




Cable One: Customer Churn Analysis

Team 1: Final Presentation




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AGENDA

- Objective
- Customer Information Available
- Current Status & Competition
- Exploratory Data Analysis
- Key Findings
- Recommendations
- Conclusion
- Future scope



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OBJECTIVE

- Analyze customer data to find possible causes of customer attrition.
- Recommend solutions to provide CableOne to increase customer retention, improve customer experience
- Enable CableOne to gain an advantage over their competitors
- Provide a prediction model that we can use to predict customer churn

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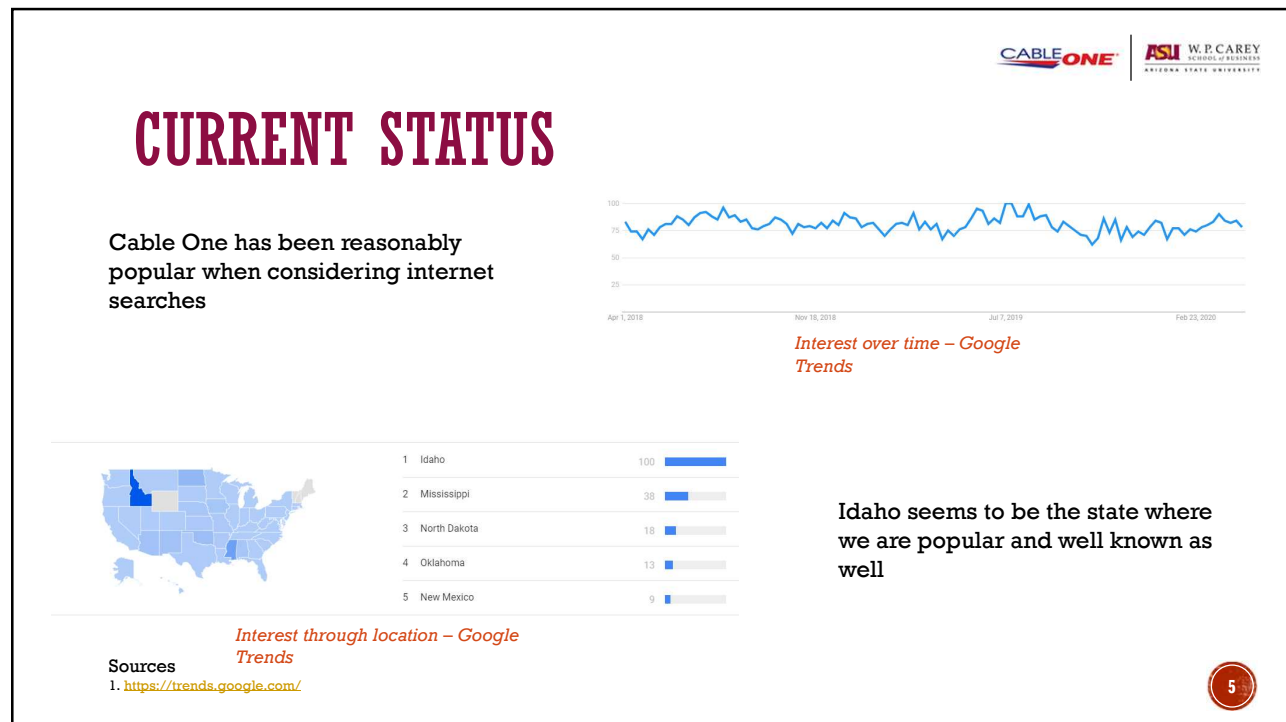
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CUSTOMER INFORMATION AVAILABLE

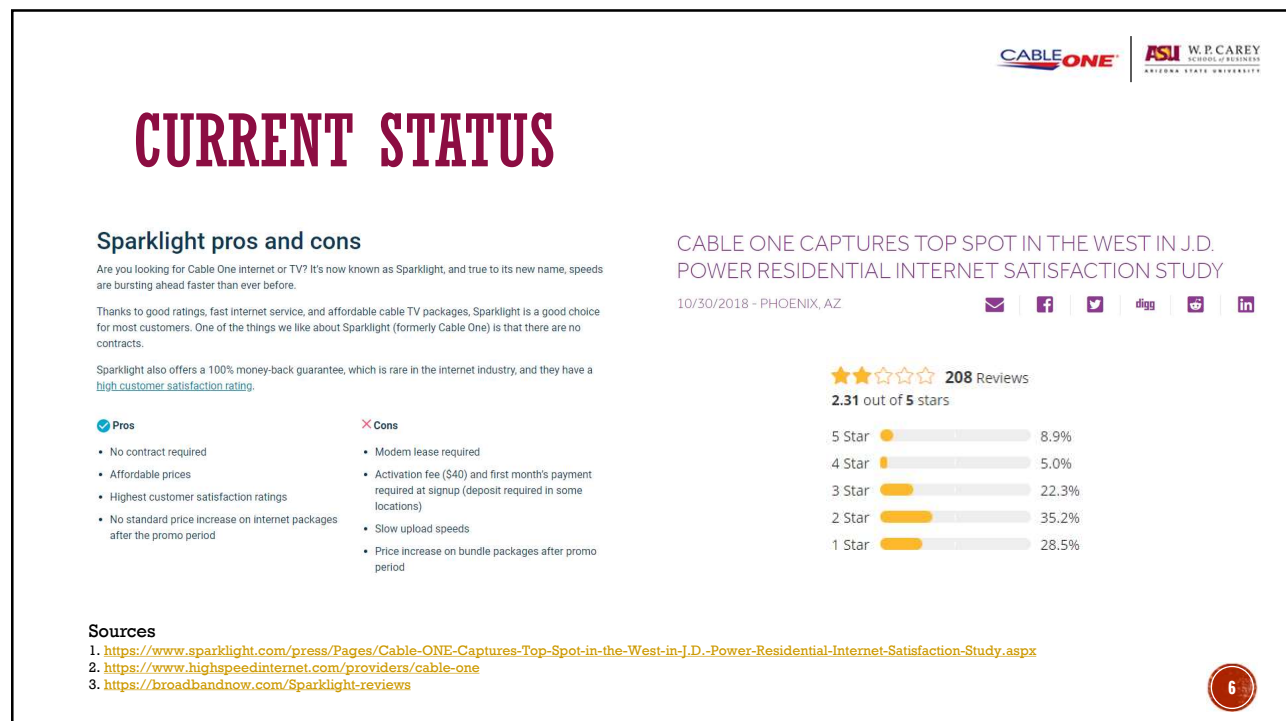
- Customer data from January 2018 – October 2019 (22 months) that contains :
 - Demographical information
 - Product information
 - Usage information
 - Orders placed information

