



BOINC + Elastic Stack = architektura zbierania, gromadzenia, przetwarzania i archiwizowania danych w kontekście projektu obliczeń rozproszonych iThena

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Przewodniczący Zarządu, Fundacja Cyber-Complex

JAVA JAVA JAVA

```
CLASS TREE {  
-----  
    PUBLIC TREE LEFT;  
    PUBLIC TREE RIGHT;  
    PUBLIC INT KEY;  
  
    PUBLIC TREE(INT K) {  
        KEY = K;  
    }  
  
    PUBLIC VOID INSERT( TREE ATREE ) {  
        IF ( ATREE.KEY < KEY )  
            IF ( LEFT != NULL ) LEFT.INSERT( ATREE );  
        ELSE LEFT = ATREE;  
        ELSE  
            IF ( RIGHT != NULL ) RIGHT.INSERT( ATREE );  
        ELSE RIGHT = ATREE;  
    }  
  
    PUBLIC VOID TRAVERSE(TREEVISITOR VISITOR) {  
        IF ( LEFT != NULL )  
            LEFT.TRAVERSE( VISITOR );  
  
        VISITOR.VISIT(THIS);  
    }  
}
```



Program prezentacji:

1. BOINC;
 - Czym jest BOINC? Jakie mamy projekty? Podstawowe informacje...
 - Idea obliczeń rozproszonych oraz sieci tworzonych przez wolontariuszy;
2. iThena – jeden z projektów na platformie BOINC;
3. Internet – analityka ruchu sieciowego;
4. Elastic Stack – rozwiązanie klasy BigData;
5. HowFaster.NET - cząstkowa prezentacja w formie strony www;
6. Open.Data HowFaster.NET - zbiory danych;
7. Podsumowanie;

BOINC



Berkeley Open Infrastructure for Network Computing (BOINC) – niekomercyjne rozwiązanie z dziedziny obliczeń rozproszonych, które pierwotnie powstało dla potrzeb projektu SETI@home, aktualnie wykorzystywane jest również w projektach innych niż SETI. Jest to niekomercyjne oprogramowanie pośredniczące pozwalające na udział komputera zwykłego użytkownika w naukowych projektach. BOINC jest rozwijany na Uniwersytecie Kalifornijskim w Berkeley przez zespół pod kierunkiem szefa projektu SETI@home, Davida Andersona. BOINC jest wolnym i otwartym oprogramowaniem wydawanym na licencji GNU LGPL i jest wspierany finansowo przez amerykańską rządową agencję National Science Foundation.

BOINC - Community



BOINC Stats: <https://www.boincstats.com>



Free-DC Stats: <https://stats.free-dc.org/stats.php?page=index>

Wiele projektów open source...

Lista projektów na oficjalnej stronie UC Berkeley:

<https://boinc.berkeley.edu/projects.php>

... i wiele, wiele projektów, których nie ma na oficjalnej liście...

Projekt iThena - część globalnej platformy BOINC

The iThena distributed project concerns experimental mapping of network structures included in the Internet. The project is in closed beta phase. Currently, the only application available in the project (iThena CNode) performs a sequence of traceroute procedures from client computers. The resulting data is sent back to the server and submitted to the main database, where it can be further analyzed.

Liczba użytkowników: **50 308** (z dnia: 13.06.2021)

Liczba hostów (teoretyczna/całkowita): **58 836** (z dnia: 13.06.2021)

Strona projektu: **<https://ithena.net>**

Prosta wizualizacja systemowa: **<https://vi.ithena.net/>**

Strona projektu iThena na Everipedia: **https://everipedia.org/wiki/lang_en/ithena**



Welcome, Rysiu

Total no. of users: **50 308**

Date the last user was added: **2021-06-13 16:23:27 UTC**

243 seconds ago...

Total no. of hosts: **58 836**

Date the last host was added: **2021-06-13 14:26:26 UTC**

7 264 seconds ago...

Date of last contact with the host: **2021-06-13 16:27:30 UTC**

0 seconds ago...

