



SOLUTION BRIEF

Maximizing The Middle Mile

How to Best Put Your BEAD & MMG Funds to Work

Making It Possible

The Broadband Equity, Access, and Deployment (BEAD) Program run by the U.S. Department of Commerce (DOC) under the management of the National Telecommunications and Information Administration (NTIA), was developed to disburse the \$42.5 billion included in the \$1.2 trillion Infrastructure Investment and Jobs Act (IIJA) of 2021 that was earmarked for broadband deployment to address unserved (less than 25Mbps downstream/3Mbps upstream) and underserved (between 25/3 and 100/20) locations throughout the 50 U.S. states and six territories, including the District of Columbia.

Less well known is the Middle Mile Grant (MMG) Program, a separate program from BEAD under the IIJA established to deliver \$1 billion specifically for middle mile infrastructure.

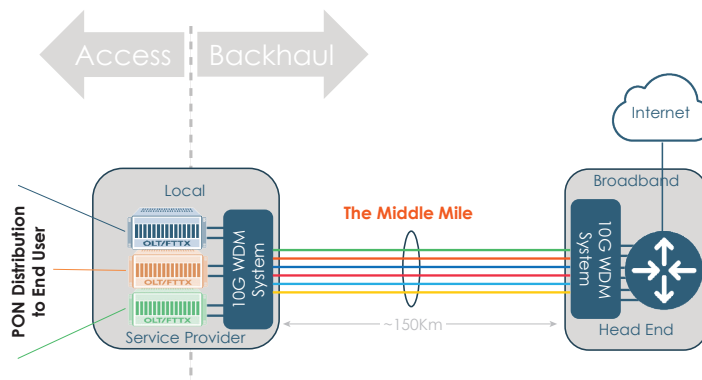
Facts & Figures:

- Texas received the largest BEAD funding allocation with \$3.312B and Delaware the least with \$108M.
- There were 39 MMG awards made to service providers in 40 states plus Puerto Rico valued between \$1.3M and \$88.9M each exclusively for rural connectivity projects.
- Spending on telecom equipment for BEAD is not expected to begin until late 2024 or early 2025 but MMG funding has already been awarded.

The Challenge

The purpose of the MMG is "...to expand and extend middle mile broadband infrastructure to reduce the cost of connecting areas that are unserved or underserved to the internet backbone." The challenge is that, for virtually all rural providers,

that broadband infrastructure is many miles away. Connecting to it requires an extended, high-capacity optical link capable of supporting the distance and all the traffic from its service area including residential, business and mobile services.



Basically there are two ways of provisioning that middle-mile capacity—buy a lit wavelength service from a wholesale carrier or build it yourself. While it may sound easier just to buy it, there are a number of factors that need to be considered including:

- Does anyone even offer wavelength services in my area?
- If yes, how many sources are there? Several or only one?
- What are my upfront costs for bringing connectivity to my location and can it be done in the timeframe in which I need it?
- What are my monthly recurring charges (i.e., what is my cost per kilometer per bit) including maintenance?
- What if I extend my services and need more capacity quickly?
- What control do I have over the service and what is my SLA?

With all of the upfront deployment and commissioning costs followed by monthly recurring charges based on distance, capacity and maintenance, the buy option is not as easy as it sounds and can get expensive quickly (see our White Paper 'Scaling Backhaul for Rural Broadband Connectivity' on [this page](#)).

Building your own middle-mile connection has its own challenges to be sure but it can help save money by matching exactly the infrastructure to your needs, provide greater control over both the deployment process and the network once it's been commissioned and provide the capacity needed along your network lifetime at the touch of a button and with a pay-as-you grow approach. While securing dark fiber can be an issue in many locations, most carriers that offer lit wavelength services also offer dark fiber given that the high cost of deploying new fiber cables leads most carriers to install more fiber pairs than they need whenever they construct new routes.

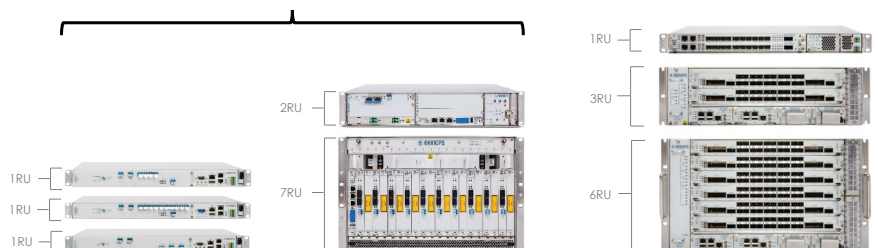
The question then becomes, how do I light the fiber once I have it? At Ekinops, we have the answer.

