Driving Customer Loyalty: Uncovering Churn Drivers in Telecom

INSIGHTS FROM TELCECOM CUSTOMER CHURN ANALYSIS

The Churn Challenge

- High customer churn threatens telecom revenue and lifetime value—costs millions in acquisition.
- Key Question: Why are customers leaving, and how prevalent is it?
- Objective: Analyze Telecom dataset to quantify churn (26.5%) and identify drivers (e.g., contract, tenure) for retention strategies.

"Churn is the silent killer of telecom profits." – Industry Report

Our Analytical Approach

i. Data Prep: Cleaned 7043 records (filled TotalCharges missing values).

ii. EDA: Explored churn patterns via visualizations (Python: pandas, seaborn).

iii. Insights: Bivariate analysis of key factors (tenure, charges, services).

iv. Recommendations: Actionable strategies to reduce churn by 10-15%.

Tools: Python, Matplotlib/Seaborn.

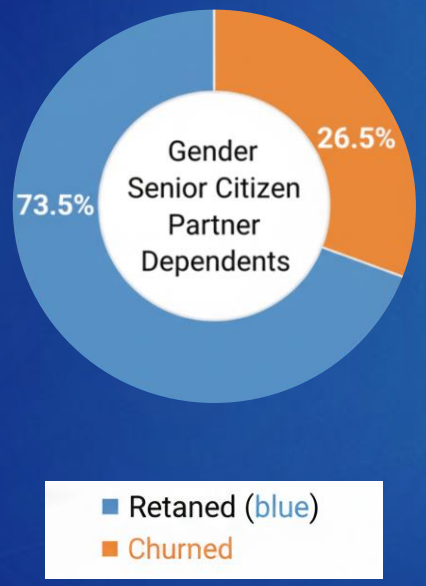
Dataset at a Glance

Customers:
7,043

Churn Rate:
26.5%

Avg. Tenure:
32 Months

Avg. Monthly Charge:
$64.76



Services

- Phone Service
- Online Security
- Internet Service
- Streaming TV

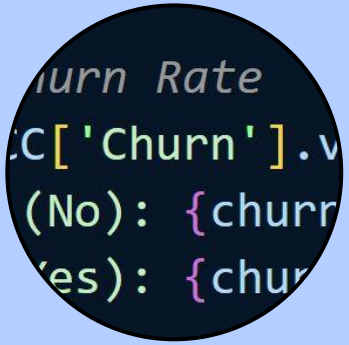
Billing

- Paperless Billing
- Payment Method
- Monthly Charges
- Total Charges

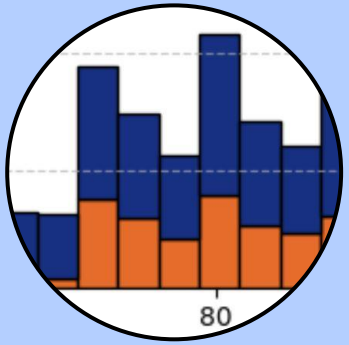
21 columns; Cleaned (no nulls post-TotalCharges fix); Focus: Demographics, Services, Billing.

Project Workflow

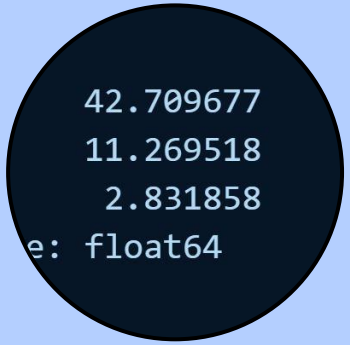
Data Load & Clean → Handle TotalCharges (fillna=0); Drop customerID.



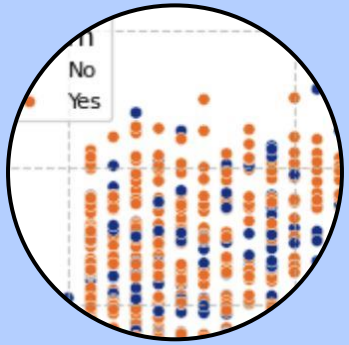
EDA Setup → Calculate churn rate; Bin tenure/charges.



Visual Analysis → Bivariate plots (histograms, pies, scatters).



