

Beyond Network Standby, Above the Cloud

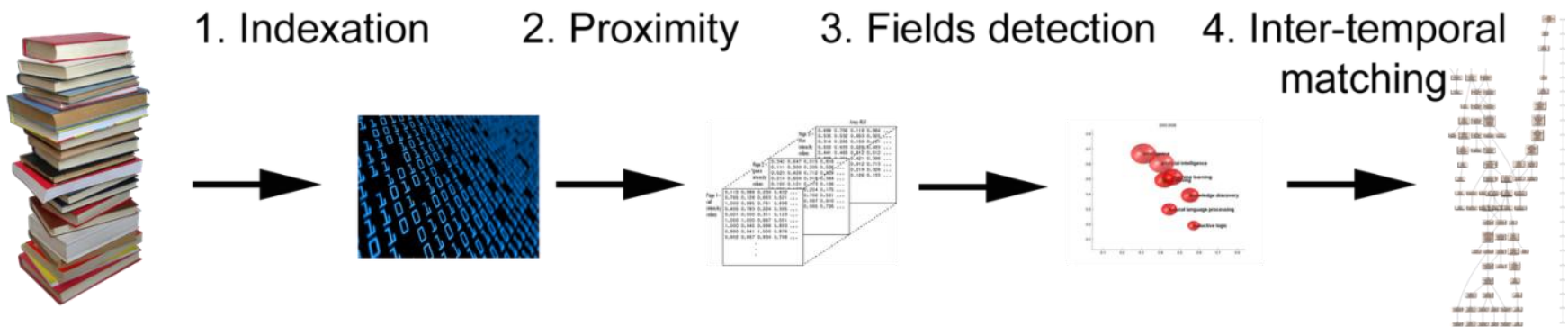


Alain Anglade - ADEME

IEA/4^E/SEAD Network Standby Workshop
17th September 2013, Paris

- From being late to being ahead
- From patching and fixing to designing and making
- From being (exclusive) spectators to being players
- Some ideas
 - *Switch from a “always behind” product approach to a service or functionality approach, the product being a medium to access a service, or to offer a functionality*
 - products may access several services, offer several functionalities...
 - *Broaden the environmental indicators to non energy ones*
 - e.g. the indium availability will not permit to make flat LCD screen by 2020, 8K video projection techniques for movie theaters are mature, will home video projector will replace our TV sets?

- On-going study (State of the Art) about the link between ICT and its benefits to the Environment through data-mining of scientific publications and general public articles (press, blogs)
 - Principle*



More information about the methodology:

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0054847>

- *Search equation*

Environment terms AND ICT terms

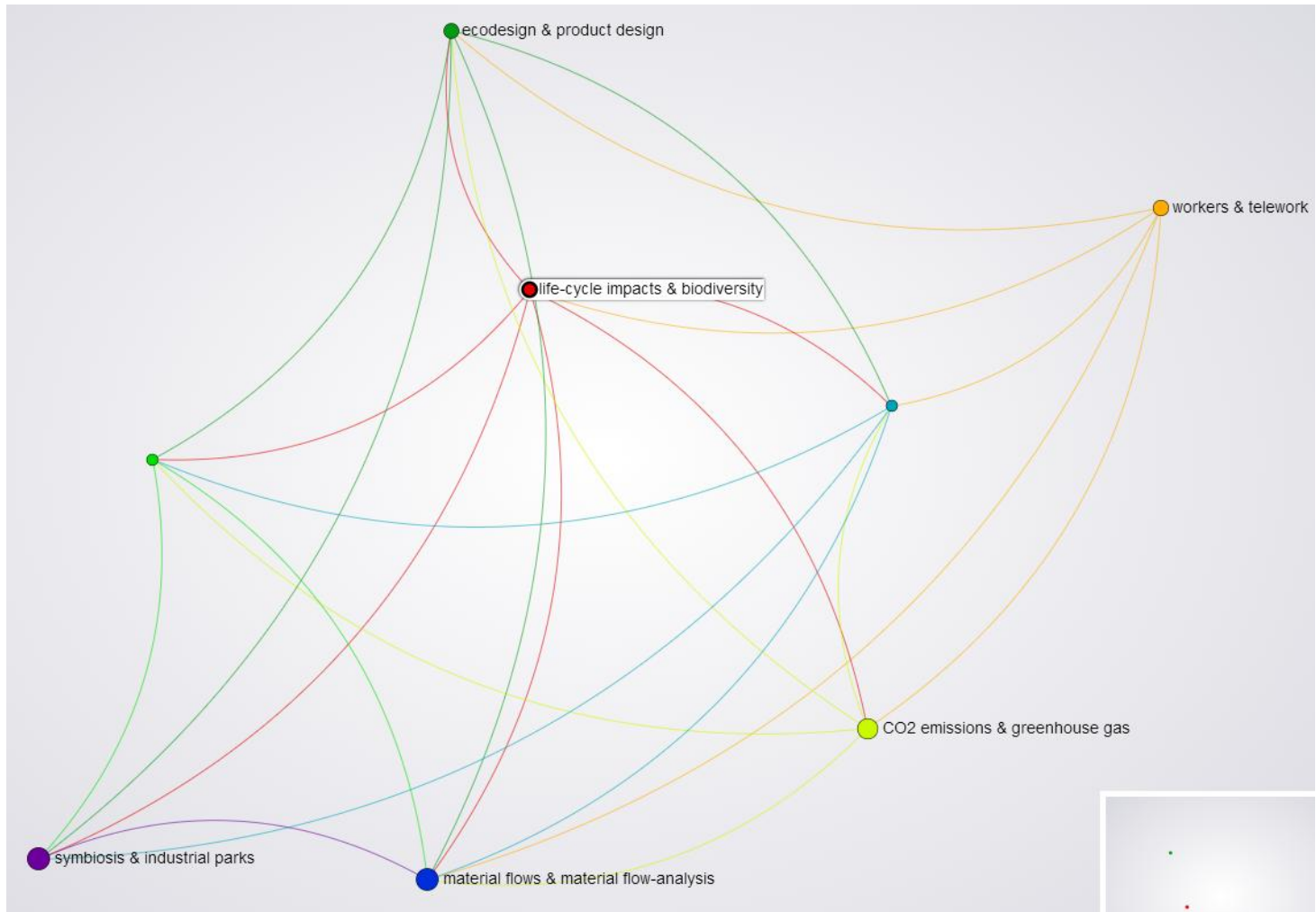
Environmental terms

- ecolabel* OR "éco-label*"
- "material flow analysis"
- "life cycle analysis" OR "analyse* de cycle* de vie"
- "environmental sustainability" OR "sustainable development" OR « développement durable"
- "environmental impact* " OR "impact* environnementa* "
- "environmental policy* " OR "politique* environnementale* "
- "CO2 emission* " OR "émission* de CO2"
- "rebound effect" OR "effet* rebond* "
- "waste prevention" OR "prévention* des déchet* "
- "environmental footprint* " OR "empreinte* environnementale* "
- ewaste OR "déchet* électronique* "
- "Waste Electrical and Electronic Equipment" OR "déchets des équipements électriques et électronique"
- WEEE OR DEEE
- "Waste management" OR "gestion* des déchet* "
- "waste reduction" OR "réduction* des déchet* "
- "Air quality" OR "qualité de l'air"
- "Traffic congestion" OR "congestion* du trafic"
- carburant OR fuel
- "energy efficiency" OR "efficacité* énergétique* "
- "gray energy" OR "énergie* grise* "
- "embodied energy" OR "énergie* embarquée* "

