MESSAGE SEND TIME OPTIMIZATION

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1. MOTIVATION

2. INITIAL SOLUTION

3. ADJUSTMENTS & RESULTS

2.5B CONTACTS
1500+ CLIENTS

personal
marketing communication
at scale

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CONTENT

TIMING

CHANNEL

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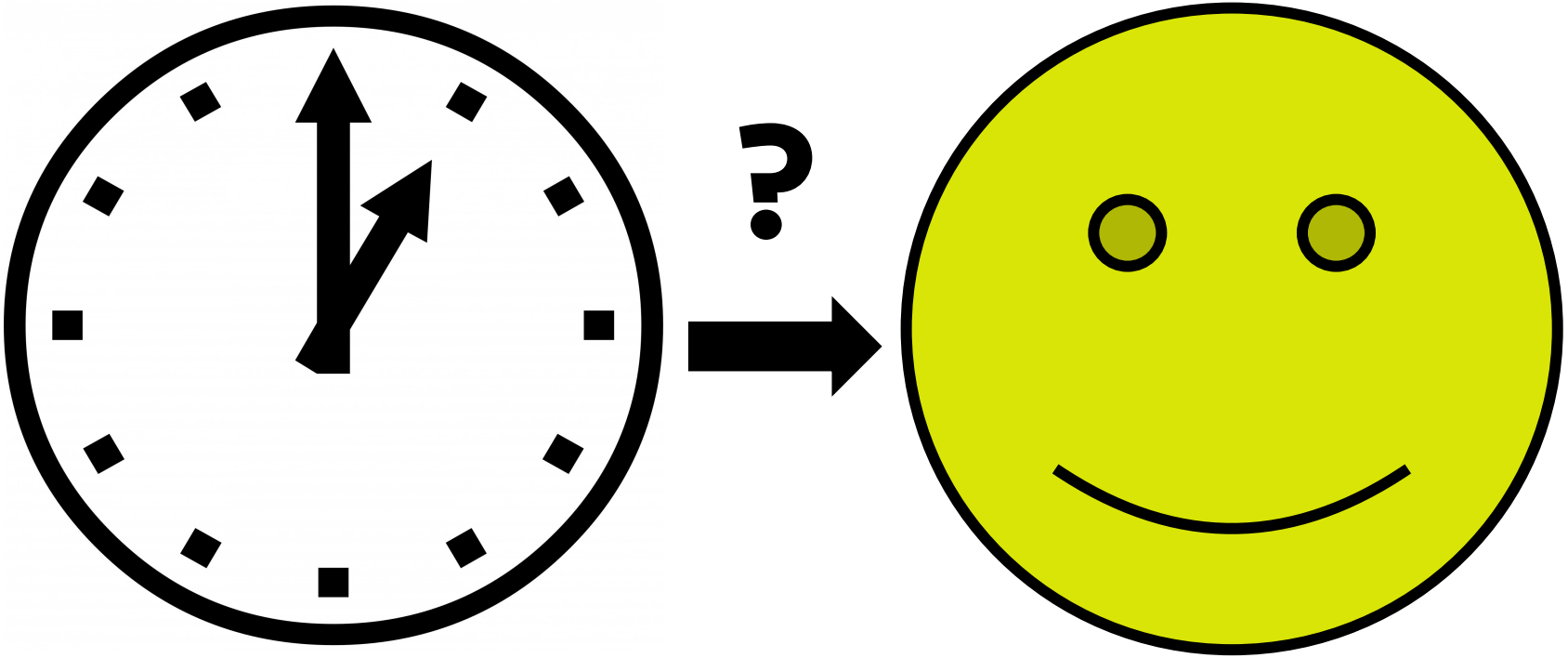
TIMING WITHIN DAY

NO CONSISTENCY

WHAT CAN WE WIN?



OBSERVED ENGAGEMENT

	06:00 open rate	16:00 open rate
Claire	2 open /4 send = 50%	3 open /10 send = 30%

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PATTERN OR CHANCE?

