

THE ART OF CHAOS ENGINEERING

**FAILURE AT
NETFLIX VELOCITY**



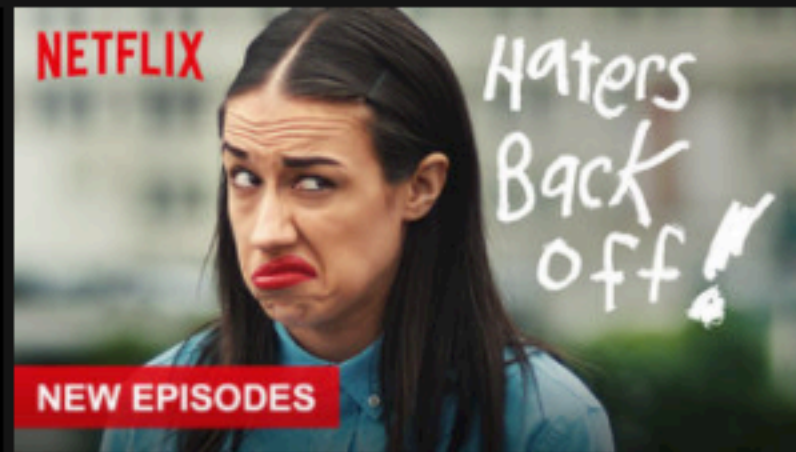




Continue Watching for Lexi



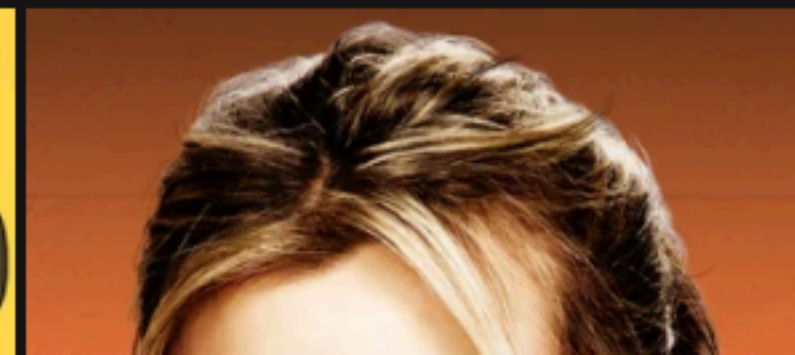
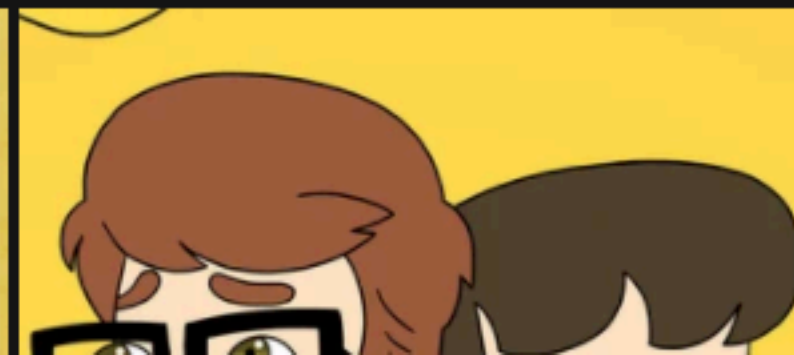
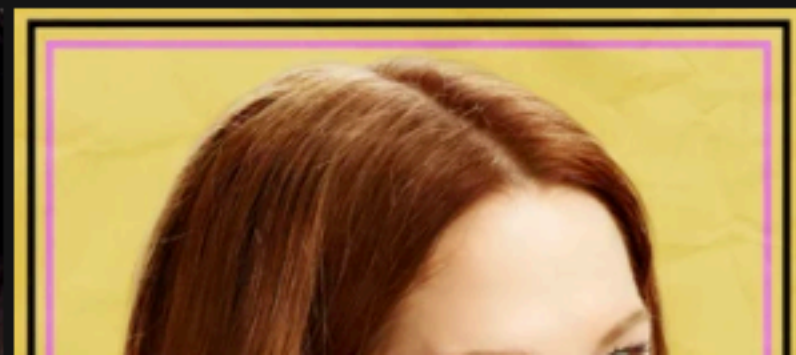
Popular on Netflix



Trending Now



NETFLIX ORIGINALS



NETFLIX

NETFLIX ORIGINAL
STRANGER THINGS

95% Match 2016 1 Season 4K Ultra HD 5.1

When a young boy vanishes, a small town uncovers a mystery involving secret experiments, terrifying supernatural forces and one strange little girl.

Winona Ryder, David Harbour, Matthew Modine
TV Shows, TV Sci-Fi & Fantasy, Teen TV Shows



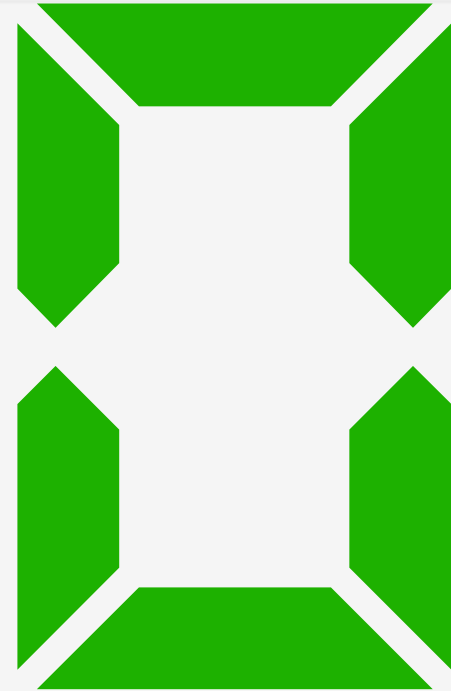
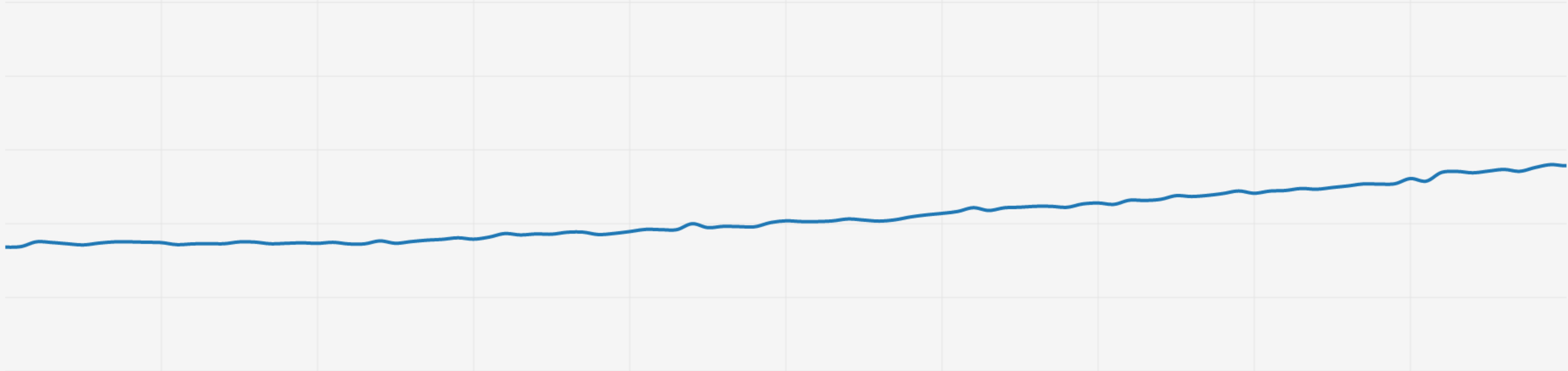
Popular on Netflix



