



2018 Trends in Open Source & Free Software

What
professionals
think about the
future of Open
Source and Free
Software in 2018

#OpenExpoTrends

The Future is Open

6th & 7th,
June
2018

La Nave
Madrid

5th Fair and Annual Conference about Open Source, Free Software and Open World Economy (Open Data and Open Innovation) meet on June 6th & 7th, 2018 in Madrid more than 5000 professionals and companies looking to make business



5.000
Attendees



250
Speakers



+400
Exhibiting
Companies



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200
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Startup
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Open Source & Free Software lead the digital revolution



Philippe Lardy
CEO

OpenExpo Europe



For the second consecutive year, OpenExpo Europe wants to share the technological trends from the Open Source and Free Software point of view. In the last edition of this eBook 📖, 42 professionals talked about the digital transformation, Open Data, IoT and cybersecurity as the main trends of 2017. And it turns out we were right, we are now living a digital revolution in all these areas and sectors. Furthermore, according to the experts who participated in this second edition, these 4 topics will be growing and will consolidate their position in 2018, in business as in people's everyday lives.

For the past 5 years, I have been working on this incredible project, Open Expo Europe, and I have seen that companies are, year after year, more aware **of the importance that open technologies have taken in all their services and strategies**. And lately, the Boards of Directors are now focused not only on innovation, but also on the importance for companies to reinvent themselves in order to survive.

To me, a very good example of adaptation in the business world is Michelin. From their beginnings they have been able to reinvent themselves. In fact, they are still growing in the digital age, with the purpose of becoming a role model. Two years ago, **the Michelin Group president Jean-Dominique Senard declared: "I want Michelin to become the leader of the digital world"**.

**OPEN SOURCE
& FREE
SOFTWARE
CONTINUE
BEING A TREND**

This year we will see how Blockchain, Hybrid Cloud and Machine Learning among other technologies, will stand out ...

THANK YOU!

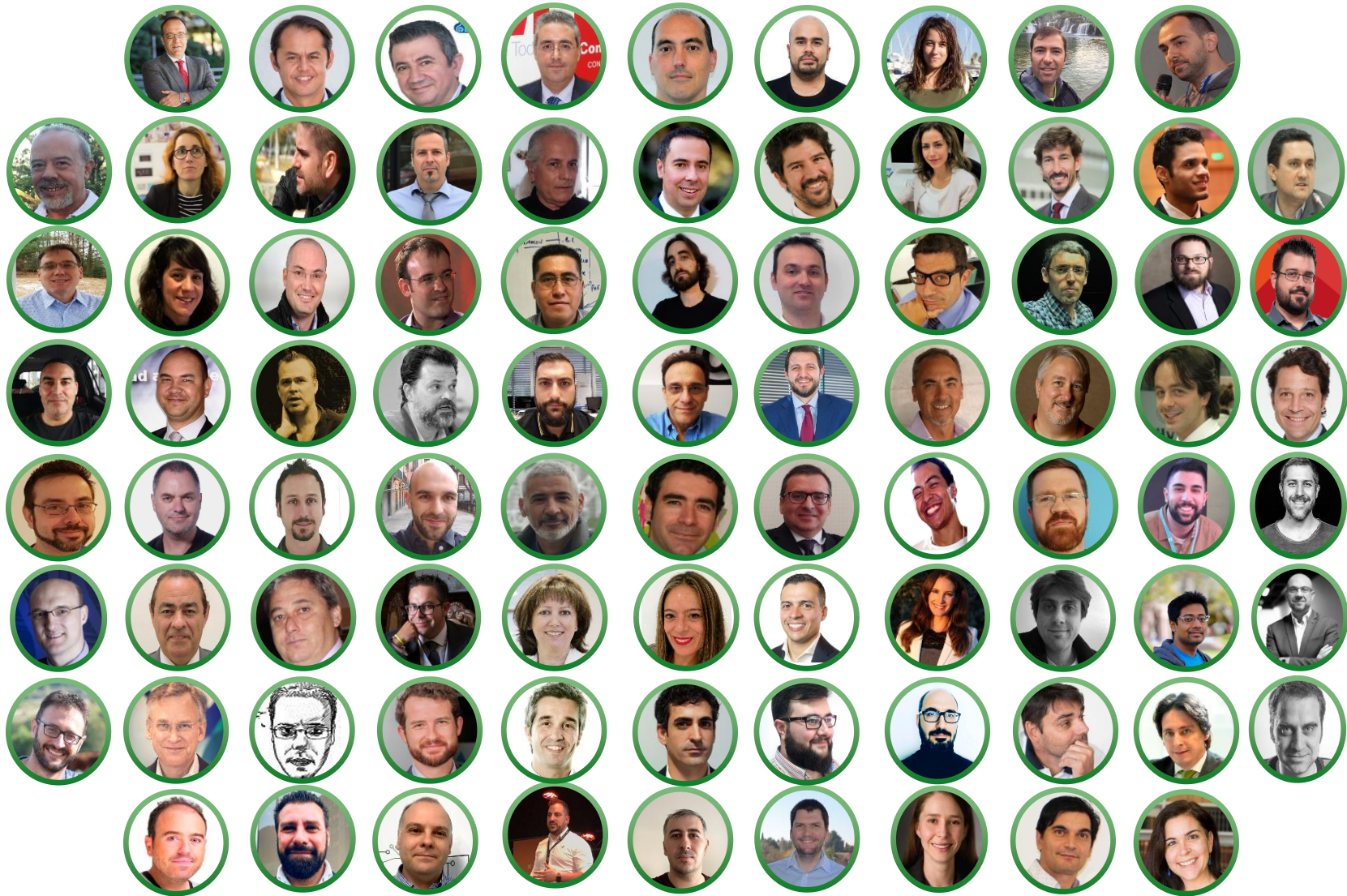
We would like to address a special thanks to the 80 professionals who have contributed to make this sector study possible.