POSSIBLE CAUSES

FEW OBSERVATIONS

ACTUAL PREFERENCES

SIMULATE

KEEP FEW OBSERVATIONS

ASSUME NO ACTUAL PREFERENCES

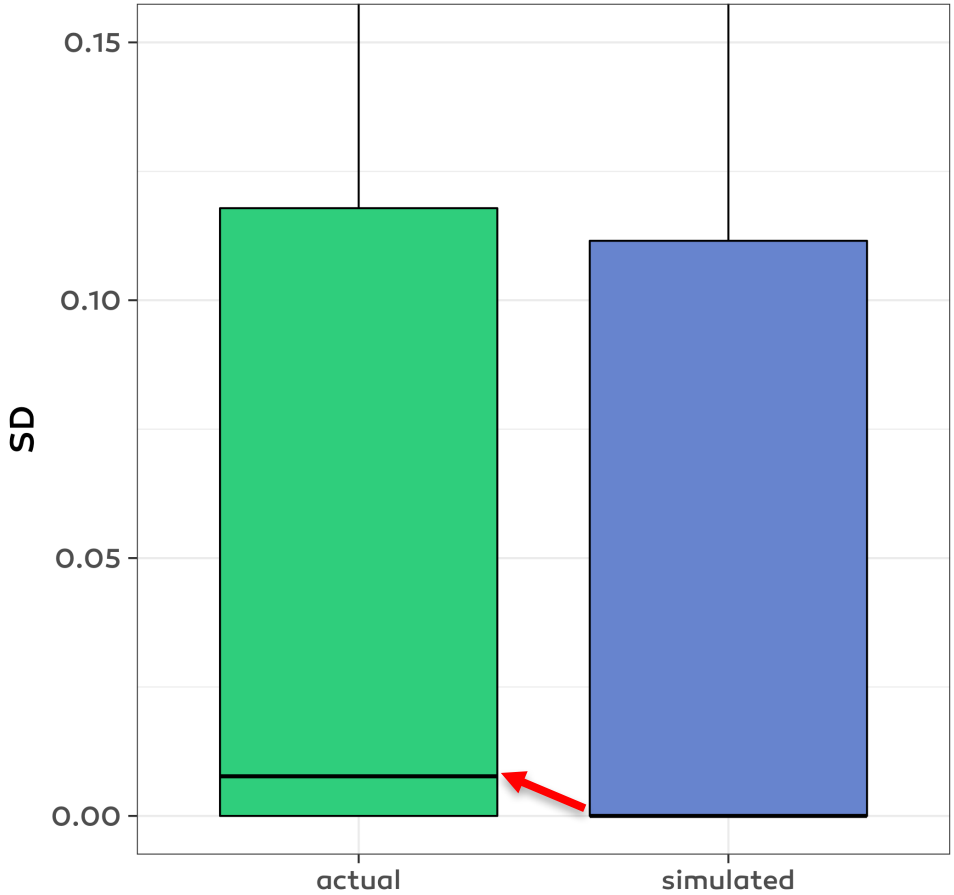
Claire's observed engagement:

	06:00 open rate	16:00 open rate	20:00 open rate	average open rate	standard deviation
Claire	3/4 =75%	2/10=20%	12/30 =40%	17/44 =**39%**	0.28

Claire's simulated engagement:

	06:00 open rate	16:00 open rate	20:00 open rate	average open rate	standard deviation
Claire	1/4 =25%	6/10=60%	14/30 =47%	21/44 =48%	0.17