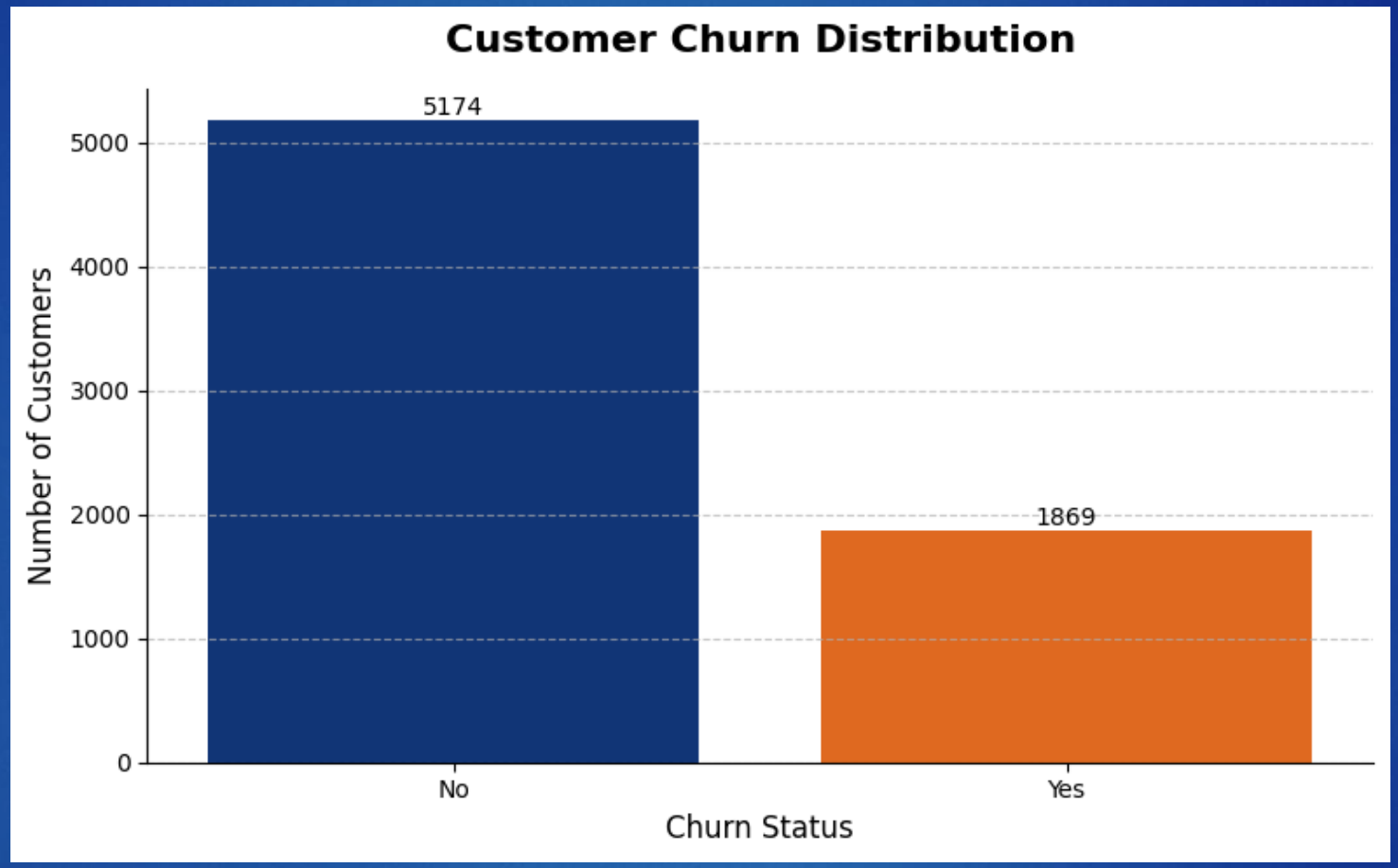
Insight Extraction → Identify drivers (e.g., month-to-month = 42.7% churn).



Recommendations → Target high-risk segments.

