elastic

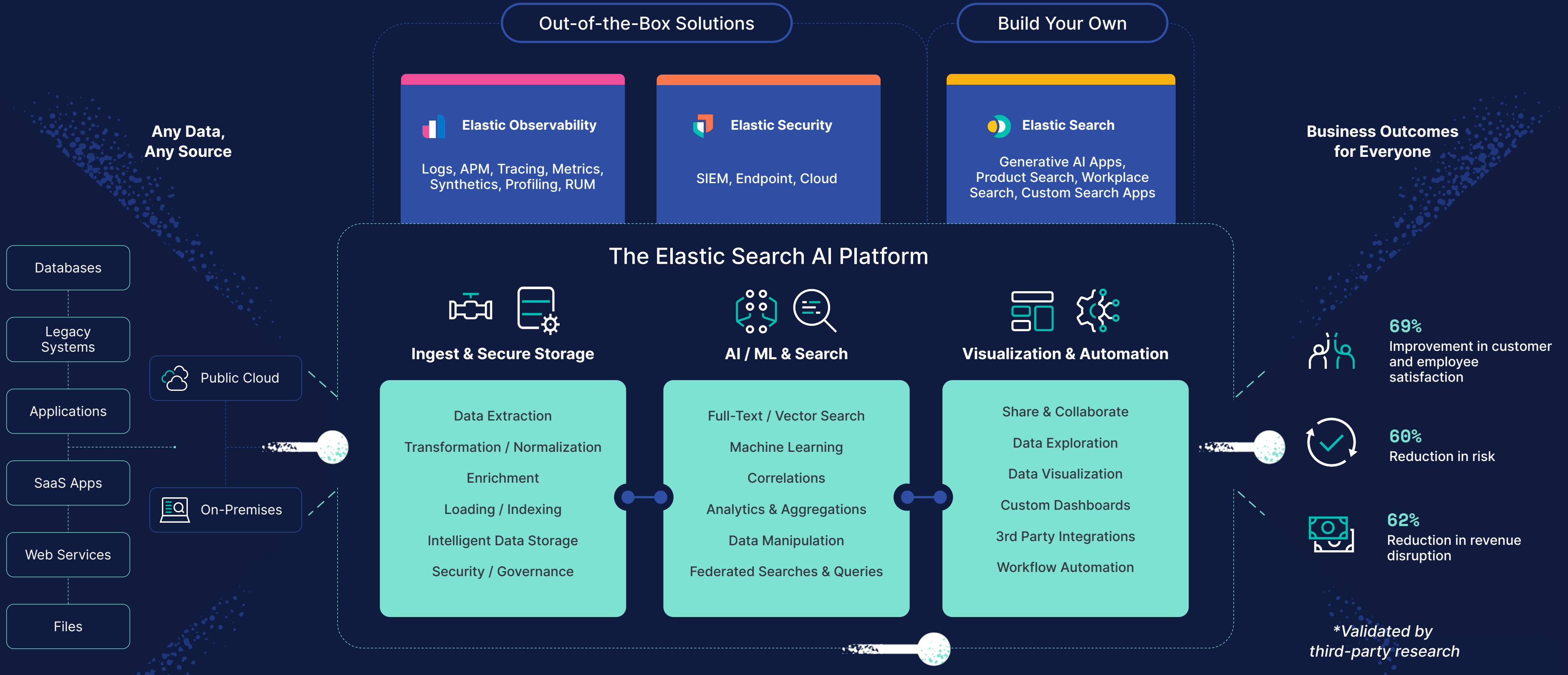
The Search Analytics Company

BBL at

Talan

```
$ curl http://localhost:9200/speaker/_doc/dpilato
{
  "name" : "David Pilato",
  "jobs" : [
    { "name" : "SRA Europe (SSII)", "date" : "1995" },
    { "name" : "SFR", "date" : "1997"  },
    { "name" : "e-Brands / Vivendi", "date": "2000" },
    { "name" : "DGDDI (douane)", "date" : "2005" },
    { "name" : "elastic", "date" : "2013" }
  ],
  "motivations" : [ "family", "job", "deejay" ],
  "blog" : "https://david.pilato.fr/",
  "twitter" : [ "@dadoonet", "@elasticfr" ],
  "email" : "david@pilato.fr"
}
```

Performance that Delivers Relevant Results in Real-time



Any Data, Any Source

- Databases
- Legacy Systems
- Applications
- SaaS Apps
- Web Services
- Files

- Public Cloud
- On-Premises

Out-of-the-Box Solutions

Elastic Observability

Logs, APM, Tracing, Metrics, Synthetics, Profiling, RUM

Elastic Security

SIEM, Endpoint, Cloud

Build Your Own

Elastic Search

Generative AI Apps, Product Search, Workplace Search, Custom Search Apps

The Elastic Search AI Platform

Ingest & Secure Storage

- Data Extraction
- Transformation / Normalization
- Enrichment
- Loading / Indexing
- Intelligent Data Storage
- Security / Governance

AI / ML & Search

- Full-Text / Vector Search
- Machine Learning
- Correlations
- Analytics & Aggregations
- Data Manipulation
- Federated Searches & Queries

Visualization & Automation

- Share & Collaborate
- Data Exploration
- Data Visualization
- Custom Dashboards
- 3rd Party Integrations
- Workflow Automation

