization of the fiber) and run multiple private networks across the same wire that delivers the internet. When subscribers select a new service provider, the provisioning is done using automation in real-time.

EntryPoint builds networks to move beyond the current internet model, where incumbent ISPs operate single-purpose, siloed networks, toward systems that provide the flexibility and edge intelligence needed for next-generation applications. Emerging applications will require network architectures that enable enhanced security, privacy, and on-demand attributes for technologies like remote medical monitoring, virtualizing workplace environments, mobility applications, distributed energy resource management, and critical infrastructure monitoring. Big data applications will need to span multiple stakeholders, systems, and networks, requiring more distributed systems capable of resource sharing, better price-performance ratios, shorter response times, higher throughput, improved reliability, extensibility, and better flexibility in meeting users' needs. Today's internet cannot meet these demands and the required economic frameworks.

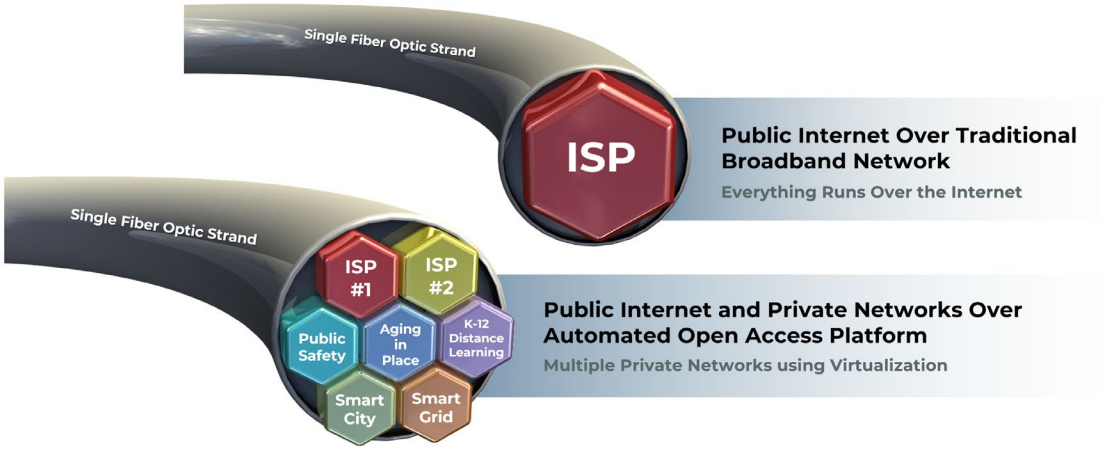
Separating Infrastructure & Services

EntryPoint's implementation of open access assumes that the network infrastructure and services are separated into two different systems operating on a single platform. When the infrastructure is correctly separated from the services and combined with automation and virtualization technologies, new and innovative packet services are easily introduced, effectively future-proofing the system.

Range of Related Services

A key objective of integrating software-defined networking (SDN) with open access is to transform the network from the ability to do one thing (i.e., delivering the internet across a single service provider) to a network that can do many things simultaneously. Subscribers and service providers can create their virtual wire to isolate services and are empowered with tools that give them choices and appropriate levels of control. This dynamic marketplace of services puts downward pressure on prices. The operator is liberated to perform their role independently of other stakeholders (i.e., will not be encumbered by service providers or operations). Operational efficiencies are enhanced via software control. Service providers control their virtual space, pricing, and value proposition and are free to innovate.

EntryPoint Functionality Illustration



EntryPoint Automated Open Access Platform – Basic Functionality

The basic functions provided by the platform include the following:

1. An operator interface that allows the operator to access these functions:
   a. Add, manage, and remove network equipment, devices, user accounts, device location (address), services, and providers.
   b. Monitor network performance.
   c. Create and manage alarms and notifications based on defined criteria.
   d. Query provider, user, device, and network data to create and export reports.
   e. Create and manage operator system users and passwords.
2. A provider interface that allows a service provider to access the following functions:
   a. Add, manage, change, and remove services and packages.
   b. View, manage, and diagnose service delivery issues related to the service, user, or device. This ability is limited to the users and device ports utilized to deliver their service.
   c. Access subscriber and device information for billing, support, and marketing.
   d. Create and manage provider system users and passwords.
3. A subscriber interface that allows a subscriber to access the following functions:
   a. Add, manage, change, and remove services and packages on subscriber device(s).
   b. View, manage, and diagnose service delivery issues related to subscriber device(s) and service(s).

c. Access operator, provider, subscriber, and device information for billing, support, and marketing as allowed by the operator.
d. Create and manage subscriber information and password.
e. View automated billing and payment dashboard.

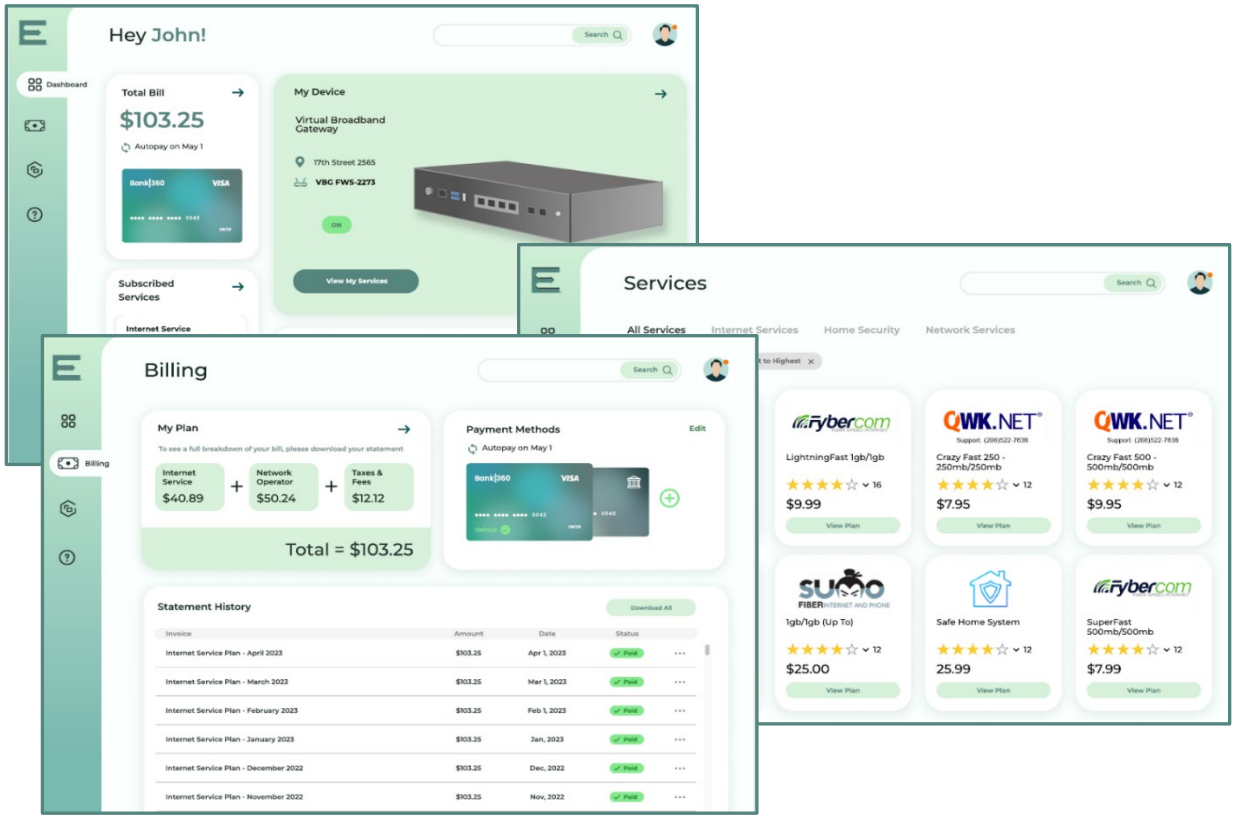
This list is not exhaustive but an outline of the platform's basic functionality. Because the platform is a software-defined system, functionality can be modified or extended based on need.