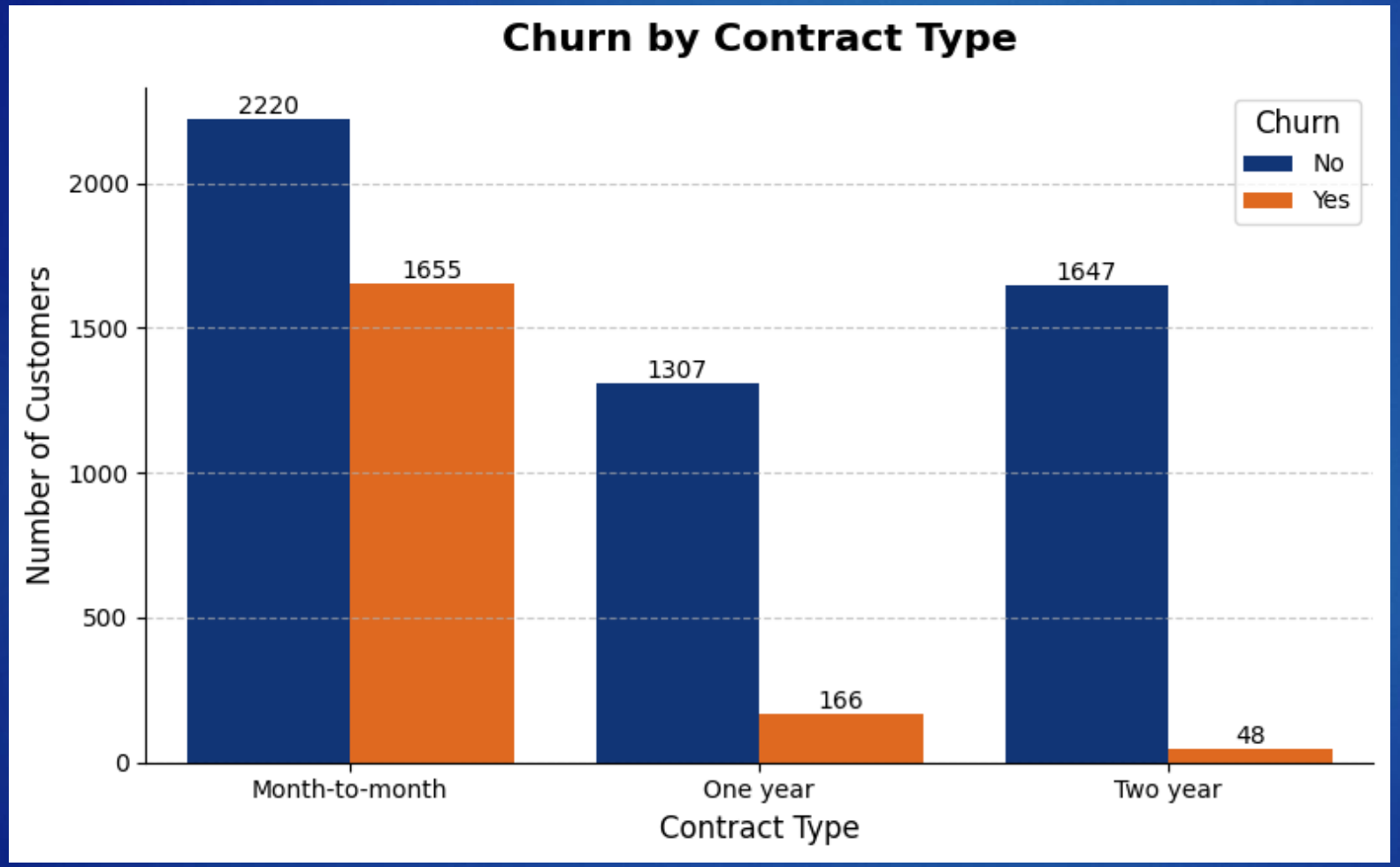
Start → End

Baseline: Overall Churn Rate



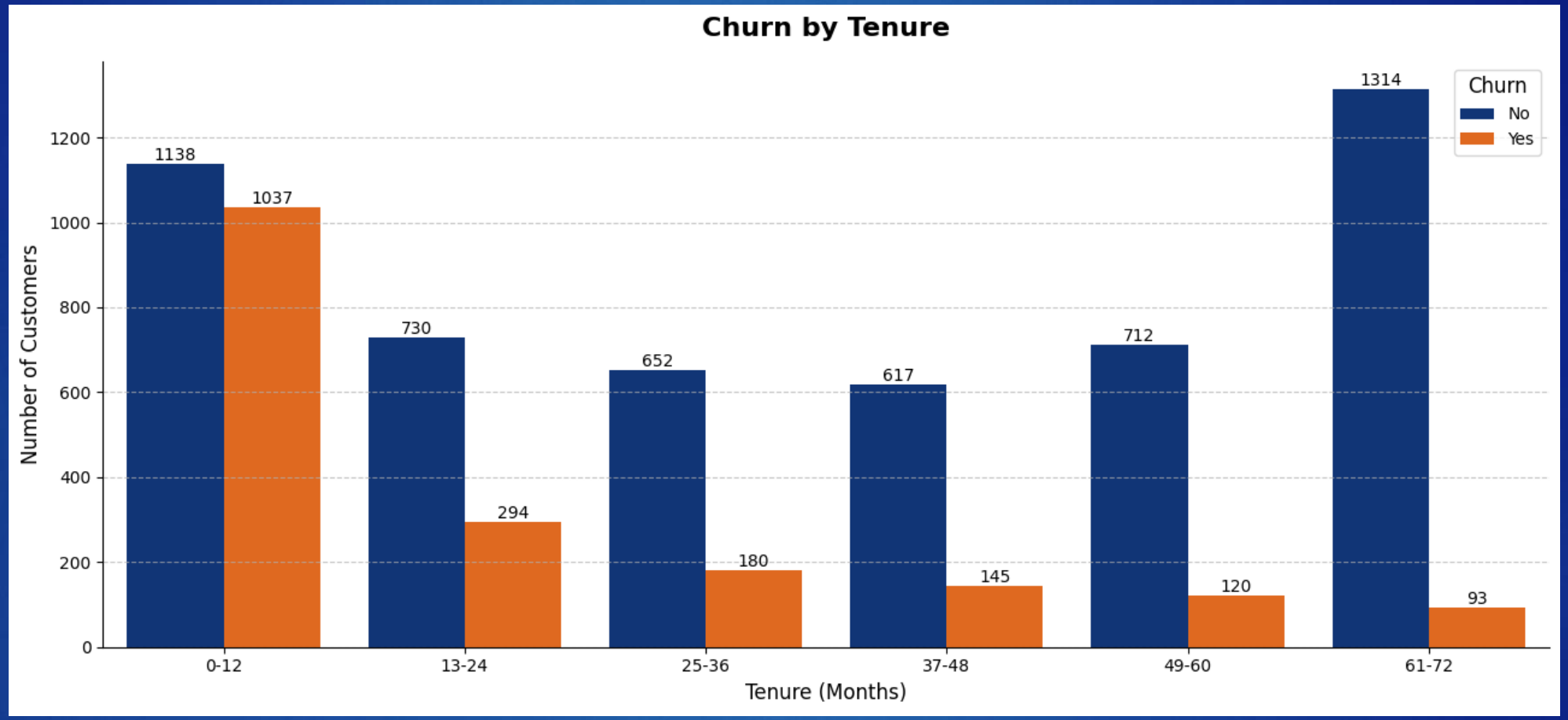
Insight: 26.5% of customers churn, equating to ~1,869 lost annually—highlighting urgent retention needs.

