Horizontal Infrastructure
Investment Thesis

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CAPITAL 2B

Software is eating the world
(2011)
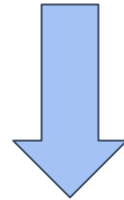
Every company is becoming software and data company
(2023)

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   a. Cloud Infrastructure
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   c. API as a Service
   d. Modern Data Stack

What is Horizontal Infra?

- This sector consists of the startups which are making accessible tools and infrastructure for developers to help in building and monitoring a variety of tech-based solutions.
- Developer technologies empower all workers in an enterprise to contribute to product development, freeing up precious developer time.

Value Prop	Increases Efficiency	Improves Experience	
Client	Engineers	Tech Companies	
GTM	Bottoms-up	OSS	Top-down
End goal	Developer should focus only on creating logic		

$55 Bn
Annual Revenues of Dev. Startups

$850B
Cloud Infra spend in 2025 (Gartner)

$51 Bn
Global Funding in 2021

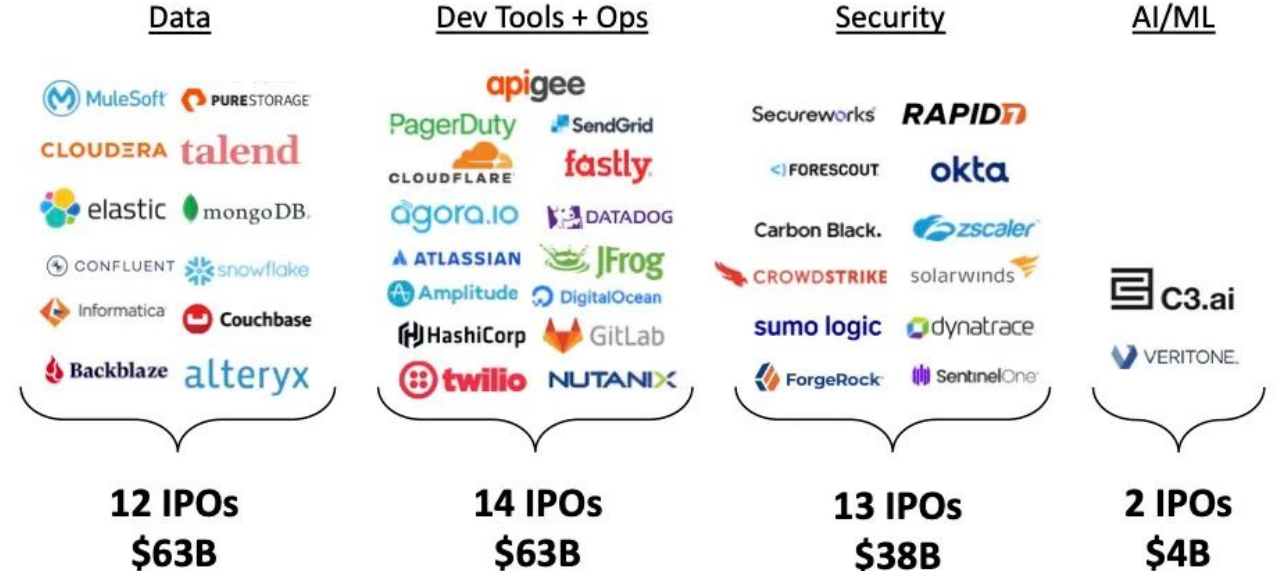**25 Million**
No. Of Developers in world

Why this space?

Top 10 Fastest Growing SaaS >$500M Rev.

	NTM Growth	LTM Revenue
Snowflake	65%	$1,219
CrowdStrike	48%	$1,452
Bill.com	46%	$518
Zscaler	42%	$860
Cloudflare	38%	$731
Datadog	38%	$1,193
Okta	37%	$1,300
Smartsheet	37%	$551
Unity	35%	$1,111
MongoDB	34%	$874

7 out of the top 10 fastest growing SaaS businesses with over $500M in revenue are infrastructure-related ones
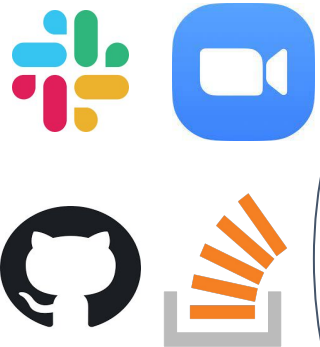
2015 - 2021

Value Creation by Infra Category

Data

MuleSoft · PURESTORAGE
CLOUDERA · talend
elastic · mongoDB
CONFLUENT · snowflake
Informatica · Couchbase
Backblaze · alteryx

12 IPOs
$63B

Dev Tools + Ops

apigee
PagerDuty · SendGrid
CLOUDFLARE · fastly
agora.io · DATADOG
ATLASSIAN · JFrog
Amplitude · DigitalOcean
HashiCorp · GitLab
twilio · NUTANIX

14 IPOs
$63B

Security

Secureworks · RAPID7
FORESCOUT · okta
Carbon Black. · zscaler
CROWDSTRIKE · solarwinds
sumo logic · dynatrace
ForgeRock · SentinelOne

13 IPOs
$38B

AI/ML

C3.ai
VERITONE.

2 IPOs
$4B

Source: Tyler Jewell, Cloud Judgements by Jamin Ball

Where does DevTools lie?

Bottoms-up Adoption while finding PMF

Shift to Enterprise after PMF

Consumer Software

Enterprise Software

- Word of Mouth

- Content & Influencer

- Exponential Growth

- Developer user experience

Developer Tools

- Lead Conversion

- Enterprise features*

- Inside Sales Team

- Enterprise Metrics

**Note**: *Enterprise features consist of security, permissioning, on-premise, customer support, services-heavy integrations, fixed contracts and site licenses.

Macro Trends

1. Digital Transformation in several traditional industries

2. Consumerization of Cloud and AI and their rising complexity is driving innovation

3. Behavioral Shifts: Agility focus, remote working, boost in low/no-code markets

4. Exponential increase in Tech Salaries and a huge demand-supply gap; Lack of good Tech Talent

5. Open-source and bottom-up adoption across companies

6. Movements towards **JAM Stack** *(JS, API, Microservice)*

7. Emergence of best-of-breed tooling competing with do-everything-for-you cloud vendors

8. **93%** of global Web traffic was through an API at the end of 2020.

9. There is a rise of use of ML in DevOps and workflow automation in coding

10. Shift-left phenomena, increased focus on security and emergence of DevSecOps

Challenges

1. **Existing dominance** of big players in markets with high **TAM.** Publicly traded companies have **80-95%** of revenues, even though they only represent **9%** of **348** companies in this space.

2. **Winner-takes-all market**: There is usually a single vendor that makes up **15–50%** of the segment's revenues.

3. **Global Competition**: Startups emerging out of India will compete globally.

4. **Limited Budget**: Developer platforms face challenge to carve out **new budget** within enterprise spend.

5. **Price-discovery**: Pricing of many of these platforms is extremely complex as it is based on API/usage billing.

