

ELECTRIC⚡CAPITAL

DEVELOPER REPORT

JANUARY — DECEMBER 2021

ELECTRIC CAPITAL'S ANNUAL DEVELOPER REPORT: PROPRIETARY DATA & COMMUNITY

Electric Capital is a leading Web3 venture firm. We are early-stage investors in many well-known layer-1 platforms, DeFi protocols, NFT projects, DAOs, and breakout Web3 businesses. Learn more at ElectricCapital.com

We share this data publicly in the hopes of helping the community have a more clear understanding of our collective progress. We are grateful to everyone in the community who helps by contributing to our Github, the foundations who help us validate our analysis, and the friends who offer feedback on drafts.

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+100 volunteers in the Web3 community who added to our Github taxonomy and scrubbed data!



MOTIVATION & METHODOLOGY OVERVIEW

An early and leading indicator of value creation in emerging platforms is developer engagement. Developers build killer applications that deliver value to end users and customers, which attracts more customers, which then draws more developers. Because Web3 is open-source, we have a unique and unprecedented ability to understand an emerging industry worth almost \$3 trillion.

For the 2021 report, we analyzed nearly 500K code repositories and 160M code commits. The taxonomy of projects and to which ecosystems they belong is crowdsourced from CoinGecko, CoinMarketCap, DappRadar, DefiLlama, DefiPulse, Github, Gitlab, and the foundations from many of ecosystems.

We infer non-original commits, which account for 65% of the total, and credit only the original authors and original ecosystems that produce code. We do not count non-libraries and try our best to eliminate machine generated code such as config files. More details are in the appendix.

The taxonomy of projects is available at our Github: <https://github.com/electric-capital/crypto-ecosystems>



CAVEATS

We undercount developers because we rely on open-source repositories only

There are many more developers than accounted for in our report. Some teams are working on important closed source projects. Some teams will open-source their code later. We also undercount developers in roles such as backporting, testing, or release engineering as their efforts may not result in unique code contributions.

It will require more than just software engineers to build products and reach mainstream adoption, so this is a dramatic undercounting of the number of people building in crypto/Web3.

Not All Commits Are Created Equal

Some code commits may be routine changes, whereas others represent hours of accumulated research and analysis. Despite these caveats, we consider the analysis in this report directionally and relatively accurate.

Feedback

We are always looking to improve. Please share feedback with us at info@electriccapital.com



DISCLAIMER & DISCLOSURE

This Content is for Informational Purposes Only

You should not construe any such information or other material as legal, tax, investment, financial, or other advice. Nothing contained in this report constitutes a solicitation, recommendation, endorsement, or offer by Electric Capital or any third party service provider to buy or sell any securities or other financial instruments in this or in any other jurisdiction in which such solicitation or offer would be unlawful under the securities laws of such jurisdiction.

We may hold tokens in some of the ecosystems mentioned in this report

We may have previously held, currently hold, or will in the future hold tokens in some of the projects mentioned in this report. We do not short tokens. Nothing in this report should be construed as financial advice.

For a list of past and present investments, please visit electriccapital.com.



OVERVIEW

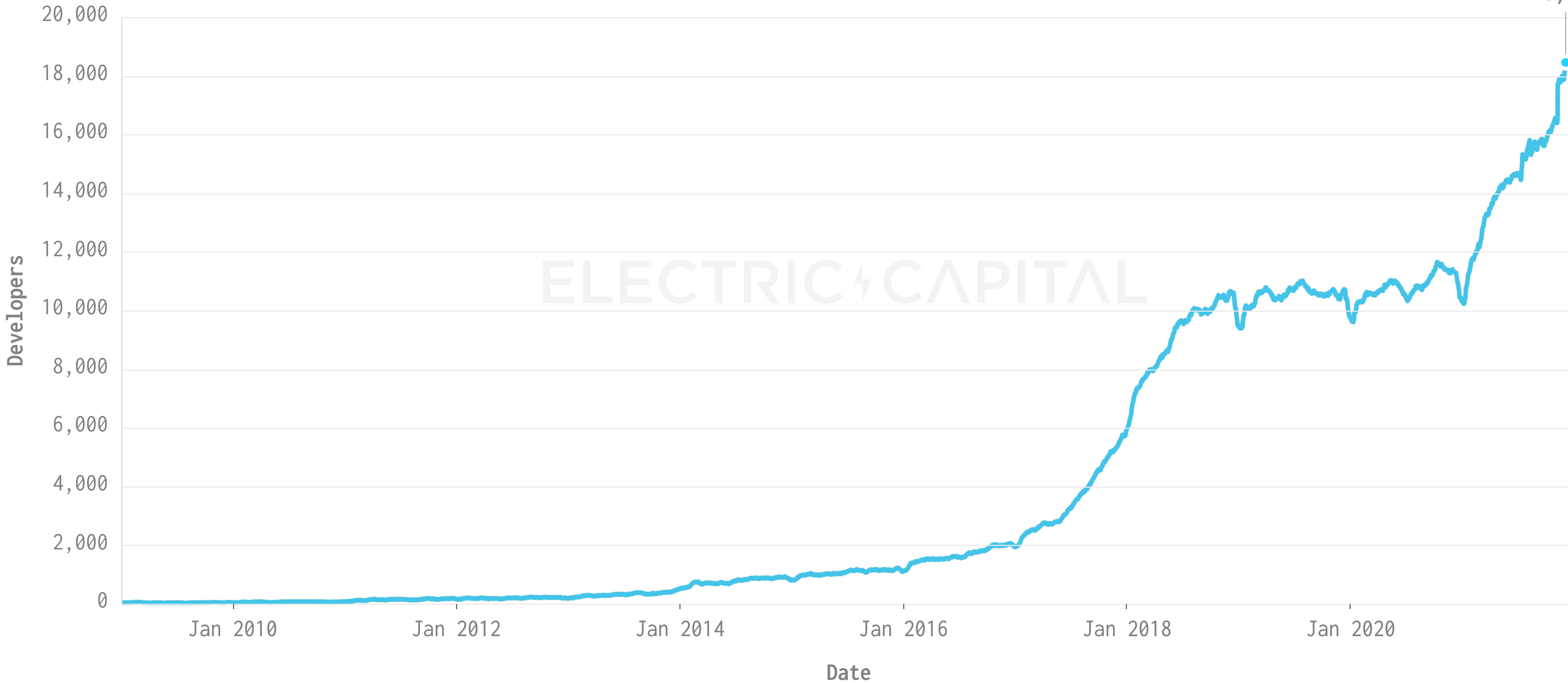
18,416 MONTHLY ACTIVE DEVELOPERS - AN ALL-TIME HIGH

Web3 Monthly Active Developers Since 2009

Dec 2021
All-Time High
18,416

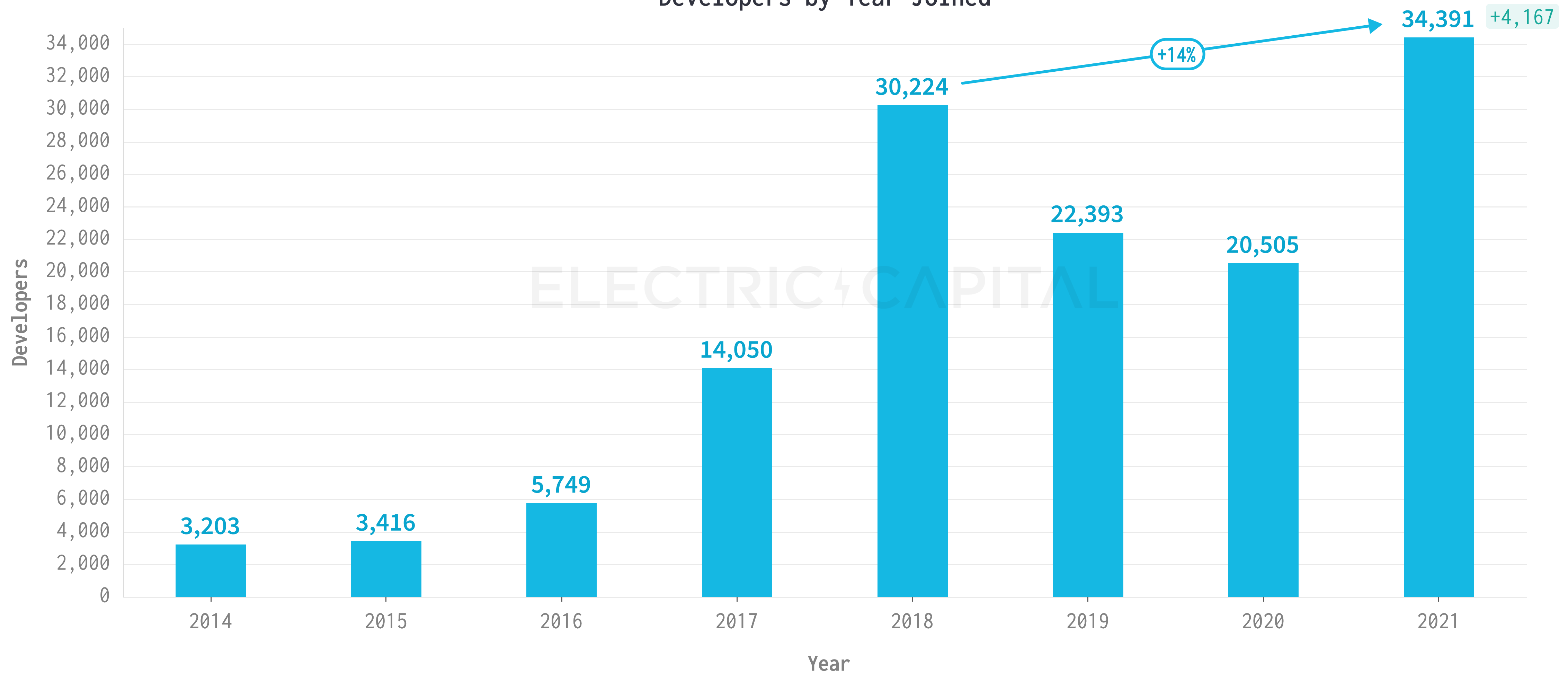
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MORE DEVELOPERS JOINED WEB3 IN 2021 THAN ANY YEAR IN HISTORY

Developers by Year Joined



EXECUTIVE SUMMARY

Web3 developers are at an all-time high and growing faster than ever

- 18,000+ monthly active developers commit code in open source crypto and Web3 projects -- the highest in history
- 34,391 new developers committed code in 2021 -- the highest in history
- 4,000+ monthly active open source developers work in Ethereum, 680+ open source developers work in Bitcoin
- 20% of new Web3 developers join the Ethereum ecosystem
- 65% of active developers in Web3 joined in 2021; 45% of full-time developers in Web3 joined in 2021

There are several vibrant ecosystems emerging beyond Bitcoin and Ethereum

- Ethereum, Bitcoin, Polkadot, Cosmos, Solana, BSC, NEAR, Avalanche, Tezos, Polygon, Cardano now have 250+ developers/month each
- Polkadot, Solana, NEAR, BSC, Avalanche, and Terra are growing faster than Ethereum did at the same point in its history
- 2,500+ developers are working on DeFi projects. Less than 1,000 full-time developers are responsible for over \$100 billion in total value locked in smart contracts

The growth of developers in Web3 has been record-breaking, but still represents a small, and rapidly expanding percent of software engineers globally. We are still in the early innings of Web3.



LET'S START BY LOOKING AT WEB3 DEVELOPERS...

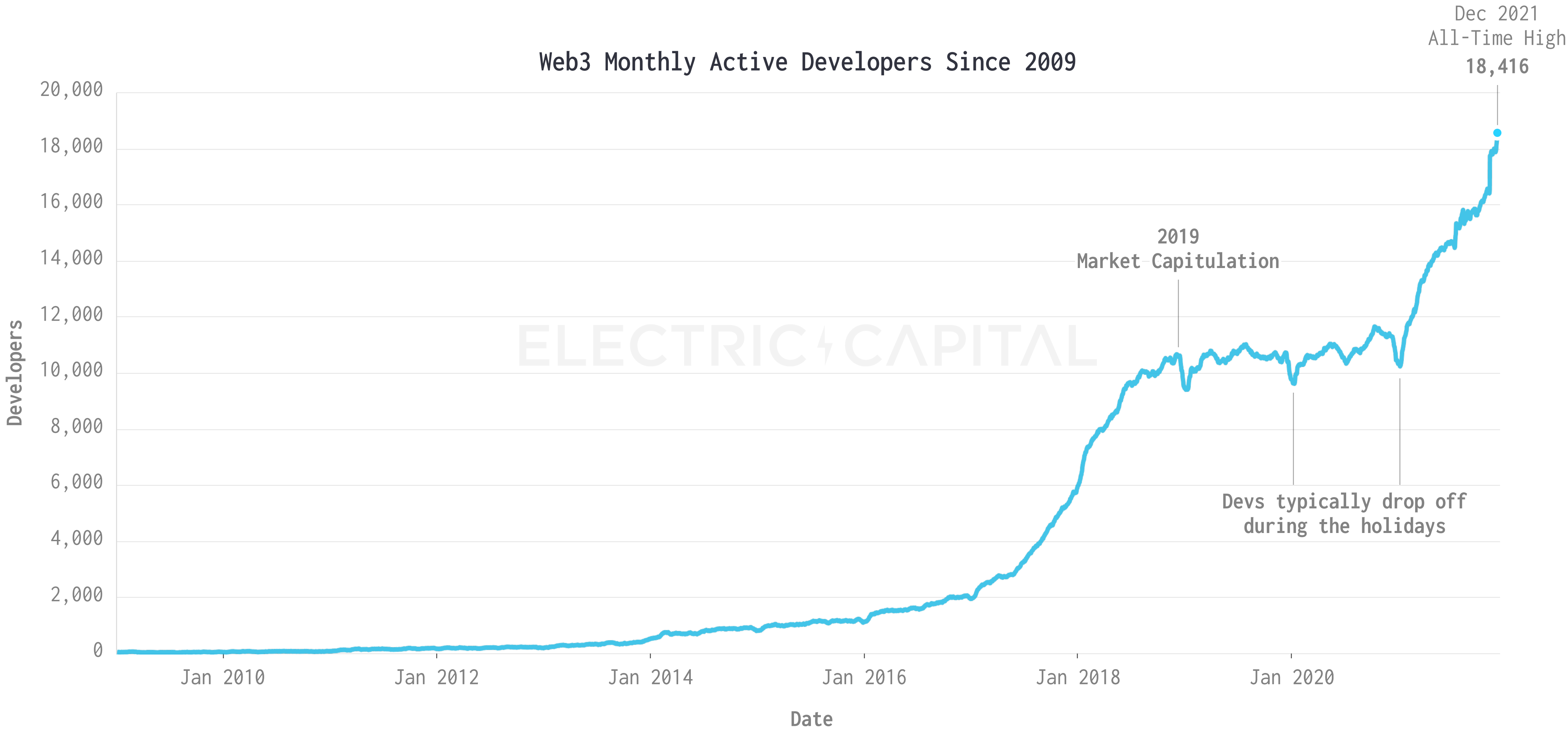
01

DEVELOPER OVERVIEW

THERE ARE NOW **18,416** MONTHLY ACTIVE DEVELOPERS IN WEB3

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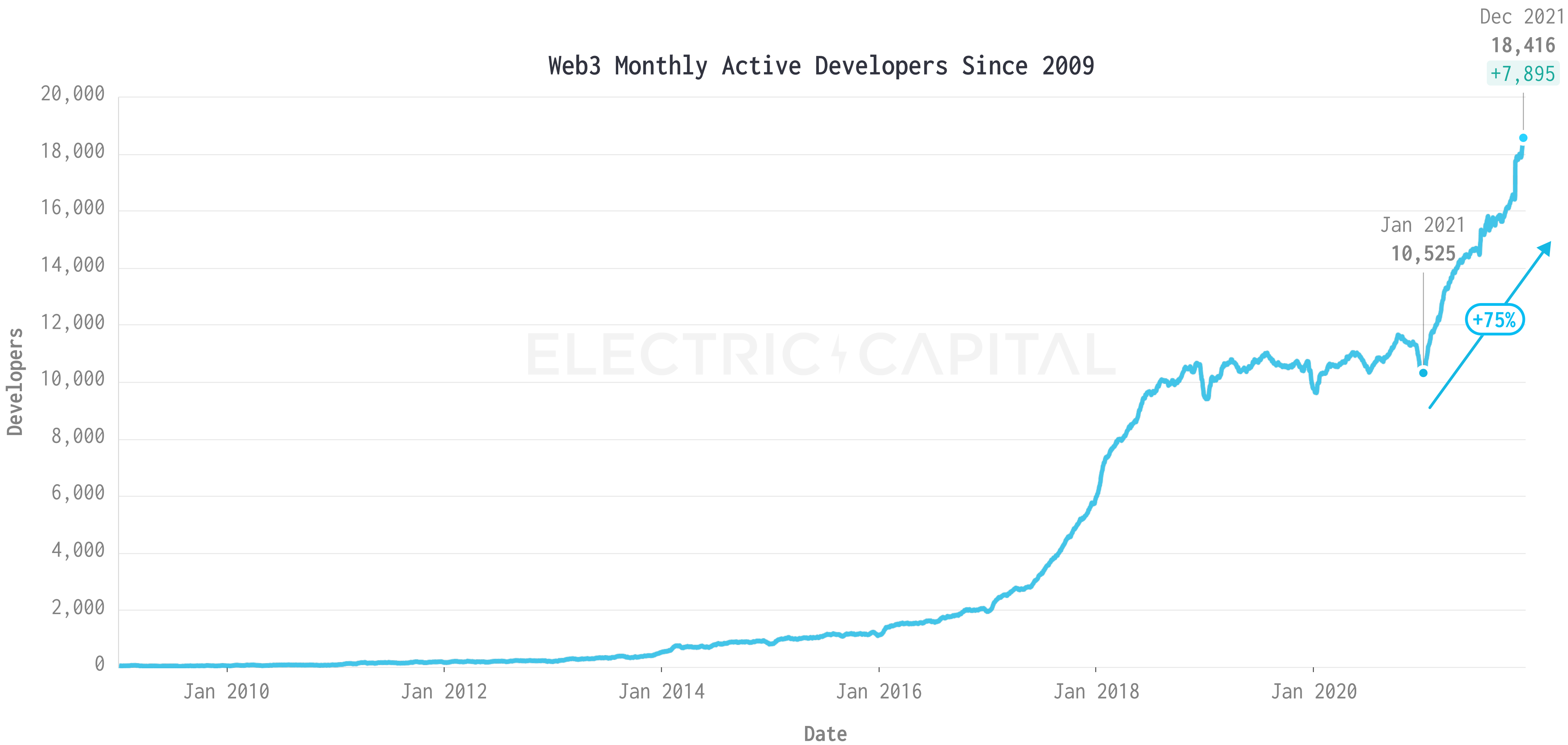
Web3 Monthly Active Developers Since 2009



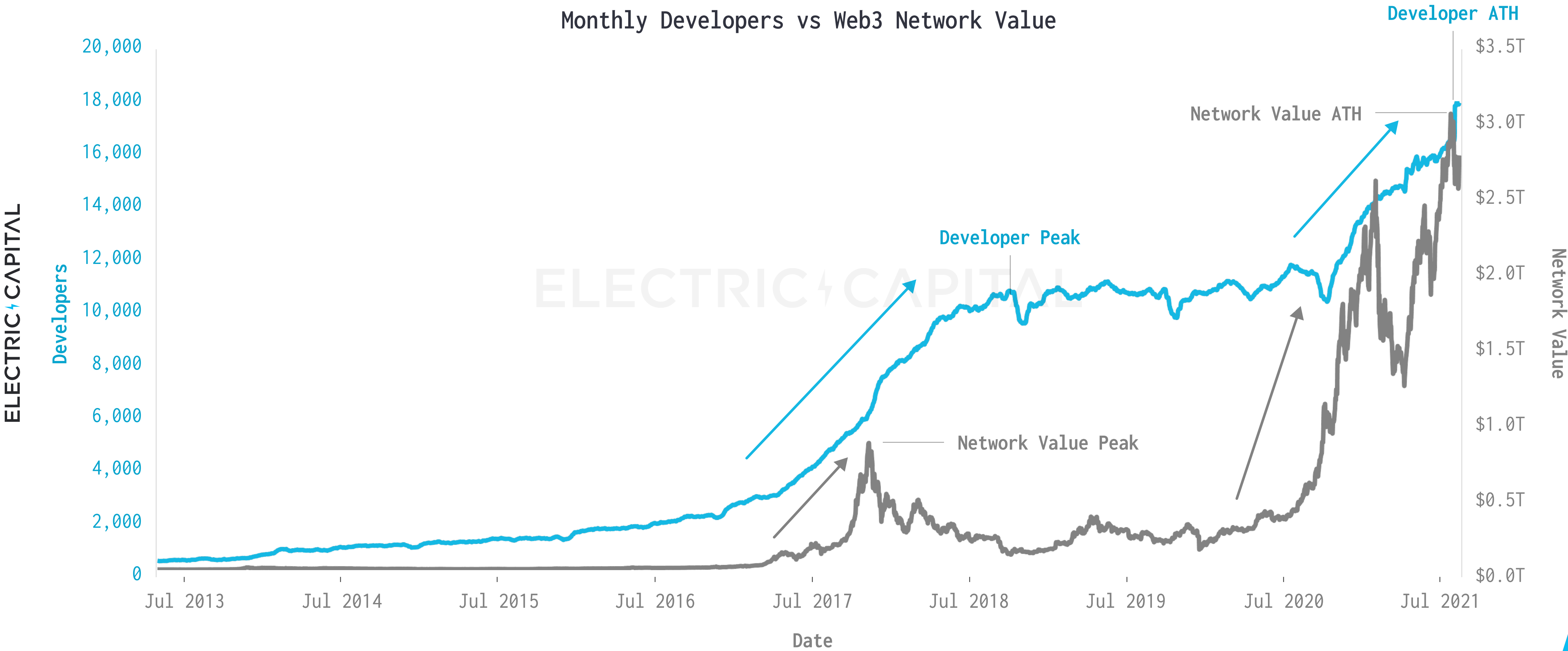
+7,895 NEW MONTHLY ACTIVE DEVELOPERS +75% SINCE JANUARY 2021

Web3 Monthly Active Developers Since 2009

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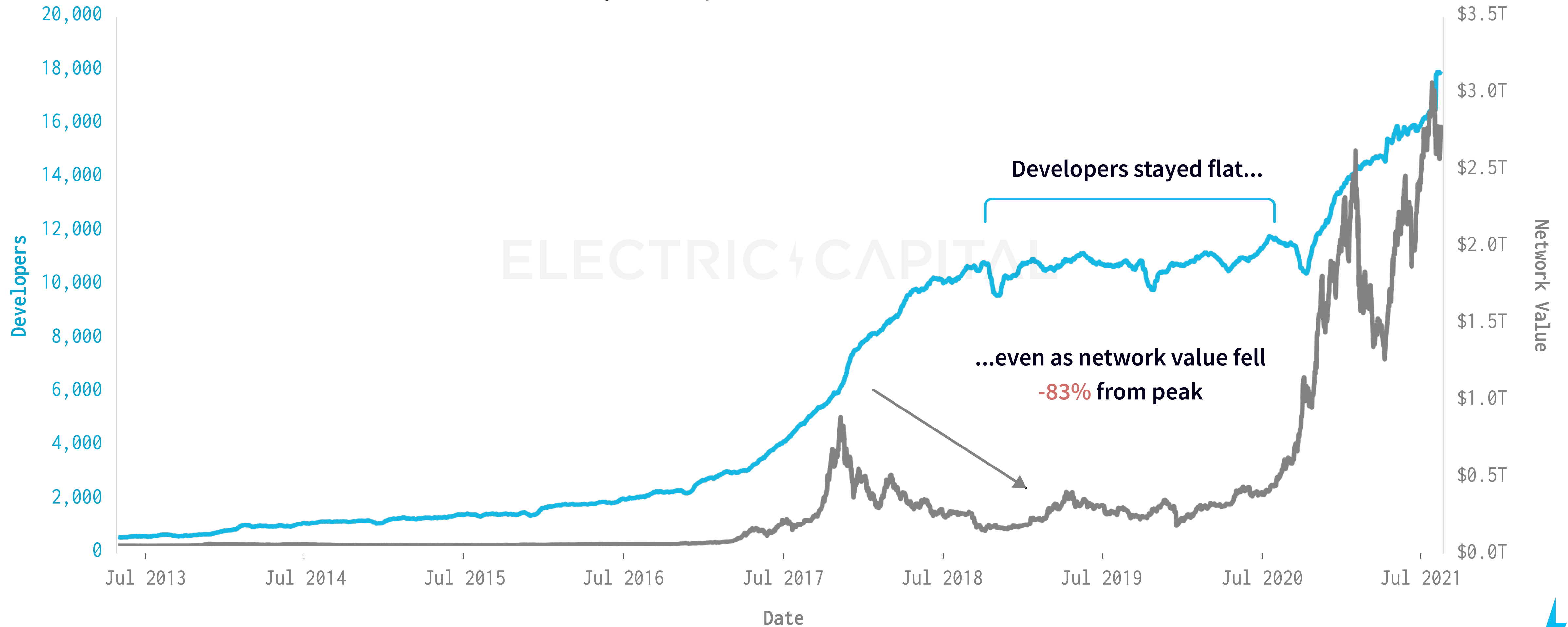


MONTHLY ACTIVE DEVELOPERS HAVE INCREASED WHEN PRICES INCREASE...

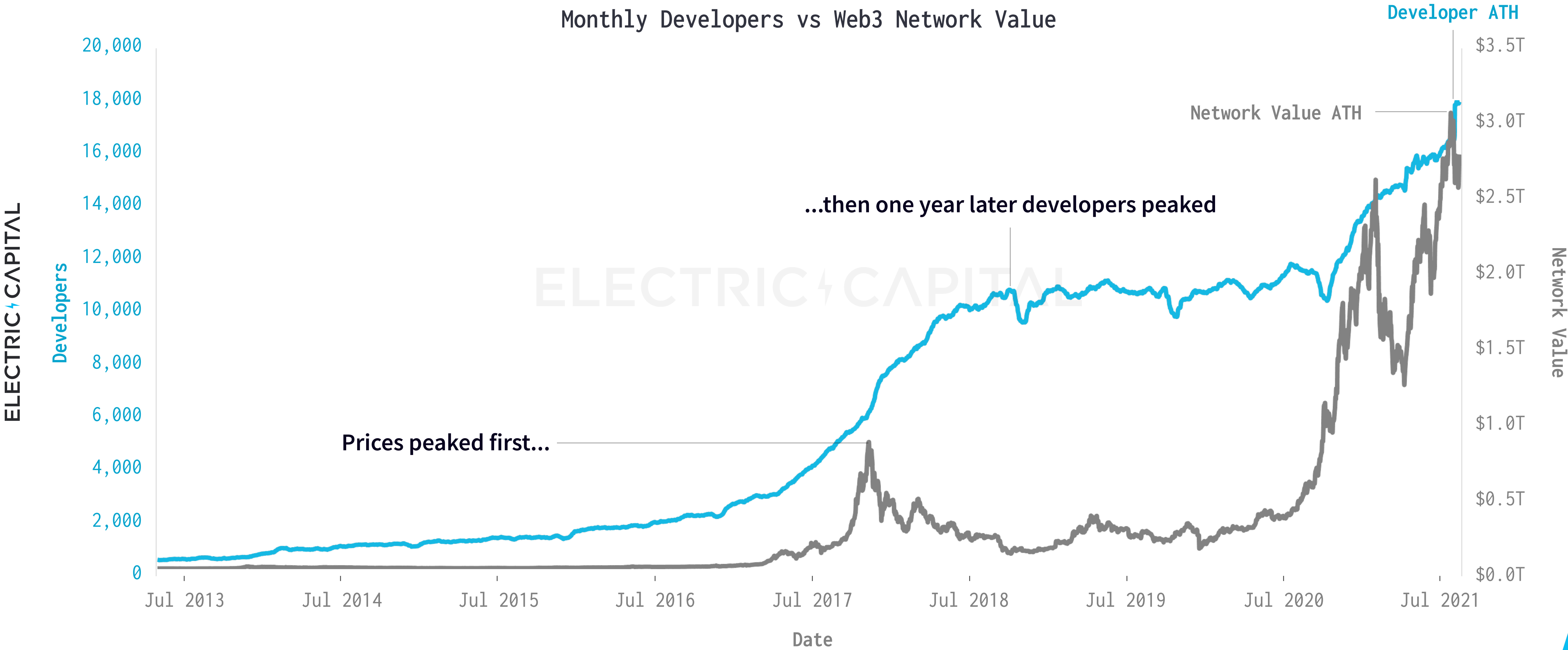


...AND OVERALL DEVELOPERS STAY FLAT EVEN AS PRICES FALL

Monthly Developers vs Web3 Network Value

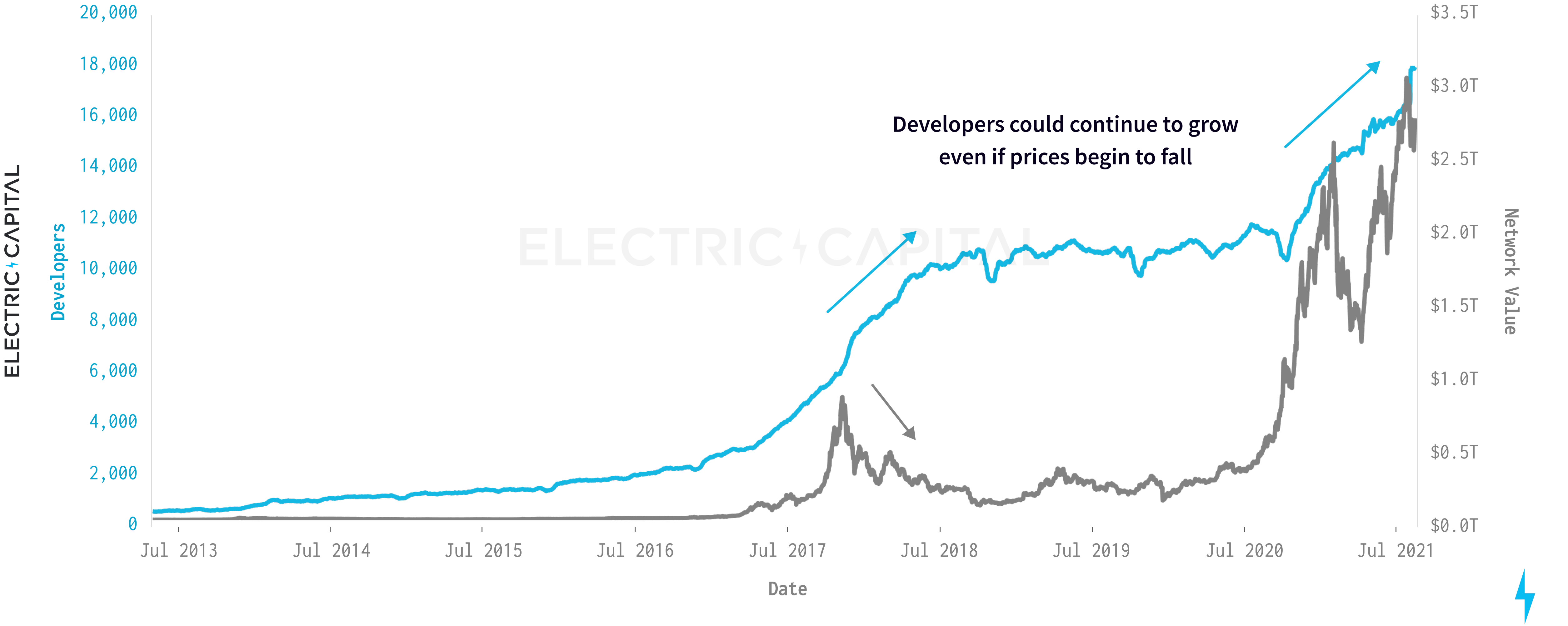


IN 2018, DEVELOPERS GREW FOR 1 YEAR AFTER NETWORK VALUE PEAKED



IF THIS CYCLE IS LIKE THE LAST, DEVELOPERS COULD CONTINUE TO GROW UNTIL 2023 EVEN IF PRICES PEAK TODAY

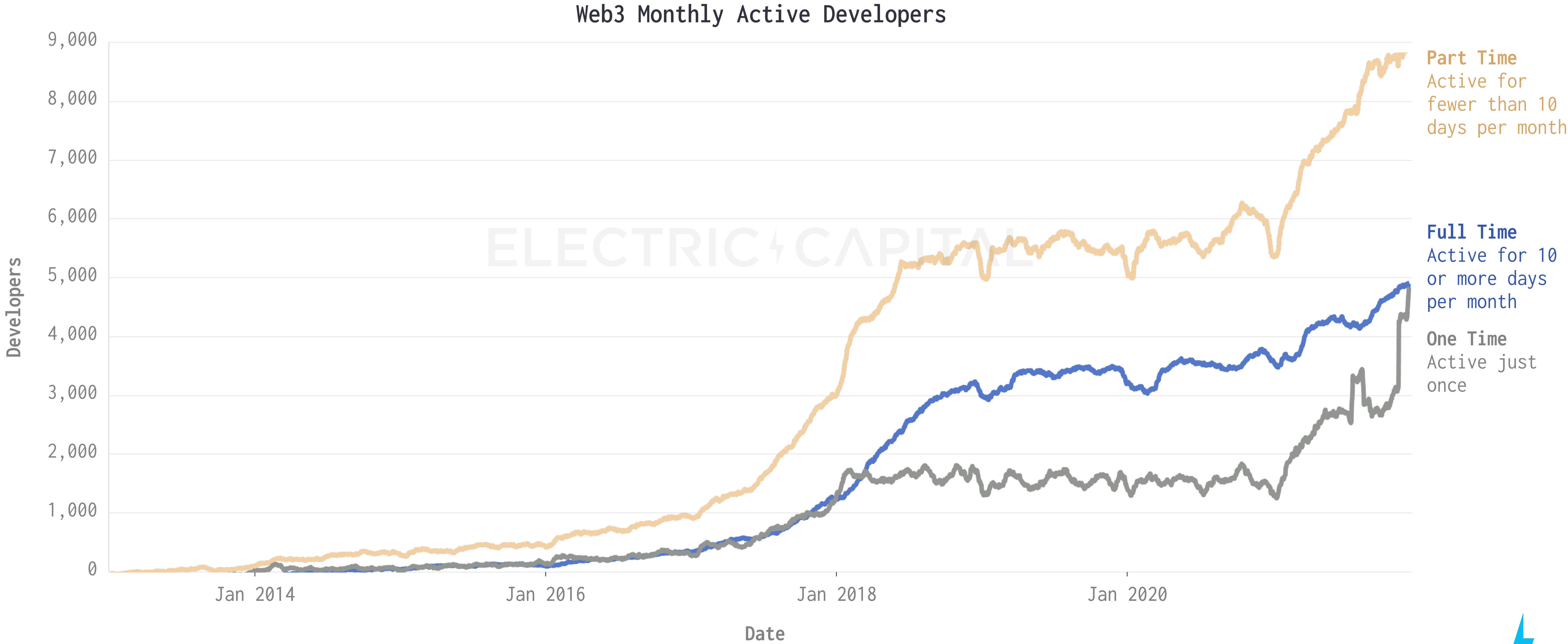
Monthly Developers vs Web3 Network Value



LET'S SEGMENT DEVELOPERS BY FREQUENCY OF CODE CONTRIBUTIONS...

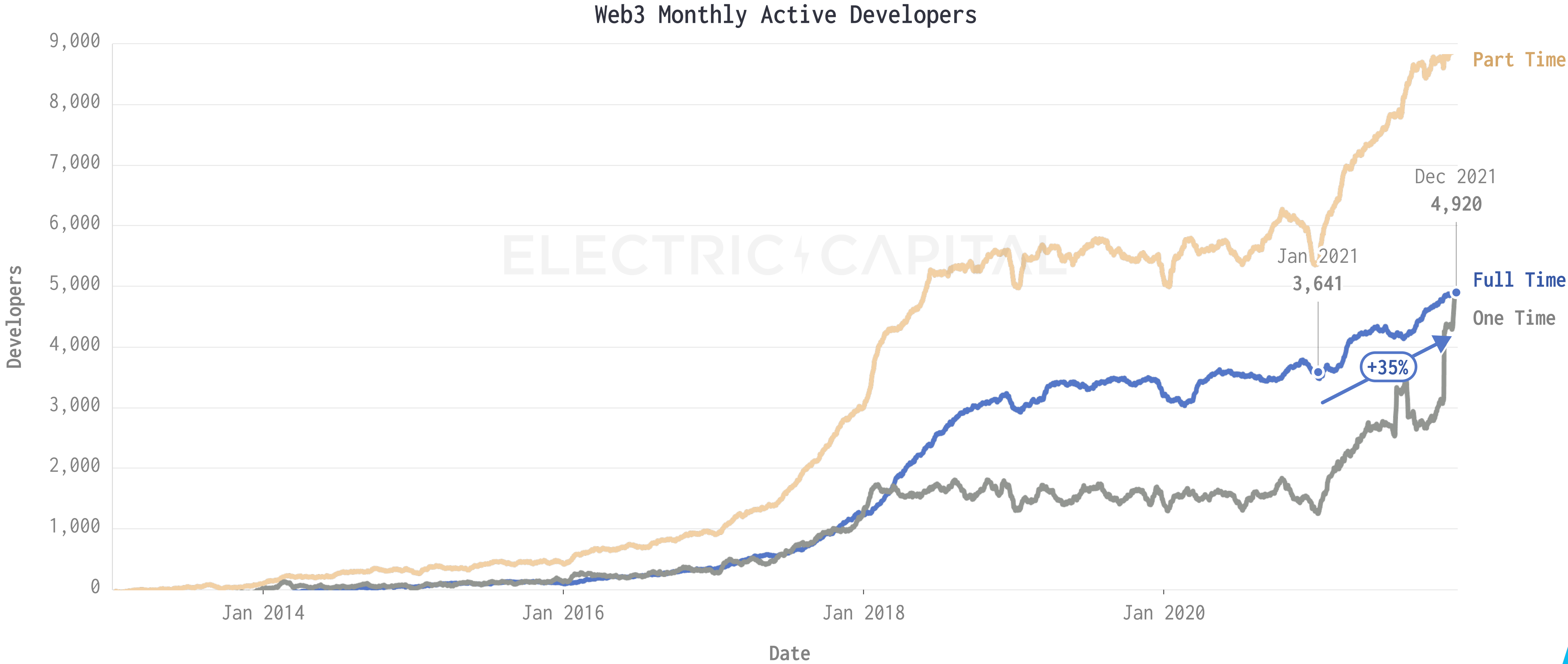
WE CAN SEGMENT DEVELOPERS BASED ON FREQUENCY OF CONTRIBUTION

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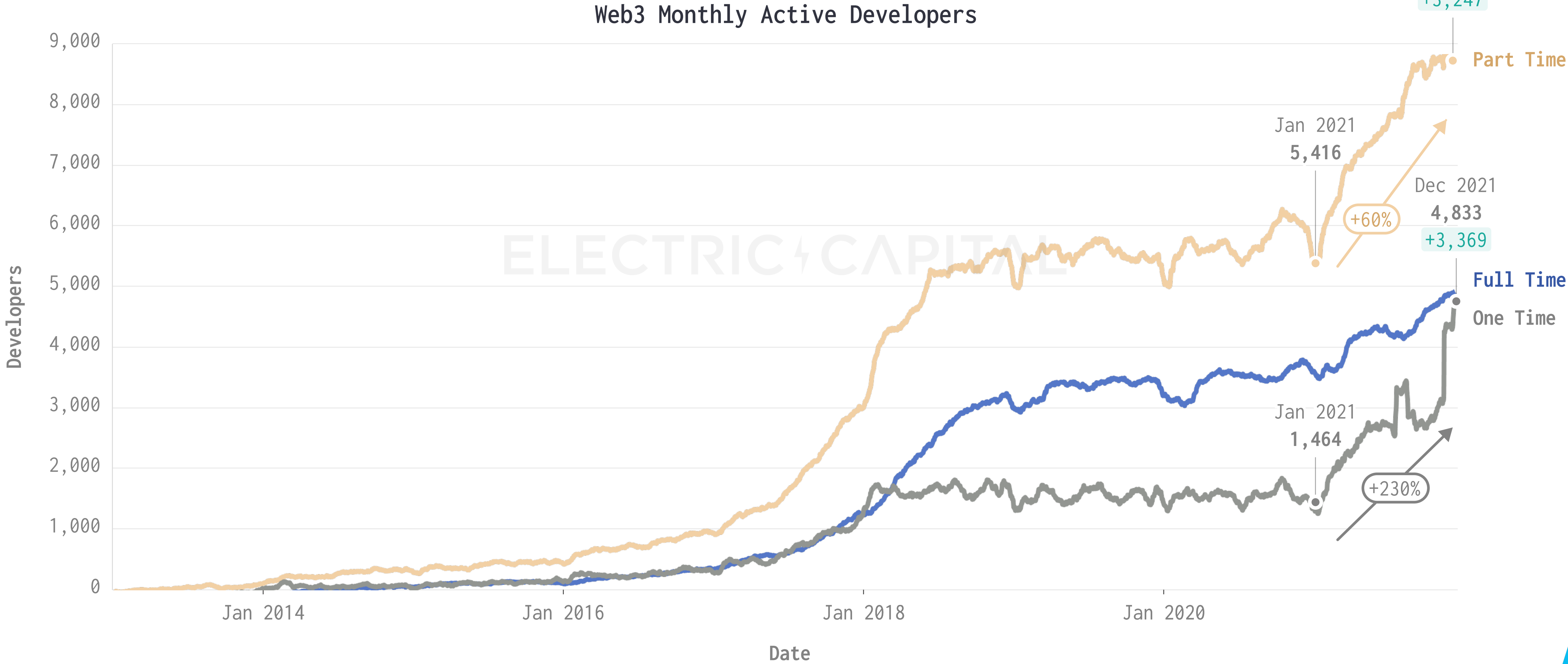
+1,279 FULL-TIME DEVELOPERS +35% SINCE JAN 2021

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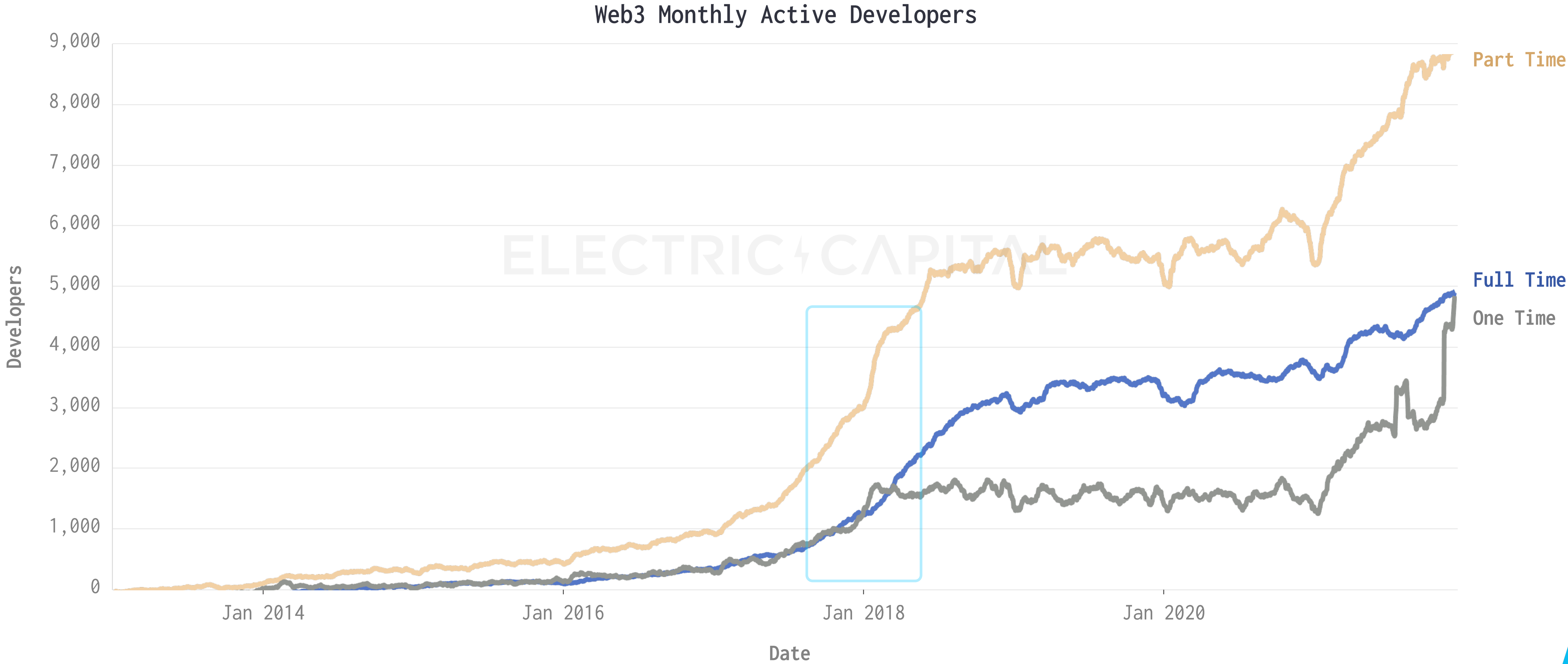
+3,247 MONTHLY ACTIVE PART-TIME DEVS; +3,369 ONE-TIME DEVS IN 2021

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ONE-TIME DEV ACTIVITY HAS PREVIOUSLY PEAKED FAR BEFORE FULL TIME & PART TIME.