Driver 1: Contract Length Impacts Loyalty



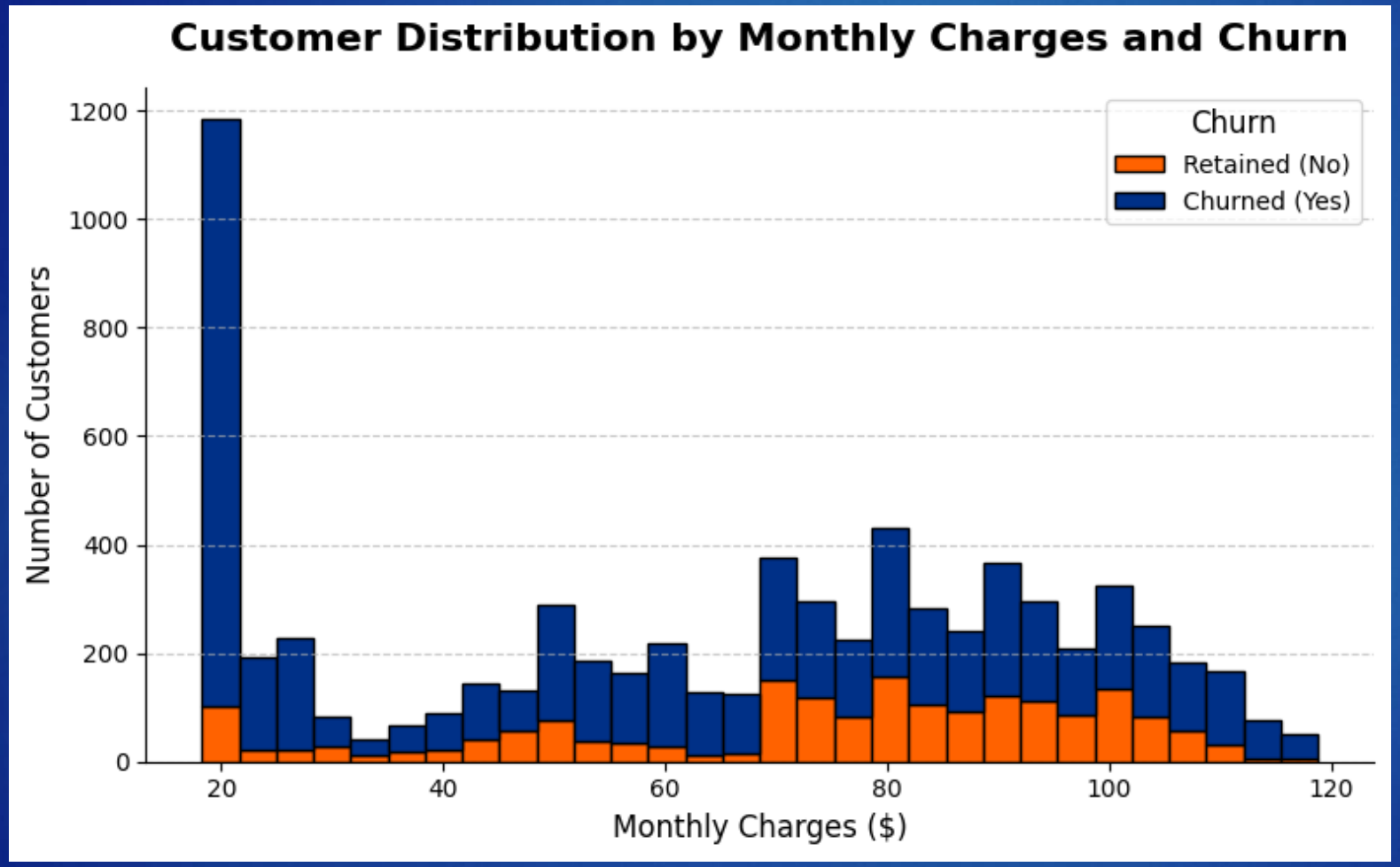
Insight: Month-to-month contracts see 42.7% churn vs. 2.9% for two-year—longer commitments reduce attrition by 94%.