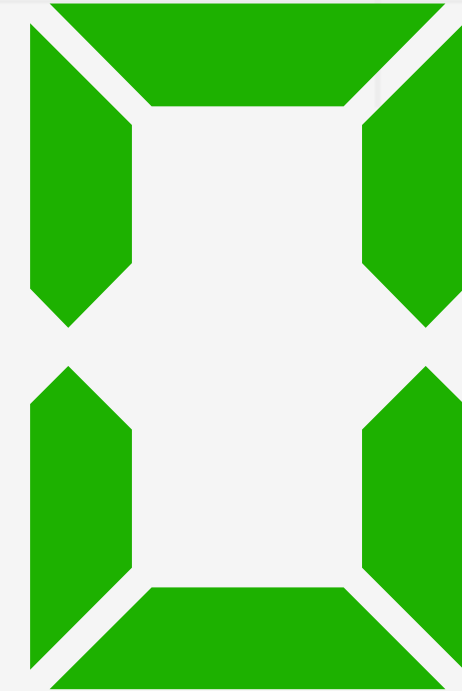
Recently Watched



11:00 11:10 11:20 11:30 11:40 11:50 12:00 12:10 12:20 12:30 12:40



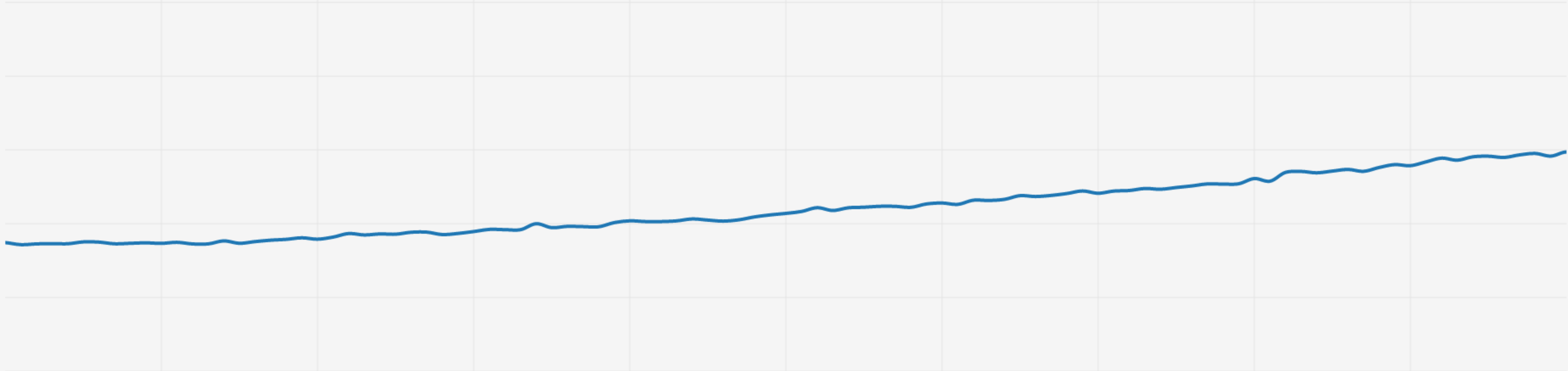
IMPACT



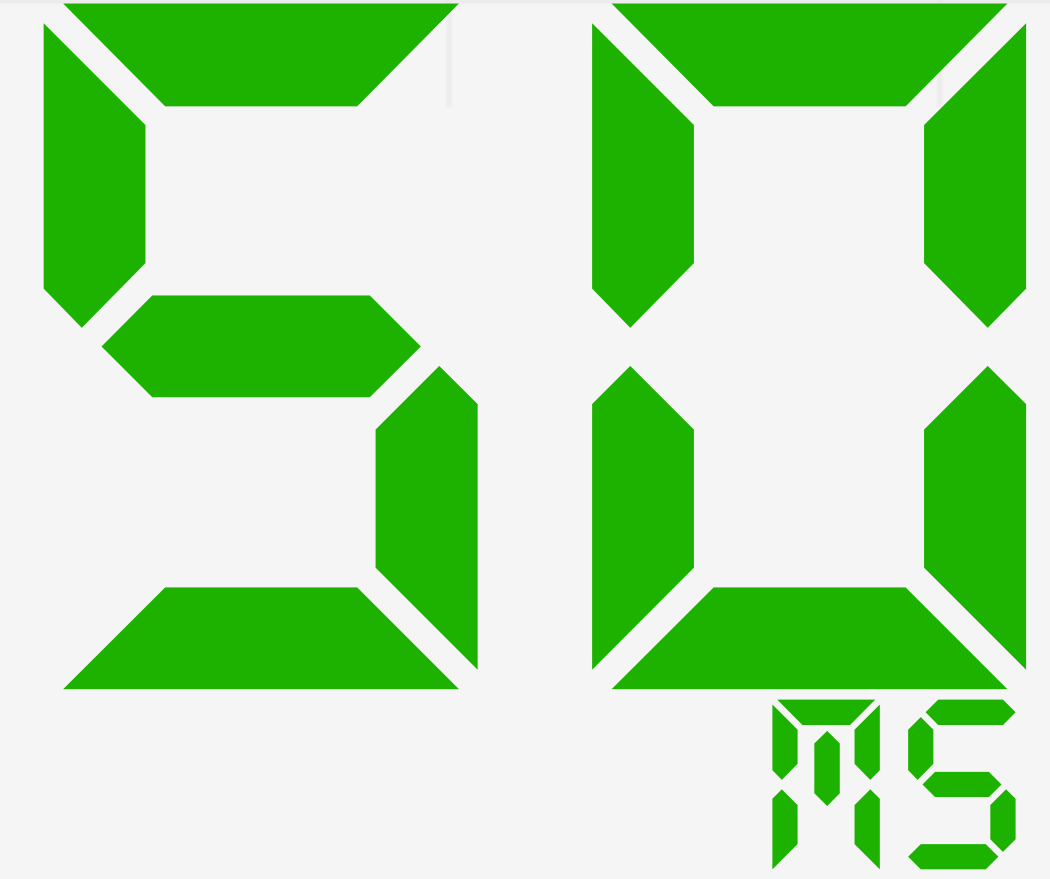
MS

LATENCY

11:10 11:20 11:30 11:40 11:50 12:00 12:10 12:20 12:30 12:40 12:50