Top10 countries by total credits:

	Country	Credits	% of total
1	United Kingdom	82,063,336.193	36.976 %
2	United States	53,024,789.125	23.892 %
3	Australia	45,305,455.980	20.413 %
4	Canada	16,038,068.035	7.226 %
5	Germany	6,143,749.161	2.768 %
6	France	3,532,136.380	1.591 %

Aktualności

Possible technical interruptions from June 5, 2021 to June 6, 2021

From June 5, 2021 to June 6, 2021 there will be temporary problems with access to the project. These problems are related to the changes in infrastructure.

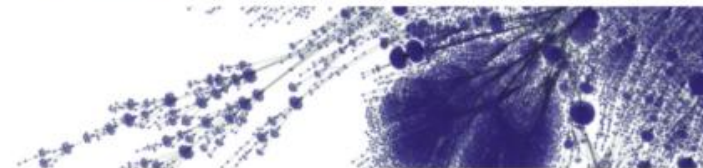
Twitter: <https://twitter.com/iThenaProject/status/1400359167345430530>

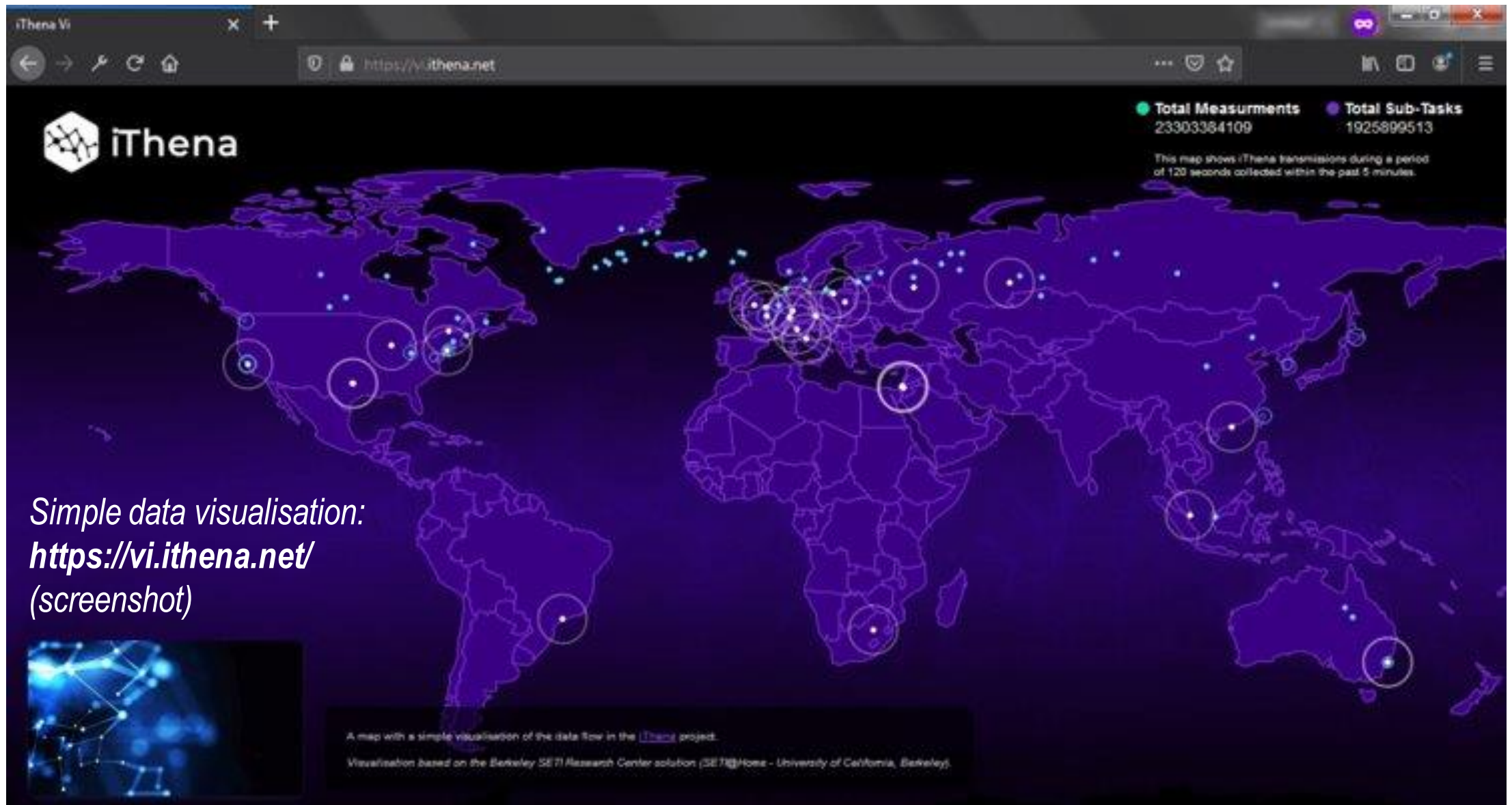
3 Jun 2021, 7:48:29 UTC · Dyskutuj

Open-Source Proxmox platform as part of the infrastructure



Cyber-Complex
Foundation





Simple data visualisation:
<https://vi.ithena.net/>
(screenshot)

last month	last week	last day	Rank	Username	Total credit	Credit /day	Credit /week	Credit /month	Average credit	Over take	Options
▼ ▲	▼ ▲	▼ ▲		▼ ▲	▼ ▲	▼ ▲	▼ ▲	▼ ▲	▼ ▲		COMPARE
0 ▲	0 ▲	0 ▲	2	Fardringle	23,200,648	150,582	950,108	4,613,788	150,040	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	3	JugNut	19,550,070	27,106	133,110	1,131,814	30,972	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	4	NudgeyNR	19,320,615	40,344	199,426	1,517,996	42,788	20	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	5	phoenicis	13,787,802	0	0	0	0	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	6	emoga	11,819,398	137,918	1,185,520	4,058,076	144,952	14	<input type="checkbox"/>
1 ▲	0 ▲	0 ▲	7	Sphynx	7,035,034	49,382	226,646	1,306,674	40,295	-	<input type="checkbox"/>
1 ▼	0 ▲	0 ▲	8	RFGuy_KCCO	6,634,242	0	0	542	5	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	9	Dingo	5,253,615	632	1,572	7,150	241	365+	<input type="checkbox"/>
