Key Metrics and Issues for SaaS and Other Recurring Revenue Businesses

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Introduction

Software-as-a-Service ("SaaS") is a software licensing and delivery model in which software is licensed on a subscription basis and centrally hosted.

The SaaS business model is fundamentally different than a traditional enterprise software license model due to the recurring nature of the revenues and the upfront nature of the costs.

Key Metrics

The keys to evaluating SaaS and similar recurring revenue businesses lies in understanding what constitutes recurring revenue, the relationship between the upfront costs to acquire customers and the expected go-forward revenue streams, and how to measure customer retention.

These relationships can be assessed by understanding the following key metrics:

- ► Monthly recurring revenue (“MRR”)
- ► Customer acquisition costs (“CAC”)
- ► Customer retention and churn rates
- ► Lifetime value of customers (“LTV”)

Monthly Recurring Revenue ("MRR")

MRR overview

- Monthly recurring revenue for each customer represents the monthly subscription price charged by a SaaS business.
- The SaaS company's aggregate MRR represents the contracted monthly recurring revenue for all customers at a point in time.
- Most businesses require an annual contract with monthly billings.
- Annual recurring revenue ("ARR") is measured as MRR x 12.
- SaaS businesses are often valued at multiples of ARR, so the higher the ARR, the higher the valuation.
  - Understanding what service lines represent <u>true recurring versus non-recurring or "re-occurring"</u> revenue is extremely important when evaluating the business because it affects the valuation.
  - SaaS businesses focus on increasing the number of recurring revenue customers, upselling to existing customers, and minimizing downsells and customer churn.

Understanding what revenue streams represent true recurring revenue is important to establishing enterprise value.

Monthly Recurring Revenue ("MRR")

MRR upsells

- Upselling (sales expansion) to existing customers generally requires less sales and marketing spend compared to acquiring new customers.
- Accordingly, upselling provides a better return on sales and marketing resources.
- Sales expansion to existing customers can happen in several different ways:
  - Increase in number of users or "seats,"
  - Increase in usage or services, and
  - Add-on products.

MRR downsells and churn

- Downsells and churn represent lost recurring revenue due to reduction of services, cancellation of customer subscriptions, and non-renewals.
- Refer to *Customer Retention and Churn Rates* section of this presentation for further discussion of churn.

Minimizing downsells and customer churn is just as important to retaining value as acquiring new customers via sales and marketing investment.

Monthly Recurring Revenue ("MRR")

Recurring revenue rollforward

	2014	2015	2016	2017	2015-2017 average
Beginning ARR	-	1,627,149	3,571,223	6,133,558	
Plus: New customer ARR	1,805,916	1,629,536	1,611,727	3,100,001	
Plus: Existing customer upsells/expansion	779,229	2,007,039	5,005,375	8,460,014	
Less: Existing customer downsells/contraction	(649,883)	(1,254,362)	(3,630,908)	(6,024,234)	
Less: Churned ARR from customer terminations	(308,113)	(438,139)	(423,859)	(1,063,280)	
Ending ARR	**1,627,149**	**3,571,223**	**6,133,558**	**10,606,059**	
Churn rate %		*-26.9%*	*-11.9%*	*-17.3%*	*-18.7%*
Net expansion / (contraction) %		*46.3%*	*38.5%*	*39.7%*	*41.5%*
Net ARR expansion, (contraction) and (churn) %		*19.3%*	*26.6%*	*22.4%*	*22.8%*

A recurring revenue rollforward analysis demonstrates the effect of new customers, upsells, downsells and customer churn on a company's ARR base.

Customer Acquisition Costs ("CAC") and the CAC Ratio

Calculation of CAC

- CAC represents the sales and marketing spend required to acquire new customers and the resulting incremental ARR.
- The *CAC Ratio* measures the payback time on the company's sales and marketing investment.

$$\text{CAC Ratio} = \frac{\text{Current year ARR} - \text{Previous year ARR}}{\text{Sales and marketing costs}}$$

A CAC ratio of 0.5 implies that half of your S&M investment is paid back within a year (two-year payback period).

A CAC ratio of 1.0 implies a one-year payback period.