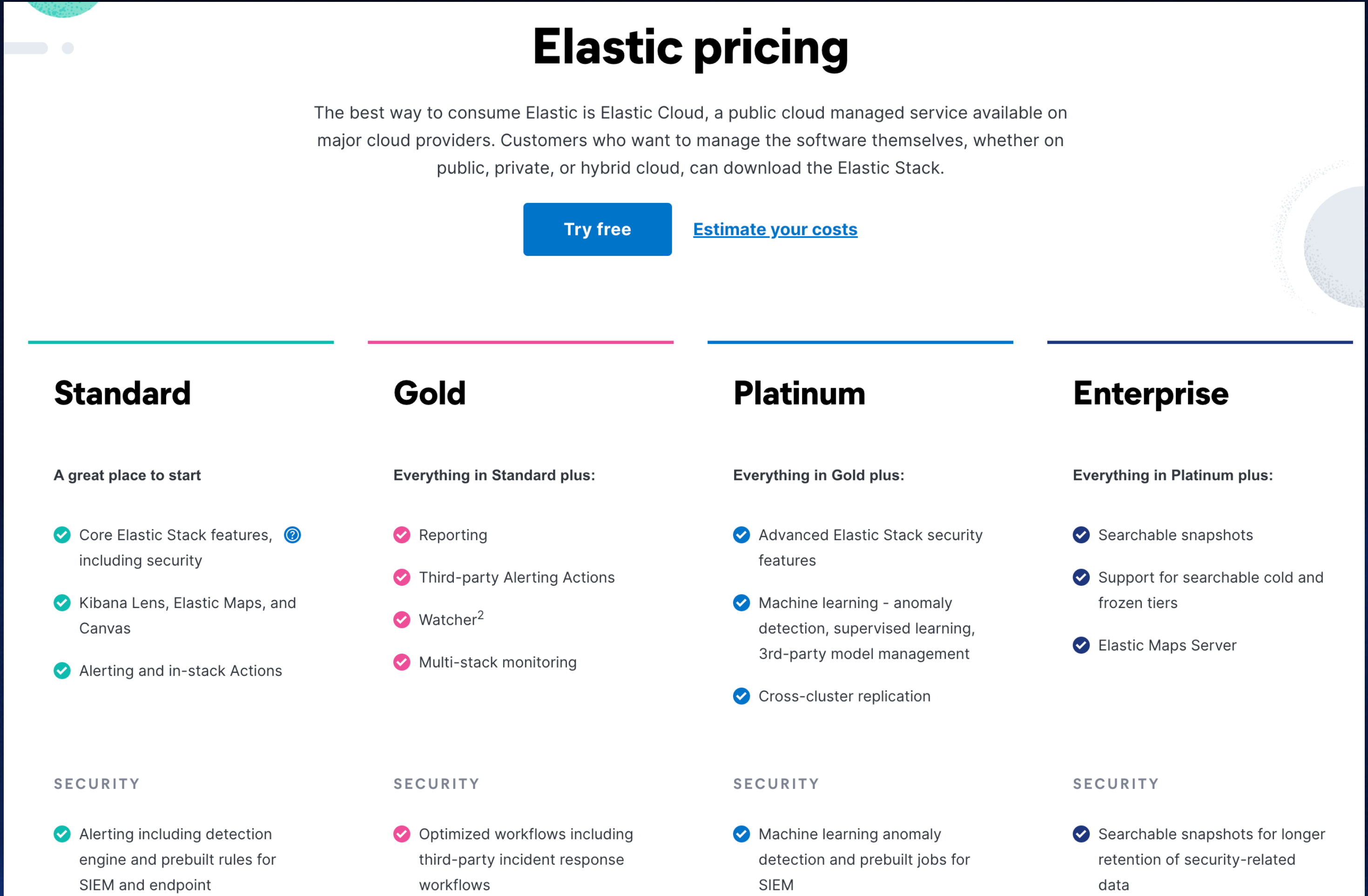
Business Outcomes for Everyone

69% Improvement in customer and employee satisfaction

60% Reduction in risk

62% Reduction in revenue disruption

**Validated by third-party research*



Elastic pricing

The best way to consume Elastic is Elastic Cloud, a public cloud managed service available on major cloud providers. Customers who want to manage the software themselves, whether on public, private, or hybrid cloud, can download the Elastic Stack.

Standard

A great place to start

- ✓ Core Elastic Stack features, including security ?
- ✓ Kibana Lens, Elastic Maps, and Canvas
- ✓ Alerting and in-stack Actions

SECURITY

- ✓ Alerting including detection engine and prebuilt rules for SIEM and endpoint

Gold

Everything in Standard plus:

- ✓ Reporting
- ✓ Third-party Alerting Actions
- ✓ Watcher[2]
- ✓ Multi-stack monitoring

SECURITY

- ✓ Optimized workflows including third-party incident response workflows

Platinum

Everything in Gold plus:

- ✓ Advanced Elastic Stack security features
- ✓ Machine learning - anomaly detection, supervised learning, 3rd-party model management
- ✓ Cross-cluster replication

SECURITY

- ✓ Machine learning anomaly detection and prebuilt jobs for SIEM

Enterprise

Everything in Platinum plus:

- ✓ Searchable snapshots
- ✓ Support for searchable cold and frozen tiers
- ✓ Elastic Maps Server

SECURITY

- ✓ Searchable snapshots for longer retention of security-related data

A typical search implementation…

```
CREATE TABLE user
(
   name VARCHAR(100),
   comments VARCHAR(1000)
);
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

David

Search on term

```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name="David";
Empty set (0,00 sec)
```

Search like

```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name LIKE "%David%";
+--------------+----------------------+
| name         | comments             |
+--------------+----------------------+
| David Pilato | Developer at elastic |
| David Gageot | Engineer at Doctolib |
| David David  | Who is that guy?     |
+--------------+----------------------+
```

elastic

Search for terms

```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name LIKE "%David Pilato%";
+--------------+----------------------+
| name         | comments             |
+--------------+----------------------+
| David Pilato | Developer at elastic |
+--------------+----------------------+
```

David Pilato

Search with inverted terms

```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name LIKE "%Pilato David%";
Empty set (0,00 sec)
SELECT * FROM user WHERE name LIKE "%Pilato%David%";
Empty set (0,00 sec)
```

Pilato David

Search for terms

```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name LIKE "%David%" AND
                         name LIKE "%Pilato%";
+--------------+----------------------+
| name         | comments             |
+--------------+----------------------+
| David Pilato | Developer at elastic |
+--------------+----------------------+
```

Pilato David

Search in two fields

```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name LIKE "%David%" OR
                         comments LIKE "%David%";
+--------------+---------------------------------------------+
| name         | comments                                    |
+--------------+---------------------------------------------+
| David Pilato | Developer at elastic                        |
| Malloum Laya | Worked with David at french customs service |
| David Gageot | Engineer at Doctolib                        |
| David David  | Who is that guy?                            |
+--------------+---------------------------------------------+
```

David

Search with typos

```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name LIKE "%Dadid%";
Empty set (0,00 sec)
```

Dadid

Search with typos

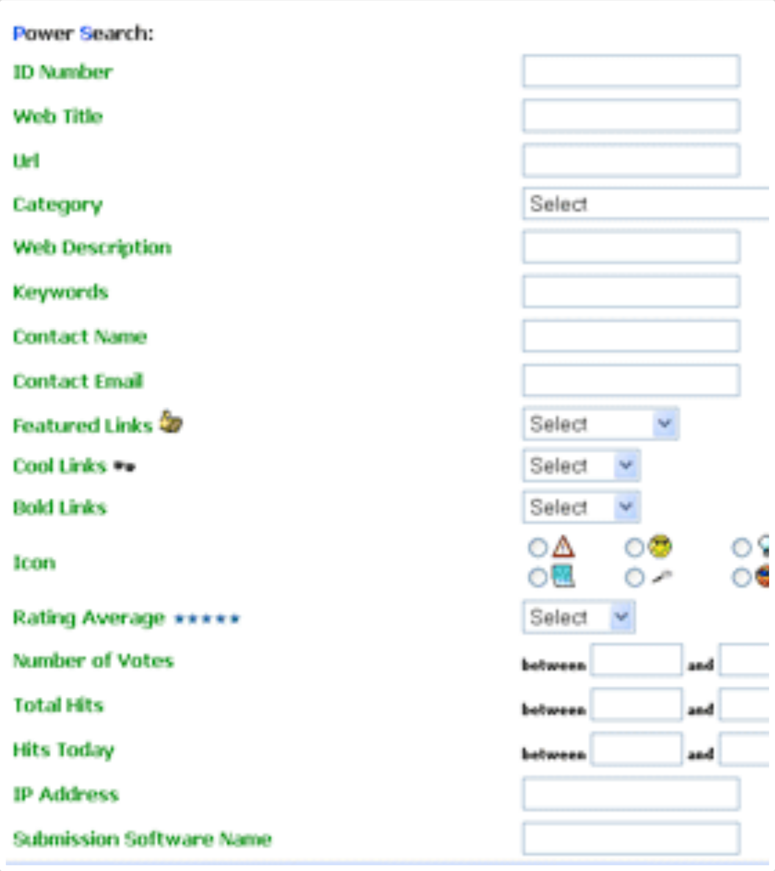
```
INSERT INTO user VALUES ('David Pilato', 'Developer at elastic');
INSERT INTO user VALUES ('Malloum Laya', 'Worked with David at french
customs service');
INSERT INTO user VALUES ('David Gageot', 'Engineer at Doctolib');
INSERT INTO user VALUES ('David David', 'Who is that guy?');
```

