



GREENSPECTOR

Software ecodesign for developers



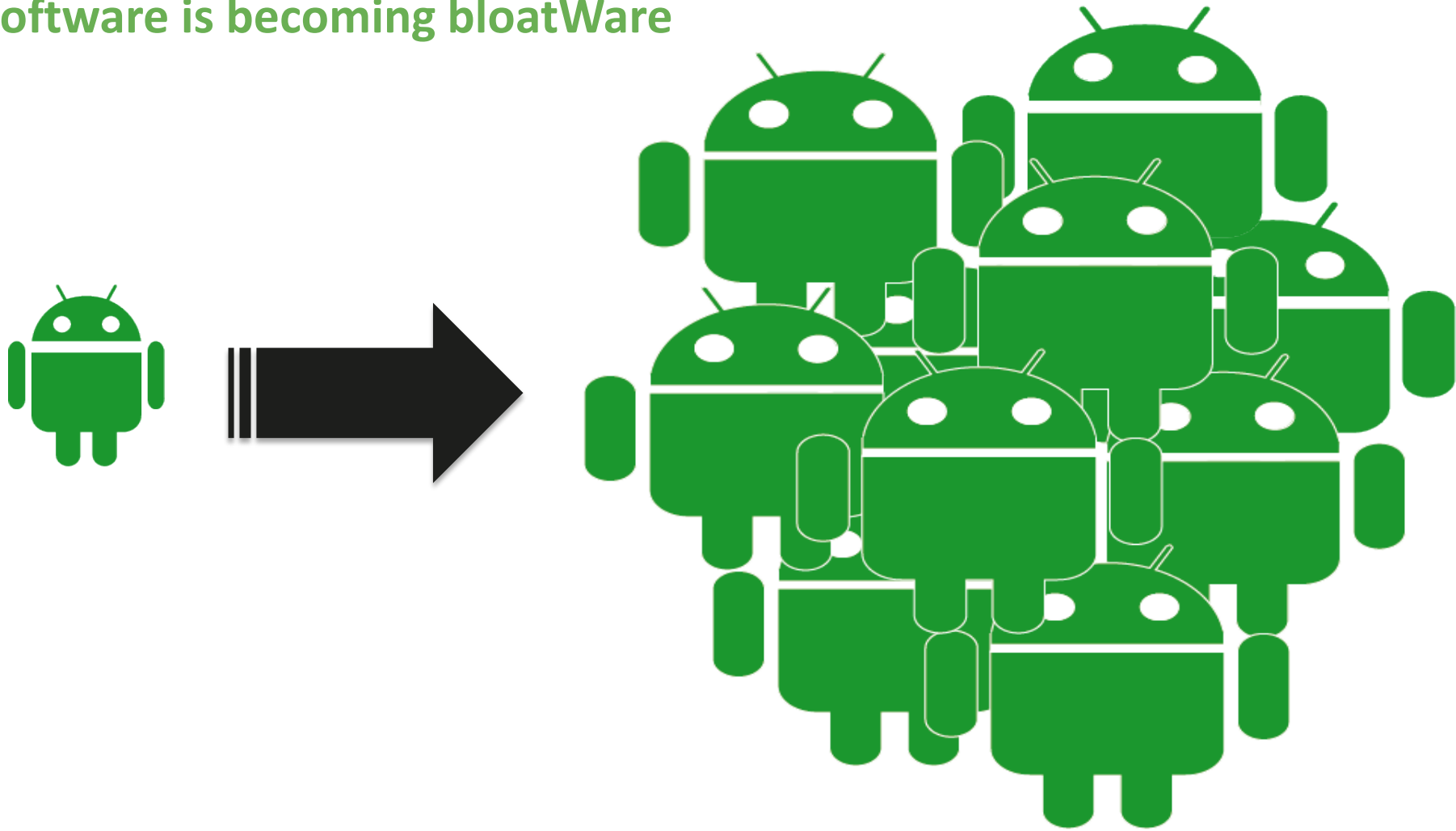
Green Digital Charter



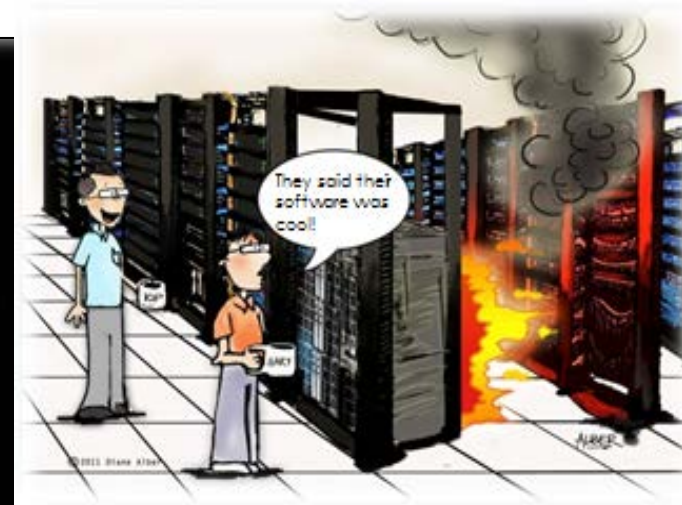
Thierry LEBOUcq

June 2016

Software is EveryWare
Software is becoming bloatWare



Heavy software has negative impacts on user experience, battery life, opex...



Software developers work hard.

But...