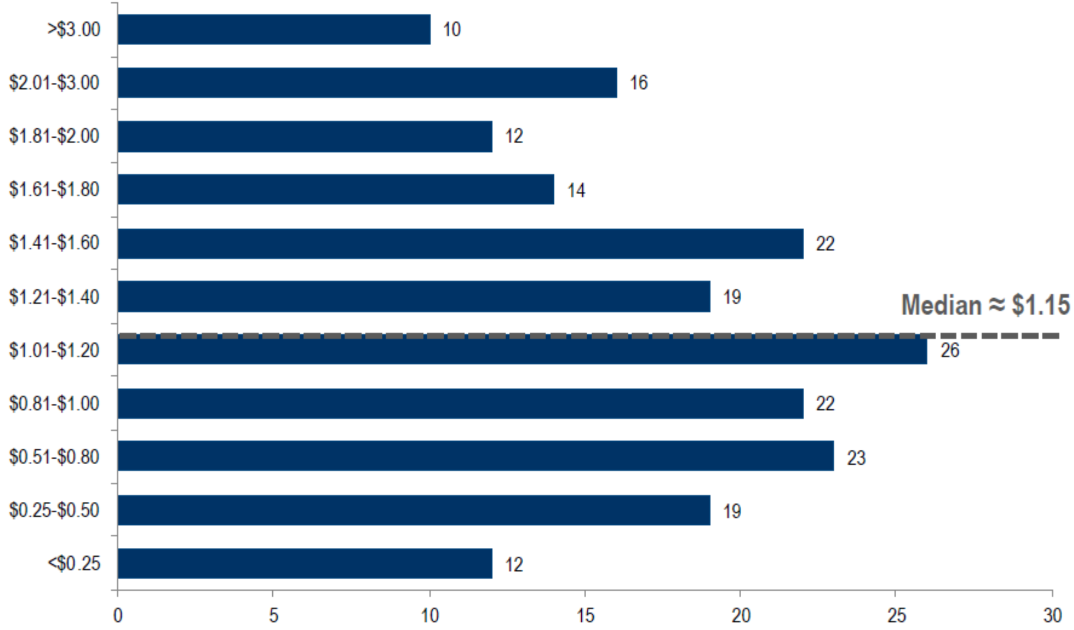
- The CAC Ratio may be used to assess the company's sales and marketing efficiency:

CAC Ratio	How to manage sales and marketing investment
≥1.0	Invest more aggressively in S&M and/or optimize S&M spend
0.33-1.0	Maintain current S&M investment and focus on productivity improvement
≤0.33	"Slam on the breaks" and focus on S&M productivity improvement

Understanding the relationship between customer acquisition costs and increased ARR and/or profitability helps SaaS companies assess current sales and marketing efforts and plan future marketing strategies.

Customer Acquisition Costs (“CAC”) and the CAC Ratio

Average customer acquisition costs



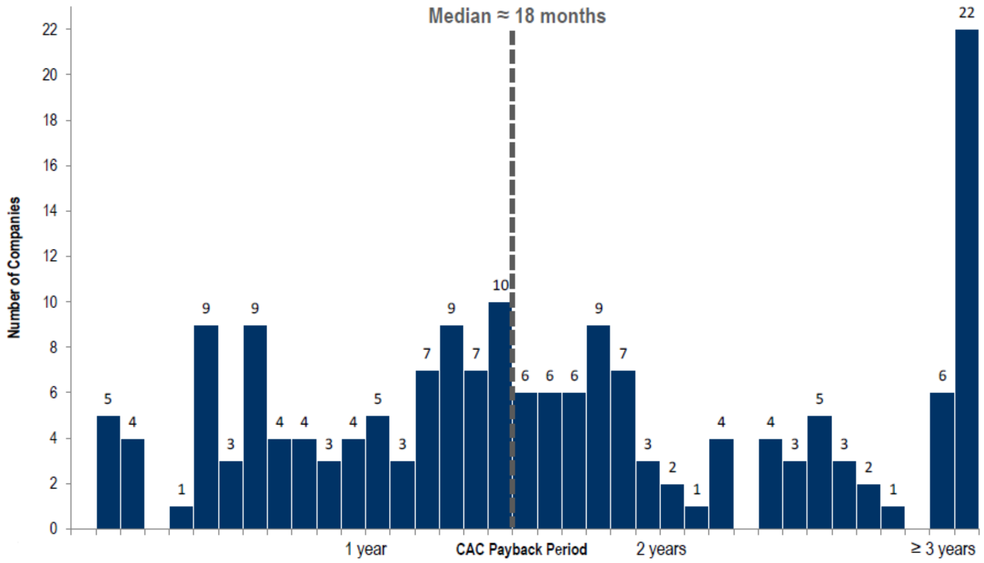
KeyBanc Capital Markets, 2017 Private SaaS Company Survey Results, *CAC Ratio: How Much Do You Spend for $1 of New ARR from a New Customer?*

Based on a 2017 survey of subscription-based businesses with ARR >$5 million, companies spent a median of $1.15 to acquire each dollar of new ARR from a new customer.