6. **Crowded spaces**: Many spaces like Observability has multiple players (20-30 players) fighting for same pie

7. **OSS Adoption**: Shifting from Open-source solution to Enterprise-grade solution is challenging for startups

8. **Small Indian Market**: The major market for the DevTools startups is in USA right now. So, cracking global GTM is key in this space
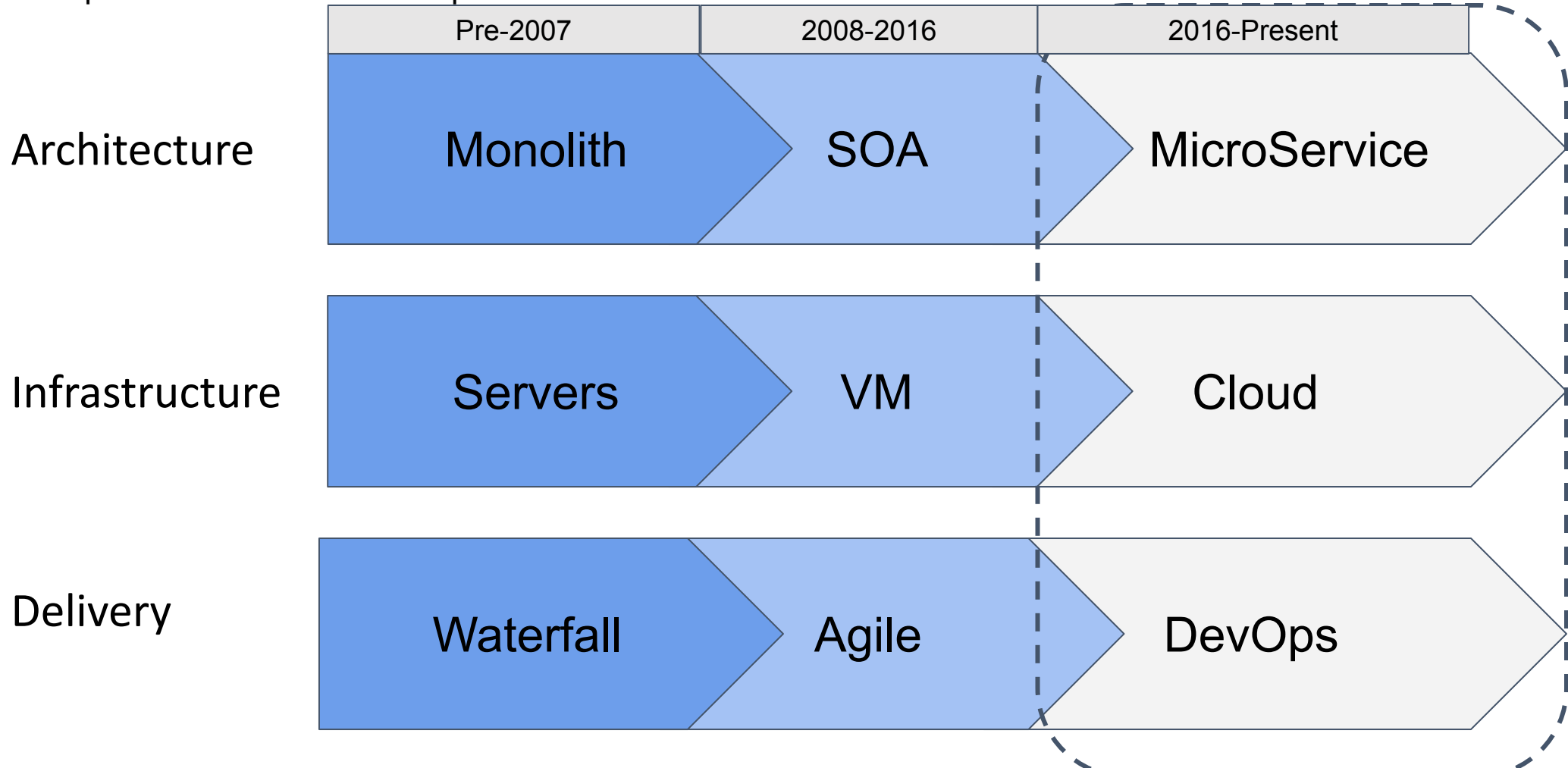
Global Winners: SDLC
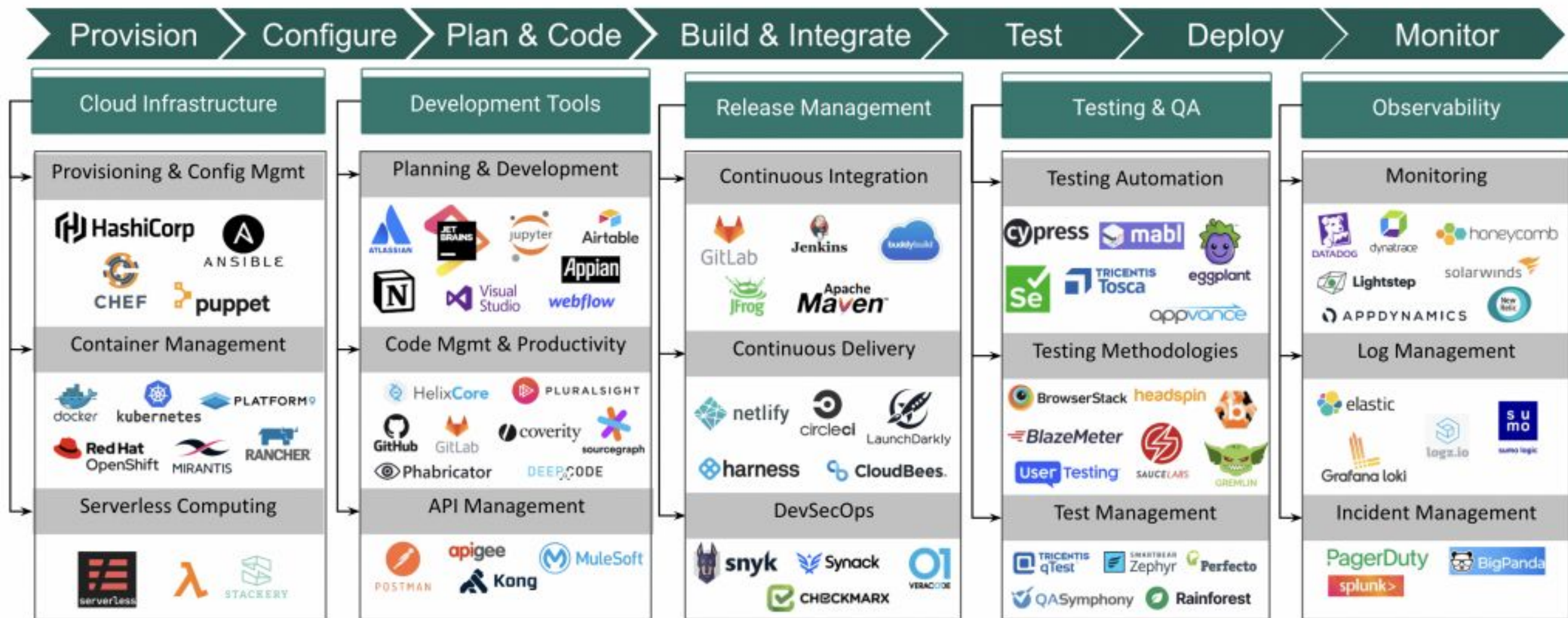
History and modernization of SDLC

SDLC is moving towards more abstraction for developers where Big techs are taking care of infrastructure and developers in other companies are focusing more on logic and the core business functions. This has enabled:

a. Increased productivity and focus on core business aspects
b. Increased flexibility while scaling up/down without worrying about Capex
c. Faster speed to market for developers

	Pre-2007	2008-2016	2016-Present
Architecture	Monolith	SOA	MicroService
Infrastructure	Servers	VM	Cloud
Delivery	Waterfall	Agile	DevOps

MLOps: The new focus for builder?