Driver 2: New Customers at Highest Risk



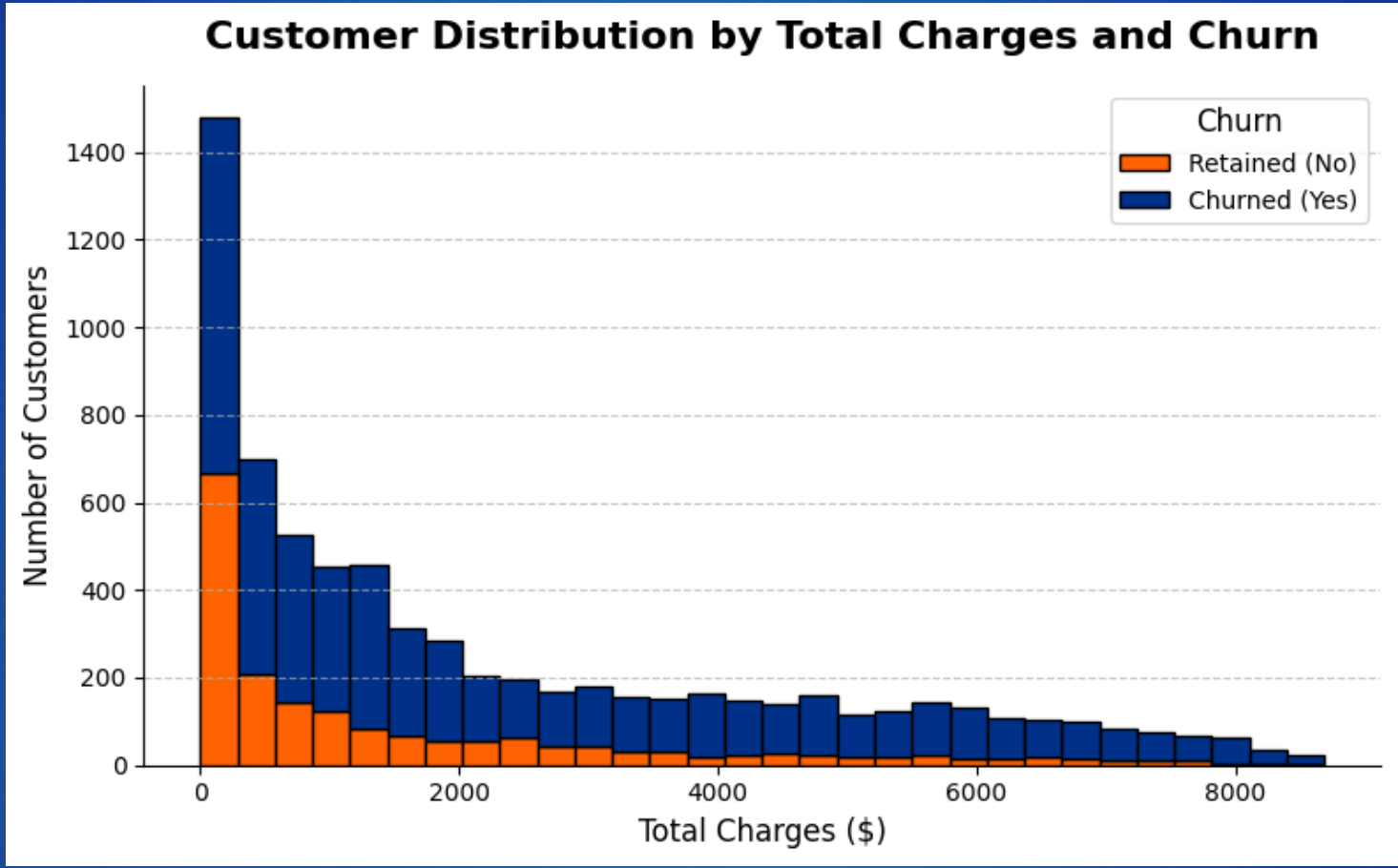
Insight: Customers with <12 months tenure churn at 47.7%—early onboarding interventions could save 40% of at-risk users.