Customer Acquisition Costs (“CAC”) and the CAC Ratio

CAC payback period

How long does it take to recover CAC, based on gross margin subscription dollars received?



KeyBanc Capital Markets, 2017 Private SaaS Company Survey Results, *CAC Payback Period*

Although there was a wide distribution of responses, a 2017 survey of subscription-based companies revealed a median CAC payback period of 18 months.

Customer Retention and Churn Rates

Churn overview

- The "stickiness," or rate of renewal after annual subscription contracts expire is measured by retention or churn.
  - The CAC ratio is directly impacted by customer retention rates. Improved customer retention (reduced churn) drives ARR retention and consequently increases the CAC ratio.
- A small change in the monthly churn rate makes a significant difference in long term ARR retention. The 1-, 3- and 5-year customer retention rates based on monthly churn rates is shown below:

Monthly churn	**1.0%**	**2.0%**	**3.0%**	**4.0%**
Monthly retention	**99.0%**	**98.0%**	**97.0%**	**96.0%**
1-year retention	88.6%	78.5%	69.4%	61.3%
3-year retention	69.6%	48.3%	33.4%	23.0%
5-year retention	54.7%	29.8%	16.1%	8.6%

Griffin, Carter and Hartz, Neil, *Cloud Computing: A Closer Look at Churn,* Updata Partners, June 2012.

Even with 2% monthly churn, half of all customers will be gone in three years.

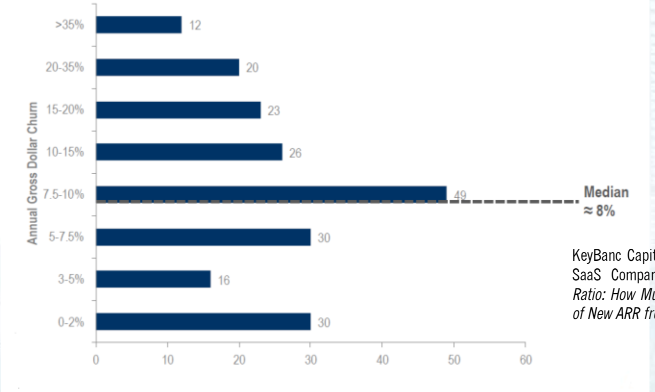
At 4% churn, more than 75% of customers will be lost

Customer churn rates directly impact a Company's ability to scale.

Customer Retention and Churn Rates (cont.)

Types of churn

- Customer (account) churn measures the rate that customer accounts are lost
- Dollar churn measures the actual recurring revenue value lost over time
  - Dollar churn is often a more valuable measure, as it takes into account the relative value of large and small customers, as well as intra-period customer "upsells" and "downsells"
- "Acceptable" churn rates are typically dependent on the particular industry, customer acquisition costs, the total addressable market, and the potential to increase retention post-transaction.
- Refer to chart below for the results of a 2017 survey of average churn rates:



KeyBanc Capital Markets, 2017 Private SaaS Company Survey Results, *CAC Ratio: How Much Do You Spend for $1 of New ARR from a New Customer?*

Based on a 2017 survey of over 200 subscription-based businesses, the median annual gross dollar churn rate was 8%.

A company's measure of "tolerable" churn is dependent on a wide variety of company- and industry-specific factors.

Customer Retention and Churn Rates (cont.)

Negative churn

- Negative churn occurs when upsells/expansion outpaces contraction and churned recurring revenue
- Negative churn is ideal, and can be a big growth multiplier. It typically results from a strong inside sales group focused on renewals and upselling the existing customer base

Recurring revenue rollforward

	2015	2016	TTM 2017
Beginning ARR	6,449,312	8,192,899	10,109,311
Plus: New customer ARR	1,695,242	2,109,399	2,114,514
Plus: Existing customer upsells/expansion	215,248	473,294	457,657
Less: Existing customer downsells/contraction	(25,232)	(43,285)	(38,950)
Less: Churned ARR from customer terminations	(141,671)	(212,441)	(240,297)
Ending ARR	**8,192,899**	**10,519,866**	**12,402,235**
Net new ARR added	*1,743,587*	*2,326,967*	*2,292,924*
Net ARR growth	*27.0%*	*28.4%*	*22.7%*
Net expansion / (contraction) %	*2.9%*	*5.2%*	*4.1%*
Net ARR expansion, (contraction) and (churn) %	*0.7%*	*2.7%*	*1.8%*

