Netflix Example, Part 1

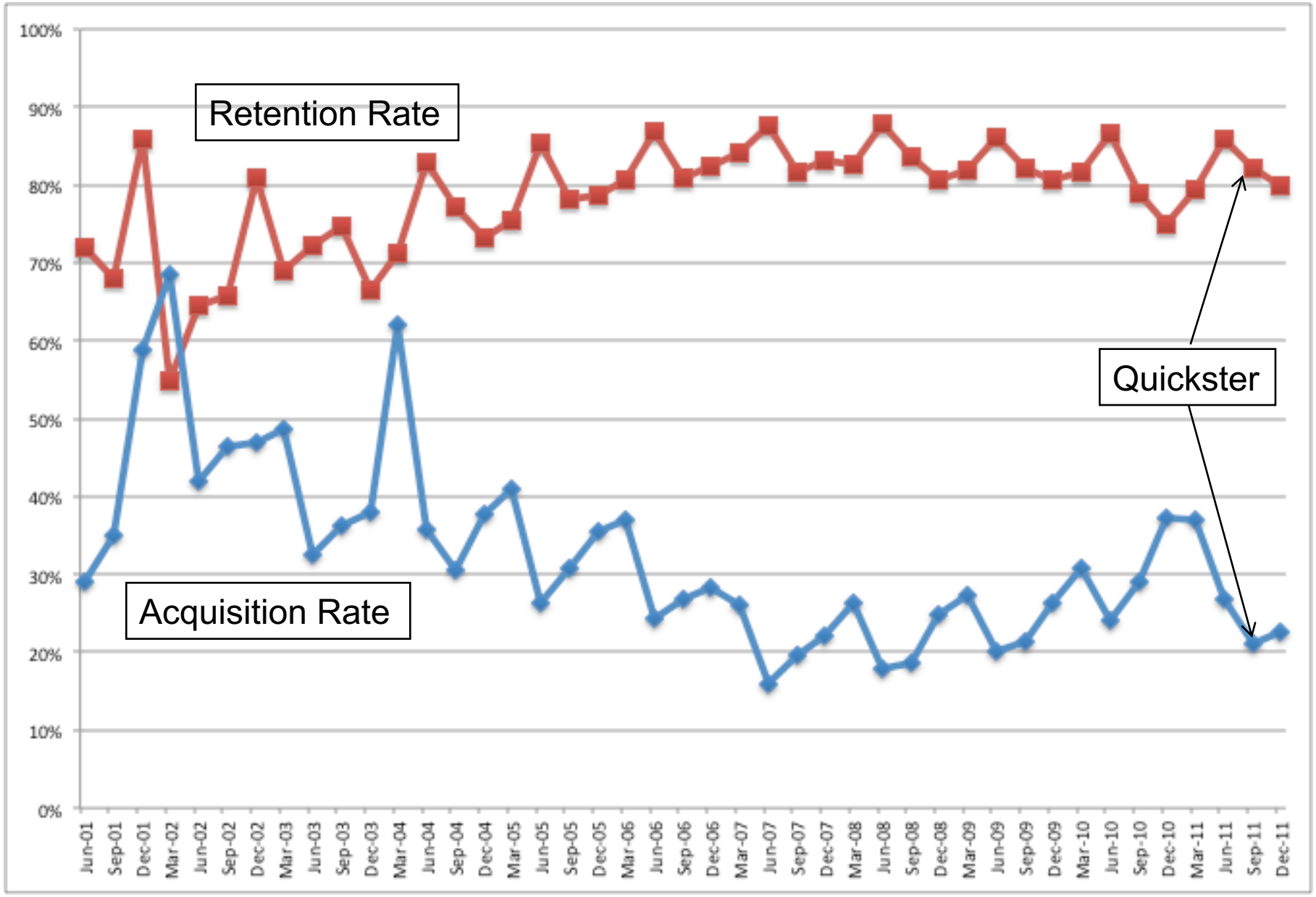
Introduction

- Customers are the key asset of any business. One could say that without customers there is no business.
- In this module we will delve into
  - Customer loyalty
  - The phases of a customer relationship life cycle
  - Computation and application of customer lifetime value