Overview of Customer-initiated Enrollment in Services

EntryPoint's open access management platform includes the following features, functionality, and services:

- Subscriber view, ISP view, and network operator view of the platform.
- Customer can add/remove services autonomously (without vendor or service provider involvement).
- Multiple ISPs able to service a single location using the same customer premise equipment (CPE).
- System scalability.

EntryPoint Networks Subscriber Portal Sample



Marketplace of Services – Automated Enrollment and Additional Services Such as Television, Telephone, Medical, Smart Home, Alarm Systems, Cyber Security, and More

Service providers and subscribers benefit from instantaneous service provisioning from the EntryPoint automated open access platform, providing cost transparency for subscribers.

The platform can automate enrollment into additional IP services, including Internet Protocol television (IPTV), Voice over Internet Protocol (VoIP), and other IP-based services. Once set up on the platform, these services can be subscribed to through the customer portal using the standard automated process. These services are not over-the-top (OTT), meaning they are not delivered through an existing internet connection but require the service to be terminated on a dedicated physical port on the customer-premise equipment. This allows for service levels that could not be obtained using a standard internet connection.

If these services are intended to be over-the-top (OTT), then it would be expected that the consumer would subscribe to them over the internet, not within the services portal as a dedicated service. If there is a desire to have some OTT services in the portal, this could be achieved as a separate function in the portal that would need to be clearly defined and negotiated as a part of any final contract award.

Overview of Hardware and Software Systems Specifications

- **The hardware that houses and supports the open access orchestration environment.** A virtualized environment is created using PROXMOX software, three pizza box servers as hosts, and a storage array. There is a fourth server used to back up this environment. This environment hosts all the software network management, including operator, provider, and subscriber portal hosting. There is no licensing required for this environment. However, the City may wish to purchase PROXMOX support to improve network management efficiency. The PROXMOX costs vary based on the level of support.
- **The network equipment that provides the core network**. When using the term "core network," EntryPoint refers to the network equipment that creates the networking links from the provider edge ports through the core, through the top of the rack, to the access switch ports. This equipment is not proprietary. Any vendor or switch could be used in principle. EntryPoint has deliberately deployed established networking standards such as IEEE 802.1ad and Open vSwitch to enable the orchestration. While standards provide some degree of compatibility among manufacturers, experience has proven that not all manufacturers implement standards using the same methods. For this reason, EntryPoint strongly recommends that all selected equipment be tested to confirm interoperability before purchase and installation. EntryPoint maintains a list of compatible equipment and can assist with testing and procurement if selected as the open access provider for the City.
- **The customer premise device that provides the subscriber edge automation**. EntryPoint's software is installed on a standard desktop network appliance to create a Virtual Broadband Gateway (VBG) for the customer premise equipment (CPE). The cost for VBG software upgrades is included in the monthly SaaS fee. This environment performs all networking functions in software. It provides the automation required for the operator, provider, and subscriber to view the device functions and operations limited to their ownership. The VBG allows multiple services, networks, or virtual devices to simultaneously exist and operate in the environment. The hardware required is not proprietary, as EntryPoint's software can be installed on any standard desktop appliance or desktop computer. However, hardware performance is directly related to the resulting network performance. EntryPoint has preferred vendors that are integrated with the platform. EntryPoint

has established relationships and implementations with multiple hardware suppliers and can assist with procurement and logistics if selected as the open access provider for the City.

EntryPoint seeks to avoid vendor lock-in. However, as stated above, some vendors are approved, meaning EntryPoint has validated their functionality. EntryPoint uses white-box hardware manufacturers whenever possible to keep the cost of electronics as low as possible. There are no other hardware or software licensing requirements for the EntryPoint platform.

Sample EntryPoint Networks VBG Devices

RESIDENTIAL CUSTOMER EQUIPMENT

VBG H1-J1900

COMMERCIAL CUSTOMER EQUIPMENT

VBG FWS-2273

Process for a Service Provider (ISP) to Offer Services

EntryPoint's process for onboarding new internet service providers (ISPs) is straightforward. Ideally, the City will offer its residents and businesses multiple ISP options. By offering multiple providers with various service packages, subscribers will benefit from a competitive landscape with choices and incentives for service providers to distinguish themselves with customer care and innovation. In addition to interested local ISP service providers, EntryPoint can offer national ISP partners as additional options if the City is interested. Listed below are the ISP onboarding steps:

- **Step 1** – Configure the provider portal, one of four portals that are native to the EntryPoint system.
- **Step 2** – Create an account inside the system. The EntryPoint team then stands up an instance of the EntryPoint provider portal. Then, the operator adds the new provider inside the operator management portal.
- **Step 3** – The service provider selects the operator as one of the preferred networks where the service provider offers services.
- **Step 4** – The service provider publishes their services to the operator so the operator can present those services in the subscriber portal. The service provider can then control and manage the services they offer.

The above functionality depends on the service provider's ability to connect to the operator network via a middle-mile network. In the last month, EntryPoint onboarded a new ISP into one of its client networks, and the entire process took less than 60 minutes.

Software as a Service (SaaS)

System support for the operator is included and available from 8:00 a.m. to 8:00 p.m. ET, with emergency support available after hours. All software system upgrades and improvements are included in the monthly subscription. EntryPoint Networks charges a monthly fee per subscriber per month for its software.

Network Operations Center Professional Services

EntryPoint allows clients to purchase network monitoring and management services in addition to the SaaS services. EntryPoint's network operations center (NOC) services include the following:

- 24/7/365 – Network Monitoring
- Tier 2 – Subscriber Support (as submitted by the operator or service provider–this is not intended to be direct subscriber support)
- Tier 1 – Service Provider (ISP) Support
- Remote Network Trouble Shooting/Repairs
- Coordination with Local Network Maintenance Staff

EntryPoint can provide optional full-service NOC operations and services for an additional fee per subscriber per month.

Billing Services

The platform has an optional auto-billing and payment dashboard using a standard online payment gateway integration. This option is available for a small fee per transaction.