3 ▲	2 ▲	0 ▲	10	Skillz	3,114,444	231,314	1,248,930	1,535,216	102,362	18	<input type="checkbox"/>
1 ▼	1 ▼	0 ▲	11	pututu	2,259,594	0	0	362	267	-	<input type="checkbox"/>
1 ▼	1 ▼	0 ▲	12	Coleslaw	2,010,720	1,888	8,996	67,470	1,911	134	<input type="checkbox"/>
1 ▼	0 ▲	0 ▲	13	[SG-FC] hl	1,751,690	4,028	21,216	137,922	4,171	123	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	14	arkiss	1,548,528	4,214	21,094	152,360	4,358	365+	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	15	[DPC] hansR	1,392,094	0	0	0	0	-	<input type="checkbox"/>
3 ▲	1 ▲	0 ▲	16	JohnMD	1,020,264	3,320	15,966	106,790	3,123	121	<input type="checkbox"/>
1 ▼	1 ▼	0 ▲	17	zombie67 [MM]	1,011,860	0	0	1,112	22	-	<input type="checkbox"/>
1 ▼	0 ▲	0 ▲	18	motqalden	1,000,816	0	0	0	0	-	<input type="checkbox"/>
1 ▼	0 ▲	0 ▲	19	Bryan	1,000,000	0	0	0	0	-	<input type="checkbox"/>
1 ▲	0 ▲	0 ▲	20	Rysiu	964,861	2,438	14,212	74,536	2,347	16	<input type="checkbox"/>
1 ▲	0 ▲	0 ▲	21	vanos0512	963,973	2,854	21,284	179,078	4,854	1	<input type="checkbox"/>
2 ▼	0 ▲	0 ▲	22	Roadrunner	891,496	0	0	0	14	-	<input type="checkbox"/>
1 ▲	0 ▲	0 ▲	23	vaughan	793,942	2,434	13,988	83,840	2,515	40	<input type="checkbox"/>
1 ▲	0 ▲	0 ▲	24	Pete Broad	773,102	1,856	8,490	63,164	1,812	-	<input type="checkbox"/>
3 ▲	0 ▲	0 ▲	25	zioriga	767,650	4,374	22,158	112,860	3,654	3	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	26	nenym	735,330	432	6,604	59,894	1,660	-	<input type="checkbox"/>
4 ▼	0 ▲	0 ▲	27	Sergey Kovalchuk	724,881	0	0	410	13	-	<input type="checkbox"/>
1 ▲	0 ▲	0 ▲	28	gouik	698,018	2,666	9,774	75,094	2,166	13	<input type="checkbox"/>
2 ▼	0 ▲	0 ▲	29	GLeeM	669,876	146	638	6,764	147	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	30	Skivellitis2	642,386	1,796	9,452	66,450	1,945	17	<input type="checkbox"/>