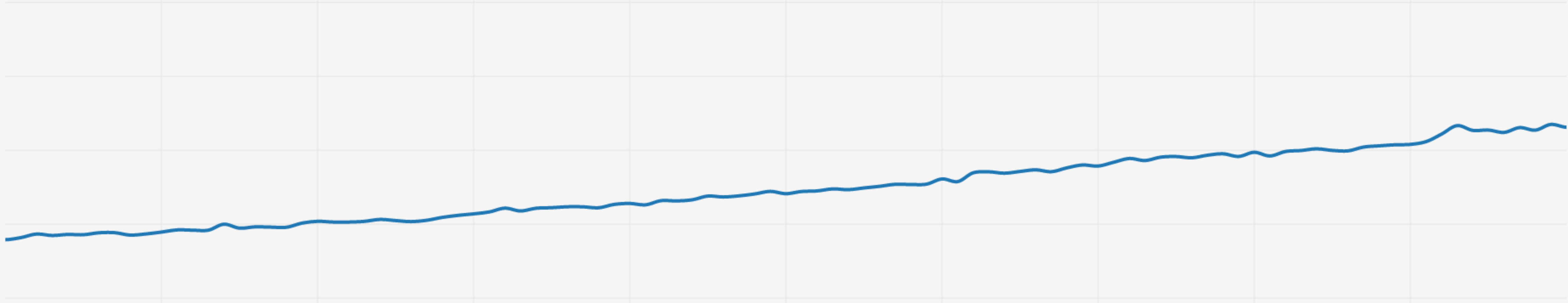


IMPACT



LATENCY

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50



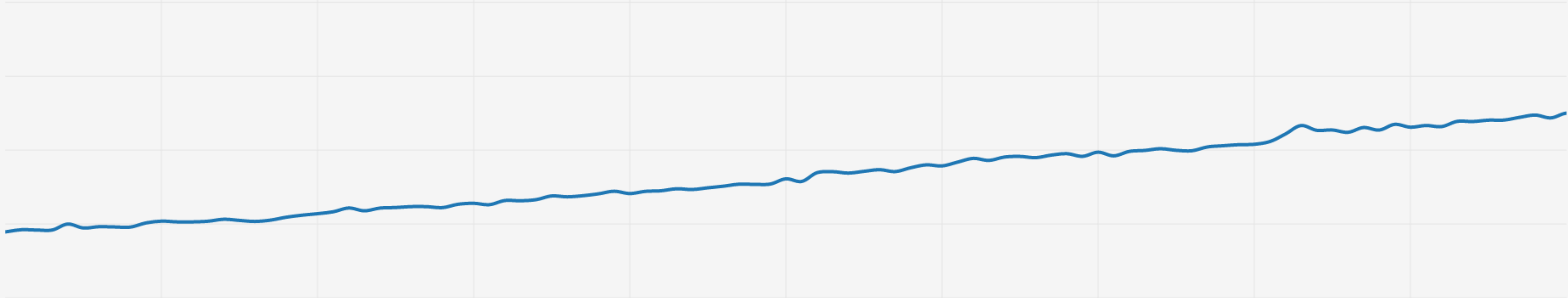
IMPACT

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ms

LATENCY

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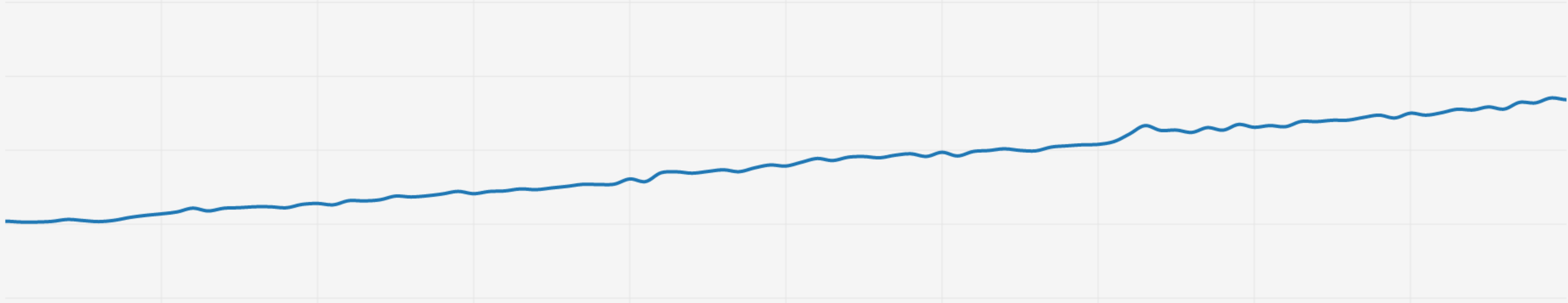