If the City has an existing billing platform they would like to utilize, integrations can be performed using standard software APIs. Billing and customer information can be imported and exported in a standard .csv file format.

EntryPoint is Transforming the Way We Access the Internet

- ✓ EntryPoint developed the first fully automated service provider marketplace. This open marketplace moved ISPs to the cloud. It uses automation so that users can fully provision services on their own, without human intervention, in less than 60 seconds.
- ✓ An open marketplace enables innovation for many kinds of network services. EntryPoint pioneered the first network that merged open access with software-defined networking and network virtualization to allow multiple service providers from multiple service categories to run across a single fiber strand simultaneously.
- ✓ The platform is organized so that all services except for access to an ISP run in layer 2 private networks that remain local and do not traverse the public internet. While this is not well understood, it is a significant enabler for the objectives of the City.
- ✓ Each service can have its network.
- ✓ Any user can be a service provider and provision a network on demand.
- ✓ Reliability can be managed in EntryPoint's Private Networks.
- ✓ Algorithms can determine the needed bandwidth and reliability for a particular service.

EntryPoint builds networks that bring maximum value to communities by leveraging technology tools and open network management systems as a distinct alternative to the traditional vertically integrated internet service provider model. In EntryPoint's automated open access model, the infrastructure is managed as if it is utility infrastructure that is open to any interested service provider from any service category and is designed to move control to local stakeholders. The network operator becomes a neutral host of the infrastructure and provides a business model and technology components to produce network access and affordability for all residents, businesses, and anchor institutions.

Our company's mission and technology align with the City's ambition to deploy a Citywide fiber-to-the-premises (FTTP) software-defined open access network, focusing on connectivity for all at the lowest possible cost. Our approach supports digital equity and a smart future, fostering universal high-speed broadband access and economic development.

DIAGRAM

Background

The heart of EntryPoint's automated open access solution is software. A genuine open access network is a network (or digital infrastructure) that can deliver multiple services from multiple providers simultaneously while preserving the quality of service (QoS) required from the provider's edge to the subscriber's edge. This fundamental approach will assist in better understanding what is essential in the following proposed solution diagrams and what is flexible. Put simply, the proposed solution provides unique edge functionality in software. This core belief aligns with other networking thought leaders, such as Marc Andreessen, who famously said, "Everything interesting will happen at the edge in software." For this reason, while much of what is illustrated in this response is based on the request for a proposed solution that utilizes the standards, protocols, and minimum requirements provided in the request, the solution is largely agnostic to many of the components and standards utilized through the network core. The core and distribution components only need to pass packets, as "open access" happens on the edges. EntryPoint's automated open access software has been designed for the edge device to function. It is essential to the system operation while the edge hardware is based on commodity "white box" appliances.

Because this RFIs purpose is to assist in identifying a "Seller able to provide the turn-key go-live ready system specified in this RFI" this response has been organized around the information provided. Recommended components and configurations are only provided to facilitate a comparative review, not to finalize any specific component, standard, or protocol, as the solution is agnostic to numerous vendors and protocols, relying solely on the following Ethernet standards:

STANDARD/FEATURE	APPLICATION
IEEE 802.1ad	Double tagging and tag types for provider bridging
G.8032	Ethernet ring protection
MLAG	Multi-chassis link aggregation group (non-standard)
In-Band Management	Management in the same channel as data
Out-of-Band Management	Dedicated alternate management access
ISO/IEC 10589:2002	Network convergence at layer 2
BGP (RFC 4271)	Gateway protocol for the internet
IPv6 (RFC 8200)	Packet-switched internetworking protocol

NOTE: Support for some standards or features is only required by specific components, and not by every component.

ENTRYPOINT NETWORK EQUIPMENT

For "turnkey" solutions capable of immediate deployment, EntryPoint offers a line of network equipment designed to support numerous network protocols and configurations. This carrier-class equipment features hot-swappable cooling and power in either AC or DC configurations, along with in-band and out-of-band management. While EntryPoint's solution is primarily software, and the City is welcome to select or utilize any network equipment capable of supporting the standards and features listed, EntryPoint's network equipment costs are provided as a part of this response proposal. Specific features and standards identified in the request are provided in the table below. These are only some carrier-class standards, features, and functions supported by the EntryPoint switch equipment line.

EQUIPMENT OR COMPONENT / REQUESTED FEATURE	E680-32C Core Switch	E680-48X8C Provider Edge and Top of Rack	E530-24X2Q SAN Switch	E530-48S4X Access Switch	E530-48T4X Management Switch	EntryPoint VBG (CPE)	EntryPoint Software Platform
Support 15,000 Customers	✓	✓	✓	✓	✓	✓	✓
100 Gbe Interfaces	32	8	2			*	
10 Gbe Interfaces		48	24	4	4	✓	
1 Gbe Interfaces				48	40	✓	
Sub-gigabit rate limiting	✓	✓	✓	✓	✓	✓	
SR-MPLS	✓	✓	✓	✓	✓	*	
EVPN	✓	✓	✓	✓	✓	*	
VRF	✓	✓	✓	✓	✓	*	
LAG and MC-LAG	✓	✓	✓	✓	✓	*	
G.8032	✓	✓	✓	✓	✓	*	
OAM	✓	✓	✓	✓	✓	✓	
IPv6	✓	✓	✓	✓	✓	✓	
Full QoS and Traffic Management	✓	✓	✓	✓	✓	✓	
Full Power and CPU Redundancy	✓	✓	✓	✓	✓	✓	
Syslog, SNMP and Performance Management	✓	✓	✓	✓	✓	✓	
Out-of-Band Management	✓	✓	✓	✓	✓	✓	
24x7x365 Next Day Hardware and Software Support	✓	✓	✓	✓	✓	✓	
IEEE 802.1ad - VLAN, Provider bridging support	✓	✓	✓	✓	✓	✓	
AC or DC Power	✓	✓	✓	✓	✓	✓	
Indoor/Outdoor Options Available						✓	
POTS (Plain Old Telephone System)						✓	
WiFi (Wireless Gateway)						✓	
NFV (Vitrual Routers)						✓	
MDU Support (Dedicated Residential and Commercial)						✓	
UI and Dashboards for Operator Functions							✓
UI and Dashboards for Provider Functions							✓
UI and Dashboards for Subscriber Functions							✓
System Reporting and APIs for Stakeholders							✓
Billing and Payment Support							✓
Subscriber Self Provisioning							✓

* The EntryPoint VBG is capable of providing virtualized network functions on demand as required.