Practice	DevOps	MLOps
Version Control	Code version control	Code version control + Data versioning + Model version control
Data Validation	N/A	Statistical validation
Model Pipeline	N/A	Training ML pipeline + Serving ML pipeline
Validation	Unit tests	Unit tests + Model validations
CI/CD	Deploy code to production	Deploy code to production + Deploy trained models
Ongoing Monitoring	SLO-based	SLO-based + Differential monitoring + Statistical sliced monitoring

The Indian Opportunity

DevTools: The Indian Opportunity

- **Talent Ecosystem hitting maturity:** The gap between Bengaluru and Bay Area is decreasing day by day which has enabled many startups to carry out their initial product development and deployment in India.

- **Experience in building for world from India:** Building global SaaS applications from India has given us product & GTM talent which is learning to build & sell globally products from India.

- **Rise of product-led growth over sales-led growth:** By directly targeting developers, many Indian startups can skip building large onshore sales teams to enter big global markets.

- **Rapid pace of innovation** through creation of new categories (e.g., API management, testing platforms, GraphQL) and development of products addressing complexities for enterprises (e.g., security).
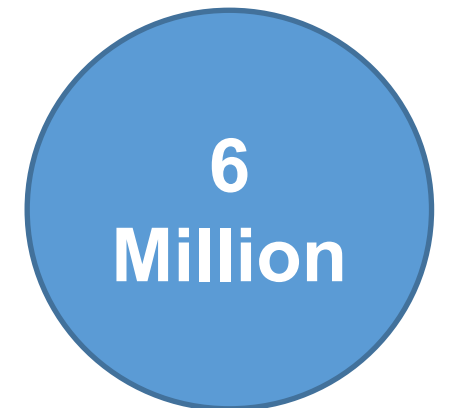
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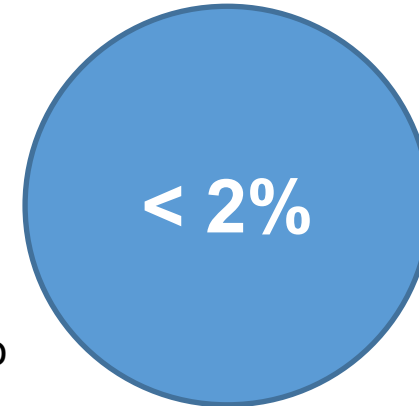
India's share in global funding, 2021

$101.8 Bn
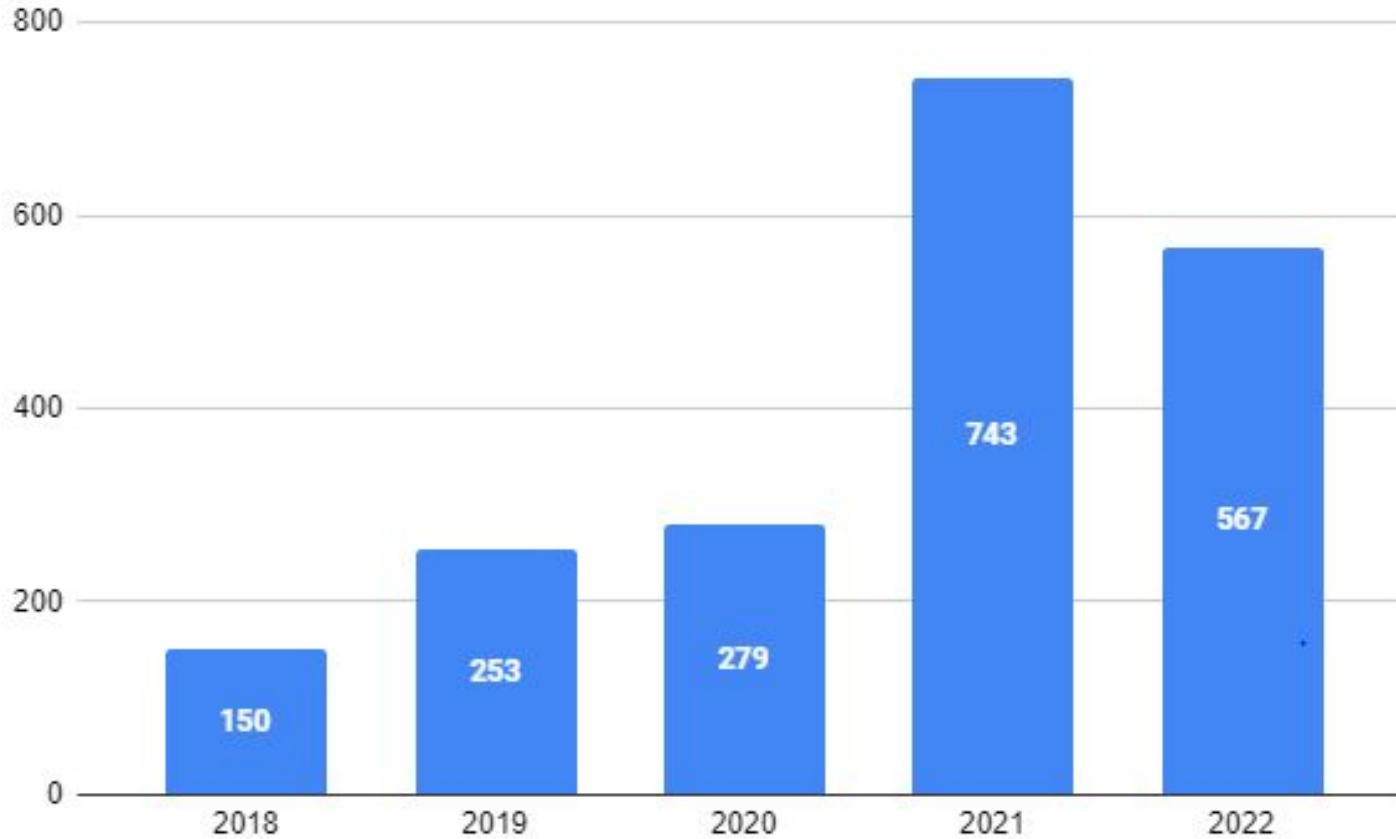
India's spend on IT

$51 Bn

Global Funding in 2021

6 Million

No. Of Developers in India

Indian Funding Landscape

Investments in Horizontal Infra Startups (in $ Mn)

Year	Value
2018	150
2019	253
2020	279
2021	743
2022	567

Indian successes in this space

Name	Funding
Druva	$475 Mn
Postman	$434 Mn
BrowserStack	$251 Mn
Hasura	$136 Mn
Pixis	$124 Mn
Accel Data	$100 Mn
LambdaTest	$70.4 Mn
Atlan	$68 Mn
Hevo Data	$43 Mn
100ms	$24 Mn

Business Strategy

Creating Moat

A. Product Moats

- ❏ High switching costs *(Jira)*
- ❏ Economies of scale *(AWS, OpenAI)*
- ❏ Data Moat *(UIPath)*
- ❏ Network Effect *(Slack, Notion)*
- ❏ Certification and training *(Cisco)*
- ❏ IP
- ❏ Best-of-suite *(Hubspot)*
- ❏ Integrations *(Chargebee)*
- ❏ Solving highly complex tasks *(Segment)*

B. GTM Moats

- ❏ Strong community *(Github, Hugging face)*
- ❏ Brand Owned Moat *(Salesforce)*
- ❏ Distribution Moat
- ❏ G2 Advantage
- ❏ Exclusive Agreements *(Tieups with SIs)*

