

OUR CORE SERVICES

1. FTTH Network Planning & Architecture

- Network topology design (centralized, distributed, hybrid)
- Service area analysis and customer density mapping
- Central office and hub site planning
- Splitter location optimization
- Outside plant (OSP) route planning
- Aerial, underground, and buried deployment strategies
- Multi-dwelling unit (MDU) and business park designs

2. PON Technology Design

- GPON (Gigabit PON) architecture and planning
- XG-PON/XGS-PON (10 Gigabit PON) design
- NG-PON2 (Next Generation PON) planning
- EPON/10G-EPON system design
- 25G/50G PON future-proofing strategies
- Wavelength allocation and planning
- Co-existence designs (GPON + XGS-PON)

3. Optical Distribution Network (ODN) Engineering

- Fiber cable specifications and routing
- Splitter configuration and cascade design (1:4, 1:8, 1:16, 1:32, 1:64, 1:128)
- Optical loss budget calculations
- Fiber distribution hub (FDH) placement
- Network access point (NAP) optimization
- Drop terminal and customer premise planning
- Splice and connection point documentation

4. Capacity & Coverage Planning

- Subscriber forecasting and market analysis
- Port capacity planning and dimensioning
- Service penetration modeling
- Bandwidth demand projections
- Network growth and expansion roadmaps
- Oversubscription ratio optimization
- Quality of service (QoS) design

5. Business & Wholesale Services

- Business fiber designs (FTTB - Fiber-to-the-Business)
- Dedicated fiber connections for enterprise customers
- Wholesale dark fiber infrastructure
- Cell tower backhaul via PON
- WiFi hotspot connectivity
- Smart city and IoT infrastructure planning

6. Network Migration & Upgrades

- Legacy copper/HFC network assessment
- FTTH migration strategies
- Technology refresh planning (GPON to XGS-PON)
- Phased deployment approaches
- Service continuity during migration
- Cost-benefit analysis and business cases

OUR DESIGN APPROACH

1. Demand and Serving Area Analysis

Subscriber density, take-rate assumptions, growth modeling

2. Network Architecture Definition

PON type selection, split strategy, central office design

3. ODN and Fiber Route Planning

Feeder, distribution, and access network design using GIS tools

4. Optical Budget and Performance Modeling

Loss calculations, margin analysis, coexistence planning

5. Scalability and Migration Planning

Future PON upgrades without network disruption

6. Documentation and Design Control

Clear, auditable deliverables for construction and operations

7. Implementation Planning

Construction phasing, project scheduling, contractor specifications, quality assurance procedures, and acceptance testing protocols.

DESIGN DELIVERABLES

Comprehensive Planning Package:

Network Design Documentation

- Executive summary and project overview
- Network architecture diagrams
- Service area maps with home counts
- Central office and hub site layouts
- Splitter location maps and specifications
- Route engineering drawings (aerial/underground)
- Fiber cable specifications and counts
- Splice point locations and schedules

- Equipment specifications and configurations
- Drop terminal and NAP placements
- Customer premise equipment (CPE) standards

Technical Analysis

- Optical link budget calculations
- Power budget analysis (best/worst case)
- Splitter loss budgets
- Fiber count requirements by route segment
- Port and capacity dimensioning
- Service velocity modeling
- Network performance specifications
- Quality of service (QoS) design

Implementation Documents

- Bill of materials with quantities
- Construction methods and specifications
- Make-ready requirements (pole applications, permits)
- Installation standards and procedures
- Contractor scope of work templates
- Quality control and testing procedures
- As-built documentation standards
- Safety and operational guidelines

Business Planning

- Capital cost estimates (detailed line items)
- Cost per home passed and connected
- Operational expense projections
- Revenue and subscriber forecasts
- Financial pro forma (5-10 years)
- Return on investment analysis
- Grant application support documentation
- Phasing and deployment schedule

GIS & Mapping

- Interactive GIS database
- Fiber route layers
- Equipment placement layers
- Customer location data
- Infrastructure asset inventory
- Construction status tracking
- Network topology visualization