FIBER ARCHITECTURE

EntryPoint's proposed solution typically utilizes the architecture commonly deployed in data centers to create a digital infrastructure capable of delivering software-defined networking (SDN) and network virtualization functions (NFV) to the premise, as illustrated. EntryPoint's software solution relies on Ethernet and can, therefore, utilize active or PON systems. An active Ethernet architecture is presented in this response and recommended for the following reasons:

1. **Symmetrical Bandwidth**: Active Ethernet offers symmetrical bandwidth, meaning that the upload and download speeds are typically the same. In contrast, PON systems often have asymmetrical bandwidth, with slower upload speeds compared to download speeds. This can be important for applications like video conferencing or uploading large files.
2. **Dedicated Bandwidth**: Each subscriber has a dedicated Ethernet access port in active Ethernet. This means that the bandwidth is not shared among multiple users, resulting in more consistent and predictable performance for customers.
3. **Scalability**: Active Ethernet networks can be more easily scaled to accommodate increasing bandwidth demands. When additional subscribers or capacity are needed, service providers can upgrade or add equipment as necessary. PONs, on the other hand, may have limitations in terms of scalability.
4. **Lower Latency**: Active Ethernet generally provides lower latency compared to PONs. Lower latency is important for real-time applications like online gaming and voice over IP (VoIP) services.
5. **Security**: Active Ethernet can offer enhanced security because each subscriber has a dedicated connection. In PONs, while mechanisms are in place to provide security, multiple users share the same optical fiber, which may raise concerns about potential eavesdropping or data interception.
6. **Service Differentiation**: Active Ethernet allows service providers to offer different levels of service and quality of service (QoS) to individual subscribers based on their needs. This can be more challenging to implement in PONs, where bandwidth is shared among multiple users.
7. **Maintenance and Troubleshooting**: Troubleshooting and maintenance in active Ethernet networks can be more straightforward since each subscriber has a dedicated connection. In PONs, diagnosing and resolving issues may be more complex due to shared infrastructure. This may be of particular interest to Superior as consideration is given to operational support and the skill sets required.

The choice between active Ethernet and PON depends on various factors, including the specific requirements of the network, cost considerations, and the number and type of services being offered. The urban environment in Superior, the minimal impact on construction costs to support higher fiber strand costs, and Superior's requirement to "operate in a competitive marketplace as an open access network" recommends an active Ethernet architecture to natively support improved scalability, symmetrical bandwidth, low latency, dedicated connections, and service differentiation.

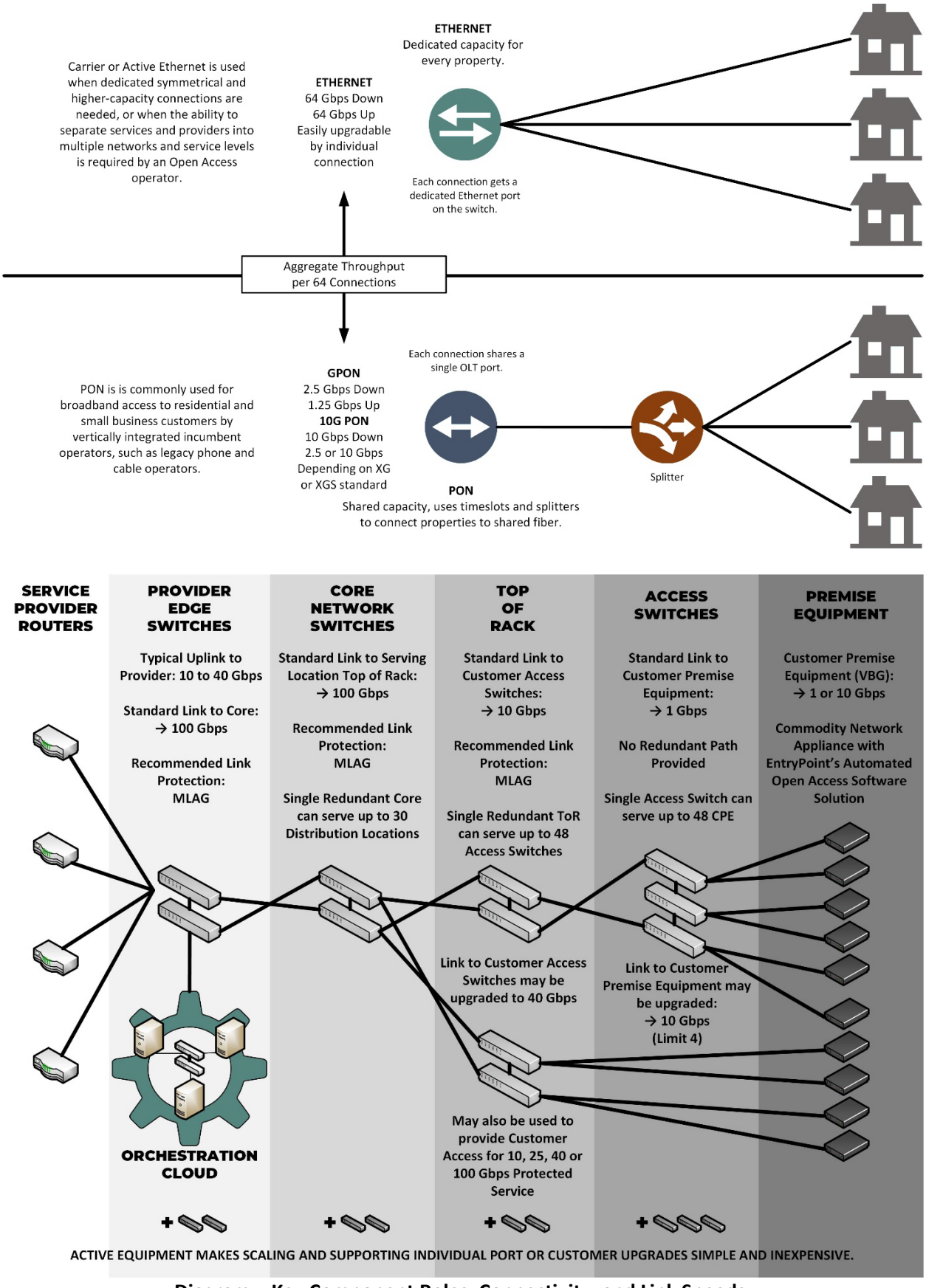
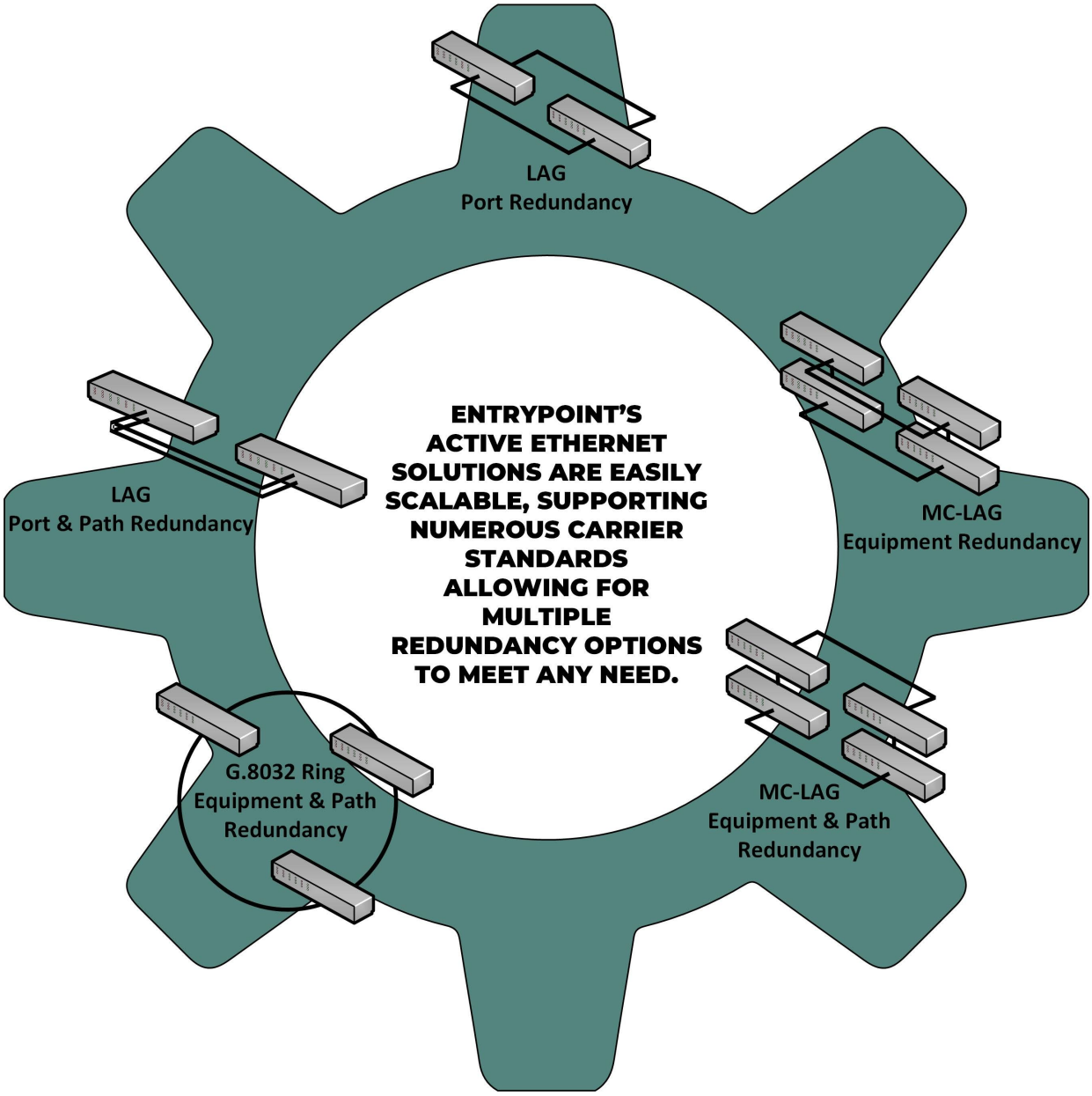