Netflix

- Stock price: $185 (July, 2017)
- Market cap: $79B (July, 2017)

	Revenue model		Delivery method		Content licensing	
Before 2000 (VHS)	A la carte	Subscription	Streaming	VHS	Rent	Buy
Blockbuster	•			•	•	
Hollywood Video	•			•	•	
Video Update	•			•	•	
Local Video Store	•			•	•	
After 2000 (digital)				DVD		
Amazon Prime		•	•		•	
Amazon Instant Video	•		•		•	•
Blockbuster	•	•	•	•	•	•
Cinema Now	•		•		•	•
DVD Café	•	•		•	•	•
Greencine		•		•	•	
Hulu	free	free	•		•	
Hulu Plus		•	•		•	
iTunes	•		•		•	•
Netflix		•	•	•	•	
Redbox	•			•	•	
Vudu	•		•		•	


Retention Rate
Acquisition Rate
Quickster
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jun-01
Sep-01
Dec-01
Mar-02
Jun-02
Sep-02
Dec-02
Mar-03
Jun-03
Sep-03
Dec-03
Mar-04
Jun-04
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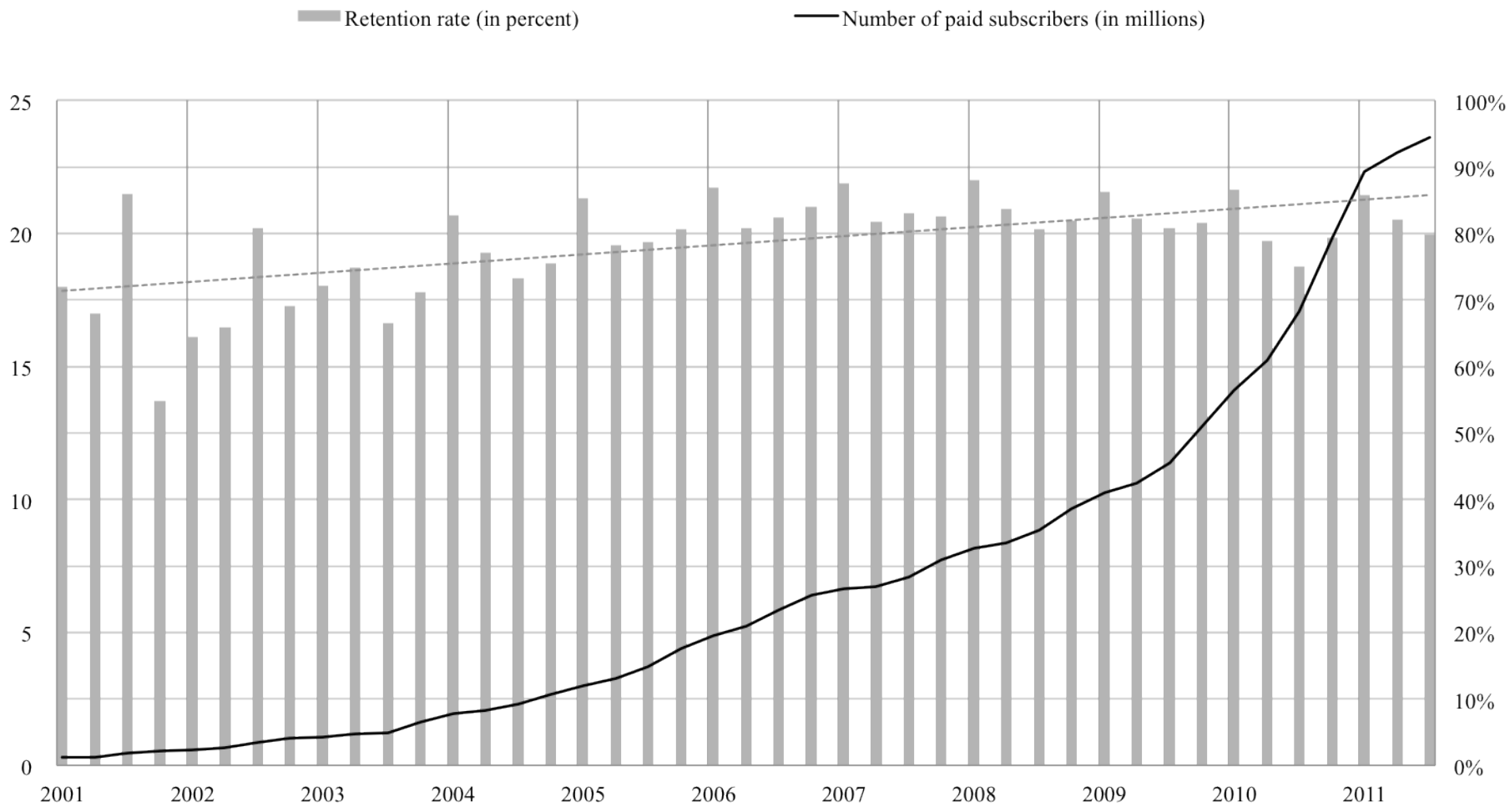
Sep-11
Dec-11


