Chapter 3
Alternative Data for Trading

– Categories and Use Cases

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1.The Alternative Data Revolution

The definition of alternative data

The five Vs:

- Volume: The amount of data is magnitude larger.
- Velocity: Data becomes available at real-time speed.
- Variety: Data is organized in more kinds of formats.
- Veracity:it's difficult to validate the reliability of the data.
- Value: Determining the value of datasets can be time-consuming.

1.The Alternative Data Revolution

Use cases for new data sources include the following:

- Online price data on a representative set of goods and services can be used to measure inflation.
- The number of store visits or purchases permits real-time estimates of company or economic activity.
- Satellite images can reveal agricultural yields, or activity at mines or on oil rigs earlier.

1. The Alternative Data Revolution

The capability to process and integrate diverse datasets and apply ML allows for complex insights.

These insights create new opportunities to capture classic investment themes such as value, momentum, quality, and sentiment.

2.Sources of Alternative Data

Alternative datasets are generated by many sources but can be classified at a high level as predominantly produced by:

- **Individuals** who post on social media, review products, or use search engines.
- **Businesses** that record commercial transactions.
- **Sensors** that capture economic activity through images from satellites or security cameras.

2.Sources of Alternative Data

Individuals

Data generated by individuals is frequently unstructured in text, image, or video formats, disseminated through multiple platforms, and includes:

- Social media posts, such as opinions or reactions on general-purpose sites
- E-commerce activity that reflects an interest in or the perception of products on sites

2.Sources of Alternative Data

Business processes

Data that results from business processes often has more structure. It is very effective as a leading indicator for activity.

- Payment card transaction data from processors and financial institutions.
- Company exhaust data produced by ordinary digitized activity or record-keeping, such as banking records, cashier scanner data, or supply chain orders

2.Sources of Alternative Data

Sensors

This category of alternative data is typically very unstructured and often significantly larger in volume than data generated by individuals or business processes, and it poses much tougher processing challenges.

2.Sources of Alternative Data

- **Satellites** :

  Use cases include monitoring economic activity that can be captured using aerial coverage, such as agricultural and mineral production and shipments.

- **Geolocation data:**

  A familiar source is smartphone, with which individuals voluntarily share their geographic location through an application, or from wireless signals such as GPS, CDMA, or Wi-Fi.

3.Criteria for evaluating Alternative Datasets

- The **ultimate objective** of alternative data is to provide an informational advantage in the competitive search for trading signals that produce alpha.
- In practice, the signals extracted from alternative datasets can be used on a standalone basis or **combined with other signals** as part of a quantitative strategy.

3.Criteria for evaluating Alternative Datasets

Quality of the signal content

- Asset classes

  Data on fixed income and around interest-rate projections is a more recent phenomenon but continues to increase.

- Investment style

  specific sectors and stocks;macro themes;market risk.

- Risk premiums

  have a low correlation (lower than 5 percent) with traditional risk premiums

- Alpha content and quality

3. Criteria for evaluating Alternative Datasets

Quality of the data

The quality of a dataset is another important criterion because it impacts the effort required to analyze and monetize it, and the reliability of the predictive signal it contains.

- **Legal and reputational risks**
- **Exclusivity**: the more exclusive and harder to process the data, the better the chances that a dataset with alpha content can drive a strategy

3.Criteria for evaluating Alternative Datasets

Quality of the data

- **Time horizon**
- **Frequency**
- **Reliability**
- **Technical aspects**
  - Latency
  - Format

