

The Ultimate Guide to SaaS Customer Lifetime Value (LTV)

Customer Lifetime Value (LTV) is an estimate of the average gross revenue that a customer will generate before they churn (cancel).



Why should I care about LTV?

Primarily to apply a limit to your Customer Acquisition Cost (CAC) - if you're spending more on acquisition than you anticipate to earn from the customer in revenue, you're going to be in a bad place very soon (unless you have a bottomless pot of money to spend on acquisition).

A “basic” LTV formula

This basic formula for LTV is commonly accepted as a useful starting point for estimating the LTV of SaaS customers. However, it's only a rough estimate, and doesn't properly account for Monthly Recurring Revenue (MRR) expansion, contraction or the fact that churn doesn't occur linearly (see pages 2 & 3).

$$LTV = \frac{ARPA}{Cust. Churn Rate} \times \sum_{n=0}^{\# \text{ of months to examine}} (1 - Customer \text{ churn rate}) ^ n$$

This can be simplified to the following formula, which will trend to the same result:

$$LTV = \frac{ARPA}{Cust. Churn Rate}$$

Important: Make sure that both these values are from the time range for which you are measuring LTV.

i ARPA (aka ARPU, ARPC) = Average Revenue Per Account (in MRR). For this guide we are only focussing on subscription revenue. If you are a SaaS that has additional revenue such as setup fees, metered charges or any other type of one time payment you will need to decide how to account for this.

Customer churn rate and LTV

Customer churn rate is the rate at which a business is losing customers due to cancellations (proactive churn) or failures to renew (passive churn), and is usually measured on a monthly basis.

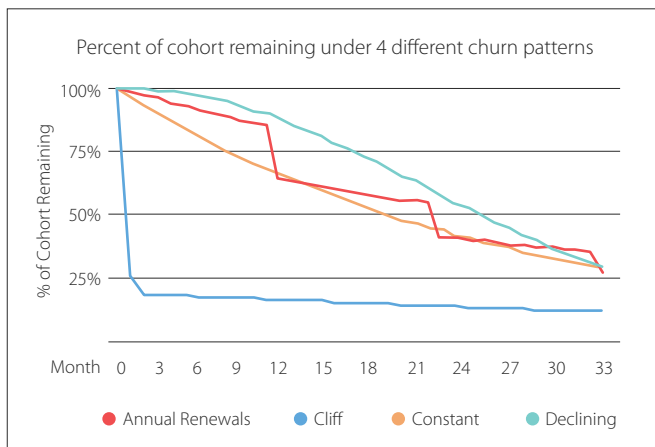
How churn rate affects LTV

One difficulty with estimating LTV is factoring in customer churn rate. The “simple” LTV formula assumes that churn happens linearly over the lifetime of a customer. However this is never really the case in most real-world scenarios.

What does your customer churn pattern look like?

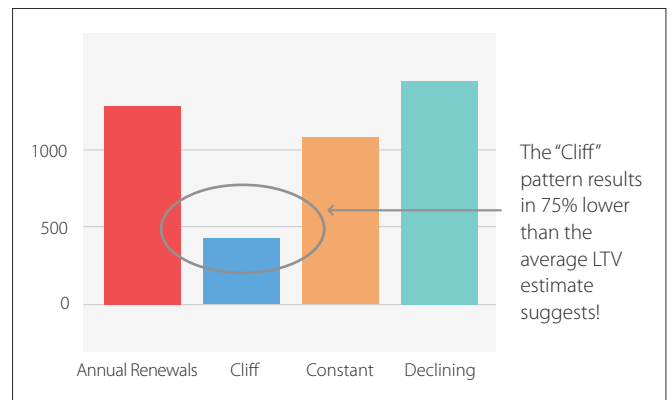
Here are a few typical churn patterns presented by Tomasz Tunguz:

- **Annual Renewals** churn fairly evenly over time, with a larger churn at each contract renewal.
- **Cliff** churn patterns have the majority of their churn within the first month, and then a small constant churn thereafter.
- **Constant** is a steady, constant churn rate (shown here as 3.5%).
- **Declining** demonstrates a churn rate starting at zero and increasing 0.25% each month.



Source: tomtunguz.com/churn-fallacies

Effect on LTV:



Source: tomtunguz.com/churn-fallacies

Adjusting your LTV formula for varying churn patterns

If your customer churn contains a mixture of Annual Renewals, Constant, Declining and Cliff patterns, an easy way to adjust our simple LTV formula is to account for the variance by applying a discount:

$$LTV = \left(\frac{ARPA}{Cust. Churn Rate} \right) \times 0.75$$

Leads to a more conservative LTV estimate

Other ways to account for varying churn in your LTV calculation

Adopt a more advanced LTV estimation formula

You can use statistical models such as Bayesian Probability, which take a probabilistic approach to predicting LTV.

Calculate LTV per customer segment

Different customer segments can have widely varying LTV. It's a good idea to segment your customer base to get more meaningful results, e.g. calculating LTV separately for customers paying monthly vs annually is highly recommended.

Account expansion / contraction and LTV



Account expansion refers to any increase in recurring revenue after the initial purchase, usually occurring from a plan upgrade.



Account contraction refers to any reduction in recurring revenue occurring after the initial purchase. This could be due to a customer downgrading their plan or adding a discount.