IMPACT



LATENCY

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25



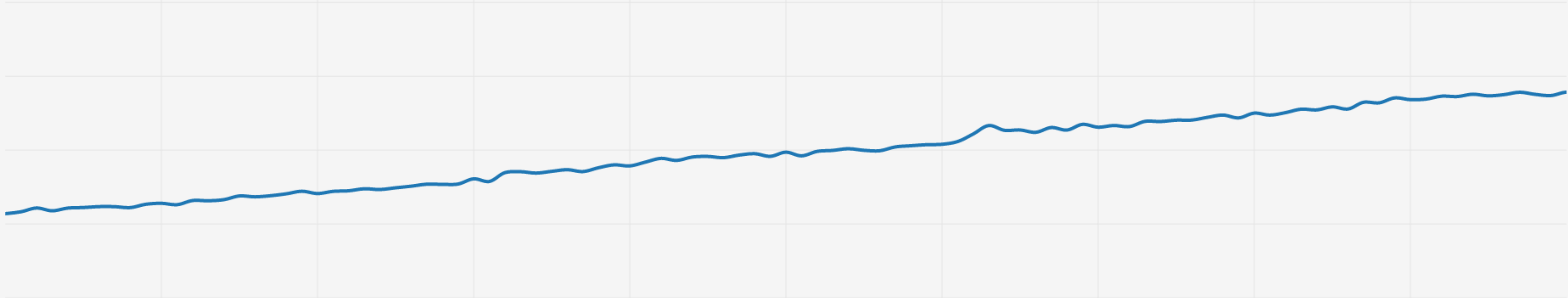
IMPACT

250

MS

LATENCY

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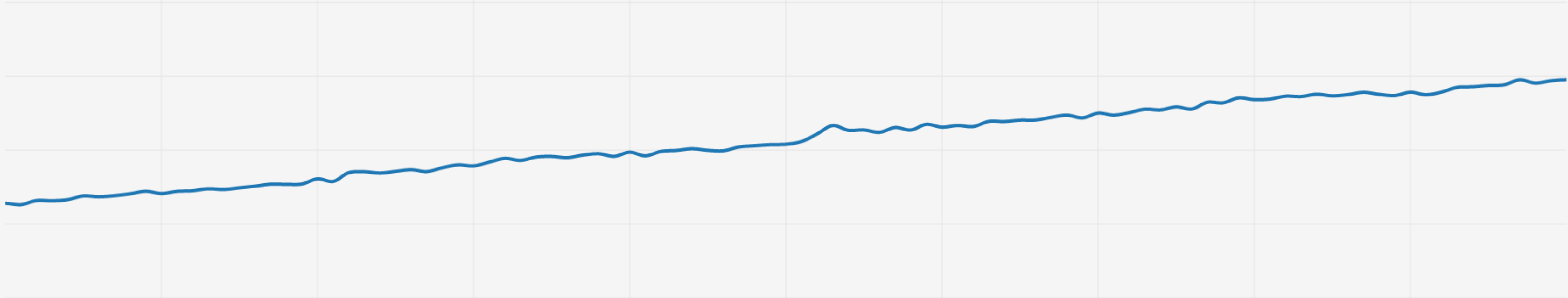
IMPACT

250

MS

LATENCY

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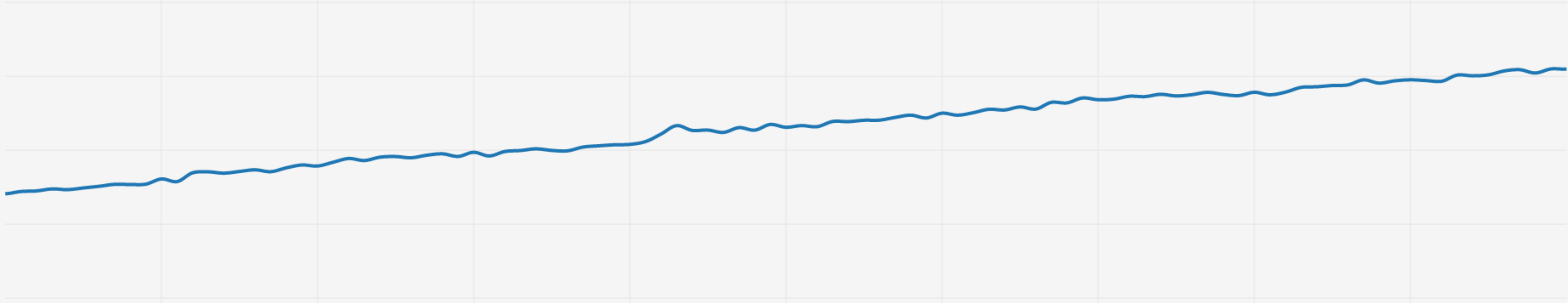
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IMPACT

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LATENCY

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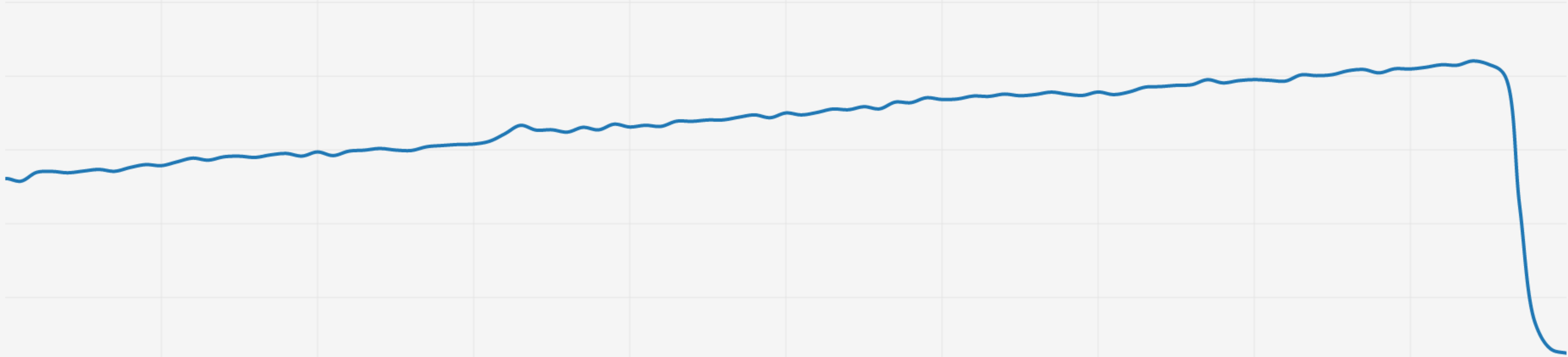
IMPACT