Retention rate (in percent)
Number of paid subscribers (in millions)
25
20
15
10
5
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011

Netflix Example, Part 2

Customer Lifetime Value (CLV)

- It computes the dollar value of an individual customer relationship
- It is both backward looking and forward looking
  - Computing value of past customers
  - Using that information to project forward

What Is CLV Used For?

- To determine how much to spend to acquire a customer
- To determine how aggressively to spend to retain a particular customer or group of customers
- To value a company

How would we know the (future) value of a customer?

Base CLV

A Simple Metric: Netflix

Expected Customer Lifetime in Months	20
Average Gross Margin per Month per Customer	$50
Average Marketing Costs per Month per Customer	$0
Average Net Margin per Month per Customer	$50
Customer Lifetime Value	$1000

Lifetime Value of a Customer (CLV)

- Just as we use net present value (NPV) to evaluate investments and companies, we use CLV to evaluate customer relationships
- CLV is the expected NPV of the cash flows from a customer relationship

CLV is defined as the discounted sum of all future customer revenue streams minus product and servicing costs and remarketing costs.

The Base CLV Model

- Net margin per Netflix customer = M – R = $50
- Retention rate = r = 80%
- Number of customers who joined Netflix in June 2014 = 100

Month	Number of Customers	Total Net Profit	Total Net Profit	Present Value of Total Net Profit
June 2014	100	[M – R] * 100		
July 2014	r * 100 = 80	r * 100 * [M – R]		
August 2014	r * (r * 100) =	r^2 * 100 * [M – R]		
September 2014	r * (r * (r * 100))) =	r^3 * 100 * [M – R]		

The Base CLV Model

$M	Contribution per period from active customers: Contribution = Sales Price – Variable Costs
$R	Retention spending per period per active customer
r	Retention rate (fraction of current customers retained each period)
d	Discount rate per period
Present value of net profit calculation is extended up to infinity	

$$\mathbf{CLV = [\ \$M - \$R\ ] \times [\ (1 + d) / (1 + d - r)\ ]}$$

Digging Deeper

The Base CLV Model

$$CLV = [\$M - \$R] \times [(1 + d)/(1 + d - r)]$$

Short-Term Margin

Long-Term Multiplier

The Base CLV Model

$$CLV = [\$M - \$R] \times [(1 + d)/(1 + d - r)]$$

Short-Term Margin

Long-Term Multiplier

If retention increases

- How does the discount rate change?
- How does long-term multiplier change?
- How does CLV change?

Netflix Rebooted

Example 1: Netflix

Netflix charges $19.95 per month. Variable costs are about $1.50 per account per month. With marketing spending of $6 per year, their attrition is only 0.5% per month. At a monthly discount rate of 1%, what is the CLV of a customer?