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COMPETITION




Let's consider the states with the most churn – Minnesota, North Dakota and Kansas

Ranked higher











Ranked lower

Sources
1. <https://www.highspeedinternet.com/>




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GLOSSARY OF TERMS

- Churn customer – a customer leaving the services of the company
- Overall Tenure – The number of months a customer has been with the company
- Forced upgrade – When a customer is forced to upgrade his plans after two notices that he has exceeded his data limit
- MRC – Monthly recurring charges
- LifeTimeValue – The value, ranging from one star to five star, assigned by the company to reflect the value of the customer
- Packages :
 - I – Internet
 - V – Video
 - P – Phone



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EXPLORATORY DATA ANALYSIS

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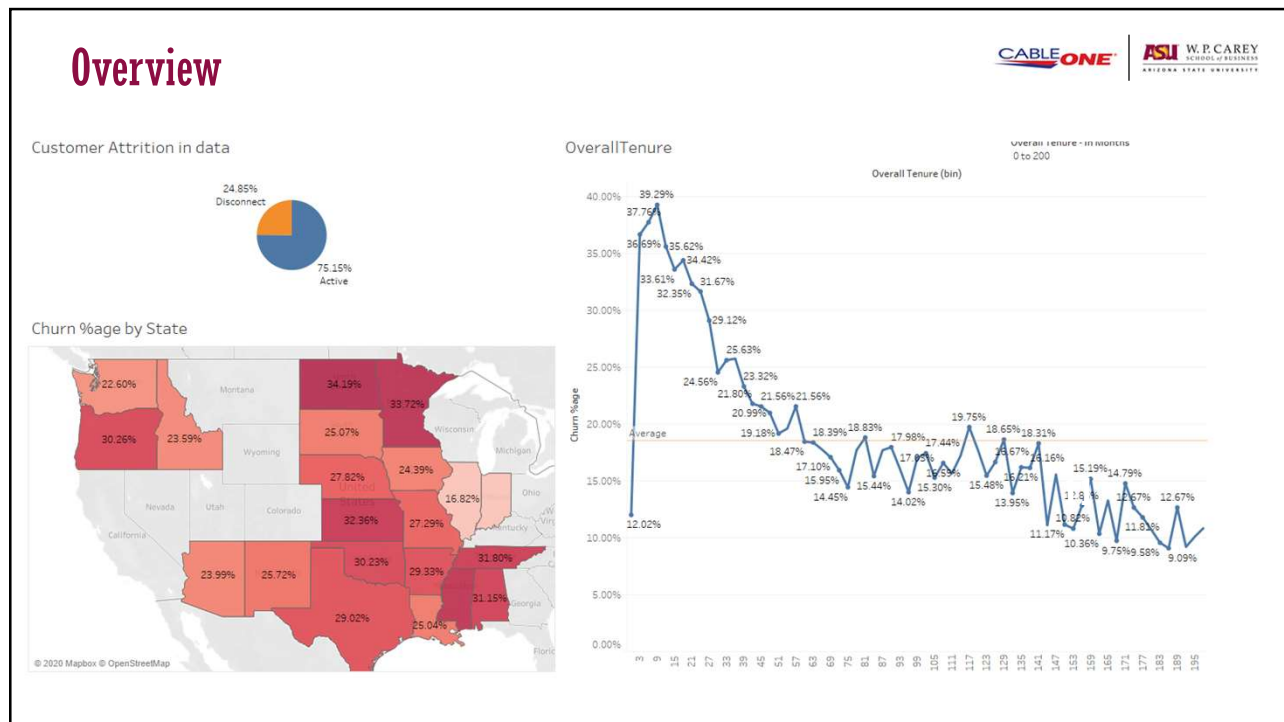
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STORYLINE