last month	last week	last day	Rank	Country name	Total credit	Credit /day	Credit /week	Credit /month	Average credit	Credit / capita	Credit / user	Over take	Options
▼ ▲	▼ ▲	▼ ▲		▼ ▲	▼ ▲	▼ ▲	▼ ▲	▼ ▲	▼ ▲	▼ ▲	▼ ▲		COMPARE
0 ▲	0 ▲	0 ▲	1	United Kingdom	82,058,244	234,188	1,174,300	7,128,932	213,040	1	3,729,920	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	2	United States	52,589,887	447,698	2,509,700	8,110,282	309,364	0	641,340	256	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	3	Australia	45,281,362	71,192	351,654	2,765,066	77,226	2	3,483,182	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	4	Canada	16,035,496	145,322	1,222,130	4,323,702	152,544	0	1,233,500	365+	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	5	Germany	6,106,279	11,084	168,182	364,944	10,862	0	127,214	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	6	France	2,850,120	9,820	43,896	296,040	8,708	0	101,790	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	7	Poland	2,156,837	4,220	22,270	215,484	5,347	0	165,911	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	8	Netherlands	1,419,170	94	300	2,062	64	0	709,585	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	9	Czech Republic	1,268,004	2,404	15,376	126,980	3,561	0	105,667	48	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	10	Denmark	1,223,102	3,986	19,358	129,930	3,785	0	305,776	90	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	11	Spain	1,042,066	3,926	19,866	109,536	3,431	0	173,678	-	<input type="checkbox"/>
2 ▲	0 ▲	0 ▲	12	Taiwan	993,165	2,886	21,408	182,888	4,942	0	248,291	44	<input type="checkbox"/>
1 ▼	0 ▲	0 ▲	13	Italy	987,752	4,736	23,902	124,202	4,012	0	89,796	-	<input type="checkbox"/>
1 ▲	1 ▲	0 ▲	14	International	838,196	3,178	14,682	93,070	2,836	0	36,443	-	<input type="checkbox"/>
2 ▼	1 ▼	0 ▲	15	Ukraine	832,577	580	7,252	16,850	395	0	138,763	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	16	Croatia	635,326	1,772	9,480	64,344	1,860	0	635,326	180	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	17	Finland	405,542	2,100	6,536	42,008	1,289	0	405,542	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	18	British Virgin Islands	397,422	1,332	6,794	37,908	1,190	18	397,422	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	19	Sweden	364,840	870	4,728	25,742	824	0	364,840	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	20	Russian Federation	357,098	854	4,530	30,846	907	0	71,420	107	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	21	Switzerland	331,404	852	3,242	22,406	663	0	82,851	-	<input type="checkbox"/>
1 ▲	1 ▲	0 ▲	22	Lithuania	274,320	1,126	5,578	31,240	968	0	68,580	188	<input type="checkbox"/>
1 ▼	1 ▼	0 ▲	23	Korea, South	272,740	778	4,008	27,508	800	0	272,740	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	24	Anguilla	194,036	530	2,584	16,570	492	15	64,679	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	25	Norway	193,044	652	2,922	17,674	532	0	193,044	19	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	26	Austria	170,500	282	1,570	16,220	403	0	28,417	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	27	Portugal	154,804	436	1,240	6,630	186	0	51,601	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	28	Hong Kong	149,084	362	1,984	14,516	408	0	149,084	38	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	29	China	128,014	304	1,406	9,790	292	0	16,002	-	<input type="checkbox"/>
0 ▲	0 ▲	0 ▲	30	South Africa	113,354	258	524	524	53	0	113,354	-	<input type="checkbox"/>

Demo BOINC...