Driver 3: Pricing Sensitivity Drives Exit



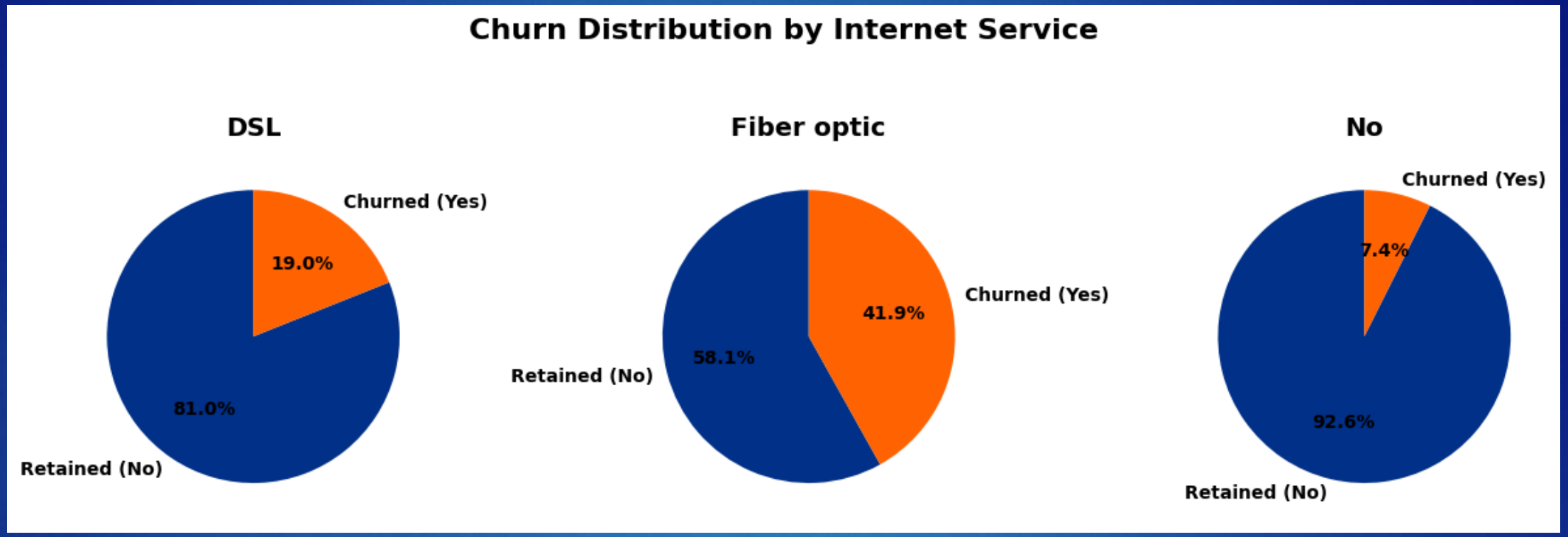
Insight: Charges >$80/month correlate with 34% churn—premium plans need value justification to retain 20% more customers.

Cumulative Impact: Total Spend vs. Retention



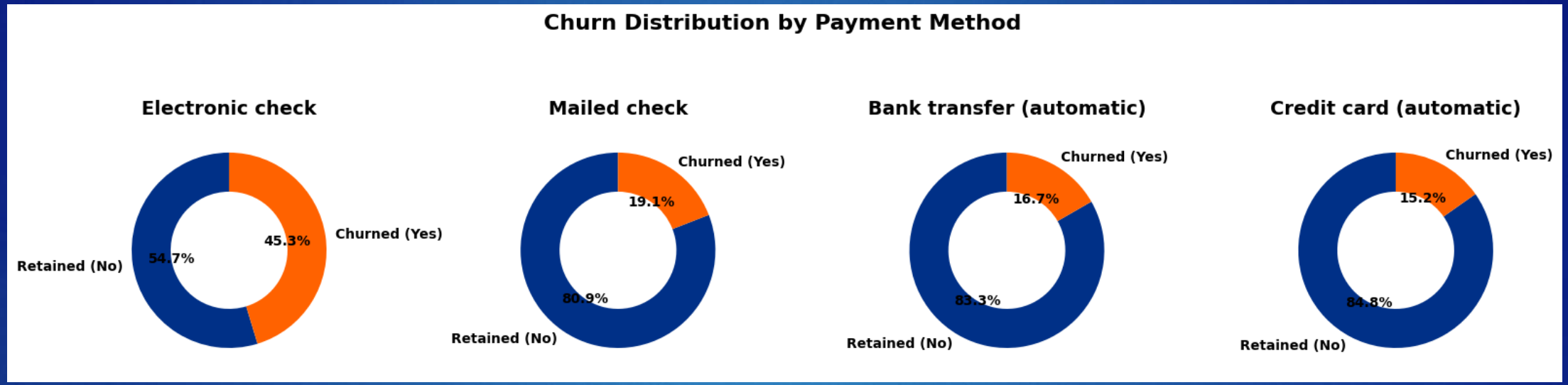
Insight: Low total charges (<$1K) show 37% churn, confirming new/low-tenure customers as prime targets for loyalty programs.