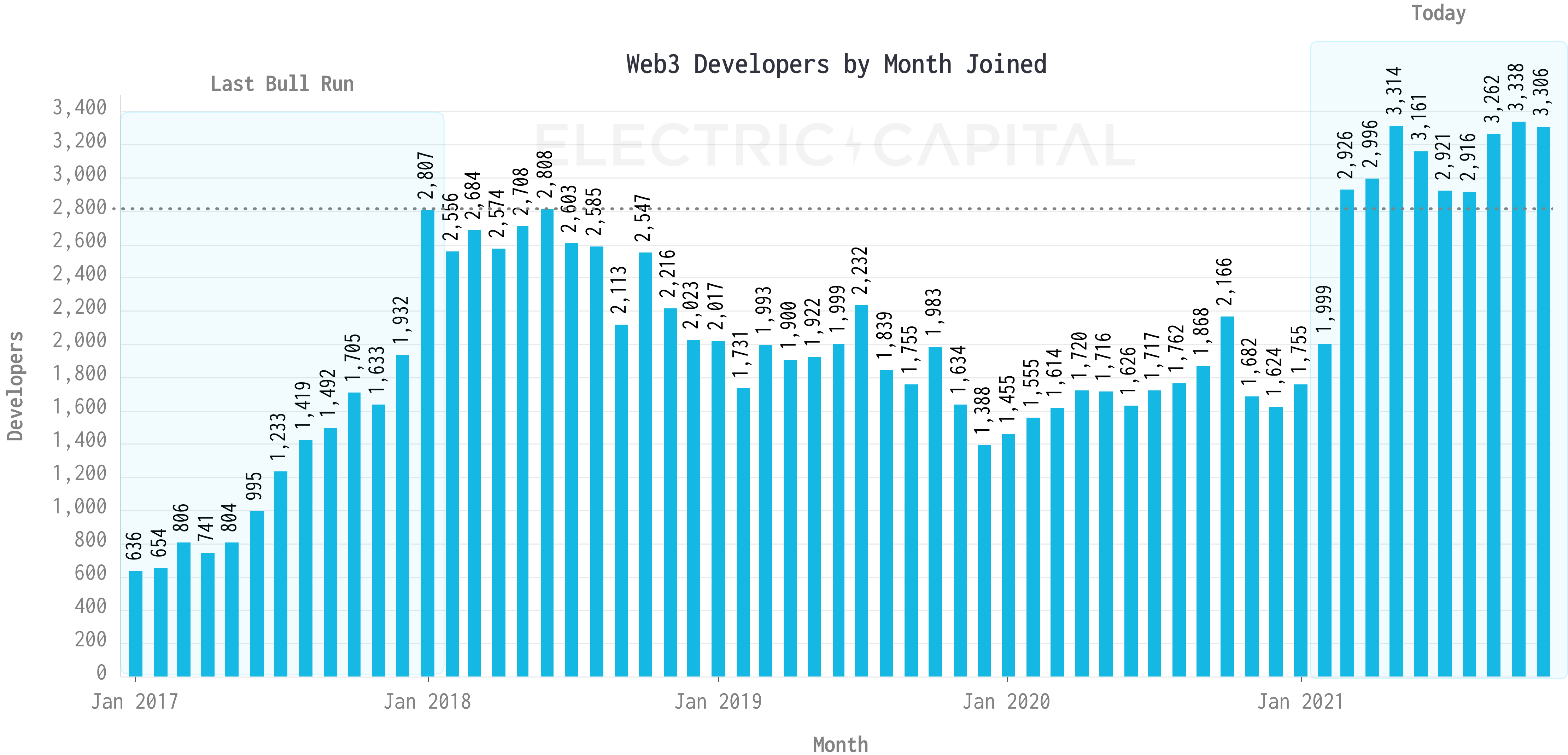
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LET'S LOOK AT NEW DEVELOPERS ENTERING WEB3...

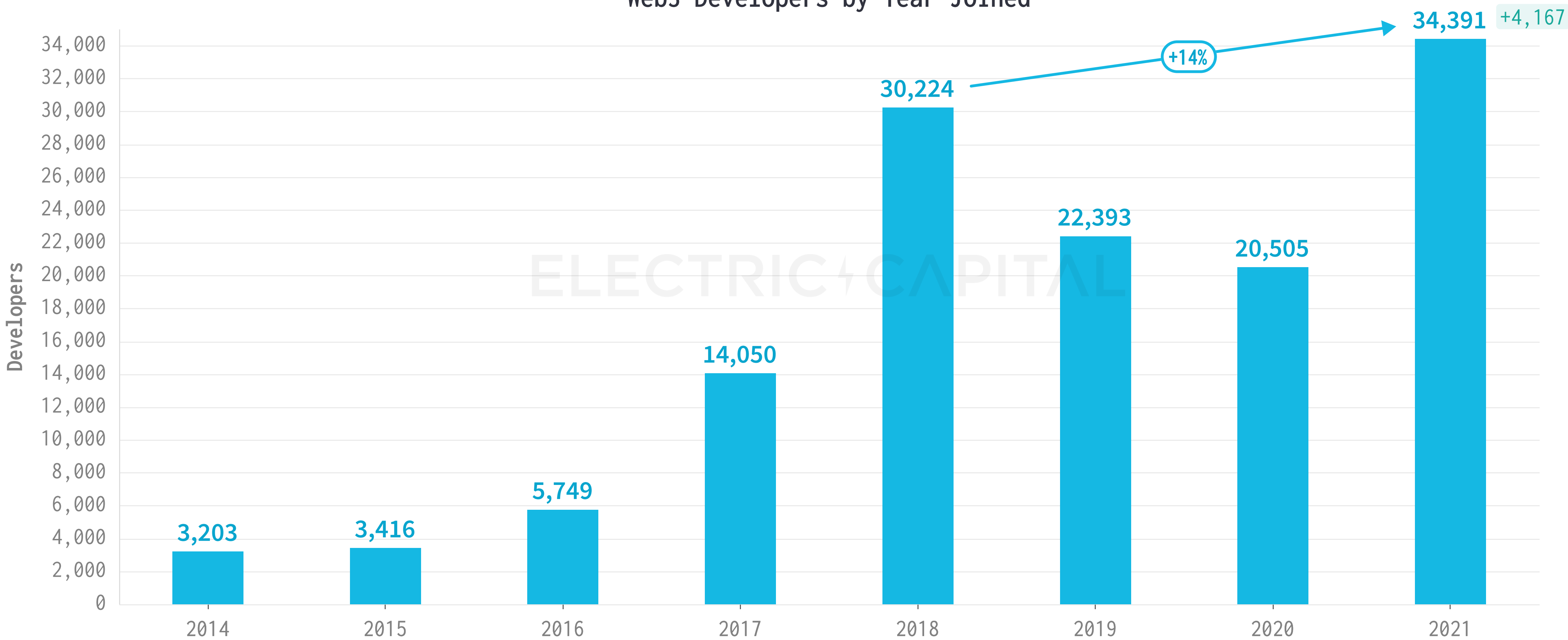
TODAY, MORE DEVELOPERS HAVE JOINED PER MONTH THAN DURING THE LAST BULL RUN

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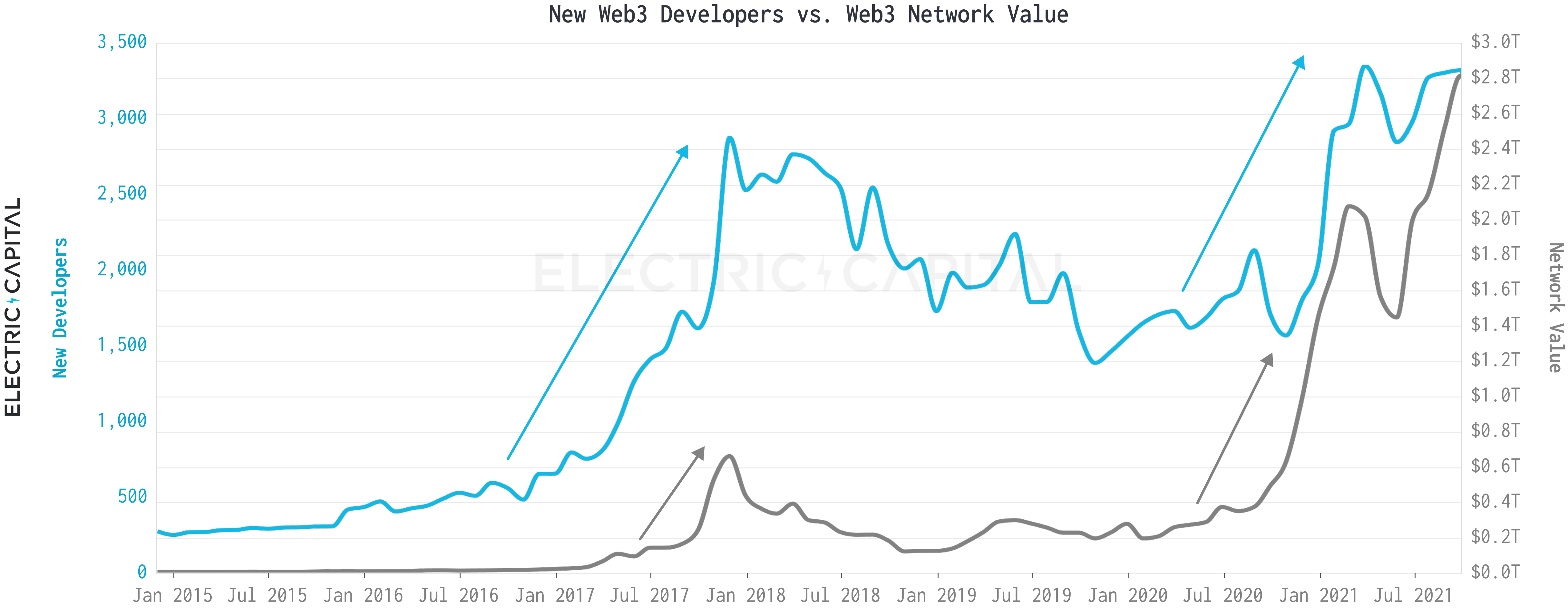


MORE DEVELOPERS JOINED WEB3 IN 2021 THAN ANY YEAR IN HISTORY

Web3 Developers by Year Joined

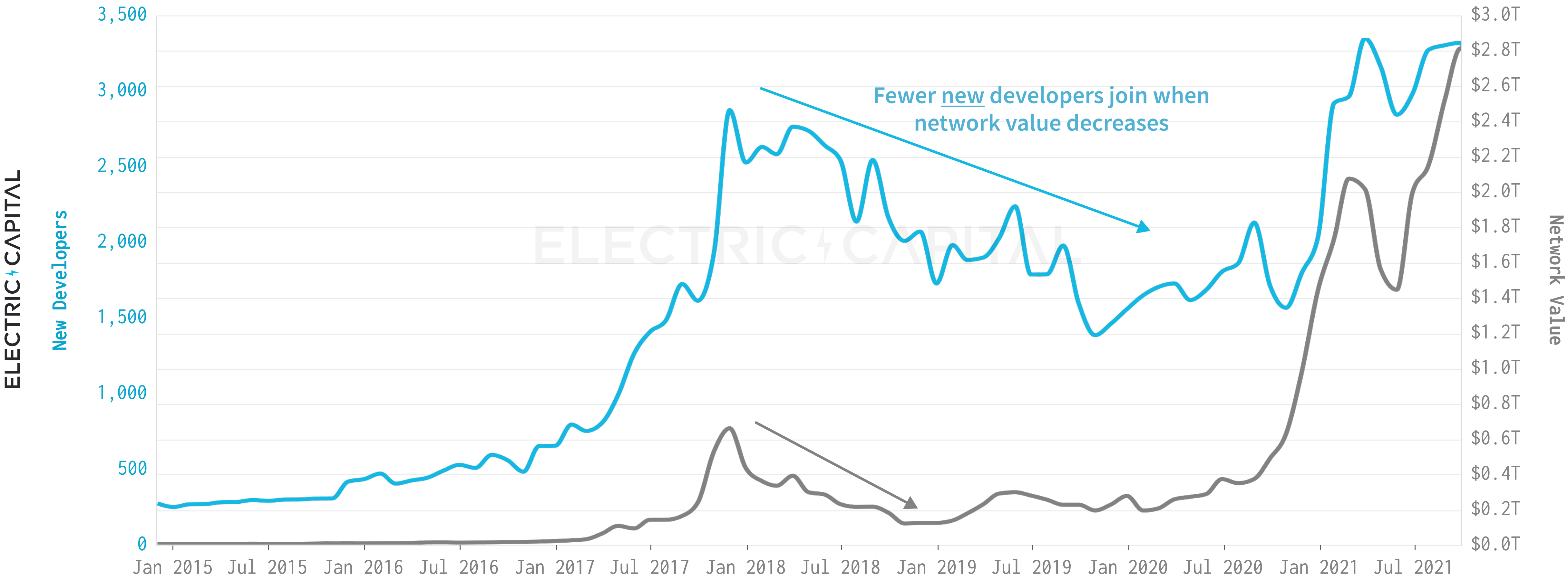


MORE NEW DEVELOPERS JOINED WHEN WEB3 MARKET VALUE INCREASED



FEWER NEW DEVELOPERS (BUT MORE THAN 0) HAVE JOINED WHEN PRICES DECREASE...THIS OFFSETS DEVELOPERS LEAVING THE ECOSYSTEM

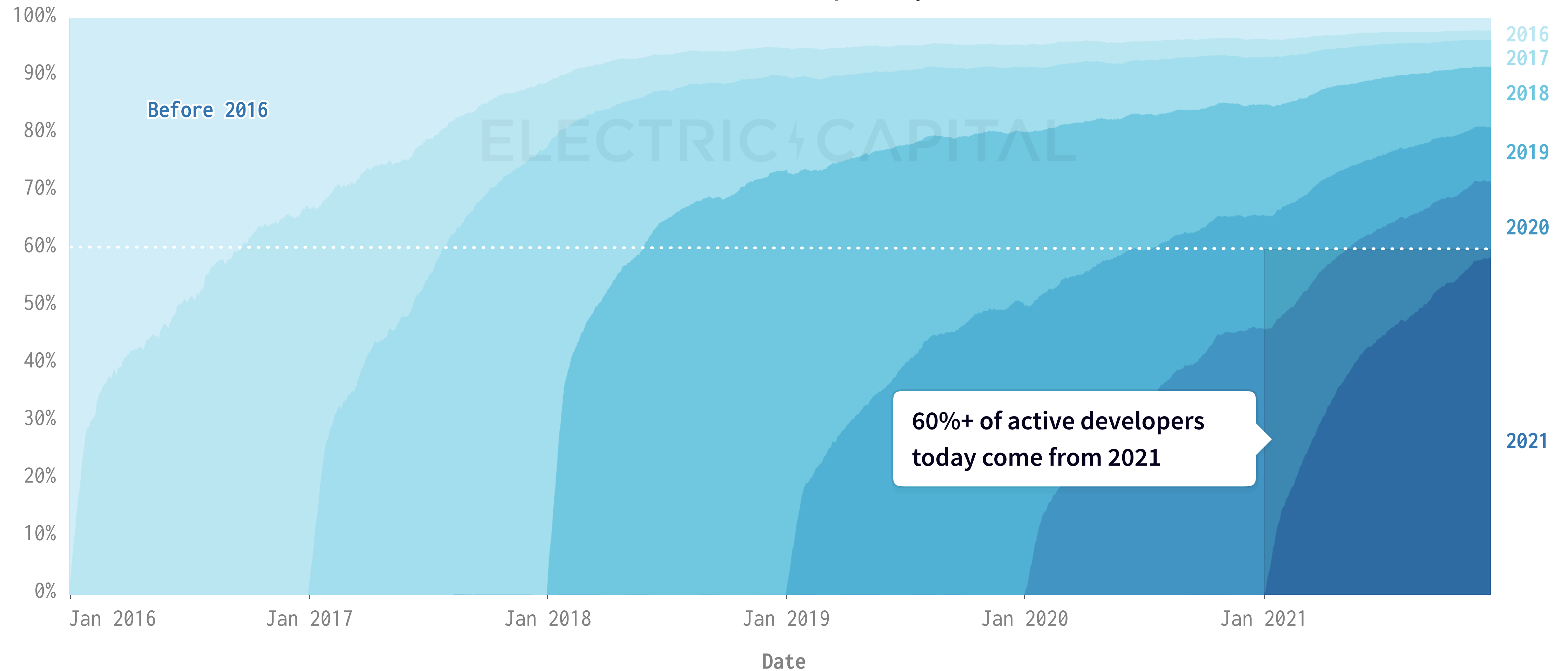
New Web3 Developers vs. Web3 Network Value



HOW IMPORTANT ARE THESE NEW DEVELOPERS...

~60%+ OF ALL MONTHLY ACTIVE DEVELOPERS ARE NEW IN 2021

Normalized Web3 All Developers by Start Date

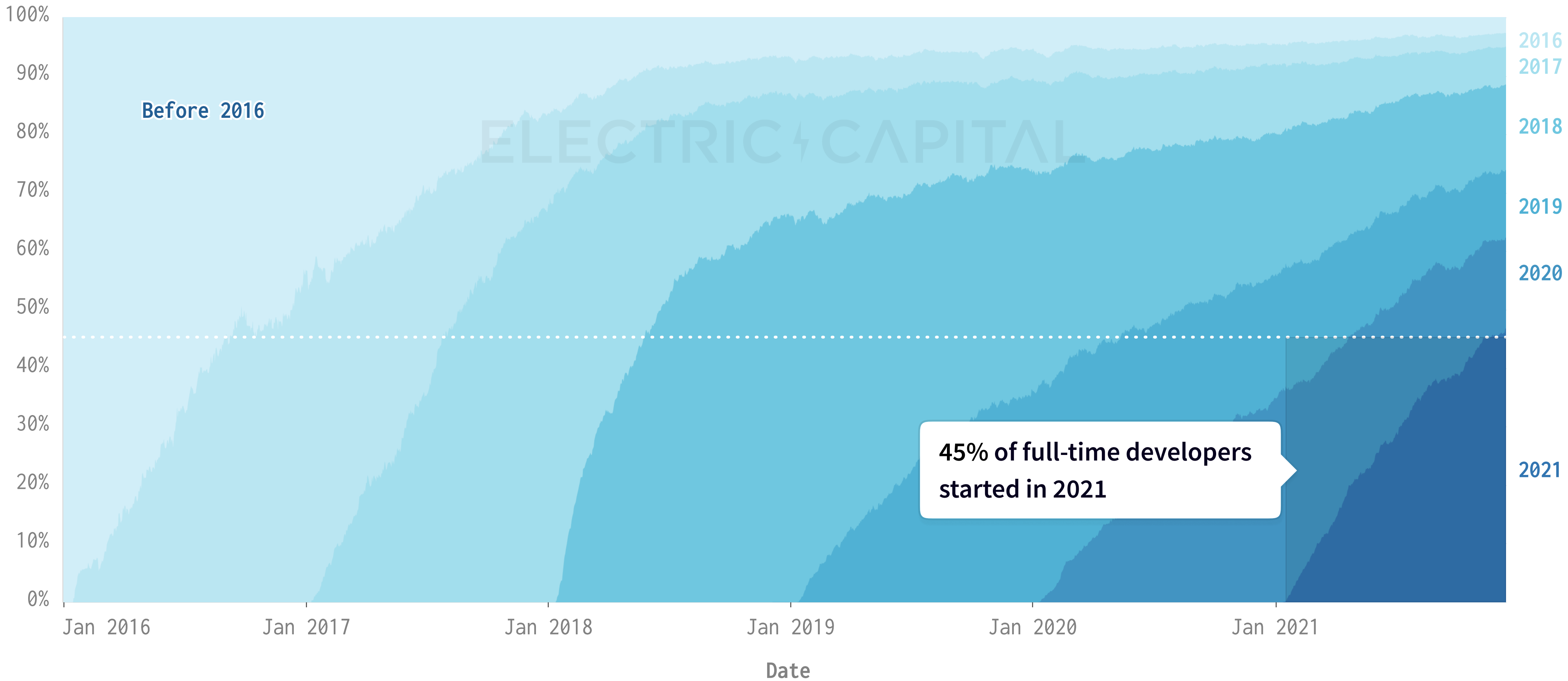


~45% OF FULL-TIME DEVELOPERS ARE NEW IN 2021

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Normalized Web3 Full-Time Developers by Start Date

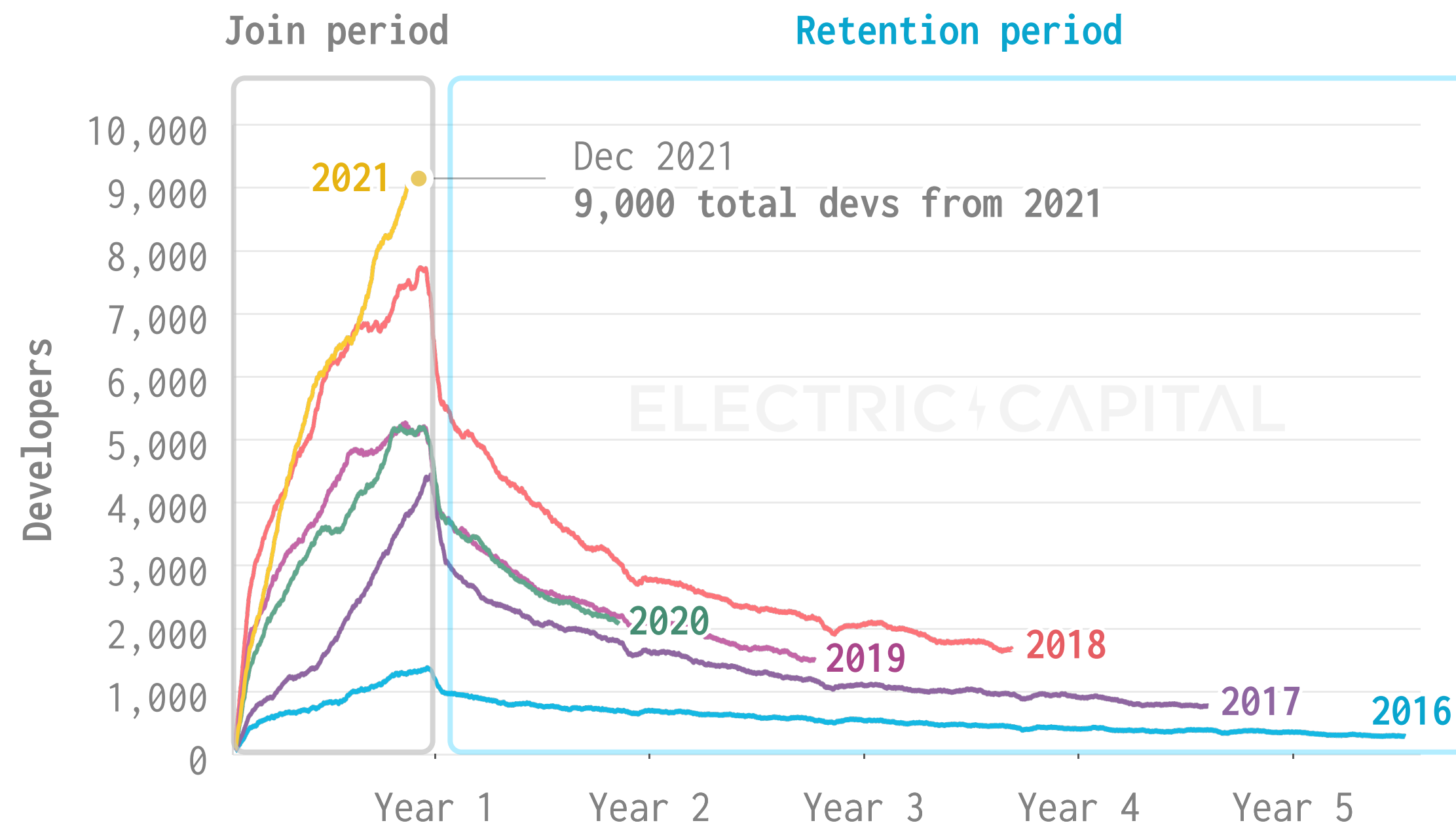
Percent of Developers



**LET'S SEGMENT BY YEARLY COHORT & TRACE ACTIVITY TO UNDERSTAND
RETENTION...**

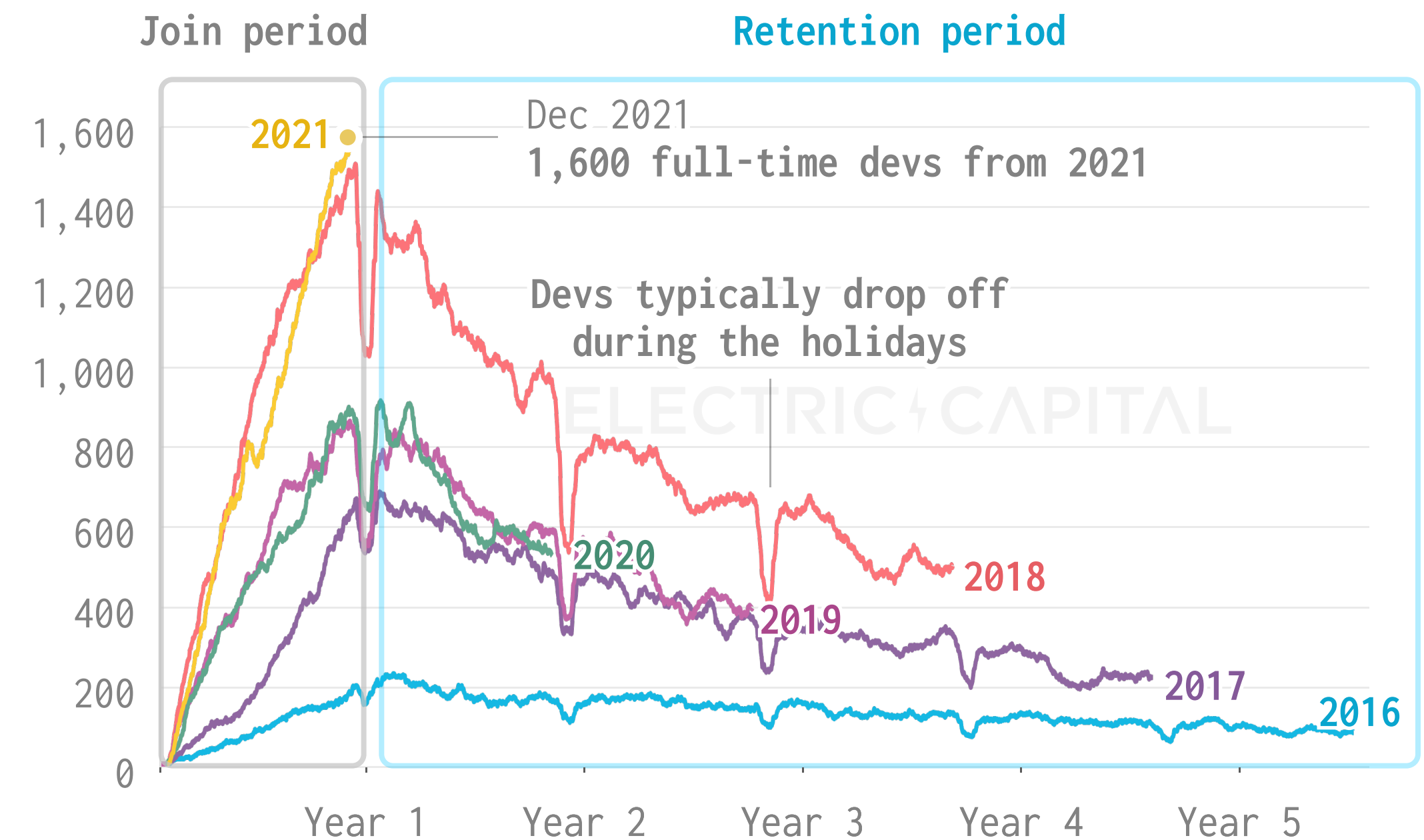
WE CAN LOOK AT DEVELOPERS BY ANNUAL COHORT TO SEE HOW LONG THEY STAY AFTER JOINING WEB3

Web3 · Total Developers Active



Developer join dynamics differ, but retention dynamics are similar across years.

Web3 · Full-Time Developers Active



The drop-off is less pronounced in full-time developers

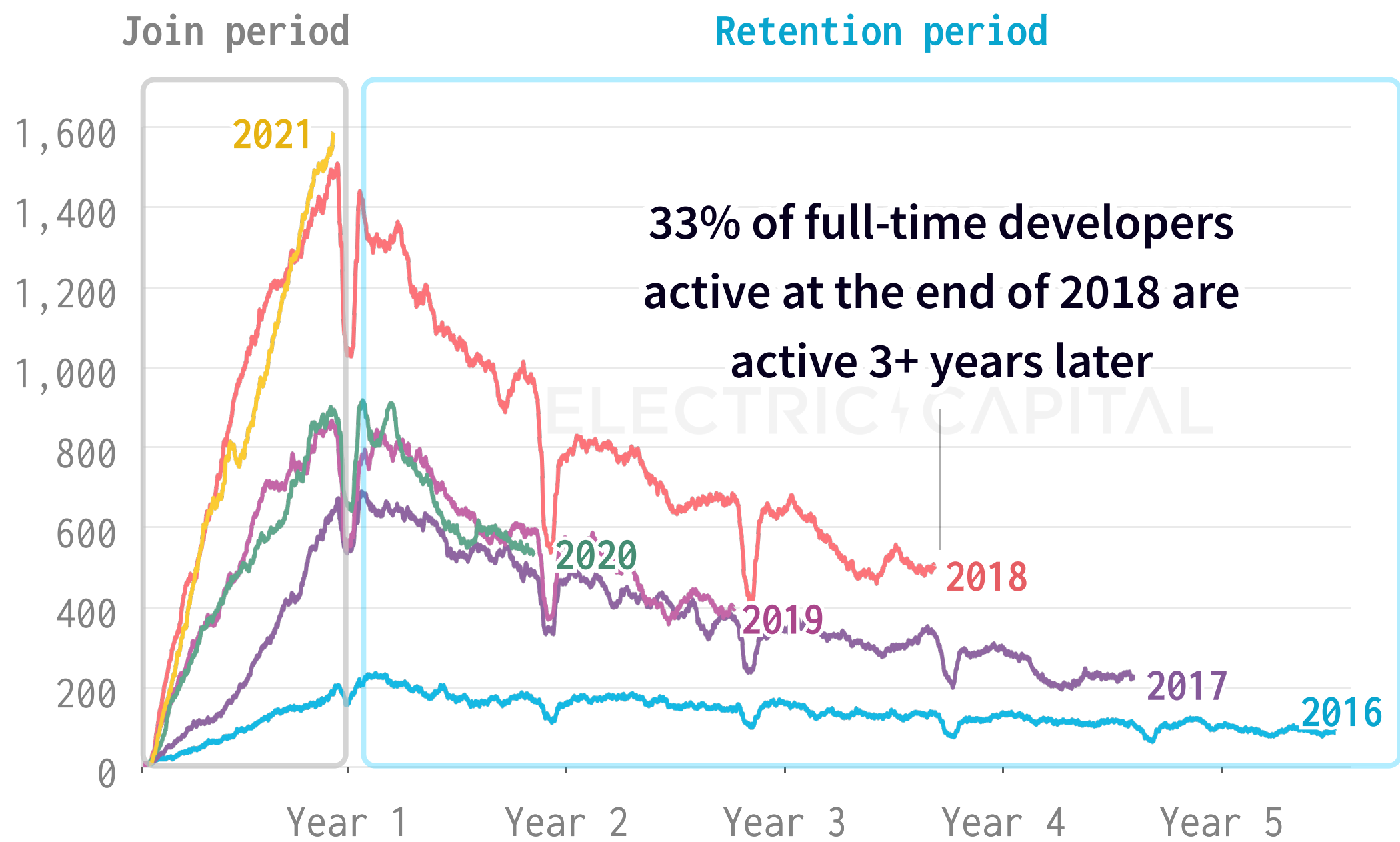
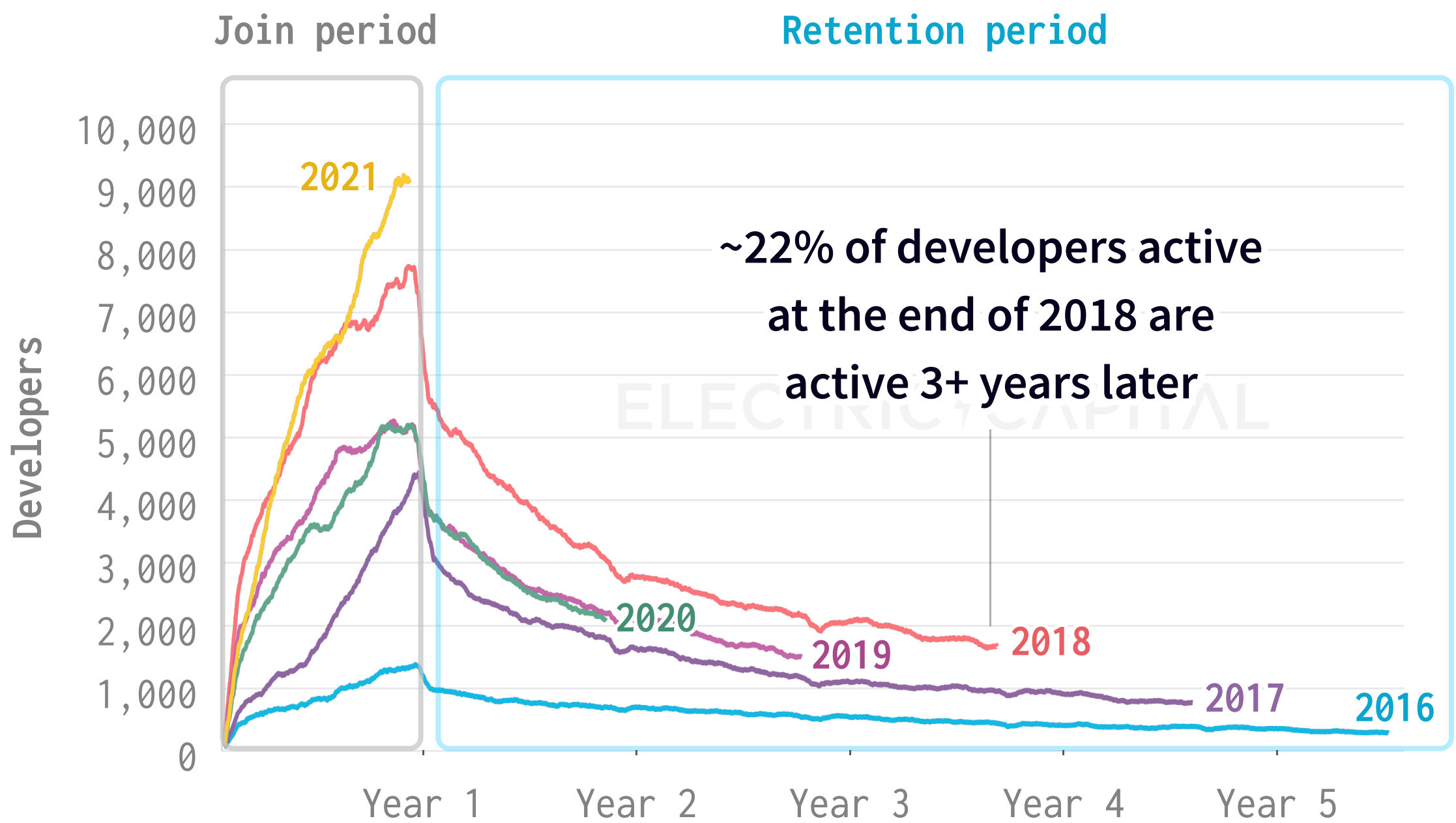


FULL-TIME DEVELOPERS ARE STICKIER: 33% OF FULL-TIME DEVELOPERS FROM 2018 ARE STILL ACTIVE TODAY VS 22% OF ALL DEVELOPERS FROM 2018

Web3 · Total Developers Active

Web3 · Full-Time Developers Active

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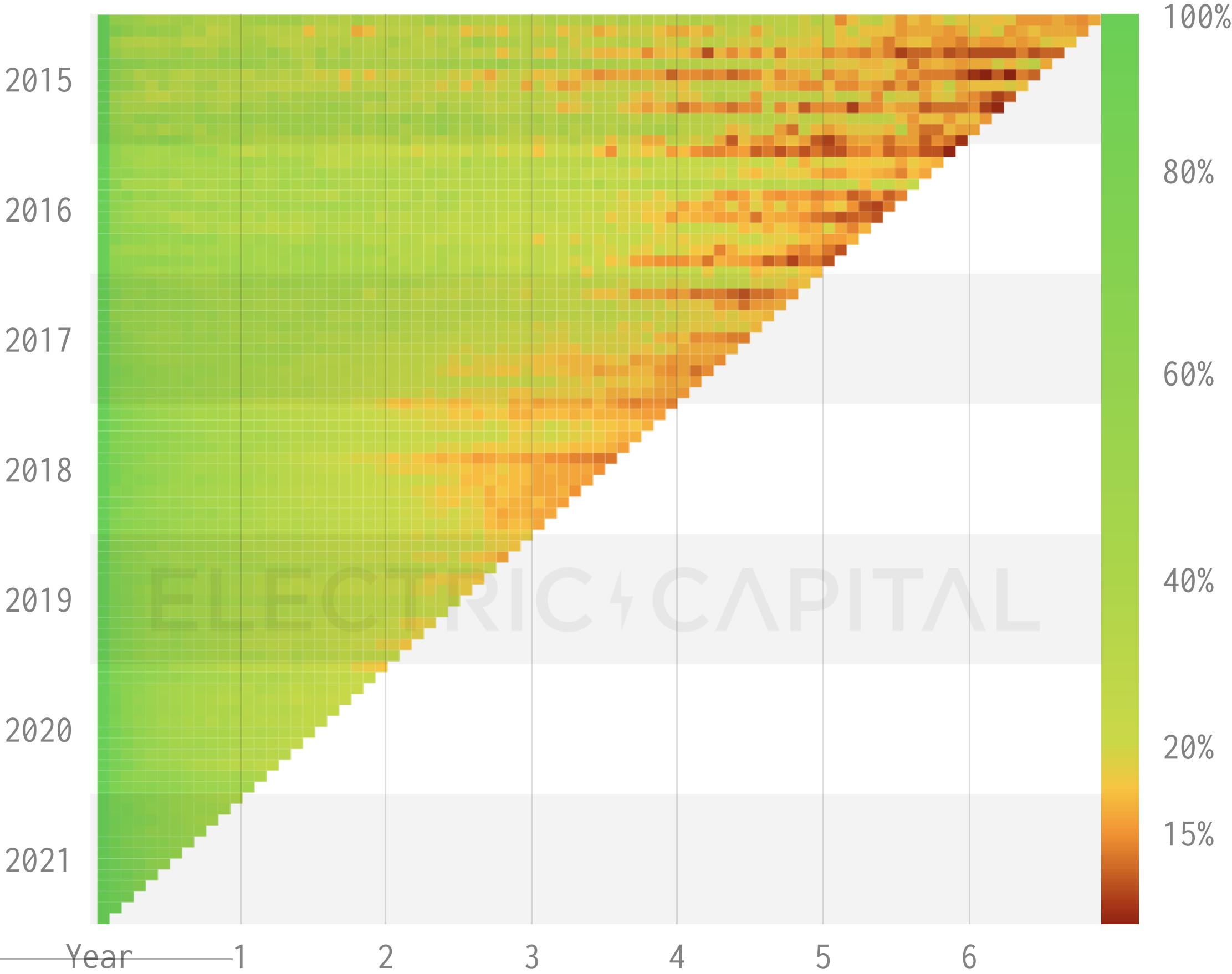
* The drop in number of developers at year change is due to seasonal effect of holidays