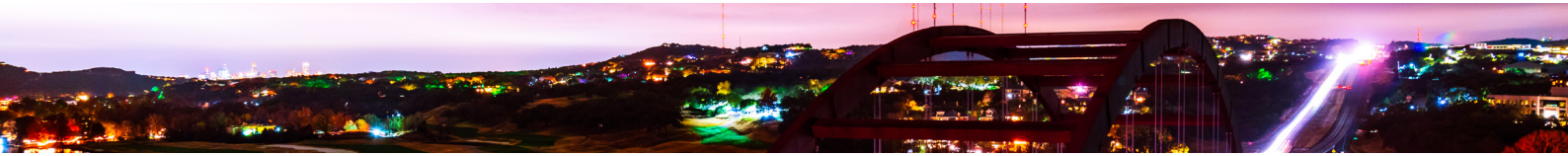
Ekinops360 Optical Transport Platform

The Ekinops360 Optical Transport Platform provides the capacity and performance you need to serve all your customers at the lowest cost per bit while providing a platform for growth. It consists of both WDM and OTN solutions that can be deployed alone or in combination to provide the highest level of bandwidth efficiency, performance, reliability and service flexibility.

EKINOPS360
Dynamic Optical Transport

ETSc
Compact OTN System





Features:

- FlexRate™ programmable line interface—100G to 600G—no license fee to upgrade
- Small footprint—only 600G solution available in telco-compliant 300mm depth
- Extended reach to 10 000 Km
- Multiprotocol support—Ethernet, Fibre Channel, SONET/SDH, OTN, Anyrate
- Multi-level service aggregation for low-speed transport over high-speed links
- Flexible ROADM and amplifier options—1RU 'pizza box' or modular chassis-based
- Extended temperature range (ETR) operation from -40 °C to +65 °C
- Single-fiber working on all line rates from 10G to 600G
- OTN switching edge to core with service protection
- Customized SLA per service
- Optimized bandwidth

Applications

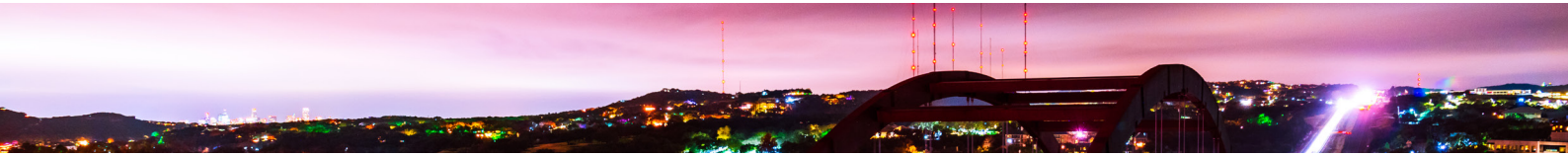
The Ekinops360 platform can be deployed in a variety of both greenfield and brownfield scenarios including:

- Alien wavelength over existing line systems
- Single fiber networks
- Metro/Regional/Long Haul/Ultra-Long Haul transport
- Aggregation of legacy 10G and below services into high-speed links

Cost Efficiency

The Ekinops360 provides the lowest total cost of ownership available both in terms of CAPEX and OPEX.

- Lowest equipment cost per 100G (incl. chassis, amps, commons and optics)
- Automated power balancing for optimal performance without a truck roll
- Easy to deploy, simple to commission—get your network up and running in hours, not weeks
- Remote management using one tool to provision, monitor and troubleshoot services across all Ekinops WDM and OTN devices



About Ekinops

Ekinops is a leading provider of open, trusted and innovative network connectivity solutions to service providers around the world. Our programmable and highly scalable solutions enable the fast, flexible, and cost-effective deployment of new services for both high-speed, high-capacity optical transport as well as virtualization-enabled managed enterprise services.

Our product portfolio consists of three highly complementary product and service sets: Ekinops360, OneAccess and Compose.

Ekinops360 *Dynamic Optical Transport*

- Ekinops360 provides optical transport solutions for metro, regional and long-distance networks with WDM for high-capacity point-to-point, ring, and optical mesh architectures, and OTN for improved bandwidth utilization and efficient multi-service aggregation.

ONEACCESS *Fast Network Virtualization*

- OneAccess offers a wide choice of physical and virtualized deployment options for Layer 2 and Layer 3 access network functions.

COMPOSE

- Compose supports service providers in making their networks software-defined with a variety of software management tools and services, including the scalable SD-WAN Xpress and SixSq Edge-to-Cloud solutions.

As service providers embrace SDN and NFV deployment models, Ekinops enables future-proofed deployment today, enabling operators to seamlessly migrate to an open, virtualized delivery model at a time of their choosing.

A global organization, Ekinops (EKI) - a public company traded on the Euronext Paris exchange operates on four continents.

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