Elasticsearch – oprogramowanie komputerowe służące do wyszukiwania informacji stworzone przez Shaya Banona z firmy Elastic NV w roku 2010. Jako główny silnik wyszukiwania, system Elasticsearch wykorzystuje bibliotekę Apache Lucene. Z tego m.in. powodu system Elasticsearch jest często porównywany do platformy o podobnych funkcjach i zastosowaniach Apache Solr.

Wiele elementów systemu Elasticsearch jest dostępnych w postaci otwartych źródeł na serwisie GitHub.

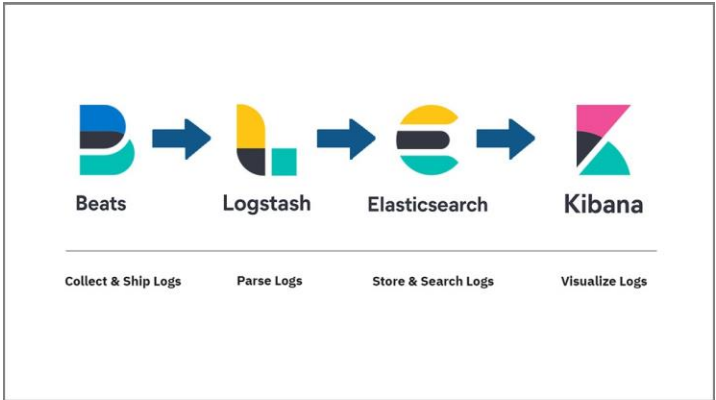
Według serwisu DB-engines, Elasticsearch jest najpopularniejszym silnikiem wyszukiwania na świecie.



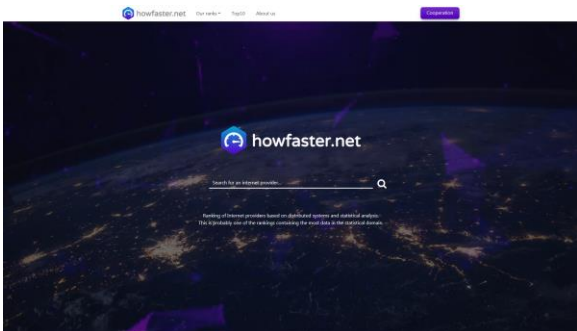
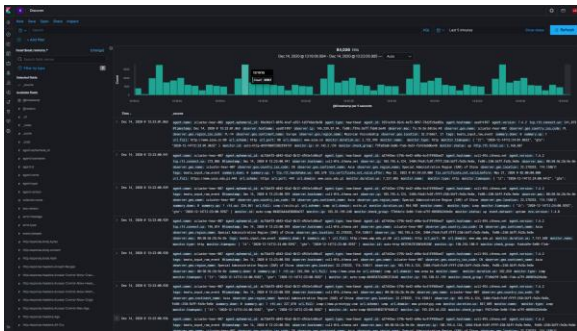
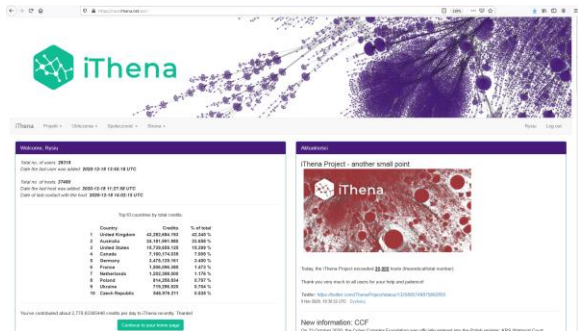
The screenshot shows the 'Snapshot and Restore' management page. The table below lists the snapshots:

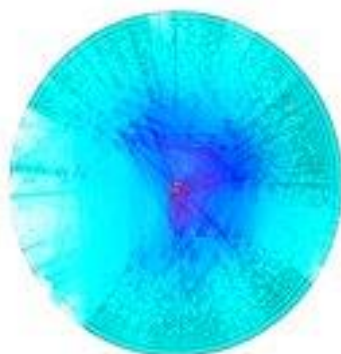
Snapshot	Repository	Indices	Shards	Failed shards	Date created	Duration	Actions
<input type="checkbox"/>	routes_ipv4-2019.12	snap-resource-000	1	0	0	Dec 14, 2020 11:54 AM GMT+1	
<input type="checkbox"/>	routes_ipv4-2020.02	snap-resource-000	1	10	0	Dec 13, 2020 12:12 AM GMT+1	67408s
<input type="checkbox"/>	routes_ipv4-2020.01	snap-resource-000	1	5	0	Dec 11, 2020 8:27 PM GMT+1	96714s
<input type="checkbox"/>	routes_ipv4-int-core-2020.03	snap-resource-000	1	10	0	Dec 07, 2020 3:48 PM GMT+1	231272s
<input type="checkbox"/>	routes_ipv4-int-core-2020.02	snap-resource-000	1	10	0	Dec 07, 2020 2:39 PM GMT+1	2036s

INPUT



OUTPUT





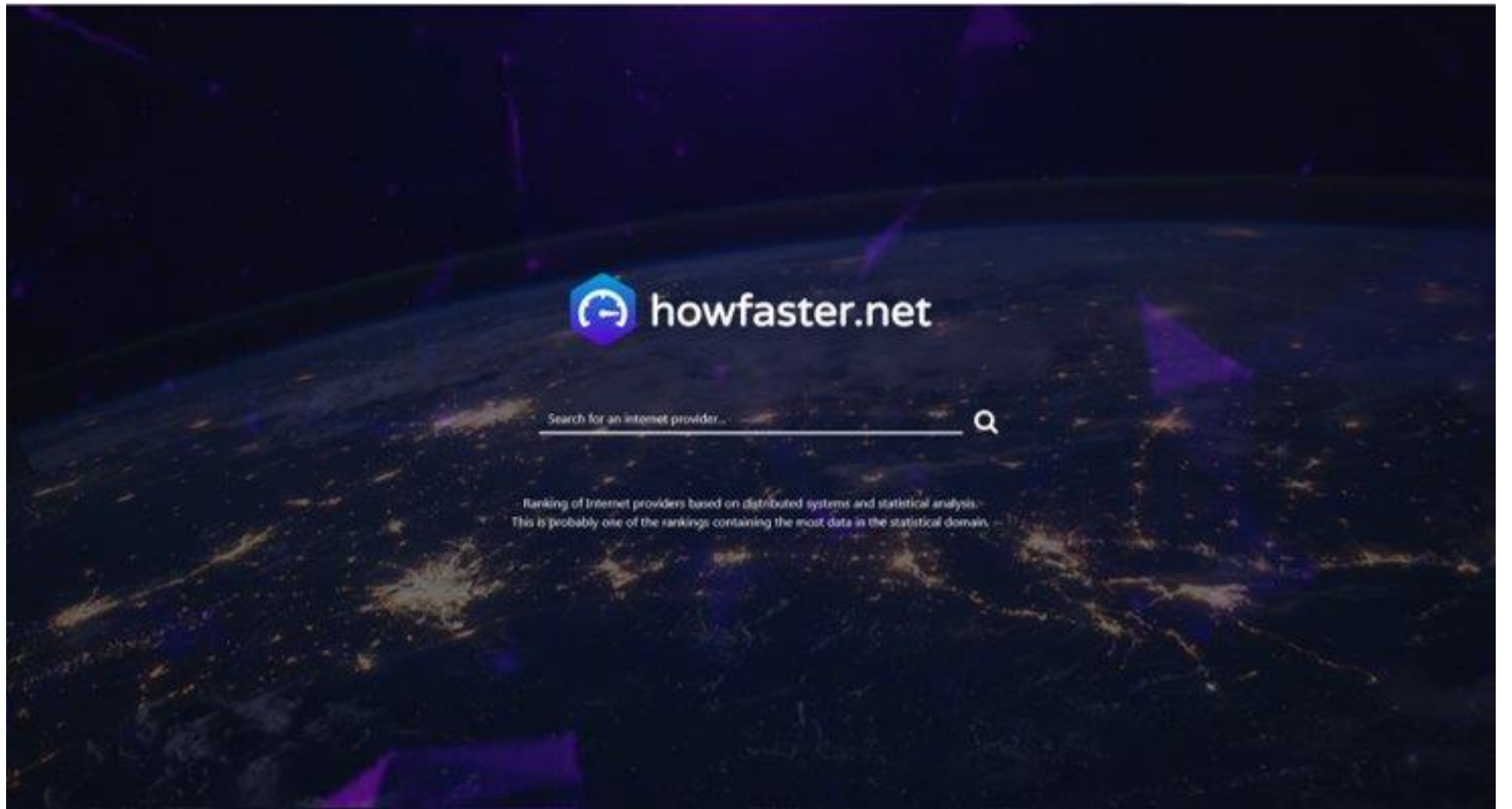
ASRank is CAIDA's ranking of Autonomous Systems (AS) (which approximately map to Internet Service Providers) and organizations (Orgs) (which are a collection of one or more ASes). This ranking is derived from topological data collected by CAIDA's Archipelago Measurement Infrastructure and Border Gateway Protocol (BGP) routing data collected by the Route Views Project and RIPE NCC.