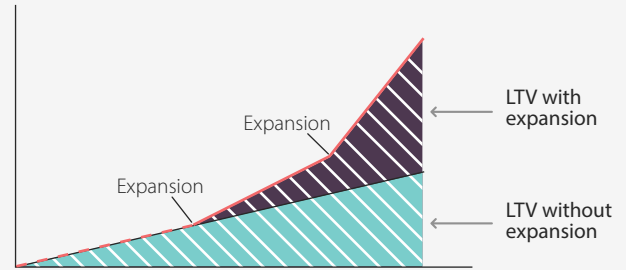
Example: How account expansion affects LTV

Customer X is on a \$100 monthly plan. We expect them to churn after 1 year.

$LTV = \$1200$

Customer Y is also on a \$100 monthly plan, also expected to churn after 1 year. But Customer Y upgrades their plan to a \$150 monthly plan in month 4, and then again to a \$180 plan in month 8.

$LTV = \$1800$ (Pretty significant difference!)



Should I consider account expansion or contraction in my LTV formula?

Case	Characteristics	Formula
<p>B2C</p>	Usually expansion or contraction is less relevant with B2C products. Most customers generally subscribe on a specific plan and stay on that plan for the lifetime of their subscription.	<p>Here we can simply use the standard formula:</p> $LTV = \frac{ARPC}{Cust. Churn Rate}$
<p>B2B (No expansion)</p>	Your B2B business model doesn't involve significant expansion in MRR during the lifetime of a customer, i.e. customers aren't likely to move to a higher tier.	
<p>B2B (With expansion)</p>	Your business model leads to a steady expansion in MRR for existing customers, e.g. because you're billing per number of users.	<p>Accounts for basic (linear) expansion</p> $LTV = \frac{ASP}{Cust. Churn Rate} + \frac{m(1 - Churn Rate)}{Cust. Churn Rate^2}$

Note: This addition, proposed by David Skok accounts for some basic and consistent revenue expansion. Here, m is the monthly growth in ARPA per account. We've also replaced ARPA in the initial section of the formula with ASP (Average Sale Price) - the average initial price (in MRR) that customers pay at the time of conversion.

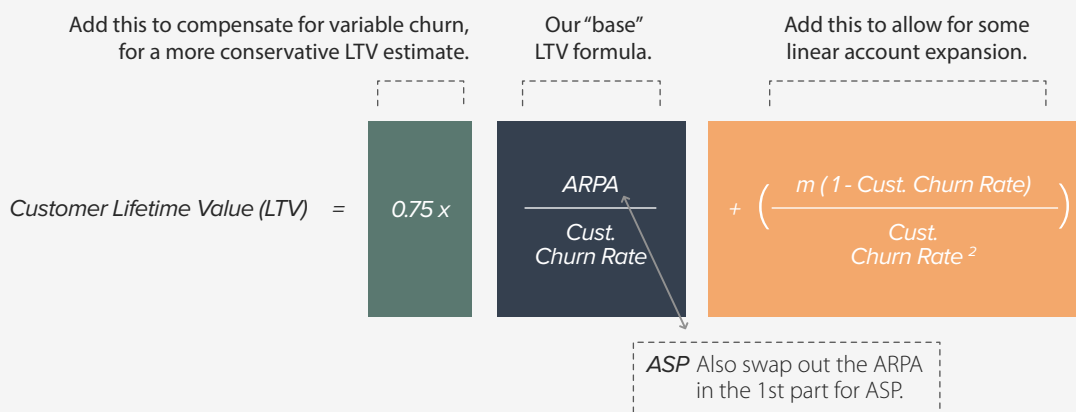
Some precautions when calculating LTV

In some scenarios, estimating LTV may not be so useful - for businesses with a small number of customers, the estimated value is likely to fluctuate from month to month due to the small sample size.

The LTV metric covered here only measures subscription revenue. If your business has any other significant revenue such as one-time payments, setup fees or metered charges in your product, you should think about accounting for these too.

Conclusion: a modular LTV formula

Here's the complete formula for Customer Lifetime Value, with the optional components covered in previous pages - you can add or remove them according to the characteristics of your business:



m = the monthly growth in ARPA per account.

ASP (Average Sale Price) = the average initial price (in MRR) that customers pay at the time of conversion.

3 ways to use LTV

So you have an estimate of your customer lifetime value that you're happy with, based on the characteristics of your business. How do you go about applying it in the situations where it's useful?

- 1 Tracking your LTV to Customer Acquisition Cost ratio**
Look at your Customer Acquisition Cost. How much on average are you spending to acquire a user? According to Dave Kellogg (kellblog.com), if your LTV/CAC ratio isn't 3.0 or higher, you could be spending too much on customer acquisition.
- 2 Evaluating your most valuable marketing channels**
Measuring LTV for each marketing channel can be a highly effective way to prioritise those channels which acquire the most valuable users.
- 3 Focus on retaining your most valuable customers**
Minimizing churn is a critical activity in any SaaS startup, particularly through rapid growth. Looking after the customers belonging to the segment with the highest average LTV could have a large impact on your ability to maintain MRR growth.

References

We couldn't have produced this guide without the leading work of the following people:

Tomasz Tunguz - <http://tomtunguz.com/churn-fallacies/>

Christoph Janz - <http://theangelvc.net>

David Skok - <http://www.forentrepreneurs.com/saas-metrics-2-definitions/>

Corey Pierson (Custora) - <http://blog.custora.com/2011/08/why-average-retention-rates-can-lead-to-50-error-in-clv/>