Do they really know **which coding practices are power-draining**, and which are not?

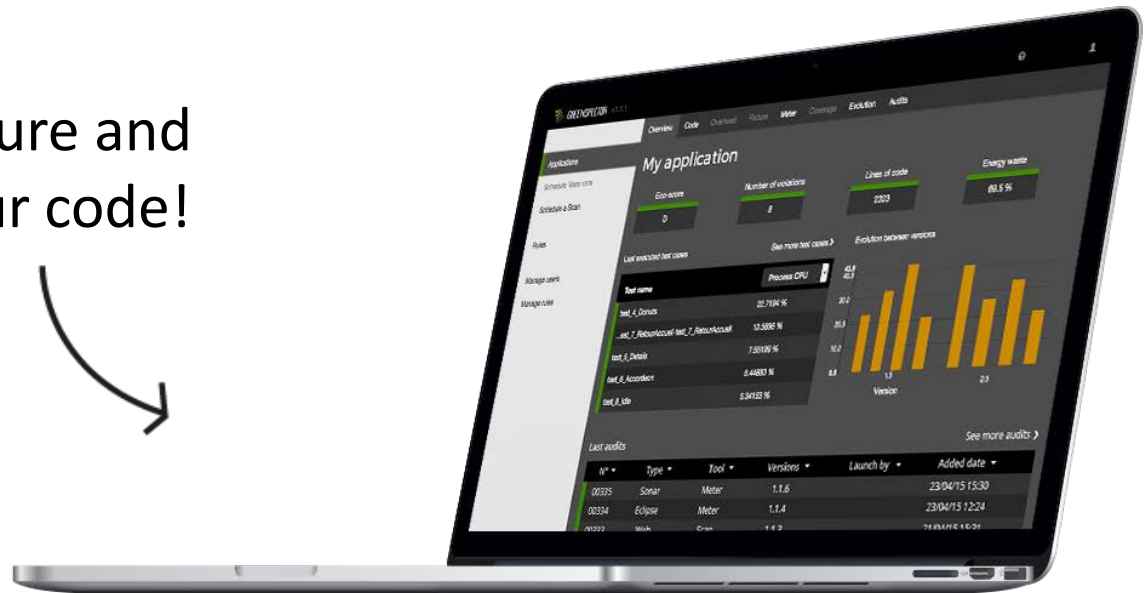
Can they **prioritize** their work to get the best efficiency **results vs time** & efforts spent?

Are they able to **check the power consumption** caused by their software on a given device?



Software **ecodesign** suite for **developer**

Audit, measure and
improve your code!