ASes and Orgs are ranked by their customer cone size, which is the number of their direct and indirect customers. Note: We do not have data to rank ASes (ISPs) by traffic, revenue, users, or any other non-topological metric.

Search bar: ASN name or number [search]

Page navigation: 1 2 3 4 ... 1779

AS Rank ▲	AS Number ▼	Organization	cone size (ASes) ▼
1	3356	Level 3 Parent, LLC	46698
2	3257	GTT Communications Inc.	35756
3	1299	Telia Company AB	35422
4	174	Cogent Communications	30142



Strona projektu howfaster.net

- Rank by company
- Rank by country
- Rank by city
- Rank by time zone
- Rank by ZIP code
- Rank by region

Strona: <https://howfaster.net>

Liczba:

Systemów Autonomicznych: **6396**









Krajów: **238**

Regionów: **3078**

Miast: **6307**

Pomiarów: **27632107**

Date: 19.12.2020 (na podstawie pomiarów tylko z dwóch miesięcy pracy projektu iThena)

Rank		Min hops	Avg hops	Max hops	Min delay	Avg delay	Max delay	Count No.
1	 Dillingen	4.79	5.04	6.38	21.4	32.67	79.78	24
2	 Landen	4.76	5.61	7.43	23.3	34.11	53.71	46
3	 Temple Terrace	5.98	8.27	10.97	26.38	35.02	72.03	88
4	 Munchen	3.08	8.62	13.24	14.03	37.49	113.46	248
5	 The Colony	3.18	5.04	11.52	12.83	39.28	207.77	851
6	 Cesson-Sevigne	6.4	7.63	9.75	32.46	40.03	55.89	48
7	 Havant	5.54	7.92	12.38	19.57	41.59	82.69	26
8	 Leiderdorp	6.13	6.28	7.19	36.19	42.57	56.73	32
9	 Zutphen	5.42	6.57	9.08	19.65	43.45	89.94	60
10	 Bonn	3.2	5.12	22.19	12.23	44.36	248.92	6299
11	 Lagny-sur-Marne	6.27	6.73	7.4	32.75	44.6	79.11	30
12	 Merzig	5.05	5.24	6.22	30.42	45.3	106.88	37
13	 Monroe	3	5.46	26.34	9.93	47.04	534.28	33829



Dziękujemy za oglądanie!

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Zapraszamy do zadawania pytań

oraz oceny prelekcji pod nagraniem.

JAVA JAVA JAVA

```
CLASS TREE {  
    PUBLIC TREE LEFT;  
    PUBLIC TREE RIGHT;  
    PUBLIC INT KEY;  
  
    PUBLIC TREE(INT K) {  
        KEY = K;  
    }  
  
    PUBLIC VOID INSERT( TREE ATREE ) {  
        IF ( ATREE.KEY < KEY )  
            IF ( LEFT != NULL ) LEFT.INSERT( ATREE );  
        ELSE LEFT = ATREE;  
    }  
  
    PUBLIC VOID TRAVERSE(TREEVISITOR VISITOR) {  
        IF ( LEFT != NULL )  
            LEFT.TRAVERSE( VISITOR );  
  
        VISITOR.VISIT(THIS);  
    }  
}
```