We also want to thank all the participants of the round table we organized at the occasion of the presentation of this document on January 31st in Madrid

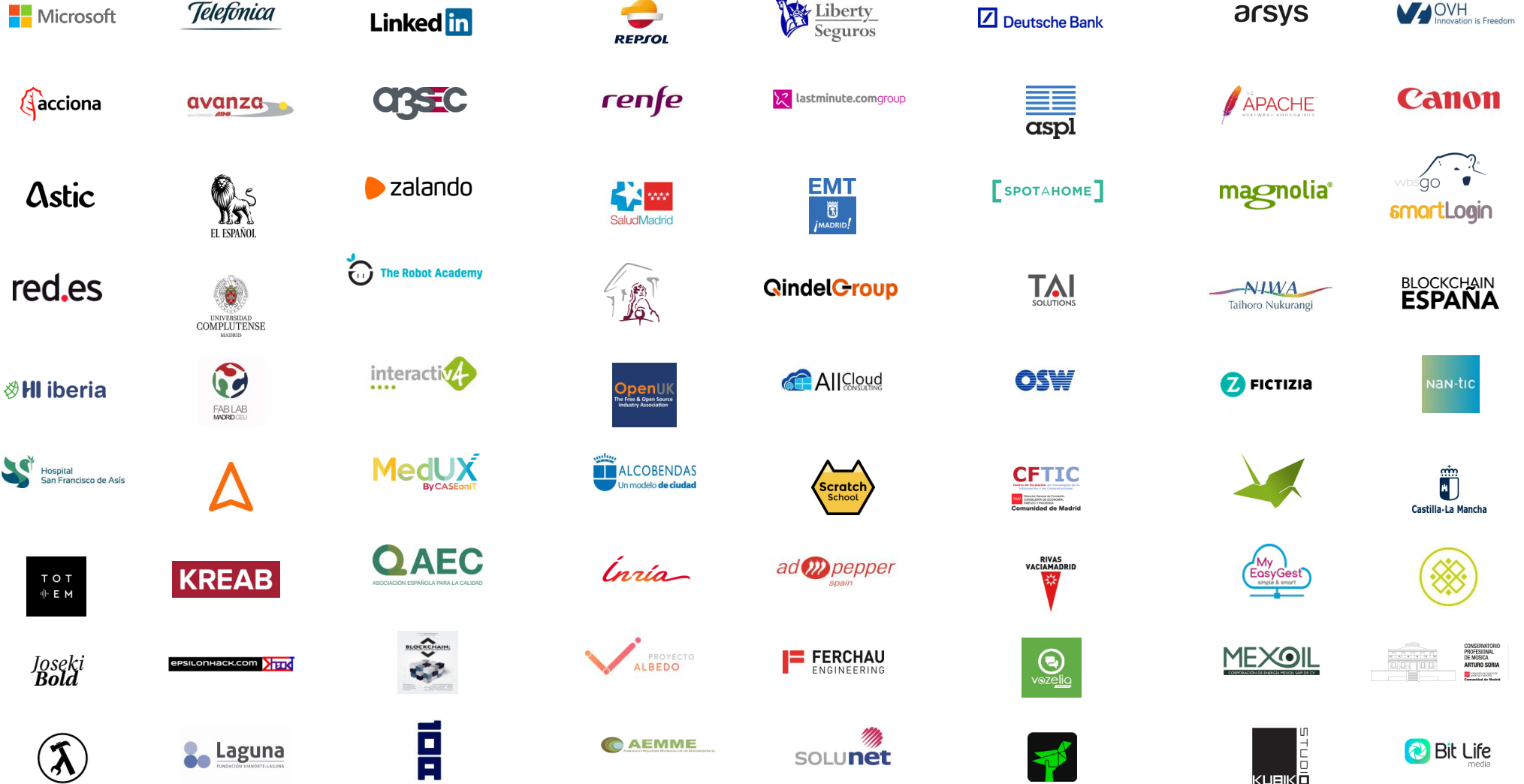
We are also grateful for the support of ASOLIF, The Apache Software Foundation and Open Source Initiative as reference associations of the sector.