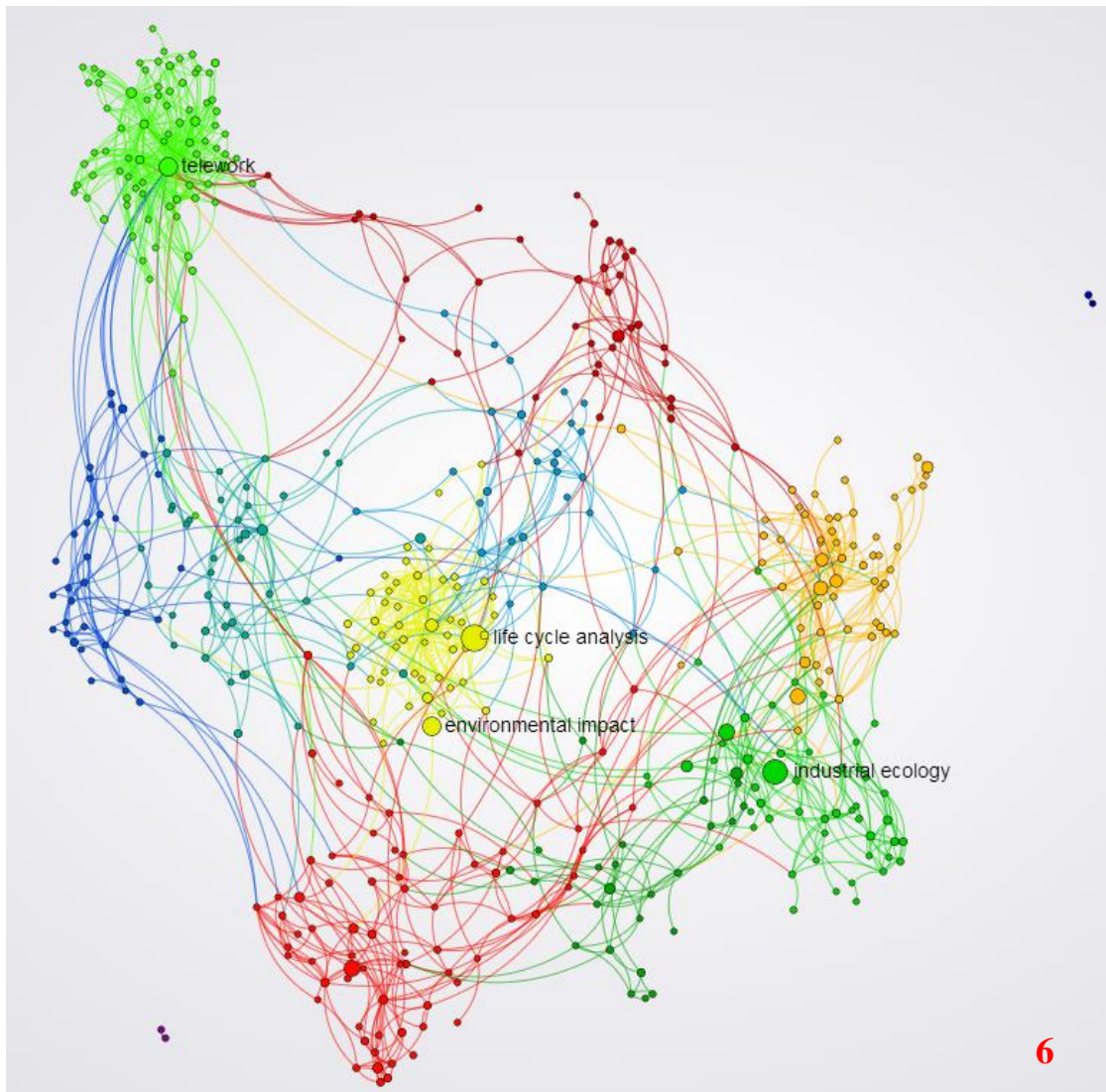
ICT Terms

- co-working OR
- dematerialization OR dématérialisation
- telecottage* OR
- "smart work center" OR
- Videoconferencing OR visioconférence*
- "home automation" OR
- "building energy management system" OR bems OR
- "smart building" OR "bâtiment* intelligent* "
- "smart cities" OR "ville* intelligente* "
- smartgrids OR
- smartmeters OR "compteur* communicant* " OR "compteur* communicant* "
- "internet of things" OR "Internet des objets"
- ecodesign OR "éco-conception"
- ICT OR TIC
- greenit OR ecotic OR "technologie* verte* "
- "industrial ecology" OR "écologie industrielle"
- "machine to machine" OR m2m OR
- "data center" OR "data centre"
- "home working" OR telework* OR "télé-travail" OR télécentre
- "work* from home" OR "travail à la maison"
- "home automation" OR "domotique"
- smart home" OR "maison* intelligente* "
- "carsharing" OR carpooling OR covoiturage OR autopartage*
- "bike sharing" OR "vélo* en libre service"
- "road toll" OR "péage* "
- "congestion charging" OR "taxe de congestion"
- "driverless car" OR cybercar OR "véhicule* sans conducteur"
- "public transportation" OR "transport* public* "
- "vehicle to grid" OR V2G
- "vehicle to vehicle" OR V2V
- "vehicle to infrastructure" OR V2I

- Preliminary results
 - *Map of main topics*



