



## FiberForecast (F2)

Market research for profitable broadband deployments

# Introduction

Combinatree is a NJ based consultancy led by Sanjay Iyer, a broadband industry consultant and expert in building analytics/ML/AI powered solutions. Combinatree is developing the F2 service to help broadband operators build profitable networks and compete with tier-1 service providers.

## What is F2?

- F2 is a market research tool that combines public data (FCC, Census, OpenStreetMap) to find attractive geographies.
- Currently at the census block group level, it can be extended to street-level with 3<sup>rd</sup> party data such as Acxiom.
- It can be customized to forecast ROI based on service provider's profile (historical costs, revenue, footprint).
- It can be integrated with other tools used by operators for planning, design and build phases.
- It is built on Splunk – a platform capable of big data analytics, GIS visualization and ML for predictions.

## Why F2?

Profitable broadband deployment needs to balance cost, competition, network contiguity, demographics and pricing to maximize ROI. F2 triangulates these factors to help planners, designers and marketers arrive at decisions that maximizes ROI.

Other benefits include:

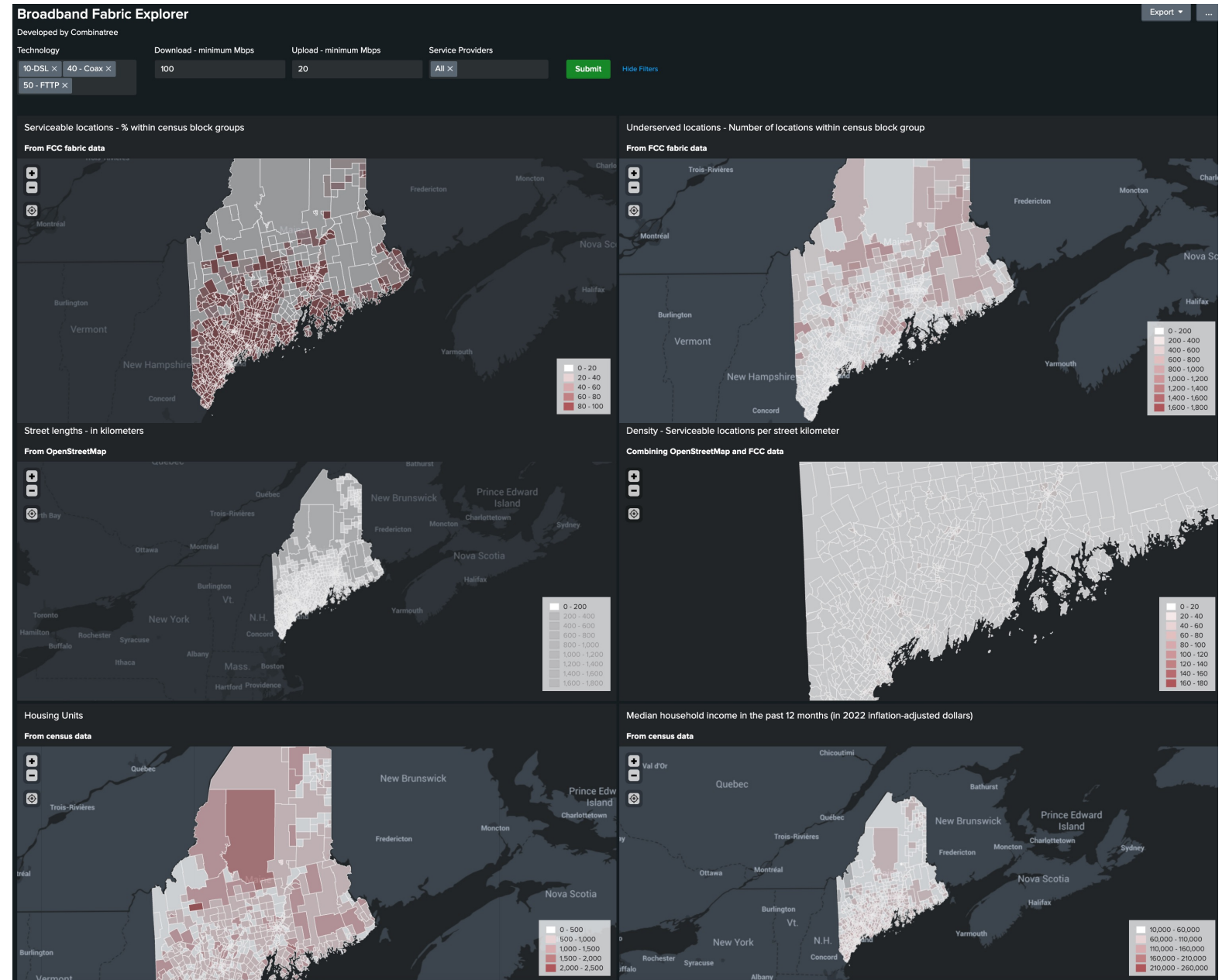
- **Accuracy:** Reduces assumptions and errors in forecasts with advanced analytics and ML.
- **Automation:** Offers consistent forecasting for all geographies, scaling up the process statewide with standardized models and calculations.
- **Adaptability:** Allows quick adjustments to ROI calculations for flexible scenario planning and road-mapping.