```
SELECT * FROM user WHERE name LIKE "%_adid%" OR
                         name LIKE "%D_did%" OR
                         name LIKE "%Da_id%" OR
                         name LIKE "%Dad_d%" OR
                         name LIKE "%Dadi_%";
+--------------+----------------------+
| name         | comments             |
+--------------+----------------------+
| David Pilato | Developer at elastic |
| David Gageot | Engineer at Doctolib |
| David David  | Who is that guy?     |
+--------------+----------------------+
```

Dadid

elastic

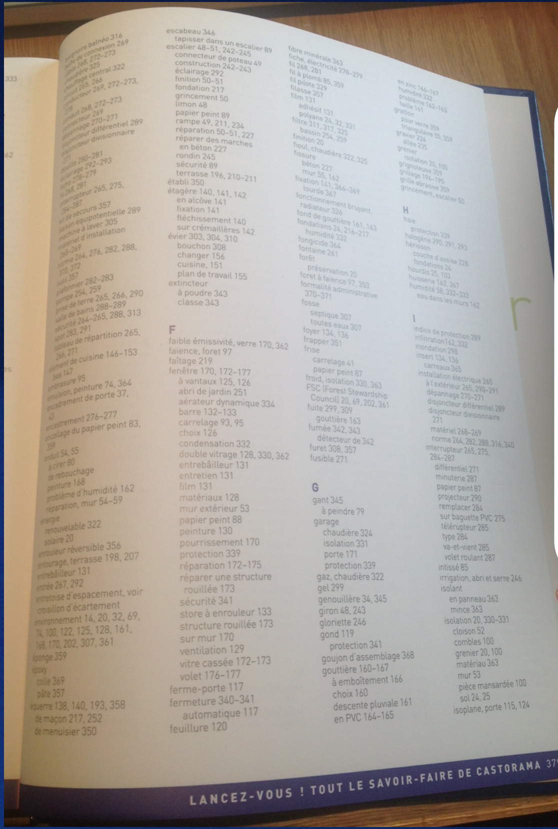
User Interface



Power Search:

ID Number	
Web Title	
Url	
Category	Select
Web Description	
Keywords	
Contact Name	
Contact Email	
Featured Links	Select
Cool Links	Select
Bold Links	Select
Icon	○ ○ ○ ○ ○ ○
Rating Average ★★★★★	Select
Number of Votes	between and
Total Hits	between and
Hits Today	between and
IP Address	
Submission Software Name	

What is a search engine?



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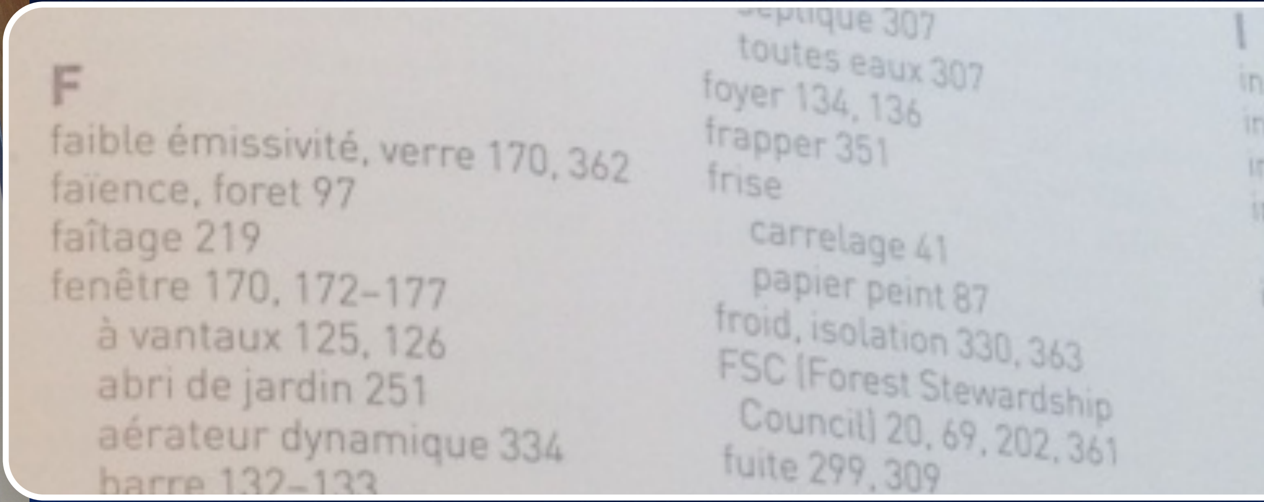
INDEX

LANCEZ-VOUS ! TOUT LE SAVOIR-FAIRE DE CASTORAMA 379

- **Index engine** (indexing documents)



F
faible émissivité, verre 170, 362
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faîtage 219
fenêtre 170, 172–177
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abri de jardin 251
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carrelage 41
papier peint 87
froid, isolation 330, 363
FSC (Forest Stewardship Council) 20, 69, 202, 361
fuite 299, 309

- **Search engine** (within the created indices)

Demo time!

Elasticsearch

You Know, for Search

elastic

```
GET /_analyze
{
  "char_filter": [ "html_strip" ],
  "tokenizer": "standard",
  "filter": [ "lowercase", "stop", "snowball" ],
  "text": "These are <em>not</em> the droids
           you are looking for."
}
```