250

ms

LATENCY

12:30 12:40 12:50 13:00 13:10 13:20 13:30 13:40 13:50 14:00 14:10



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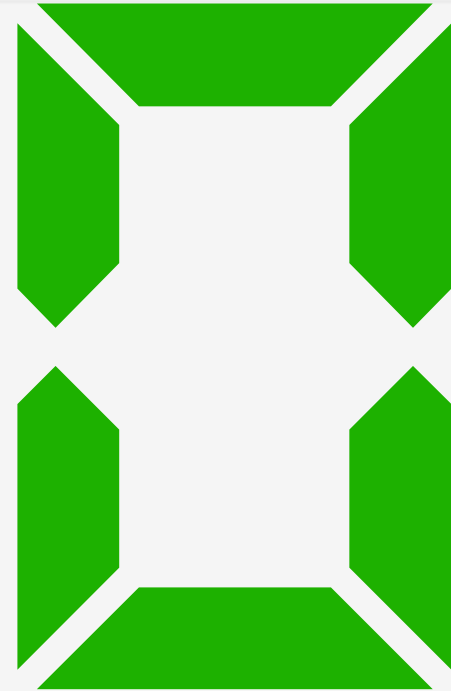
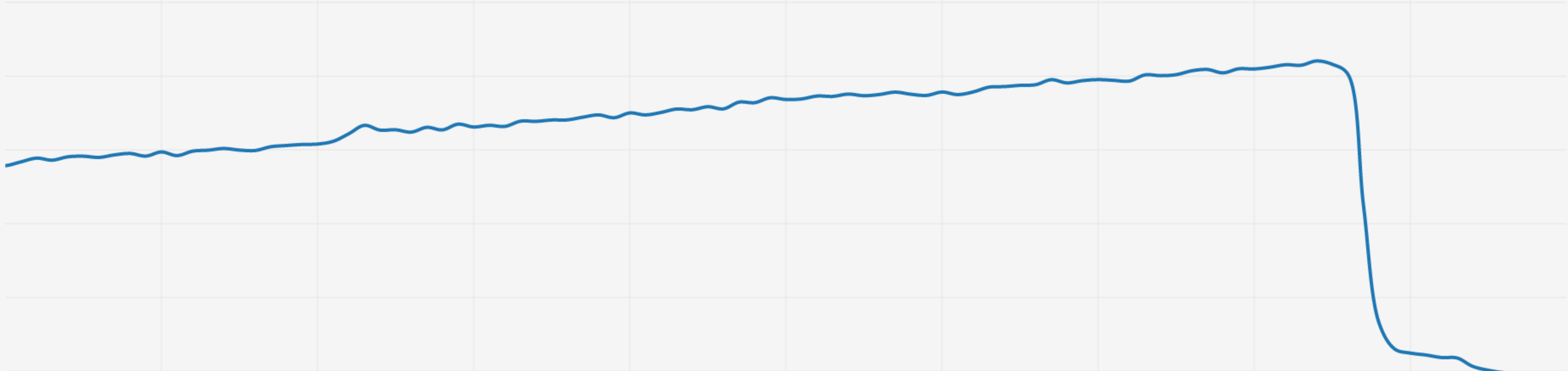
IMPACT

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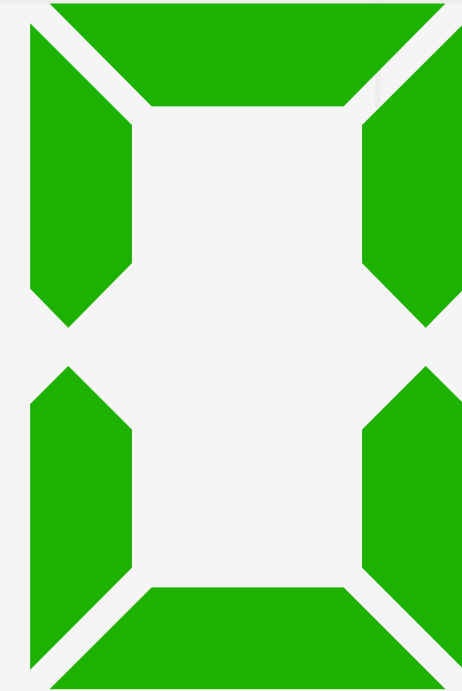
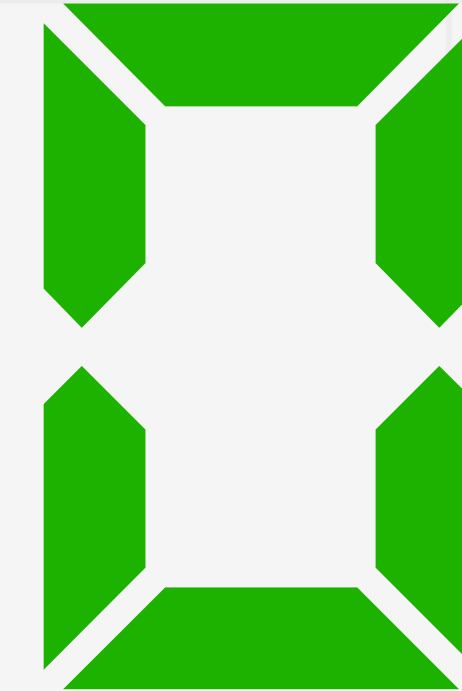
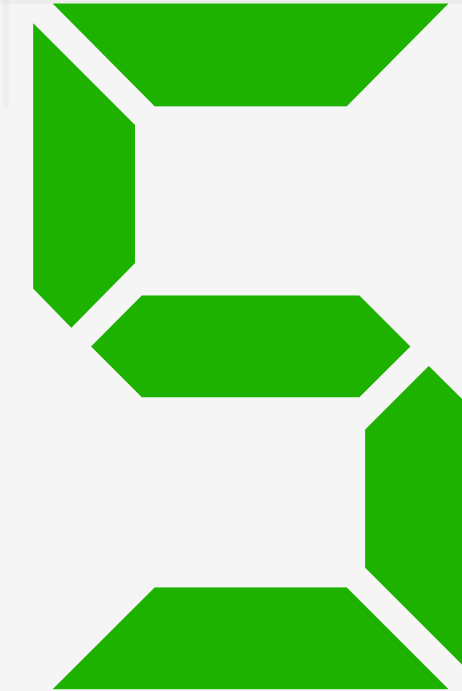
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LATENCY