- Preliminary results
 - *Map with 500 topics*



More information about
the study:

<http://ademe.iscpif.fr/wiki/en/>

- Paradigm shift

Yesterday		Today
Closed Control Loop (feedback)	vs.	Machine to Machine (or Internet of Things)
``Traditional'' modeling and relational databases		Big Data mining and processing
Confidential or proprietary Information		Open Data

- Life-Cycle Analysis approaches
 - *LCA of ICT services (e-mail, search engine)*
 - <http://www2.ademe.fr/servlet/getDoc?cid=96&m=3&id=78389&ref=24691&p1=B>
 - http://ademe.typepad.fr/files/pressrelease_ademe_070711.pdf
 - *Guidelines for GHG emissions of ICT assessment (only in french)*
 - http://www.ademe.fr/internet/Flash/BILAN_GES_TNIC/index.html
 - *Eco-design of desktop computers and small servers*
 - <http://alt.meta-it.fr/>
- Software Eco-design
 - *Web site energy efficiency benchmarking (WEA)*
- Energy efficiency of ICT infrastructures
 - *Extreme Free-Cooling for Data Centres (CIMEP)*


- **Web Energy Archive**

- *Energy efficiency assessment of web sites from the terminal point of view*
- *400+ websites already assessed (mainly French ones)*
- *IE, Chrome and Firefox on Windows XP and W7 (Linux, Android underway)*
- *PC hardware (Smartphones, tablets, connected TV underway)*

More information about the project:

<http://webenergyarchive.com/> and


<http://webenergyarchive.com/about/faq>



W.E.A

WEB ENERGY ARCHIVE

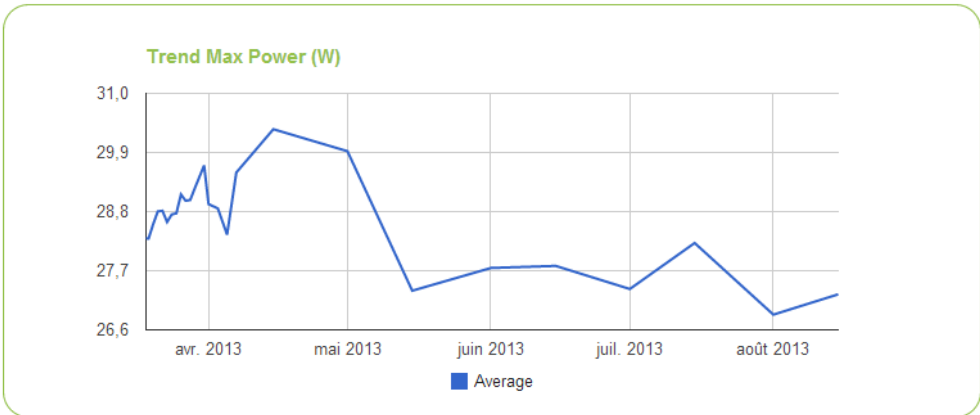
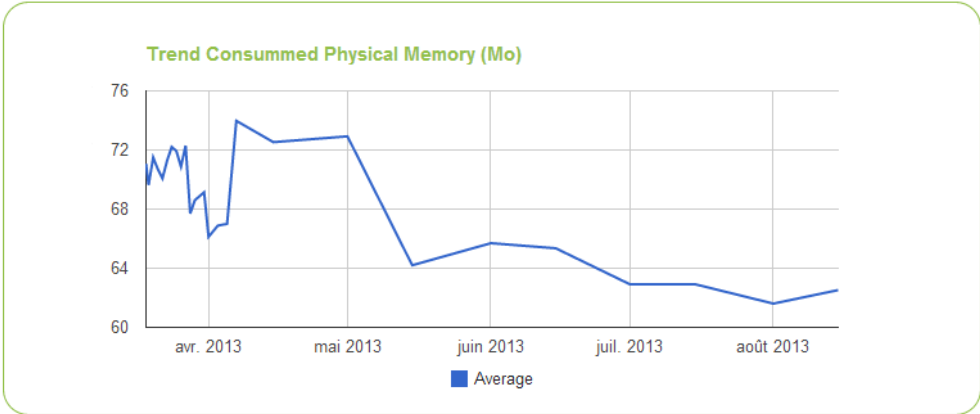
Proposed by

 **Green Code Lab**

Trends
Stats
Ranks
Websites
About

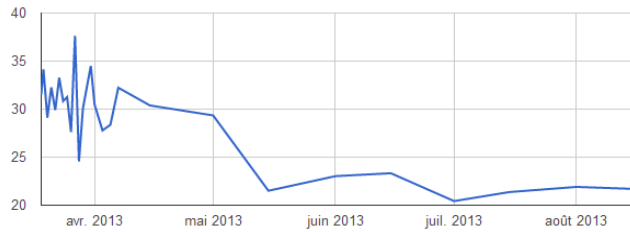
Interesting trends

- Trend Consumed Physical Memory (Mo)
- Trend Max Power (W)
- Ressources Footprint
- Energy (mWh per 40 seconds)
- Energy Cost (euros per 1000 visit)

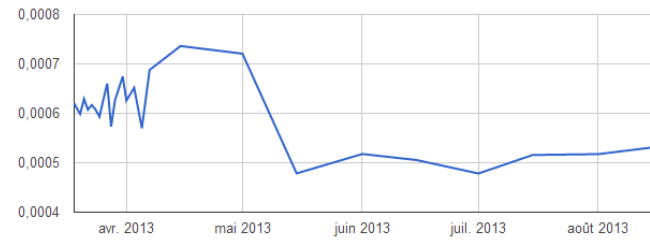


Web Energy Archive - Trends

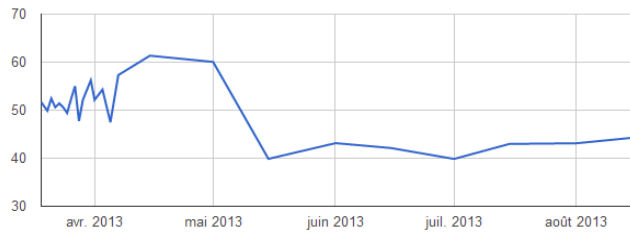
Ressources Footprint



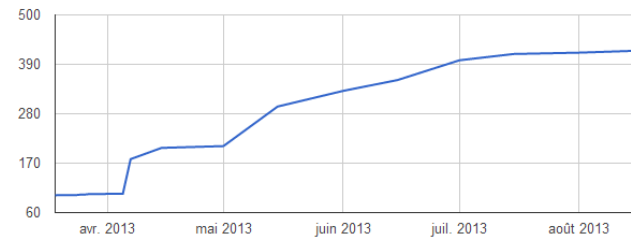
Energy Cost (euros per 1000 visit)