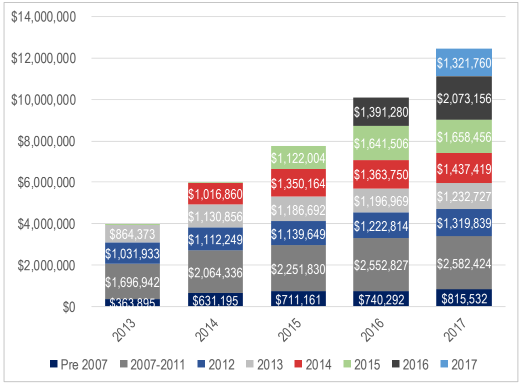
In this example, the company demonstrated **"negative churn"**.

Customer Retention and Churn Rates (cont.)

Analyzing churn

- ▶ Since customer retention is critical to the growth (and valuation) of a SaaS-based business, management teams typically monitor churn closely.
- ▶ Performing a cohort analysis is one technique used to gain insight into churn trends.
  - — A cohort analysis groups customers into buckets, or cohorts, and analyzes trends within those buckets over time.
- ▶ In high-growth environments, small changes to the inside sales team, problems with implementation, or any other factors may contribute to significant changes in customer retention.
  - — Cohort analyses enable management teams to track customer behavior and their reactions to variables over time.
  - — Frequent cohort analyses allow management teams to continuously assess the effect of those variables on customer churn.

Example cohort analysis



Cohort analyses help demonstrate a SaaS business' customer and dollar churn rate trends over time.

Customer Retention and Churn Rates (cont.)

Methods to limit churn

- Companies can increase retention in a number of ways, including:
  - Improving customer service;
  - Increasing the number of users/adopters at each client;
  - Improving the onboarding/adoption process;
  - Improving integration with customer's systems and processes; and
  - Improving the contract renewal process.

Lifetime Value of Customers ("LTV")

Lifetime value

- Customer LTV is an estimate of the average gross revenue that a customer will generate before they churn. LTV is typically calculated as follows:

$$\text{LTV} = \frac{\text{Average margin per account (AMPU) in MRR}}{\text{Monthly churn rate}}$$

- Knowing the average customer LTV helps a SaaS business to –

  (1) *Apply guardrails around customer acquisition costs* – if a SaaS business is spending more on customer acquisition than it anticipates earnings from a customer in revenue, it needs to reassess its S&M strategy.

  (2) *Evaluate marking channels* – measuring LTV for each marketing channel can help prioritize S&M spend.

  (3) *Focus on retaining most valuable customers* – focusing on customers belonging to the segment with the highest LTV could help a SaaS business maintain or accelerate MRR growth.

Understanding LTV trends for different customer types or segments can help focus a SaaS business' sales and marketing strategy.

LTV:CAC ratio

LTV:CAC

- LTV:CAC measures the lifetime value of a customer compared to the cost to acquire the customer. The metric is essential for evaluating the return on investment for each customer. It provides an answer to the simple question, is the customer worth more than what it costs to sell to them?

$$\text{LTV:CAC} = \frac{\text{Lifetime value of customers}}{\text{Customer acquisition costs}}$$

- Calculating the LTV:CAC ratio is a great way to assess a company's position for sustainable growth.
- A ratio of 1:1 means you lose money the more you sell. For growing SaaS companies, the industry standard LTV:CAC ratio is 3x or higher.
- However, higher is not always better. If the ratio is too high, the company is likely restraining its growth by underspending on sales and marketing.

The LTV:CAC ratio is a metric used to measure the efficiency of the sales and marketing function.

Key Diligence Issues

When evaluating SaaS and similar recurring revenue businesses for our clients, we often encounter issues affecting MRR, deferred revenue and post-acquisition accounting.

These issues include the following:

- Importance of gross margins
- Cancelled invoices
- Customers not using the software (or never going live)
- Deferred revenue “haircut”

Importance of gross margins

Gross margins

- SaaS gross margins are high relative to other industries, typically in the 70%-90% range. Part of what makes a SaaS business attractive to investors is its ability to service current customers at nominal cost.