WE CAN LOOK MORE GRANULARLY AT RETENTION BY MONTHLY COHORTS

Each row represents the developers that joined each month

Web3 · Full-Time Developer Retention

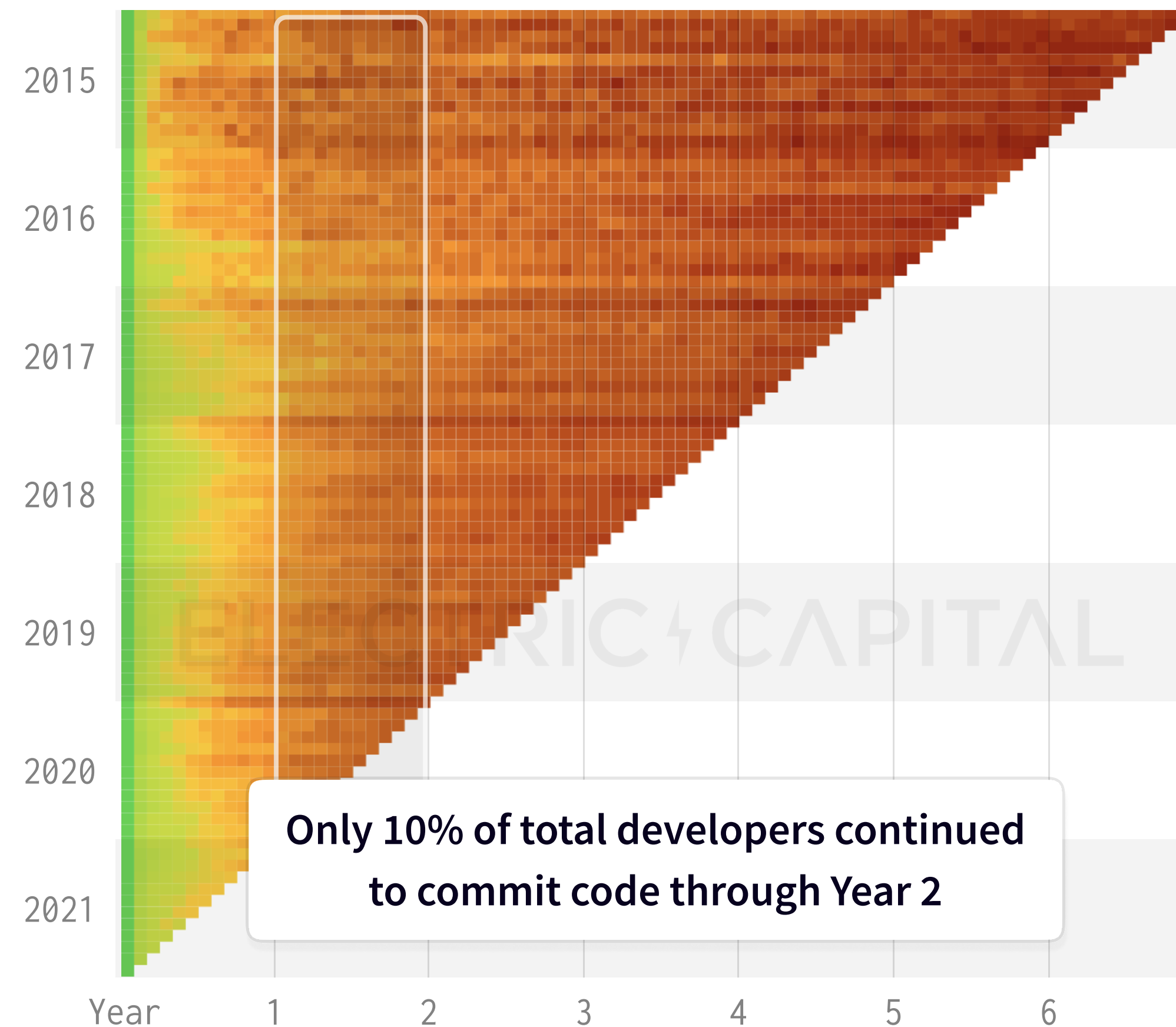


Each column represents the percent of developers from that month that committed code the next month

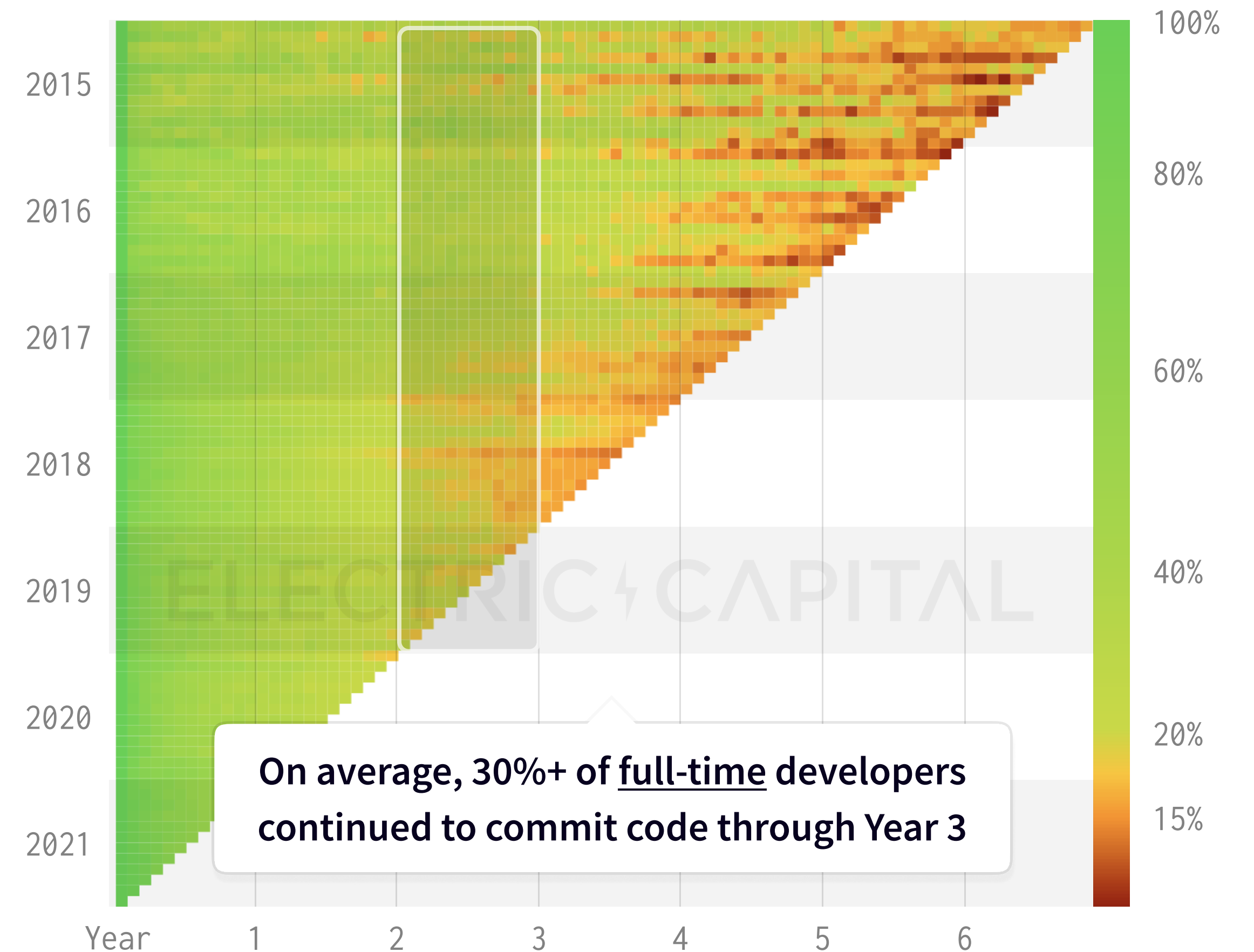


FULL-TIME DEVELOPERS HAVE SIGNIFICANTLY BETTER RETENTION OVER TIME: 30% OF FULL-TIME DEVS CONTINUED TO CONTRIBUTE THROUGH YEAR 3

Web3 · All Developer Retention

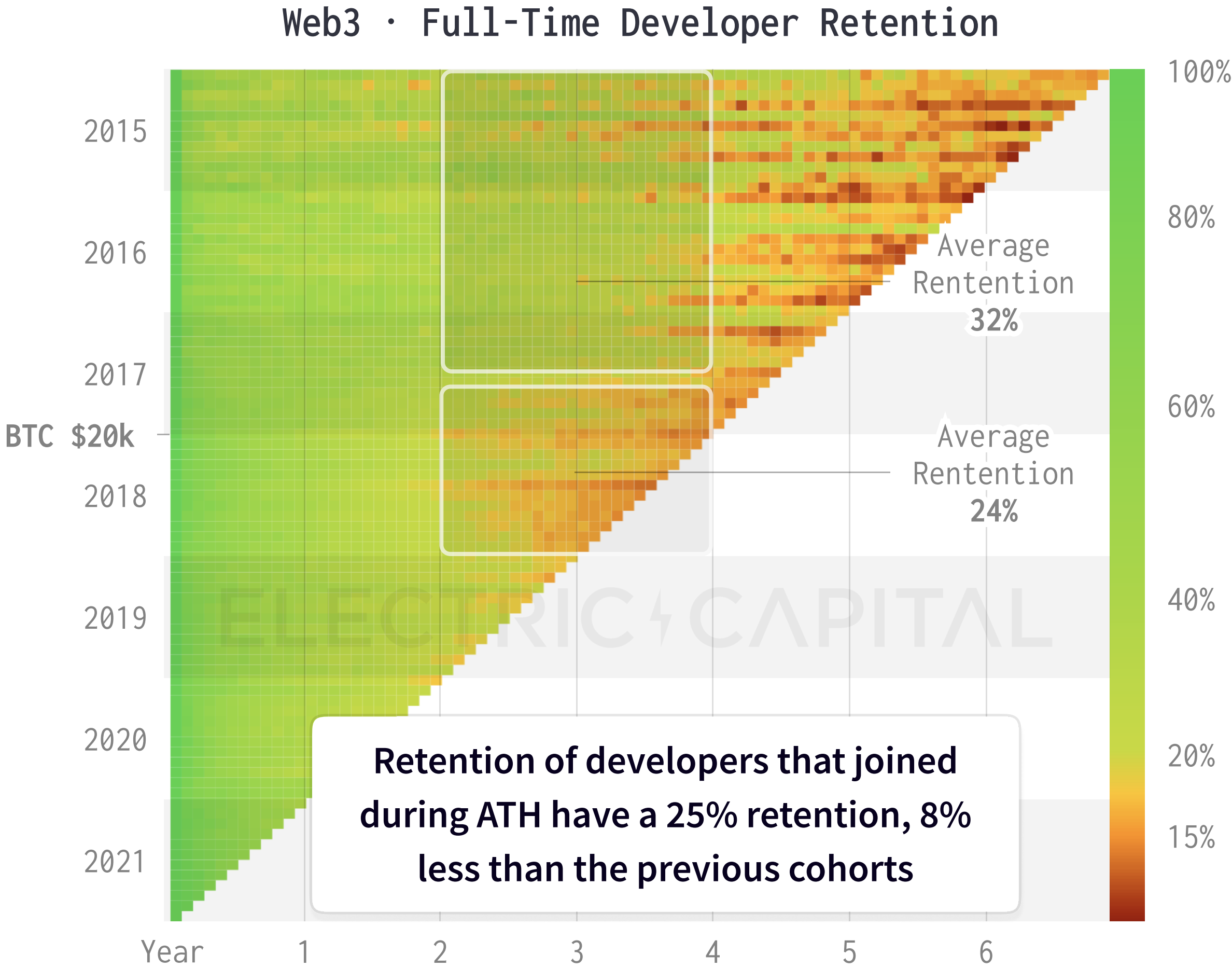
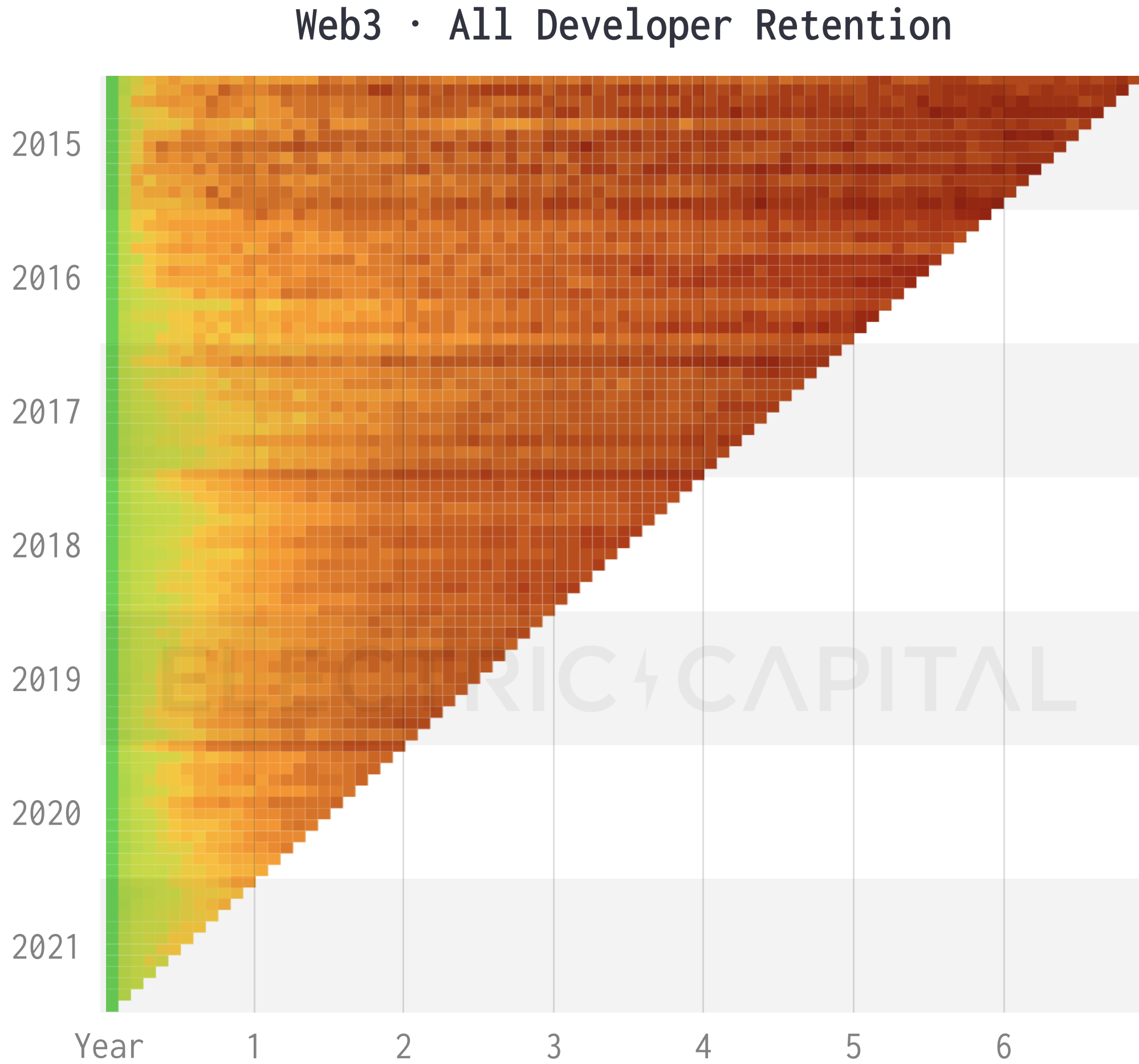


Web3 · Full-Time Developer Retention



DEVS WHO JOINED NEAR A MARKET PEAK WERE THE LEAST STICKY: FULL-TIME DEVS WHO JOINED LATE 2017 & EARLY 2018 DID NOT MAKE IT TO YEAR 3

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WHAT ARE DEVELOPERS WORKING ON? LET'S SEGMENT BY ECOSYSTEMS

02

ECOSYSTEM DEEP DIVE

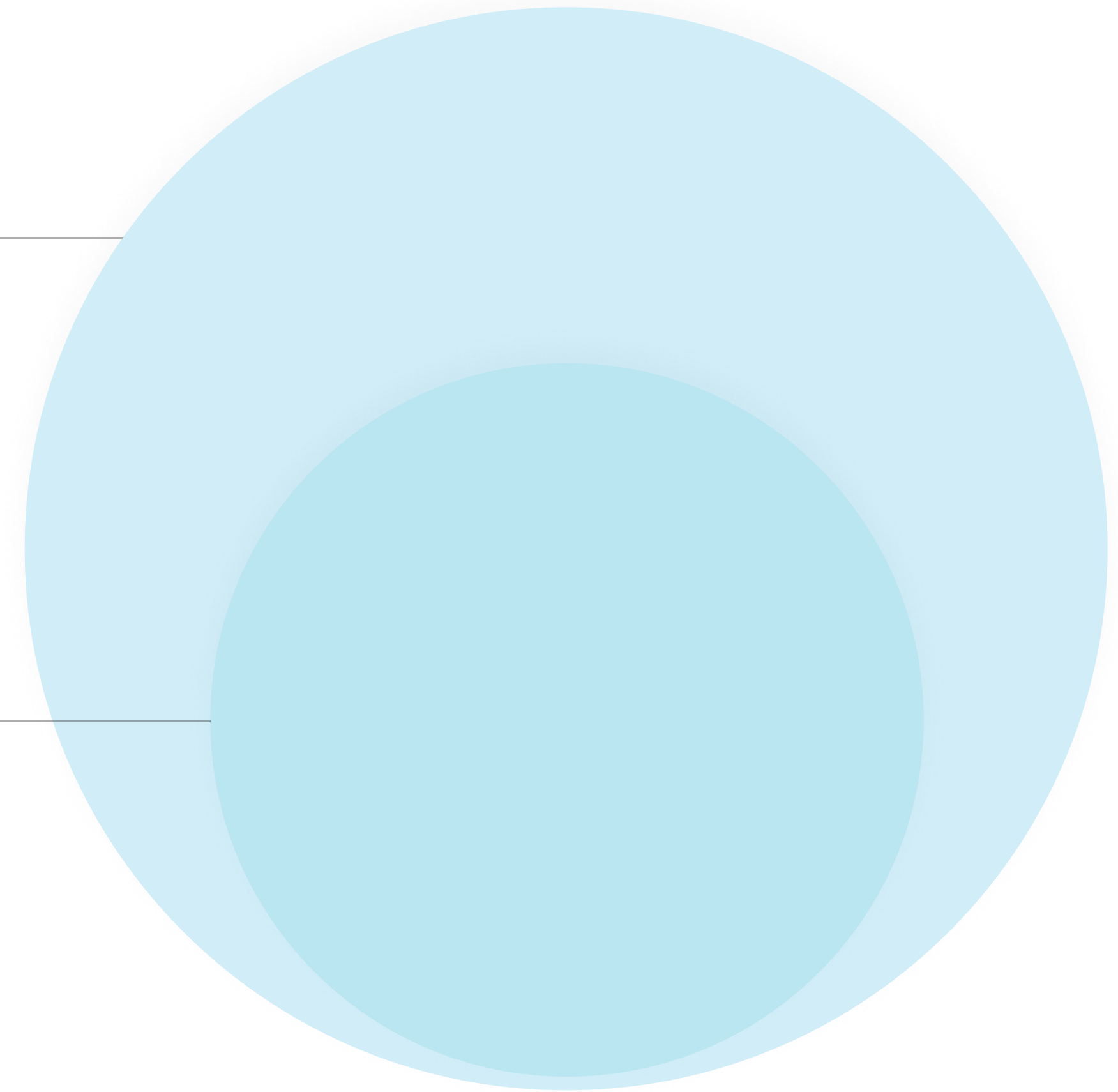
ECOSYSTEMS ARE COMPRISED OF COMMUNITY AND PROTOCOL LEVEL DEVELOPERS

Community Developers

Working on decentralized applications, documentation, tooling, wallets, and anything else furthering the project.

Protocol Developers

Working on the core protocol only



ECOSYSTEM EXAMPLE: TERRA

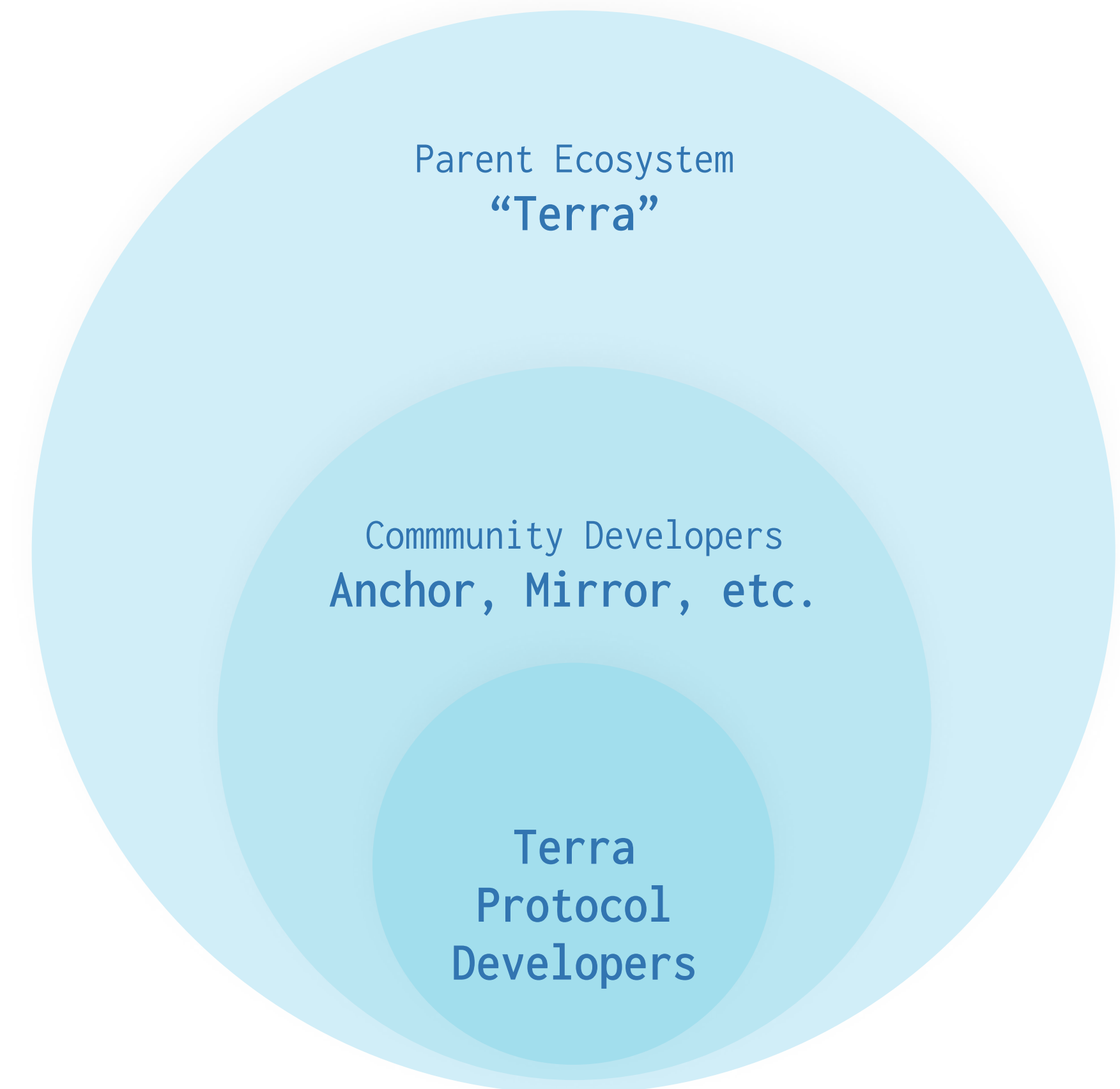
Ecosystems can live in other ecosystems; the Terra ecosystem lives inside the Cosmos ecosystem.

Terra Community

- Anchor
- Mirror
- Astroport
- Terraswap
- Pylon
- Loop Finance
- ...

Terra Protocol

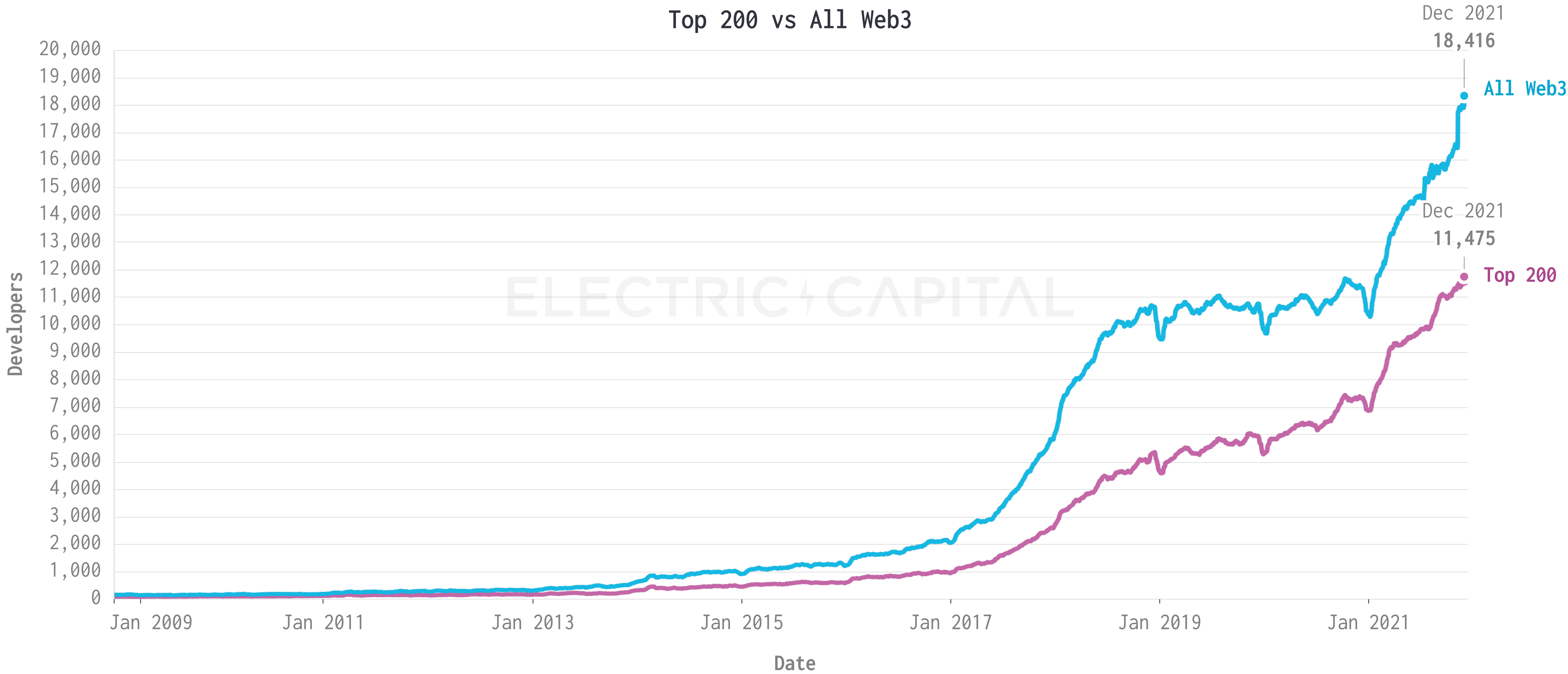
- core (Go implementation of the protocol)
- terra.js (JavaScript SDK)
- terra.py (Python SDK), LocalTerra (local testnet), wallet-provider



LET'S START WITH THE TOP 200 ECOSYSTEMS BY NETWORK VALUE...

TOP 200: 11,475 MONTHLY ACTIVE DEVELOPERS BY DECEMBER 2021

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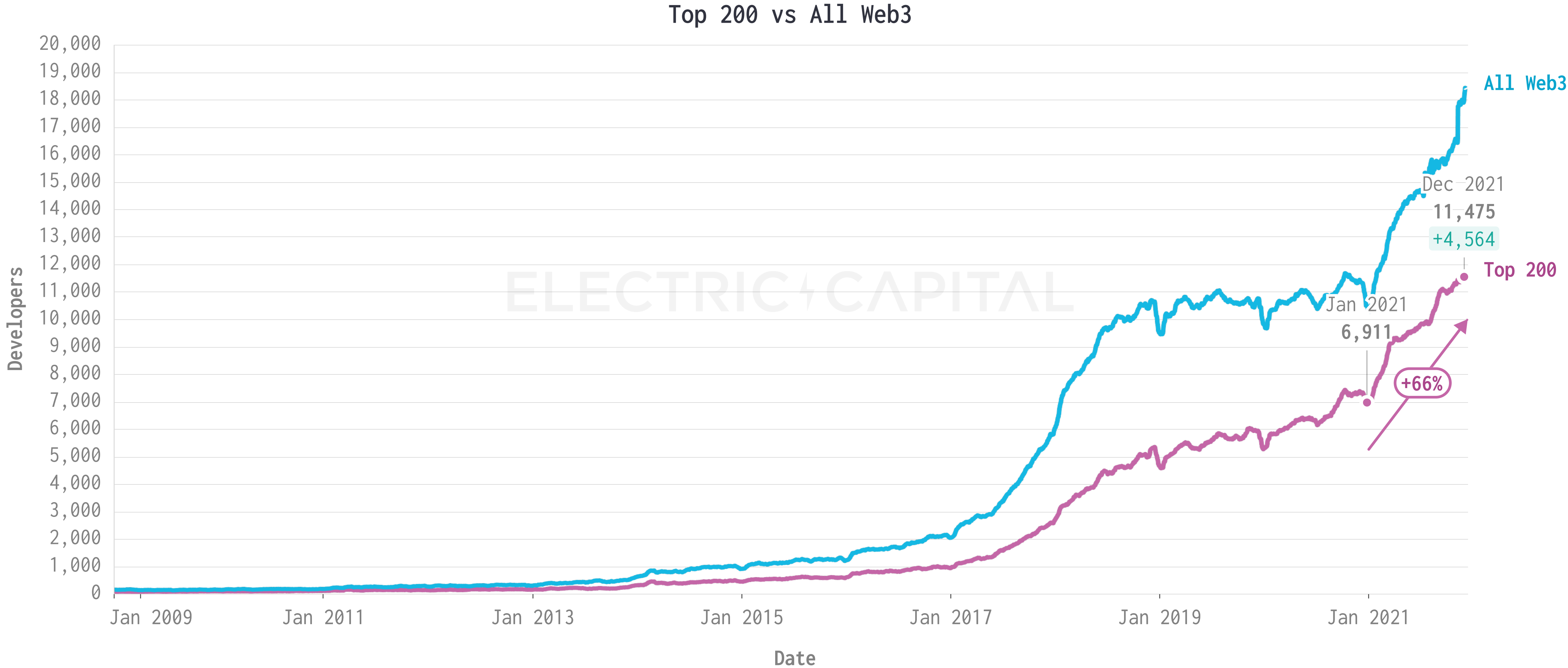


Top 200 determined based on “Market Value” measure as of 12/15/21 on CoinMarketCap



TOP 200: +4,564 MONTHLY ACTIVE DEVELOPERS +66% SINCE JAN 2021

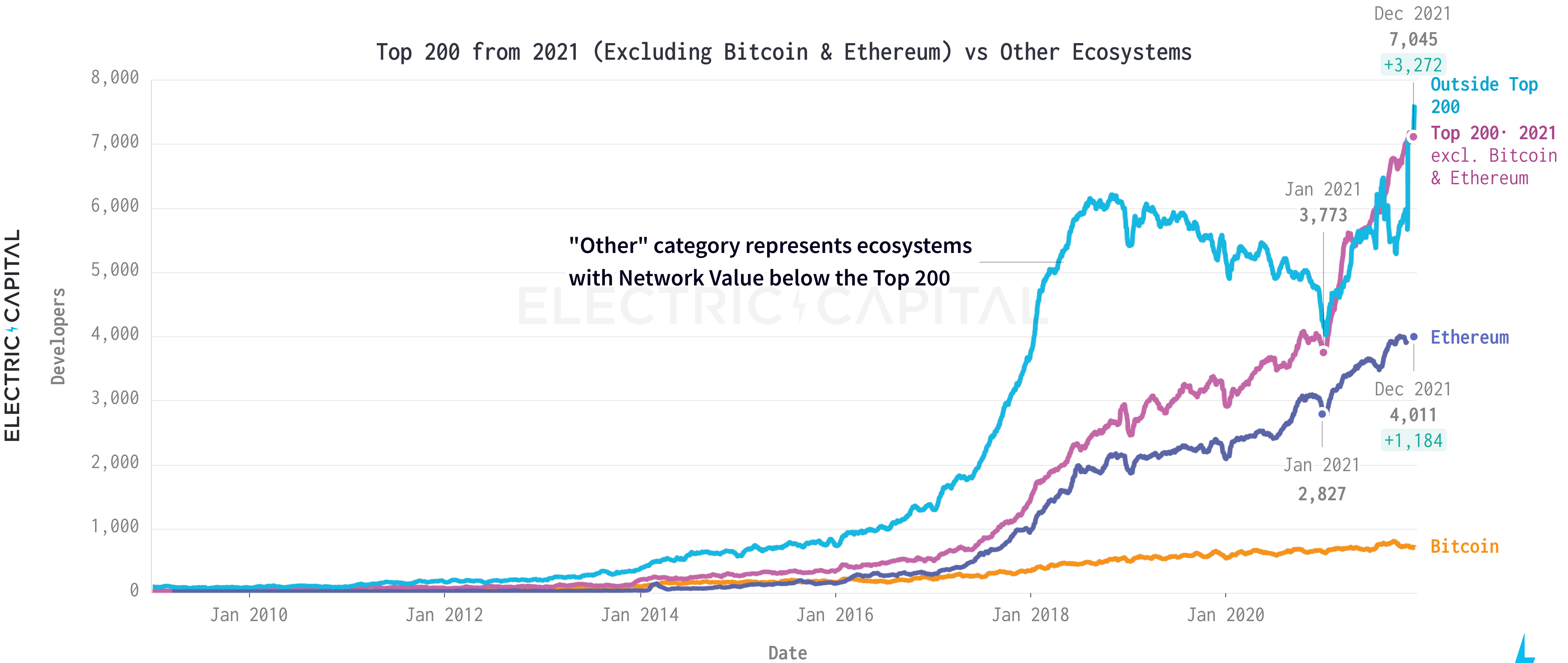
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Top 200 determined based on "Market Value" measure as of 12/15/21 on CoinMarketCap



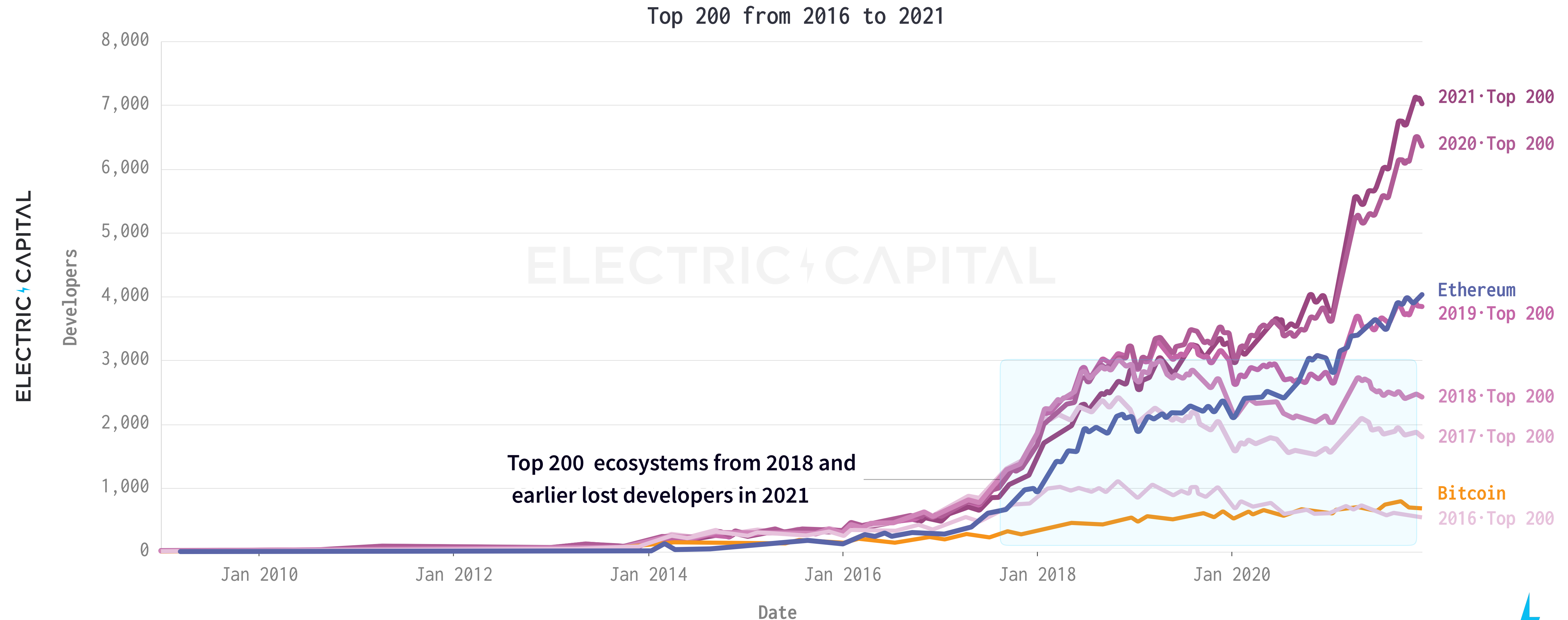
DEVELOPERS ARE BRANCHING OUT: GROWTH RATE OUTSIDE TOP 200 ECOSYSTEMS +86% OUTPACES ETH AND BTC GROWTH



Top 200 determined based on "Market Value" measure as of 12/15/21 on CoinMarketCap



THE DECLINE IN DEVS WORKING IN TOP 200 PROJECTS BEFORE 2019 HIGHLIGHTS THE GROWTH AND RETENTION OF THE BITCOIN AND ETHEREUM ECOSYSTEMS