4.The Market for Alternative Data

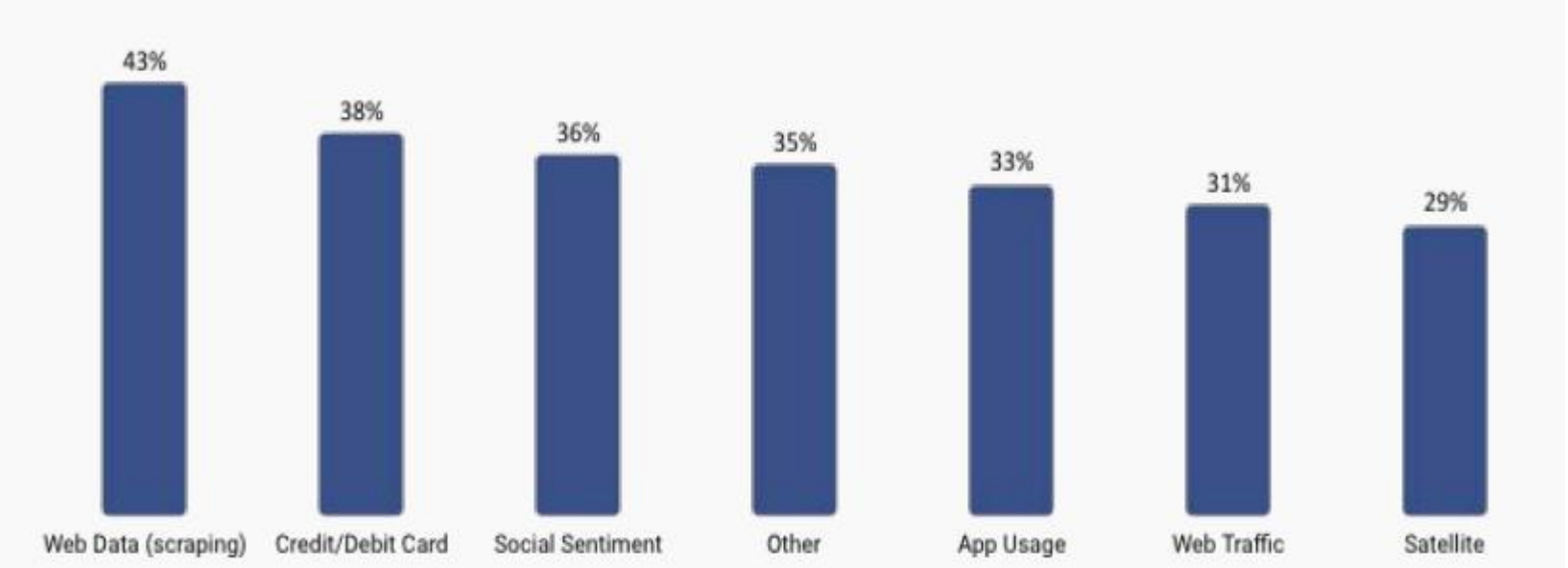
The investment industry spent an estimated $2-3 billion on data services in 2018, and this number is expected to grow at a double-digit rate per year in line with other industries.

This expenditure includes:

- the acquisition of alternative data
- investments in related technology
- and the hiring of qualified talent.