Example 1: Netflix

- If Netflix cuts retention spending from $6 to $3 per year, they expect attrition will go up to 1% per month
  - Should they do it?
- To decide, we need to recalculate CLV under these new assumptions
  - If the new CLV is higher, we should do it
  - Otherwise, we should not

Example 1: Netflix

Netflix charges $19.95 per month. Variable costs are about $1.50 per account per month. With marketing spending of **$3** per year, their attrition is **will be 1%** per month. At a monthly discount rate of 1%, what is the CLV of a customer?

Horses for Courses

CLV: Horses for Courses

- Time horizon—infinite or three to four years
- Initial margin
- Cohort and incubate
- Contractual or noncontractual business model

CLV: Time Horizon

Percent of CLV Accruing in First Five Years						
Discount Rate	Retention Rate					
	40%	50%	60%	70%	80%	90%
2%	99	97	93	85	70	47
4%	99	97	94	86	73	51
6%	99	98	94	87	76	56
8%	99	98	95	89	78	60
..						
…						
20%	100	99	97	93	87	76

Source: Farris, Paul, Neil Bendle, Phillip Pfeifer, and David Reibstein. *Marketing Metrics*, 2nd Edition. FT Press, 2010.

CLV: Initial Margin

- Customer pays before using the service
  - e.g., apartment rentals, Netflix, Hulu
- Customer pays after using the service
  - e.g., credit cards

CLV = [$M–$R]×[(1+d)/(1+d-r)]

CLV = [$M–$R]×[r/(1+d–r)]

Cohort and Incubate

CLV: Cohort and Incubate

Typical customer retention curve

Retention rate depends on time since customer acquisition

CLV: Cohort and Incubate

- Cohort = customers acquired at the same time period (month, quarter, or year)
- Since retention changes with time since acquisition, CLV calculations are better if they are done separately for each cohort

CLV: Contractual vs. Noncontractual

- Xfinity and Netflix have a contract with customers
- They know when a customer unsubscribes to the service
- This helps in knowing lifetime duration and retention rate
- What if a customer does not sign a contract to use a service?
  - E.g., grocery stores (Kroger), others?

Power of CLV

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Practice Prize Report

The Power of CLV: Managing Customer Lifetime Value at IBM

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Customer management activities at firms involve making consistent decisions over time, about: (a) which customers to select for targeting, (b) determining the level of resources to be allocated to the selected customers, and (c) selecting customers to be nurtured to increase future profitability. Measurement of customer profitability and a deep understanding of the link between firm actions and customer profitability are critical for ensuring the success of the above decisions. We present the case study of how IBM used customer lifetime value (CLV) as an indicator of customer profitability and allocated marketing resources based on CLV. CLV was used as a criterion for determining the level of marketing contacts through direct mail, telesales, e-mail, and catalogs for each customer. In a pilot study implemented for about 35,000 customers, this approach led to reallocation of resources for about 14% of the customers as compared to the allocation rules used previously (which were based on past spending history). The CLV-based resource reallocation led to an increase in revenue of about $20 million (a tenfold increase) without any changes in the level of marketing investment. Overall, the successful implementation of the CLV-based approach resulted in increased productivity from marketing investments. We also discuss the organizational and implementation challenges that surrounded the adoption of CLV in this firm.

Key words: customer relationship management; customer lifetime value; field experiment; return on marketing contacts; missing value imputation

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Resource Reallocation: Enterprise Software

Decile	No Sales Calls Until 2004	At least one Sales Call before 2004	Customer Segment
1	$350,471	$2,124,483	Super High CLV
2	$993	$125,460	High CLV
3	$669	$43,681	Medium CLV
4	$638	$23,624	
5	$623	$17,499	
6	$611	$13,675	
7	$534	$10,513	
8	$444	$8,051	Low CLV
9	$369	$5,023	
10	$80	($35)	

- Establishments with no sales calls until 2004: 767
- Establishments with sales calls by 2004: 2,713