```
These are <em>not</em> the droids you are looking for.
```

```
{ "tokens": [{
      "token": "droid",
      "start_offset": 27, "end_offset": 33,
      "type": "<ALPHANUM>", "position": 4
    },{
      "token": "you",
      "start_offset": 34, "end_offset": 37,
      "type": "<ALPHANUM>", "position": 5
    }, {
      "token": "look",
      "start_offset": 42, "end_offset": 49,
      "type": "<ALPHANUM>", "position": 7
    }]}
```

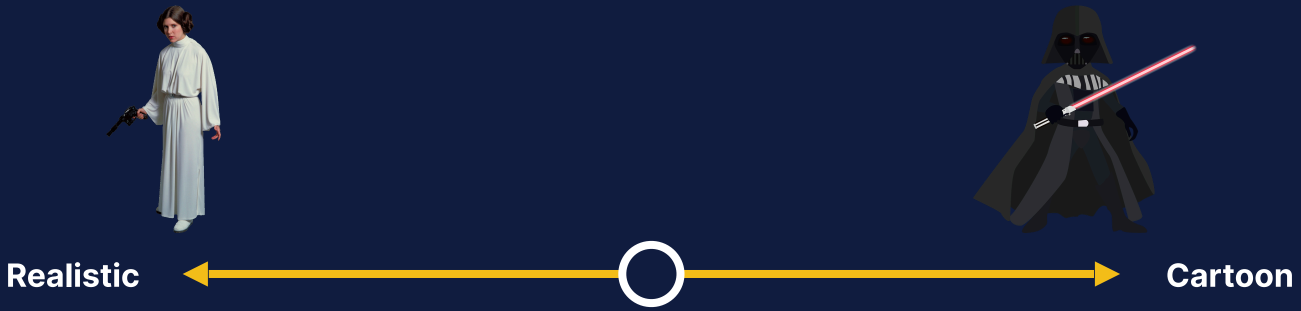
Elasticsearch

You Know, for **Vector** Search

elastic

Embeddings represent your data

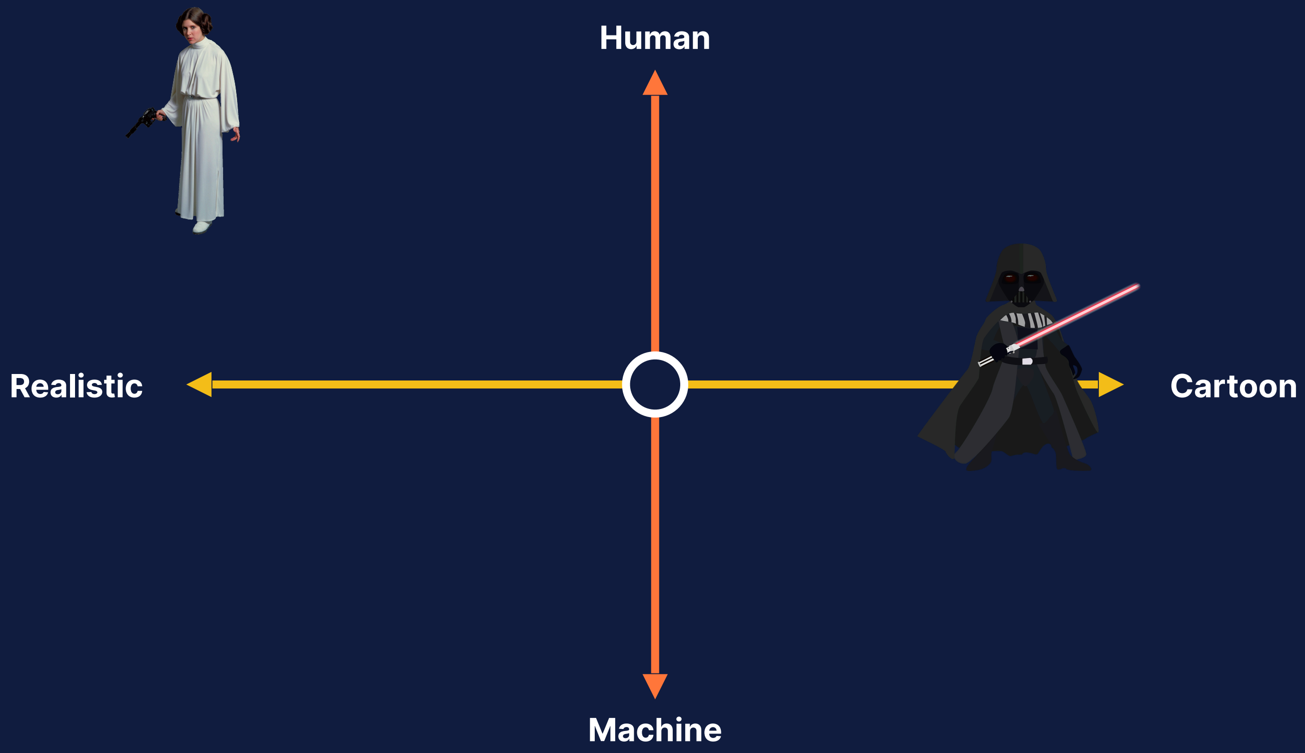
Example: 1-dimensional vector



Character	Vector
	[-1]
	[1]

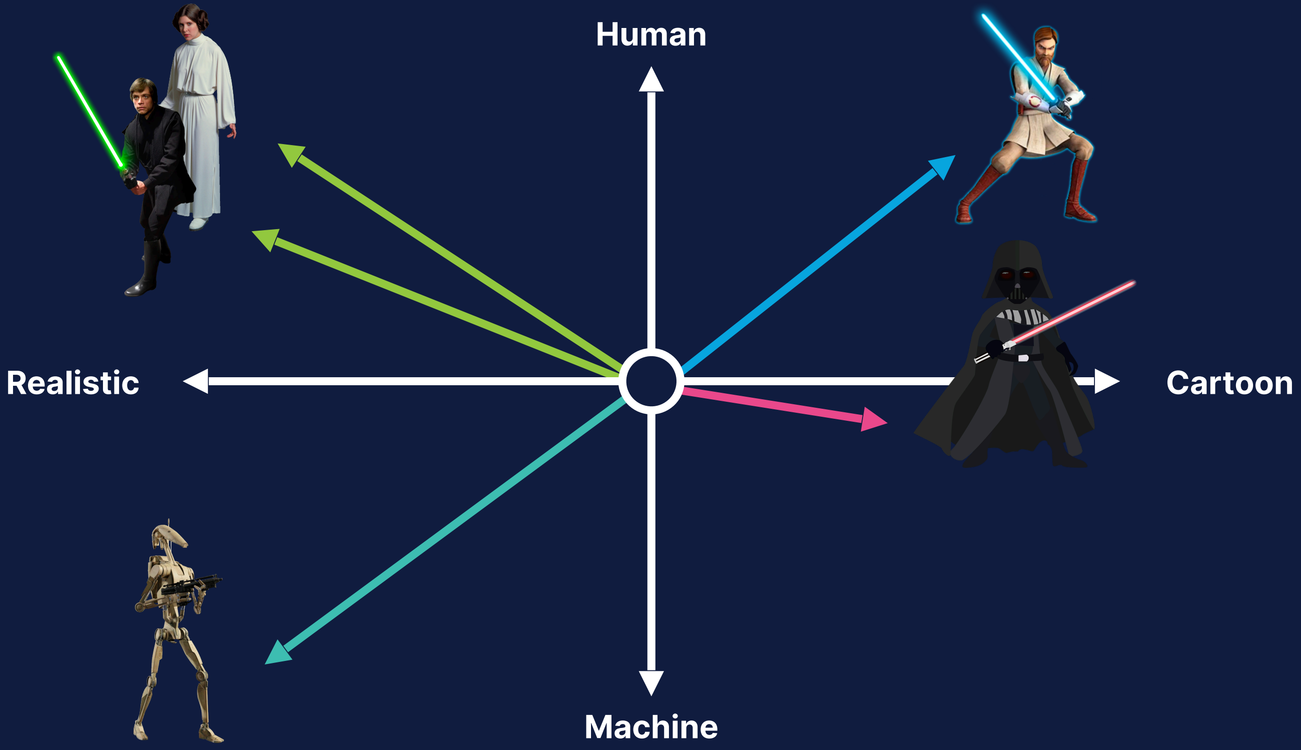