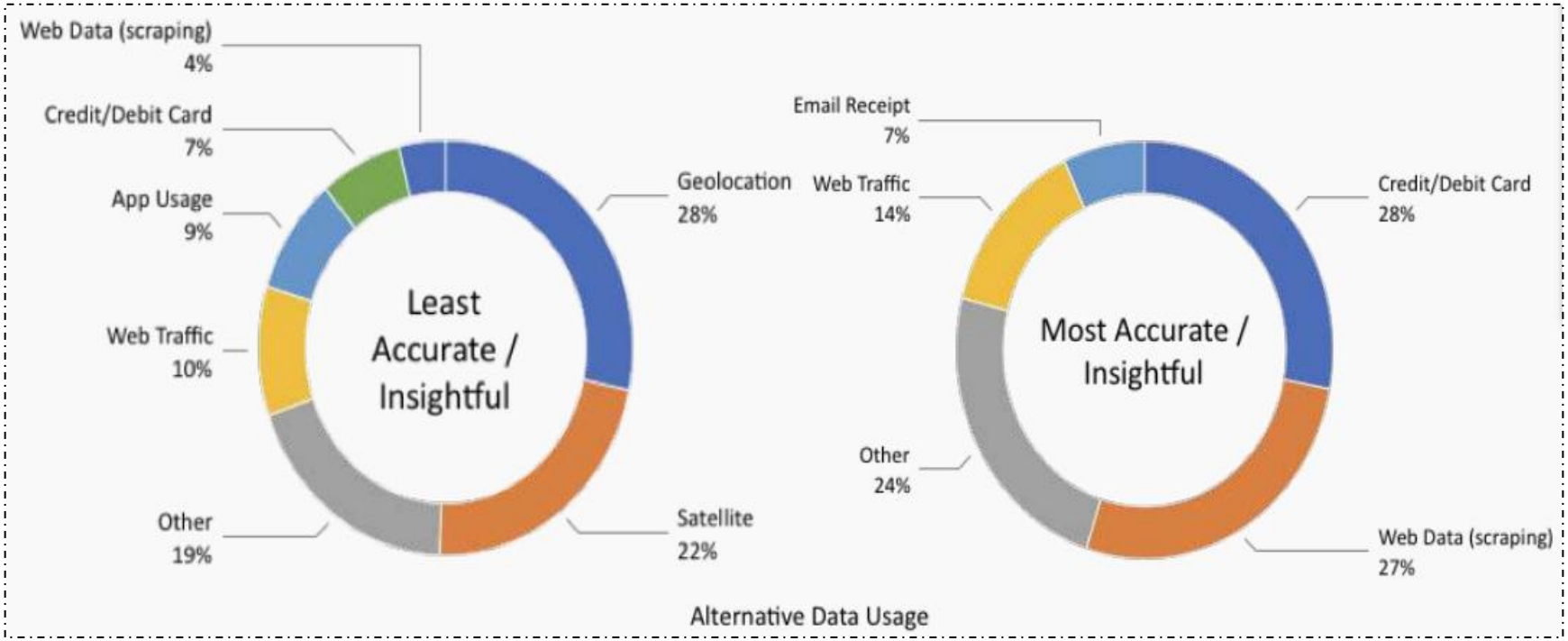
4.The Market for Alternative Data

A survey by Ernst & Young shows significant adoption of alternative data in 2017:



4.The Market for Alternative Data

- Based on the experience so far, fund managers considered scraped web data and credit card data to be most insightful
- Geolocation and satellite data are considered to be less informative:



4. The Market for Alternative Data

Data providers and use cases

- Social sentiment data
  - Dataminr
  - StockTwits
  - RavenPack
- Satellite data
  - RS Metrics
- Geolocation data
  - Advan
- Email receipt data
  - Eagle Alpha

https://alternativedata.org/data-providers/

5. Working with Alternative Data

Scraping OpenTable data

- Parsing data from HTML with Requests and BeautifulSoup
- Introducing Selenium – using browser automation
- Building a dataset of restaurant bookings and ratings
- Taking automation one step further with Scrapy and Splash