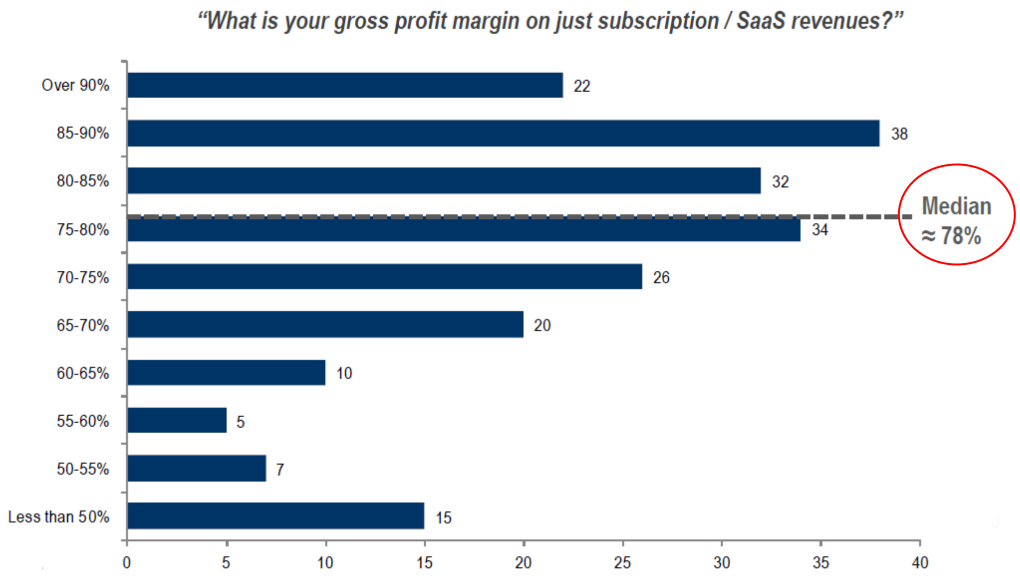
Cost of goods sold

- Expenses typically included in cost of goods include the following:
  - Application hosting and monitoring costs,
  - Implementation-related costs,
  - Employee costs related to keeping the production environment running,
  - Customer support and account management costs,
  - Third-party software license or data fees used in the delivered product, and
  - *Any other direct costs to deliver the ongoing service*

Because gross margins are important in evaluating a business' ability to scale, SaaS management teams must be careful to assess what costs are required to deliver the services and ensure those costs are reflected in cost of goods sold.

Importance of gross margins

Gross margins on SaaS revenues



KeyBanc Capital Markets, 2017 Private SaaS Company Survey Results, *Subscription Gross Margin*

Based on a 2017 survey of over 200 subscription-based businesses, the median annual gross margin was 78%.

Importance of gross margins

Typical SaaS cost structure

	Size of Company (2016 GAAP Revenue)						
	All Respondents	$5MM - $10MM	$10MM - $15MM	$15MM - $25MM	$25MM - $40MM	$40MM - $60MM	>$60MM
Total Gross Margin	73%	73%	72%	76%	68%	73%	73%
Subscription	78%	76%	77%	79%	77%	78%	80%
Professional Services	27%	30%	40%	28%	20%	35%	18%
Operating Expense Margins:							
Sales & Marketing	35%	33%	37%	37%	29%	24%	43%
Research & Development	28%	29%	33%	29%	24%	21%	22%
General & Administrative	19%	22%	19%	19%	18%	16%	14%
EBITDA Margin	(14%)	(39%)	(23%)	(13%)	(6%)	(7%)	(8%)
YoY GAAP Revenue Growth Rate	33%	54%	46%	39%	24%	27%	26%
YoY Organic ARR Growth Rate	35%	57%	47%	32%	22%	27%	23%

KeyBanc Capital Markets, 2017 Private SaaS Company Survey Results, *Median Cost Structure by Size*

Deferred revenue “haircut”

Deferred revenue “haircut”

- Under FASB Accounting Standards Codification (“ASC”) 805, an acquirer must recognize any assets acquired and liabilities assumed, measured at fair value as of that date. This includes the deferred revenue balance at transaction close.
- The process of determining the fair value of deferred revenue can result in a significant downward adjustment, or “haircut,” to the target company’s deferred revenue book value.
- Under the guidance, the deferred revenue liability may be estimated as the costs associated with delivering the services plus a “reasonable” profit margin.
- In the current market, the majority of lenders allow companies to remove the deferred revenue haircut from consideration in the calculations of loan covenants. *However, GAAP revenue will be affected post-close.*

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