# F2 today

F2 is available today as a “broadband fabric explorer” using FCC, census and OpenStreetMap data. Users can analyze specific metrics at census-block-group level as heatmaps (choropleths).

Currently supported metrics:

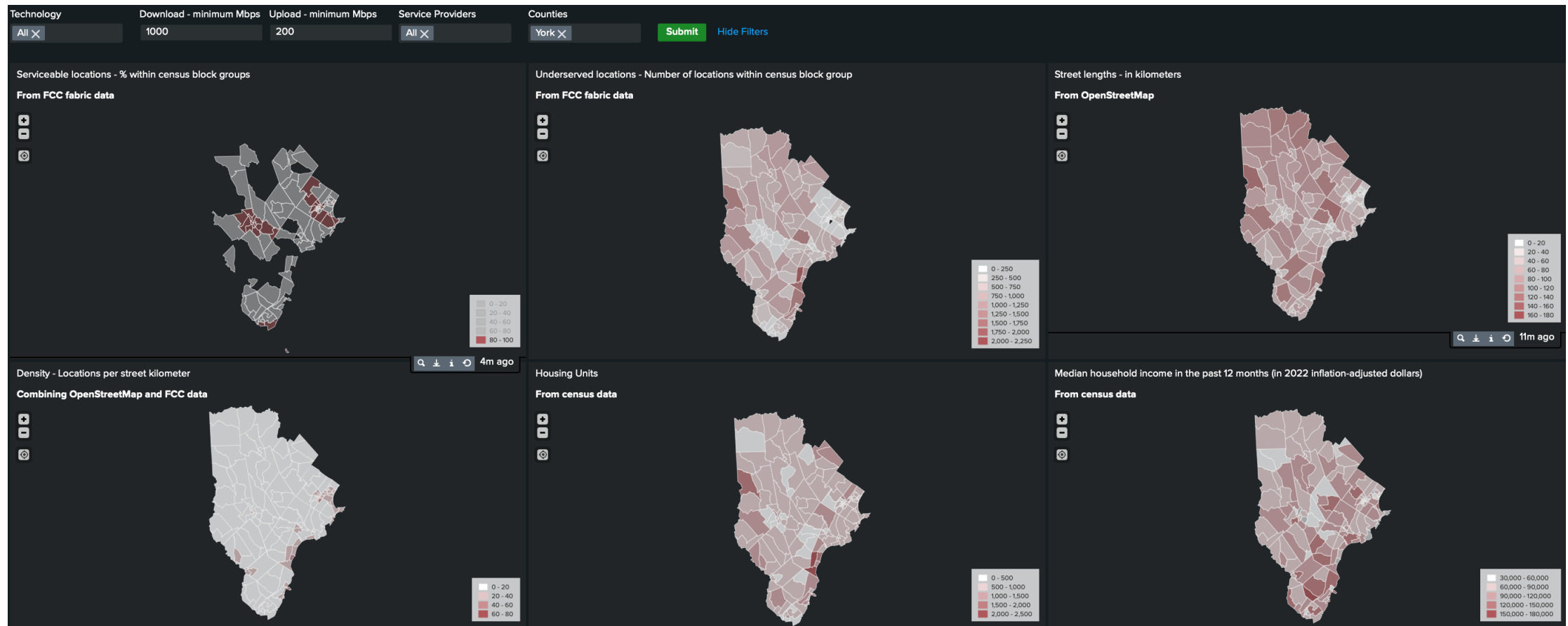
1. Serviceable or in-service locations.
2. Underserved or unserved locations.
3. Street lengths from OpenStreetMap.
4. Density – locations per street kilometer
5. Income – median household income (2022)
6. Housing units – from census data, which includes MDU counts ignored in FCC location fabric.