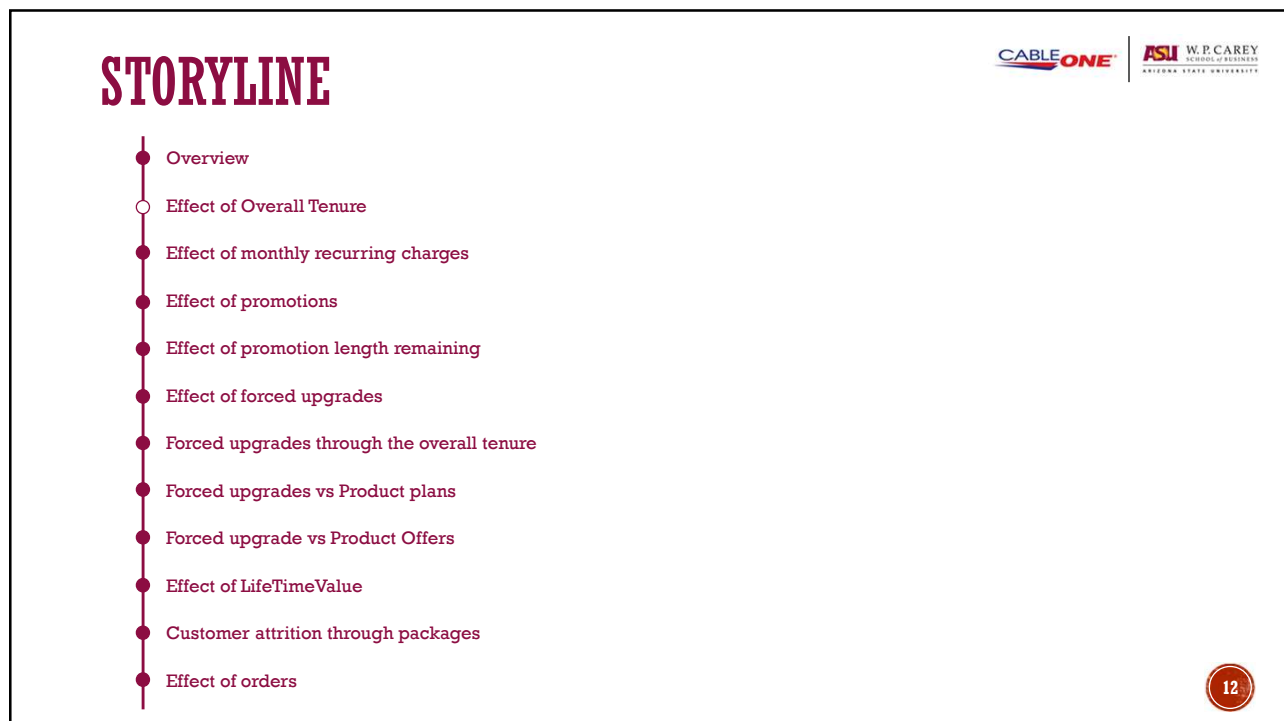
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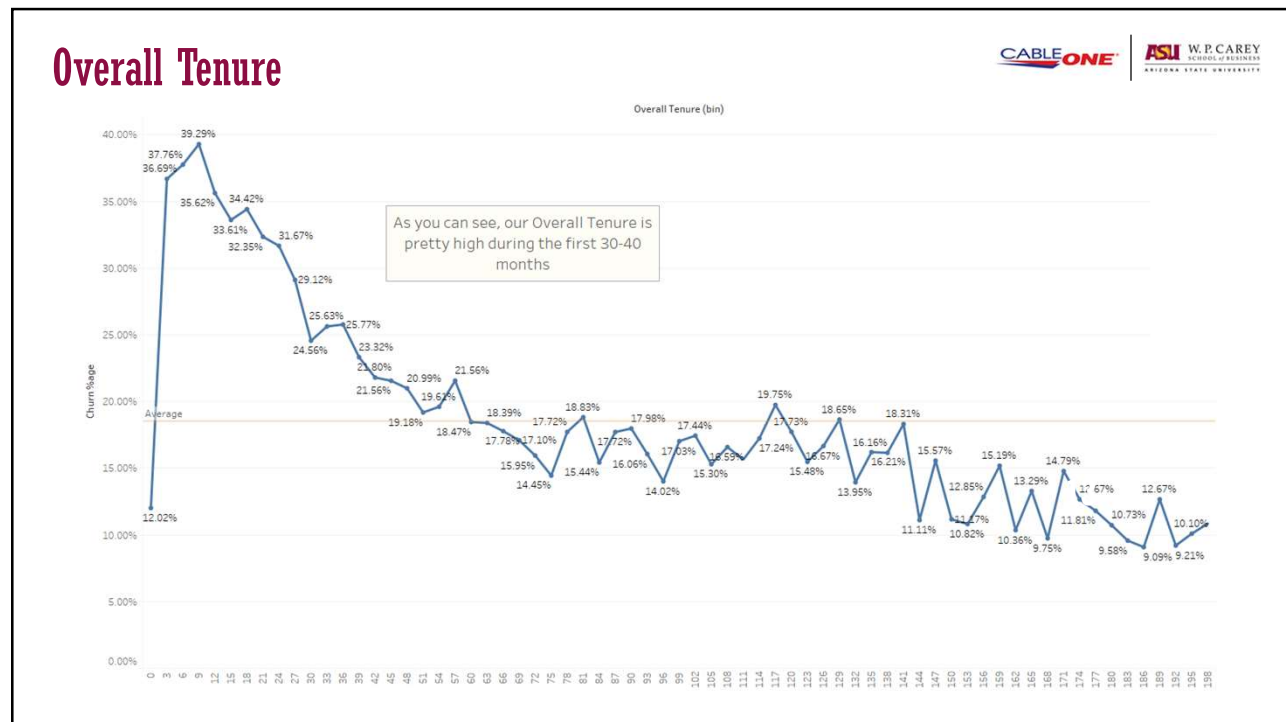
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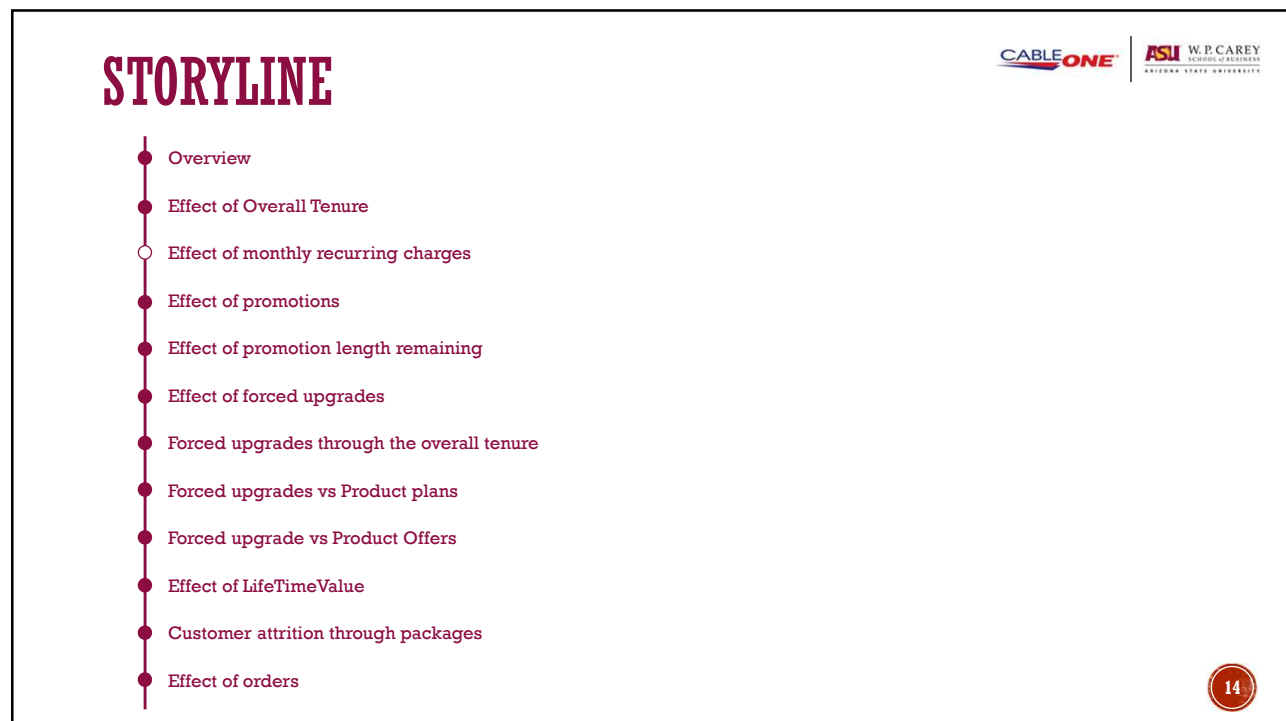