Multiple dimensions

represent different data aspects



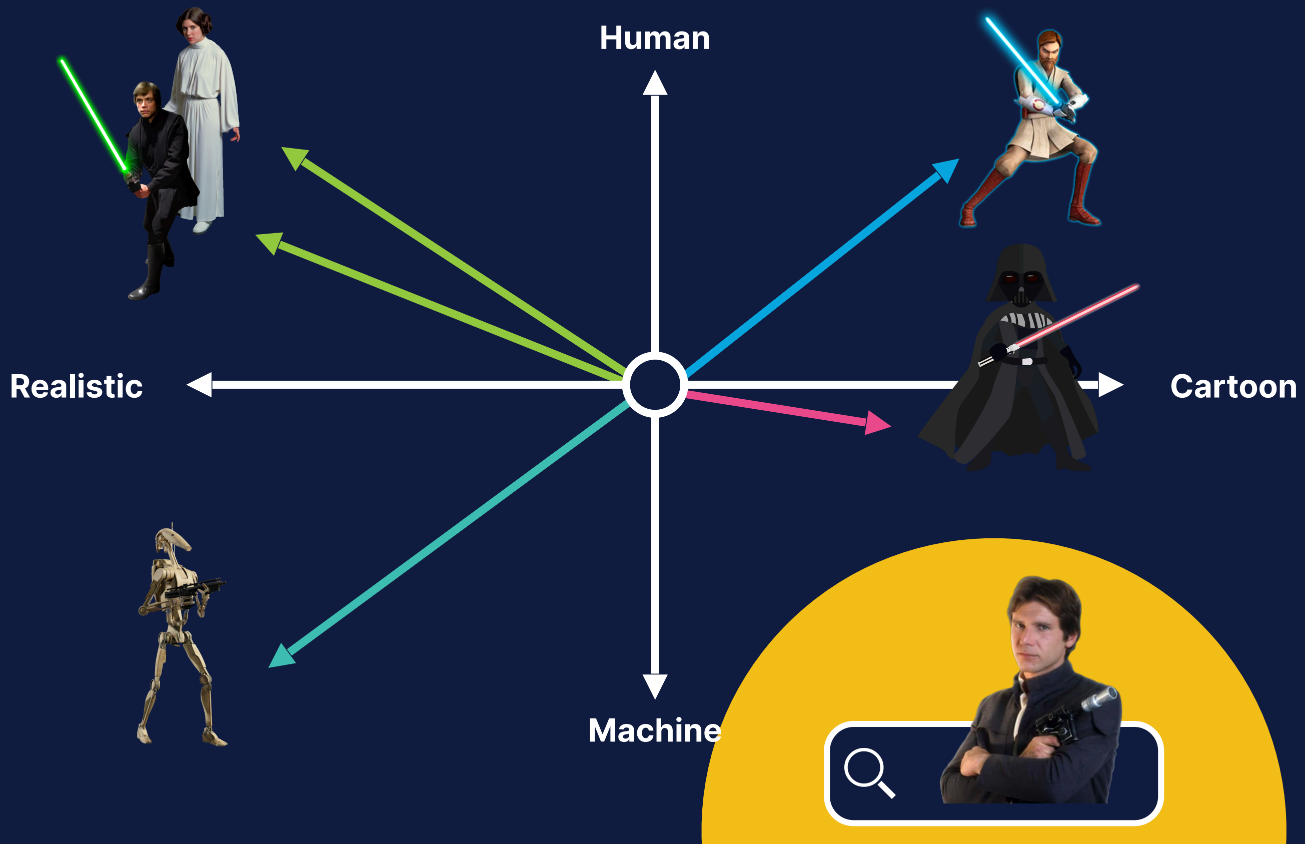
Character	Vector
	[-1, 1]
	[1, 0]

Similar data
is grouped together



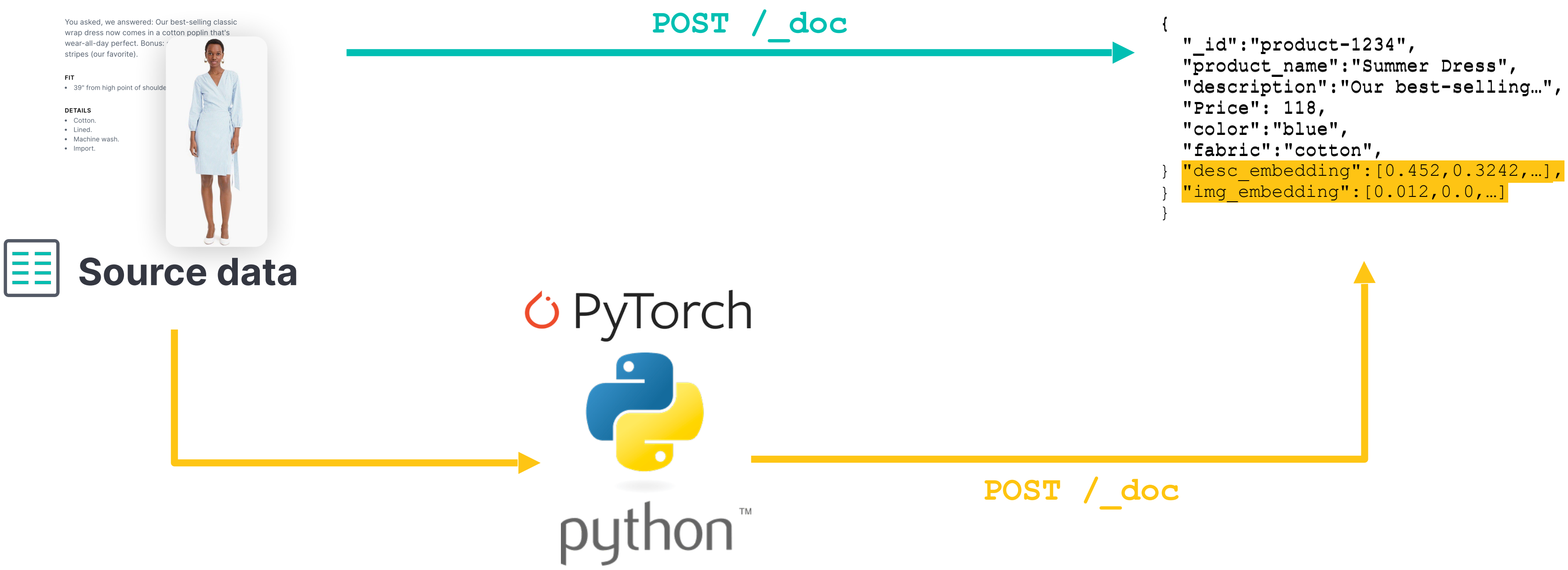
Character	Vector
	[-1.0, 1.0]
	[1.0, 0.0]
	[-1.0, 0.8]

Vector search ranks objects
by similarity (~relevance) to the query



Rank	Result
Query	
1	
2	
3	
4	
5	

Data Ingestion and Embedding Generation



You asked, we answered: Our best-selling classic wrap dress now comes in a cotton poplin that's wear-all-day perfect. Bonus: stripes (our favorite).

FIT

- 39" from high point of shoulde

DETAILS

- Cotton.
- Lined.
- Machine wash.
- Import.

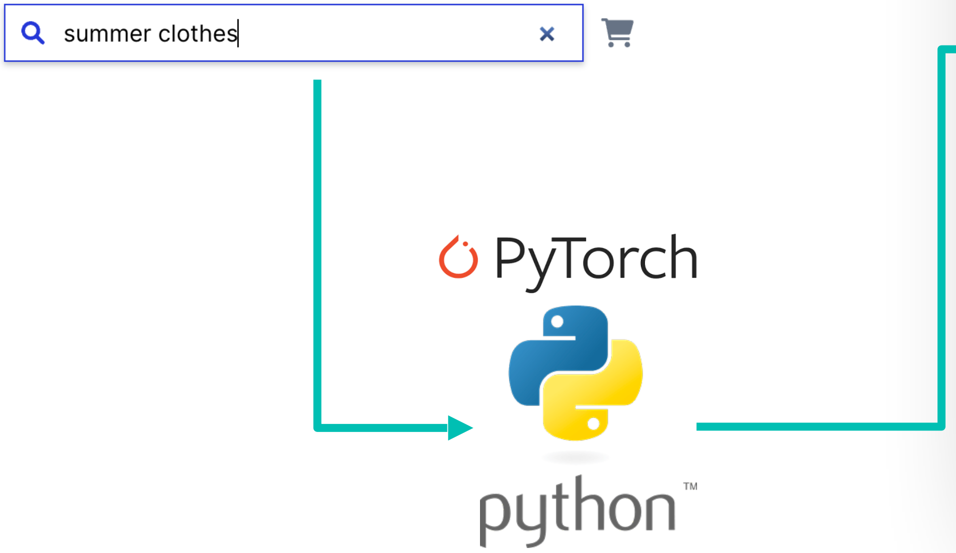
Source data

POST /_doc