Energy (mWh per 40 seconds)



Website Counter





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 WEB ENERGY ARCHIVE

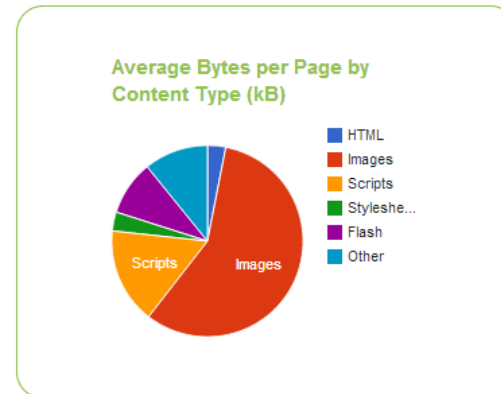
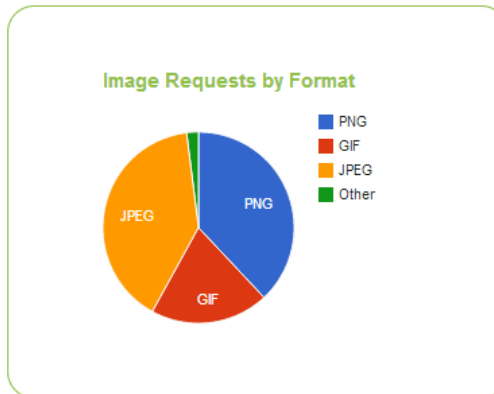
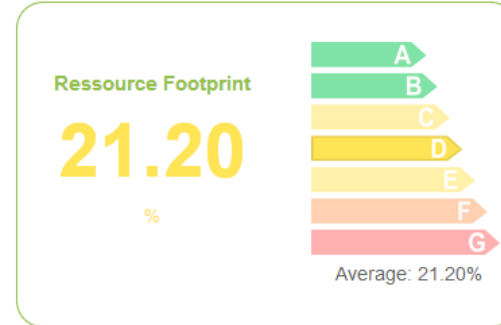
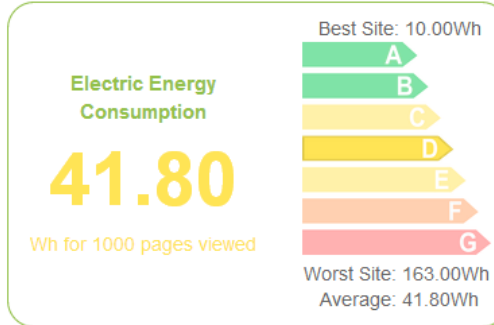
Trends Stats Ranks Websites About

Proposed by

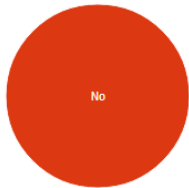


Interesting stats

- Image Requests by Format
- Average Bytes per Page by Content Type (kB)
- Pages Using Google Libraries API
- Pages Using Flash
- Pages Using Custom Fonts
- HTTPS Requests
- Pages with Errors (4xx, 5xx)
- Pages with Redirects (3xx)
- Average Individual Response Size
- Cache-Control: max-age (days)



Pages Using Google Libraries API



Pages Using Flash



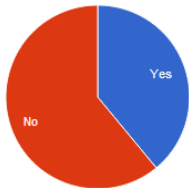
Pages with Errors (4xx, 5xx)