As a conclusion, thanks to all of those who, with their contributions or support have made it possible to create this eBook as an open window on the industry's state of the art.

80 professionals of the Open Source industry have contributed to this eBook



Representants of recognized national and international companies



#OpenExpoTrends


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openexpo
europe

Summary

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- 2 Objectives
- 3 Methodology
- 4 Professionals' Outlook
- 5 2018 Trends

Introduction



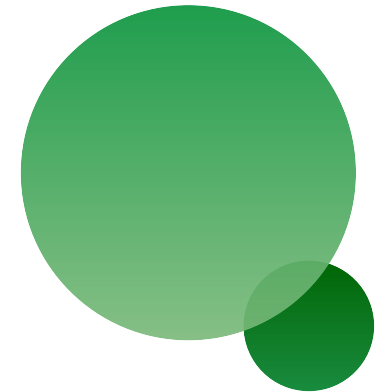
What we are
looking to
achieve with
this eBook

The use of open technologies in companies of all sizes and scopes is growing exponentially every year. If we look at any company closely enough, we will find that in some parts of its activity, it is using some tools or processes related to the Open Source and the Free Software technologies.

The interest of these technologies is obvious, and with this document, we aim to show the trends that will enhance the use of FLOSS technologies.

Objectives

1. Finding and analyzing the trends
2. Getting a multidisciplinary vision
3. Understanding professionals' expectations



Objectives

1. Finding and analyzing trends

Discovering and analyzing Open Source trends: We are looking here to understand the trends that will get stronger in 2018 in the field of open technologies thanks to the professionals in the industry. Based on these assumptions, we will attempt to forecast the evolution of the sector.



2. Getting a multidisciplinary vision

One of the objectives of the study is to obtain a multidisciplinary vision through the participation of professionals from different sectors: eCommerce, HR, Banking, Education, Marketing, etc. This will allow us to map the current situation of Open Source technologies and to get a glimpse of the future for 2018.



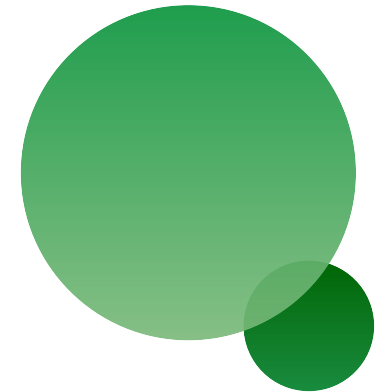
3. Understanding professionals' expectations

We are aiming at detecting the ambitions or expectations of the professionals of the sector. Through the testimony of the participants of the study, we managed to perceive the desires and the hopes that subject matter experts have placed in the sector.



Methodology

1. Data input
2. Data analysis
3. Conclusions



1. Data input

After a first phase consisting in searching and contacting the experts, the next step was to collect all the information provided by the 80 professionals taking part to the study.



2. Data analysis

In a second phase, each response was analyzed individually with the aim of extracting common concepts. Each trend has been treated separately, to later group them semantically. They were eventually sorted by frequency of appearance in the participants' contributions.



1. Conclusions

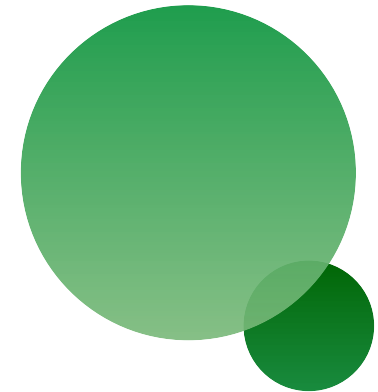
After the exhaustive study of the experts' contributions, we proceeded to formulate conclusions that would give us a more global vision of the 2018 Open Source trends.



Professionals' Outlook

You will find below the evaluations of the professionals in which you will be able to read the opinions and predictions of 80 industry experts who have contributed to create this collaborative e-book Open Source trends and Free Software for 2018.