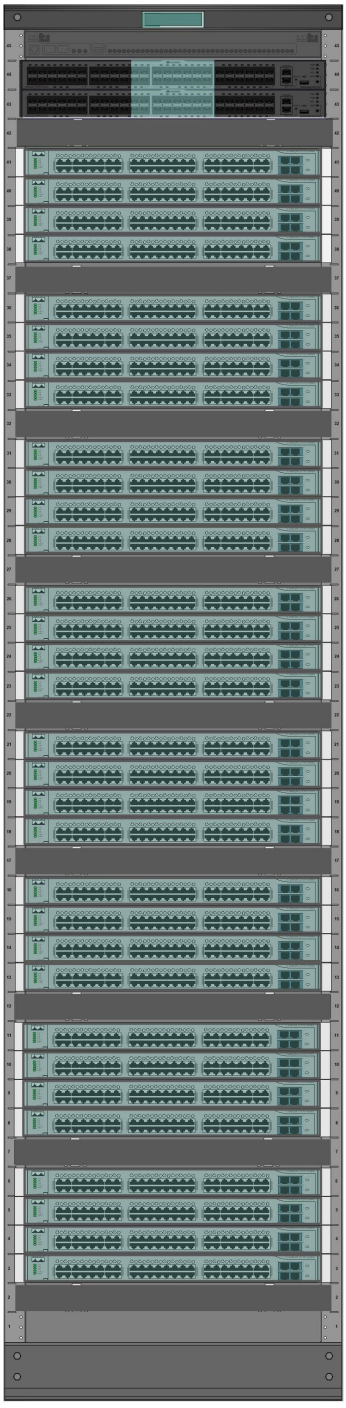
Diagram – Key Component Roles, Connectivity, and Link Speeds.

Carrier-class standards and protocols are supported, providing simple redundancy and upgrade paths easily adapted to meet any need.



Standard capacities from 1 to 100 Gbe are supported.

RACK ELEVATIONS



FRONT

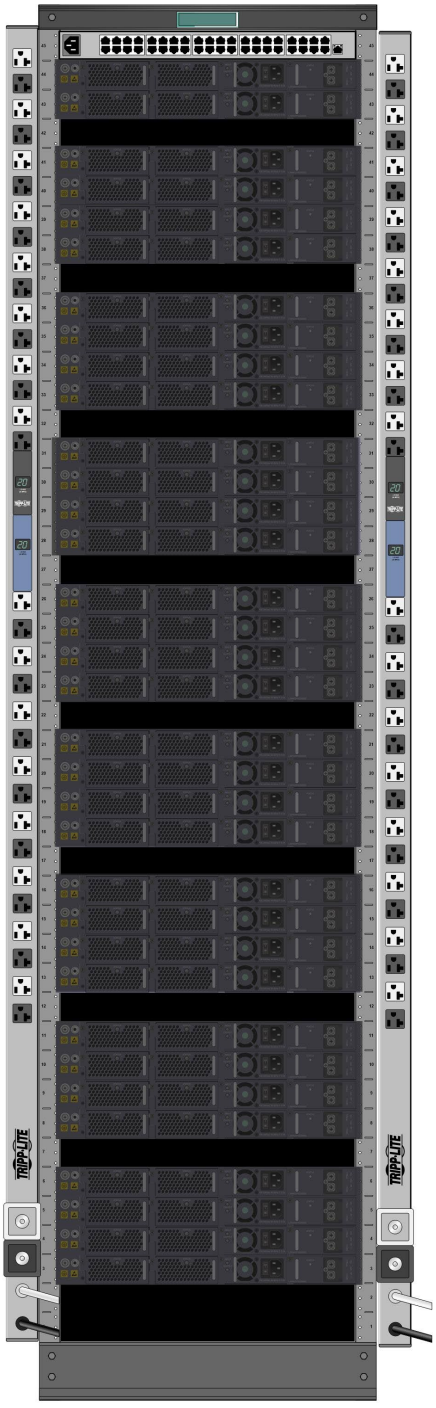
40 PORT CONSOLE SWITCH
48 PORT MANAGEMENT SWITCH
48 SFP+ 10Gbe w/8 100Gbe QSFP28