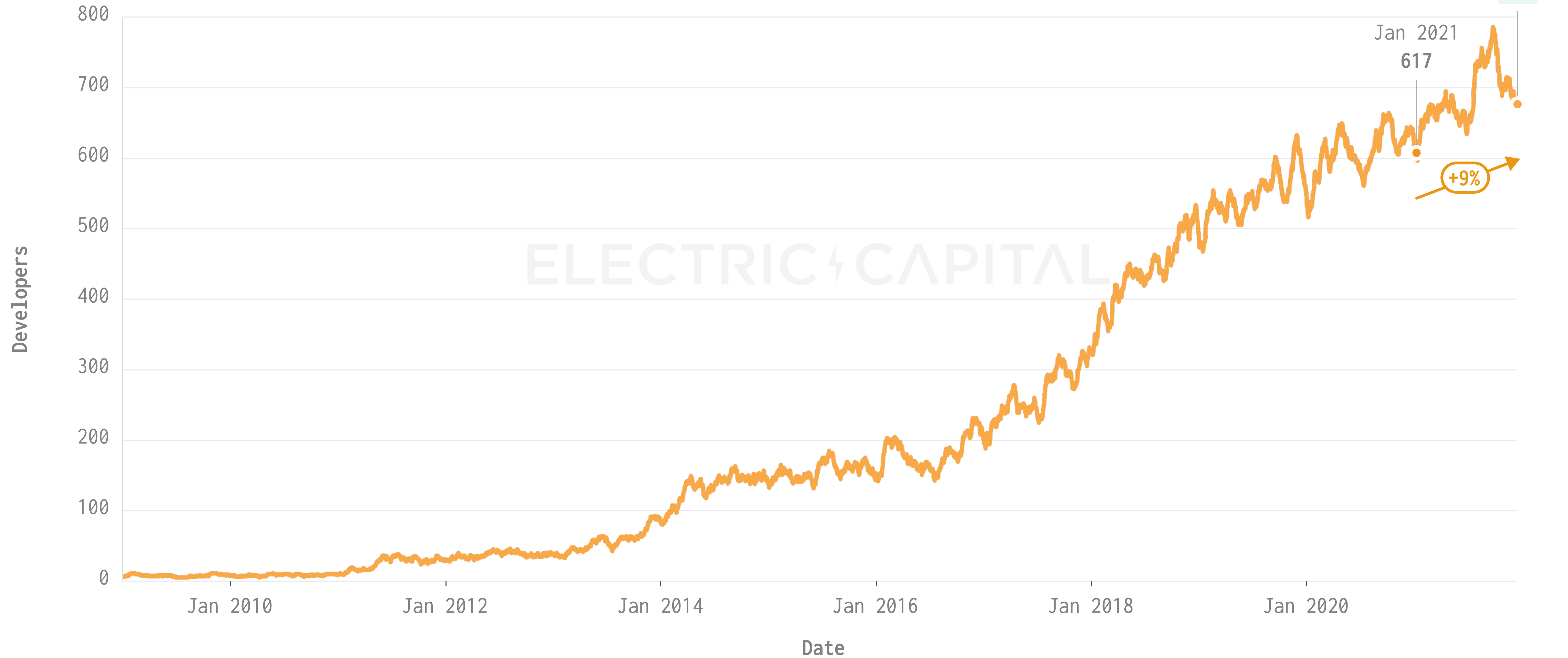


**LET'S LOOK MORE DEEPLY AT THE SUSTAINED GROWTH OF BITCOIN &
ETHEREUM...**

BITCOIN

+9% GROWTH IN MONTHLY ACTIVE DEVELOPERS SINCE JAN 2021

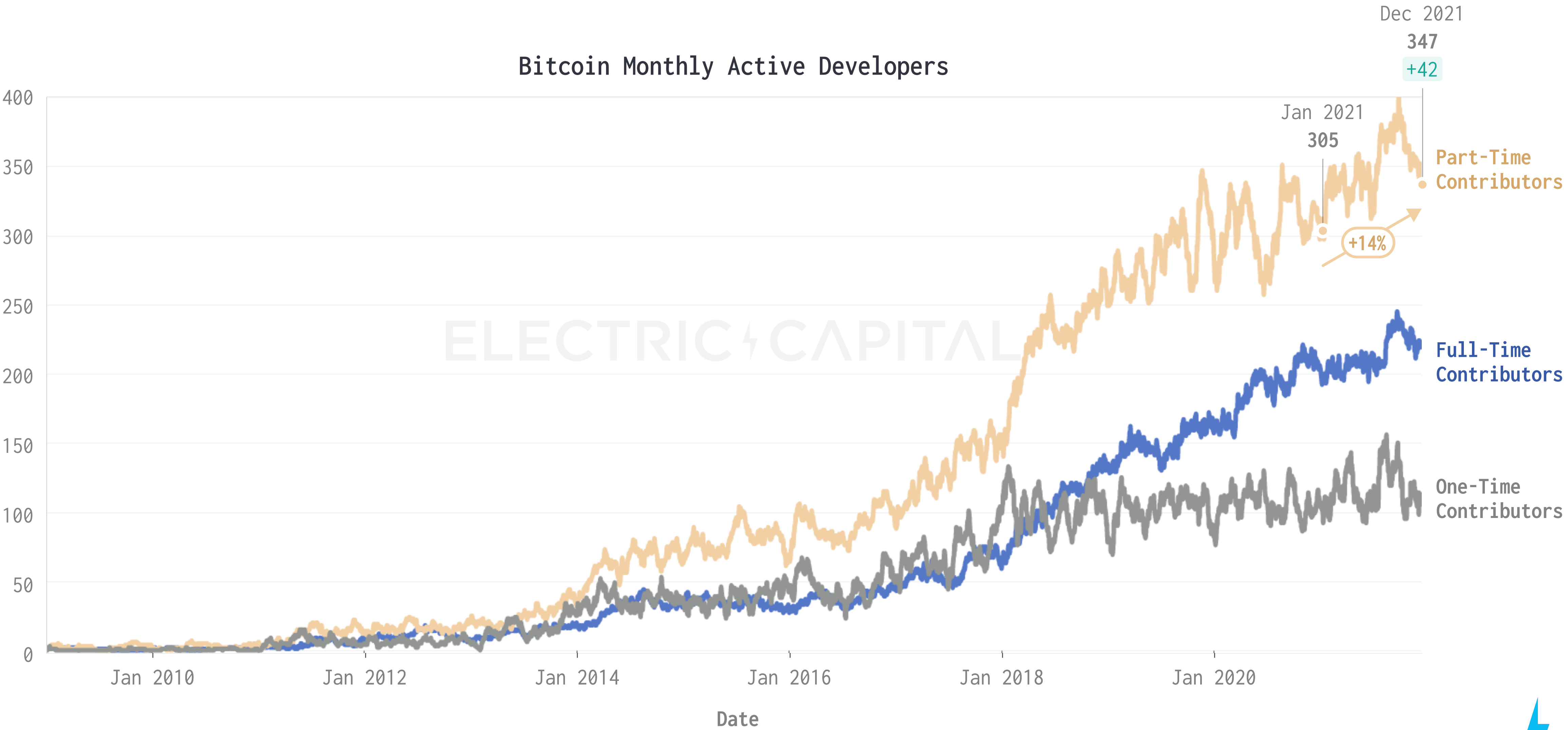
Bitcoin Monthly Active Developers



+14% GROWTH IN MONTHLY ACTIVE PART-TIME DEVELOPERS

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Developers

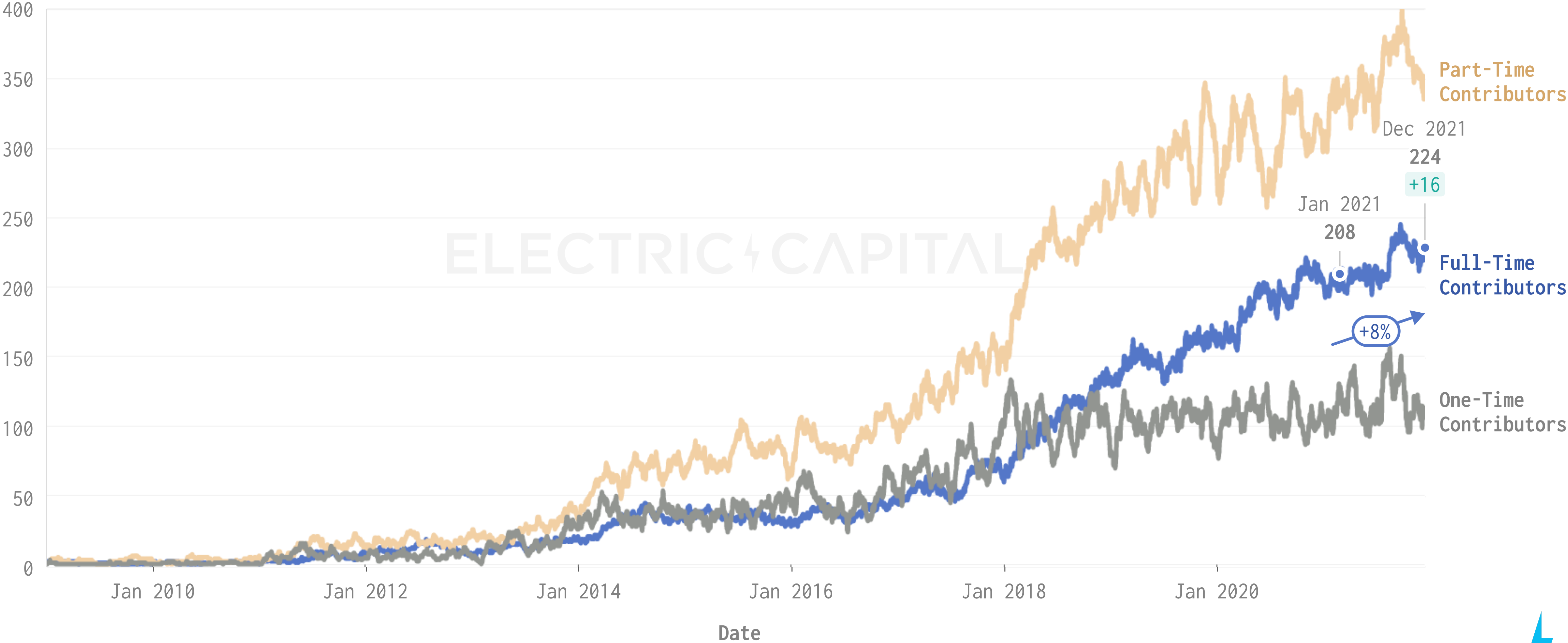


+8% GROWTH IN MONTHLY ACTIVE FULL-TIME DEVELOPERS

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Developers

Bitcoin Monthly Active Developers



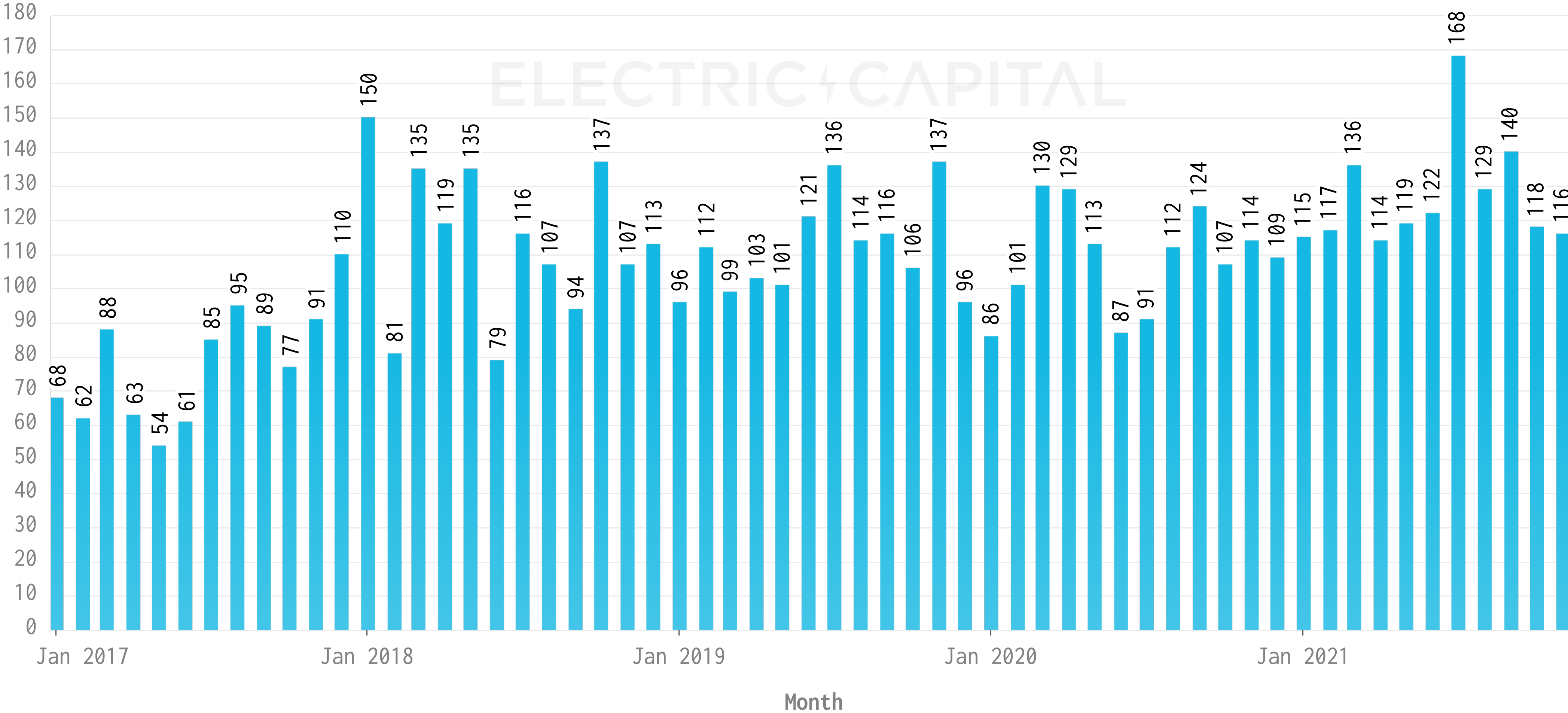
BITCOIN HAS A CONSISTENT PIPELINE OF 100+ NEW DEVS COMING IN PER MONTH

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Developers

Bitcoin Developers by Month Joined

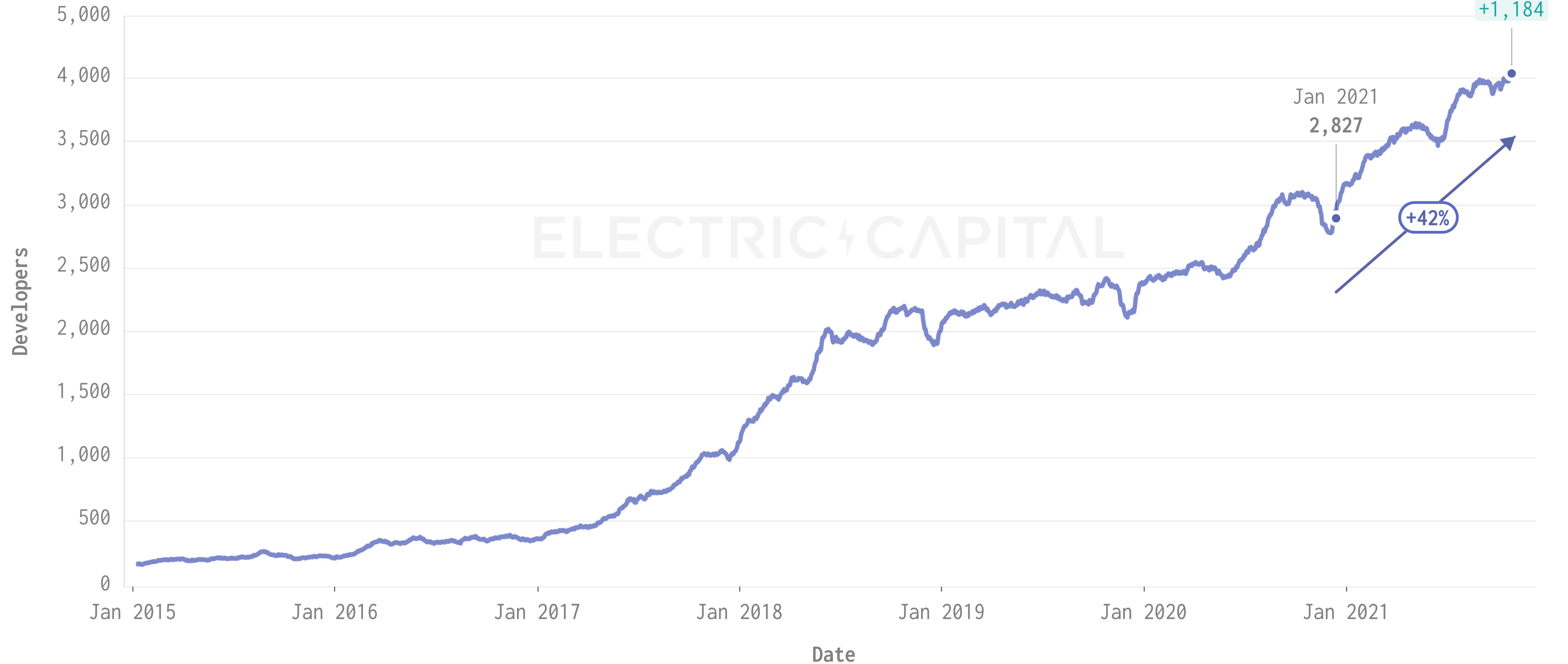
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ETHEREUM

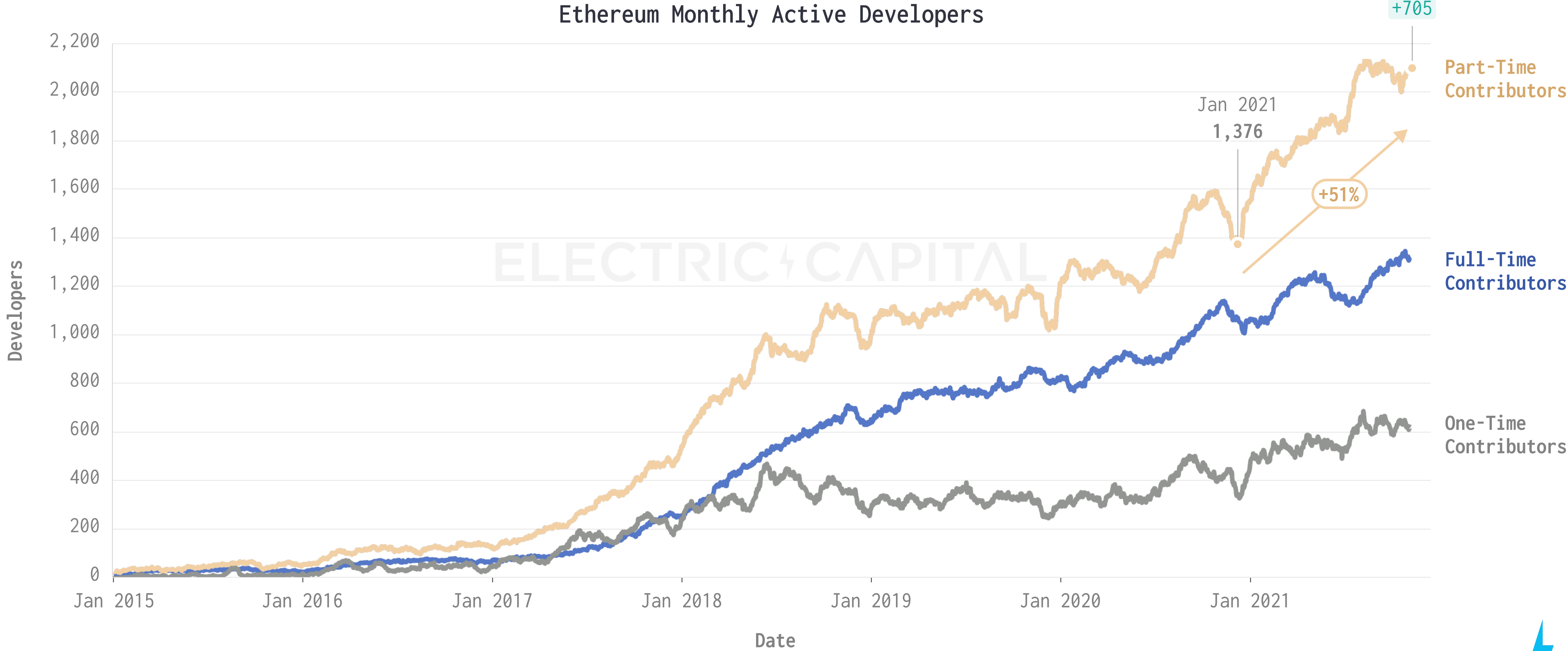
ETHEREUM: +1,184 MONTHLY ACTIVE DEVELOPERS +42% SINCE JAN 2021

Ethereum Monthly Active Developers



ETHEREUM: +705 MONTHLY ACTIVE PART-TIME DEVELOPERS +51% SINCE JAN 2021

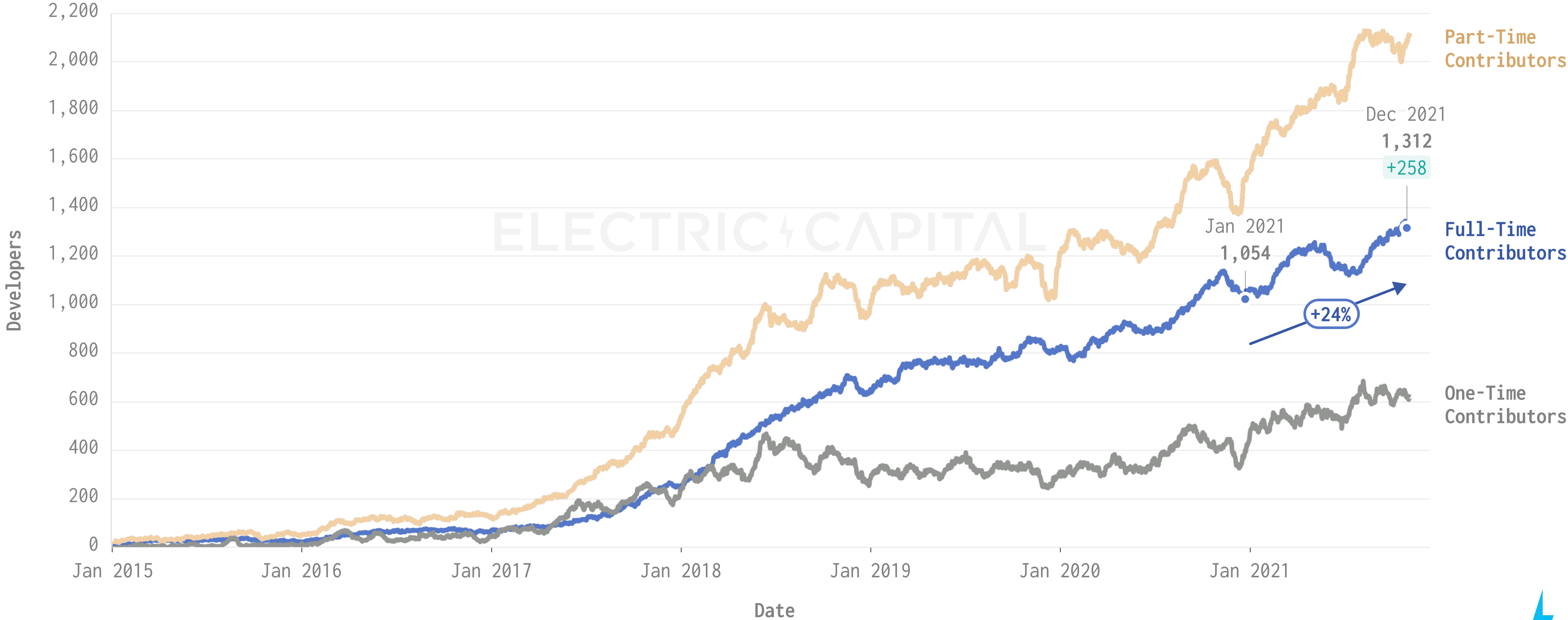
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ETHEREUM: +258 MONTHLY ACTIVE FULL-TIME DEVELOPERS +24% SINCE JAN 2021

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Ethereum Monthly Active Developers



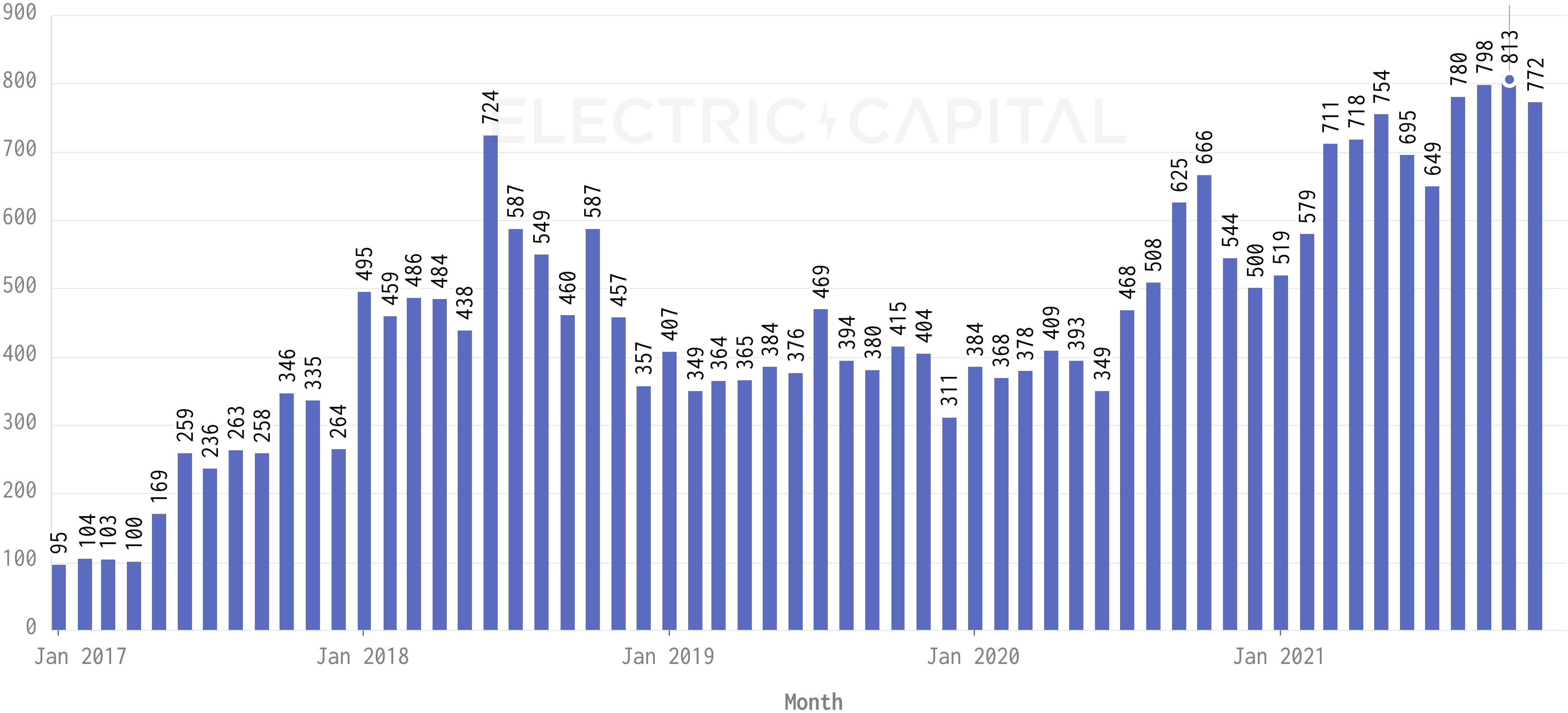
700+ NEW DEVELOPERS JOINING ETHEREUM EVERY MONTH IS AT AN ALL-TIME HIGH

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Developers

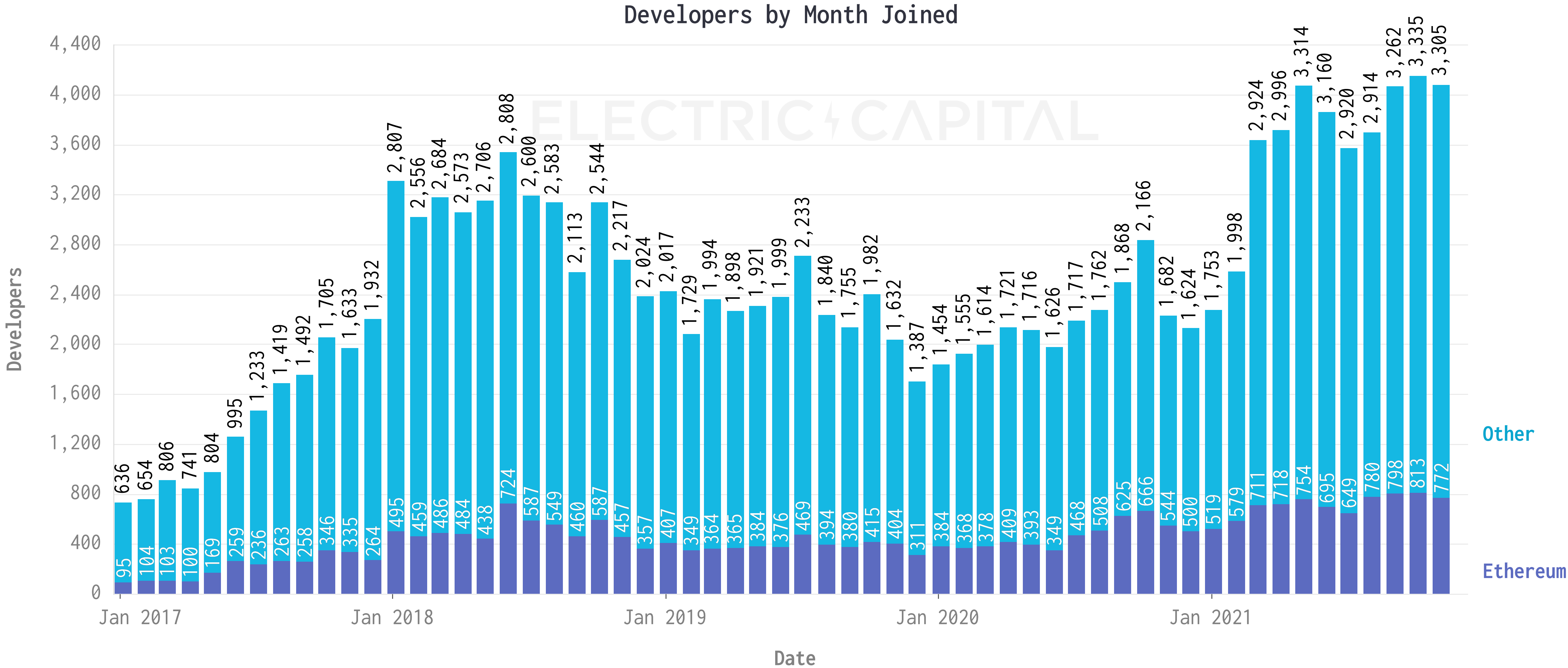
Ethereum Developers by Month Joined

2021
All-Time High



ETHEREUM CONSISTENTLY DRAWS 20-25% OF DEVELOPERS COMING TO WEB3

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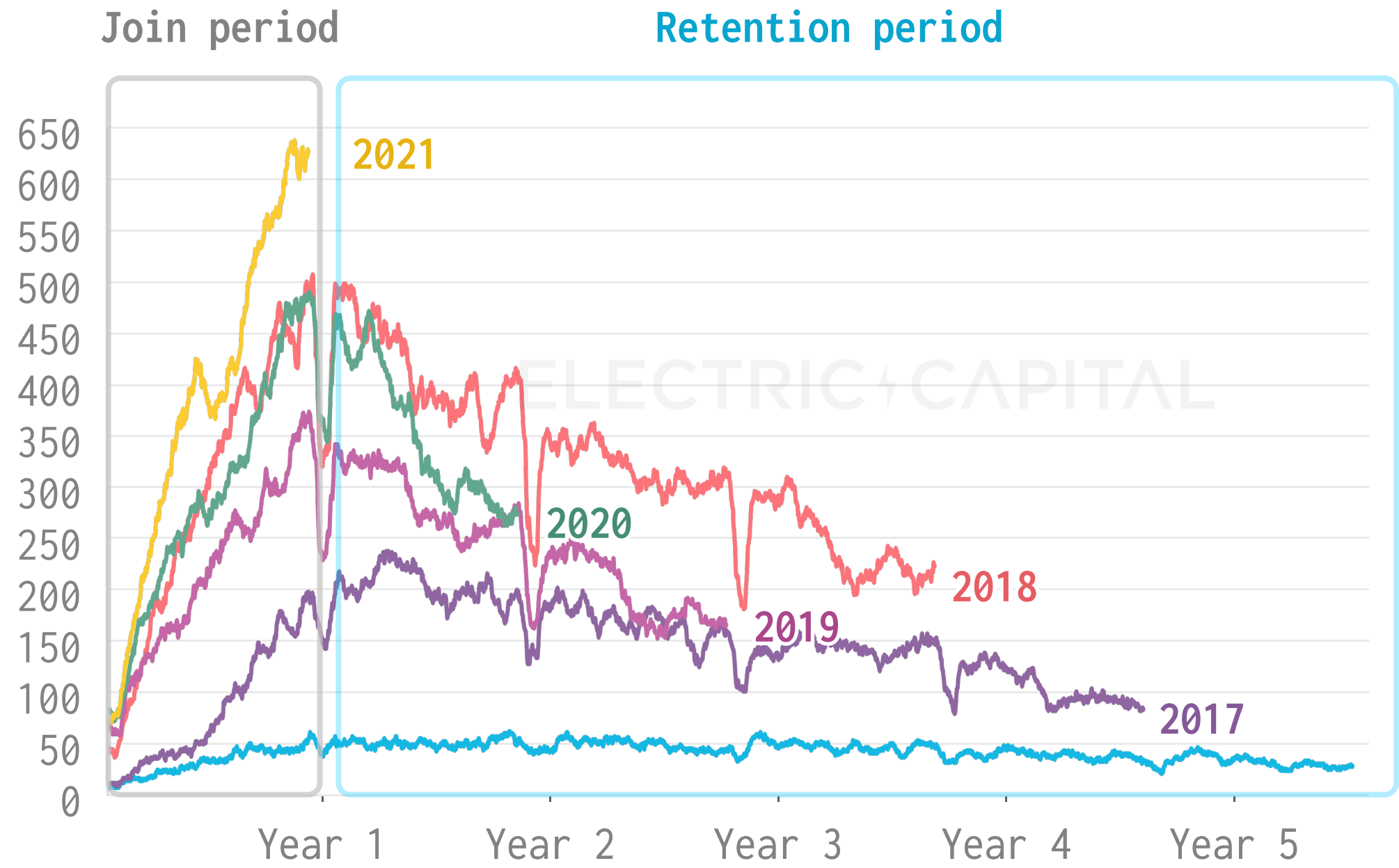
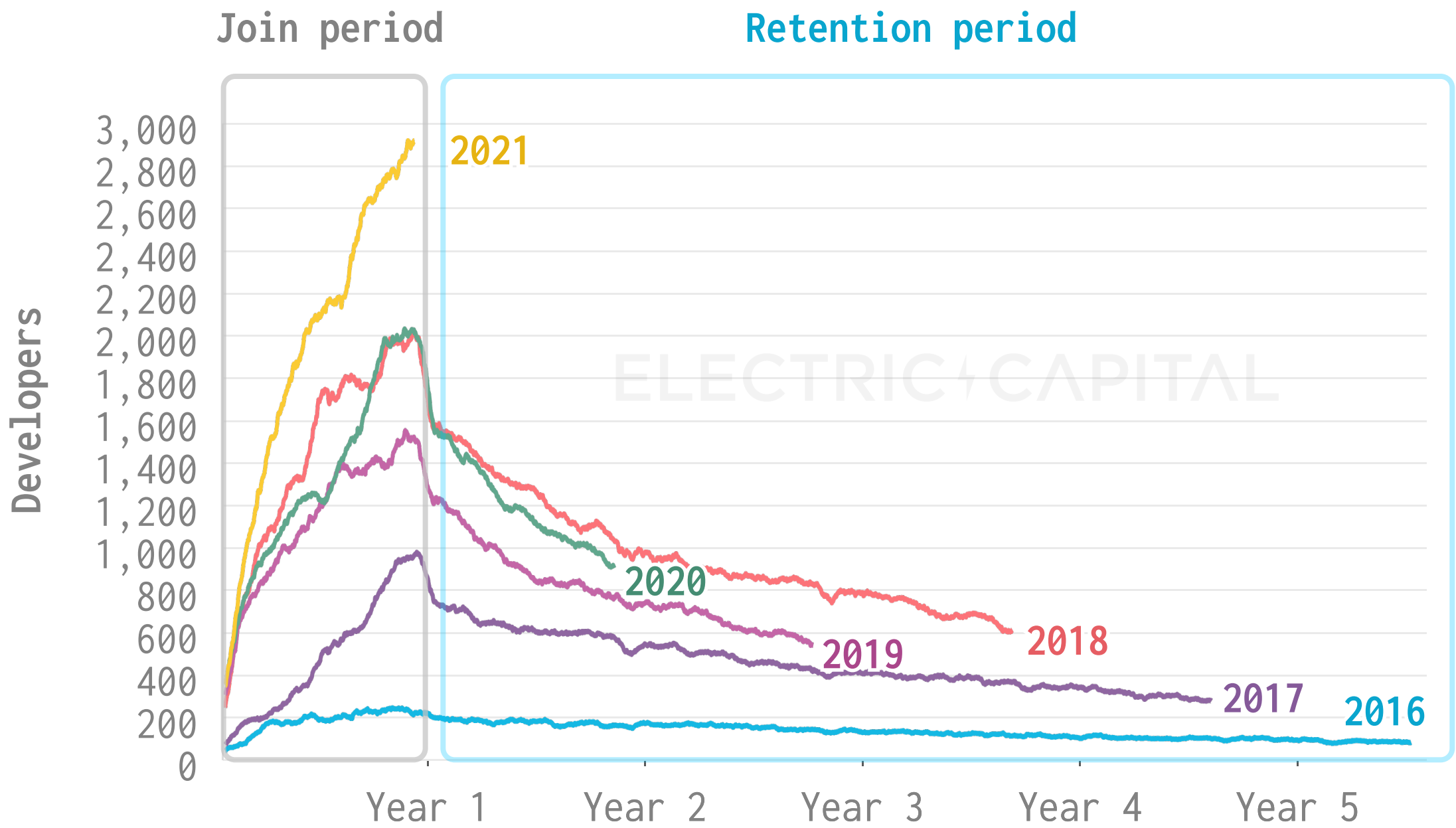


WE CAN COMPARE THE ANNUAL COHORT RETENTION IN ETHEREUM TO SEE HOW LONG DEVELOPERS STAY IN THE ECOSYSTEM

Ethereum · Total Developers Active After Start Date

Ethereum · Full-Time Developers Active after Start date

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2016

* The drop in number of developers at year change is due to seasonal effect of holidays

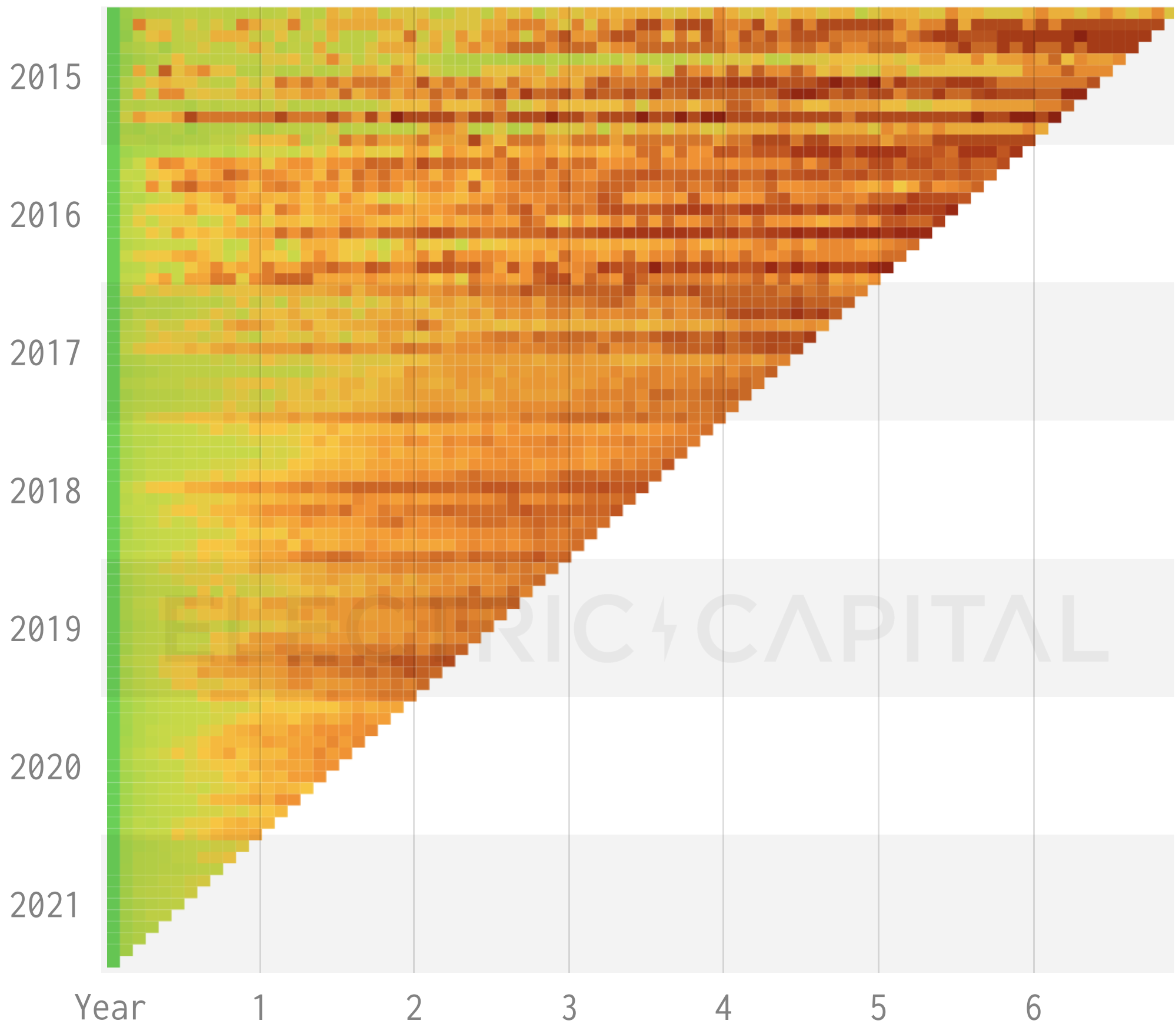


ETHEREUM HAS SOME OF THE BEST RETENTION IN WEB3:

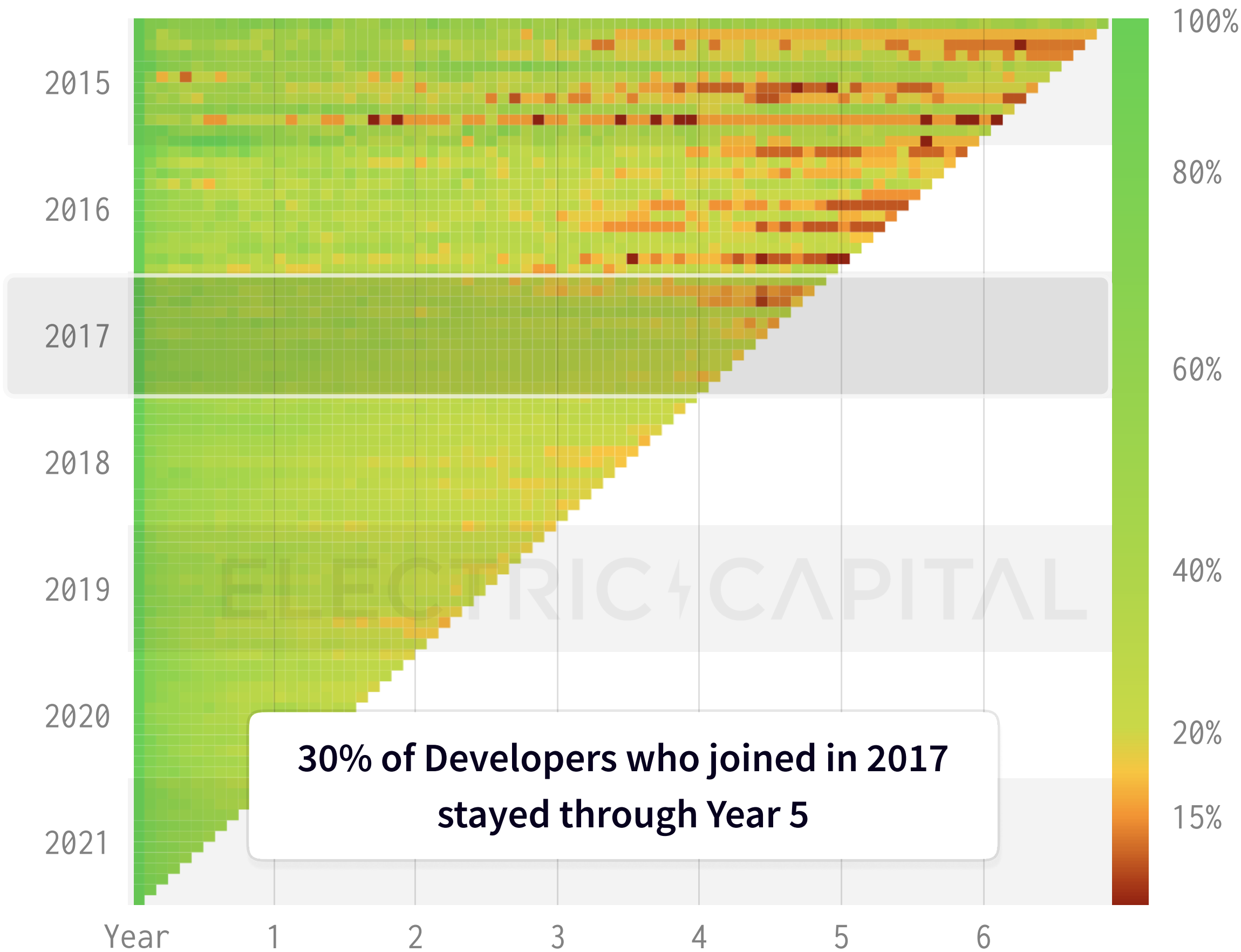
30% OF FULL-TIME DEVS WHO JOINED AFTER 2017 STAYED BEYOND YEAR 4

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Ethereum · All Developer Retention



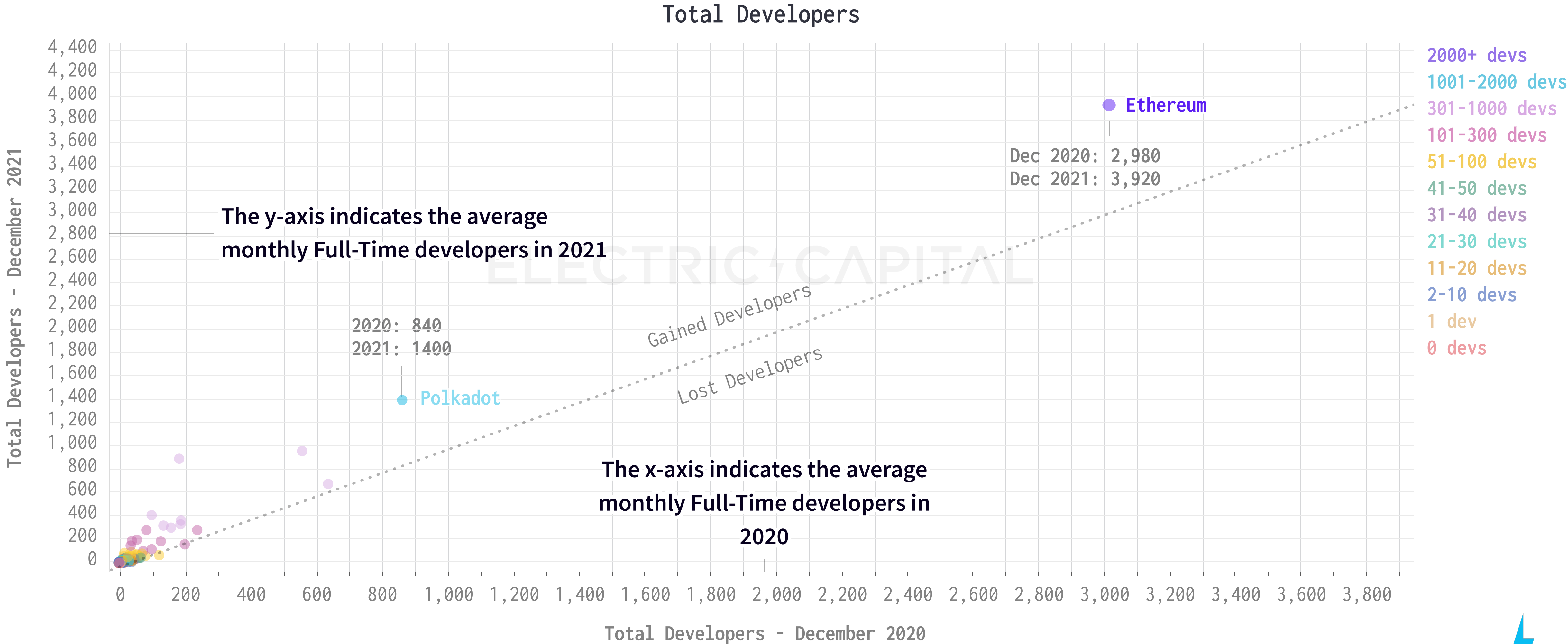
Ethereum · Full-Time Developer Retention



HOW DOES THE GROWTH OF INDIVIDUAL ECOSYSTEMS COMPARE?

WE CAN COMPARE DEC 2020 VS. DEC 2021 PER ECOSYSTEM TO VISUALIZE GROWTH

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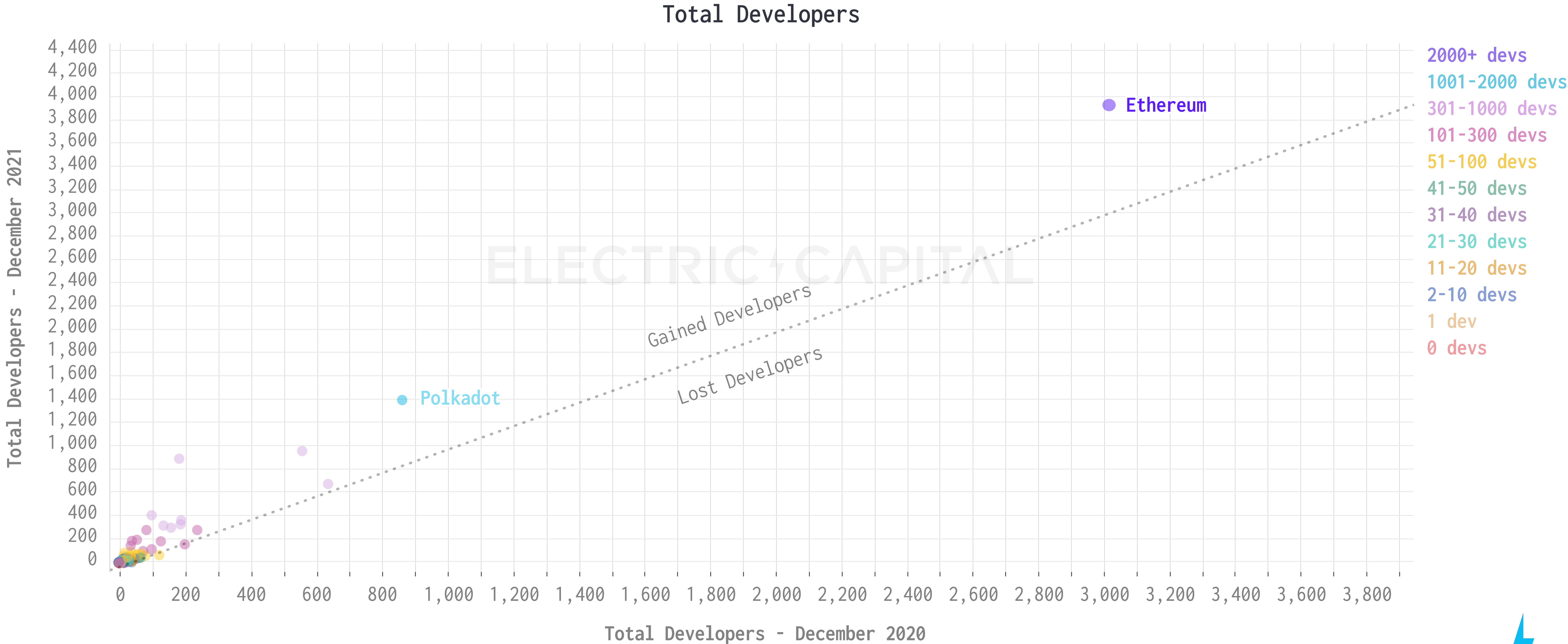


We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



FULL-TIME, PART-TIME & ONE-TIME DEVELOPERS: ETHEREUM BY FAR THE LARGEST & 2.8X LARGER THAN THE NEXT

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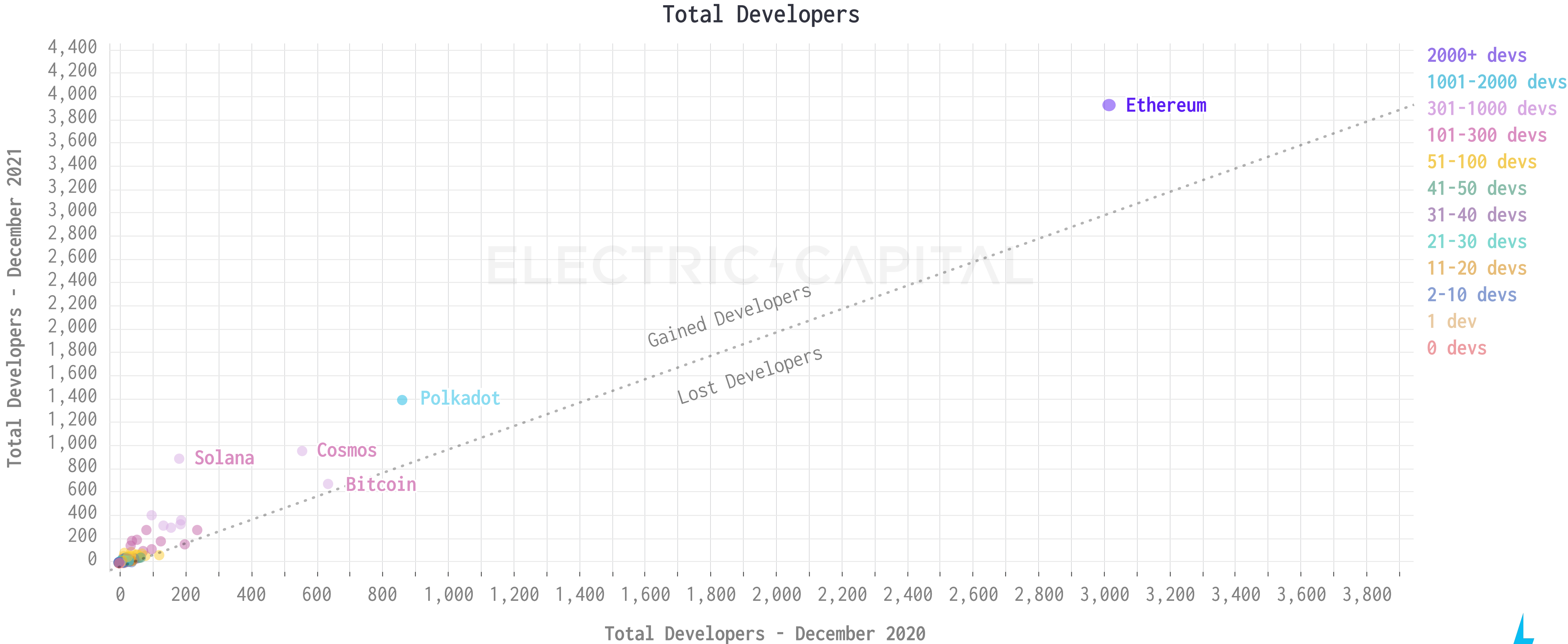


We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



ETHEREUM, POLKADOT, COSMOS, SOLANA, & BITCOIN ARE THE 5 LARGEST ECOSYSTEMS

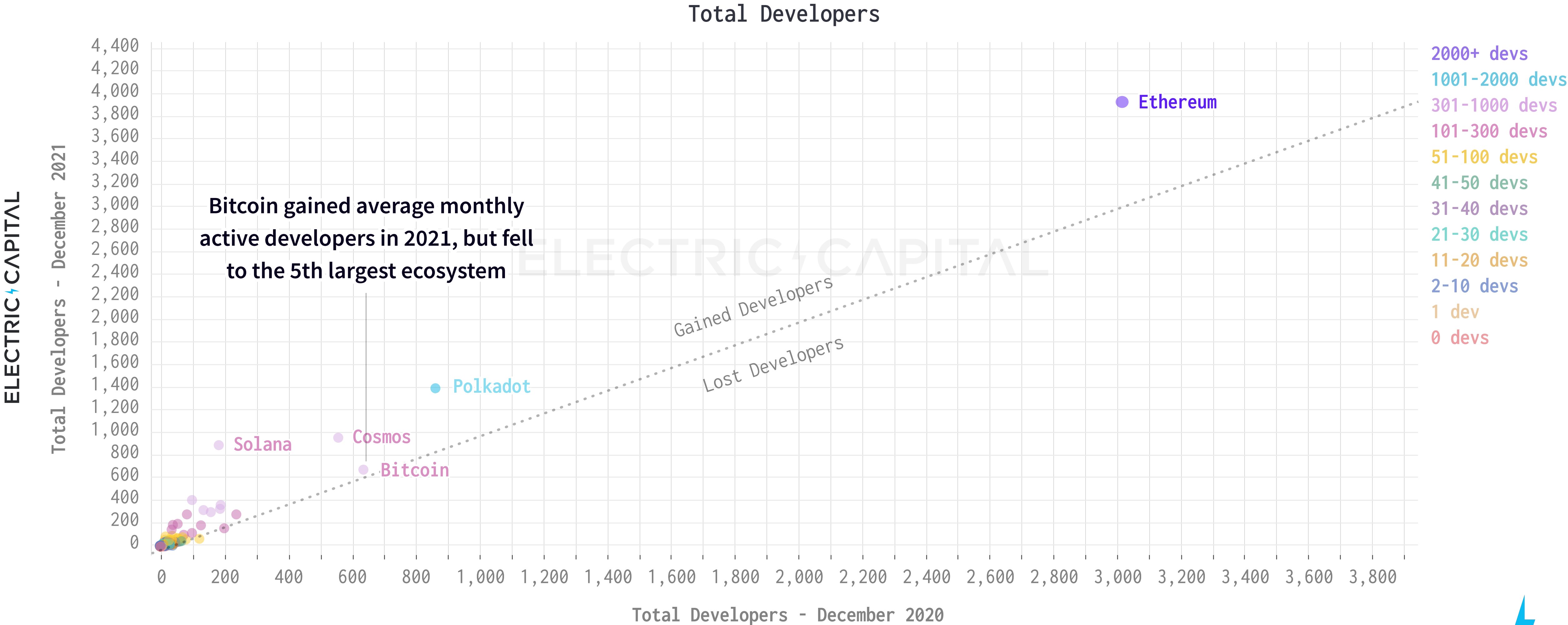
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There are many developers working on closed-source tooling in Bitcoin, e.g. custodians and exchanges. Solana has more of a culture of closed-source development, so may appear smaller.



THE BITCOIN ECOSYSTEM GAINED DEVELOPERS IN 2021 BUT FELL TO THE 5TH LARGEST ECOSYSTEM. DOES IT MATTER?

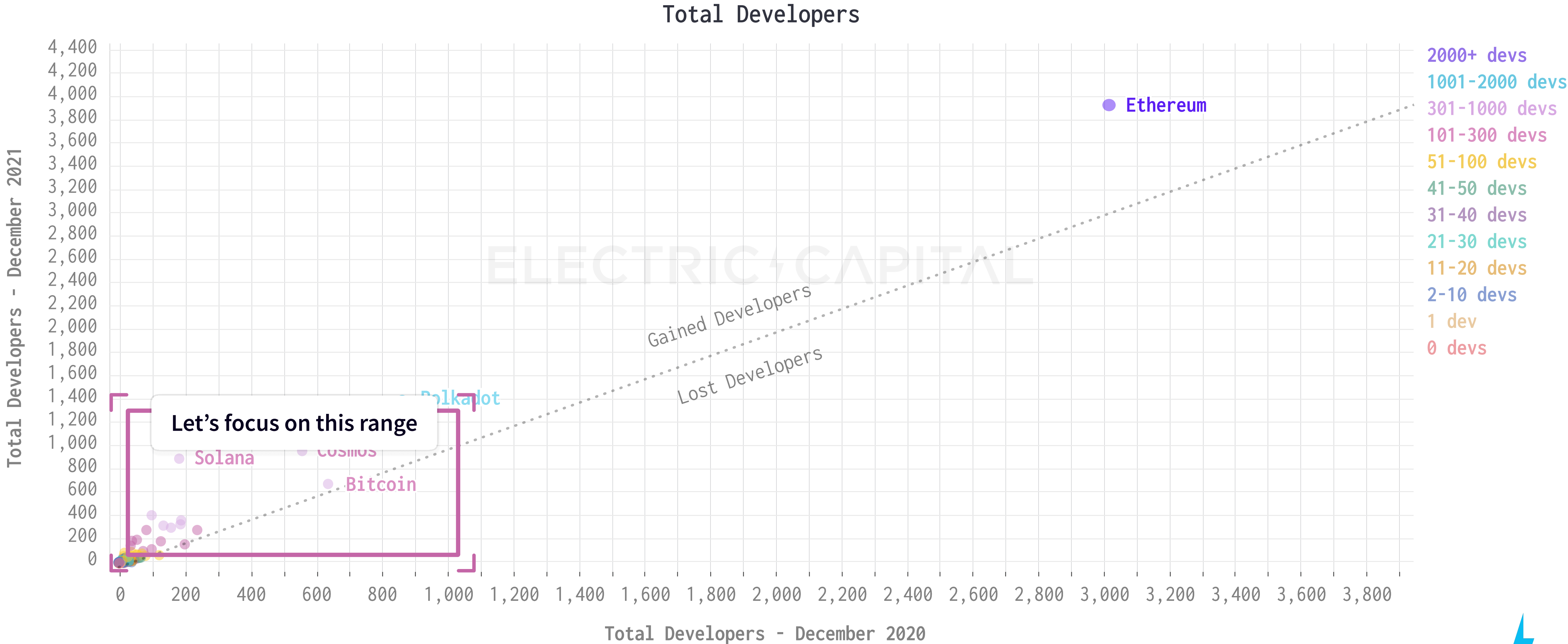


We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



LET'S ZOOM IN TO MAKE IT EASIER TO UNDERSTAND AND VISUALIZE

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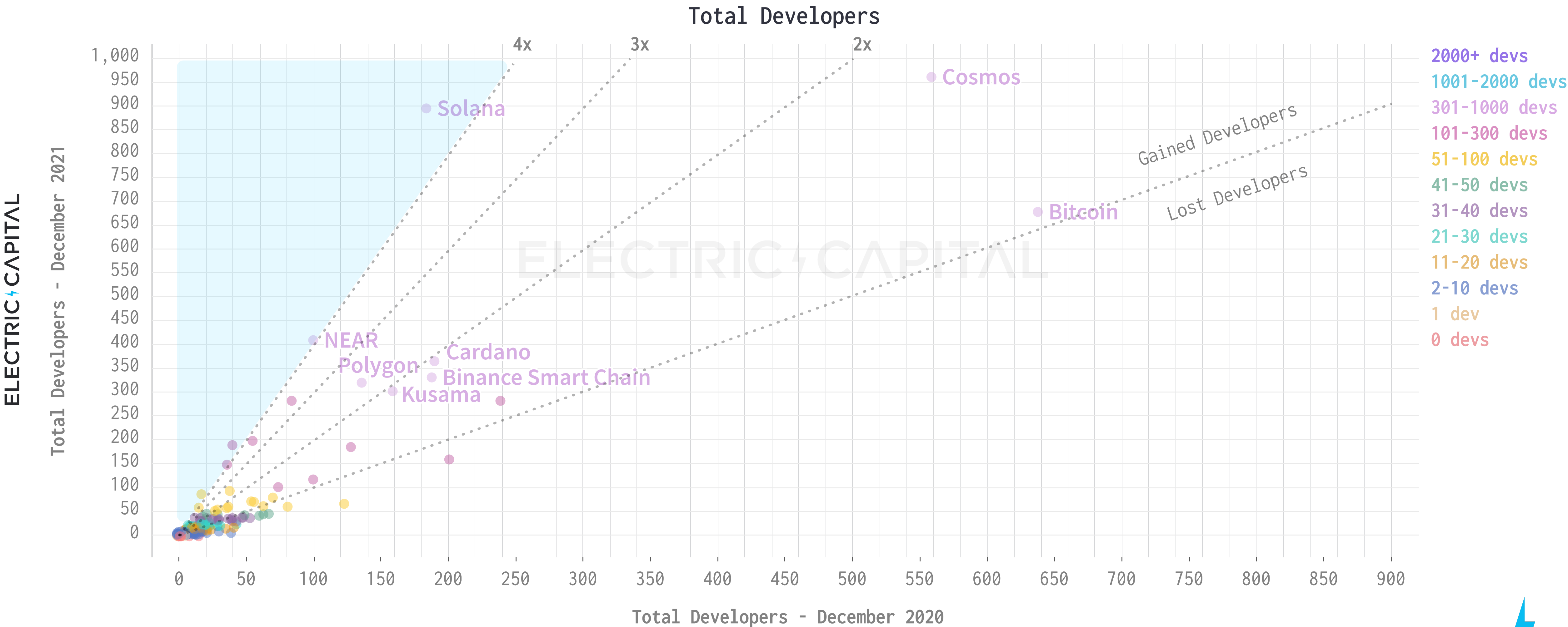


We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



ZOOMING IN ON ECOSYSTEMS WITH 300-1000 DEVELOPERS....

ECOSYSTEMS BETWEEN 300-1000 DEVELOPERS: SOLANA ALMOST 5X'D TOTAL DEVELOPERS; NEAR 4X'D TOTAL DEVELOPERS



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.

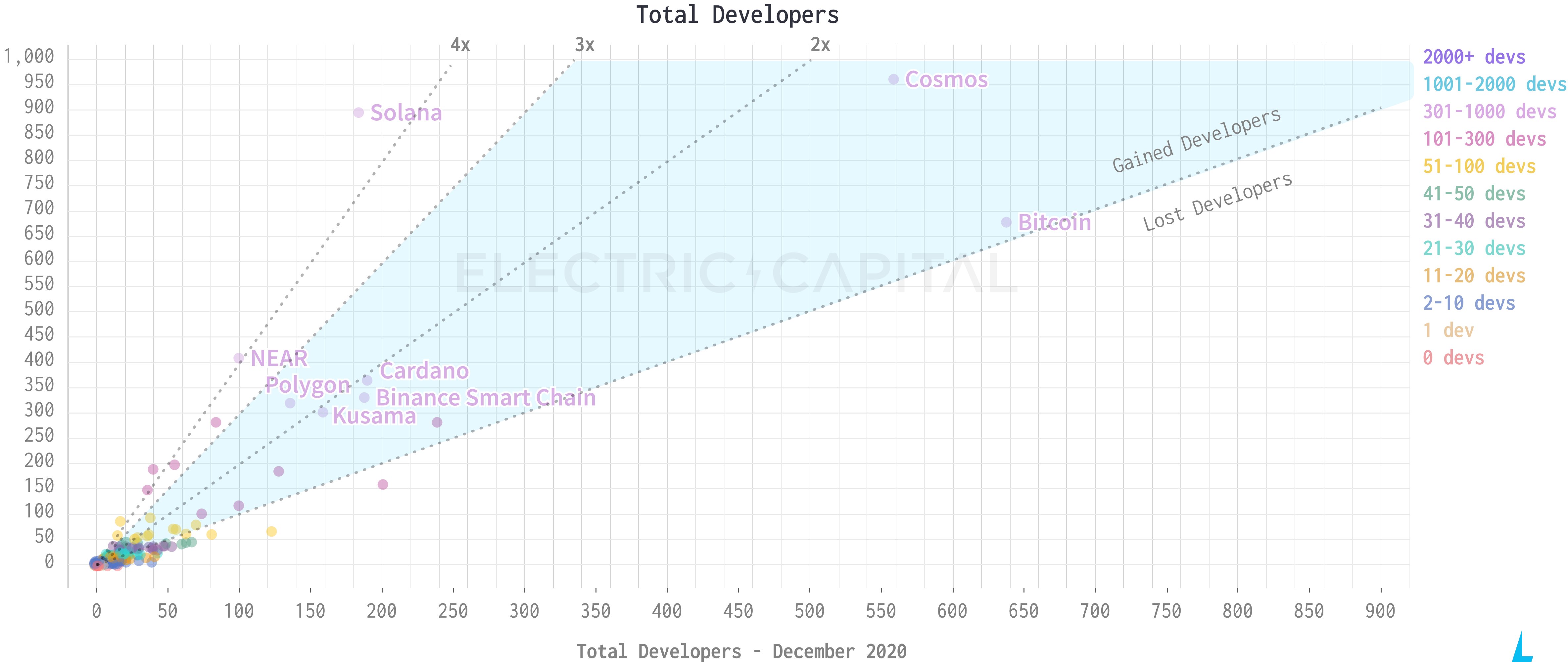


POLYGON MORE THAN 2X'D MONTHLY DEVELOPERS

WHILE CARDANO WAS +90%, BSC +80%, COSMOS +70%, BITCOIN +10%

ELECTRIC CAPITAL

Total Developers - December 2021

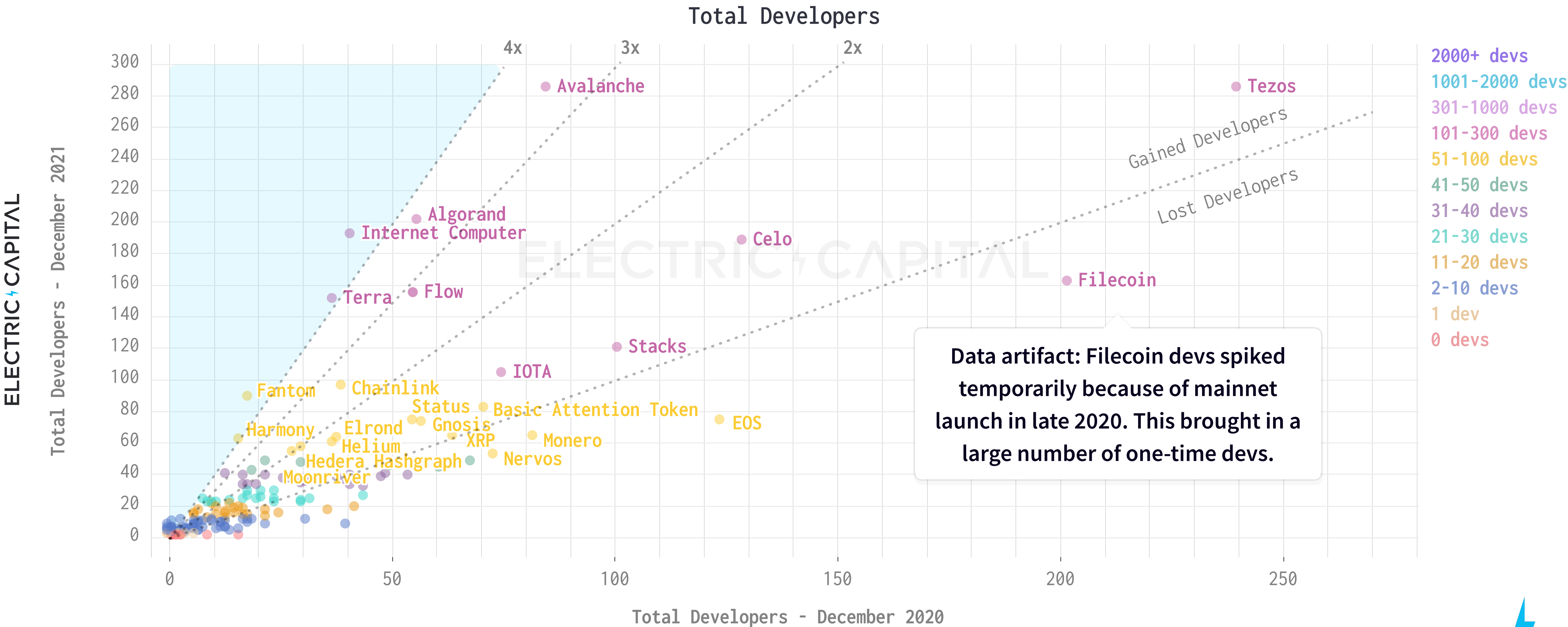


We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



ZOOMING IN ON ECOSYSTEMS WITH 50+ DEVELOPERS...

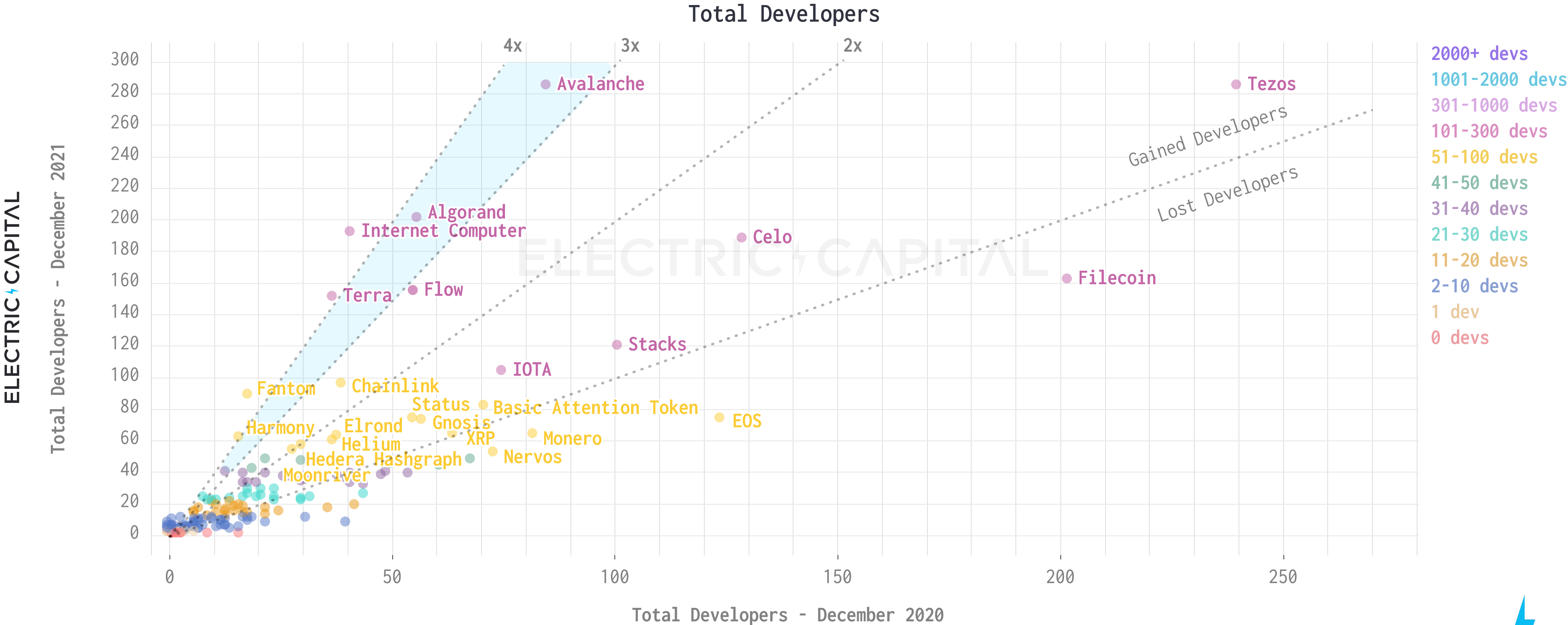
ECOSYSTEMS BETWEEN 51-300 DEVELOPERS: TERRA, ICP, FANTOM, AND HARMONY MORE THAN 4X'D DEVELOPERS



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series. Updated January 2022 to include Flow.



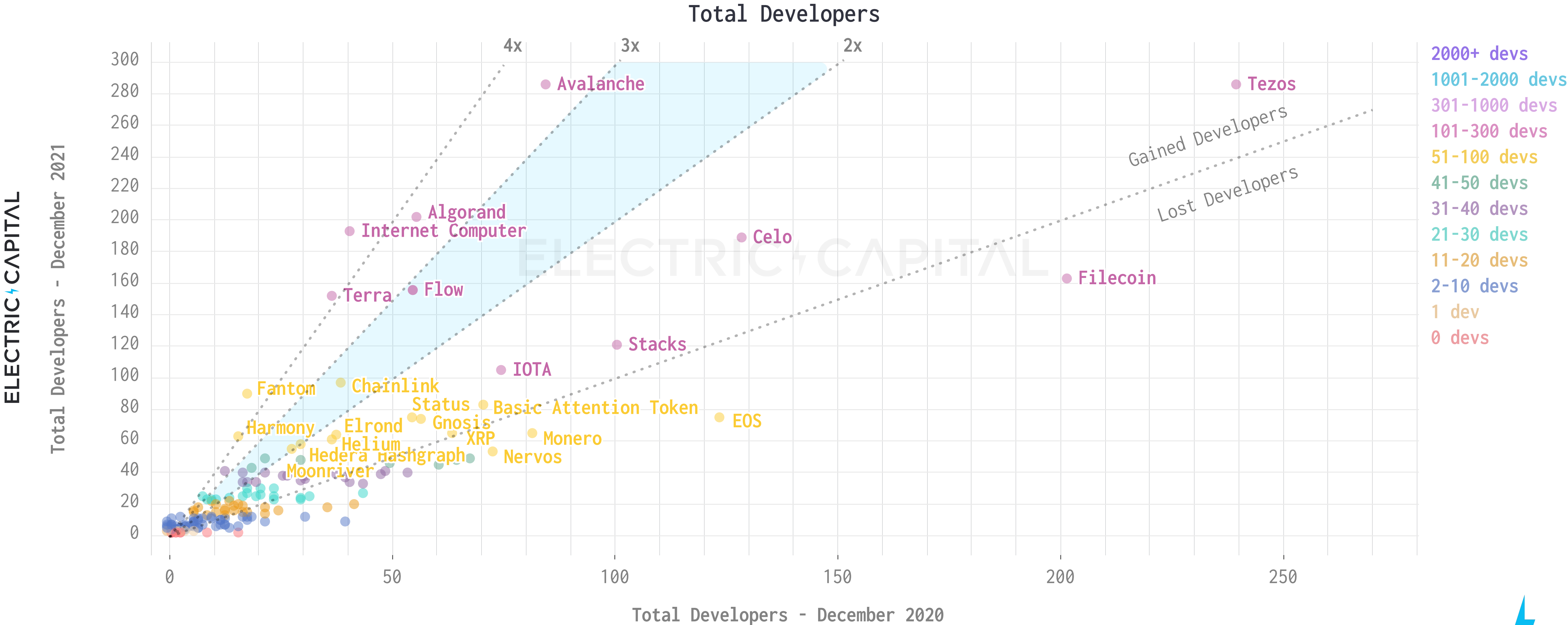
ECOSYSTEMS BETWEEN 51-300 DEVELOPERS: AVALANCHE AND ALGORAND MORE THAN 3X'D DEVELOPERS



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series. Updated January 2022 to include Flow.



ECOSYSTEMS BETWEEN 51-300 DEVELOPERS: FLOW, CHAINLINK, HEDERA, AND MOONRIVER 2X'D MONTHLY ACTIVE DEVELOPERS

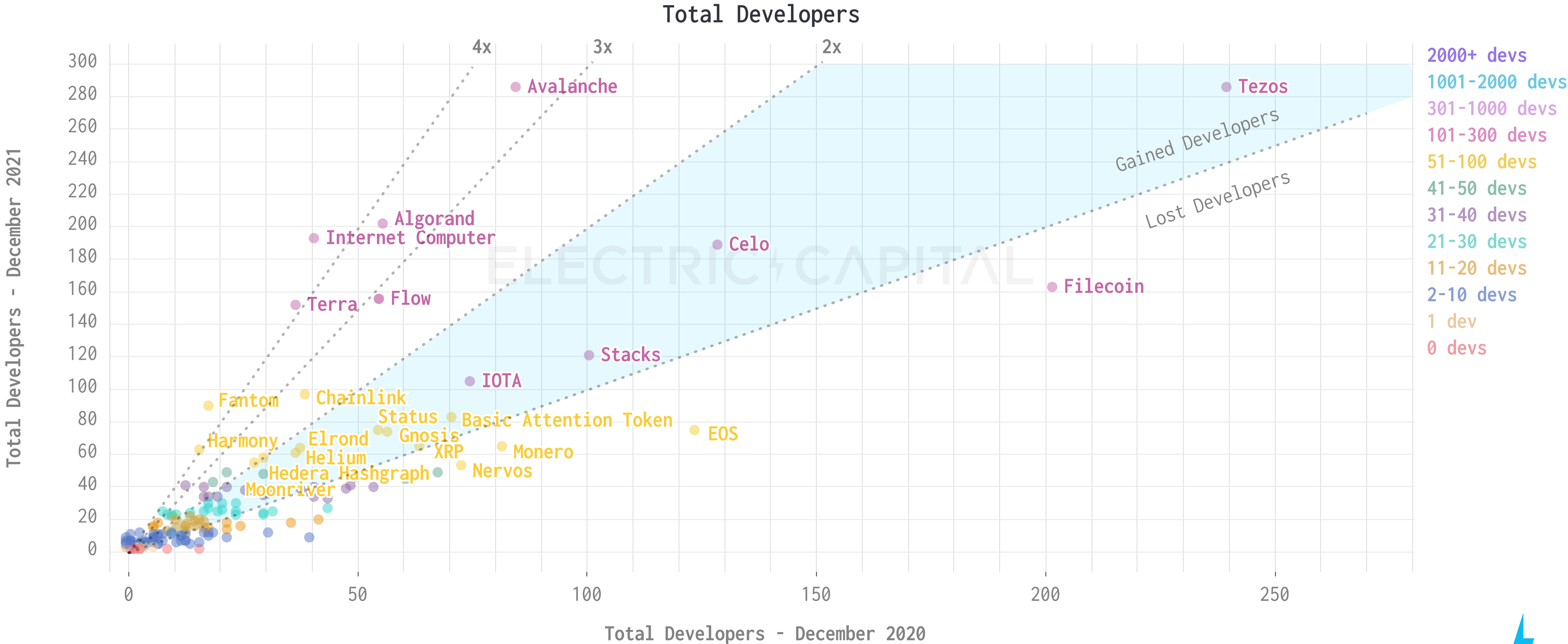


We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series. Updated January 2022 to include Flow.



ECOSYSTEMS BETWEEN 51-300 DEVELOPERS: TEZOS, CELO, STACKS, IOTA, BASIC ATTENTION TOKEN, STATUS, GNOSIS, ELROND, AND HELIUM ALL GAINED DEVELOPERS

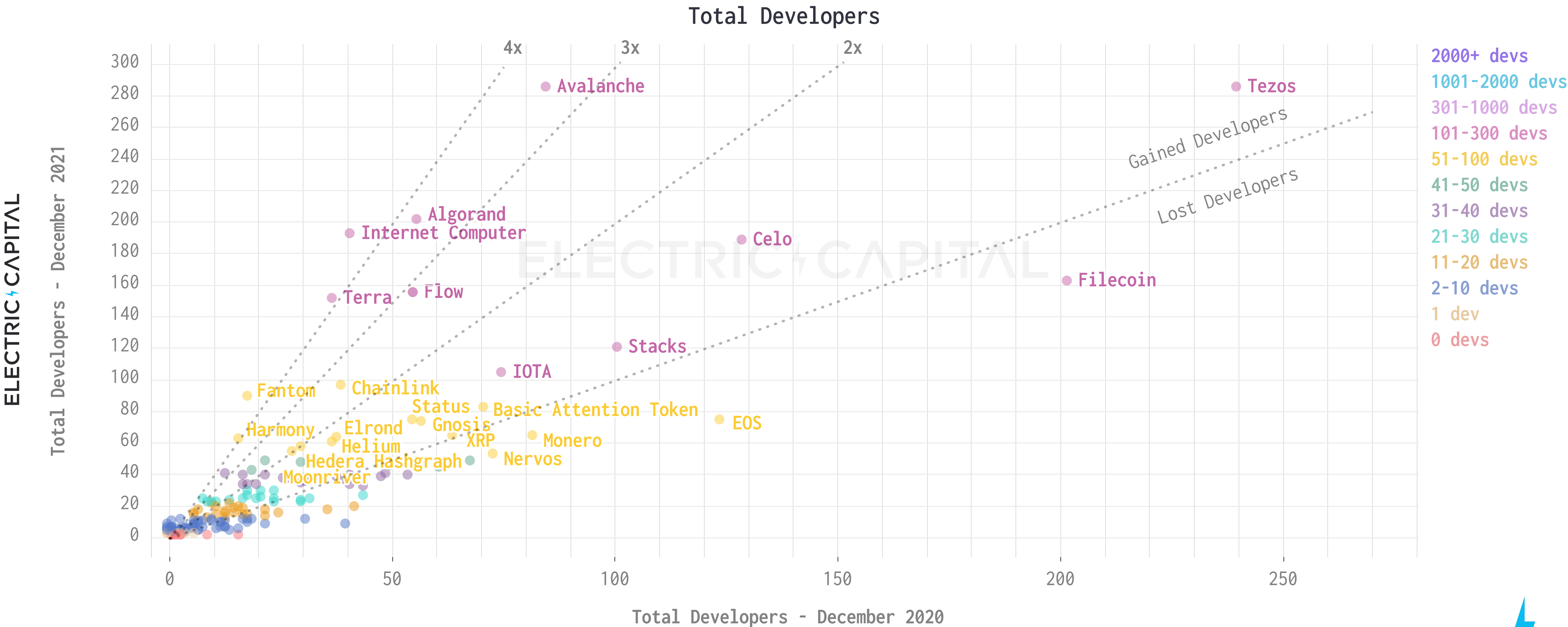
ELECTRIC CAPITAL



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series. Updated January 2022 to include Flow.