Pages with Redirects (3xx)", "redirects



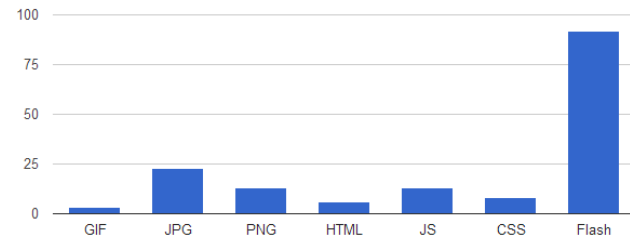
Pages Using Custom Fonts



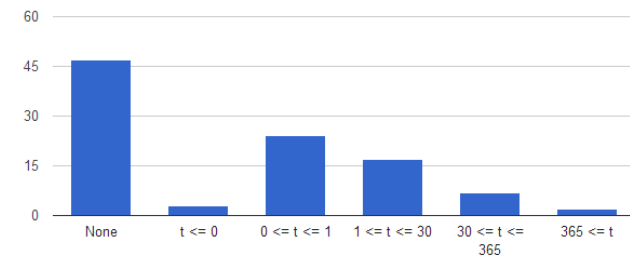
HTTPS Requests




Average Individual Response Size




Cache-Control: max-age (days)




W.E.A
 WEB ENERGY ARCHIVE

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Eco-design ranking

Search: Show entries

Name	Number of page viewed (million by month)	Rank electric consumption	Electric consumption (MWh by year)	Rank Transfer size	Data tranfert size (TB by year)	Eco-design grade
http://legifrance.gouv.fr/	50.14	24	8.28	1	27.08	A
http://www.leboncoin.fr/	6 379.22	96	1316.78	94	15071.79	B
http://www.118712.fr/	7.52	2	2.18	2	31.66	B
http://service-public.fr/	49.87	37	12.53	31	340.65	B
https://www.caisse-epargne.fr/particuliers/accueil.aspx	249.76	79	53.73	63	1023.53	B
http://www.minutebuzz.com/	5.90	1	2.00	4	53.25	C
http://www.studyrama.com/	8.10	5	3.38	14	169.00	C
http://www.programme.tv/	10.90	13	5.13	12	149.82	C
http://www.green-acres.com/	11.36	6	3.63	3	36.07	C
http://www.cotemaison.fr/	14.77	17	6.73	41	515.52	C

First Previous **1** 2 3 4 5 Next Last

Eco-design ranking

Search: Show entries

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http://www.cadremploi.fr/	16.13	20	7.36	21	217.35	C
http://www.privatesportshop.com/	16.18	14	5.44	37	443.66	C
http://www.explorimmo.com/	18.96	22	7.74	29	319.54	C
http://www.regionsjob.com/	30.46	36	12.31	19	204.98	C
http://www.seloger.com/	167.44	84	72.54	84	2594.72	C
http://www.pagesjaunes.fr/	344.71	88	119.40	81	2052.36	C
http://www.orange.fr/portail	3 736.58	97	2199.23	97	26219.75	D
http://www.marianne.net/	4.52	3	3.03	5	119.65	D
http://www.lejdd.fr/	5.53	4	3.12	10	146.79	D
http://www.aujardin.info/	5.61	7	3.73	13	150.57	D

First Previous 1 2 3 4 5 Next Last

Search: Show entries

Name	Number of page viewed (million by month)	Rank electric consumption	Electric consumption (MWh by year)	Rank Transfer size	Data transfert size (TB by year)	Eco-design grade
http://www.lemonde.fr/	259.96	93	281.44	93	8795.47	E
http://www.lequipe.fr/	549.60	95	601.61	96	18878.97	E
http://www.jeuxvideo.com/	551.09	94	530.62	92	5788.03	E
http://www.d8.tv/	6.95	29	9.68	44	547.07	F
http://www.fan2.fr/	9.93	38	12.61	62	1000.17	F
http://www.paris-turf.com/	21.06	58	26.85	40	512.89	F
http://www.leparisien.fr/	116.60	91	168.27	88	3609.68	15

First Previous 6 7 8 9 10 Next Last

alain.anglade@ademe.fr

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YOUR ATTENTION**