```
{
  "_id":"product-1234",
  "product_name":"Summer Dress",
  "description":"Our best-selling…",
  "Price": 118,
  "color":"blue",
  "fabric":"cotton",
} "desc_embedding":[0.452,0.3242,…],
} "img_embedding":[0.012,0.0,…]
}
```

POST /_doc

Vector Query

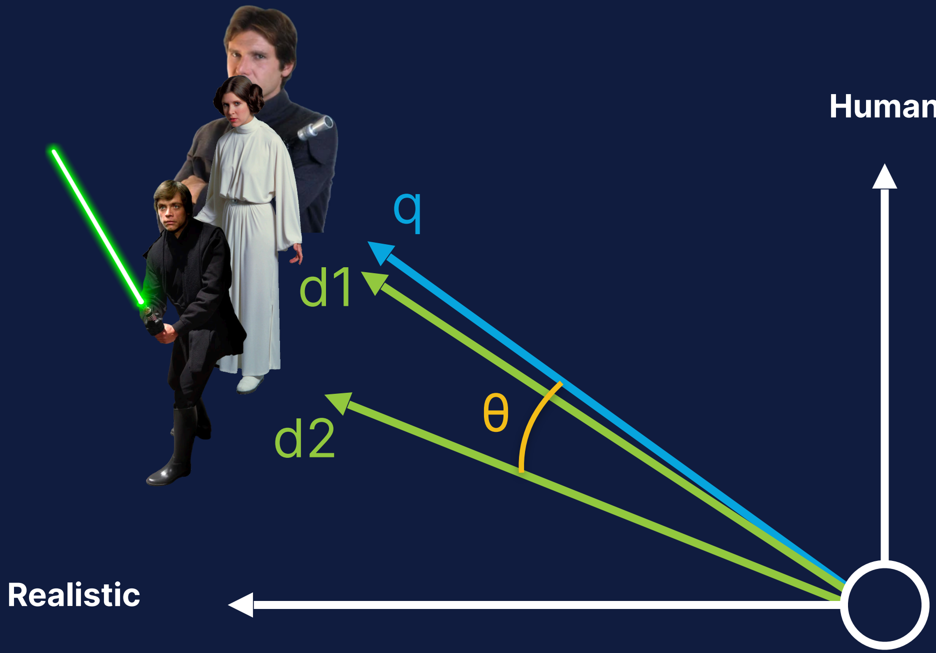


```
GET product-catalog/_search
{
 "query" : {
    "bool": {
      "must": [{
         "knn": {
           "field": "desc_embbeding",
           "num_candidates": 50,
           "query_vector": [0.123, 0.244,...]