Scraping and parsing earnings call transcripts

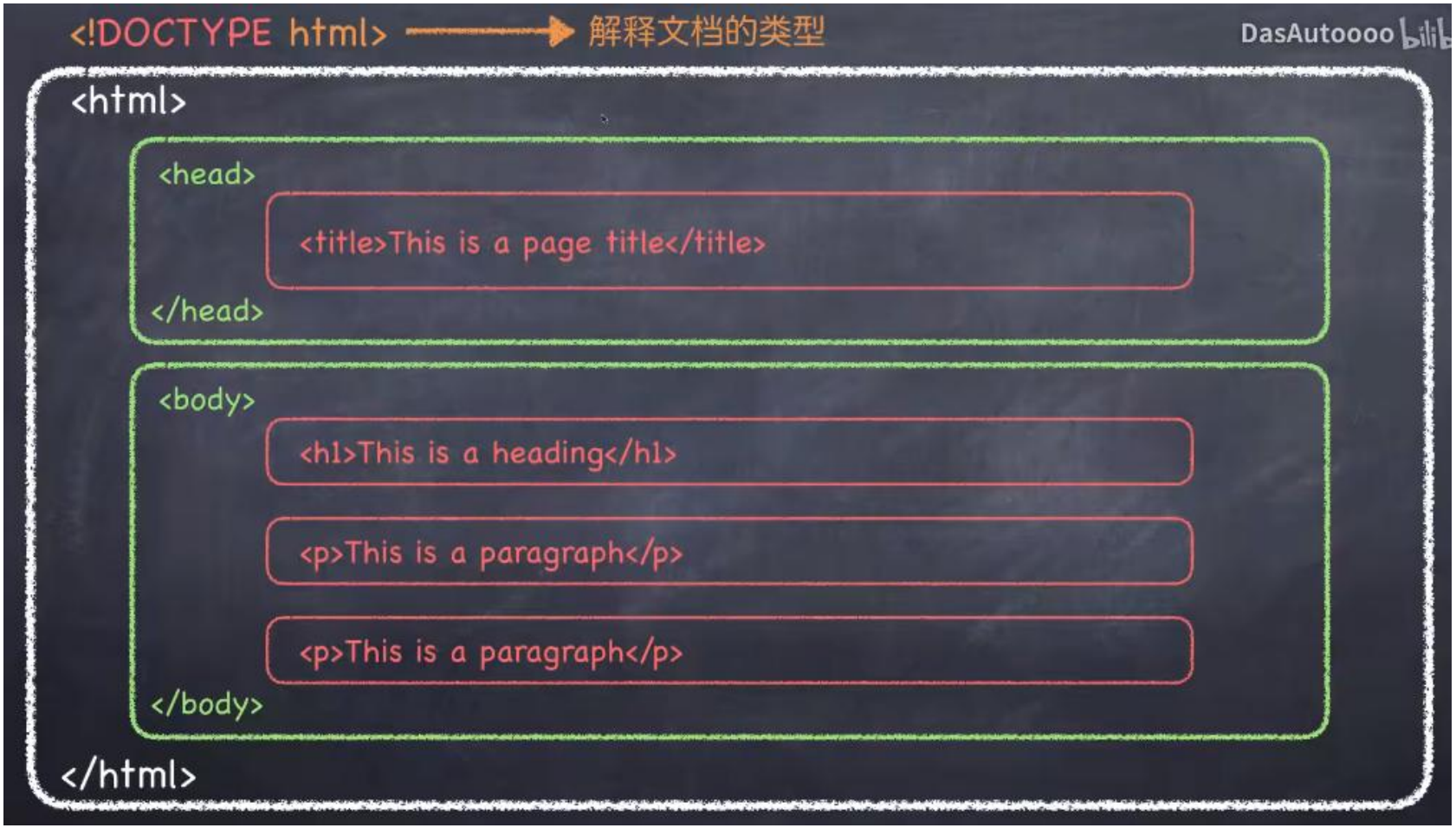
5. Working with Alternative Data

Hyper Text Transfer Protocol (HTTP)

- Client(browser) & Server
- Request & Response
- get & post user-agent cookie referer ip
- html

5. Working with Alternative Data

Hyper Text Markup Language (HTML)



5. Working with Alternative Data

Hyper Text Markup Language (HTML)

```
<p class="paragraph" id="para1" >Lorem</p>
```

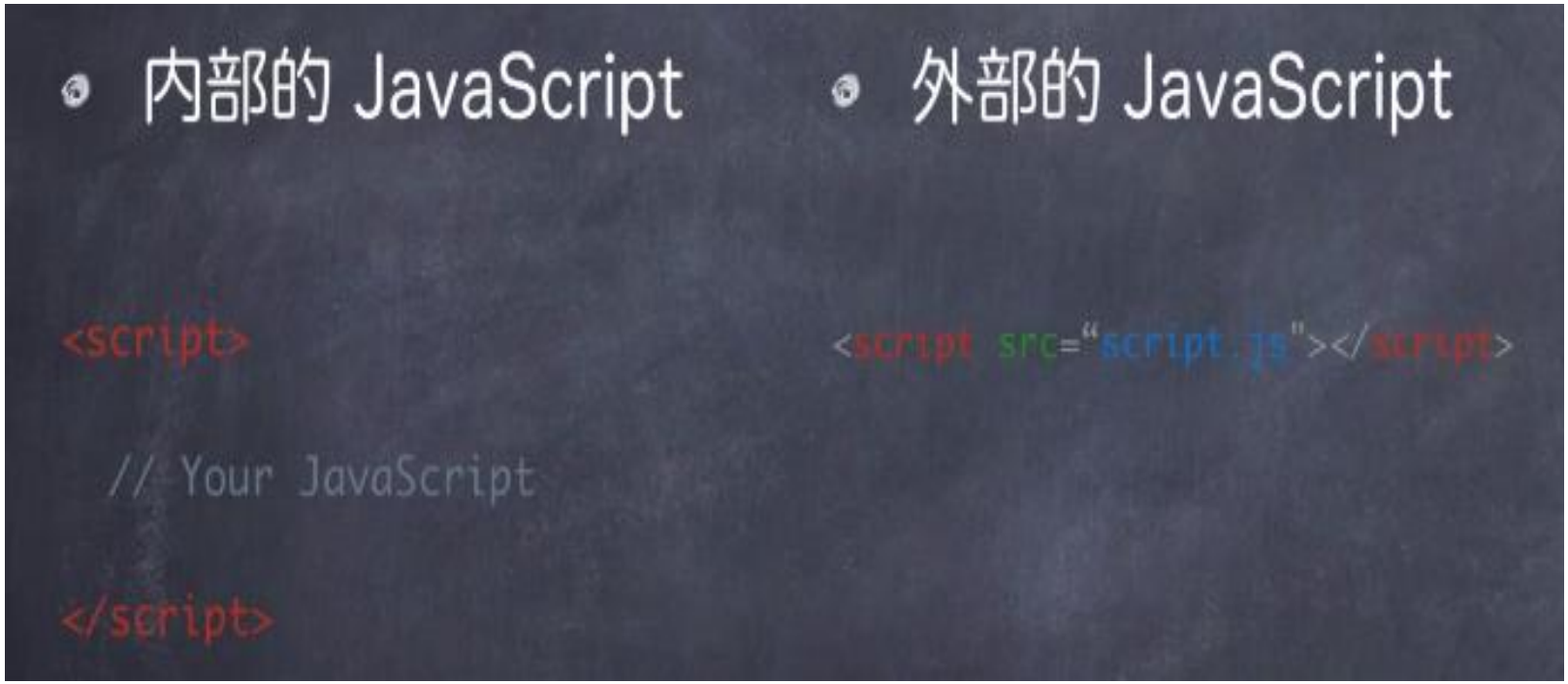
Cascading Style Sheets(CSS)

```
.paragraph {
    color : red ;
}
```