12:40 12:50 13:00 13:10 13:20 13:30 13:40 13:50 14:00 14:10 14:20



IMPACT



LATENCY

12:50

13:00

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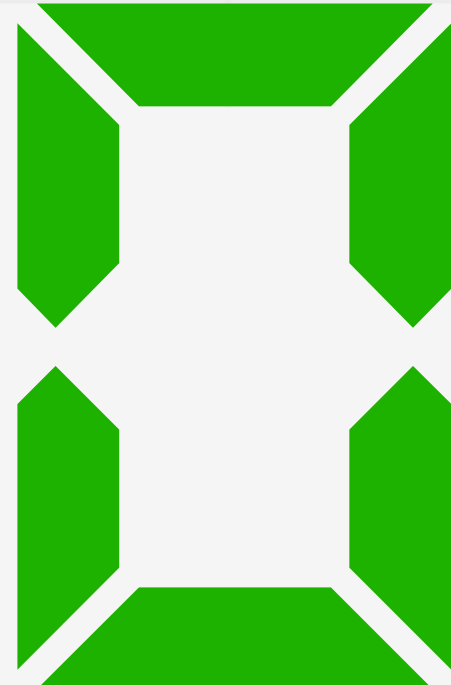
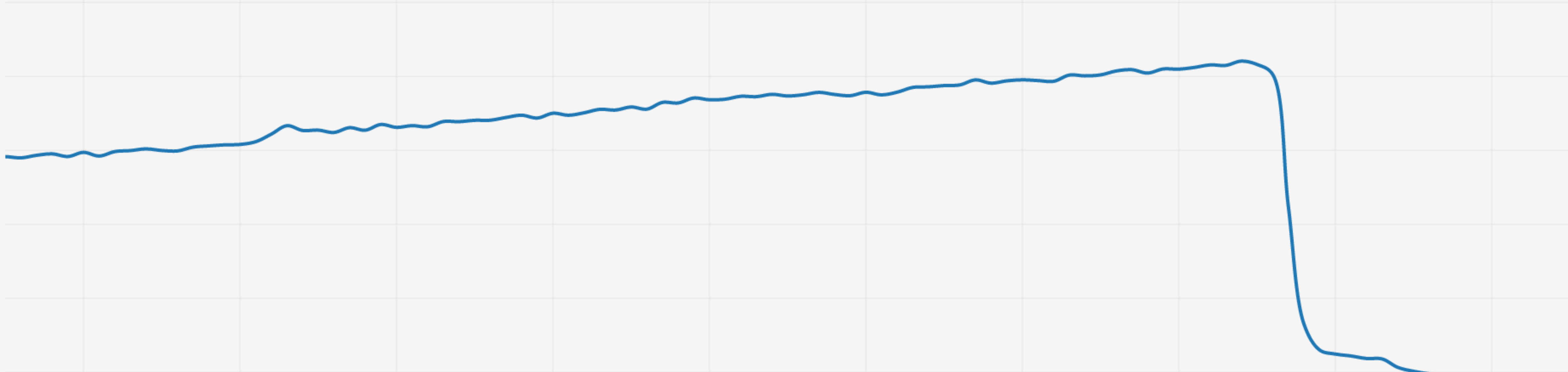
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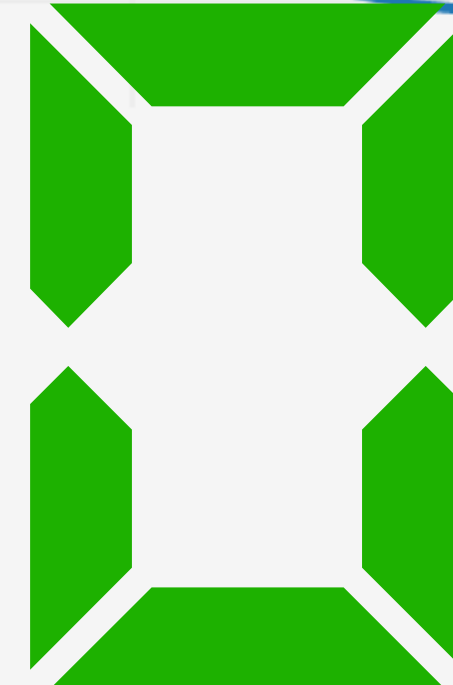
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IMPACT