↓ 48 SFP w/SFP+ 10Gbe↓
32 Access Switches
1,536 1Gbe Customer Facing Ports

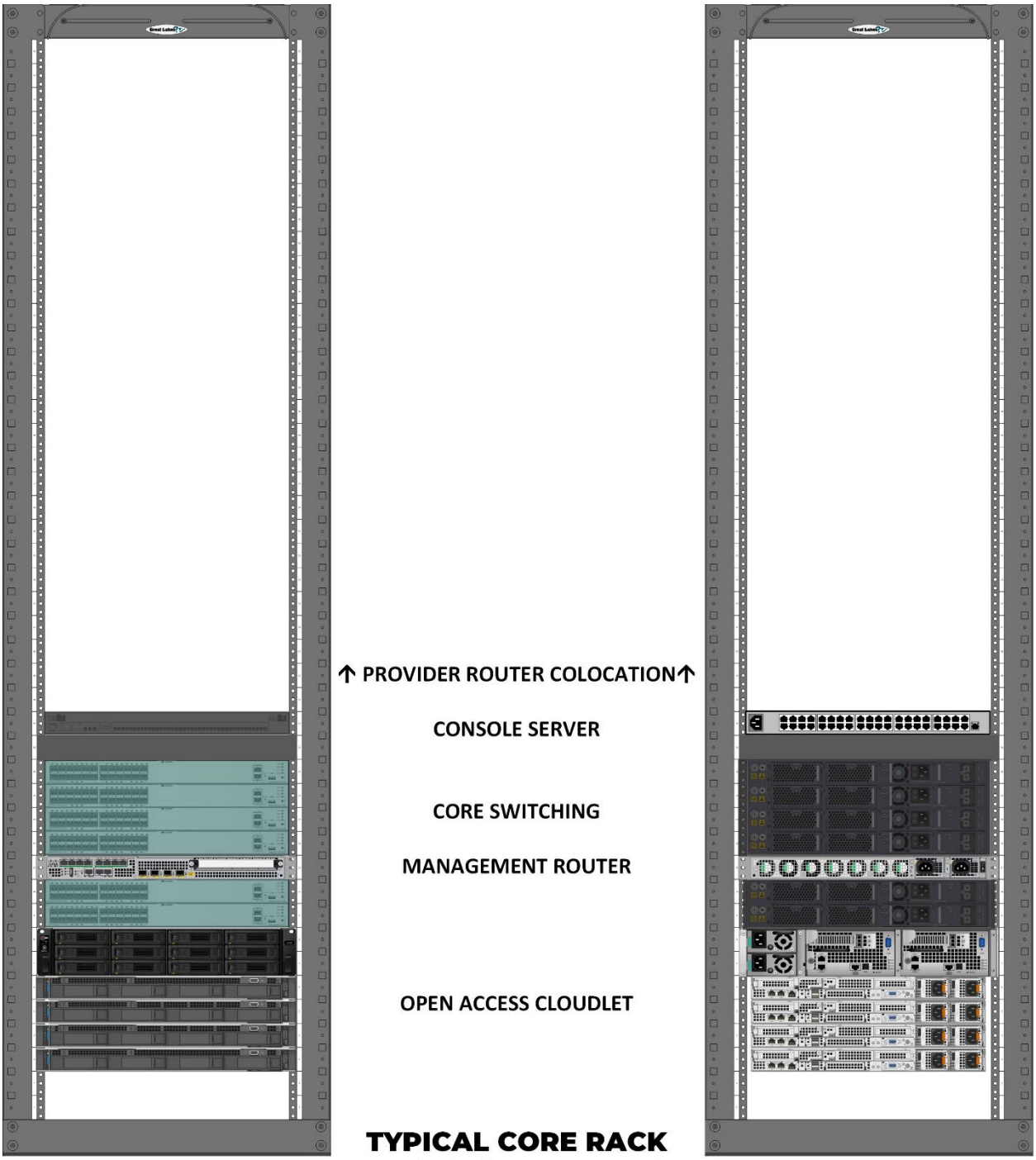
TOTAL WATTAGE
2033 Typical
2475 Maximum

Upgrading Individual Customers to 10Gbe is simple, easy, and incurs minimal costs.

TYPICAL ACCESS RACK
Standard 19" 45RU 2 Post Rack



BACK



TYPICAL CORE RACK

Standard 19" 45RU 4 Post Rack

FRONT **BACK**

BILL OF MATERIALS AND COST ESTIMATES

EntryPoint's proposed bill of materials (BOM) for equipment and materials needed to fully commission a network with 15,000 users/premises is included in the Appendix.

Total Cost Estimates

Open Access Environment Equipment	$26,554
Core Network Equipment	$731,168
CPE Hardware (Premise) Equipment (includes Wi-Fi capability)	$4,063,500
Estimated Configuration Labor (60 hours)	$15,000
On-Site Installation Labor (two individuals for three days, including travel)	$24,000
Total	**$4,860,222**
Optional Wi-Fi Mesh Equipment	$1,350,000

Lead Times

EntryPoint carries a limited inventory of most equipment, which would be available immediately. Estimated lead time for additional equipment can be up to 90 days.

Superior is welcome to establish direct purchasing arrangements with any hardware vendor capable of meeting their demands. Nevertheless, EntryPoint standards will need to be met for our network and software to function properly. EntryPoint is willing to assist with testing, evaluation, provisioning, and even with introductions to current suppliers, as needed. EntryPoint's primary business is software. However, we do provide hardware components to meet a client's needs. Most of our clients choose to purchase through EntryPoint for warranty support services. When hardware replacement is required under warranty, it becomes EntryPoint's responsibility to provide the replacement hardware and demonstrate to the manufacturer that the hardware has failed. Managing the warranty process and stocking inventory for replacement can be challenging for many of our clients. EntryPoint is always transparent with hardware costs and works to support good client purchasing decisions.

On-Going Licensing and Support

EntryPoint's automated open access platform requires a monthly support fee (SaaS) of $2.50 per subscriber. EntryPoint offers optional network operation center (NOC) services for an additional $2.50 per subscriber per month and optional automated billing service (built into the platform) for $.25 per transaction.

A table illustrating features and services included in the SaaS and NOC can be found in the Appendix. A 5-year cost projection for licensing and support services for 15,000 subscribers has also been included in the Appendix.

DESCRIPTION

Additional rack elevation information, equipment datasheets, and typical shelter layout drawings are included in the Appendix of our response. Specific designs will be developed as a part of the installation. Additional information is available upon request.

Additional Professional Services

EntryPoint can provide all the professional services described in the requested scope of work. Our initial review of the scope suggests the following team assignments, which can be found in the professional services outline on the following page.

Professional services would be provided at an hourly rate between $185 and $250 per hour, depending on the skillset required. Any travel for onsite work would be pre-approved and billed at cost for reimbursement.