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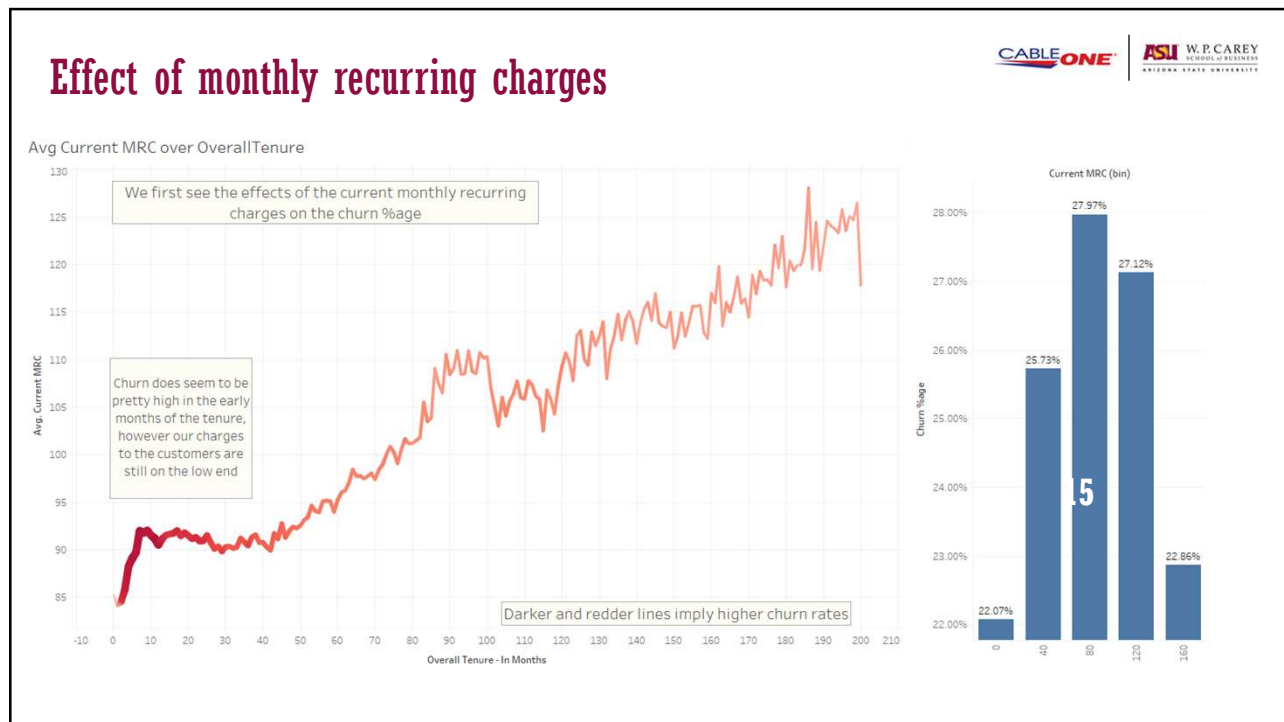
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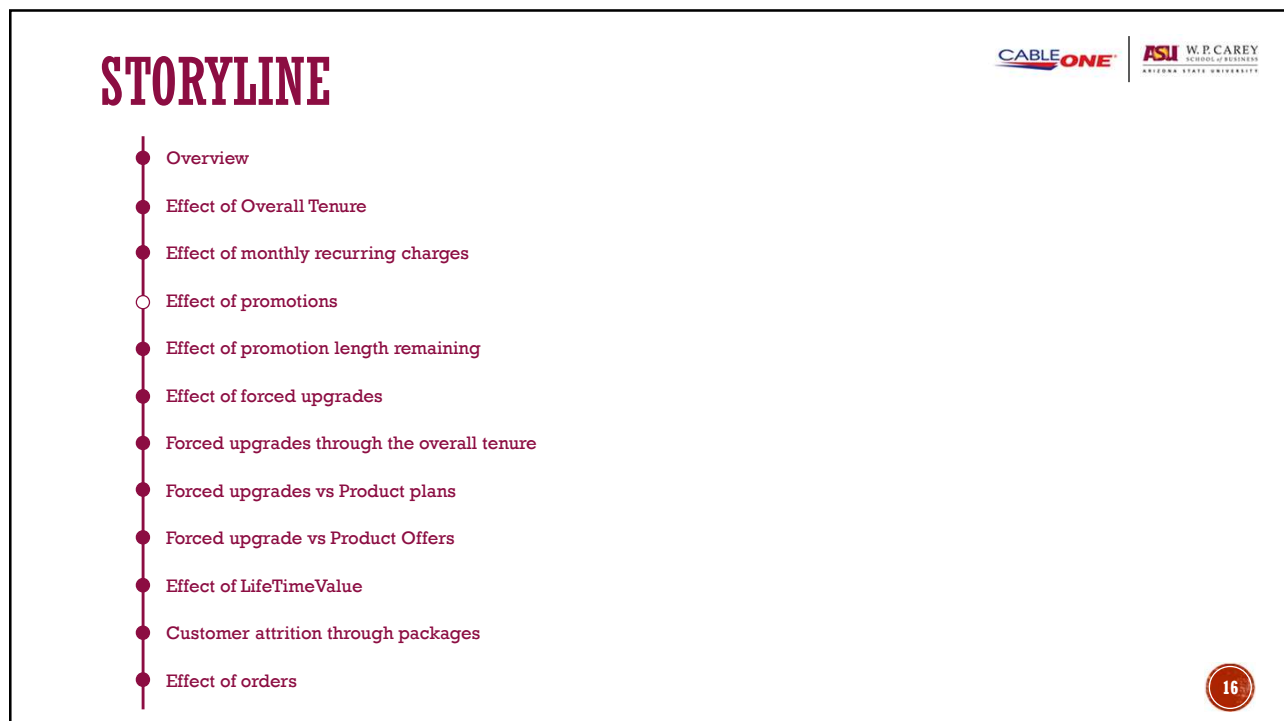
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Effect of promotions