MOST ECOSYSTEMS LOST FEWER THAN 10 DEVS BETWEEN 2020 AND 2021; SOME PROJECTS MAY LOSE DEVS BECAUSE OF DEVELOPER SPIKES THE PREVIOUS YEAR



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series. Updated January 2022 to include Flow.



FASTEST GROWING ECOSYSTEMS WITH 50+ DEVELOPERS

Growth of Total Monthly Developers

Dec 2021 vs. Dec 2020

1.	Fantom	389%
2.	Solana	385%
3.	Internet Computer	368%
4.	NEAR	307%
5.	Terra	305%
6.	Harmony	281%
7.	Algorand	259%
8.	Avalanche	235%
9.	Flow	191%
10.	Chainlink	144%
11.	Polygon	136%

Growth of Full-Time Monthly Developers

Dec 2021 vs. Dec 2020

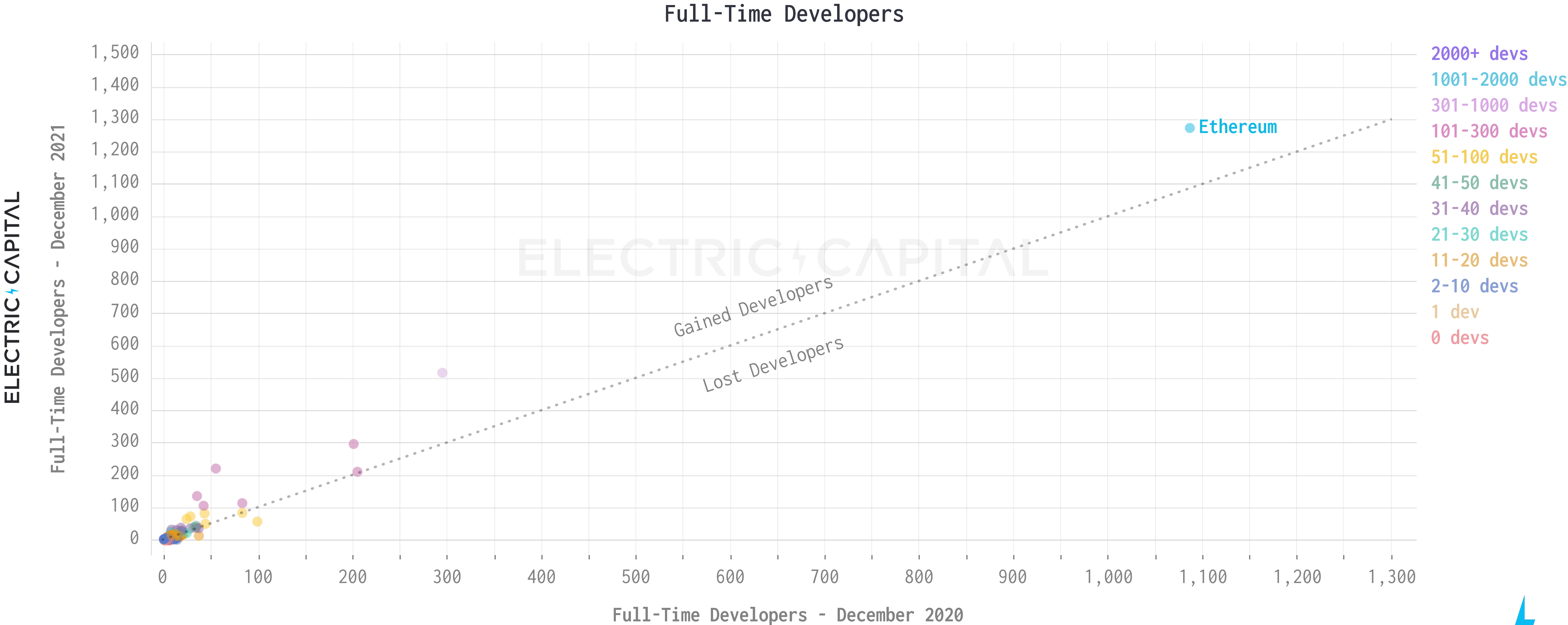
1.	Terra	313%
2.	Solana	307%
3.	NEAR	291%
4.	Fantom	271%
5.	Flow	195%
6.	Avalanche	179%
7.	Polygon	175%
8.	Kusama	162%
9.	Internet Computer	146%
10.	Moonriver	125%
11.	Algorand	116%

Updated January 2022 to include Flow.



LOOKING AT FULL-TIME DEVELOPERS ONLY CAN SMOOTH OUT
NOISE FROM ONE-TIME DEVELOPERS...

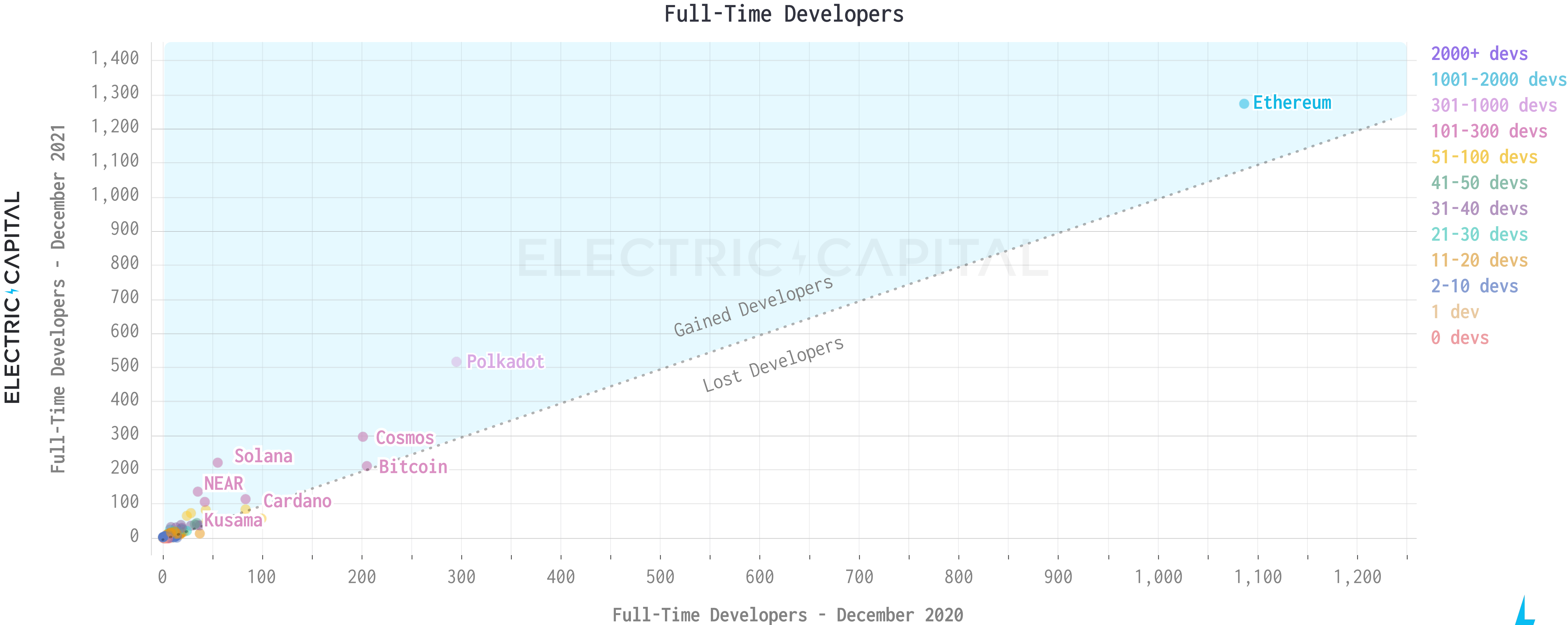
WE CAN COMPARE FULL-TIME DEVS (10+ COMMITS/MONTH): DEC 2020 VS DEC 2021



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



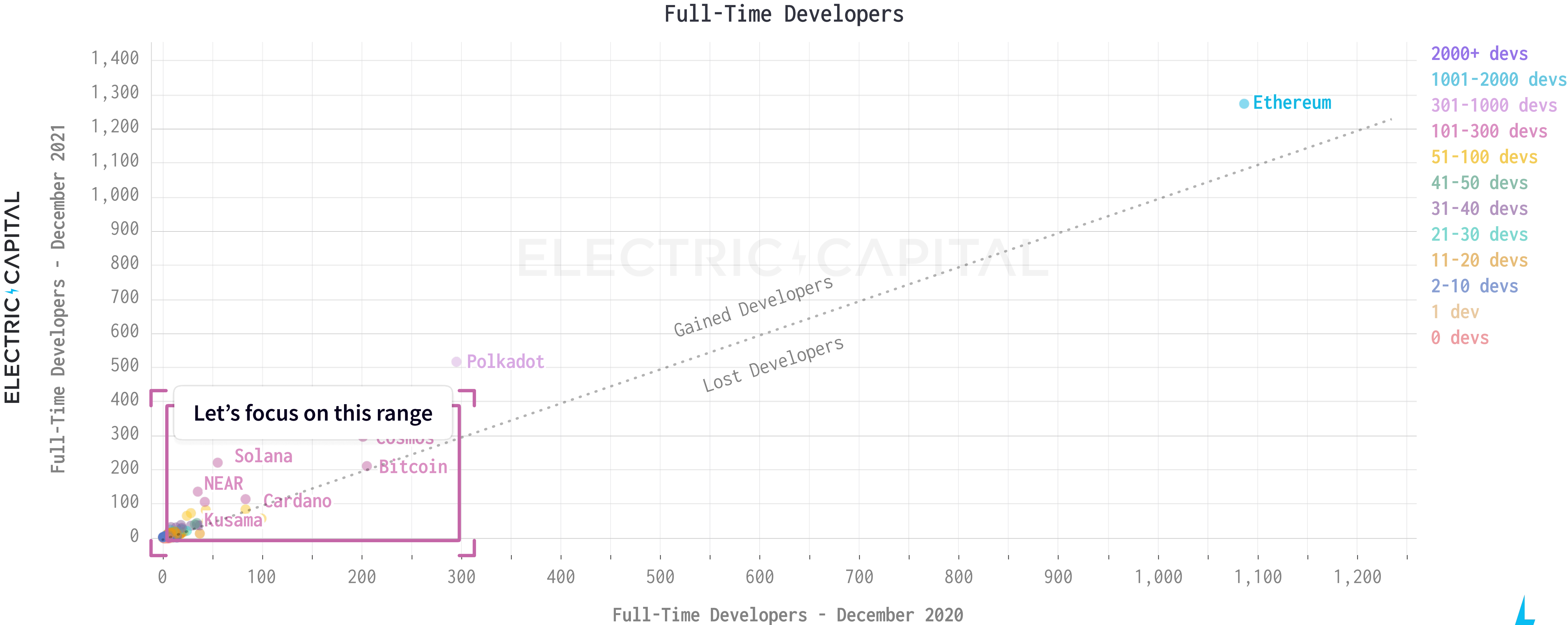
ETHEREUM, POLKADOT, COSMOS, SOLANA, BITCOIN, NEAR, CARDANO, AND KUSAMA ARE ECOSYSTEMS WITH 100+ FULL-TIME DEVELOPERS (10+ COMMITS/MONTH)



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



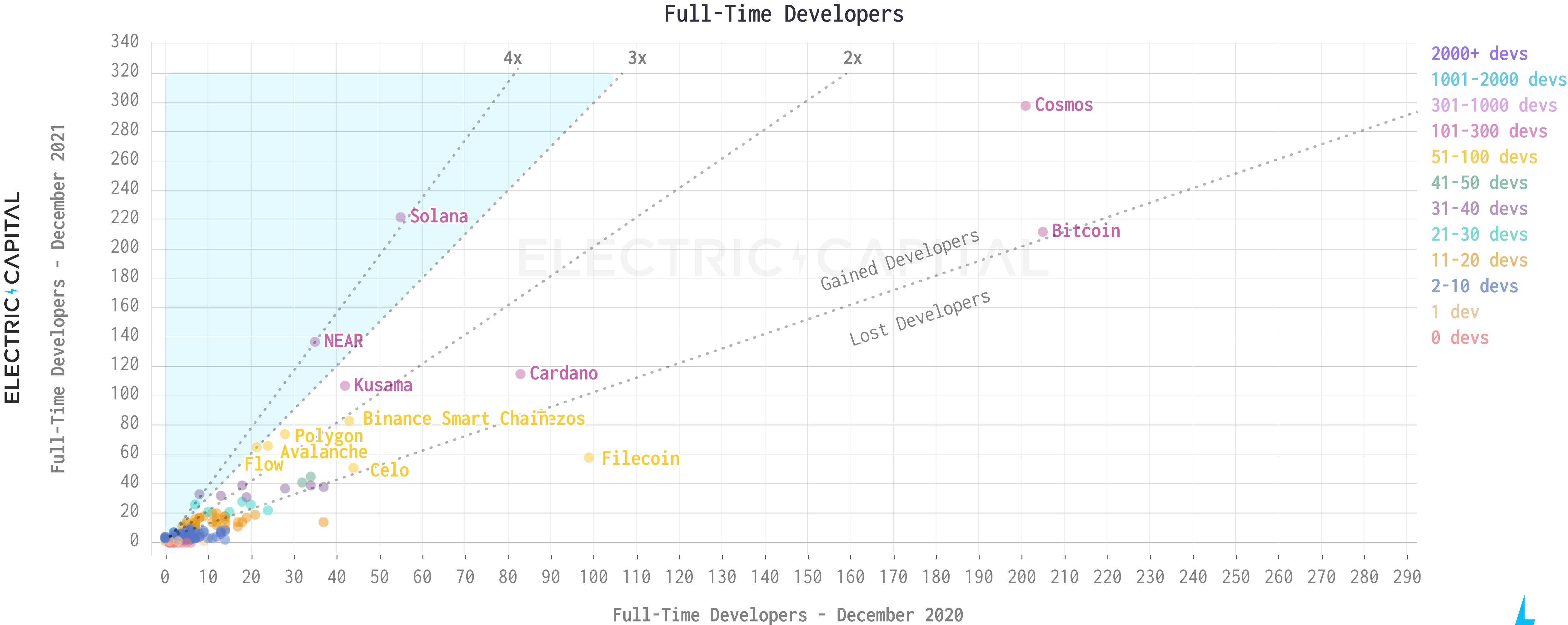
LET’S ZOOM IN TO ECOSYSTEMS WITH BETWEEN 50 AND 300 FULL-TIME DEVELOPERS



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



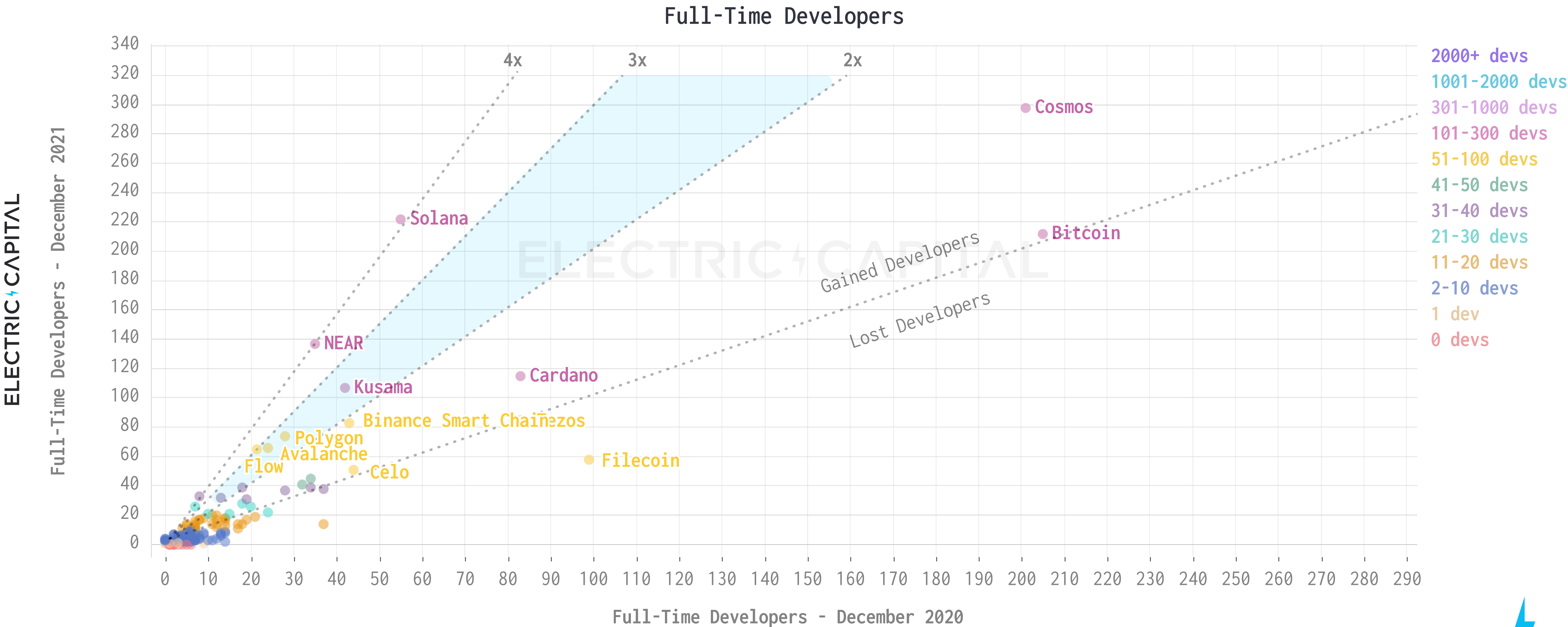
FOR ECOSYSTEMS WITH 50+ FULL-TIME DEVELOPERS: SOLANA AND NEAR 4X'D THEIR FULL-TIME DEVS



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series. Updated January 2022 to include Flow.



FOR ECOSYSTEMS WITH 50+ FULL-TIME DEVELOPERS: KUSAMA, POLYGON, AVALANCHE, AND FLOW MORE THAN 2X'D THEIR FULL-TIME DEVS



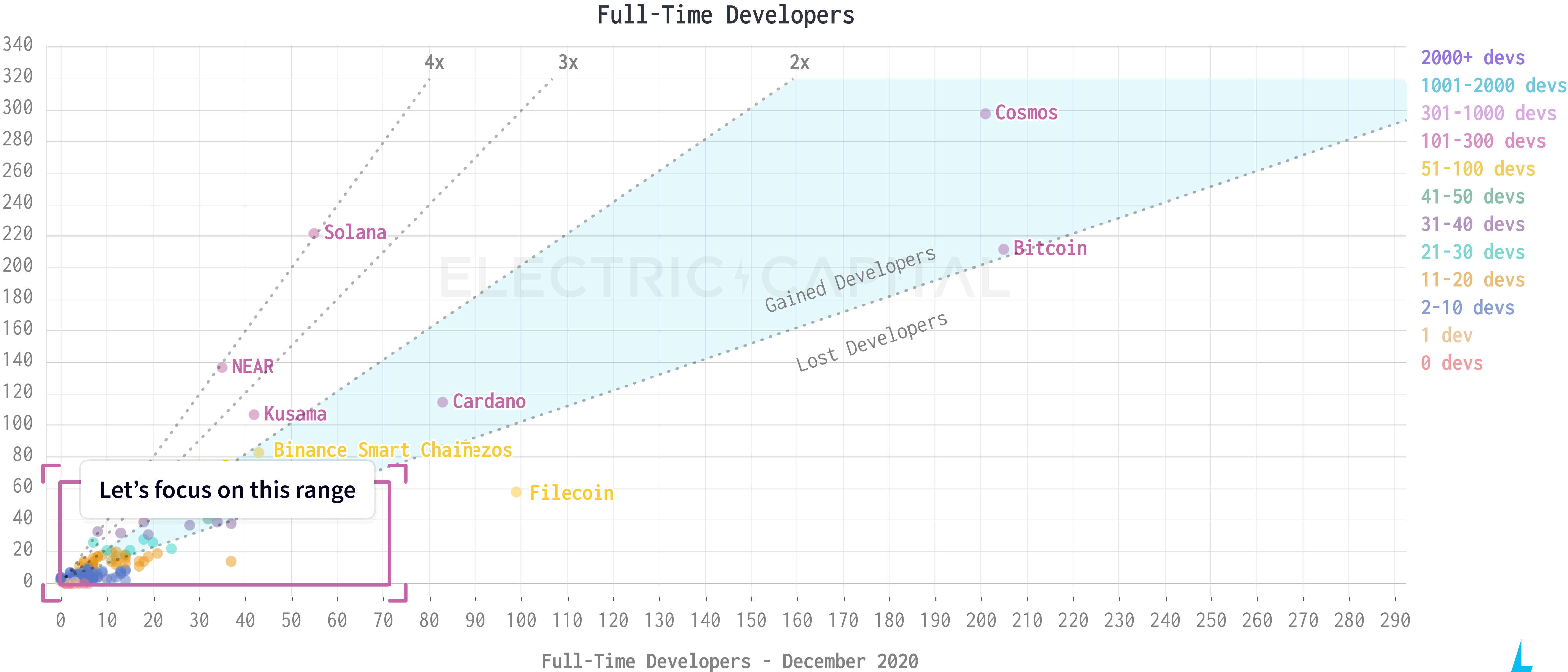
We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series. Updated January 2022 to include Flow.



COSMOS, BITCOIN, CARDANO, BSC, AND CELO ALL GAINED MONTHLY ACTIVE DEVS

ELECTRIC⚡CAPITAL

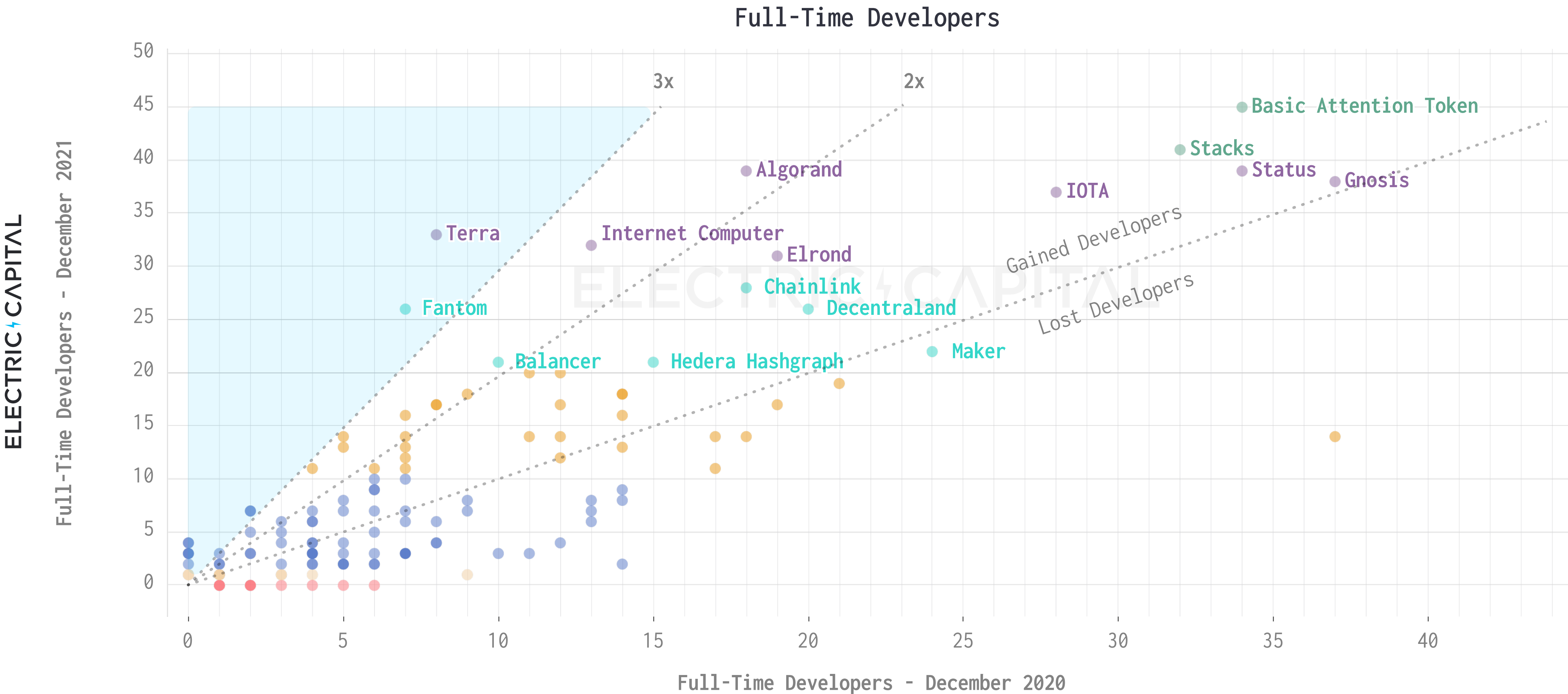
Full-Time Developers - December 2021



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



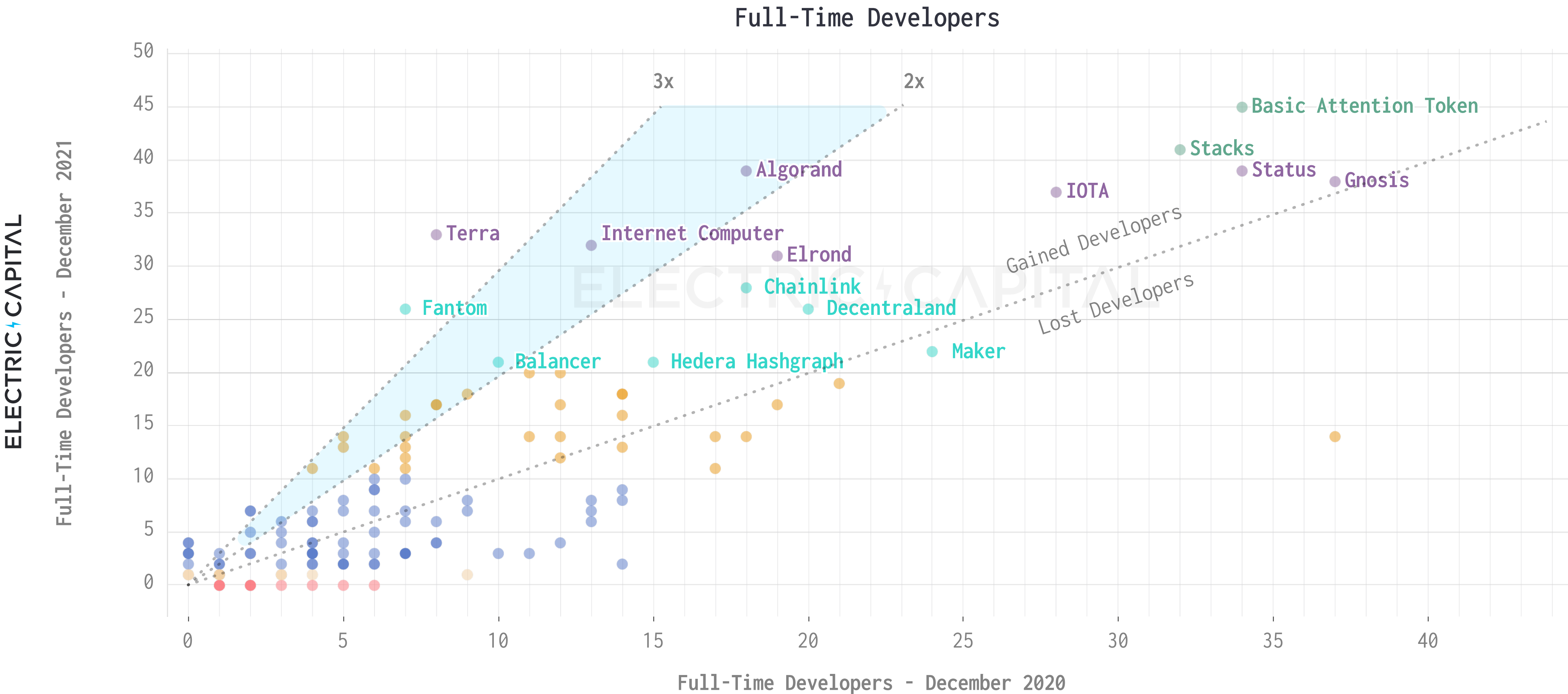
FOR ECOSYSTEMS WITH 20-50 FULL-TIME DEVS: TERRA AND FANTOM MORE THAN 3X'D



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



ALGORAND, INTERNET COMPUTER AND BALANCER MORE THAN 2X'D



We only count open-source developers. The numbers are averages for the whole month of December and might slightly defer with December numbers from earlier time series.



**BUT THESE ECOSYSTEMS LAUNCHED AT DIFFERENT TIMES.
LET'S NORMALIZE LAUNCH DATE...**

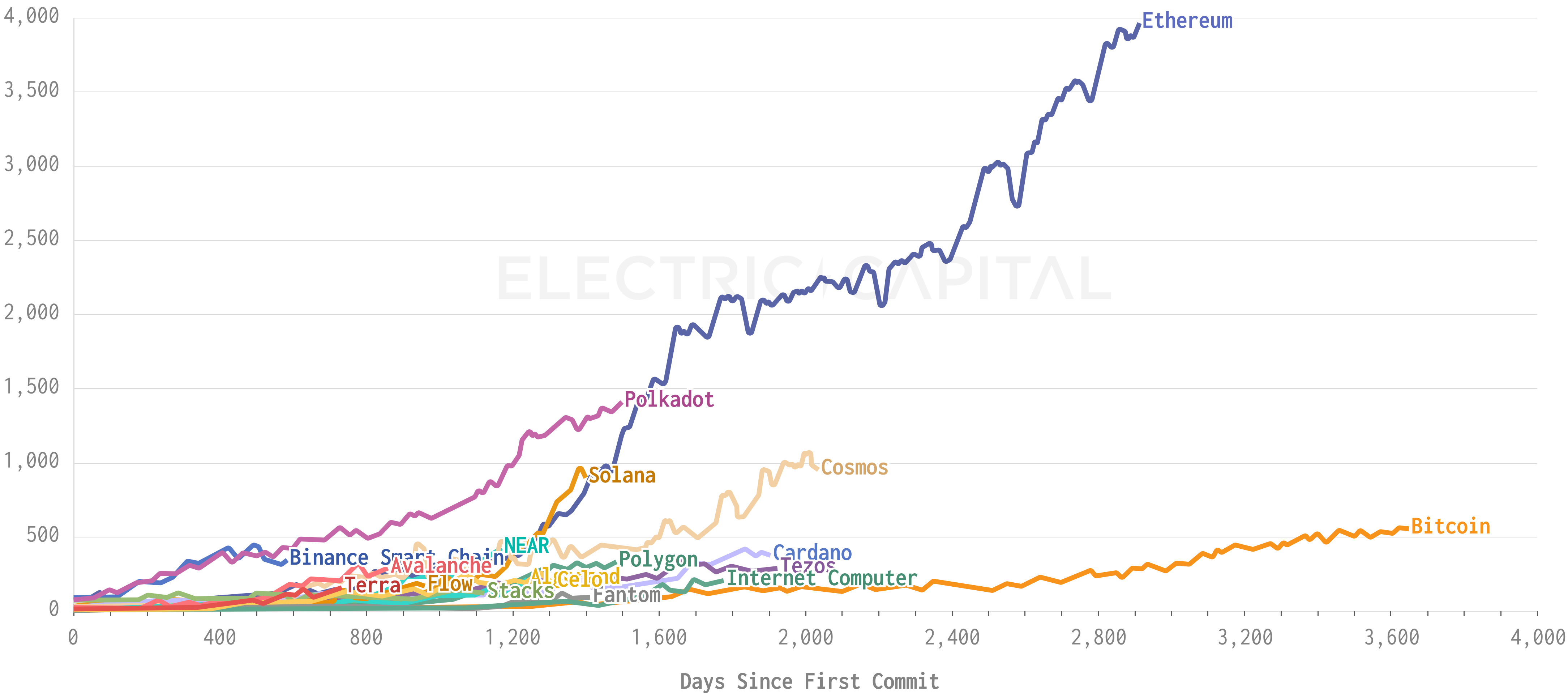
**LET'S START BY LOOKING AT THE LARGEST AND MOST VALUABLE
ECOSYSTEMS...**

WE CAN COMPARE DEVELOPER GROWTH BY INDEXING AT THE DAY OF THE FIRST COMMIT

ELECTRIC CAPITAL

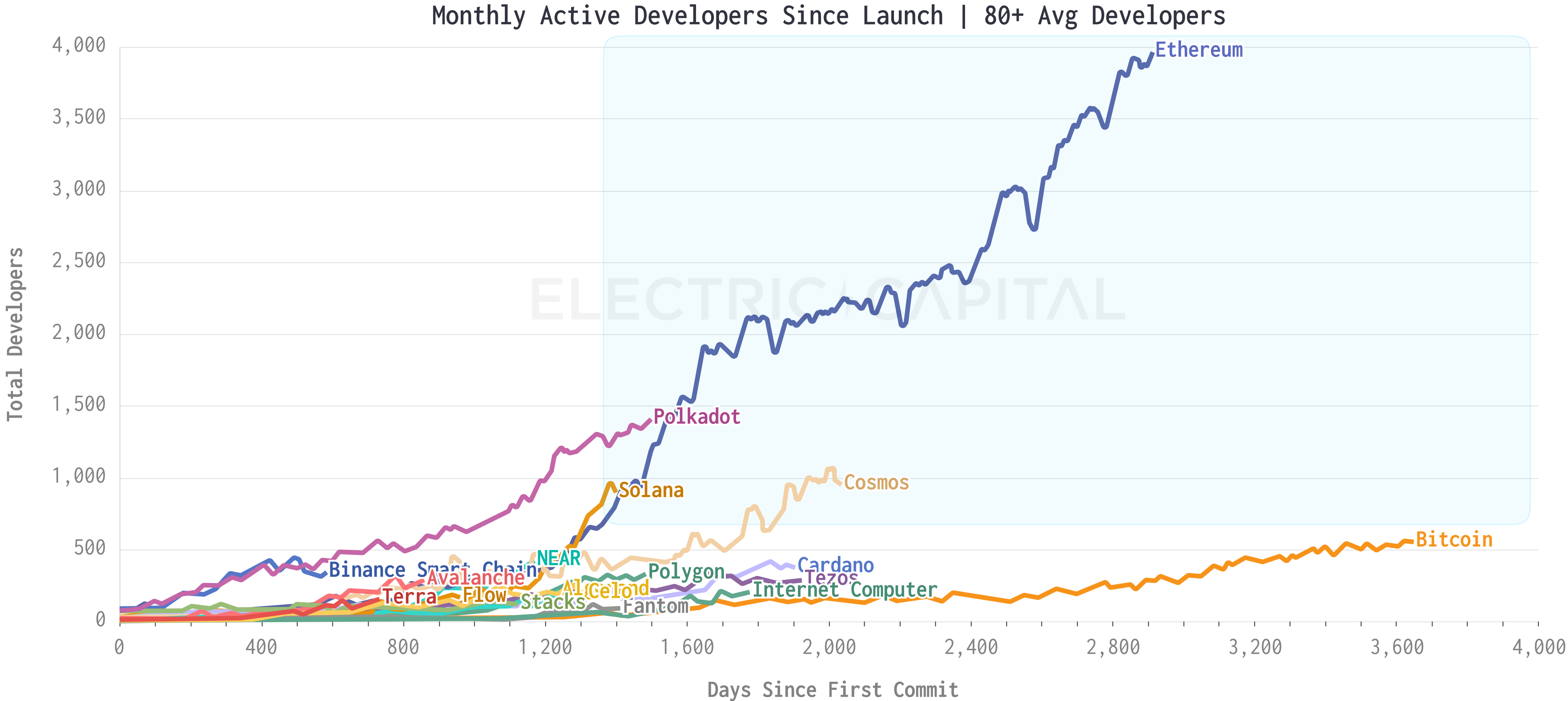
Total Developers

Monthly Active Developers Since Launch | 80+ Avg Developers



ETHEREUM, POLKADOT, COSMOS, SOLANA, AND BITCOIN HAVE THE LARGEST ECOSYSTEMS - BUT THEY HAVE TAKEN VERY DIFFERENT PATHS TO GET HERE

ELECTRIC CAPITAL

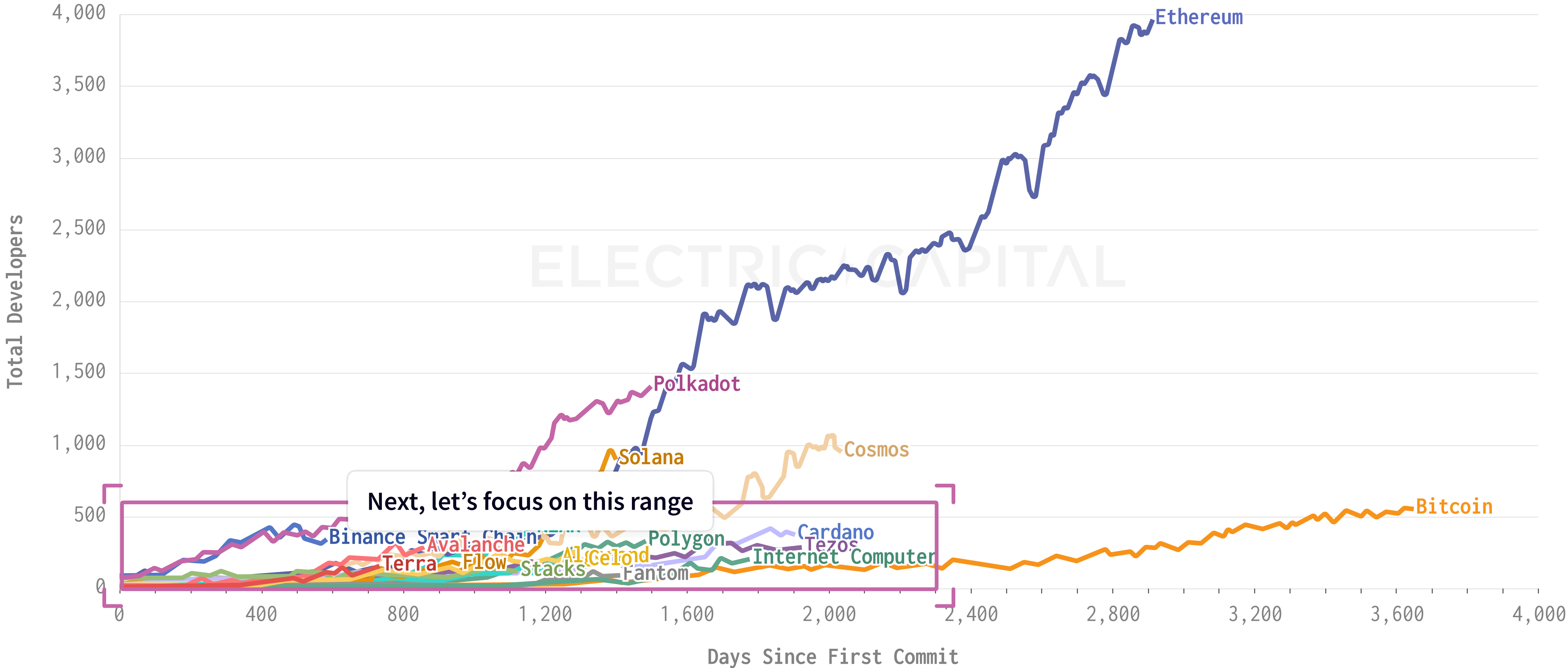


LET'S ZOOM IN TO EMERGING ECOSYSTEMS

ELECTRIC CAPITAL

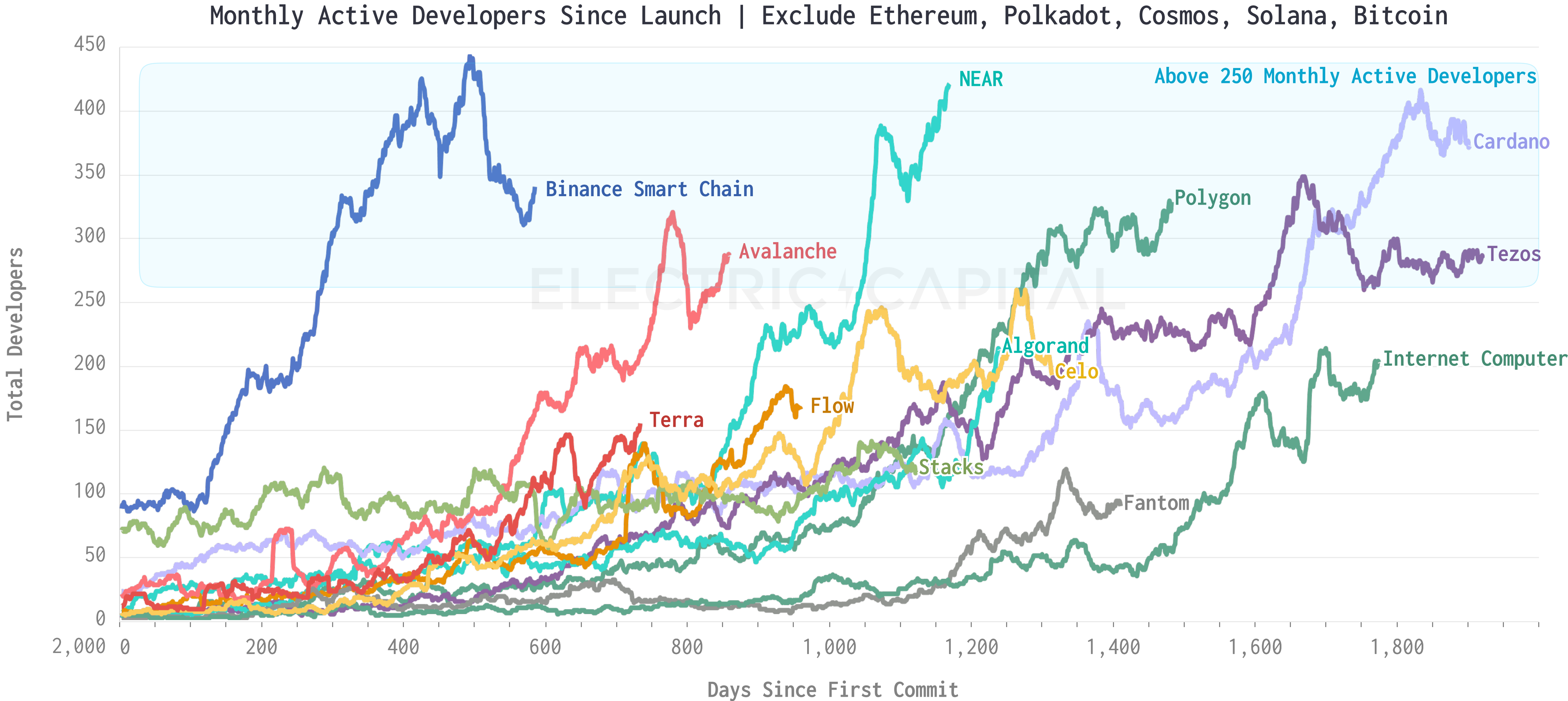
Total Developers

Monthly Active Developers Since Launch | 80+ Avg Developers



BSC, AVALANCHE, NEAR, CARDANO, POLYGON, AND TEZOS HAVE 250+ DEVELOPERS

ELECTRIC CAPITAL

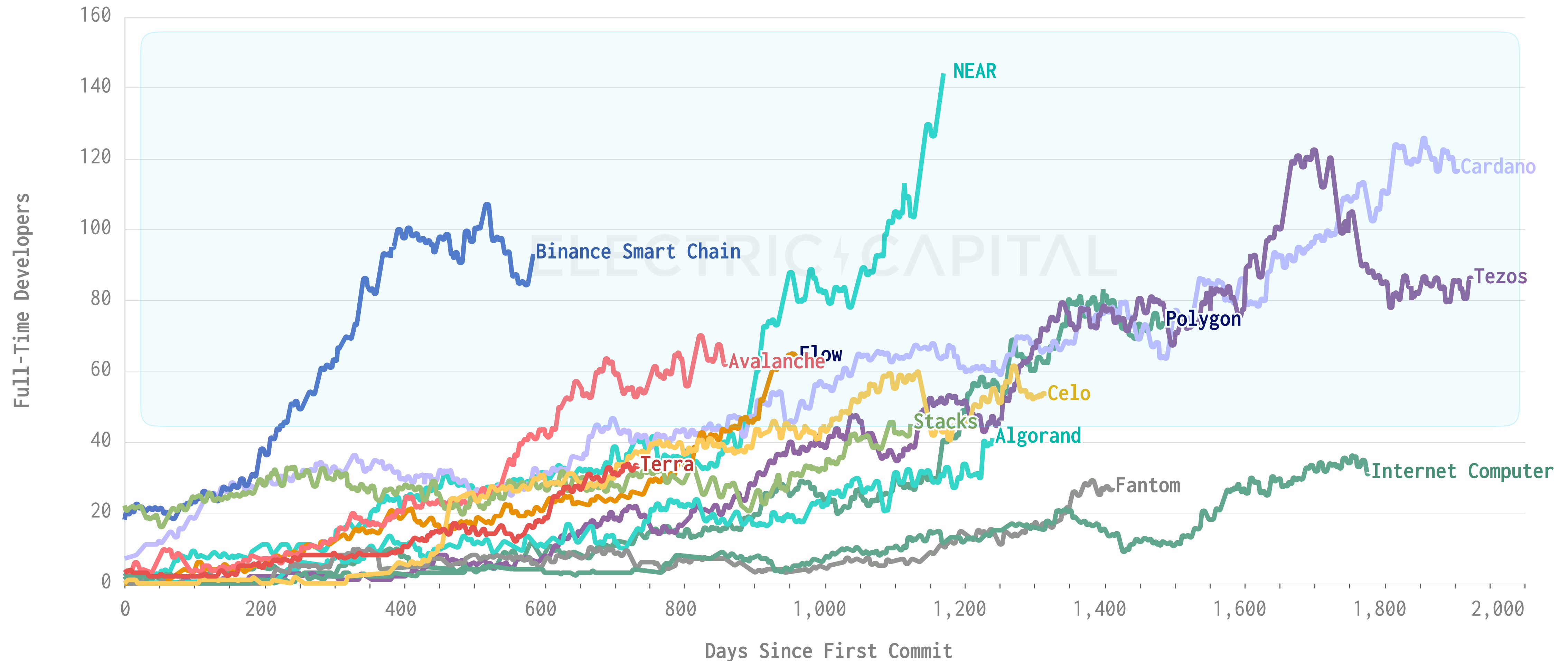


Only open-source developers are counted. Some Layer-1s like Avalanche, Terra, and Flow have more close-source repositories and will appear smaller.