PATTERN, NOT CHANCE



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1. MOTIVATION

2. **INITIAL SOLUTION**

3. ADJUSTMENTS & RESULTS

KEY CHALLENGES

HIGH UNCERTAINTY

RESULTS EXPECTED

FROM DAY 1

Bayesian bandit algorithm

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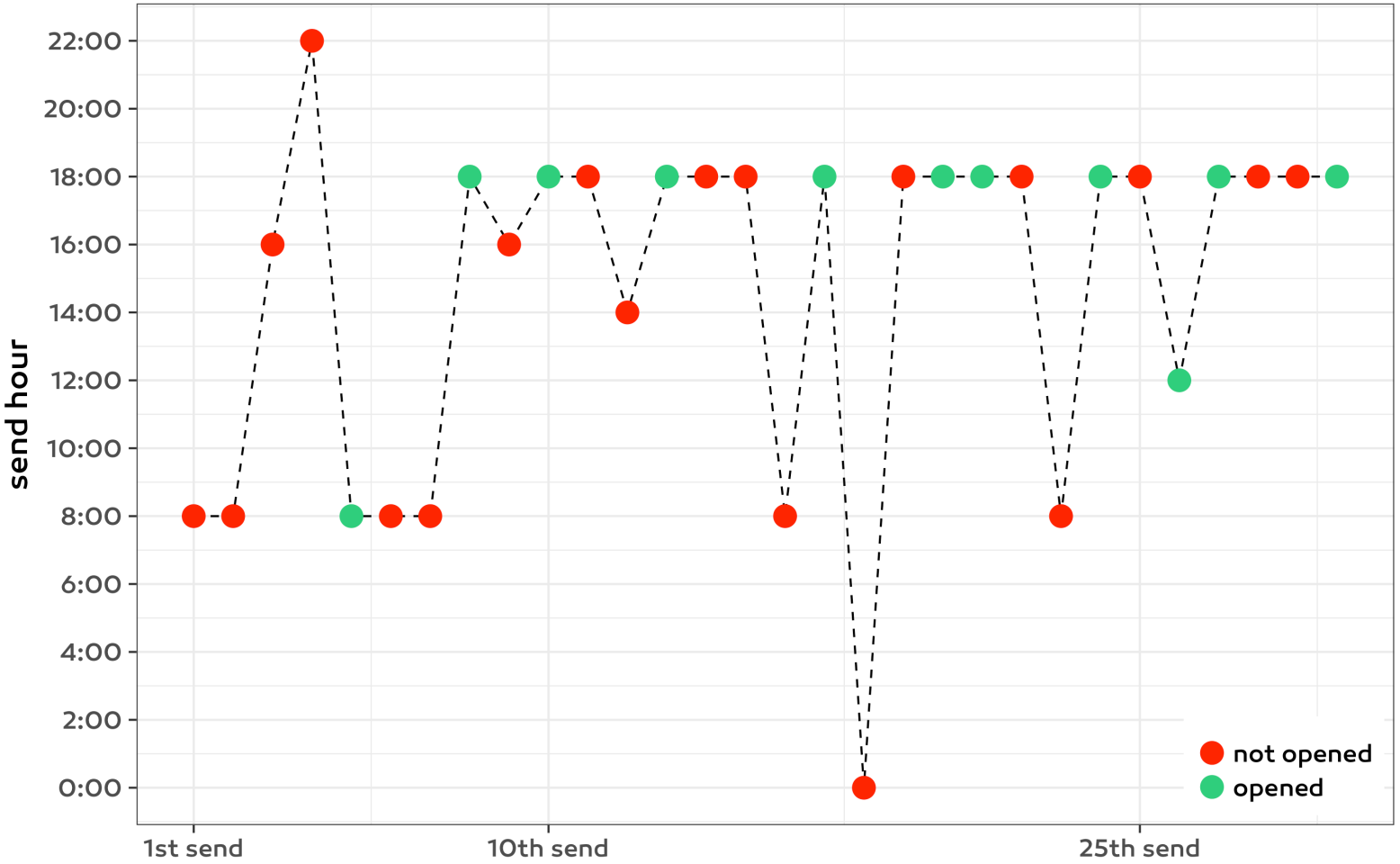
exploration & exploitation