Service-Specific Vulnerabilities



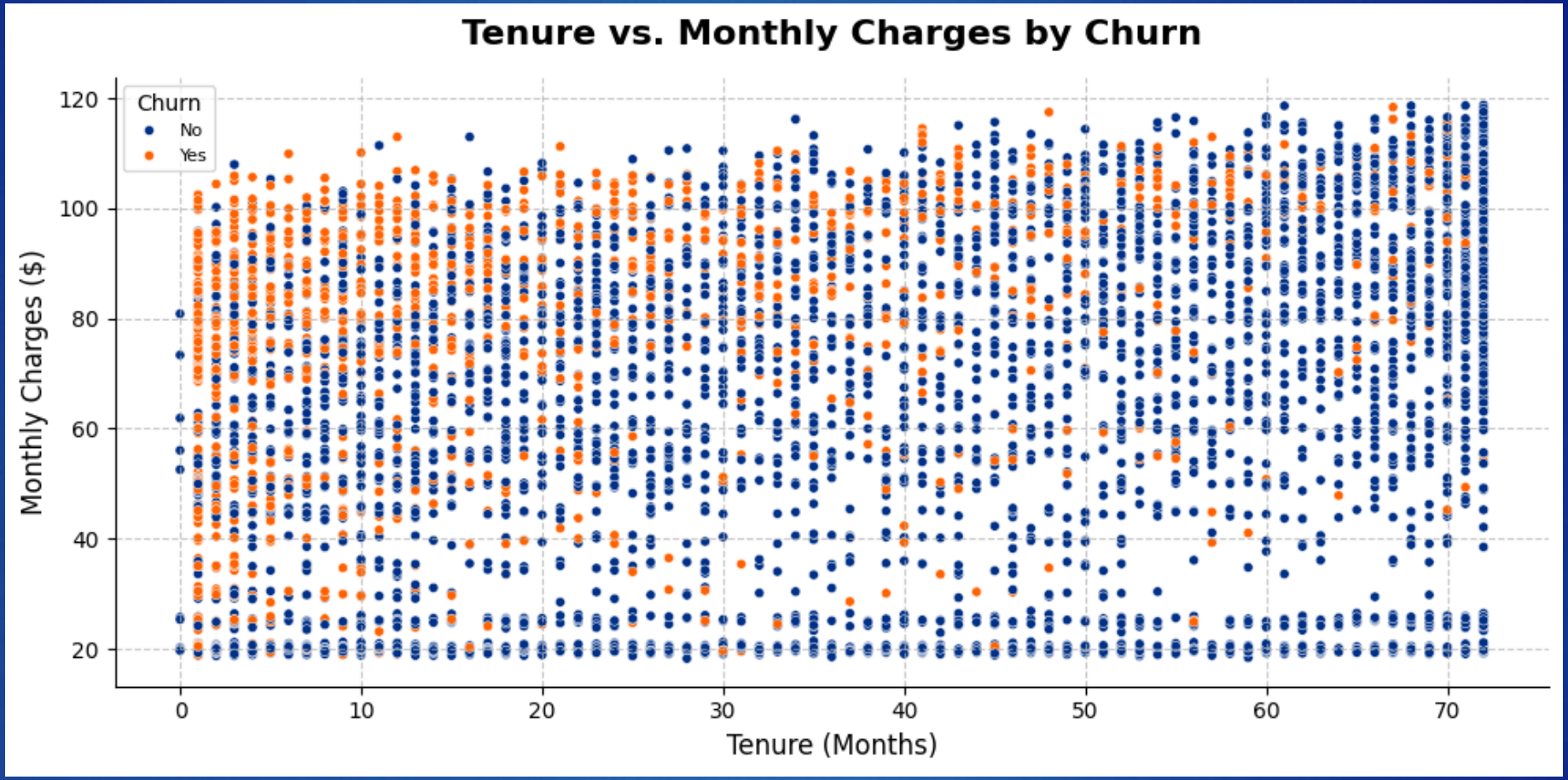
- **Insight –** Fiber optic: 41.9% churn—speed vs. reliability gap?
- **Insight –** DSL: 19.0%—stable but upgrade opportunities.
- **Insight –** No service: 7.4%—bundling could boost uptake.