GTM Strategy

A.   Product-led Growth

Product's DNA is aligned to that of a developers

Day to day mundane tasks

Engagement Strategies

- ❏   Free trials/Freemium/Open Source
- ❏   Self-serve option/frictionless pricing
- ❏   Marketplaces/Partners
- ❏   Community Relations

Success Criteria

- ❏   Community Growth
- ❏   PQL and Conversions
- ❏   Expansions

B.   Top-down Enterprise sales

Need to earn the trust of CTOs, VPs and Managers

Design and Infra Choices

Engagement Strategies

- ❏   Business Launches/Partnerships with SIs
- ❏   Gartner Reports
- ❏   High-touch sales and account managers
- ❏   Complex POCs

Success Criteria

- ❏   Deals Won
- ❏   Quota Attainment
- ❏   TCV

Expectations from founders while building

a.   Abstracting away complexity for developers

b.   Templatizing otherwise repetitive infrastructure development

c.   Building towards a shared, integrated ecosystem empowering developers

d.   They should have faced the problem internally

e.   Take a community-driven approach in the initial days

f.   Focus on GTM strategy from day 0

g.   Strong product thing with platforms having ease-of-onboarding, clear pricing and good documentation

Evaluating Opportunities

Framework for evaluating opportunities

	GOOD	BETTER	BEST	OTHER FACTORS
Potential TAM	<$1B	$1-5B	$5B+	- Technology leadership
Growth (YoY)	<100%	100-150%	>150%	- GTM maturity
Net dollar retention	90-120%	120-140%	>140%	- Global expansion
Efficiency	<100%	100-150%	>150%	- Category competition
Gross margin	50-65%	65-80%	>80%	- Management team
CAC payback	>24 months	12-24 months	<12 months	

Metrics for evaluating opportunities

1. **Does the company have Product/Market Fit?**
   Metric: Annual Recurring Revenue (ARR) and Capital Efficiency

2. **Is the Company Growing Fast?**
   Metric: ARR Growth (T2D3), Quarterly New Logo and New ARR

3. **Is the Company Growing Efficiently?**
   Metrics: Growth Accounting and Quick Ratio

4. **Is the Company Retaining Customers?**
   Metrics: Net Dollar and Gross Logo Retention via Cohort Analysis

5. **Is the Company selling the product efficiently?**
   Metrics: Magic Number and CAC Payback Period

:

SaaS Metrics vary by Customer Segment

	SMB	Mid market	Enterprise
CAC payback	3-6 Mos	12 Mos	18-24 Mos
Magic Number	2.0-3.0	1.0	0.66-0.75
Avg ACV	<$12K	$12-50k	$50k+
Annual Logo Retention	40-75%	75-90%	90%+
Monthly Gross Churn	3-7%	1-2%	0.5-1%
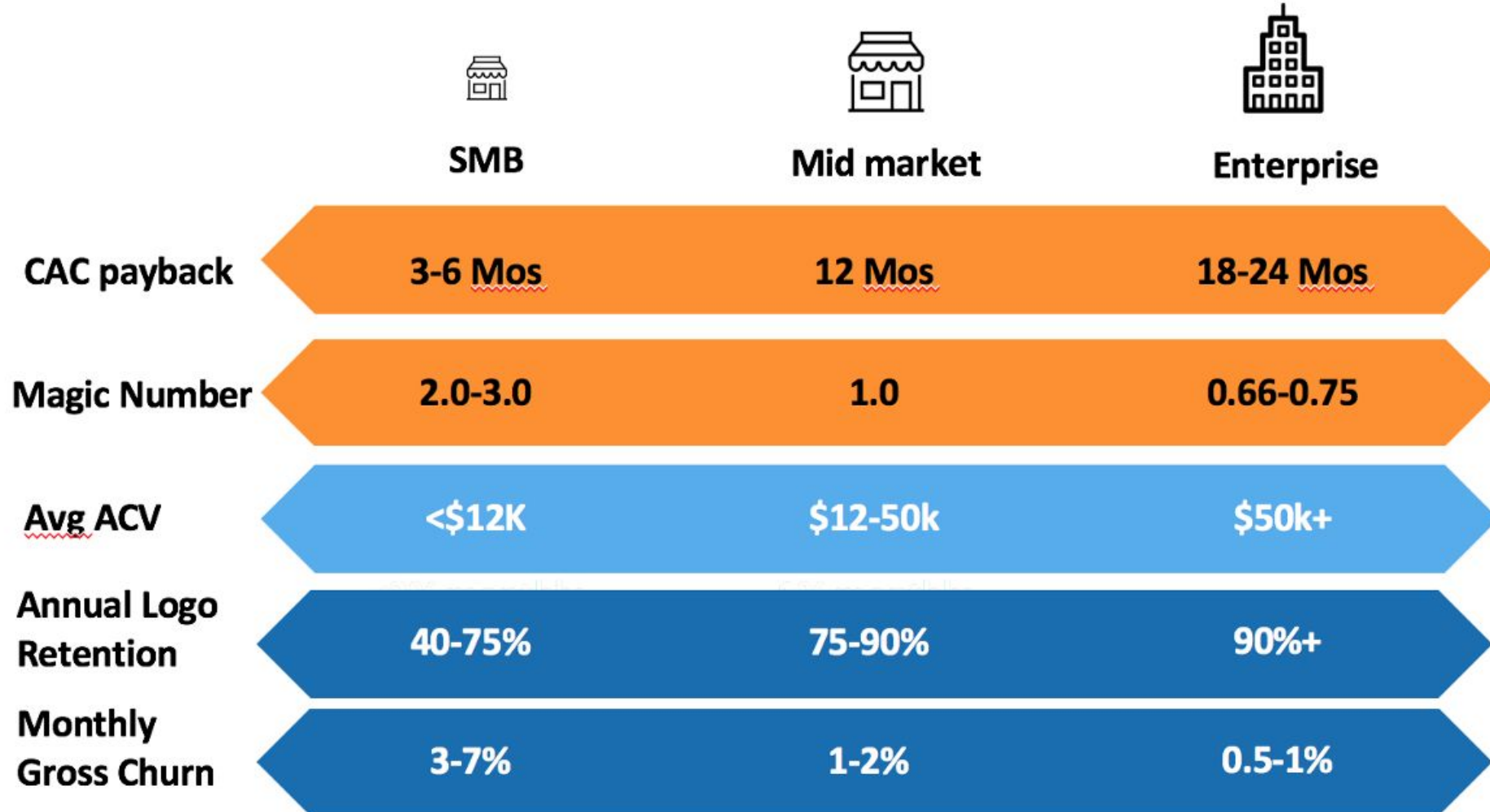
Source: Bessemer State of Cloud 2017; Tomasz

Sub-sectors

1. Cloud Infrastructure

Infrastructure is the sum of building blocks that is and will power modern software.

In Infra, we have an ever increasing number of abstractions on top of the hardware and software layers that applications are built on and the borders are blurring between tooling, infra, and the applications that are built on top.