5. Working with Alternative Data

Hyper Text Markup Language (HTML)

JavaScript(JS)



5. Working with alternative data

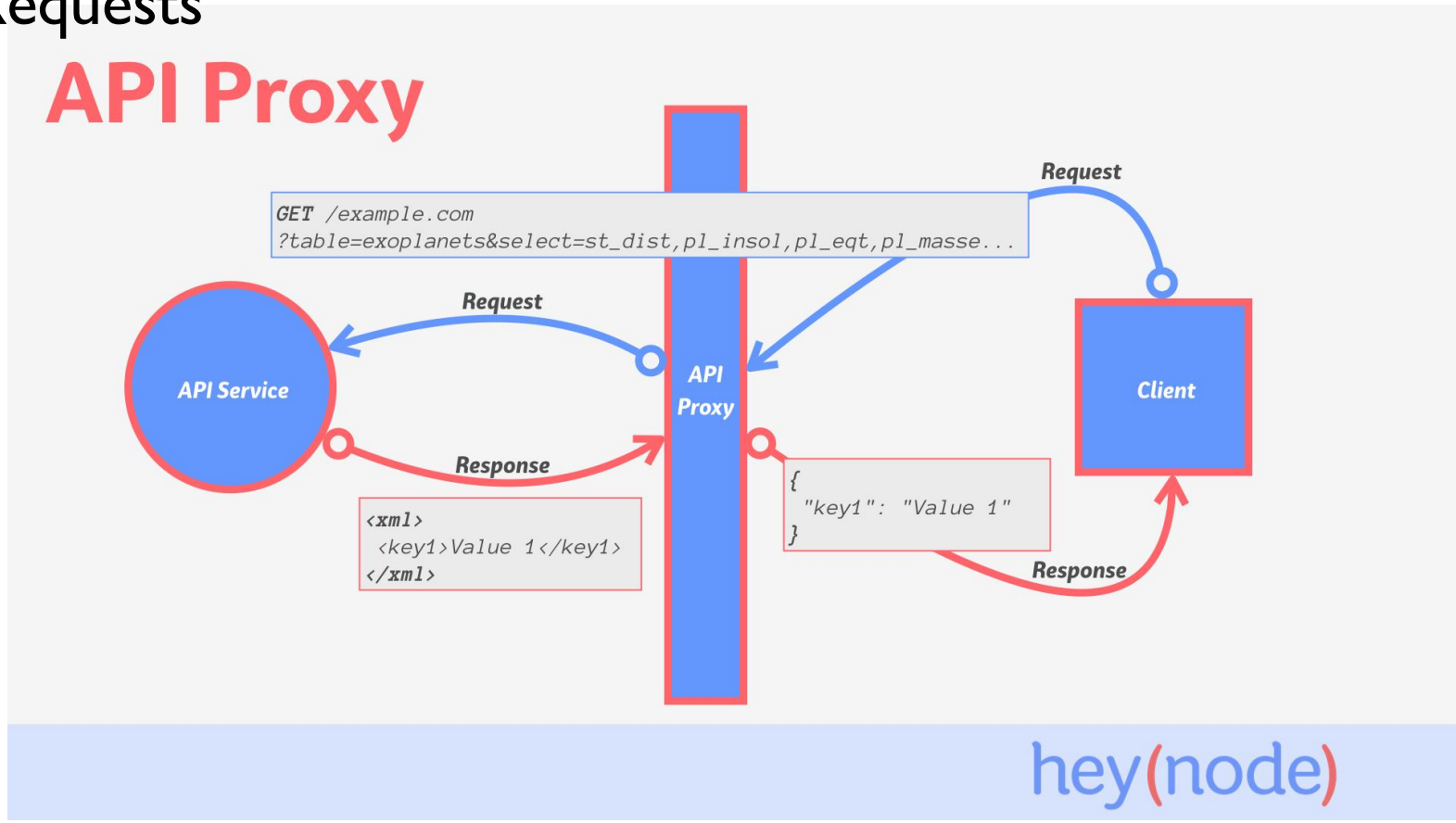
Talk is cheap, show me the code. -- Linus Torvalds