NEXT CHALLENGE

CONVINCE PILOTS TO TRY

Jane's personal history of sends and opens

with send time optimization



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THEORY: ASYMPTOTIC RESULTS

RESULTS NEEDED IN SHORT TERM

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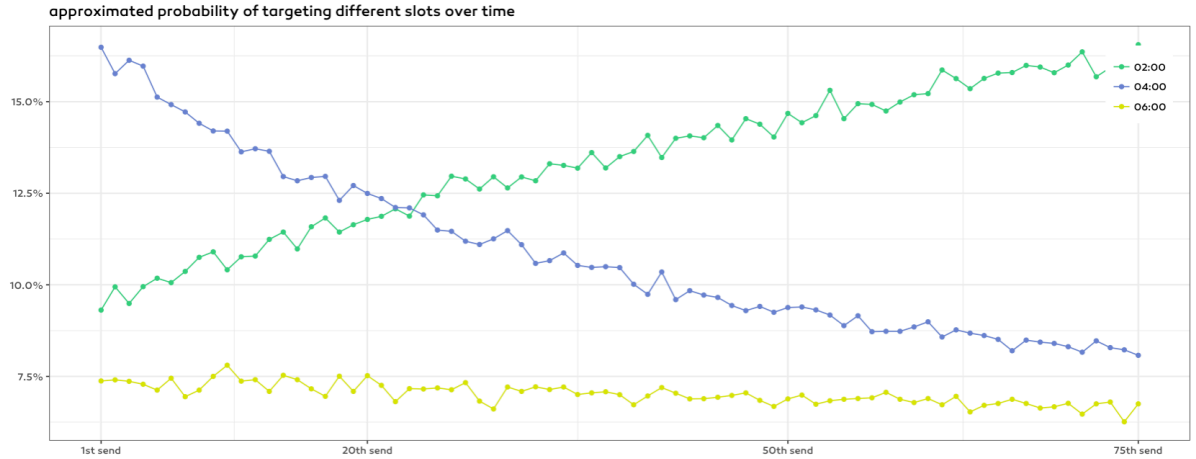
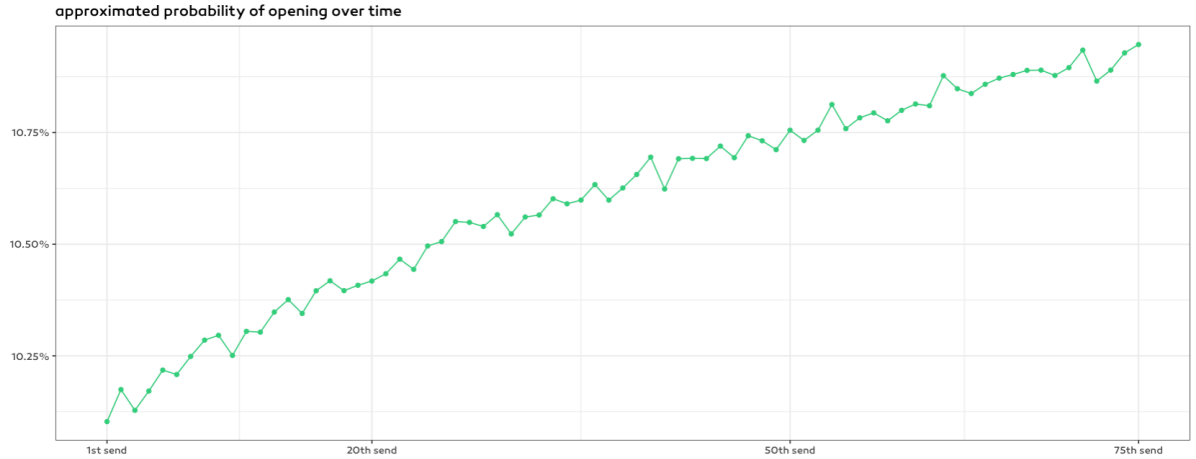
ADAPTED THEORY

#slots: ○ 2 ○ 4 ○ 8 ◉ 12 ○ 24 Simulate

add noise: ◉ no ○ low ○ high

	priors	probs	sends	opens	plot
# 1	0.1	0.1	0	0	☐
# 2	0.1	0.1	0	0	☐
# 3	0.11	0.18	0	0	☑
# 4	0.1	0.1	0	0	☐
# 5	0.1	0.1	0	0	☐
# 6	0.14	0.07	0	0	☑
# 7	0.1	0.1	0	0	☐
# 8	0.1	0.08	0	0	☑
# 9	0.1	0.1	0	0	☐
# 10	0.1	0.1	0	0	☐
# 11	0.1	0.1	0	0	☐
# 12	0.1	0.1	0	0	☐