Scan your code to
detect power-
draining patterns



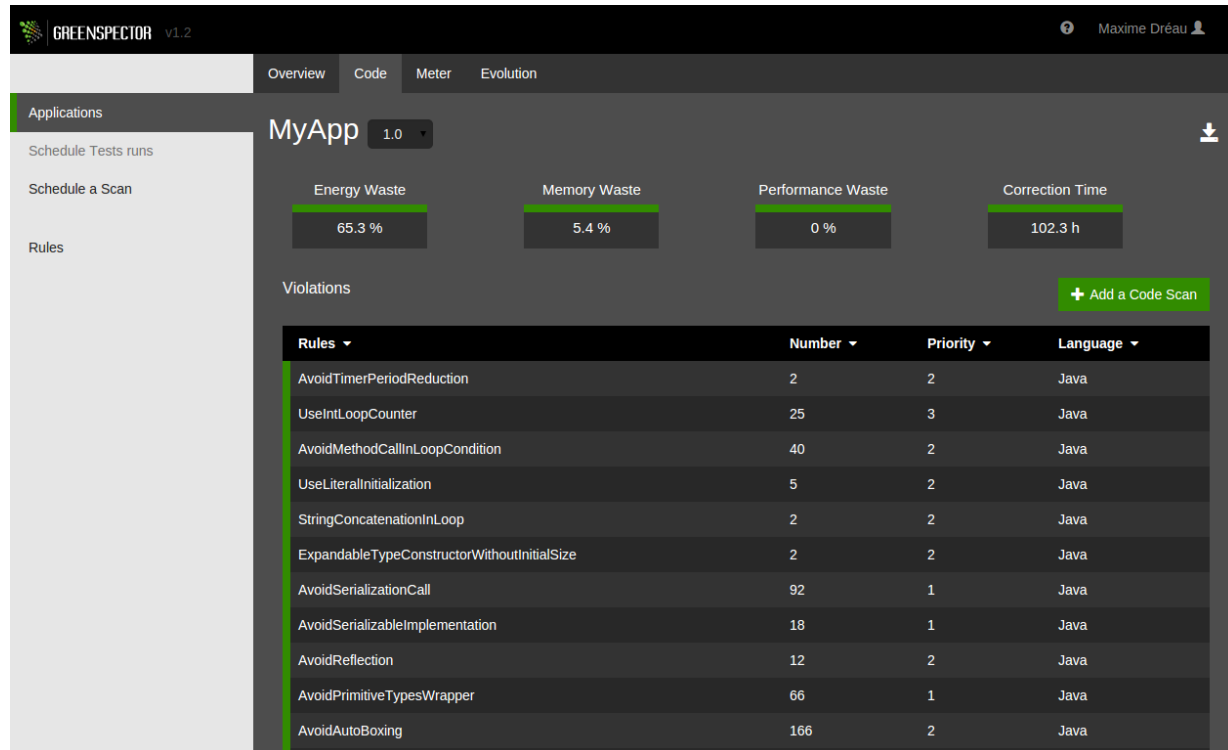
Measure the
resources and energy
consumptions on your
devices



Improve your code
thanks to more than
150 green rules

Detection of power-draining patterns in source code

- Multi-languages, multi-frameworks
- Action plan is prioritized for the goal you seek
- Based on a repository of coding patterns