PROFESSIONAL SERVICES SOW	ENTRYPOINT TEAM	PROJECTS	ENGINEERING	PRODUCT	IMPLEMENTATION	CRITICAL REVIEW	DOCUMENTATION	TRAINING
Pre-installation Planning (Onsite)								
Readiness Review	✓							
Site Access	✓							
Rack Evaluations	✓	✓						
Power Evaluations	✓	✓						
Fiber Evaluations	✓	✓						
Documentation	✓	✓	✓		✓	✓		
HLD Support								
Coordination Meetings	✓	✓	✓					
Service Requirements Documentation	✓	✓	✓					
Systems Architecture	✓	✓		✓	✓			
Network Engineering	✓	✓		✓	✓			
BSS and OSS Integrations	✓	✓	✓	✓				
Draft HLD for Review	✓				✓	✓		
Validate and Approve HLD	✓	✓	✓	✓	✓	✓		
Equipment Install / Loads								
Equipment Install	✓			✓				
Provider Turnups	✓	✓		✓				
LLD Documentation	✓	✓	✓	✓		✓		
Validate and Approve Installations	✓	✓	✓	✓	✓	✓		
Acceptance Testing								
Deploy and Test Perfomance Using Approved Tools	✓	✓	✓	✓	✓	✓	✓	
Simulate Componenet and Link Failures	✓	✓	✓	✓	✓	✓	✓	
Verify End to End Performance	✓	✓	✓	✓	✓	✓	✓	
Training								
Operator Hardware M&O Training	✓	✓				✓	✓	
Operator Software Configuration Training	✓		✓			✓	✓	
ProviderConfiguration and Tools Training	✓	✓				✓	✓	
Residential and Commercial Service Types Training	✓	✓	✓			✓	✓	
Documentation	✓	✓	✓		✓	✓		

* The EntryPoint VBG is capable of providing virtualized network functions on demand as required.

REFERENCES AND CONTACT INFORMATION

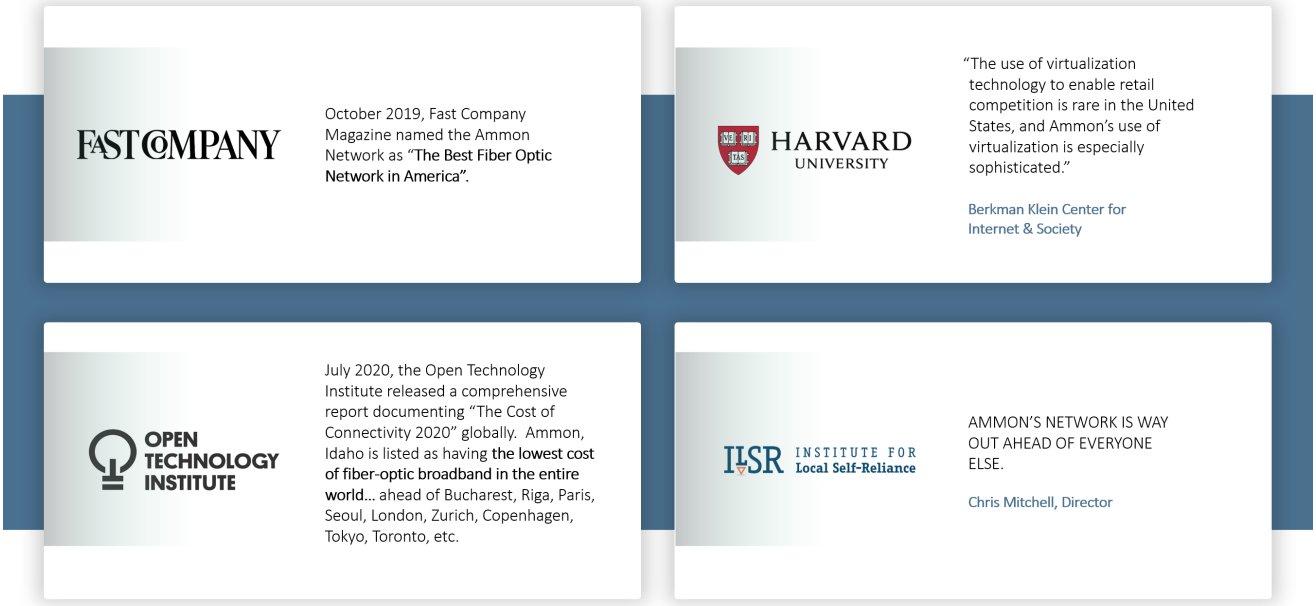
Corporate Information

EntryPoint Networks, Inc. ("EntryPoint") is headquartered at 1949 West Printers Row, Salt Lake City, Utah 84119. The primary point of contact for this project will be Nicole Banyai, Head of Business Development. Nicole can be contacted at nbanyai@entpnt.com or +1 801 712 7994.

History

EntryPoint was formed in 2008 as a research and development company—focused on merging the open access model with software-defined networking and network automation. EntryPoint pioneered the concept of automated open access in work with the School of Computing at the University of Utah beginning in 2012. In 2015, the U.S. Department of Energy awarded EntryPoint and the School of Computing an SBIR Grant to continue its work under research titled *Edge Intelligence for Virtualization and Security in Open Networks*.

The EntryPoint open access platform was first deployed in Ammon, Idaho, in 2016. Many refer to separating services from infrastructure using automation as "The Ammon Model" because stakeholder automation was first deployed in Ammon. Since its launch, more than 100 articles have been written about the Ammon Network. In 2016, the Ammon network was named the Network of the Year by NATOA. In 2019, Fast Company Magazine described the Ammon Network as "the Best Fiber Optic Network in America." In 2020, the Open Technology Institute released its annual survey of global internet costs and listed Ammon as the network with the lowest cost for gigabit internet access worldwide.



Along with providing a network management software platform for open access networks, EntryPoint offers a suite of services, including project management, implementation management, and consulting services, to guide clients in implementing Citywide fiber-to-the-premise networks.

