DCbrain makes sense of millions of measures brought to us by sensors distributed in networks such as electricity, gas, HVAC, rail networks, ...

Our software turns these data flows into a real time model of physical networks, thanks to BigData and machine learning.

DCbrain: A brain in your networks

UIIC Digital Awards
DCbrain targets complex networks managers such as railway companies.

Logistic Flows

Operating flows

- Electricity
- Steam
- Cooling

...With 4 stakes

- Secure the network
- Optimize flows and consumptions
- Optimize exploitation and maintenance processes
- Anticipate networks’ evolution

Who we are
Observed flaws

Network information is complex to aggregate and use

- No updated computing references: approximate knowledge of the real state of the network.
- Many different data sources.
- Complexity in the handling of large data volume, especially in real time.
- Heterogeneous quality of the data.

Classical tools are not adapted to today’s needs

- Low ergonomy/flexibility of basic tools: CMS, GIS, SCADA, BIM...
- Very complex engineering tool, not suitable for distributed networks.
- Network management tool concentrated on alerting, not on predicting & optimizing flows.
- Finally, a still important use of Excel, creating many risks (tracking, maintenance, reliability...) and an important work load.
DCbrain, the Waze of physical networks

For physical networks, flows = value

Waze is a “real time” GPS: Waze creates a digital model of a road network, aggregates all the data coming from users' smartphones as stream flows and projects these flows on the digital model. This allows users to see points of congestion, incidents, to calculate the best route and so on.

Waze also works with large cities on network evolutions analysis

What Waze does for road networks, we do it for other infrastructure networks

DCbrain has developed a software using scalable graph databases and machine learning technologies to turn untreated data into real time representation of physical flows
DCbrain is a software based on big data & machine learning allowing a better network management

2 Interfaces

Dynamic interface representing a graph and its flows
Example of an electrical synaptic

Classic analytical Interface

3 main functionalities

Descriptive analysis / Real time visualization

Diagnosis

Predictive analysis
3 use cases of DCbrain

1. Flows tracking
   - Visualization of the flows in the form of a digital network and dashboards
   - Real time monitoring of the flows
   - Leak Tracking
   - Automated reportings (dashboards)
   - Overconsumption anticipation

2. Lean Maintenance
   On the basis of « digital network » and dashboard interfaces
   - Diagnosis of the networks
   - Leak tracking
   - Resilience test
   - Telemetry system diagnosis
   - Network scoring and predictive impact analysis

3. Data driven engineering
   On the basis of « digital network » and dashboard interfaces
   - Network evolution modelling (new production points/new clients integration...)
   - Automatic scenarios generation (re-routing, flow propagation computation)
Feedback / Flow tracking

**Electrical network : urbanization/movement control**

In a datacenter designed to test hardware equipment, implementation of both the digital network & dashboard interfaces allowing real time capacity evolutions monitoring and filling anomalies identification.

Reduction of the urbanization risks of the site and decrease of the on-site interventions.

**Cooling network : temperature monitoring**

Following the implementation of new sensors, implementation of a temperature monitoring interface that allows to precisely monitor temperature evolutions and identification of energy savings and anomalies due to the new cooling system.

Precise monitoring of temperatures and consumptions.
Feedback / Lean maintenance

rail network : Predictive Maintenance

Use of Dcbrain for **Data visualisation** of the identified defaults (exploitation of the existing database and projection on network topography), **identification of pattern** and **prediction of future defaults** (on going project)

- Optimization of the network replacement program

Steam network : network efficiency monitoring

Monitoring of the vapor network “return” rate in a **refinery** : creation of a digital model of the steam network allowing intuitive return rate visualization of each section of the network in real time.

- Identification in real time of leaks, and optimization of the maintenance program
Feedback / Data Driven Engineering

Electrical network: automatic modelling of re-routing functions

Electrical flows re-routing: automatic calculation of the relevance of each possible way taking into account length, reliability and capacity.

Important productivity gains for exploitation teams

Gas network: Modelling of Biomethane projects integration in the GRDF existing network

Integration of Biomethane projects: Use of DCbrain to automatically identify the most profitable junction scenarios between the existing network and the Biomethane project.

The tool also defines junction conditions (especially the implementation of storage capacity).

Important productivity gains for local engineering firms (BERG)
DCbrain, a unique tool for network managers!

**Traditionnal IT Tools ?**

- SCADA / GTC / GTB
- Solver
- GIS
- GMAO

- Few advanced analytics functionalities
- No Big data capacities
- Hard to maintain / Use tools
- No understanding what is happening in the networks!

**Big data Pure players**

- Business Intelligence Software
  - Tableau
  - Qlik
  - DOMO
  - Sparkcognition
  - SAP HANA
  - Splunk

- Energy Manager
  - Ilkgs Buildings
  - SkySpark
  - Kinaxis
  - TaKaDu

- Analytics / specific

- Most Big Data start ups on B2C issues
- No global functional perimeter
- DCbrain is the only Big Data tool dedicated to every exploitation network issue (flows monitoring, exploitation & maintenance processes, what if scenarios)
Dcbrain: ambitious objectives!

- Business Models: Licensing or Specific analysis
- Commercial strategy: direct approach (2 full time Bus devs) or indirect approach (integrator and IoT platform)

**Turnover (k€)**

- 2016€: 550
- 2017€: 1,600

**# of employees**

- 2015€: 3
- 2016€: 12
- 2017€: 18
# The Team

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Background/Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO</td>
<td>Arnaud de Moissac</td>
<td>INSA + Telecom Paris</td>
</tr>
<tr>
<td>CTO</td>
<td>François Olivier-Martin</td>
<td>DEA Semiconductors + Telecom Paris</td>
</tr>
<tr>
<td>Data Scientist</td>
<td>Wilfried Ehounou</td>
<td>MSC Math</td>
</tr>
<tr>
<td>Front End Dev</td>
<td>Chaka Ngameni</td>
<td>ENSATT</td>
</tr>
<tr>
<td>Business developer</td>
<td>Benjamin de Buttet</td>
<td>ESCP-EAP</td>
</tr>
<tr>
<td>Business developer</td>
<td>Thomas Bibette</td>
<td>Sorbonne Graduate Business School</td>
</tr>
</tbody>
</table>

- **Arnaud de Moissac**
  - Has worked as R&D lab manager, Energy Officer & Datacenters operations manager
  - Has developed 7 patents in this field
  - Has launched one previous start up
  - 25 years working in DataWarehouse and data mining field
  - Has developed 8 patents
  - Is an Hadoop early adopter and trainer
  - Will bring his Big Data experience
- **François Olivier-Martin**
  - DEA Semiconductors + Telecom Paris
- **Wilfried Ehounou**
  - Is a PHD Student in mathematics
  - Is a rocket dev
  - Will bring his expertise in the Graphe Field
- **Chaka Ngameni**
  - Is a rocket dev
  - Will bring his expertise in datavizualisation and Front end developement
- **Benjamin de Buttet**
  - Has worked 6 years as a Strategy consultant
  - Has Worked for Big Data projects for CAC 40 Companies
- **Thomas Bibette**
  - Is an international MBA graduate
  - Has work 5 years in international business development for several start-ups
Thank you!

Benjamin de Buttet
Associé – Business Development

Mob: +33 7 81 41 82 29

Mail: Benjamin.de.buttet@DCbrain.com

Adresse: DC Brain, 23 avenue d’Italie, 75013 Paris
Digitalisons vos réseaux