MS

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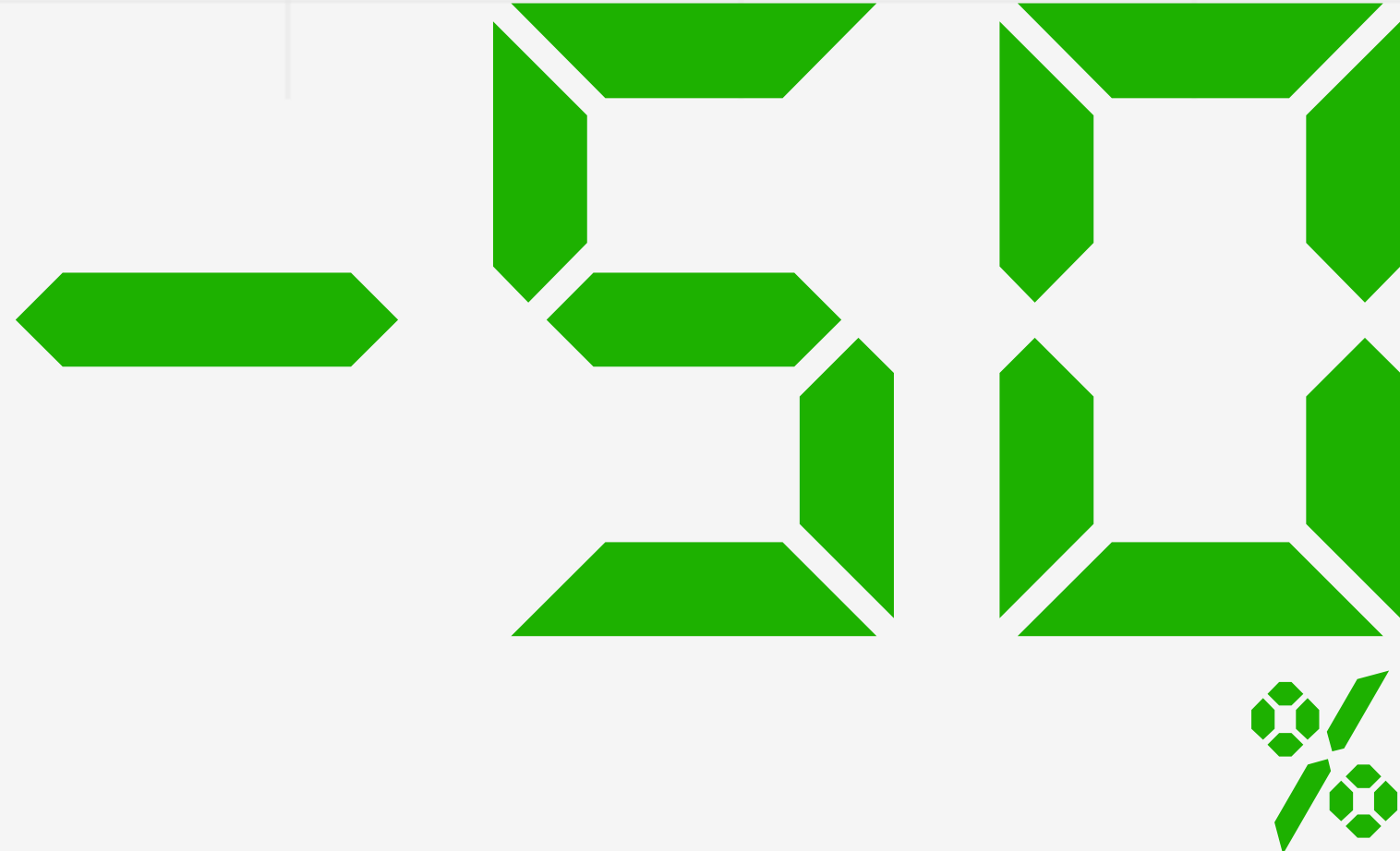
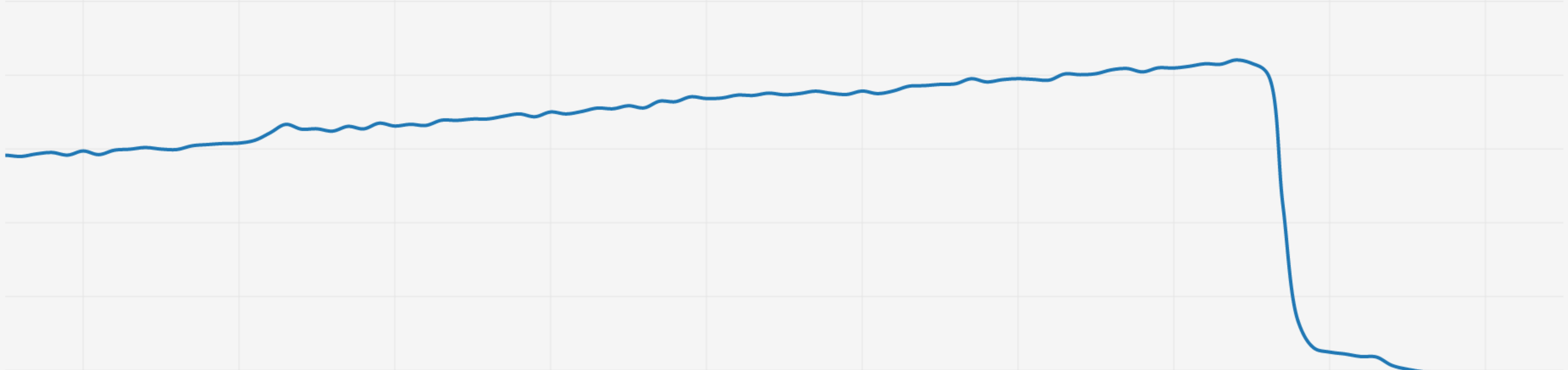
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IMPACT