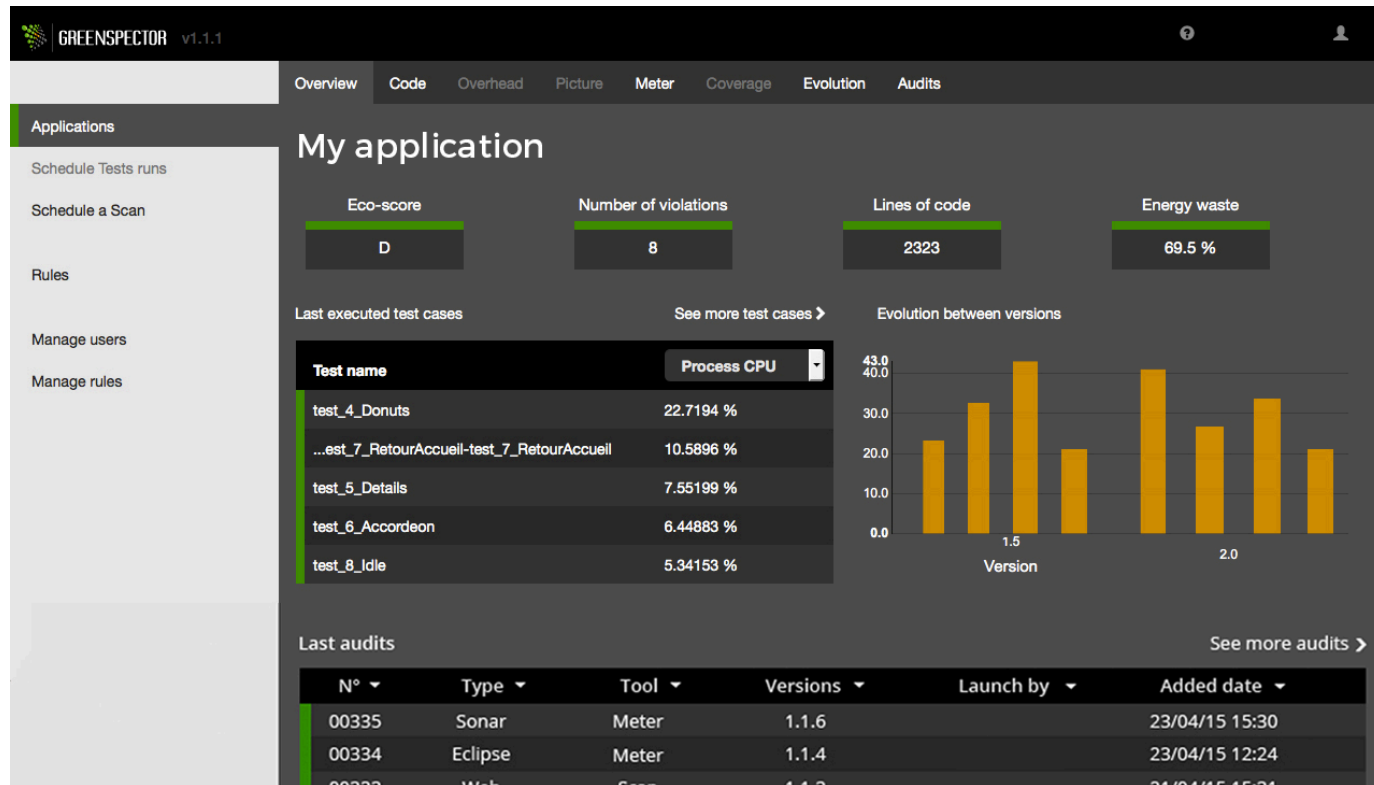
The screenshot displays the GREENSPECTOR application interface. The top navigation bar includes tabs for HTML, CSS, Javascript, Java, PHP, SQL, and Android. The left sidebar shows a list of categories: Applications (6), Meter, Scan, Comparisons, Rules (144), Manage platforms, Manage roles, and Manage licenses. The main content area is titled 'Optimize periodic waking of the operating system'. It features four sub-sections: Energy gain (represented by light bulbs), Memory gain (represented by gears), Performance gain (represented by a line graph), and Difficulty (represented by a bar chart). Below these, a 'Description' section provides detailed information about the rule, including its purpose, implementation details, and a list of five numbered points. A 'Problem' section explains the issue of CPU consumption during idle states, and a 'Solution' section provides code examples for implementing the rule correctly.

« Green » patterns repository

- More than 150 programming patterns
- Tested and validated
- Under continuous assessment

Measurement of consumptions

- Resources & power measurement probes for all environments
- Fully integrated with automated test tools
- Linked with the static analysis through code coverage