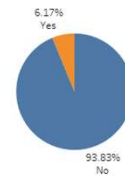
CABLE ONE

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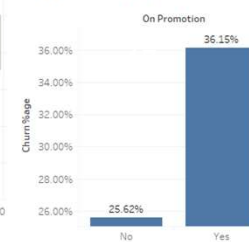
%age of OnPromotion



OnPromotion Pie on dataset



OnPromotion Churn



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STORYLINE

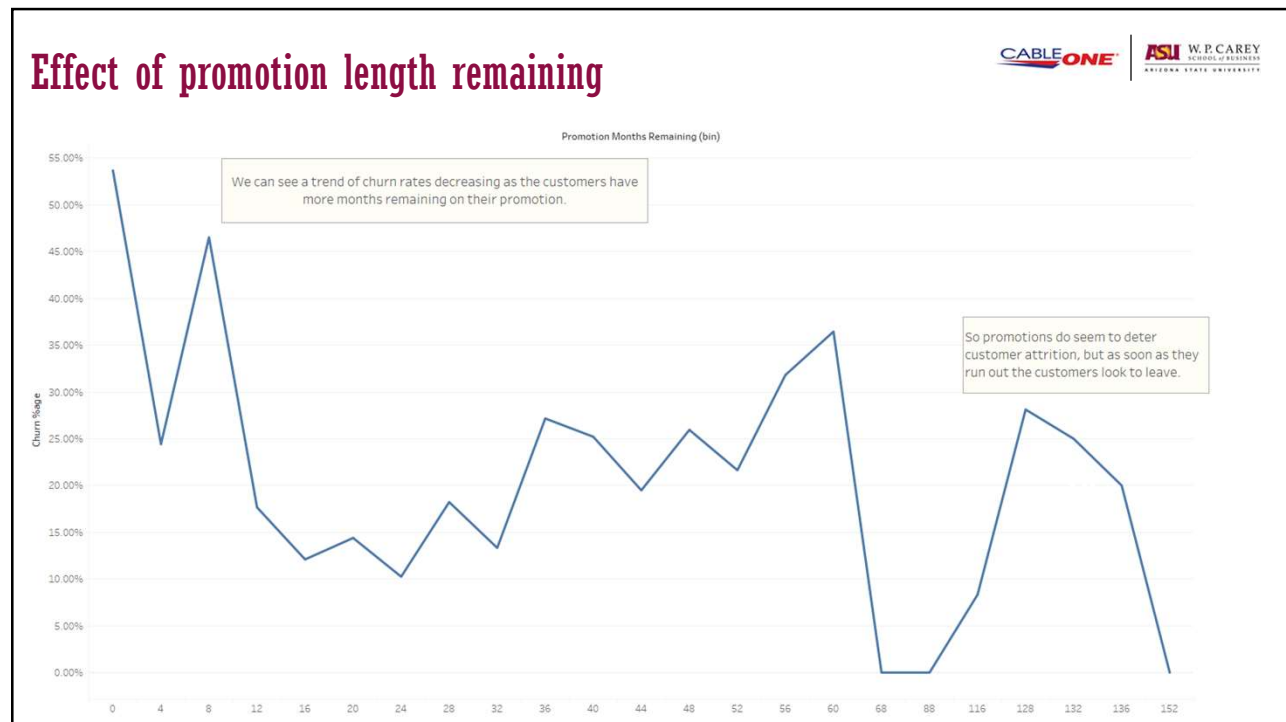
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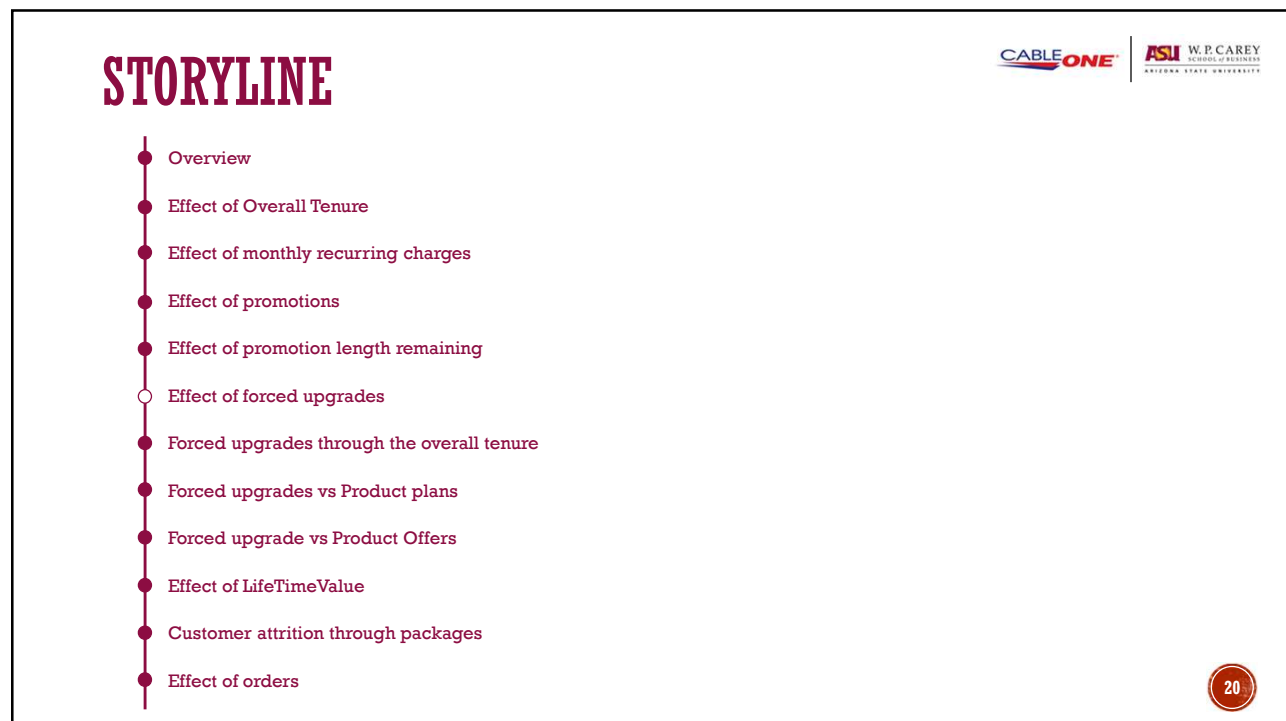
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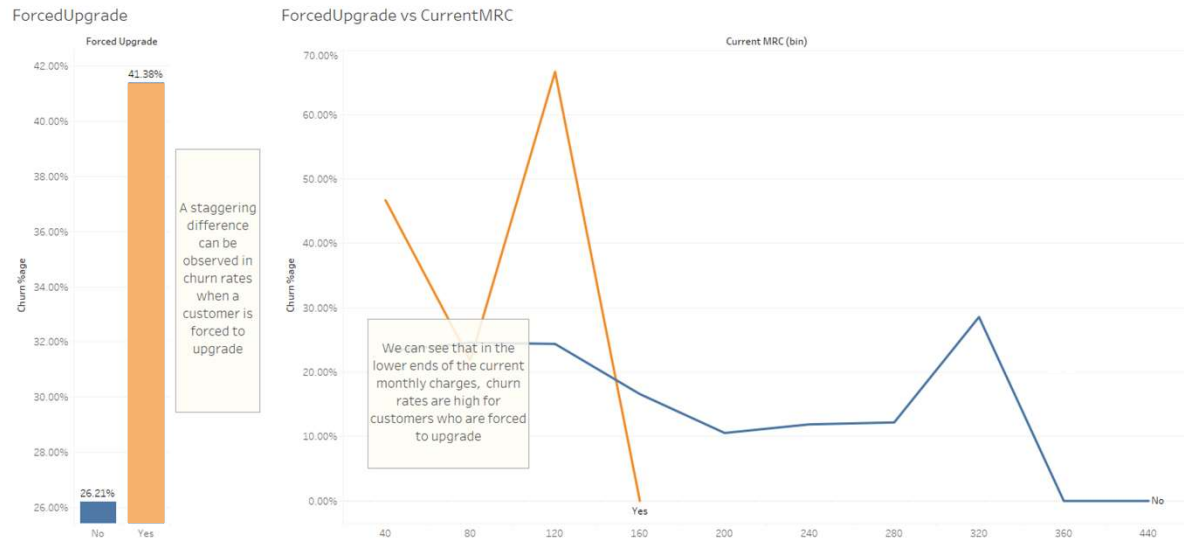
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Effect of forced upgrades