Friction in Payments Fuels Churn



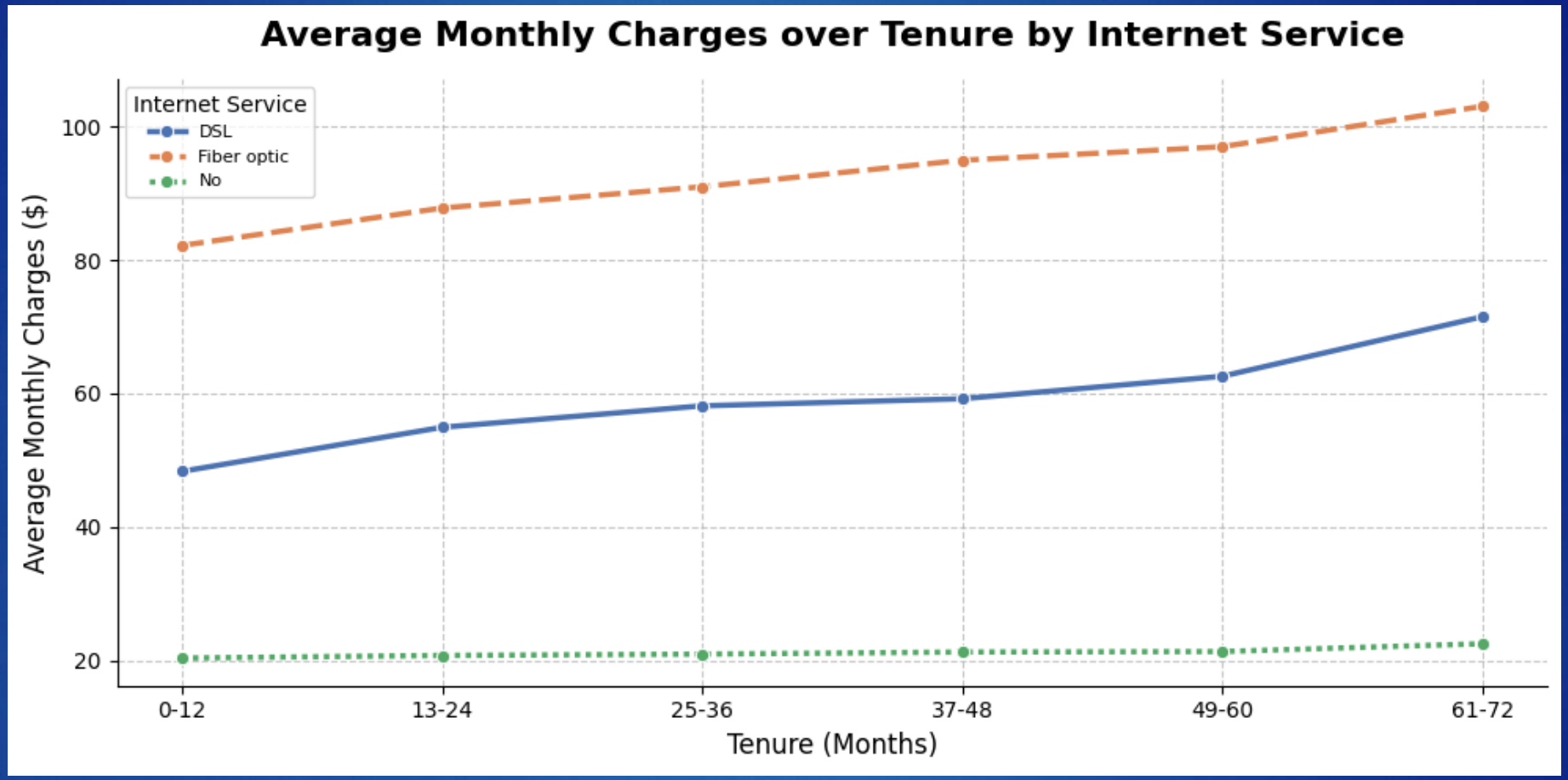
- **Insight –** Electronic check: 45.3%—manual process dissatisfaction.
- **Insight –** Mailed check: 19.1%—legacy friction
- **Insight –** Auto payments: ~16%—seamless options retain better.

Interaction: Low Tenure + High Charges = High Risk



Insight: Clusters of low-tenure/high-charge churners (orange points)—targeted discounts could cut this segment's 50%+ attrition.

Service Type Amplifies Charge Sensitivity Over Time



Insight: Fiber optic lines rise steeply in early tenure, driving 42% churn—service bundling in year 1 could stabilize 25% more revenue.

Actionable Recommendations

Immediate (High Impact)

Promote 1-2 year contracts with 20% onboarding discounts—potential 30% churn reduction.

Short Term

Enhance Fiber optic support (e.g., dedicated tech line)—target 41.9% service churn.

Long Term

Shift to auto-payments via incentives—lower 45% electronic check attrition.

Implement top 3 in Q4; Projected ROI: +15% retention, $.82MM revenue lift in the first year.