Main benefits



Autonomy



Performance &
productivity



CSR policy

Application domains



Mobile & IoT
apps



Back-office
software

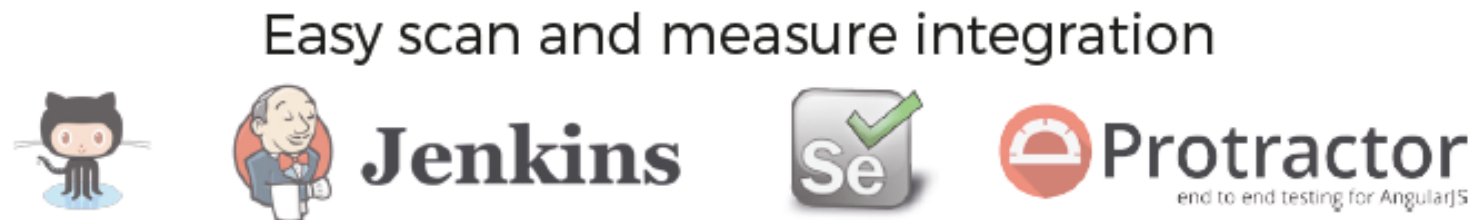


Web
application



GREENSPECTOR

Integrates with mainstream development and Q&A tools



Analyzes your preference languages and framework



GREENSPECTOR

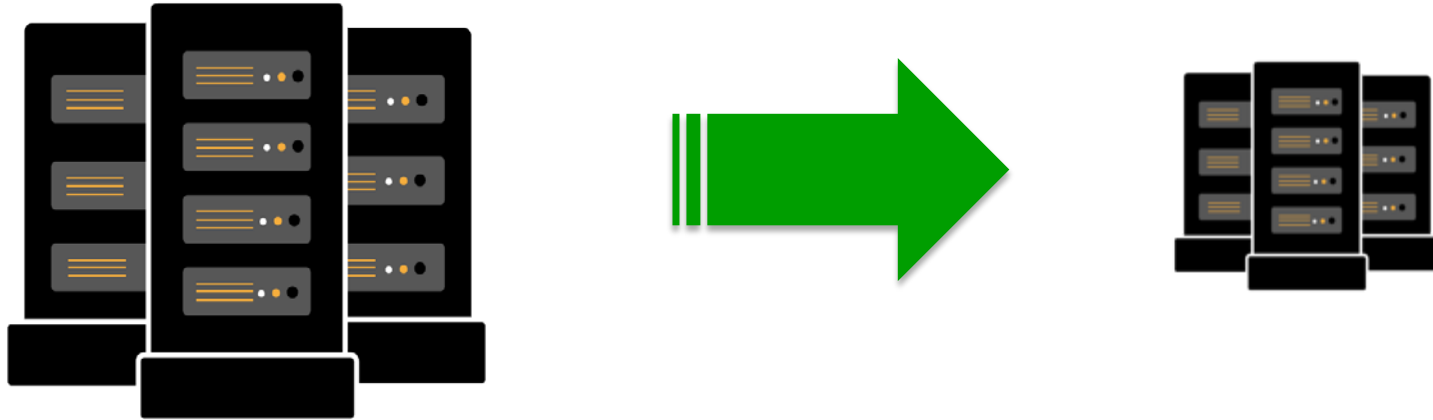
Integrated into your progress plan

- Towards better software quality
 - Training on eco-design and rules content
 - Enhances the management of efficiency
 - Improves productivity through testing strengthening and anticipating
- Compliant with your Green IT and CSR policy
 - Thanks to eco-design, the IT Dpt lowers their energy consumption and GHG emissions
 - They take an active part into the corporate Sustainability goals



BUSINESS CASES

#1 : Memory gains on servers



- We showed that a **30% memory saving** could be achieved on two pilot applications.
- If applied to all their VMs, this client could downsize their DC from **52 to 38 servers**, leading to an annual saving of...

270 K€
/yr

BUSINESS CASES

#2 : Battery life on mobile devices

- An Android application for a dedicated military smartphone
- 1 audit made with GREENSPECTOR, leading to some refactoring
- Result: the battery life jumped from **3 hrs to 11 hrs**



test_idlelong_ims				
Platform Capacity	22.87 μ Ah	7.14 μ Ah	-15,735.50 nAh	-68.79 %
Process CPU	3.83403 %	0.256799 %	-3.58 %	-93.3 %
Platform CPU	57.7389 %	11.9806 %	-45.76 %	-79.25 %
Process Data	0 kB	0 kB	0 kB	-
Process Memory	180847 kB	166796 kB	-14051 kB	-7.77 %
Platform Max Power	5.97 kW	3.18 kW	-2,784,810.00 mW	-46.65 %
Measure Duration	2m8s	2m0s	-7,722.00 ms	-6.02 %