- BeautifulSoup

5. Working with alternative data

Talk is cheap, show me the code. -- Linus Torvalds

- Requests



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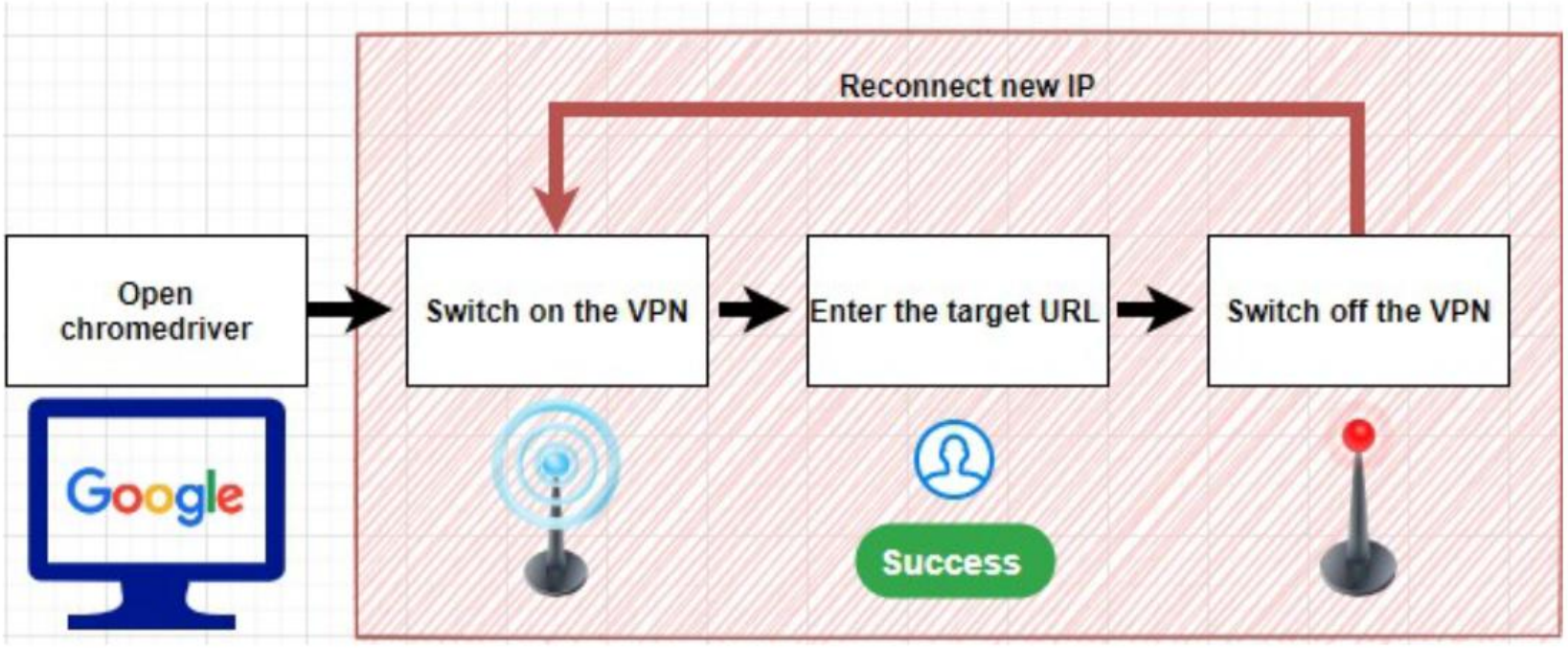
- Selenium