# Customizable views and metrics

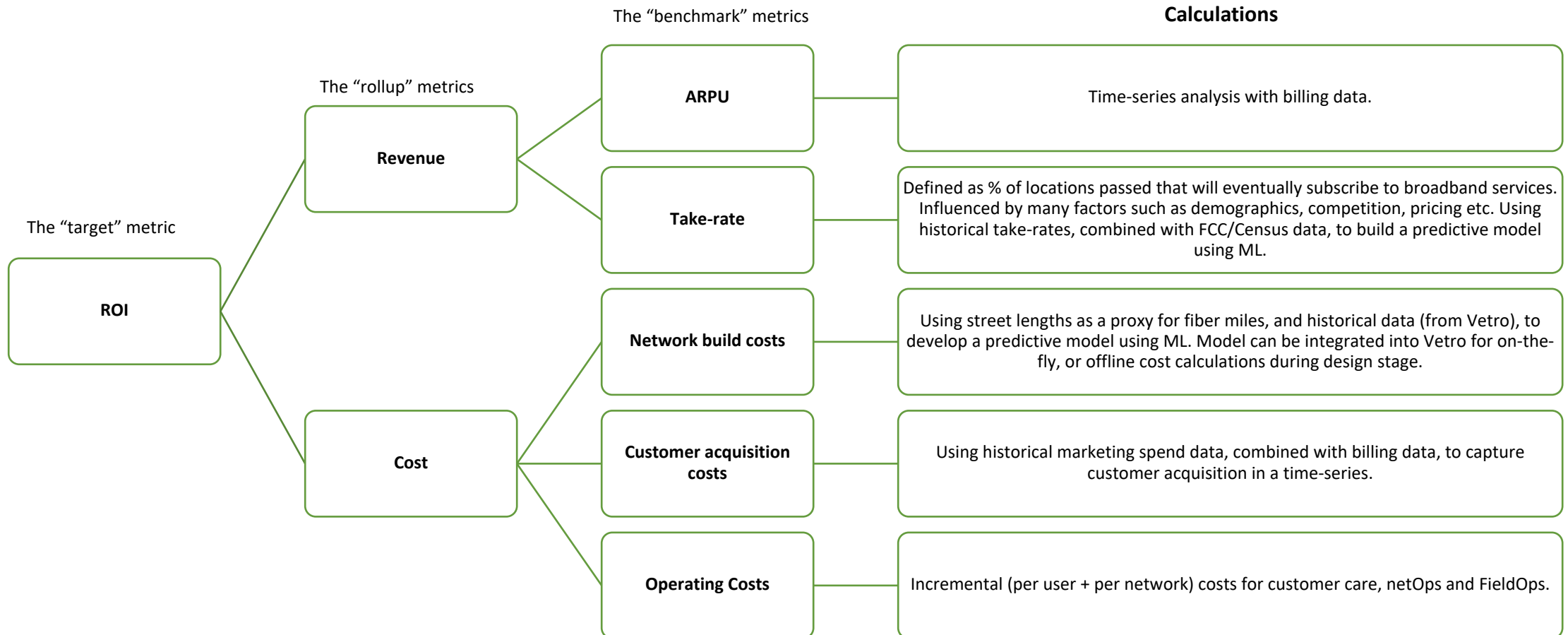
The map view is designed for a single metric that can be visualized with drill-down capabilities. Custom metrics can be created for visualization.

Map view can be filtered by tech, speeds, service provider and county. These filters can be customized too.



# F2 customization: ROI metric

ROI is the ideal target metric for broadband deployments because it combines all factors that influence profitability. With ML models trained on operator's historical data, this metric can be predicted by F2 at street-level. This custom effort is a consulting service provided by Combinatree in collaboration with the network, finance and marketing teams.



# Integrated use cases

F2's vision is to deliver integrated use cases for broadband deployments. Potential use cases, along with the integration aspects, are listed below.

Finance	<b>Capital allocation schedule:</b> integrated with PMO tools	F2 can maintain a capital allocation schedule aligned with project roadmap for investment tranches.
	<b>Budget control:</b> integrated with procurement tools	F2 can alert budget overruns by tracking planned vs actual vs forecast budget for network deployments
	<b>Continuous Improvement:</b> integrated with data warehouses	F2 can handle ad-hoc analytics to monitor KPIs influencing ROI, with an eye towards finding opportunities for improving lagging metrics.
Marketing	<b>Pricing model:</b> integrated with market research data	When combined with competitor's service and pricing data, F2 can analyze pricing scenarios, take-rates and ARPU.
	<b>Customer segmentation:</b> integrated with Acxiom data	F2 can detect high-value customer segments to lower customer acquisition costs.
	<b>Adaptive marketing:</b> integrated with CRM/marketing platforms	F2 can continuously improve campaigns when integrated with CRM and marketing tools, using ML for personalization and GenAI for content testing.
Network	<b>Macro decisions:</b> integrated with FCC/census data	Network, marketing and finance can jointly decide on which areas to target, using ROI heat maps in F2.
	<b>Micro decisions:</b> integrated with Acxiom data	F2 can analyze household attributes and predict street-level ROI. With this view, network designers can further optimize capital allocation.
	<b>Design automation:</b> integrated with existing network design tools	Maps and data from F2 can be imported into operator's network design tools, and vice versa. Build-ready plans and BOM can be automated with this data flow plus custom logic.



AI-powered products, decisions and operations