OpenExpo Europe is leading the expression “The Future is Open”, and this analysis comes to show that the future of companies goes through the use of open technologies. Find out how in the following pages.



Open Source, key driver for innovation



@findabti



[linkedin.com/in/findabti](https://www.linkedin.com/in/findabti)

Abhishek Tiwari

Committer and member of The Apache Gobblin
Podling Project Management Committee
Staff Software Engineer at LinkedIn



Open Source removes the pecuniary limitations and enables inclusiveness in the world of technology. It is the key driver for innovation and enables startups and ideas to grow and be successful. Due to its underlying roots in community and diversity, it attracts talent and contributions from all over the world. Thus inadvertently forming the basis of products and services in not just English speaking population but for all languages.

I am involved with the Apache Gobblin project which is a distributed system for data integration of streaming and batch data ecosystems. It recently entered the Apache Incubator and has since seen interesting growth in its community in EU and APAC regions. The new adopters and contributors from these regions use Gobblin to process data not just in English but other languages as well, thus the support for internationalization is essential for any meaningful growth of Apache Gobblin.

Similar to Apache Gobblin I believe this also holds true for any other Open Source project as well. **Fortunately for Open Source projects under the Apache umbrella, the push for community over code comes handy here. The community around these Apache Open Source projects including Gobblin will instinctively develop such support for internationalization which will incite growth and success of these projects.**

Open Data, IoT, Big Data y Machine Learning



@branvan2k



[linkedin.com/in/alba-ferri-fitó](https://www.linkedin.com/in/alba-ferri-fitó)

Alba Ferri
WOCU Product Manager



In the current system encompassed in the one that we move, where we must communicate in a dynamic way, every day new technologies appear and help us to know /improve / have the control of our environment. **The trend in open source will be faced in: Open Data, IoT, Big Data, Machine Learning. Service based on Cloud, the systems of virtualization / container and how the base of all this, the monitoring of infrastructures.** . . All these concepts are either part of every day of any company (either be technological or not).

It's the only way of keeping up with the frantic rhythm with which the changes take place in the digital world - many of which are caused in the communities Open Source - is to be capable of shaping and of adding new characteristics of rapid and simple form. We have to be capable of "seeing" how "the magic" is being done.

Companies cannot be limited for using one or another proprietary technology, if they want to continue the rhythm of the most innovative projects. The use of technologies Open Source is the definitive bet to keep on innovating. Our outlook is that the use of open source technologies is going to be the preferred option by organizations that are in the head in innovation.

Docker in 2018 and the extinction of “lock-ins”

nan-tic



@albertnan



linkedin.com/in/albertca

Albert Cervera i Areny

Owner



I won't hide that being right with a trend has a high luck factor. But, I won't hide either that we were right last year when from Nan-tic we chose cybersecurity as the highlight for 2017. We have seen it in hot news because of its unprecedented effects on countless multinational companies and public bodies.

Fortunately, this has created more awareness and there have appeared many interesting initiatives like safeuser.training that are being successful helping companies to explain basic concepts about cybersecurity to their employees through enjoyable online courses.

It is not risky to predict that Docker will be a major player in 2018, talking about cloud. Even so, it is worth to analyze why it will rule the technological scene.

First of all, there is the technology itself. It is enough with testing and reading its documents to realize that it is a great work of engineering. To this must be added an amazing rate of development and that it works with all: Linux, Window, Mac, Google, Cloud, AWS, Azure, etc.

And the chance of playing with the main platforms which makes it a “killer”. It is possible to find Open Source projects like minio.io that are using Docker as their way of distribution (Debian and RPM packages are not the standard) and with doors open to have applications not only prepared but also set up for the cloud. A cloud that you can build yourself with Docker and Portainer from a pair of low cost servers.

Docker, with the images of thousands of new applications is the main independent platform of any service supplier which lead us to a greater speed and competence and less “lock-ins”

Small & medium enterprises will access digital transformation



[linkedin.com/in/albertogonzalezmerino](https://www.linkedin.com/in/albertogonzalezmerino)

Alberto González Merino

Director of Technology (CIO)
Spanish Association for Quality (AEC)



More and more companies give the jump towards solutions of managerial management based in Open Source. The good health of solutions CRM as SuiteCRM or vTiger, cradles both originally in the version community of Sugar CRM (regrettably left by the company developer) or integral hardware where there fuse the CRM and the ERP like Odoo (ancient OpenERP), which not only is Open Source but also freeware, they give good account of it. The last one used by big companies of distribution or even of the motor-car industry.