BAYESIAN BANDIT ALGO + EXPLANATIONS

DATA & MANAGEMENT & CLIENTS ON BOARD

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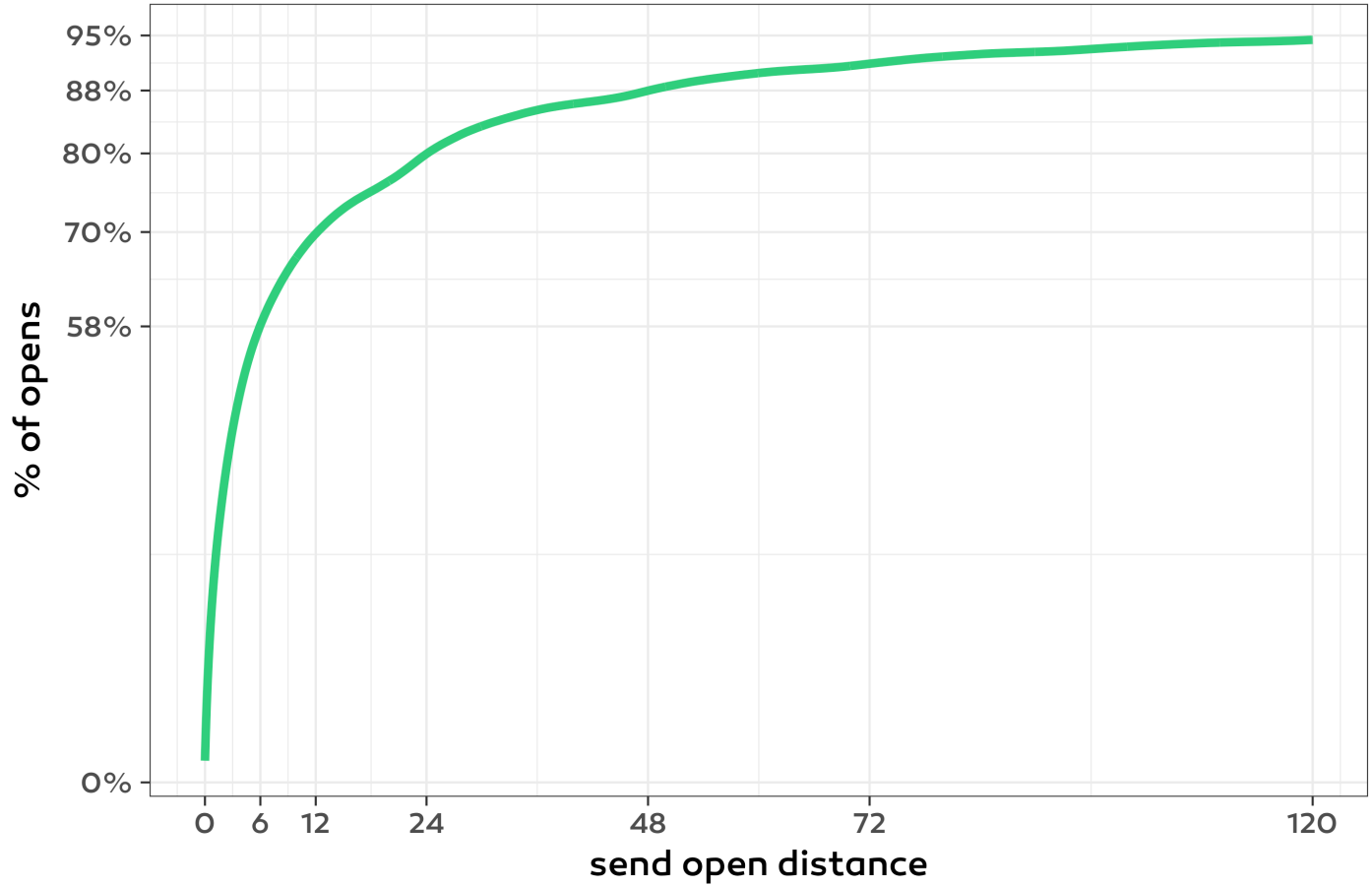
1. MOTIVATION