320Bn+
Cloud Infra spend
(Gartner)

180Zb
Logs*
(2025)

SaaS	Function
	Application
	Database Management
PaaS	Runtime and Middleware
	Operating System
IaaS	Virtualization
	Servers: Compute/Network/Storage

Data Protection	Backup	Disaster Recovery

Major Players

Cloud Infrastructure

Provisioning & Config Mgmt — HashiCorp, ANSIBLE, CHEF, puppet

Container Management — docker, kubernetes, PLATFORM9, Red Hat OpenShift, MIRANTIS, RANCHER

Serverless Computing — serverless, λ, STACKERY

Cloud Infrastructure

Trends:

- **Popularity of serverless, microservices, and EDA** are creating new opportunities

- **Increasing level of abstractions** on top of hardware and software layers on which applications are built on.

- **Using AI to optimize applications** based on their run-time behavior, auto-detect anomalies, proactively prevent breakages and outages, and remediate issues automatically without much human intervention

- Increasing importance and integration of **real-time machine learning** on production applications.

Challenges:

1. Players like AWS and GCP are trying to offer all the solutions by themselves.

2. In India, none of the company seems to have raise a good amount of funds.

3. The sales cycle in this sub-sector would be long and top-down, however ACV and stickiness can be high.

4. K8s are not always required and tough to manage. There is an awareness of when to use or not use microservices

5. Tooling and support around serverless is less mature

6. This sub-sector would be service-heavy and will have many touch-points

Cloud Infrastructure

Opportunities and expectations:

- Removes complexity with abstraction and automation

- Building end-to-end platforms that bundles development, shipping, and monitoring

- Cloud FinOps and optimization

- Clear and easy-to-understand pricing strategy

- Write once, run anywhere strategy (servers, edge, IoT, serverless environment)

- Next gen: Web3 Infra

- Lowers the TCO // improves SLA/SLO

- Templatizing otherwise repetitive infrastructure development

- Building towards a shared, integrated ecosystem empowering developers

Indian Startups	
Dhruva	Data backup and disaster recovery (BCP/DR)
Devtron	Software delivery workflow for Kubernetes
Amnic	Stealth
Kloudlite	Automated DevOps console to streamline software development
Lucidity	Cloud cost optimization platform
Nimesa	Cloud native BCP/DR solution
Datamotive	Cloud native DR and workflow migration solution
OpsLyft	Create & deploy serverless backends in low-code fashion
Lightwing	Automated Cloud Optimization
Economize	Cloud cost optimization platform
Facets.cloud	DevOps platform to streamlines SDLC

2. Observability & Monitoring

Monitoring allows teams to understand the state of their systems. (Pre-defined)

Observability allows teams to actively debug their system. (Not-defined)

3 Pillars of Observability: i. Logs   ii. Metrics   iii. Traces

Major Players

Implementation of Observability
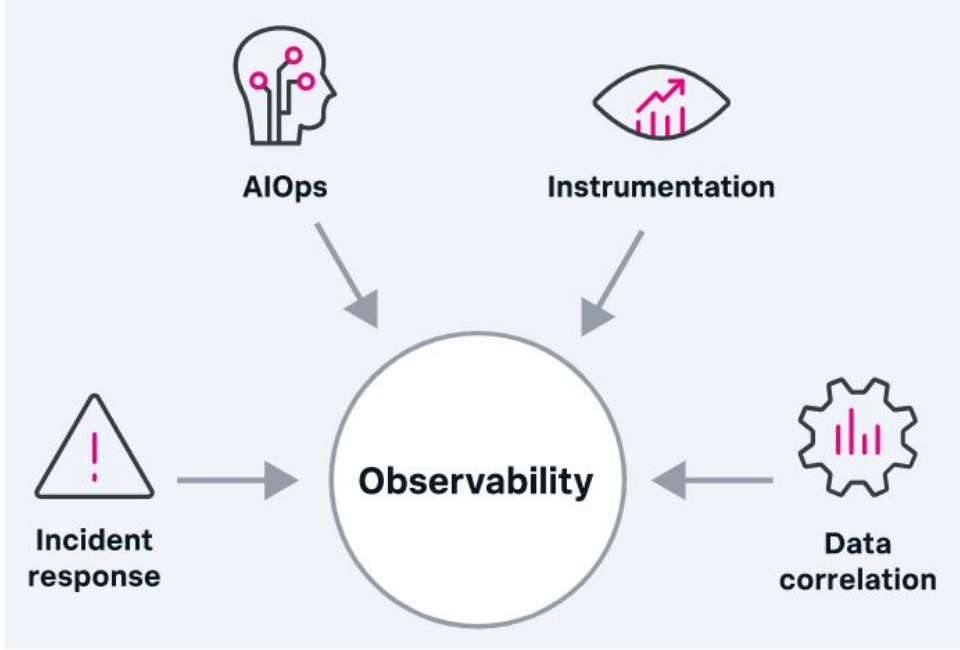
50 Bn+
TAM

180Zb
Logs*
(2025)

3 Bn+
Splunk's
ARR

67Bn+
MCap
(31.05.22)

AIOps — Instrumentation — Incident response — Observability — Data correlation

Monitoring — Log Management — Incident Management

* Biggest opportunity in this space: As machine data explodes, Splunk is unwieldy and very expensive to use.

Observability & Monitoring

Trends:

- **Distributed Tracing** becoming vital for observing cloud-native applications.

- **Popularity of serverless** creating new opportunities in the observability space

- **Merging of observability tools** for application security and compliance, security event incident management into APMs
- Unification of underlying datatype (Logs, metrics, and traces)

- **Using intelligence and automation to optimize applications** based on their run-time behavior, auto-detect anomalies, proactively prevent breakages and outages, and remediate issues automatically without much human intervention

- As **Application complexity increases**, there would be an explosion in observability data and use cases which would require new ways of storing and processing it.

- With AI becoming mainstream, there is Increasing importance of **Data Observability** and **Model Observability** in MLOps

Challenges:

1. There is huge competition in this sector with multiple large players in each of the category

2. 83% of organizations prefer to buy monitoring and incident response tools from a single supplier and thus prefer one solution

Observability & Monitoring

Expectations from Startups:

- Integration with current tools

- Focus on DX

- Real-time data supply

- Support modern event-handling techniques

- Visualize aggregated data and provide context

- Use intelligence for auto-remedy

- Deliver business value (Clear RoI for CXOs)

- Unify the separate worlds of observability and business analytics tools

Indian Startups	
SuperOps.ai	Accel Data
Last9	VuNet
Squadcast	Humalect
LogIQ	Borneo
Zenduty	Locale.ai
Kloudmate	Parseable
SigNoz	Decube
Metricsbird	RagaAI
Zipy	Spyke.ai
Filoffee	Spoonbill