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STORYLINE

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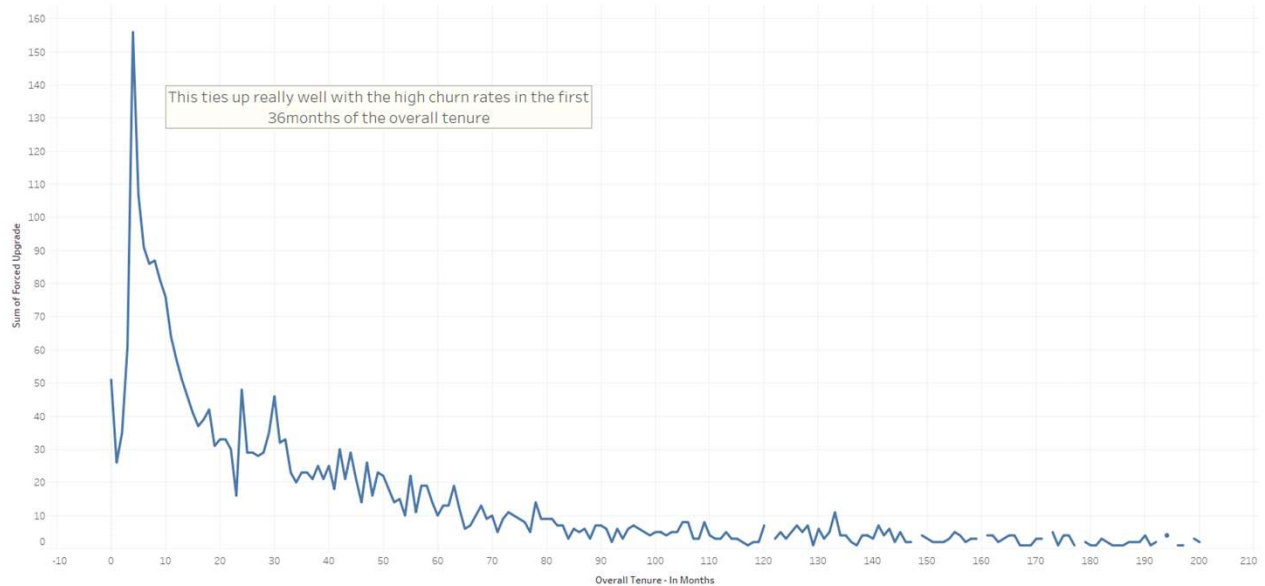
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Forced upgrades through the overall tenure

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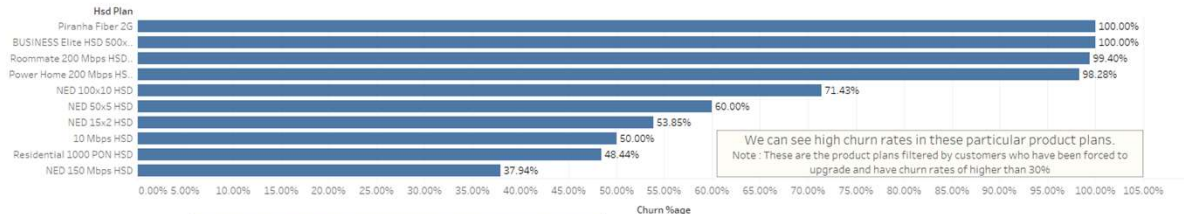
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Forced upgrades vs Product plans