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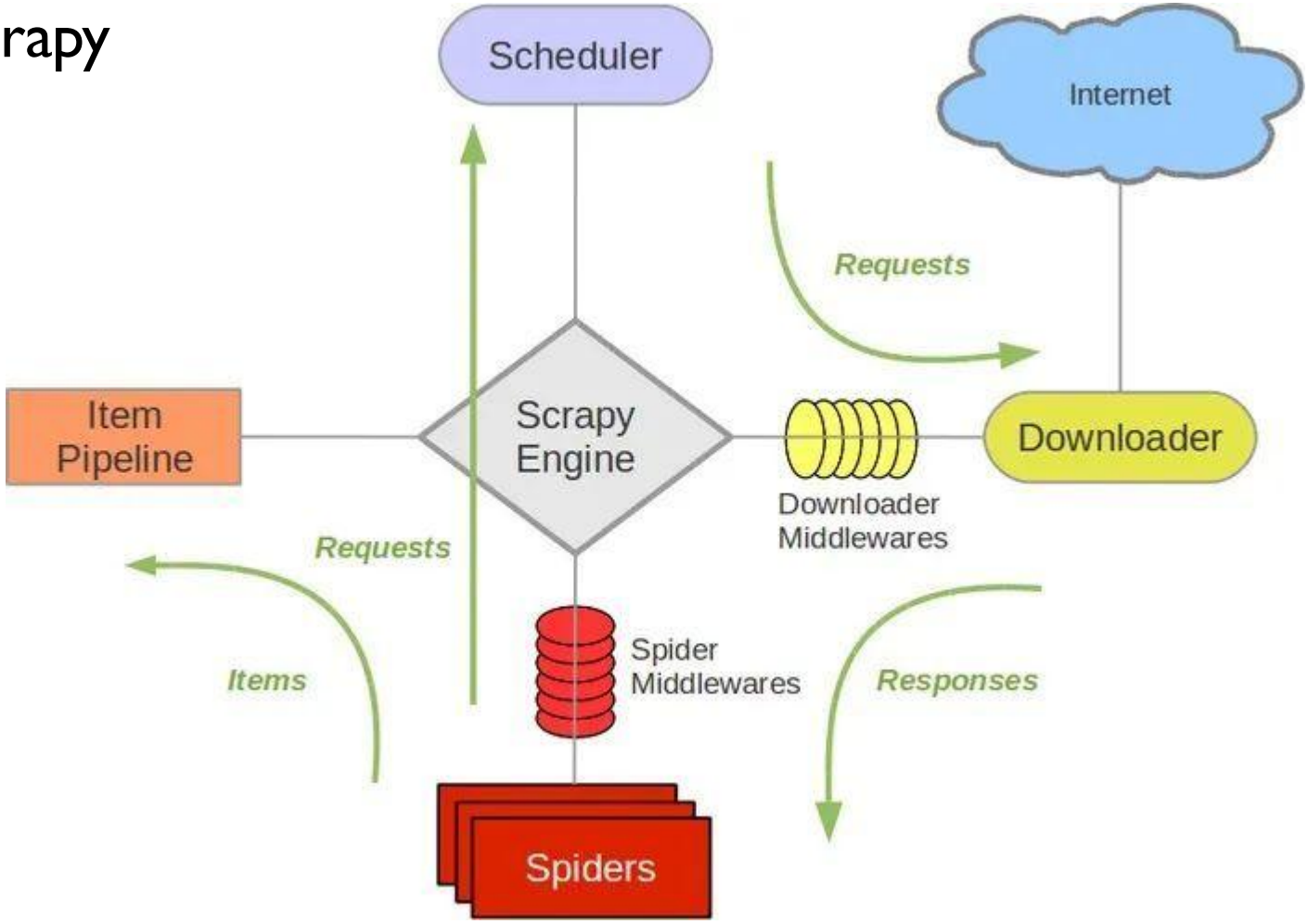
- Scrapy