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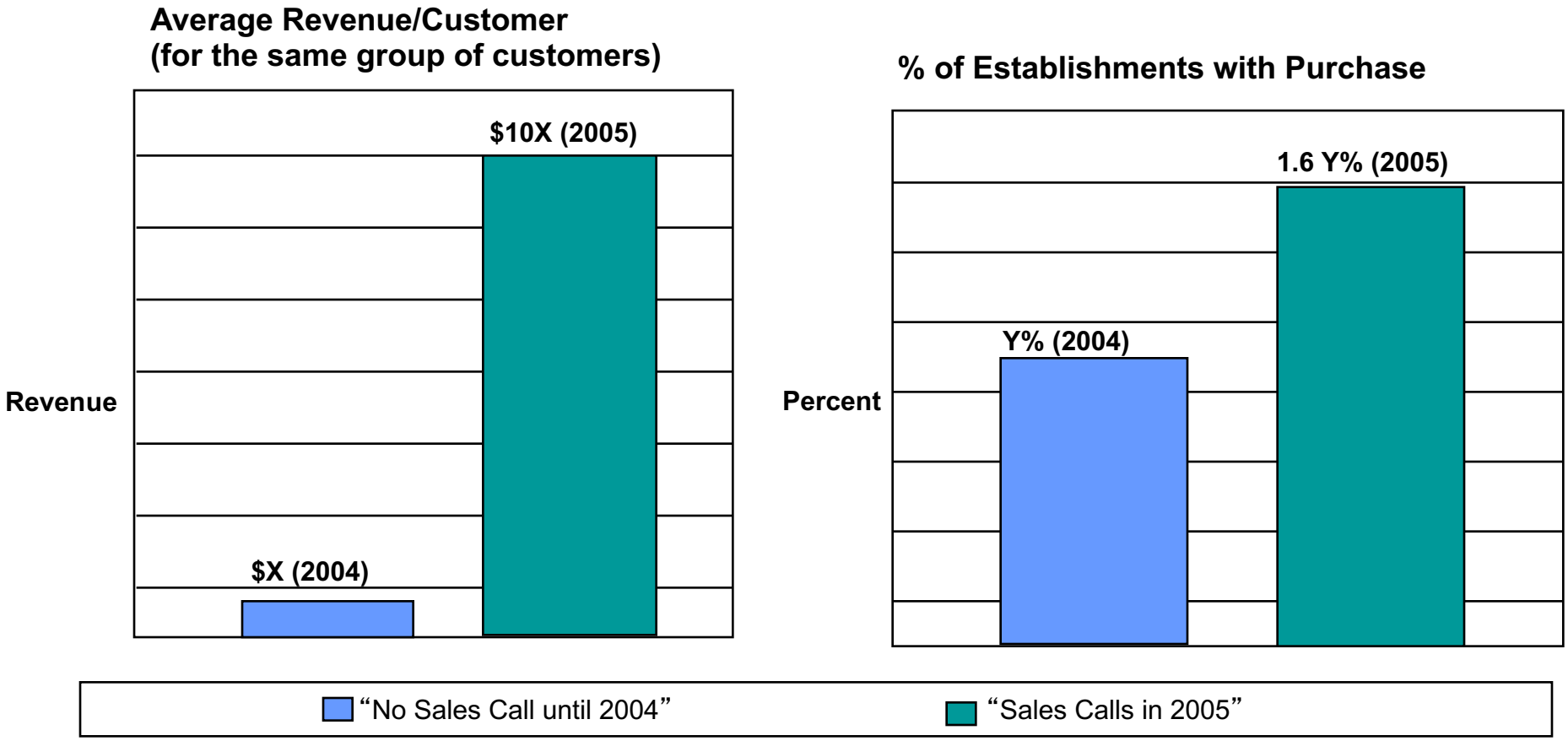
CLV-Based Resource Allocation



Incremental revenue attributed to net new accounts targeted by sales force using customer profit model recommendations = $ 19.2 million