THERE ARE MANY NEW EMERGING ECOSYSTEMS WITH 50+ FULL-TIME DEVS

Monthly Active Developers Since Launch | Exclude Ethereum, Polkadot, Cosmos, Solana, Bitcoin



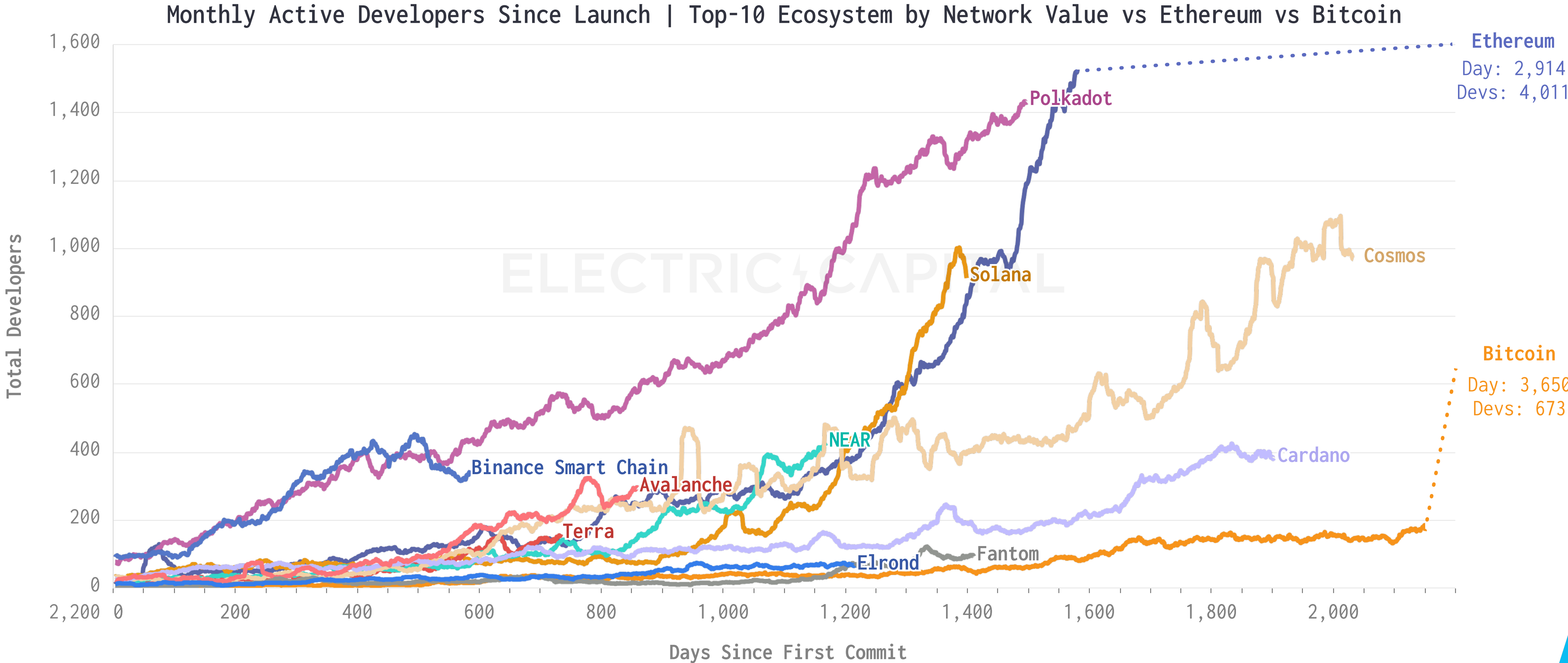
Only open-source developers are counted. Some Layer-1s like Avalanche, Terra, and Flow have more close-source repositories and will appear smaller.



LET'S ZOOM IN TO BREAKOUT LAYER-1 ECOSYSTEMS...

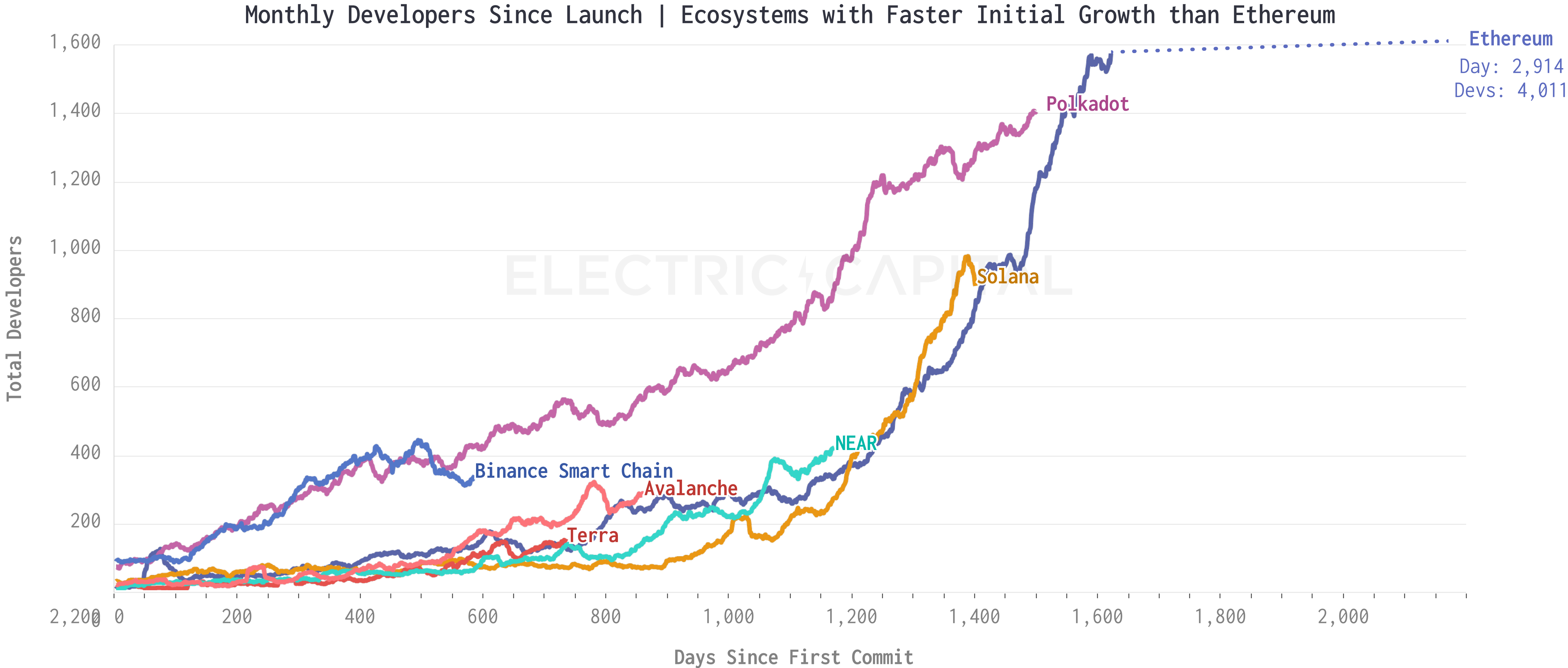
HOW DO THE TOP LAYER-1 ECOSYSTEMS (BASED ON NETWORK VALUE) COMPARE?

ELECTRIC CAPITAL



POLKADOT, SOLANA, NEAR, BSC, AVALANCHE, AND TERRA HAVE FASTER INITIAL ECOSYSTEM GROWTH THAN ETHEREUM

ELECTRIC⚡CAPITAL

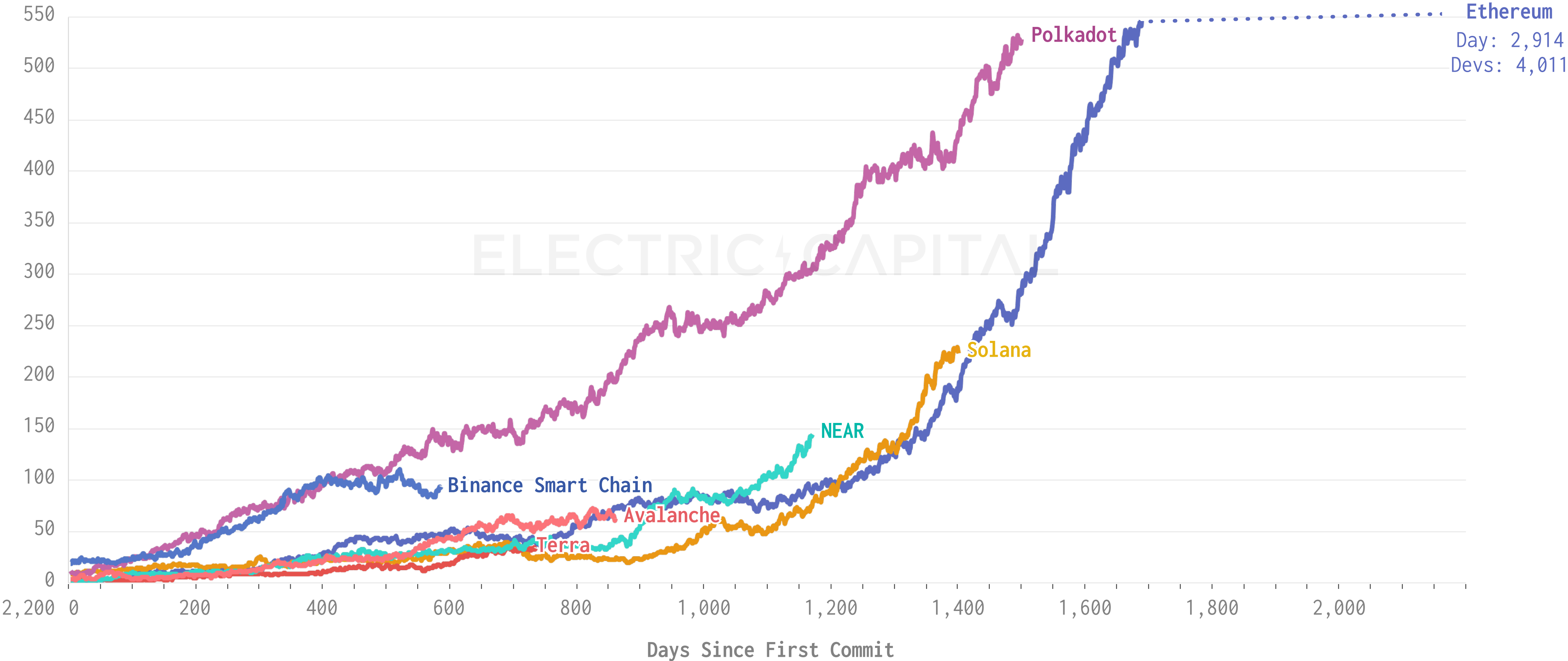


FULL-TIME DEVELOPERS: POLKADOT, NEAR, SOLANA, AND BSC HAVE MORE FULL-TIME DEVS THAN ETHEREUM AT THE SAME POINT AFTER FIRST CODE COMMIT

Full-Time Monthly Developers Since Launch | Ecosystems with Faster Initial Growth than Ethereum

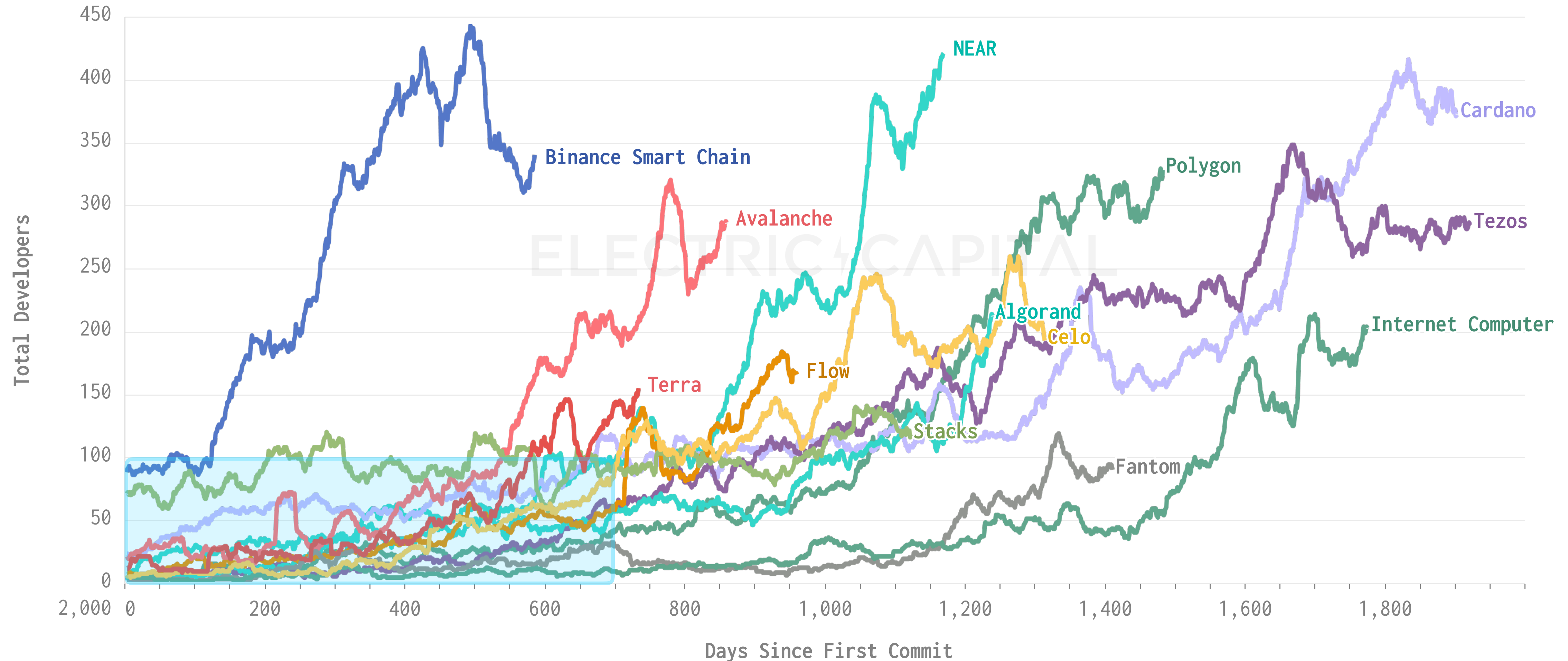
ELECTRIC CAPITAL

Full-Time Developers



THAT BEING SAID, BUILDING COMMUNITY TAKES YEARS: MOST COMMUNITIES TAKE 2+ YEARS TO ATTRACT 100+ DEVELOPERS

Monthly Active Developers Since Launch | Exclude Ethereum, Polkadot, Cosmos, Solana, Bitcoin



Only open-source developers are counted. Some Layer-1s like Avalanche, Terra, and Flow have more close-source repositories and will appear smaller.



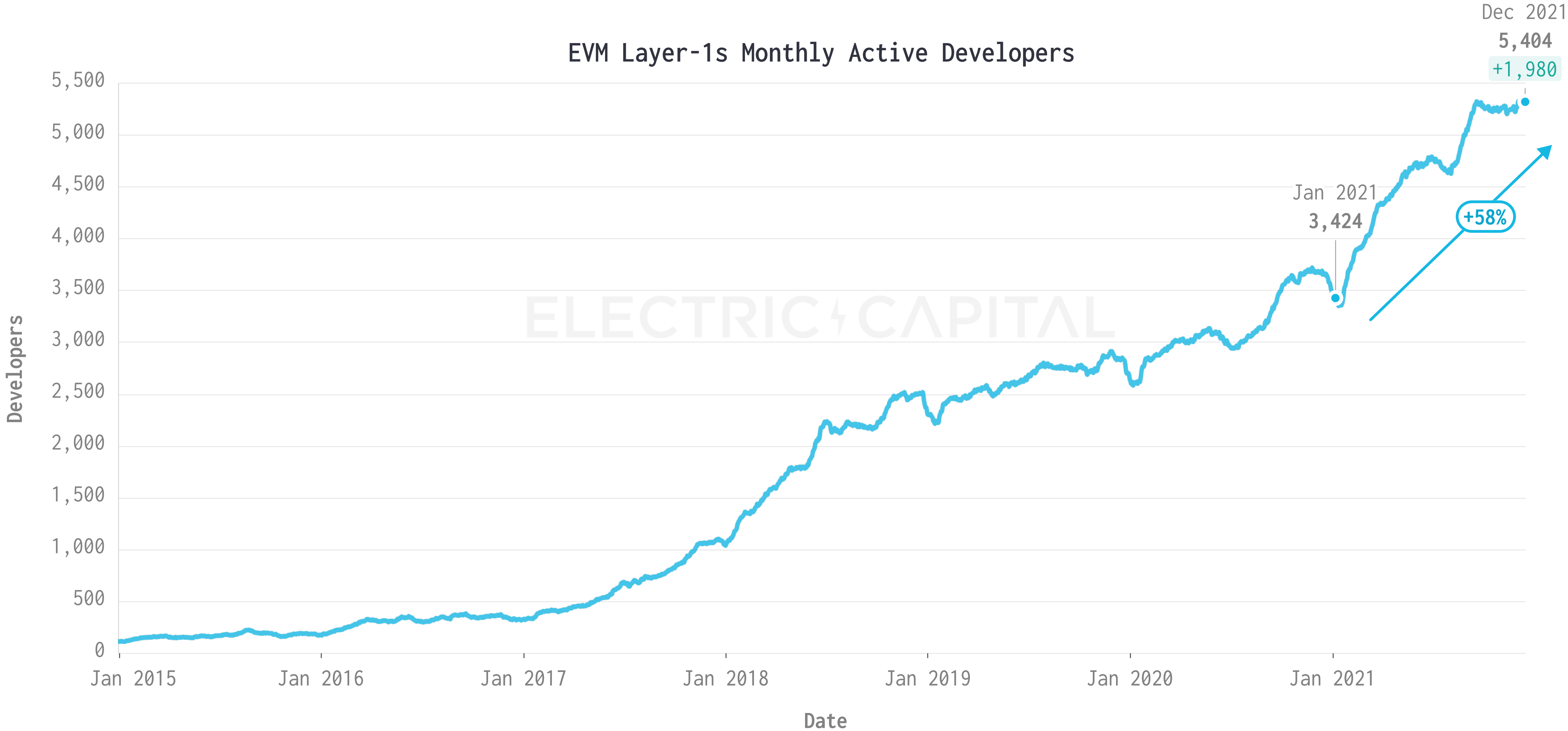
**MANY ECOSYSTEMS ARE NOW ETHEREUM VIRTUAL MACHINE (EVM)
COMPATIBLE TO ATTRACT DEVELOPERS.**

HOW IS THAT GOING?

30% OF ALL DEVELOPERS ARE WRITING CODE ON AN ETHERUM VIRTUAL MACHINE

COMPATIBLE LAYER-1S: +1,980 MONTHLY PRIMARY DEVS +58% SINCE JAN 2021

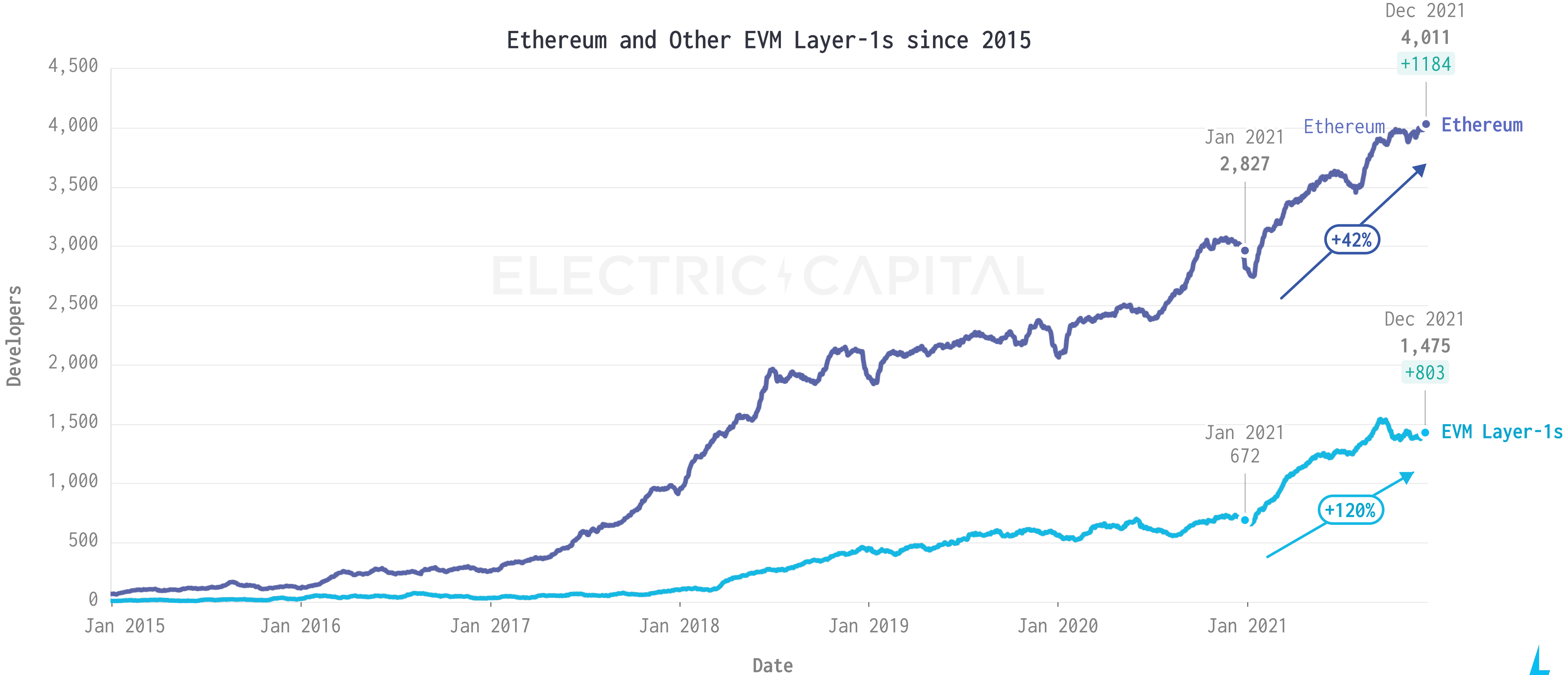
ELECTRIC⚡CAPITAL



EVM-COMPATIBLE LAYER-1S EXCLUDING ETHEREUM GREW BY +120% IN 2021...

EVM-COMPATIBLE CHAINS ARE GROWING FASTER THAN ETHEREUM!

ELECTRIC⚡CAPITAL



Some Developers work across EVM Layer-1s and Ethereum. The sum of these two lines will be greater than total developers in EVM-compatible chains.



**ARE THESE DEVELOPERS COPYING CODE FROM ETHEREUM OR PRIMARILY
CONTRIBUTING TO THE NEW EVM CHAINS?**

DOES BEING EVM-COMPATIBLE ALLOW FOR NEW, SELF-SUFFICIENT ECOSYSTEMS?

IN SOME CASES, YES

Primary Contributors

Developers working on projects whose token lives on the same chain as the smart contract. Even if the code is copy/pasted, these developers are committed to the new cchain more than Ethereum.

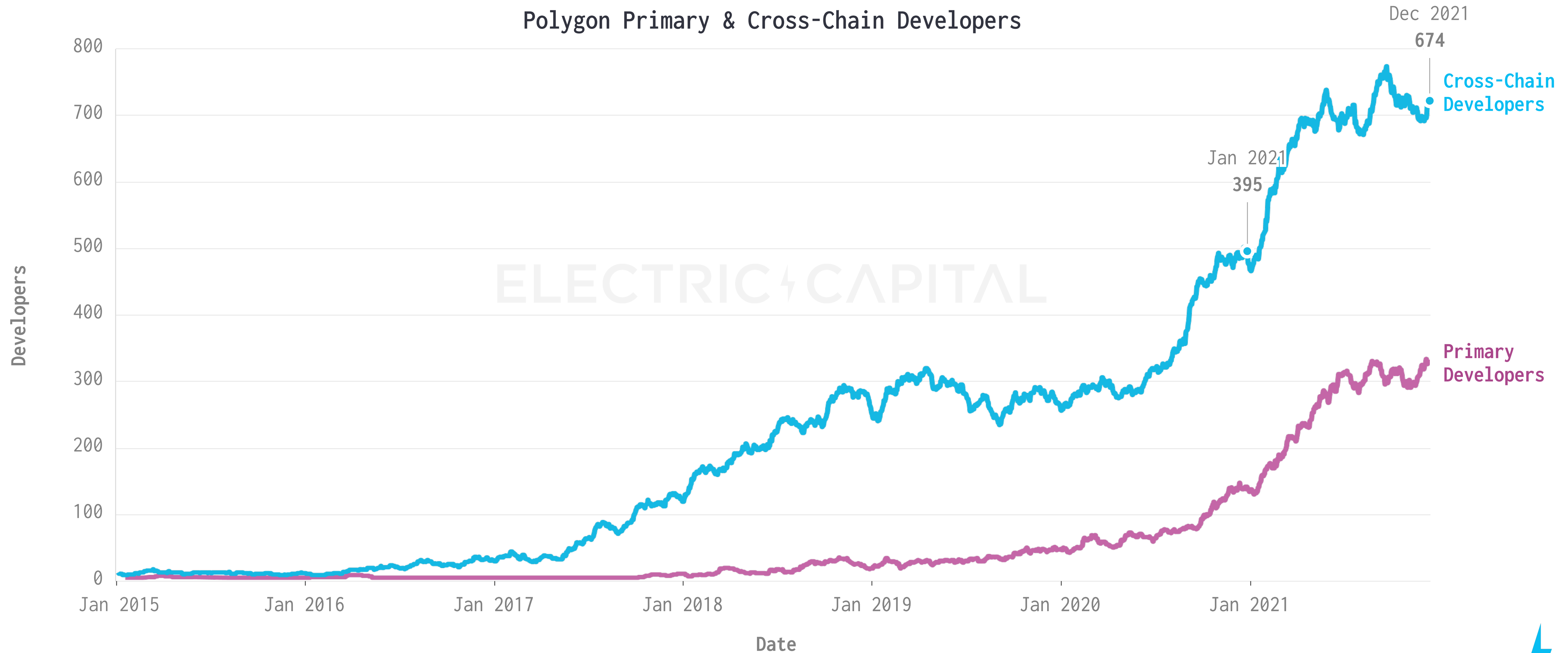
Cross-Chain Contributors

Work on projects that serve users on Chain A, but whose primary governance token lives on Chain B. This implies these developers are not primarily committed to Chain A.



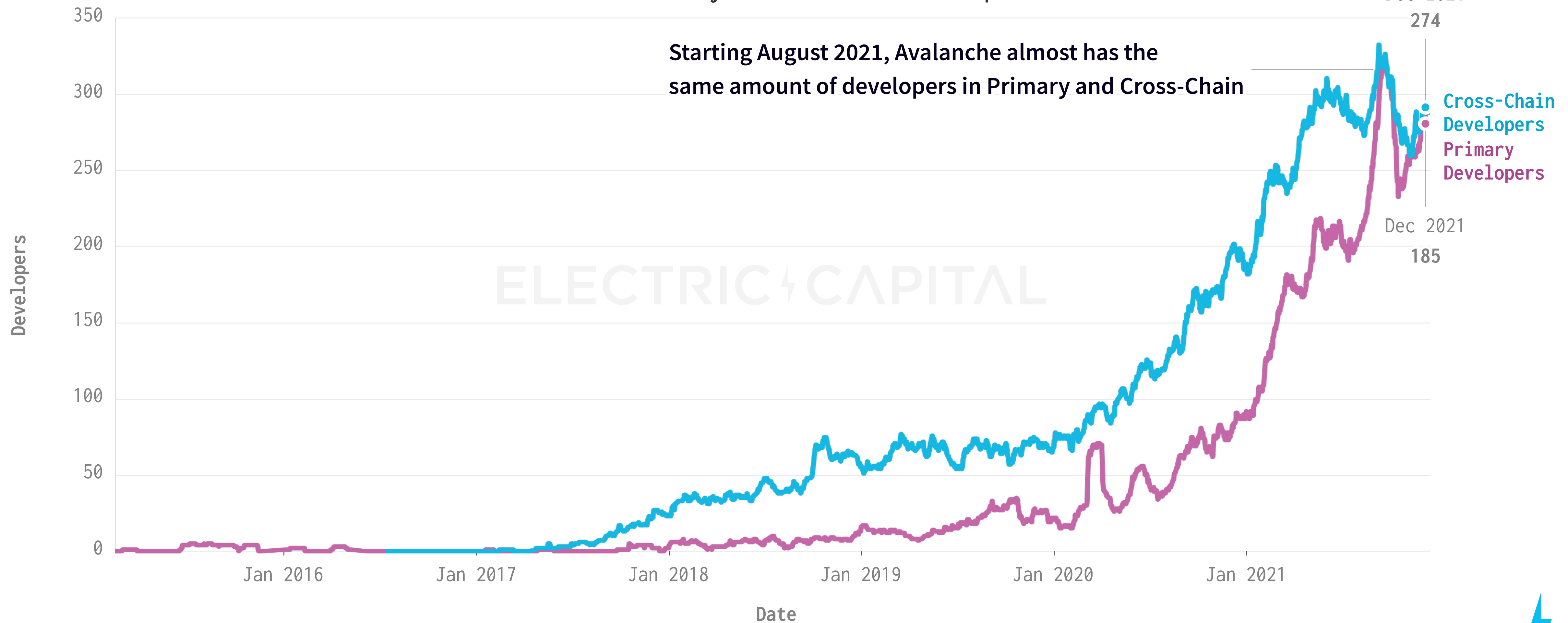
SOME CHAINS LIKE POLYGON HAVE MORE CROSS-CHAIN DEVELOPERS (BUILDING ON BOTH ETHEREUM AND POLYGON) THAN PRIMARY DEVELOPERS

Polygon Primary & Cross-Chain Developers



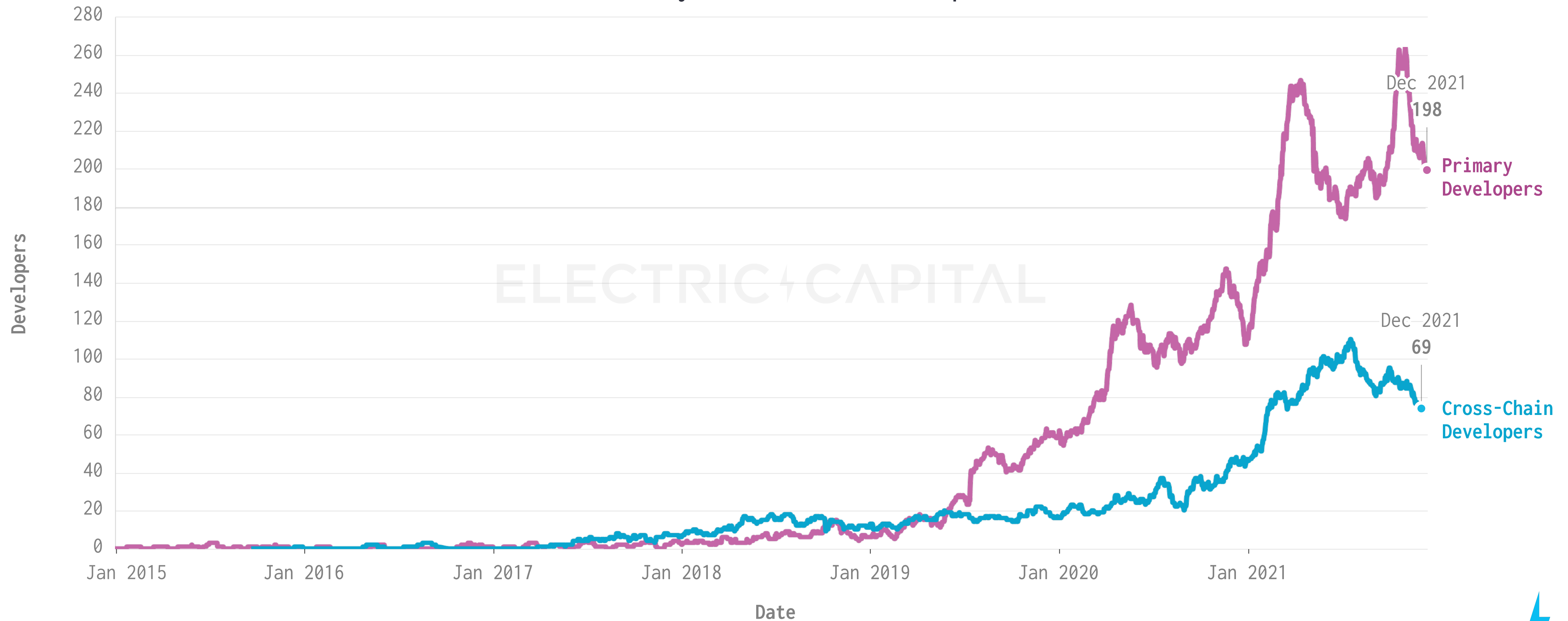
AVALANCHE HAS SEEN A SURGE IN PRIMARY DEVELOPERS AFTER BOOTSTRAPPING OFF OF CROSS-CHAIN DEVS

Avalanche Primary & Cross-Chain Developers



CELO HAS CLOSE TO 2X PRIMARY DEVELOPERS VS. CROSS-CHAIN DEVELOPERS, ALSO BOOTSTRAPPED BY FIRST HAVING PRIMARILY CROSS-CHAIN DEVS

Celo Primary & Cross-Chain Developers

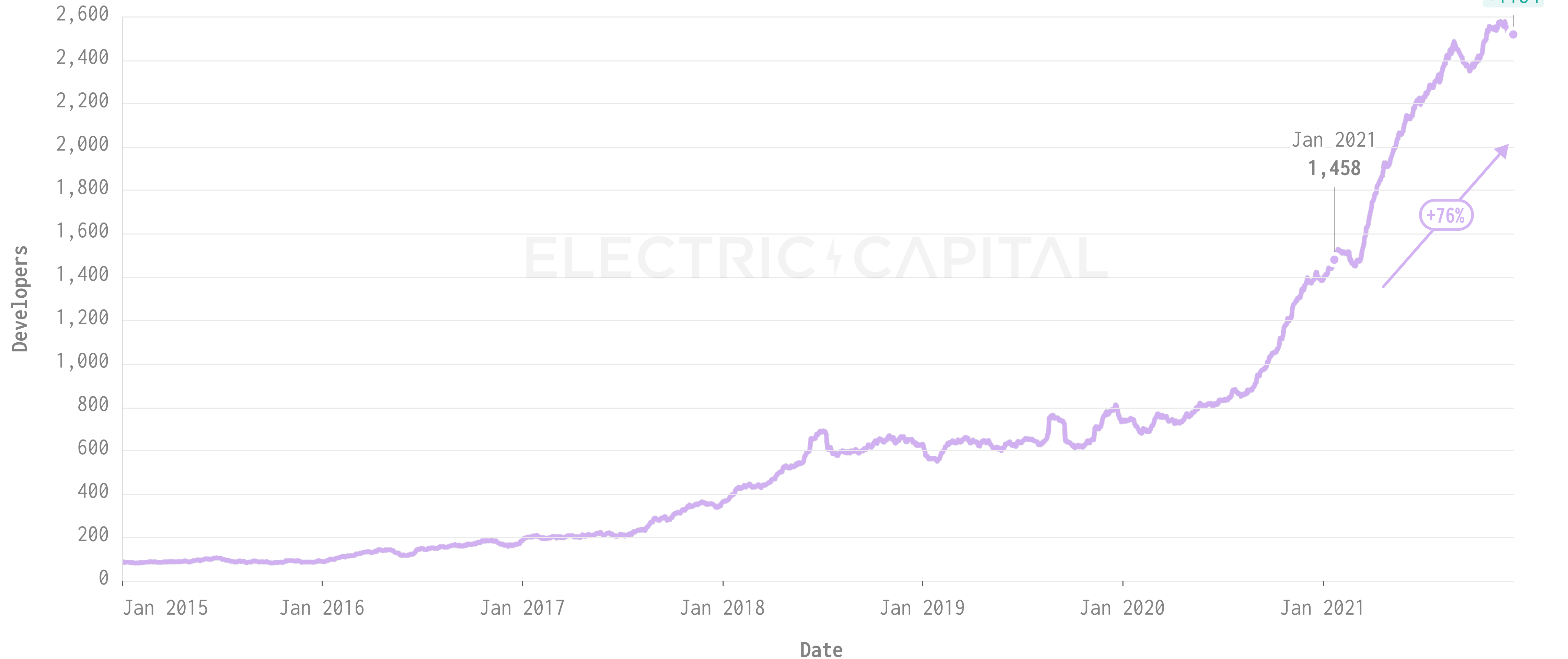


**IT LOOKS LIKE BOOTSTRAPPING A NEW ECOSYSTEM VIA EVM
COMPATABILITY CAN WORK!**

HOW IS DEFI DOING?