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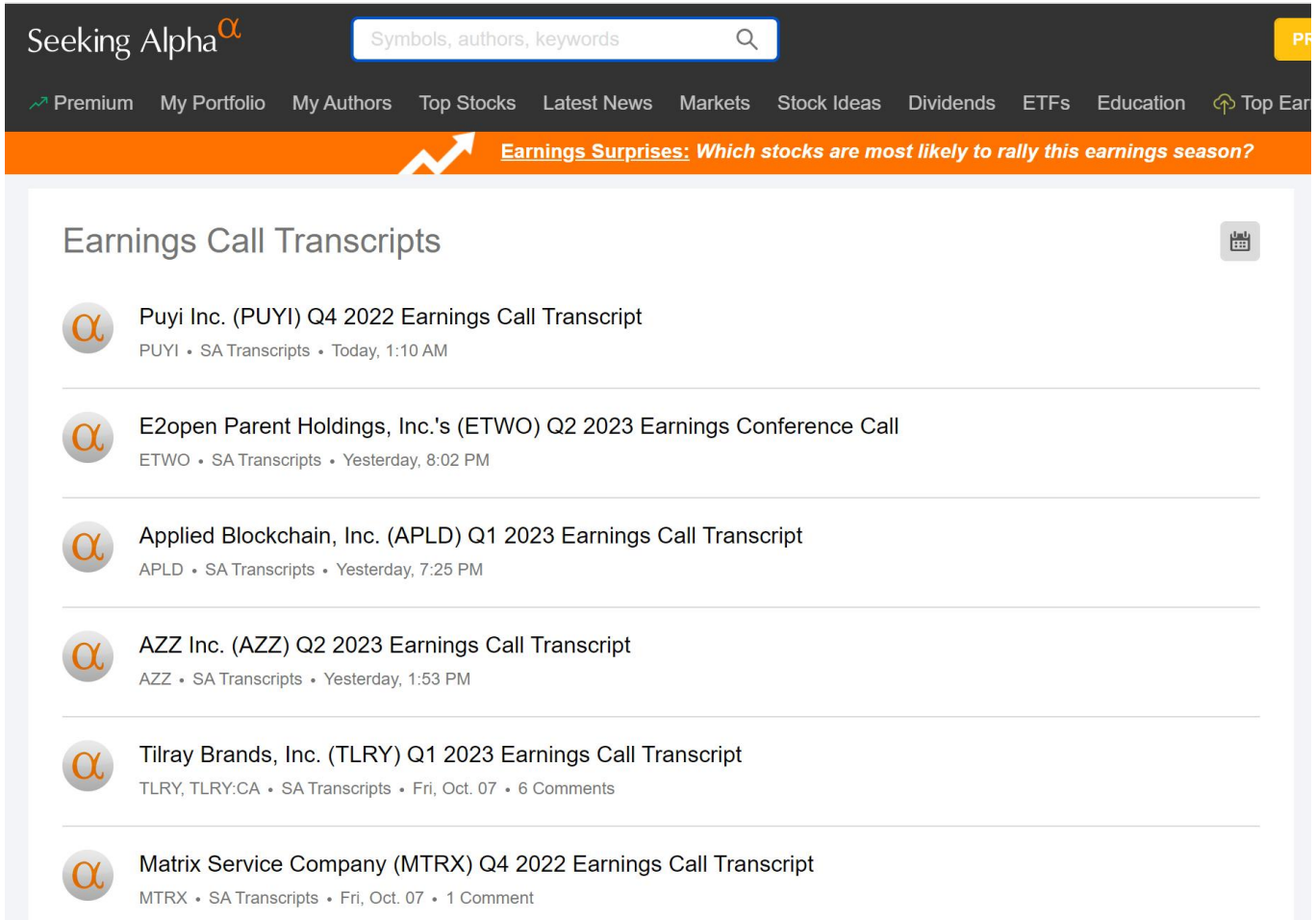
- Seekingalpha earnings-call-transcripts



5. Working with alternative data

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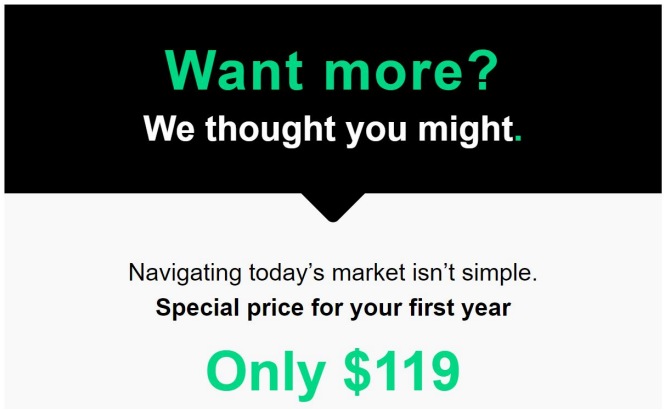
- Problems we faced…
  - Continously come into captcha

    Update: unfortunately, seekingalpha has updated their website to use captcha so automatic downloads are no longer possible in the way described here.
  - You have to pay if you want to see more



5. Working with alternative data

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- Final outcome

	speaker	q&a	content
0	Operator	0	Good morning, everyone. Thank you for joining ...
1	Berrin Noorata	0	Thank you and good morning. By now, everyone s...
2	Irwin Simon	0	Thank you, Berrin, and hello, everyone, and go...
3	Denise Faltischek	0	Thank you, Irwin, and good morning, everyone. ...
4	Blair MacNeil	0	Thank you, Denise, and hello, everyone.\nThe f...
...	...	...	...
66	Berrin Noorata	1	Thank you. And the second and last question is...
67	Irwin Simon	1	Well, number one, I will commit to this here. ...
68	Berrin Noorata	1	Thank you, Irwin, and that concludes our quest...
69	Irwin Simon	1	So, I want to thank everybody for joining us t...
70	Operator	1	Thank you. This concludes today's conference. ...

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