Opposite to proprietary solutions since they can be those of SAP or Microsoft, they represent robust quality bet and, usually with an acquisition cost significantly low or even free, that can already not only answer perfectly to the needs for the small&medium enterprise, but also to those of the big companies. **There are more companies that offer the use of this hardware like SaaS, they turn into a firm bet that it will have to go consolidating in the immediate future and that will allow, to the small&medium enterprises, to tackle especially progress projects in the management and of digital transformation, without having to assume big costs.**

Open Source, an important part of the technological sectors



@cambiatealinux



[linkedin.com/in/alex-arenols-solano-43b11210//](https://www.linkedin.com/in/alex-arenols-solano-43b11210/)

Alex Arenols Solano

Software Architect
FullStack Developer



In 2017 we have been growing in the amount of users that use Linux, little by little it is shown that it is a good alternative to private software, because it is possible to work daily with Open Source without the need of using any other software.

The main distributors like Ubuntu, Linux Mint, Fedora, etc... are still offering desktops with well quality that make users life easier. I think this 2017 we will gain in credibility as big desktop systems, and it is possible to see that they are easy to use. Linux has half the battle in order to servers, "now we go for desktops"

In 2018 technology will continue raising, there is nothing that could stop this, sector like IoT & Smart Cities, Cibersecurity, Cloud, Start Ups, Woman in Technology and many others where Open Source is the key to its development and spreading. For many of them, Linux is a reality and it is so for its working and reliability.

There is the need of making a strong invest in women to be in the technological world since they are kids, offering them technological female role models and encouraging them to choose technology and technological degrees. Programs like Scratch from mit are a good starting point to begin programming since childhood.

The Open Source and in particular Linux, is part of most of the technological sector in our society. This importance will be growing and companies will invest in Free Software.

Blockchain: more control in cryptocurrencies



@AlexPreukschat



[linkedin.com/in/alexpreukschat](https://www.linkedin.com/in/alexpreukschat)

Alex Preukschat

Nodo Coordinador



After this year 2017, the most spectacular for the Blockchain ecosystem, it is to be expected that the most important regulators of the world want to limit the speculative scope around public blockchain and ICOs.

When the main regulators agree, there could be important corrections in the market, but the revolution that has begun in the world of public blockchains is unstoppable from a technological point of view. Blockchain is part of the open source world, but with a special component that makes it more dynamic and speculative, at the same time, with the issuance of tokens. This is not necessarily negative because in this case speculation facilitates innovation, but also an excess of speculation is what will provoke the intervention of regulators when some bubbles explode. This presumable scenario will cause more decentralization, as when we went from Napster to BitTorrent. The global talent and capital that seeks to create this decentralized global economy will do everything possible to achieve its goals.

From Spain we have talent and capital to participate in this new model of decentralized P2P economy that will generate welfare and employment in those countries that know how to organize themselves. The fourth industrial revolution at the hand of technologies such as Blockchain is coming and my hope from Blockchain Spain is that we can be part of those countries.

In 2018, regulators will try to regulate and control more the world of crypto currencies and ICOs, impacting the short-term price of these assets. The increase in regulatory pressure will make projects increasingly decentralized.

A black and white photograph of a large, crowded exhibition hall with various booths and people.

Ángel Luís Sánchez García

Head of Architecture and
Standardization Service



[linkedin.com/in/angel-luis-sanchez-garcia-a8b4a32a](https://www.linkedin.com/in/angel-luis-sanchez-garcia-a8b4a32a)



Undoubtedly, the health sector is one of the most complex sectors. Its scope is very varied and extensive: research, training, healthcare, high technology, pharmaceutical industry ... and in all of them, in one way or another, to a greater or lesser extent, open source tools are used. There are open source tools for health of all kinds, from base software to very sophisticated application software.

If we stick to the field of healthcare, in recent years the ICTs of Spanish public health have managed to be among the European leaders, in the implementation of electronic medical records, electronic prescription and multi-channel appointment, but there is still a long way to go. Undoubtedly, in the coming years, health care will need to be transformed in order to ensure its sustainability, something that does not seem simple, considering that every time life expectancy is greater and the population pyramid has a very significant percentage of elderly people. .

Therefore, the application of technologies such as artificial intelligence, augmented reality, Big Data, private and public Cloud, XssS, blockchain will be vital. And in all of them, open source plays a fundamental role

Integration with third parties



@AllCloud_Spain es



[linkedin.com/in/Angel-rios-salmeron-176800b](https://www.linkedin.com/in/Angel-rios-salmeron-176800b)

Angel Ríos Salmerón

Director of Technology & Systems



The Cloud is a reality already installed in our every day, and whose composition Open Source is formed by Applications with its options and versions, as well as private software in its corresponding formats. These ecosystem applications are not conceived without the integration and communication between both, since at present, and increasingly, one will not be able to exist without other where the obligatory nature to understand itself is fundamental for its survival, which is its purpose.