3. APIs and Frameworks

API-based startups help companies to focus more on their core business goals and issues and explore adjacencies in the market by:
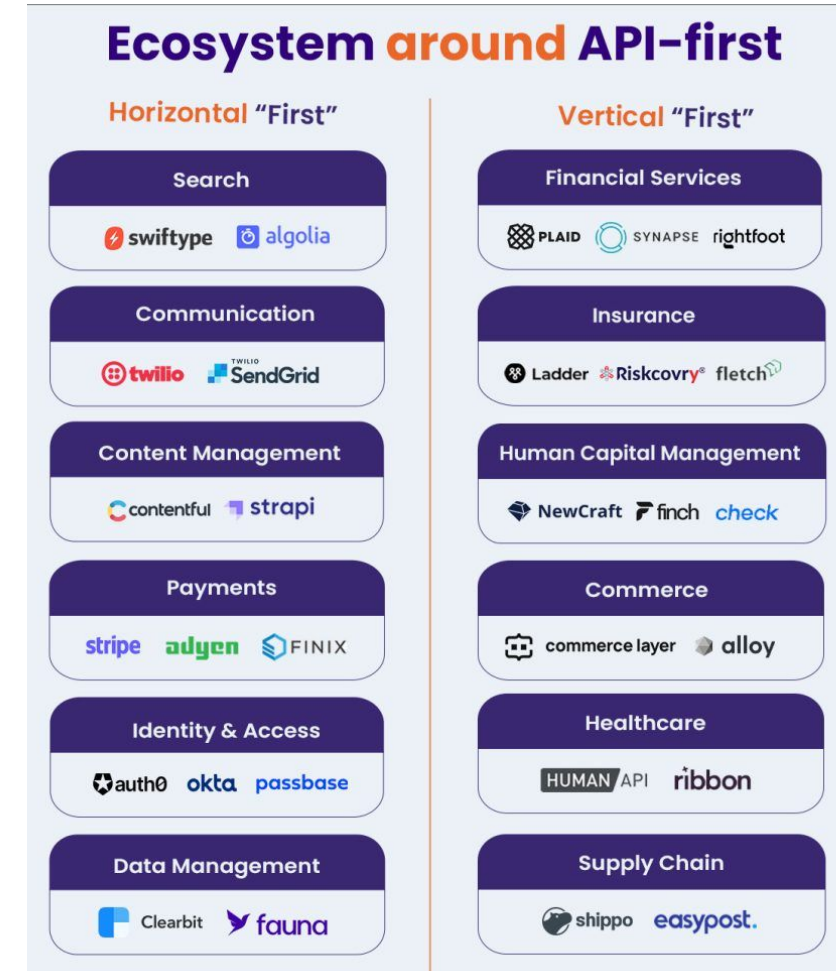
1. Abstracting non-core components for startups (Eg: Stripe abstracting payments layer)
2. Solving for a complex task of developers (Eg: Twilio solving complexity of communication functions)
3. Explore new paths of monetization (Eg: Startups offering white-labelled fintech solutions for companies)
4. Get access to cleaned and aggregated data (Eg: Phyllo helping to get creator data)
5. Build tooling around APIs in management, testing and deployment of APIs

93% Web-traffic via APIs

3 Unicorn in India

Monetization Strategy

Type	Versions		
Free	Free	usa gov	Facebook
Developer Pays	Pay-as-you-go	twilio	MessageBird
	Transaction based	stripe	adyen
	Subscription/Tiered	CLOUDFLARE	fauna
	User-Based	okta	Auth0
Developer Gets Paid	Revenue Share	Expedia	
	Affiliate	Google AdSense	
	Content Acquisition	ebay	

Ecosystem around API-first

Horizontal "First"

Search	swiftype	algolia
Communication	twilio	SendGrid
Content Management	contentful	strapi
Payments	stripe	adyen	FINIX
Identity & Access	auth0	okta	passbase
Data Management	Clearbit	fauna

Vertical "First"

Financial Services	PLAID	SYNAPSE	rightfoot
Insurance	Ladder	Riskcovry	fletch
Human Capital Management	NewCraft	finch	check
Commerce	commerce layer	alloy
Healthcare	HUMAN API	ribbon
Supply Chain	shippo	easypost

Source: Pentathlon VC

APIs and Frameworks

Trends:

- We are **decoupling the backend** (cost-cuts, reduced time-to-market and release cycles, increased innovation)

- Emergence of **Indian Tech Stack** enabling fluid data sharing giving startups an opportunity to build layered solutions over it: OCEN, ONDC, National Health Mission, AA framework

- Critical horizontal function are being transformed into an **infrastructural API,** allowing developers to innovate and scale.

- As **API usage explodes**, we're also seeing a rise in the next generation of tools to support them.

- Real-time data access across applications is becoming critical for companies for tasks like internal reporting, decision making, fraud detection, etc.

- Emergence of **open-source startups** in API Infrastructure space (Eg: WSO2, Hasura, Hoppscotch, Keploy, etc.)

- **API security/monitoring** platforms emerging to combat complex DDoS attacks, authorization errors, and unintentional data exposure.

Challenges:

1. Increasing penetration of APIs in few sectors like Fintech and identifying winners among them is becoming difficult due to increased competition

2. Price discovery is a challenge in this industry. If price is too high, then developer would build the solution in-house.

Key global winners: APIs and Frameworks

1. **Twilio:** They are a platform-as-a-service for cloud communications. Developers may utilize their APIs to send and receive text messages and phone calls programmatically.. Founded in 2008, Twilio has a market cap of $17billion and reported revenue of $2.84 billion, up 61% Year-Over-Year.

2. **Segment:** They've built APIs to enable developers/businesses to unify customer data from every customer touchpoint. It empowers marketing, sales, and customer service leaders with the insights they need to design and build relevant, data-driven customer engagement. Founded in 2013 it was acquired by Twilio for $3.2B in 2020.

3. **SendGrid:** SendGrid's Web API helps companies send marketing emails. Founded in 2009, SendGrid raised $131 million after pricing its IPO and went public in 2017. Its revenue for 2016 was $79.9 million and was acquired by Twilio for $3B in 2019.

4. **Stripe:** Stripe's success is primarily due to the challenge they uncovered and solved. When it came to payment processing before Stripe, developers were in a bind. They had no choice except to utilize a self-hosted gateway or a branded 3rd party alternative such as Paypal.

5. **Plaid:** Their API helps companies build fintech solutions by making it easy, safe and reliable for people to connect their financial data to apps and services. Founded in 2013, it recently raised $425M, boosting Plaid's valuation to $13.4 billion.

6. **Postman:** Their API is a collaborative platform for developers to build, design, test, and iterate their APIs. Today, it is used by more than 17 million developers and over 500,000 organizations. Founded in 2014, it raised $225 million in a new financing round that values it at $5.6 billion, up from $2 billion a year ago.

Indian API Stack (2022)

Vertical- first

Banking

SIGNZY
M2P
DECENTRO
FinBox
SETU
Vegapay
buildd

Insurance
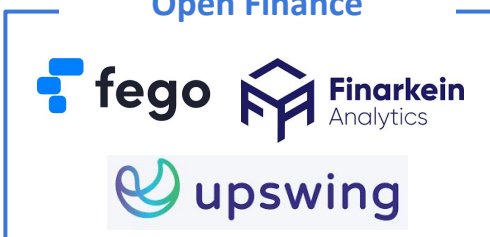
zopper
turtlefin
ENSUREDIT
Riskcovry