LATENCY

12:50

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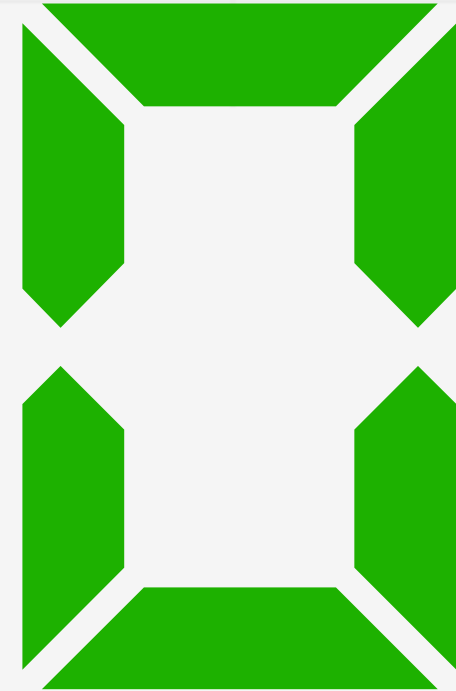
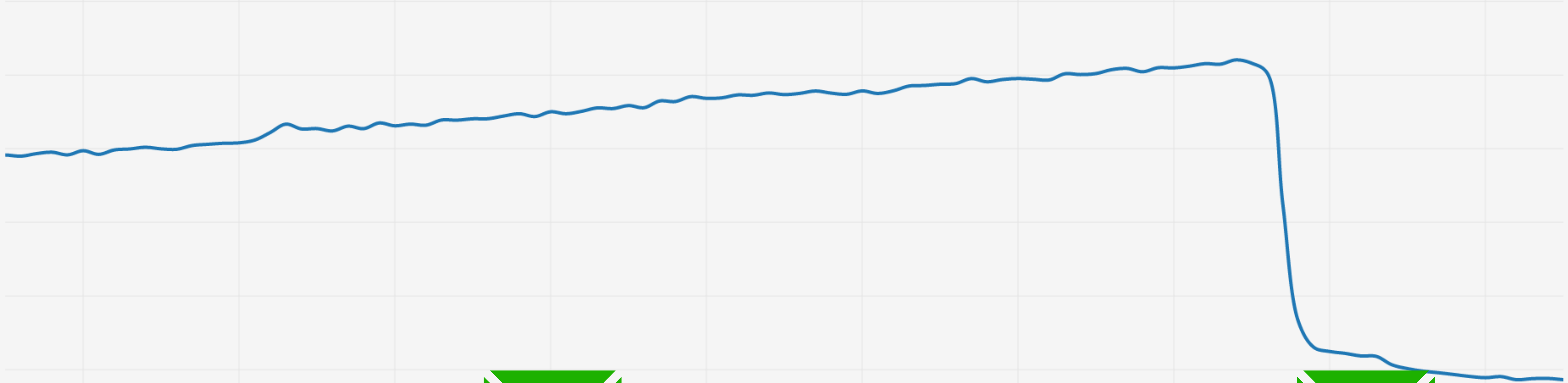
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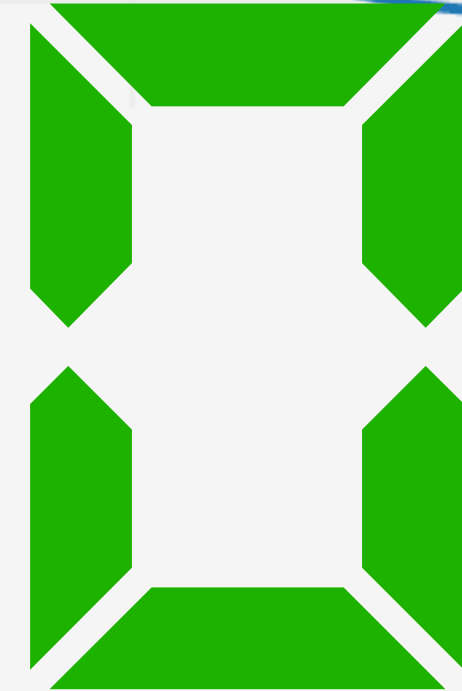
14:00

14:10

14:20



IMPACT



LATENCY

HYPOTHESIS



PROVEN

LEARNINGS

Application Behavior

Blast Radius

Consistency

**You already
know all that**

REMEMBER THE



GRAY AREA?

{Systems | People}

**don't react predictably when exposed
to non-typical behavior.**

INCIDENT MANAGEMENT

**WHAT'S THE BIG DEAL?
FIX IT AND MOVE ON!**

INCIDENTS ARE:

INCIDENTS ARE:

Expensive

INCIDENTS ARE:

Expensive

Stressful

INCIDENTS ARE:

Expensive

Stressful

Public

'Luke Cage' overload? Netflix viewers report outage amid binge of new show

Javier E. David | @TeflonGeek

Published 3:54 PM ET Sat, 1 Oct 2016 | Updated 2:40 PM ET Sun, 2 Oct 2016



Jim Spellman | Getty Images

Netflix is back up after more than 2-hour outage

The streaming service crashed as 'Luke Cage' premiered — and the Internet acted accordingly

NICK ROMANO @NICKAROMANO



Luke Cage

@LukeCage

Follow

Got some heroes at #Netflix fixing things. They're all over it. Meantime, keep this in mind. #LukeCage





House of Cards 

@HouseofCards

Follow



This is Washington. There's always a leak. All 13 episodes will launch February 27.

3:01 PM - 11 Feb 2015

21,669 Retweets 15,550 Likes



 1.7K

 22K

 16K





IDG CONTRIBUTOR NETWORK [Want to Join?](#)

IT INFRASTRUCTURE STRATEGY

By Chris Churchey, Contributor, Network World | MAR 8, 2017 10:20 AM PT

Opinions expressed by ICN authors are their own.

OPINION

Why Netflix didn't sink when Amazon S3 went down

When a typo caused an outage in part of Amazon Simple Storage Service's (S3) cloud infrastructure on February 28, many of their customers' websites went down but Netflix survived unblemished.



Netflix US

@netflix

Following

Hey, just wondering why 10% of you chose to watch a giant rock cover a giant ball of gas when I HAVE ALWAYS BEEN THERE FOR YOU.

6:25 PM - 21 Aug 2017

13,636 Retweets 54,533 Likes



1.3K 14K 55K



Tweet your reply



Netflix US @netflix · Aug 21

Replying to @netflix

but really, there was a 10% drop in plays during the eclipse today. Well played, Moon

**WHAT CAUSES
INCIDENTS?**

CHANGE

**THINGS WE
CAN'T CONTROL**

**THINGS WE
DON'T CONTROL**

**THINGS WE
CAN CONTROL**

THAT ALL SOUNDS REALLLLLY NICE

A large, bright blue speech bubble with rounded corners and a pointed tail at the bottom right. The word "HOW?" is written in the center in a bold, white, sans-serif font.

HOW?

INCIDENT MANAGEMENT GOALS

Short

Unique

Never Forget





FOUR PARTS

1

ENGAGEMENT

2

COMMUNICATIONS

3

COORDINATION

4

MEMORIALIZATION



TECHNIQUES

SPECIALISTS

BEFORE INCIDENTS

Education

Best Practices

Drilling

DURING INCIDENTS

Incident Leader

AFTER INCIDENTS

Memorialization

Research Coordination

Incident Review

NETFLIX INCIDENTS MANAGERS

How We Think

WE EXPECT

Failure

Incidents

Empathy

INCIDENT MANAGEMENT CONTEXT

People

**“Human operators have dual roles:
producers of & defenders against failure”**

— Richard I Cook

INCIDENT MANAGEMENT CONTEXT

Failure

Constant Failures

Degraded is Normal

Any Change is a Gamble

INCIDENT MANAGEMENT CONTEXT

Biases

Hindsight

Single Attribution

Anchoring

MEASURING SUCCESS

Short & Less Impact

More Incidents

Better Team Engagement

Dave Hahn — Senior SRE, Netflix

dhahn@netflix.com

@relix42

THE ART OF CHAOS ENGINEERING

FAILURE AT

NETFLIX VELOCITY