         }
      }],
      "filter": {
        "term": {
          "department": "women"
        }
      }
    }
  },
  "size": 10
}
```

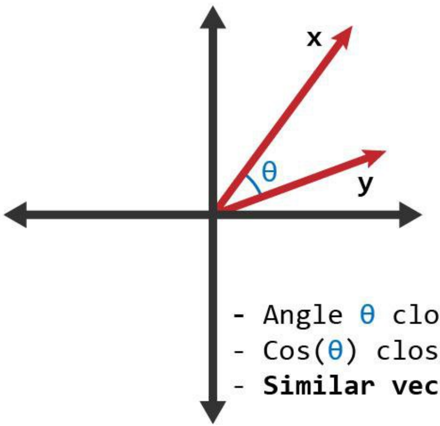
Similarity: cosine (cosine)



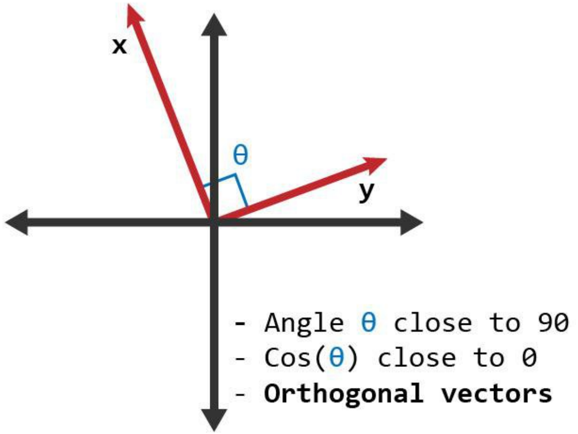
$$cos(\theta) = \frac{\vec{q} \times \vec{d}}{|\vec{q}| \times |\vec{d}|}$$

$$\_score = \frac{1 + cos(\theta)}{2}$$

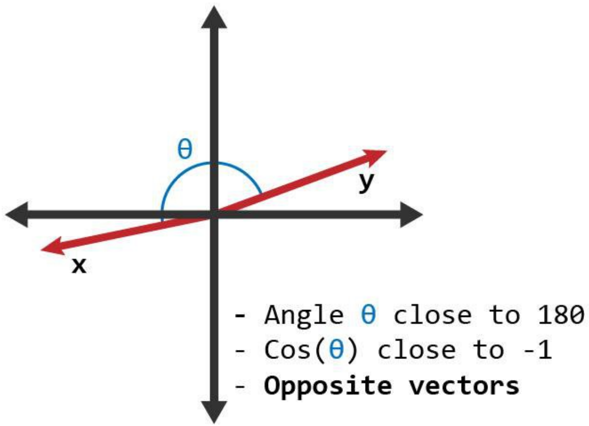
Similarity: cosine (cosine)



- Angle θ close to 0
- Cos(θ) close to 1
- **Similar vectors**



- Angle θ close to 90
- Cos(θ) close to 0
- **Orthogonal vectors**



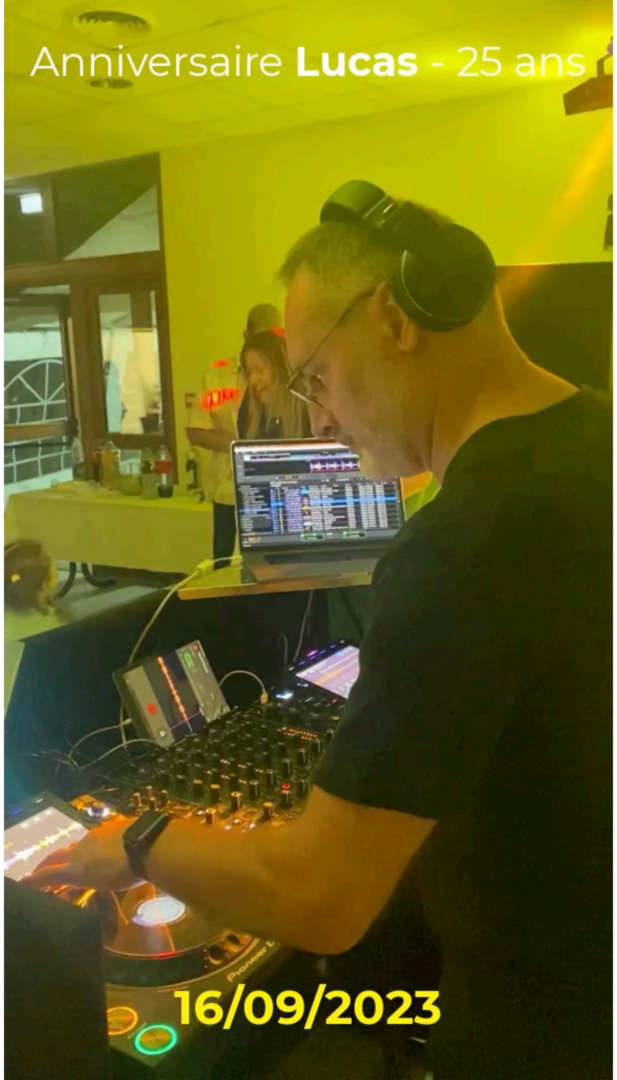
- Angle θ close to 180
- Cos(θ) close to -1
- **Opposite vectors**

$$\_score = \frac{1+1}{2} = 1$$

$$\_score = \frac{1+0}{2} = 0.5$$

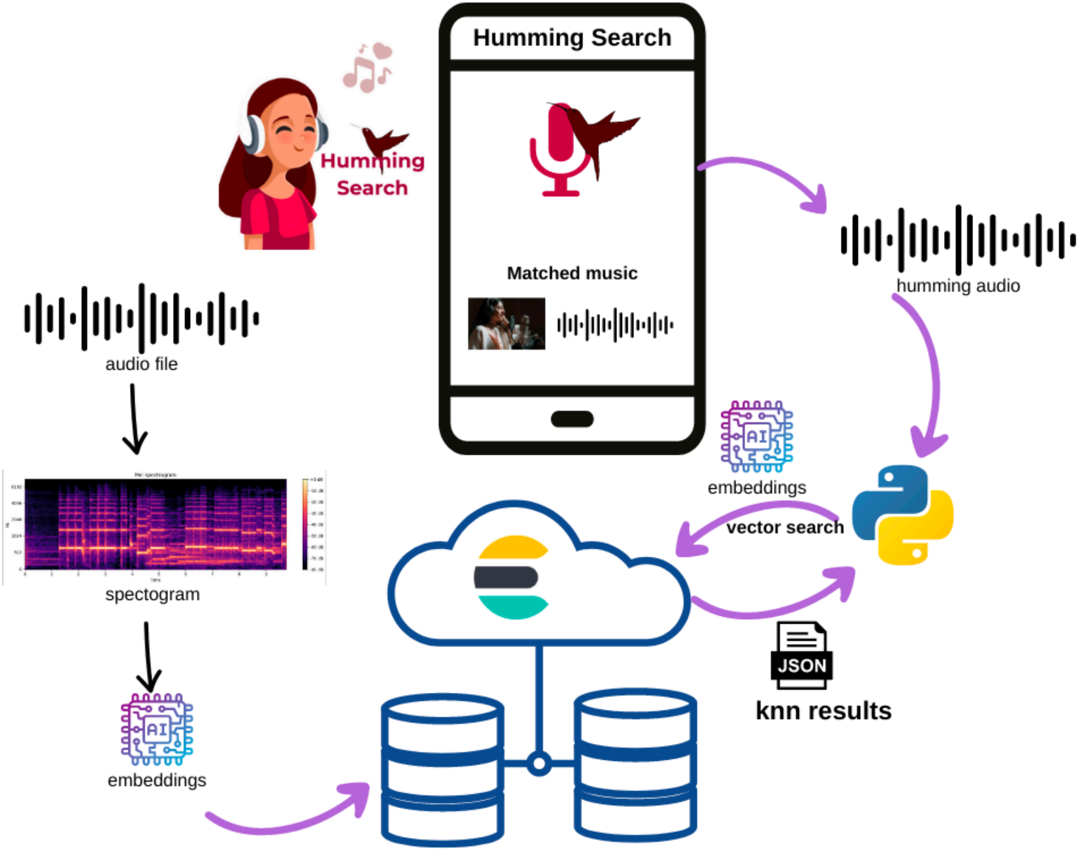
$$\_score = \frac{1-1}{2} = 0$$

https://djdadoo.pilato.fr/



Anniversaire **Lucas** - 25 ans

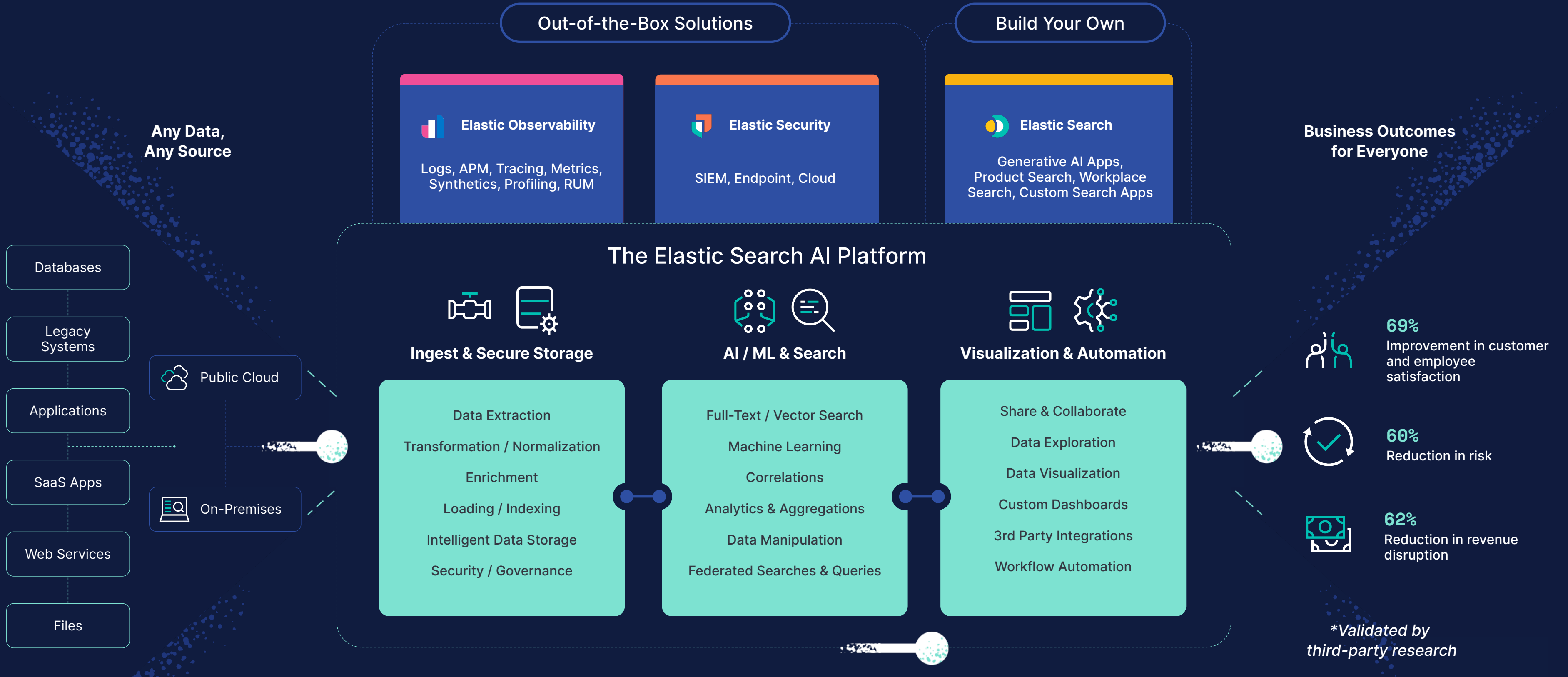
16/09/2023



https://github.com/dadoonet/music-search/

elastic

Performance that Delivers Relevant Results in Real-time



Any Data, Any Source

- Databases
- Legacy Systems
- Applications
- SaaS Apps
- Web Services
- Files

Public Cloud

On-Premises

Out-of-the-Box Solutions

Elastic Observability

Logs, APM, Tracing, Metrics, Synthetics, Profiling, RUM

Elastic Security

SIEM, Endpoint, Cloud

Build Your Own

Elastic Search

Generative AI Apps, Product Search, Workplace Search, Custom Search Apps

The Elastic Search AI Platform

Ingest & Secure Storage

- Data Extraction
- Transformation / Normalization
- Enrichment
- Loading / Indexing
- Intelligent Data Storage
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AI / ML & Search

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- Correlations
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Visualization & Automation

- Share & Collaborate
- Data Exploration
- Data Visualization
- Custom Dashboards
- 3rd Party Integrations
- Workflow Automation

Business Outcomes for Everyone

69%
Improvement in customer and employee satisfaction