Investing

Savvy
CYBRILLA
Kite Connect

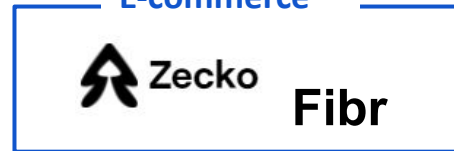### Open Finance

fego
Finarkein Analytics
upswing

Supply chain
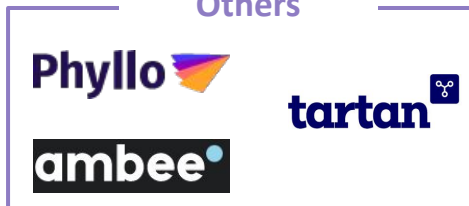
Shiprocket
Shipsy

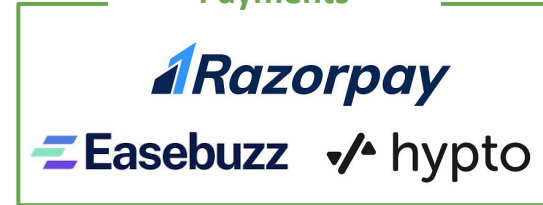### E-commerce

Zecko
Fibr

Mapping

MapmyIndia
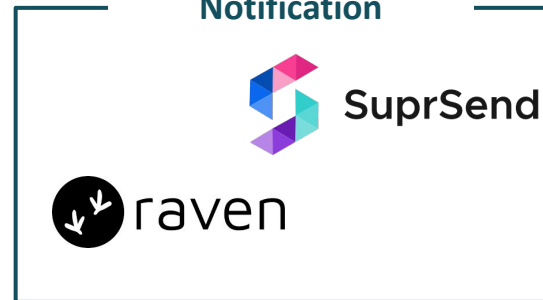nextbillion.ai

Others

Phyllo
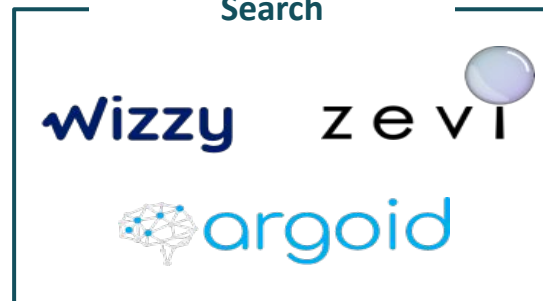tartan
ambee

Horizontal-first

Payments

Razorpay
Easebuzz
hypto

Notification
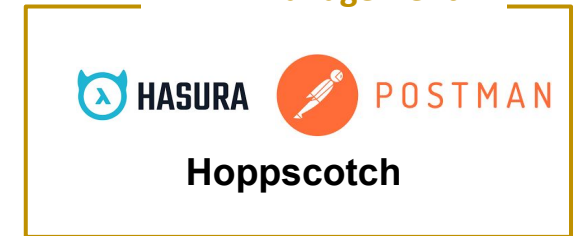
SuprSend
raven

Search

wizzy
zevi
argoid

Content Management

CONTENTSTACK

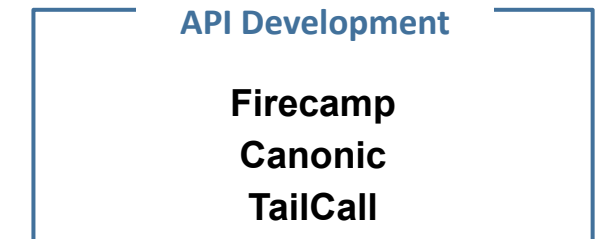## API Infrastructure

API Management

HASURA
POSTMAN
Hoppscotch

API Testing

REQUESTLY
Keploy
Karate Labs
HYPERTEST

API Development

Firecamp
Canonic
TailCall

API Security & Monitoring

akto
LEVO
DrDroid

4. Modern Data Stack

While there is a euphoria about AI applications, a lot of background tasks have to be undertaken by companies before becoming data-ready. So, building a startup which helps companies to become data-ready during this gold rush of AI makes a lot of sense as everyone needs tools/infra for building data/AI applications and this is where the space of Modern Data Stack(MDS) becomes exciting.
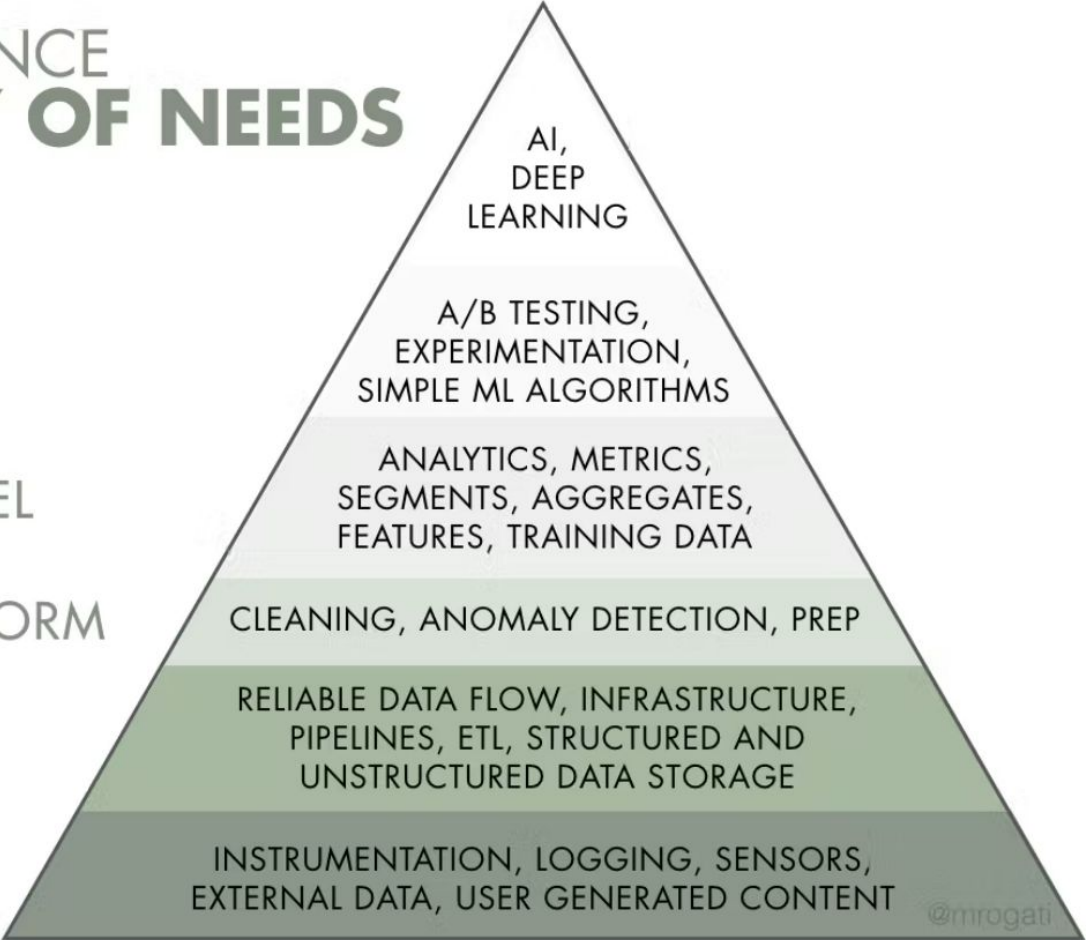