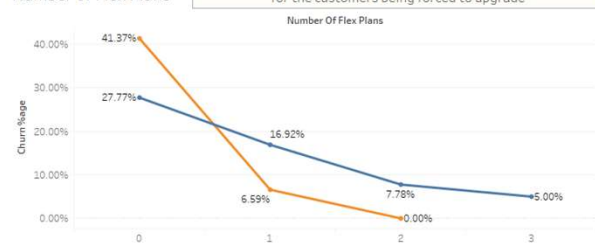
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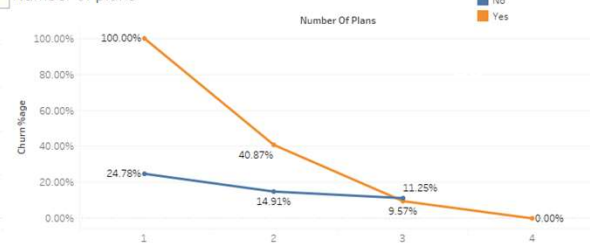
Forced upgrade vs Product plan



Another interesting finding is that churn rates seem to dip as the number of plans and flex plans the customer is on increases, even for the customers being forced to upgrade



Number of plans



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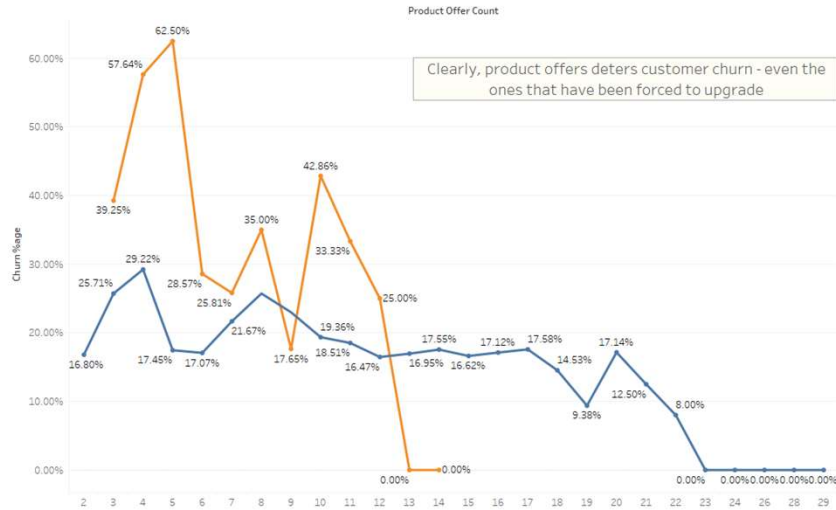
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Forced upgrade vs Product Offers

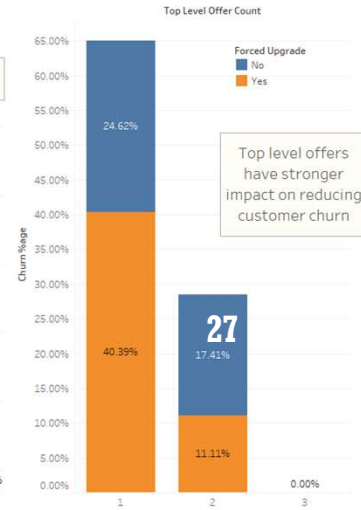
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Product Offers



Top level offer



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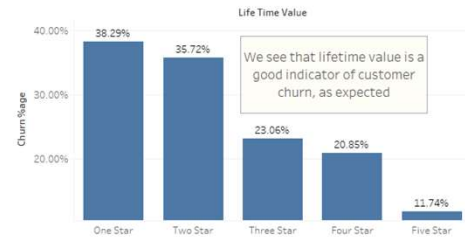
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Effect of LifeTimeValue

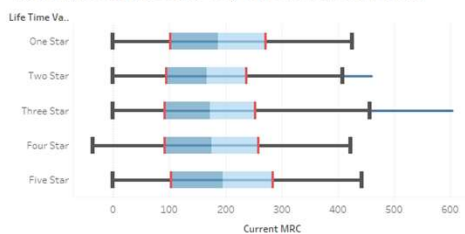
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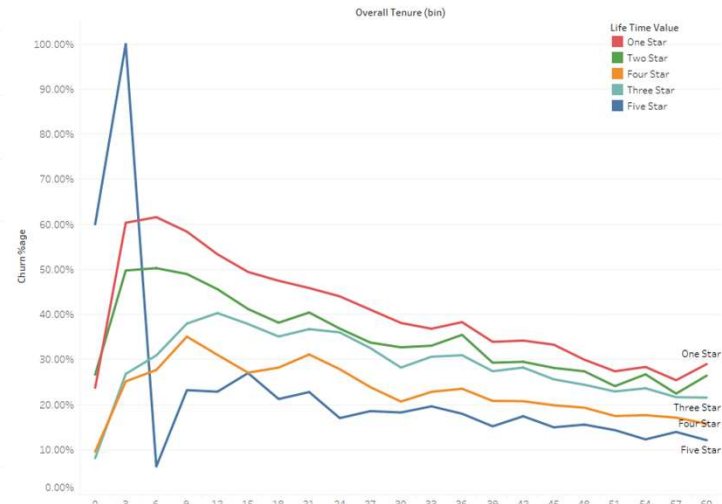
LifeTimeValue