The integration applications with third parties is going to be a decisive factor in the election of the solution, and there systems created. Open Source has much that to say and to protest like a flexible, open alternative and of integration character that the limits are left for others.

The Internet of the things, Cyber safety, Machine learning, mobility, Big Data, The transformation of the products into services will be terms where the integrations of these two ecosystems will have a big impact and it does not exist fitted for the one that is left alone.

From a global point of view the trend in open source solutions is a foreseeable increase in relation with the new solutions for the new scenarios that are arising daily.

The database service of the future



[linkedin.com/in/atrisharma/](https://www.linkedin.com/in/atrisharma/)

Atri Sharma
Apache MADLib Project Committee / Apache HAWQ Podling
Project Management Committee member
Committer to the Apache Apex project.
Software Engineer at Microsoft



In my field of database systems, **I think that the future belongs to those who can generalize their product to suit multiple needs yet provide specific experience to the locales involved.** Data is ever-growing and changing at a dynamic rate and the volume of data grows exponentially every minute. We need to build systems that have the capability to scale up and scale down instantly and elastically, since customers tend to shift their workloads around without notice and a static reservation in the service can be against a great customer experience. A scalable service which allows a user to easily store and access data while maintaining semantics is the need of the future. A database service should be able to provide a great experience to a single node customer and to a massively distributed workload with data spread across different geographical locations.

Another feature of database service of the future is the ability to support multiple models of data and allow easy querying across multiple data types in the same user application. The database service should be able to provide similar levels of performance across different data types and allow secondary indexes on top of multiple types of data.

Traditional databases have a relatively high footprint of metadata that allows the database to provide a personalized user experience and give a higher query performance. However, metadata storing becomes a scaling bottleneck and can cause problems in scaling up a database. Distributed metadata storage is a difficult problem and can cause semantic issues. Future database services need to rely lesser on metadata storage and provide a high query performance.

Localization and internationalization is a known priority in database systems as multiple locales need to be implemented efficiently, but the service needs to be globally aware and optimal.

Penetration of robots in the service



@briapon



[linkedin.com/in/briapon](https://www.linkedin.com/in/briapon)

Bernardo Ronquillo Japón

Robotics & Mechatronics



The Robotic Operating System (ROS), 100% Open Source, has continued to strengthen its position in the field of industrial robotics as well as personal robots with fun objectives or as a facilitating tool in physical or psychological therapies. Example of the penetration in the industry is the ROS Industrial consortium with a transversal participation of large manufacturers: ABB, 3M, Airbus, Boeing, etc.

The availability of annual updates of ROS with successive versions of Ubuntu makes this system a consistent basis upon which most startups develop new robotics products. ROS allows them to shorten their development cycles and therefore their costs.

In 2018 we will see a progressive penetration of service robots in large stores in our country. Shopping centers are the axis of consumption and large companies in the sector have initiatives in place to introduce robots in these centers. In most projects, ROS (100% Open Source) is the base on which the technical teams are working.

The goal, improve the customer's shopping experience. And how do you plan to improve it? Making the robot both an element of fun and integrating in it utilities that facilitate the purchase to customers: **reading bar codes to obtain complete information of a product, accompany the customer to the product you are looking for, act as a payment box with movement capacity so that the site can be variable depending on the occupation level of the center ...**

The role of Open Source in all this? It is very clear, to make application developers work at the highest level thanks to the level of abstraction provided by an environment such as ROS. This allows the creation of specific applications for each client environment, and the shortening of the development cycle

From free software to open knowledge



[linkedin.com/in/borjaprieto/](https://www.linkedin.com/in/borjaprieto/)

Borja Prieto Ursúa

Head of the Institutional Extension Service
OpenExpo Europe Advisory Board



Releasing software developed for administrations is a basic need, yet from the point of view of managing public resources. Initiatives like the one from the Centro de Transferencia de Tecnología, from the Ministry of Finance (http://administracionelectronica.gob.es/pae_Home/pae_SolucionesCTT.html), make easier the technological exchange.

In addition, the growing request of open data and transparency from citizens, has forced politicians to offer more accessible information each time. Moreover, the IoT applied to cities (SmartCities) and many more information systems are generating big amounts of data. The society makes a better use of this data generated with public money when anyone interested can access, process and analysed them, and generate knowledge.