THE DATA SCIENCE
HIERARCHY OF NEEDS

- AI, DEEP LEARNING

LEARN/OPTIMIZE — A/B TESTING, EXPERIMENTATION, SIMPLE ML ALGORITHMS

AGGREGATE/LABEL — ANALYTICS, METRICS, SEGMENTS, AGGREGATES, FEATURES, TRAINING DATA

EXPLORE/TRANSFORM — CLEANING, ANOMALY DETECTION, PREP

MOVE/STORE — RELIABLE DATA FLOW, INFRASTRUCTURE, PIPELINES, ETL, STRUCTURED AND UNSTRUCTURED DATA STORAGE

COLLECT — INSTRUMENTATION, LOGGING, SENSORS, EXTERNAL DATA, USER GENERATED CONTENT

@mrogati
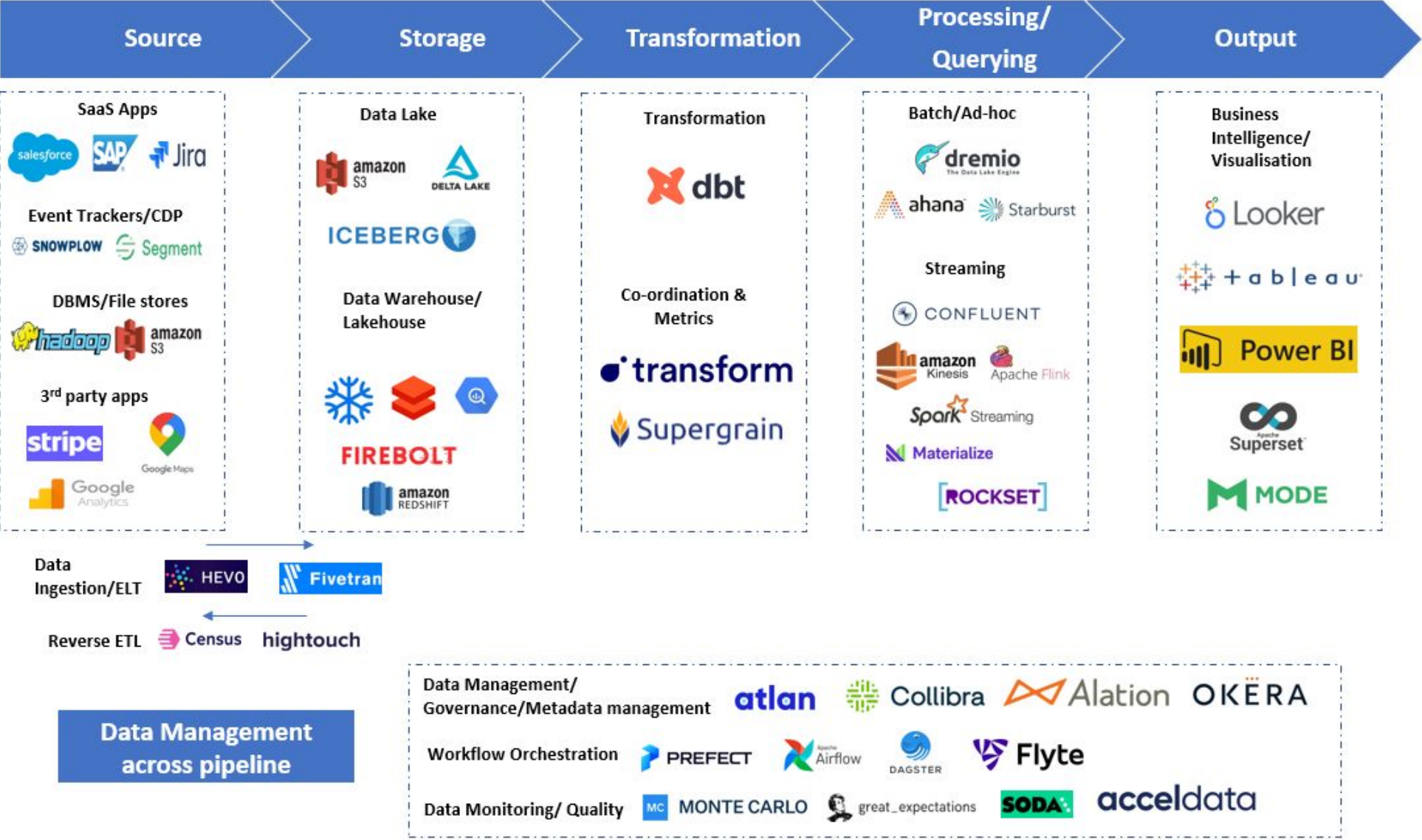
4. Modern Data Stack

Modern data stack comprises of collection of cloud native tools that are centered around a cloud data warehouse and covers different stages of the data journey from ingestion, storage, transformation to business intelligence as shown below.

Modern Data Stack

Trends and opportunities:

- Fundamental shift to cheaper and simpler data storage technologies (This was not the case earlier with Hadoop)

- Increase in BI budgets across organizations

- Monolithic ETL → efficient ELT

- Increase in demand for real-time streaming technologies for applications such as churn prediction, forecasting, in-app personalisation

- Data warehouses have unlocked an entire ecosystem that revolve around them: ELT, reverse ETL, data quality, metrics stores, augmented analytics, etc.

- Disconnection between data engineers and data analyst is leading to concept of data mesh (Basically, each person handling their own data)

- Immaturity in data governance space which becomes critical as data explodes

- Taking cues from the internal tools built at FAANGs and making it mainstream (Eg: Kafka was originally developed at LinkedIn)

- Increased focus towards Ethical AI

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Challenges:

1. Adoption of AI in India is limited. Major market for this stack is in US and hence, startups are registered there.

2. Startups need to carve out revenues from limited enterprise budgets. So, the value-add should be substantial and not incremental

3. VCs aggressively invested in emerging sectors in the data stack, often betting on future growth over existing traction, some categories went from nascent to crowded very rapidly – reverse ETL, data quality, data catalogs, data annotation and MLOps.

4. Not all organizations would require sophisticated AI, they would be happy with Excel as they don't have much data as well as no need to build AI engines of prediction, forecasting, targeting, recommendation
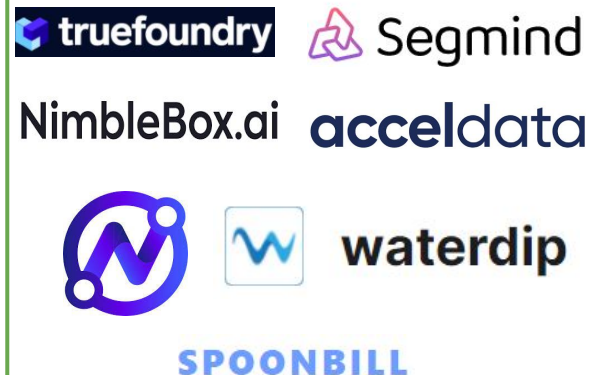
Indian AI Infra Stack (2022)

Data Labelling
INDIKA AI · Zingg
DataNeuron

Reverse ETL
DOZER
HEVO

Feature stores
scribble Data

Deployment and Monitoring
truefoundry · Segmind
NimbleBox.ai · acceldata
N · waterdip
SPOONBILL

No code/Low code tools
GobbleCube.ai · Pixis
CYBORGINTELL · MapleMonk
SimpliSmart · obviously.ai

Data Engineering
Datazip
HEVO
SATURAM
VIEW.io · sprinkle
DataChannel
Synctactic.ai
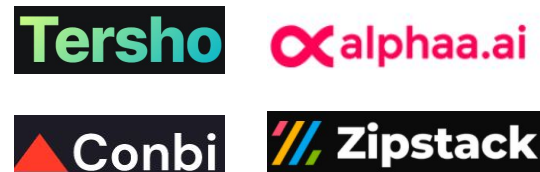
Data Govern. and Management
atlan
EDER LABS
PriML

BI and Augmented Analytics
Tersho · alphaa.ai
Conbi · Zipstack

Solution Providers
SIGMOID · Mu Sigma
fractal

Catalog and discovery
Larn · atlan
Super AI

Metric Stores
pulsops
houseware · DataBrain

Spatial-intelligence
data sutram · geolQ
pixxel

Miscellaneous
ProjectPro · sandlogic
e6data · BangDB
Awiros · EDGE NEURAL.ai

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Thank You!

For questions and feedback, please reach out to me on my twitter handle @SanghviZenil or drop me a email at zenil@capital2b.com

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