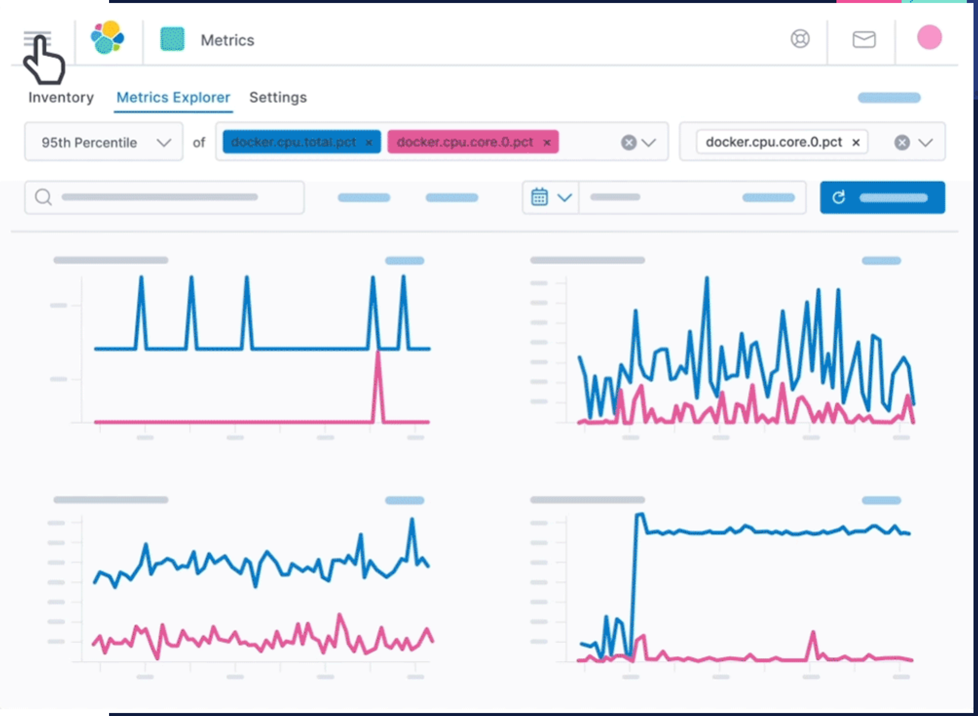
60%
Reduction in risk

62%
Reduction in revenue disruption

**Validated by third-party research*

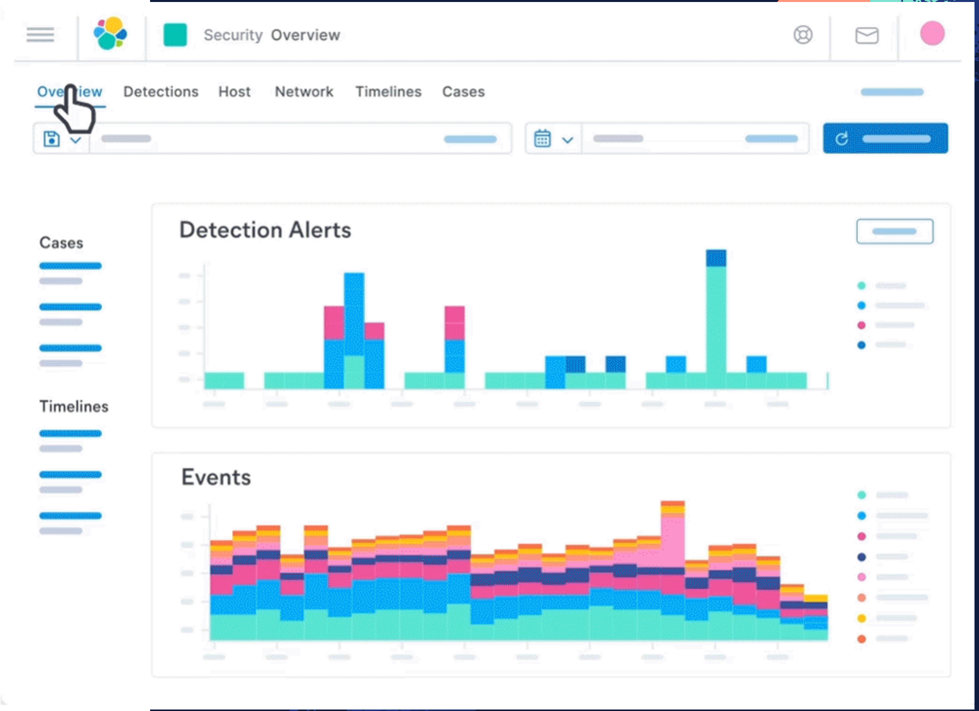
Elastic Observability

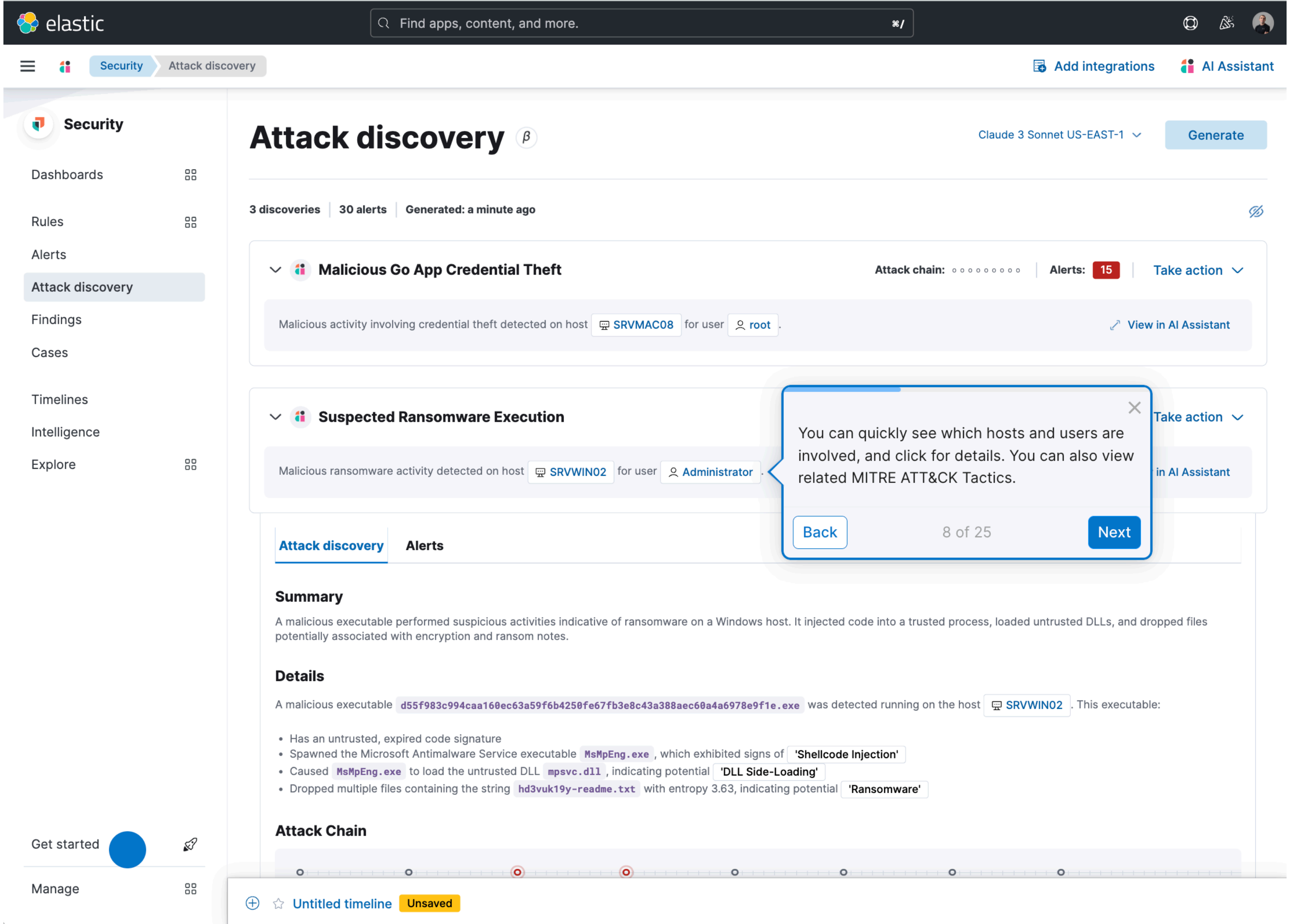
Converge metrics, logs, traces, and more to deliver unified visibility and actionable insights with the most widely deployed observability solution.



Elastic Security

Protect, investigate, and respond to complex threats with a security solution that unifies the capabilities of SIEM, endpoint security, and cloud security.





Attack discovery β

3 discoveries | 30 alerts | Generated: a minute ago

Malicious Go App Credential Theft

Attack chain: ○○○○○○○○○ Alerts: 15

Malicious activity involving credential theft detected on host SRVMAC08 for user root.

Suspected Ransomware Execution

Malicious ransomware activity detected on host SRVWIN02 for user Administrator.

You can quickly see which hosts and users are involved, and click for details. You can also view related MITRE ATT&CK Tactics.

Back 8 of 25 Next

Attack discovery | Alerts

Summary

A malicious executable performed suspicious activities indicative of ransomware on a Windows host. It injected code into a trusted process, loaded untrusted DLLs, and dropped files potentially associated with encryption and ransom notes.

Details

A malicious executable `d55f983c994caa160ec63a59f6b4250fe67fb3e8c43a388aec60a4a6978e9f1e.exe` was detected running on the host SRVWIN02. This executable:

- Has an untrusted, expired code signature
- Spawned the Microsoft Antimalware Service executable `MsMpEng.exe`, which exhibited signs of 'Shellcode Injection'
- Caused `MsMpEng.exe` to load the untrusted DLL `mpsvc.dll`, indicating potential 'DLL Side-Loading'
- Dropped multiple files containing the string `hd3vuk19y-readme.txt` with entropy 3.63, indicating potential 'Ransomware'

Attack Chain

Meetup

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Thank You

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