And it is just this creation of knowledge and its opening to the next challenge what public administrations have to deal with. At the Madrid Council, the fact of releasing the tool for the participation of citizens, Consul (consulproject.org), has allowed us to create a community of cities to exchange experiences and knowledge with capital cities like Paris, Buenos Aires, Montevideo, Turin, the state of Jalisco and many more towns and institutions that use Consul.

In the same way, nowadays does not make any sense an administration that Works behind closed doors, with private software and private data. Releasing and sharing knowledge is going to be the rule for public administrations.

Internationalization, an important topic



Bruno P. Kinoshita

**Committer / Project Management Committee
member for Apache Commons, Apache Jena, and
Apache OpenNLP. Software Engineer with NIWA**



There is a growing number of countries creating laws and policies to certify that Open Source is used whenever possible. And with the constant number of companies using and contributing to Open Source in every corner of the world, internationalization has been an important topic in the past years.

Transifex, Loomio, and Trello are some tools used to collaboratively translate Open Source projects. The translations submitted and reviewed by the community are incorporated by the projects and released back to the community.

This is one example of how internationalization became so important that even specialized web sites were created or used to help with it. But there are plenty of other examples.

Apache OpenNLP, a natural language processing project with ASF, includes several pre-trained models for detecting names, splitting sentences, and parsing text. These models are available in German, Dutch, Danish, Portuguese, Spanish, and - of course - English. English has the best support but the quality of the other models are catching up with the English ones.

Some months ago I worked on the ticket JENA-1313 for Apache Jena, to add an option to allow users to specify a collation to be used when retrieving results from Jena. This way, lists of words in English, French, Finnish, etc, can be displayed in the other expected by the respective users of these languages.

I have also seen more users coming with requests related to internationalization in Apache Commons, specially since we released the Text component. I expect internationalization to continue being an important topic in 2018. And along with the requests, I expect more contributors submitting patches to code and documentation. Eventually even becoming part of our team!

Machine Learning & AI have arrived to stay!



@mceire



[linkedin.com/in/bryanmceire/](https://www.linkedin.com/in/bryanmceire/)

Bryan McEire

Co-founder y CTO Spotahome



Following the lead of science, the aptitude to be able to raise up against giants, look forward and create new products using as a base technology already existing Open Source created by the Community is one of the keys of the progress in the digital world. This wealth facilitates the access to the technology and to the market, encouraging the competition, which ultimately benefits our clients.

And this competition is already global, with access to hundreds of thousands and even million potential clients. To meet our clients and being capable of exploiting all this information is vital to compete in the digital world.

2018 and following we will see the rise and consolidation of technologies Open Source related to the massive development of information. Machine Learning, Artificial Intelligence and derivative skills have come to stay and to create a paradigmatic change.

Also, every day more startups base all its technological stack and services on technology Open Source and contribute actively with the Community, liberating progress in already existing software of opened sources or creating new projects and putting them at the disposal of the Community. This closes the circle, generating new opportunities to the already existing ones and to which they are still to come, helping to create a more open, and more connected world. More human.

2018 will be the year of open source corporate technologies



[linkedin.com/in/cechevarne](https://www.linkedin.com/in/cechevarne)

Carlos Alberto Echevarne

Linux Systems Manager



More and more companies TIC are using technologies 100 % open source because they have all the immediate advantages of the shared knowledge. This way we can implement our technology on the solid bases that Open Source contributes.

There are members of the community that offer the highest level of quality of support to have the biggest reliability, and do it across a corporate version of its product. Three of the solutions the most second hand Open Source at present have already his: Docker Enterprise, Ubuntu with Kubernetes and Network Hat ® CephStorage.

At Dinahosting we trust that 2018 will be the year of the Solutions Managerial Open Source. To bet for the Open Code is to bet for the technological development of this country, which in turn redounds again to the Community and to the shared knowledge.

Making software international isn't enough



@cgivre



[linkedin.com/in/cgivre/](https://www.linkedin.com/in/cgivre/)

Charles Givre

Committer to the Apache Drill project
Lead Data Scientist at Deutsche Bank.



Perhaps one of the great things about open source software in general is its ability to make the advances in technology available to the widest audience possible regardless of ability to pay. As someone who grew up as the internet was developing, I clearly remember when nearly all software was proprietary and quite costly, and it is really amazing for me to see how much software is now open source.

While open source software has dramatically democratized access to software, the lack of internationalization in many projects remains a significant obstacle for many non-Anglophones who wish to take advantage of these programs. It is somewhat understandable, in that many open source projects star out organically, without a lot of advance planning, and as such, internationalization (and security) are often not prioritized.