Monthly Recurring charges by Customer LifeTimeValue



OverallTenure vs LifeTimeValue



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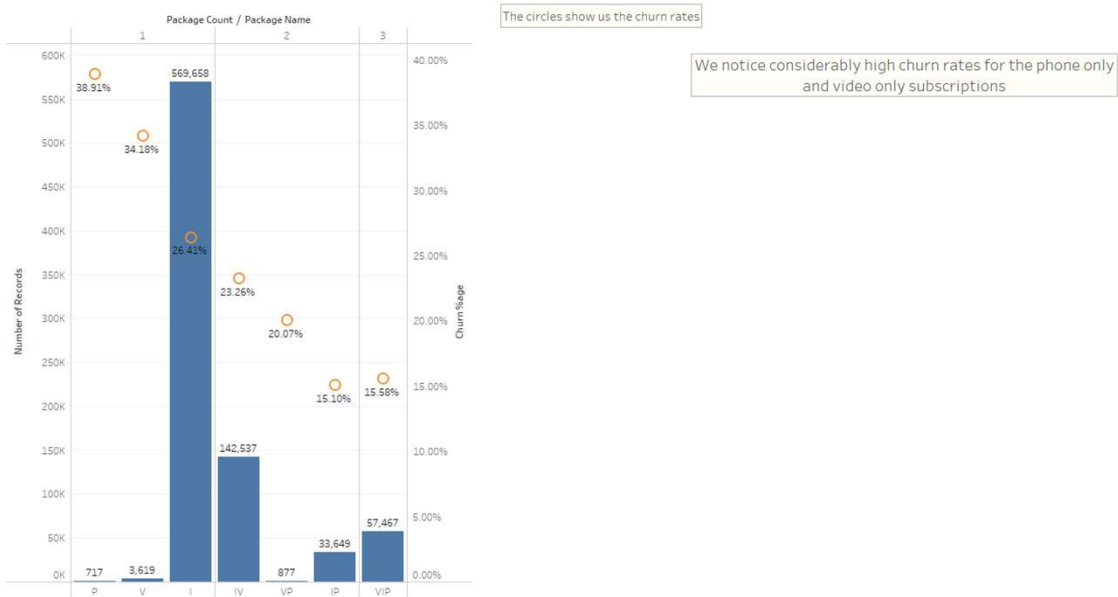
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Customer attrition through packages

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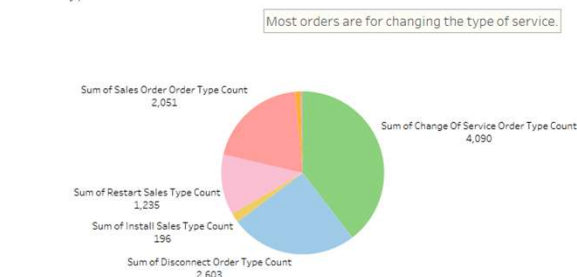
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Effect of orders

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Order Type On Promotion



Our main efforts should be to improve customer retention for our internet customers



Total One Time Charges



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KEY FINDINGS

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- High attrition rates in the first 36 months of a customer's tenure
- Promotions help with customer retention, but lead to churn when promotion period ends
- Forced upgrade cause major customer churn
- The more plans a customer is on, the less likely they are to leave
- LifeTimeValue is a strong indicator of customer churn
- Phone and Video services see significantly higher rates of churn
- One Time charges seem to cause customer churn

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RECOMMENDATIONS

- Customer satisfaction does seem to be high, but we have to consider improving customer experience in the first 3 years of their tenure.
- An increase in number of promotions offered or reducing the price reduction when a customer is on a promotion
- Forced upgrade is a major problem
 - Educate sales representatives to better understand customer needs thereby selling appropriate plans
 - Drop plans that have a low data and bandwidth limit
 - Provide customers with a 'Pay as you go' plan in the first 2 months to gauge their usage requirements
 - Offer promotion immediately after a customer is forced to upgrade
- Focus on selling more bundled packages

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RECOMMENDATIONS

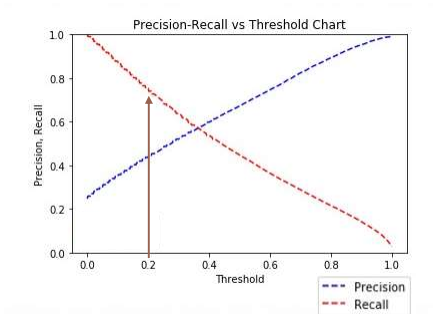
- Offer phone and video services only as a bundle with internet
- Implement zero one-time charges as much as possible
- Customers are satisfied with low rates, offers us some wiggle room to reduce one time charges
- Refrain from offering promotions during the first 1-2 years of a customer's tenure
 - Reduces cost to company when a large proportion of customers leave in the beginning anyway
 - Instead offer promotions after 24-30 months to keep the customer enticed

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PREDICTION MODEL

Random Forest Classifier



```
In [90]: print(metrics.classification_report(y_test, preds_final.iloc[:,1]))
```

	precision	recall	f1-score	support
0	0.86	0.85	0.86	119776
1	0.56	0.59	0.57	39302
accuracy			0.78	159078
macro avg	0.71	0.72	0.71	159078
weighted avg	0.79	0.78	0.79	159078

```
In [91]: metrics.recall_score(y_test, preds_final.iloc[:,1])
```

```
Out[91]: 0.5852373924991094
```

```
In [92]: metrics.roc_auc_score(y_test, preds_final.iloc[:,1])
```

```
Out[92]: 0.7169357547587719
```

```
In [93]: metrics.confusion_matrix(y_test, preds_final.iloc[:,1])
```

```
Out[93]: array([[101646, 18130],
                [16301, 23001]], dtype=int64)
```

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CONCLUSION

Strengths	Weaknesses
<ul style="list-style-type: none"> Low Pricing Customer Satisfaction Wide range of plans No contracts required 	<ul style="list-style-type: none"> High churn rates Marketing strategies Flexibility of plans
Opportunities	Threats
<ul style="list-style-type: none"> COVID-19 crisis increases demand Large internet corporations have poor customer service Market is still untapped in rural areas where company already has presence 	<ul style="list-style-type: none"> Increase in popularity of video streaming services like Netflix, Amazon Prime Customer Satisfaction Competition is very intense

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FUTURE WORK

- Customer surveys before & after
 - Promotion
 - Product offers
 - Forced upgrade
 - Exit
- Prediction model – Time series classification too complex
- Obtaining marketing data to supplement churn analysis by geographical region

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Thank you!

MSBA Capstone Team 1

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