2. INITIAL SOLUTION

3. **ADJUSTMENTS & RESULTS**

WAIT FOR OPENS



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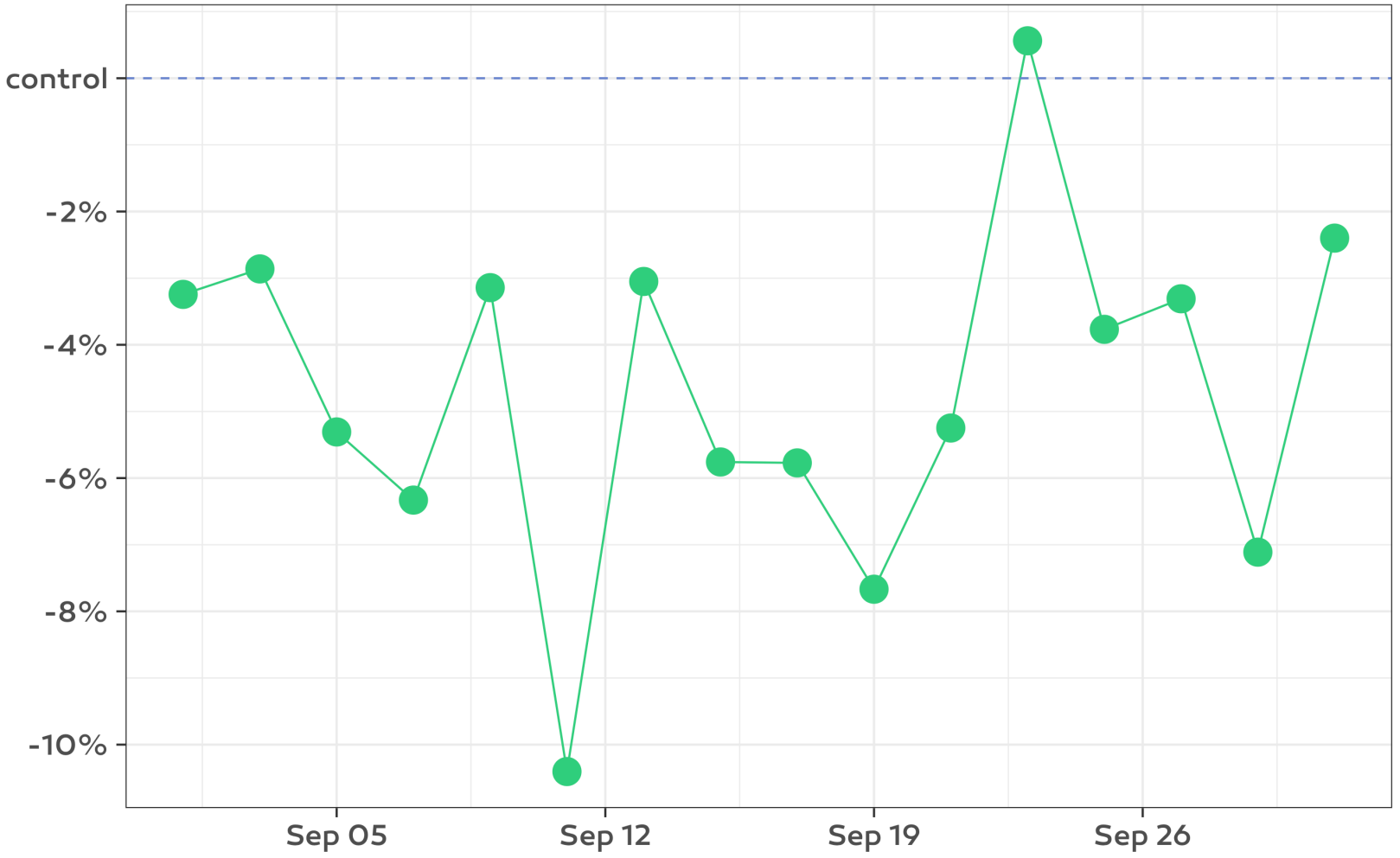
A/B
TEST