BUSINESS CASES

#3 : web performance

- Eco- designing a website improves its performance
- Context of a Web Communication Company
- We have worked on eco-designing a website for one of their key corporate customers
 - User **response time decreased from 2 seconds to 1 second**
 - Energy Gains: **30% on the server + Client**

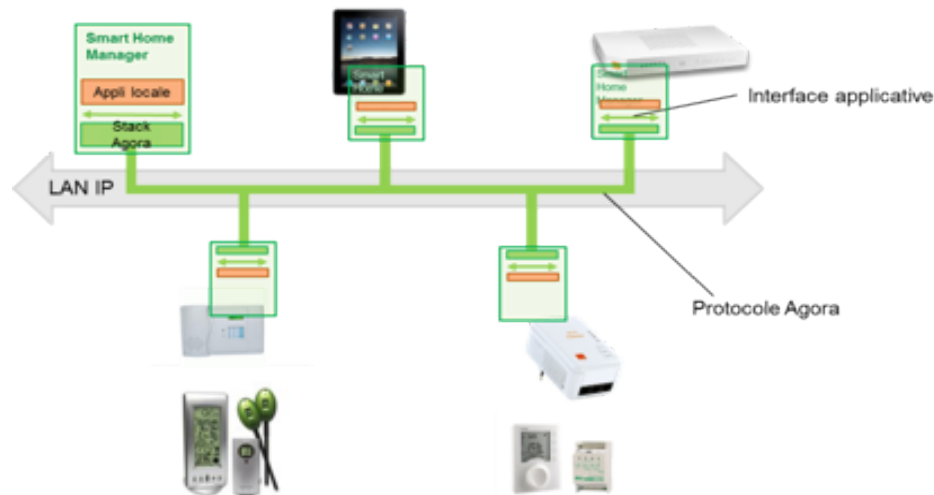


Better
Performance

BUSINESS CASES

#4 : Autonomy gain for connected devices

- A project in smarthome context
- The objective is to work on CPU consumption when idle, and exchanges between devices
- Results :
 - **35 % energy gain for 5 connected objects** on fonctionnal part of Connected device
 - Gains are growing with the number of objects on the network



**Energy Gain
+ 35 %**

THEY TRUST US



Atos

orange™



Nantes
Métropole
COMMUNAUTÉ URBAINE



An industry
leader in
China



**First software tool to endorse
the European Code Of Conduct
for datacenters**
Winner of two “Loading the
Future” Trophies, 2014

Working on a **software LCA
Method with ADEME** (French
Environmental Agency) and software
ecodesign label with AFNOR (French
Standard Organisation)

afnor



GREENSPECTOR, inspiring Green IT & Software Eco-design

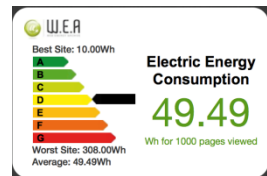
- Founder of **French community for software eco-design** (greencodelab.fr)
- Founder of **Green IT Innovation Lab** (greenlabcenter.com)
- Author of a book on Green Patterns
- Main partner of the **Energy Labelling for Websites** project (webenergyarchive.com)
- Founder of the most popular **European software eco-design challenge** for students (greencodelab-challenge.org)
- Main partner of the **Green Code Label** for Website (greencode-label.org)
- **Scientific Publication** – ICT4S Stockholm Aug, 2014



GREEN CODE LAB



Green Patterns
Manuel d'eco-conception
logicielle





GREENSPECTOR

Software ecodesign for developers

CONTACT

contact@greenspector.com

+33 9 51 44 55 79

6 Rue Rose Dieng-Kuntz

CS90729 – 44307 Nantes Cedex 3

www.greenspector.com

 [@Green_spector](https://twitter.com/Green_spector)

GREENSPECTOR® est une marque déposée par KaliTerre
SARL au capital de € 71,200 - RCS Nantes 528 071 939
6 rue Rose Dieng-Kuntz – 44300 Nantes - France