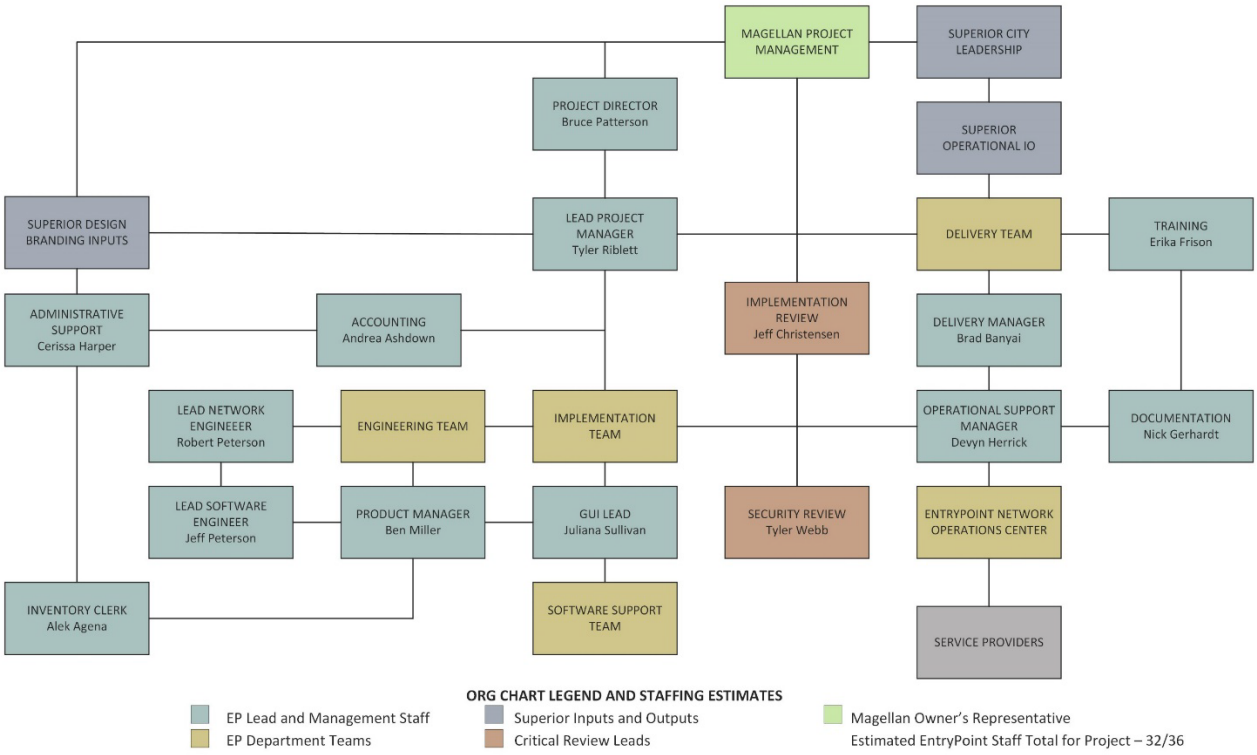
Ownership

EntryPoint is a private company and, until recently, was self-funded by the founders of the company. In August 2023, two investor partnerships, the Stena Group and Aurelius Capital, took lead positions in funding the organization's growth.

Number of Employees

EntryPoint currently employs 25 full-time staff and nine independent contractors. The organizational chart below illustrates this proposed project's management and implementation teams.

Organizational Chart



Implementation Experience

Automated open access was first deployed in Ammon, Idaho, in 2016. In Ammon, the municipal automated open access model has taken the average residential internet speed from 30 Mbps download/5 Mbps upload to 1,000 x 1,000 Mbps symmetrical (download and upload) while at the same time reducing the average monthly residential cost from $93.00 per month to $49.00 per month for those who have not paid off their infrastructure, and $27.00 per month for those who have paid off their infrastructure. New construction includes municipal fiber, providing residents instant access to 1-gigabit symmetrical service from multiple service providers for under $30 per month. Because the municipal utility model separates infrastructure costs from service costs, monthly costs continue to decrease for the residents and businesses in Ammon. Citywide take rates are around 65% and continue to increase. The capital costs for the initial infrastructure improvement have been repaid.

Bruce Patterson was the technology director at the City of Ammon from 2006 – 2021. He was responsible for network planning, design, construction, and network operations. Bruce is widely recognized as the key influence in the City of Ammon for the project's success. He left the City of Ammon in June 2021 to become the head of operations at EntryPoint. Bruce would provide strategic

supervision and project management in coordination with engineering and construction partners and local leadership on this project.

Along with Bruce's expertise, the Ammon technical team that worked alongside Bruce to implement the model has also joined EntryPoint. Tyler Riblett, project manager, and Devyn Herrick, implementation technician, will bring their hands-on experience and knowledge to the Superior project and ensure a successful network launch.

Additional leadership, technical, and engineering support will be provided by EntryPoint Networks. Key staff assigned to engineering and support will be Robert Peterson, chief network engineer, Jeff Peterson, chief technology officer, and Tyler Webb, cyber security. We will include other team members to support our efforts on the project as needed. The EntryPoint team will oversee project coordination and management for partners, service providers, and operations.

Similar Projects

Location: Ammon, Idaho
Completion Date: Initial phase completed in 2017. The project is on-going.
Duration: Six years.
Scope: The City of Ammon, Idaho, initially deployed EntryPoint's automated open access platform when connecting homes and businesses to the Ammon Fiber Network in August of 2016. Since then, Ammon has slowly grown their network to provide fiber connectivity to every home and business in the City that subscribes to it. The City has completed deployment to approximately 80% of the neighborhoods in Ammon, with a current subscriber base of approximately 3,000 households.

Ammon's Model: The Virtual End of Cable Monopolies

Home | Ammon Fiber

Location: Sherburne, New York
Completion Date: Initial phase completed in 2023. The project is on-going.
Duration: One year.
Scope: With infrastructure funding assistance from the NY Governor's Office and the New York Power Authority, Sherburne, New York, has begun deploying a municipal fiber network covering the Sherburne region (approximately 1,800 households) in upstate New York. Sherburne utilizes EntryPoint's automated open access platform to manage the network as part of its fiber deployment. Sherburne began connecting residential customers in April 2023 and anticipates completing the network build in the next twelve months. Sherburne is now looking to expand its network to adjacent communities.

Sherburne Receives 2023 Local Government Achievement Award from NYCOM

HOME | Sherburne Fiber

Location: Mountain Home, Idaho
Completion Date: Initial phase projected to be completed in 2024. The project is on-going.
Duration: Projected to be built over three years.
Scope: In January 2021, EntryPoint completed a Broadband Master Plan for the City of Mountain Home, Idaho. In March 2022, the City Council voted to deploy a municipal open access fiber network managed by EntryPoint's automated network operations platform. Phase 1 of the network deployment began in the summer of 2022 and continues today.

HOME | Mountain Home Fiber

Certifications

The assembled EntryPoint team has licenses and certifications that meet or exceed established project minimum requirements, including the following, which can be provided upon award:

- Federal, state, and local funding award accounts and approvals, including SAMs registration and tax clearances.
- Insurance coverage relative to the activities, scale, and scope of work.
- Degrees and certifications in networking, cybersecurity, software development, construction, fiber-optic design, and installation.

References

Project: Ammon Fiber Optics **Agency/Organization:** City of Ammon, ID **Contact Name and Title:** Sean Coletti, Mayor **E-mail:** scoletti@cityofammon.uc **Phone:** +1 208 612 4000 **Implementation Date:** 2017	**Project:** Sherburne Fiber **Agency/Organization:** Village of Sherburne, NY **Contact Name and Title:** Travis DuBois, Superintendent of Electric **E-mail:** travis.dubois@sherburne.org **Phone:** +1 607 674 2202 **Implementation Date:** 2023	**Project:** Mountain Home Fiber **Agency/Organization:** City of Mountain Home, ID **Contact Name and Title**: Rich Sykes, Mayor **E-mail:** Mayor@Mountain-Home.us **Phone:** +1 208 587 2104 **Implementation Date:** 2021

APPENDIX

Please see the attached Appendix documents submitted with our RFI response for the following information:

- Bill of Materials (BOM and Cost Estimates)
    - Hardware
    - SaaS and NOC
    - 5-Year Cost Projection
- Rack Evaluation Information
- Equipment Datasheets
- Shelter Layout Drawings

THANK YOU

For Your Consideration

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