open rate uplift



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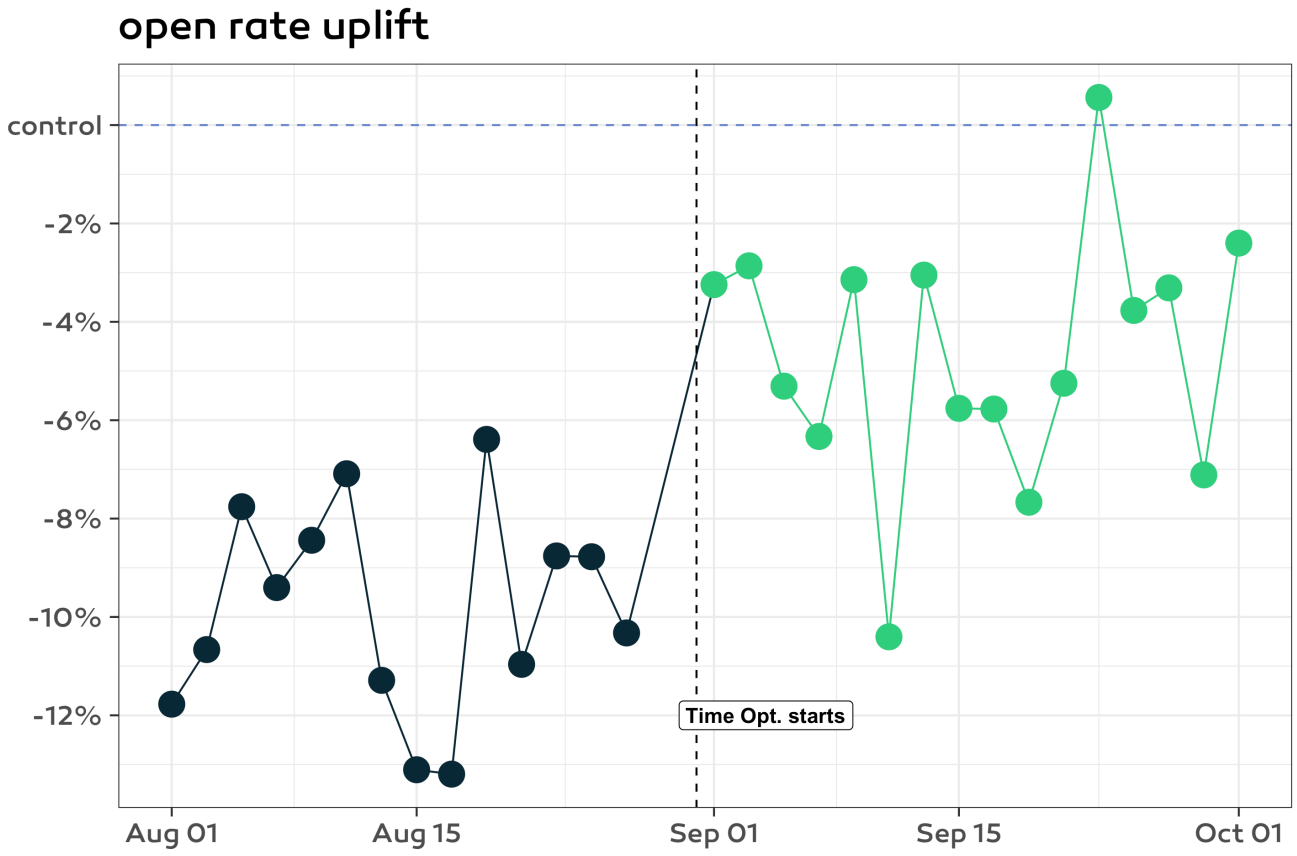
DISTORTED A/B TEST