DEFI HAS GROWN WITH OVERALL DEVELOPER GROWTH +76% TO 2,571 DEVELOPERS

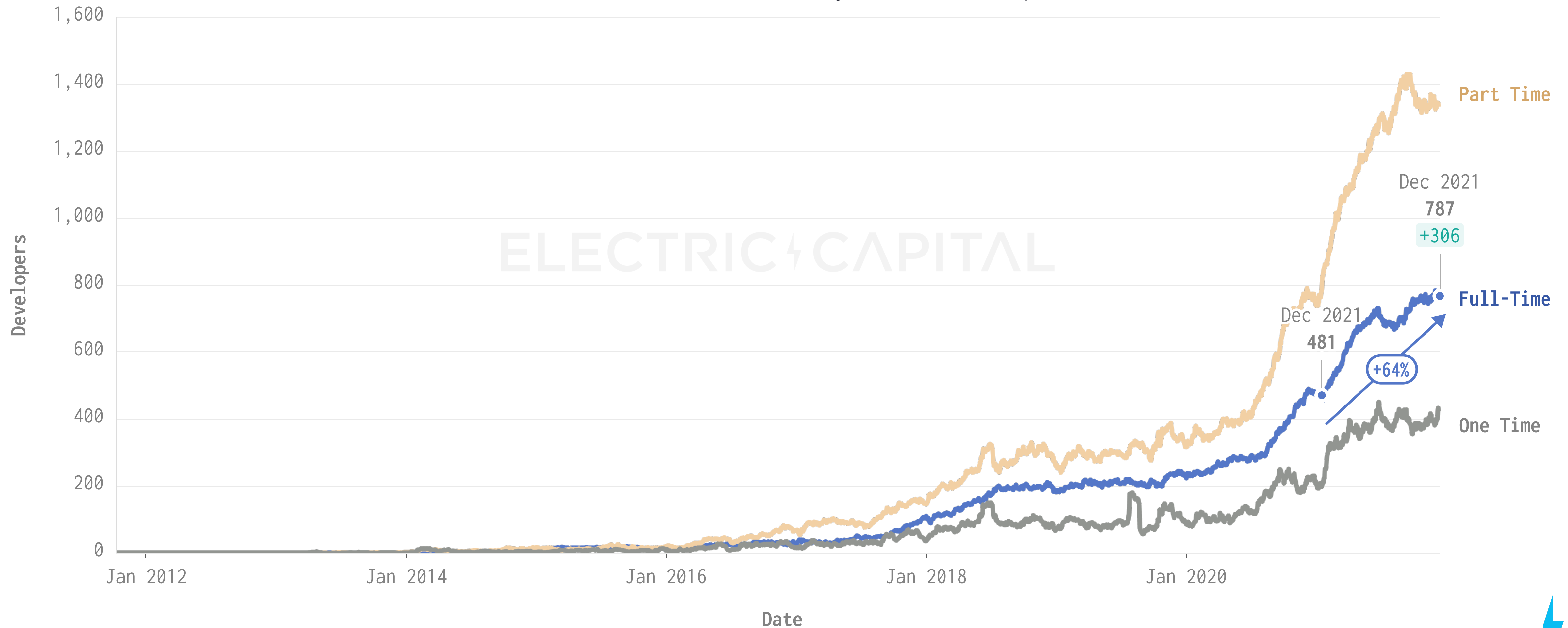
Decentralized Finance Monthly Active Developers



DEFI FULL-TIME MONTHLY ACTIVE CONTRIBUTORS GREW +64%

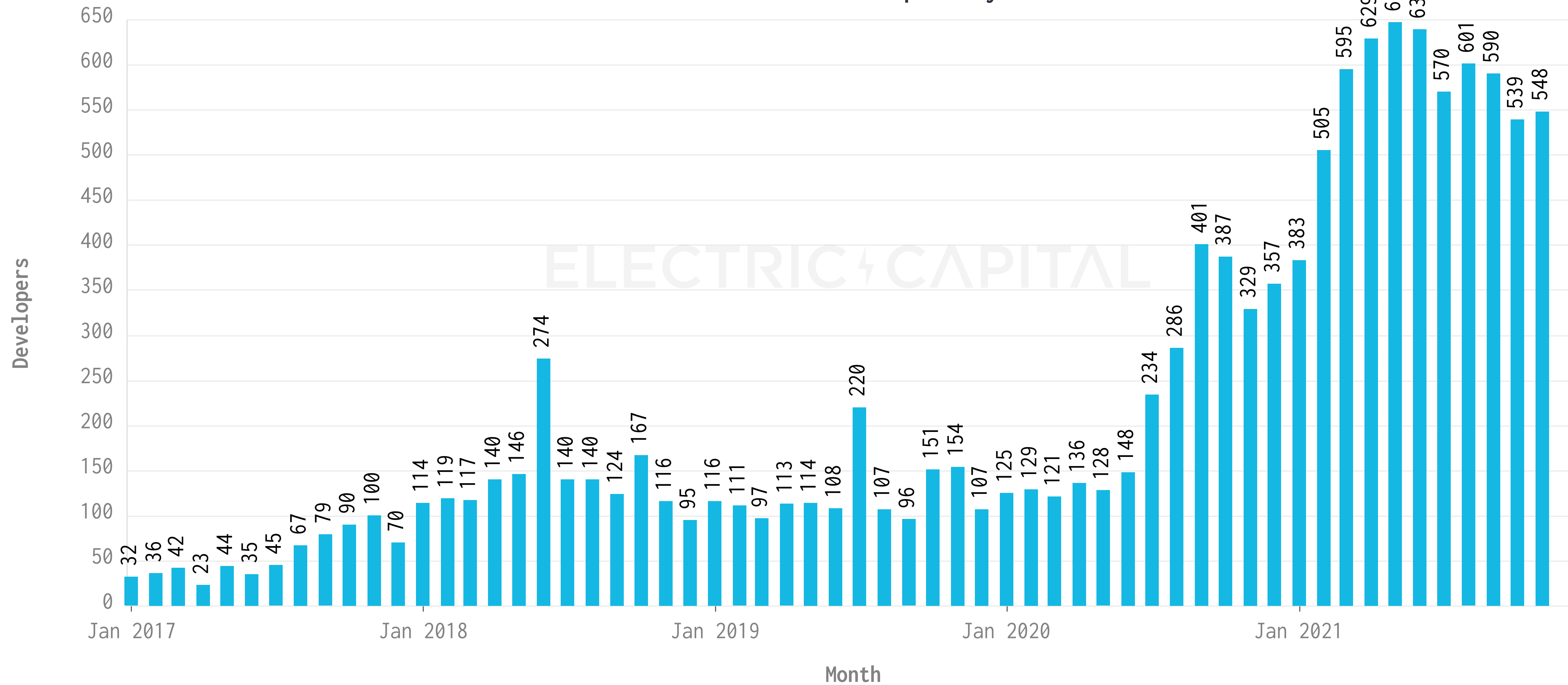
~1,000 DEVELOPERS STEWARD SMART CONTRACTS WITH \$100+ BILLION IN ASSETS

Decentralized Finance Monthly Active Developers



500+ NEW DEVELOPERS STARTED DEVELOPING IN DEFI EVERY MONTH IN 2021

Decentralized Finance Developers by Month Joined

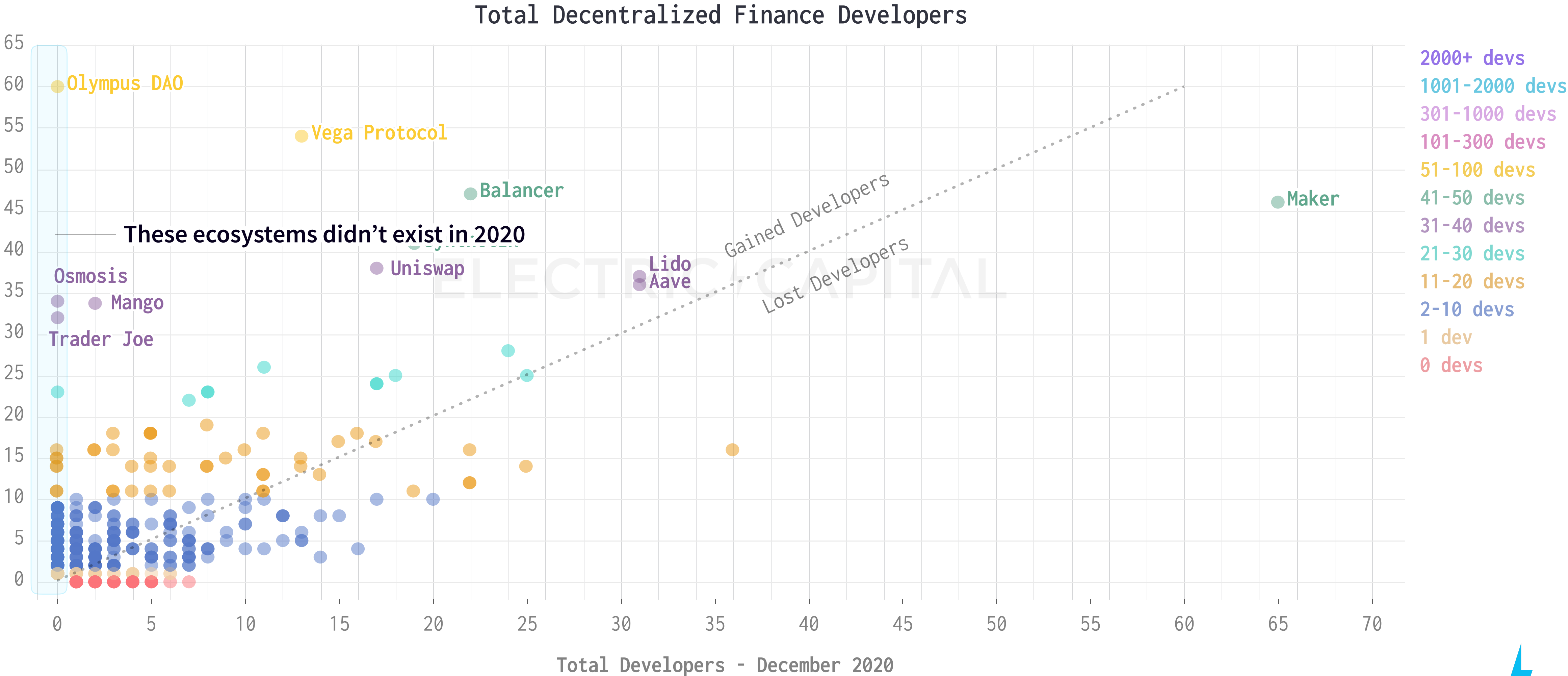


OLYMPUS DAO DID NOT EXIST ONE YEAR AGO AND HAS 60 DEVS

OSMOSIS, TRADER JOE WENT FROM 0 TO 30+ DEVS

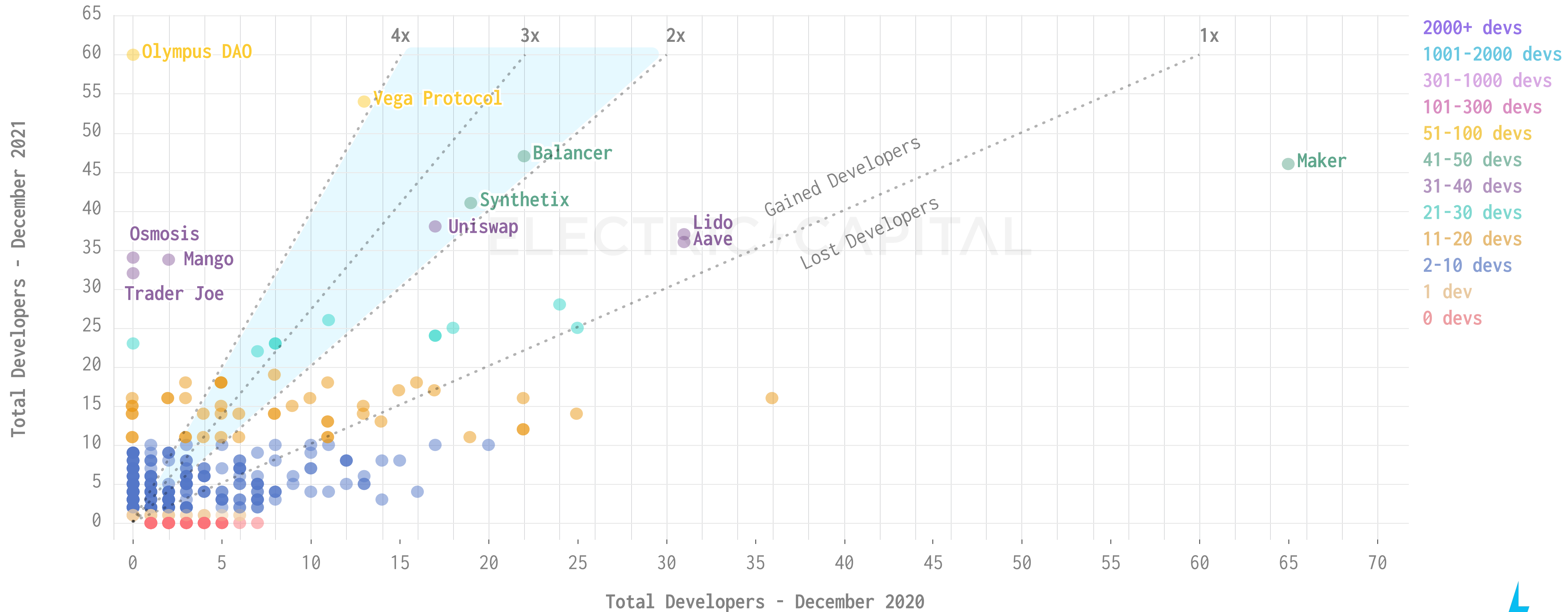
ELECTRIC CAPITAL

Total Developers - December 2021



VEGA PROTOCOL MORE THAN 4X'D, WHILE BALANCER, SYNTHETIX AND UNISWAP MORE THAN 2X'D THE NUMBER OF MONTHLY DEVELOPERS

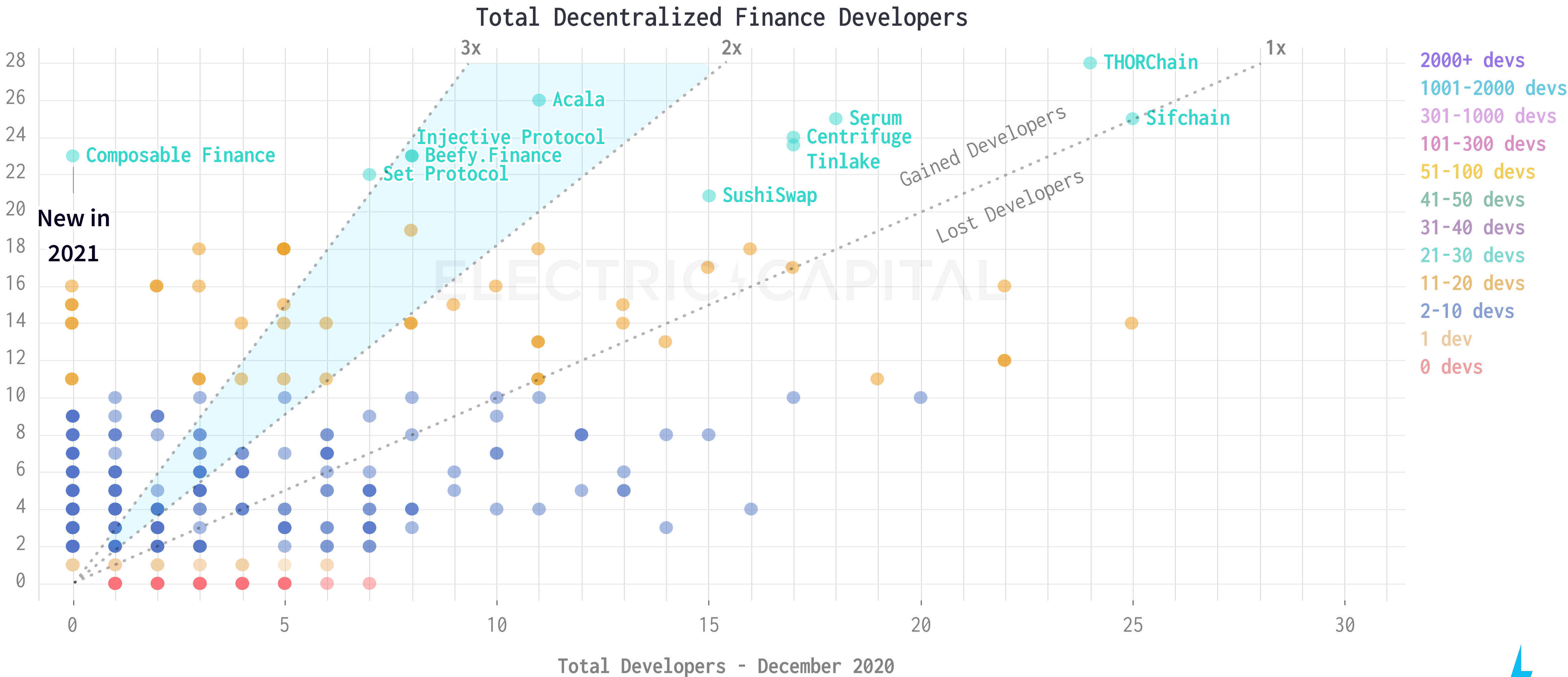
Total Decentralized Finance Developers



ECOSYSTEMS WITH 20 TO 30 DEVELOPERS: Acala, Injective Protocol and Beefy Finance More Than 2X'd in 2021

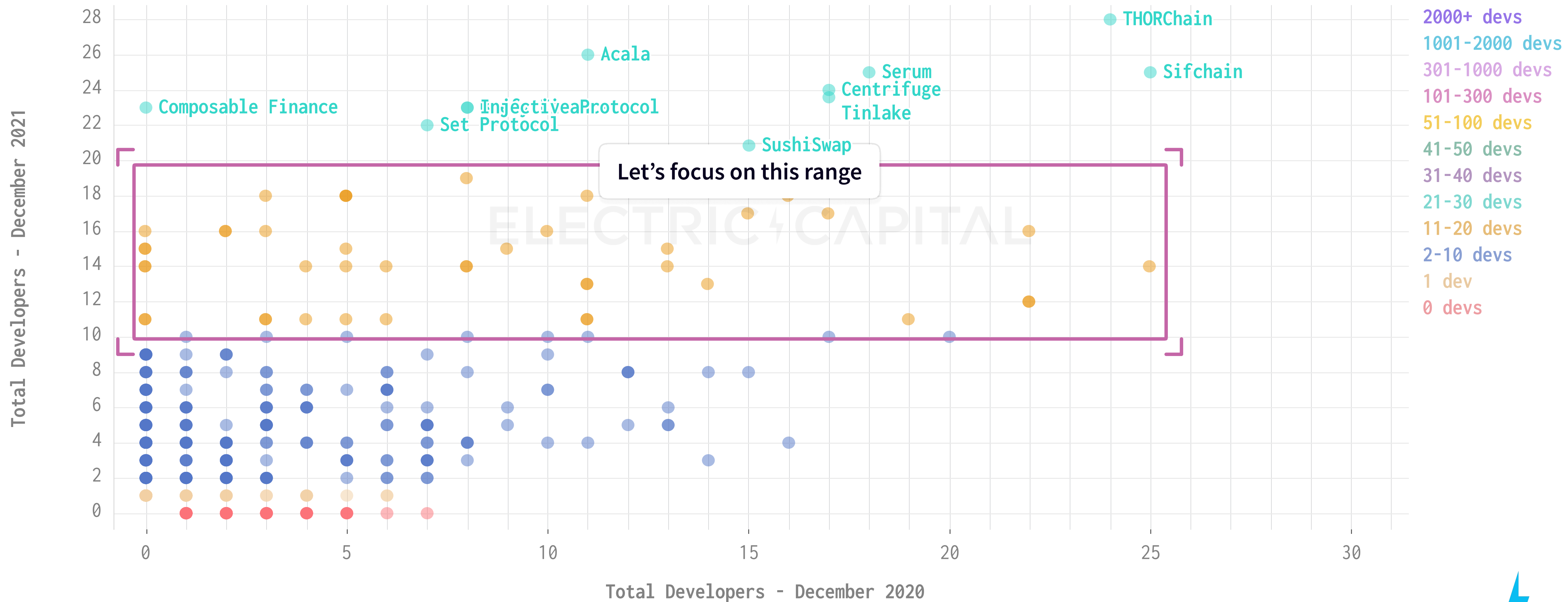
ELECTRIC CAPITAL

Total Developers - December 2021



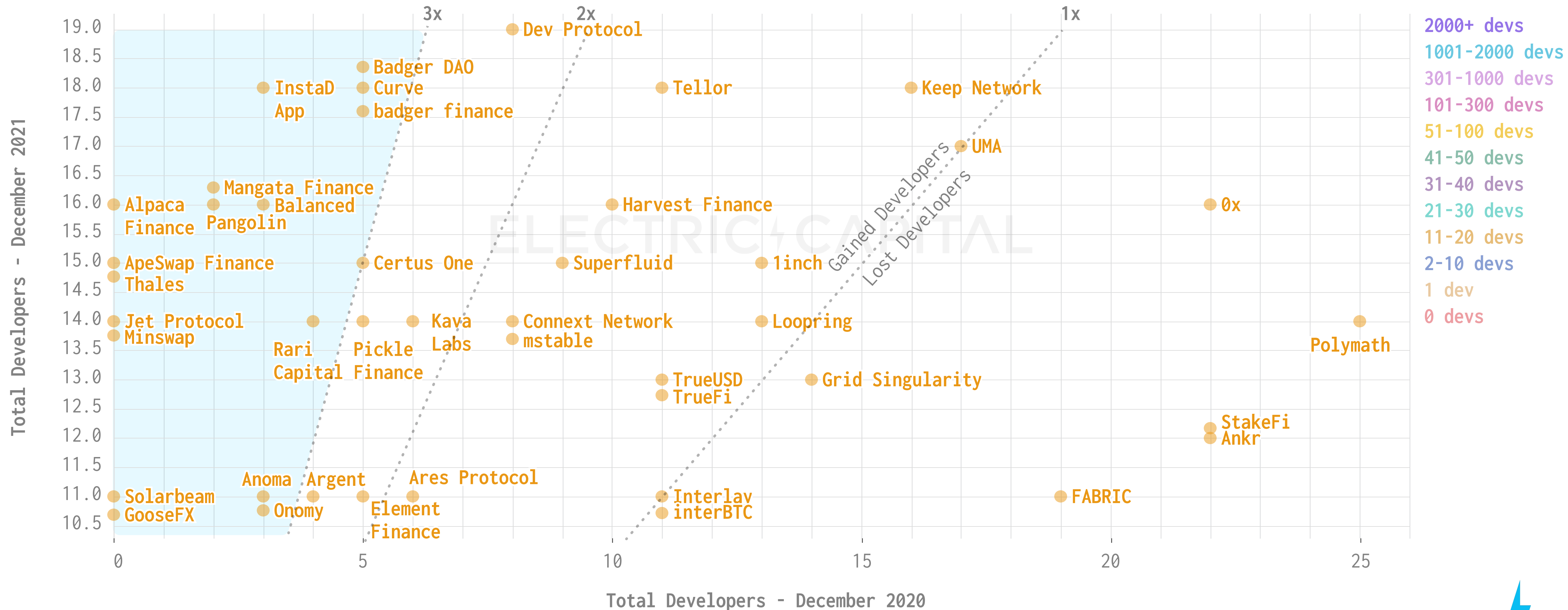
ZOOMING IN INTO DEFI ECOSYSTEMS WITH 10 TO 20 DEVELOPERS

Total Decentralized Finance Developers

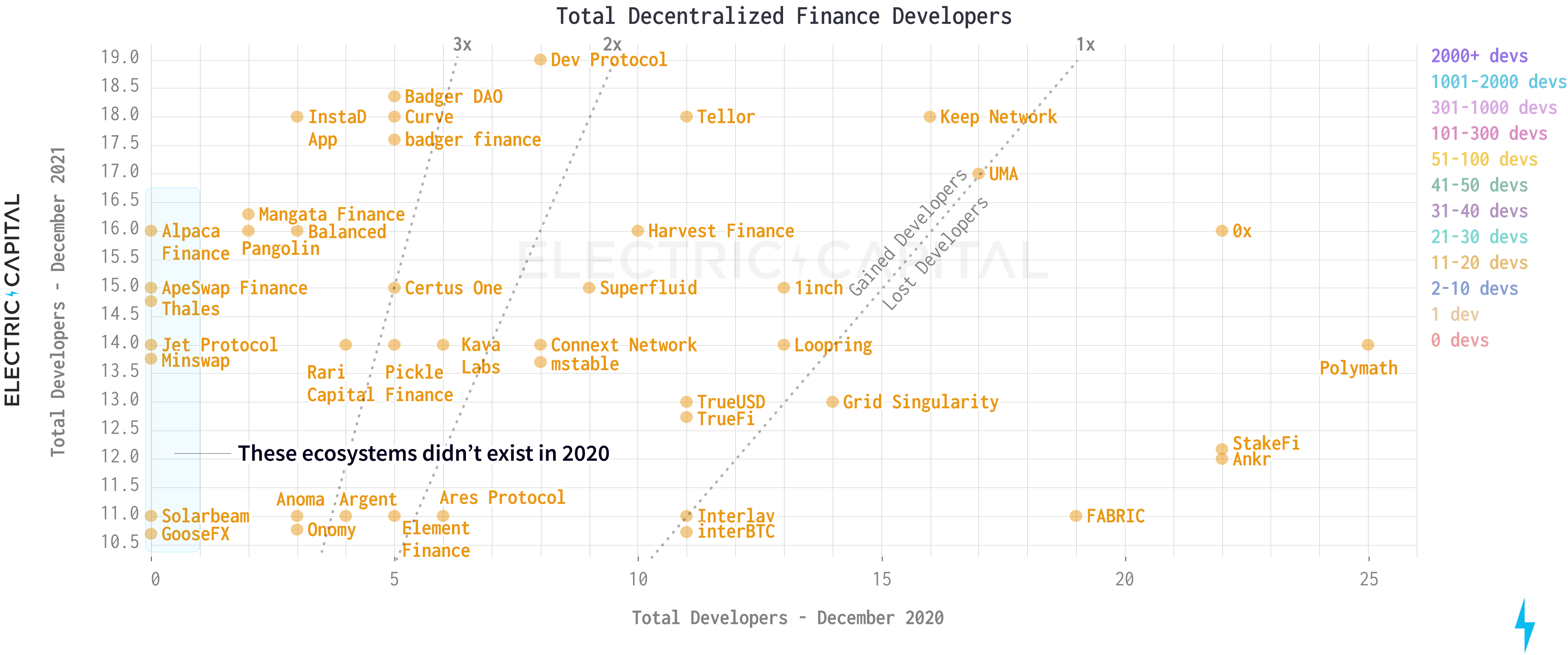


ECOSYSTEMS WITH 10 TO 20 DEVELOPERS LIKE RARI CAPITAL, INSTADAPP, BADGER, CERTUS ONE OR ALPACA FINANCE MORE THAN 3X'D IN 2021

Total Decentralized Finance Developers



PROJECTS SUCH AS ALPACA, APESWAP, THALES, JET, MINSWAP, SOLARBEAM, AND GOOSEFX STARTED WITH 0 AND HAVE ESTABLISHED TEAMS OF 10+



WHAT ABOUT NFTS, DAOS, AND GAMING?

DEVELOPER ENGAGEMENT IS NOT THE BEST LENS FOR ALL ECOSYSTEMS

NFTs, Gaming, and DAOs - New Community Signals Coming Soon

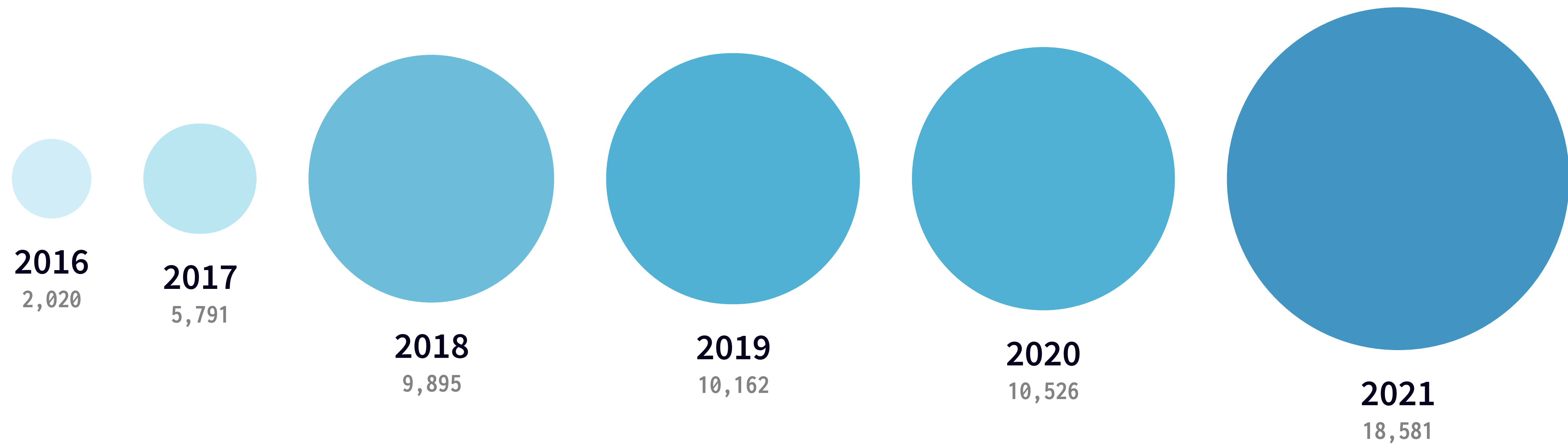
We did not deep dive into NFTs, DAOs, and Gaming since aggregate developer metrics alone may be misleading and may not be the correct leading indicator to consider. In these markets, a relatively small number of developers can build reusable components and the amount of smart contract code written will be small relative to community engagement. For example, a very small amount of code written by just one developer might drive a large PFP NFT project ecosystem. Or in the case of games, the majority of code may be off chain and closed source, thereby making extrapolation from on-chain and open source data very noisy.

We believe community engagement signals are an important and complementary leading indicator for the NFT, Gaming, and DAO markets. We are working on several novel ways to gather community data and signals and will share our results later in 2022.

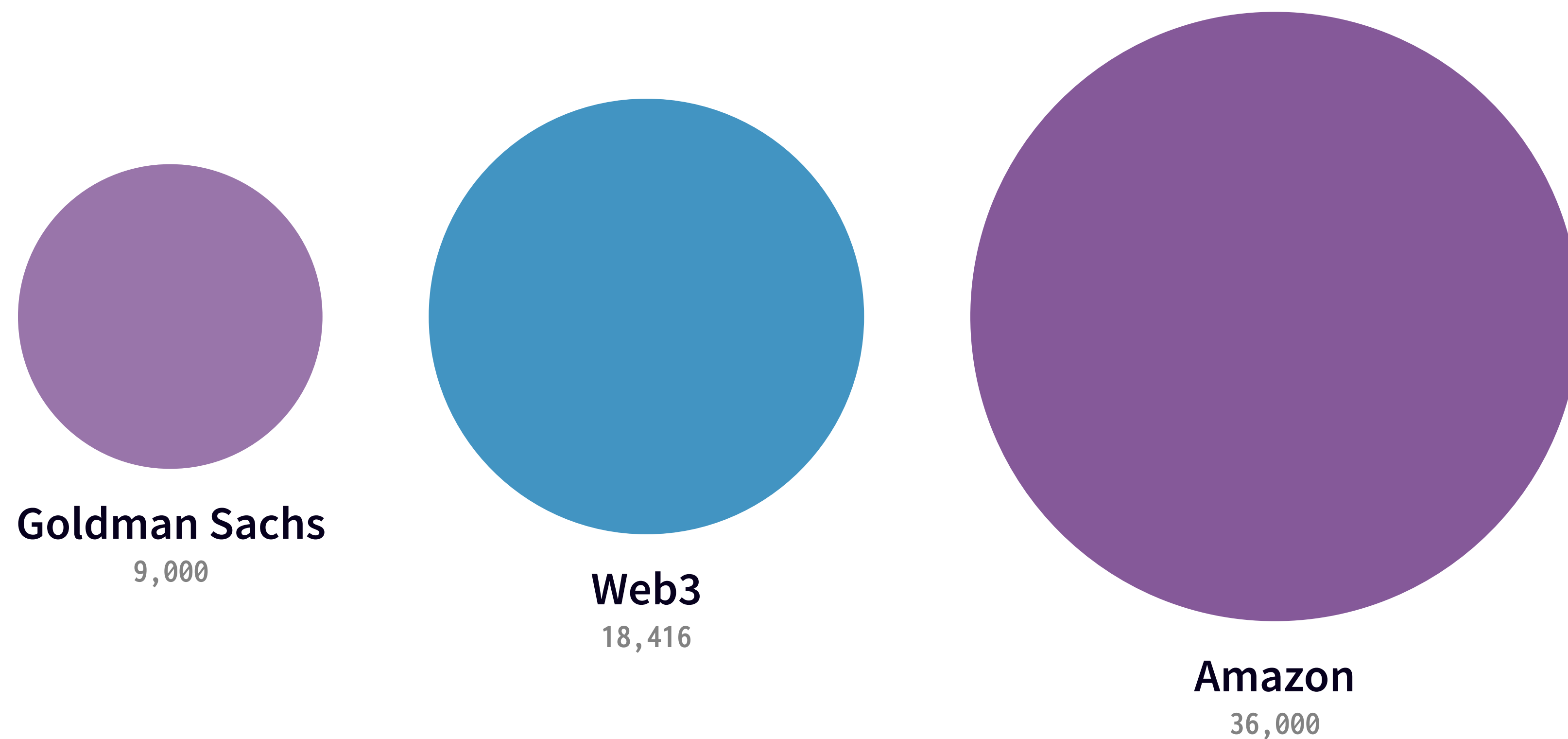


PUTTING THE WEB3 ECOSYSTEM IN CONTEXT

WEB3 DEVELOPER GROWTH



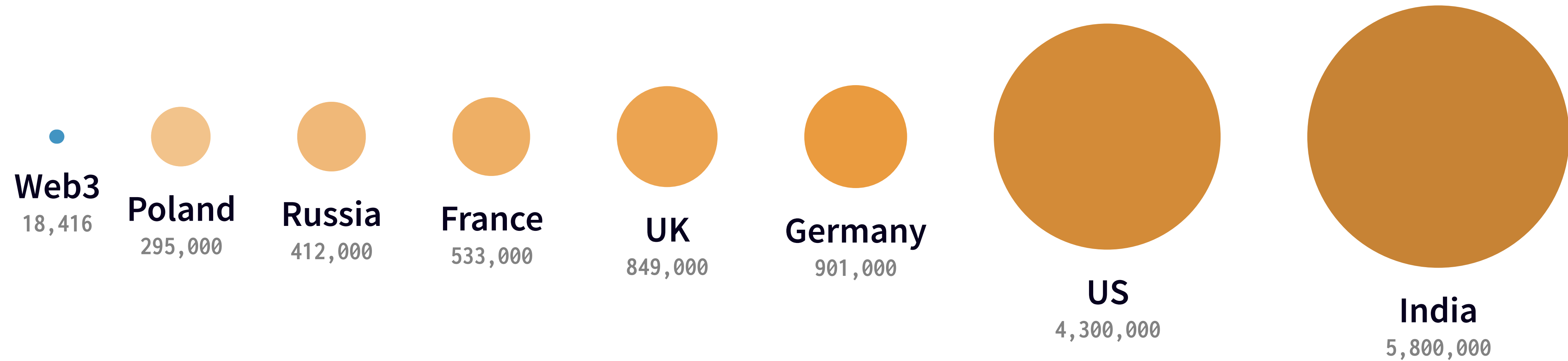
DEVELOPERS IN WEB3 VS. DEVELOPERS AT SELECT COMPANIES



<https://www.daxx.com/blog/development-trends/number-software-developers-world>



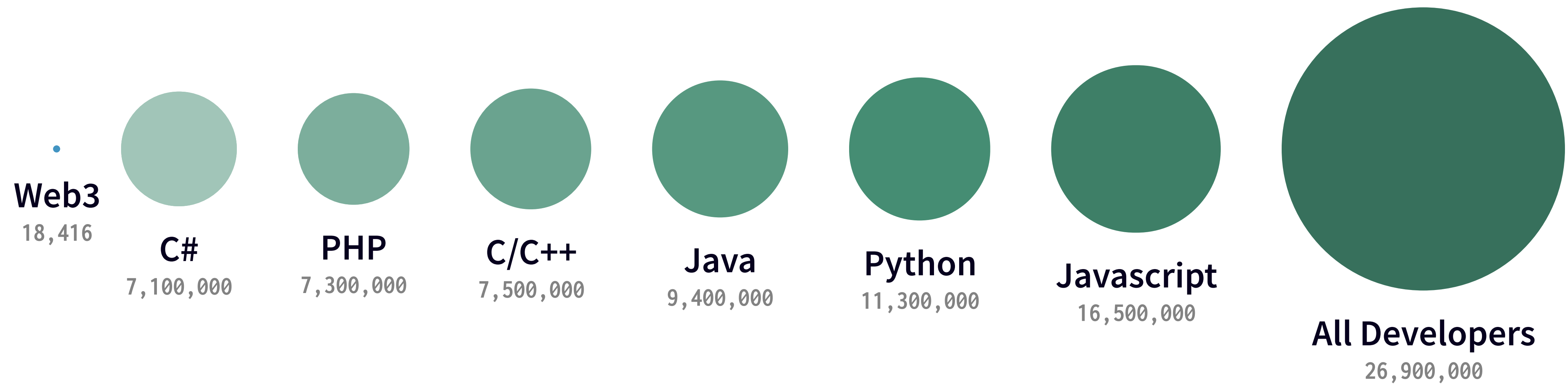
DEVELOPERS IN WEB3 VS. DEVELOPERS IN SELECT COUNTRIES



<https://www.daxx.com/blog/development-trends/number-software-developers-world>



WEB3 VS. ALL DEVELOPERS IN THE WORLD



<https://www.developernation.net/developer-reports/dn21>



WEB3 IS JUST GETTING STARTED

The growth of developers in Web3 represents a small, yet rapidly expanding portion of software engineers globally

Side by side with the largest Web2 internet companies (e.g. Facebook, Google), the Web3 developer contingent is comparable in size. As a new industry or technology (e.g. PHP, Python), Web3 has plenty of headroom.

NFTs, Gaming, DAOs and Future Use Cases

Considering the breadth of possible applications, there is much to be excited about. Web3 is not just about cryptocurrencies and trading; many developers are attracted by the possibility to innovate on new platforms. A wide range of primitives, protocols, and applications around NFTs, gaming, DeFi, and DAOs are yet to be created.



THANK YOU

HELP MAP THE WEB3 ECOSYSTEM

We've opened our ecosystem map on GitHub so that anyone can contribute:

1. Check out our ecosystem mapping
2. Submit a new ecosystem via our form on Airtable
3. Or submit a pull request in our Github: <https://github.com/electric-capital/crypto-ecosystems>

We will use this data for our reports going forward.



THANK YOU

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APPENDIX & METHODOLOGY

COMMIT COUNTING METHODOLOGY: NOT ALL CODE COMMITS ARE CREATED EQUAL

Forks

Only new code counts towards developer activity. We omit code and developer activity from merging changes from the upstream codebase.

Fingerprinting

Fingerprinting is a technique used to identify commits originating from upstream projects. We look at the files and lines changed, the commit message, committer, author, and associated dates. This eliminates copy/pasted code from counting towards an ecosystem.

Commits from Integrating Open Source Libraries

Integrating common libraries does not count toward code activity.

Branches

We look at commits from all branches (master/development, etc.) and tags. We look beyond Github's default view, which can be incomplete.

Limitations

We only look at open-source repositories. There are many repositories that are not yet open-source. However, we are planning to enrich the open-source code data with deployed on-chain smart contract code.



HOW ARE DEVELOPERS COUNTED?

Developers

We count original code authors as developers. This means that a developer who merges a pull request is not an active developer on the project, but the original authors of the commits are.

Full-Time Contributors

Contributed code 10+ days out of a month

Part Time Contributors

Contributed code fewer than 10 days out of a month

One Time Contributors

Contributed code once in a rolling 3-month window

Monthly Developer

We count commits during the next 28 days of the commit happening to generate more stability in the data

Top-200 category

Any ecosystem that has been in the Top 200 rank by network valuation for at least 90 days in the corresponding year