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2-12% UPLIFT IN ENGAGEMENT

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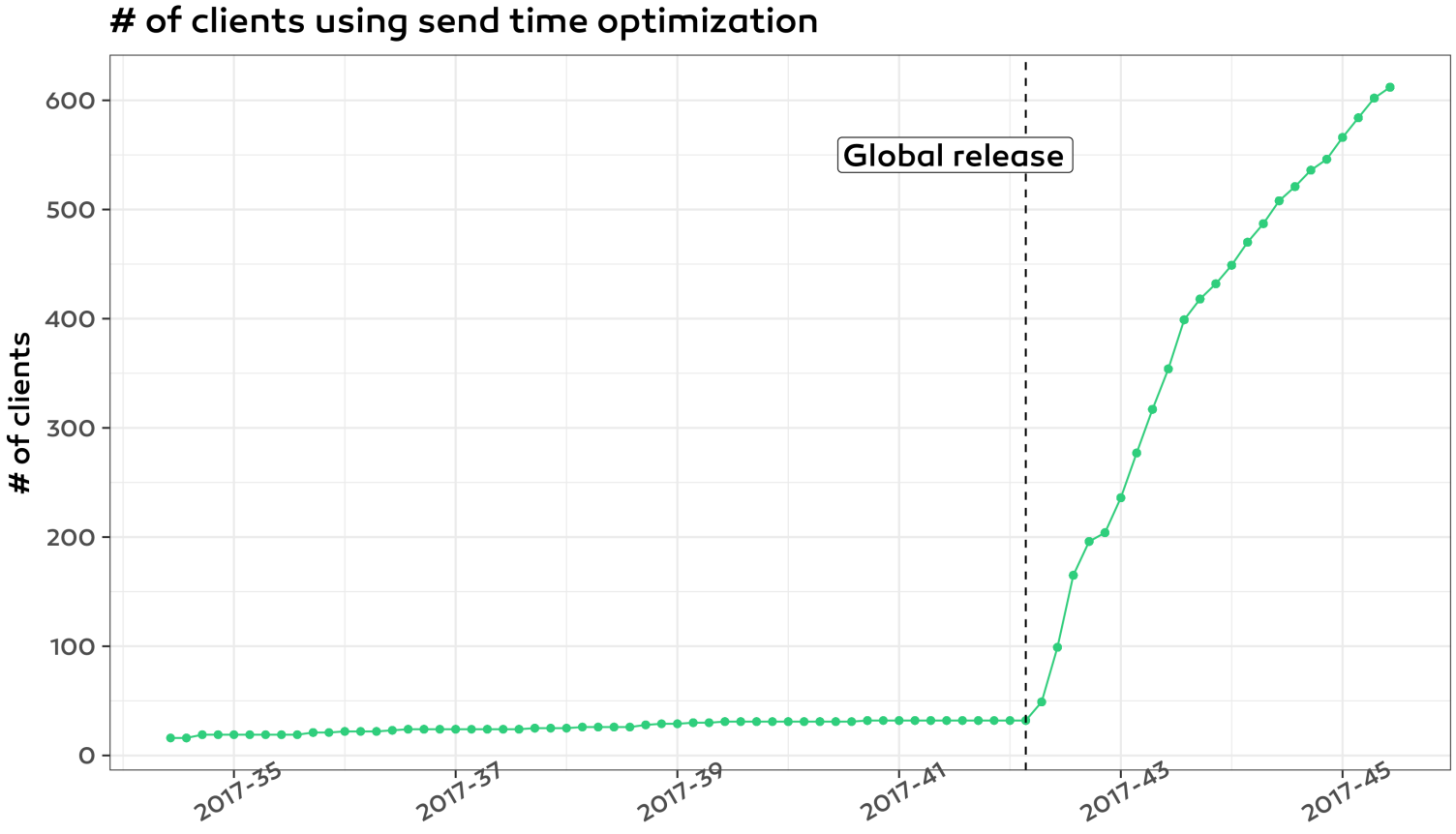
FAST ADOPTION



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takeaway

MANUAL A/B TESTS ARE RISKY

LEARN CHEAPLY FROM **REALISTIC SIMULATIONS**

YOU NEED **TRUST**

SET EXPECTATIONS
GIVE EXPLANATIONS

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Chris Stucchio

blog.craftlab.hu/weekend-bias-in-send-time-optimisation-ba80176af1b9

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