I am involved with the Apache Drill project because I have seen the enormous gains that Drill can bring in terms of access to data as well as efficiency. Drill has users and contributors around the world and as such it has to be usable to international audiences. I'm pleased to say that Drill does have many features that would enable international audiences to use it.

However, making software international isn't enough. Developers and PMCs (Project Management Committees) should really consider making documentation available in other languages as well—especially user documentation. We can have the best software in the world, but if we do not publish documentation and tutorials in other languages, this will serve as a barrier to audiences who do not speak English

Open Source for integration



@fablabmadridceu



[linkedin.com/in/covadonga-lorenzo-cueva-925b5630/](https://www.linkedin.com/in/covadonga-lorenzo-cueva-925b5630/)

Covadonga Lorenzo

Director at Fab Lab Madrid Ceu y
Professor at CEU University



In the last year a revolution is taking place in the field of the university education that is spreading quickly and going bust to the traditional formation based on the physical classrooms. It is a question of the on-line training programs like Udacity, which arose in Stanford's University like a university in the network with which one was trying to give preparation of high quality to students who had not economic resources to attend the university. Coursera would follow , edX or FabAcademy, that will create an educational phenomenon that has been named On-line Massive Open Courses (MOOC), who comes to be translated like open and massive courses by Internet.

In my opinion, an opportunity is opened from here to take the Open Source to the sector of the university, education faced towards the progress of the programs that are offered across Internet. **The trend takes us towards the design of interactive online educational programs and with personalized contents that incorporate new technologies of digital manufacture, gamification or developing reality, as well as distribution of multimedia content and mulsemmedia, to encourage the social inclusion, to fight the school abandonment and to promote the students' integration with disability.**

Professionals with certifications in Linux systems



@Eristhofg



[linkedin.com/in/cristobalrubioheras](https://www.linkedin.com/in/cristobalrubioheras)

Cristóbal Rubio Heras

**Computer Technical Engineer - FP Professor of
Systems and Computer Applications (SAI)**



In the field of education and training we must take as reference the learning and knowledge of the tools and programs that make up the wide OPEN SOURCE catalog. For example: Linux, LibreOffice, Virtual Box, VLC, Firefox, WireShark, GIMP, Inkscape, DIA, Scribus, FreeCAD, OpenShot, AudaCity, Apache, JAVA, WordPress, Eclipse, LaTeX, etc.

Students are increasingly aware that in most areas and conditions should apply, are excellent products and ICT solutions that even save costs.

There are all kinds of Open tools and programs, with extensive communities of users and developers, who work to adapt to working in any environment and professional sector.

Therefore, the domain and management of open source is very necessary, since these technologies will be implemented in their professional environment. The current trend indicates that in 2018 the market will demand qualified and certified professionals in Linux systems oriented to the cloud.

Blockchain: cryptocurrencies & “smart contracts”



@dmery



[linkedin.com/in/danielmery](https://www.linkedin.com/in/danielmery)

Daniel Mery

Co founder Planet Linux Caffè & Co-organizer of
Madrid Haskell Users Group



Analyzing possible technological scenarios, my opinion on the trends of the Open Source world is related to the importance of the Blockchain.

The blockchain is a relatively new technology. Its use, with a reasonable degree of technological maturity, began in 2009 with the appearance on the scene of Bitcoin. Satoshi Yakamoto, finished the development of a revolutionary concept initiated previously by a group of "cyber-punks". The blockchain is a distributed database, of public access, with a mechanism of validation for the data included in it, whose consensus work is carried out by "miners" who receive rewards after solving a complex mathematical problem. **The backing of the crypto-coins is that computational work done to solve an algorithm and the energy that this process consumes. As a result, a crypto-currency with a deflationary characteristic is created instead of the traditional inflationary currencies. The security based on its strong encryption and the elimination of unnecessary intermediaries complete this perfect machine destined to transform our environment, as at the time the PC and the Internet did.**

Smart contracts, which today are the heritage of the Ethereum platform, give more depth to the transformations experienced by the industrial, financial and academic fields. Smart contracts will allow contracts to be governed by mathematical algorithms instead of the reliability of third parties. Governance, finances, means of payment, registers of property and cadastre, salaries, pensions, hiring, among others, will be the ideal area for them. In short, the replacement of WEB 2 by the WEB 3 is underway.

Open source solutions for automation



@anderskywalker



[linkedin.com/in/danielsilva73](https://www.linkedin.com/in/danielsilva73)

Daniel Peña Silva

CEO



Our forecast for 2018 is the achievement of Open Source solutions for "automation".

Automation for agile software developers, with tools for versioning such as (git), integration and continuous deployment (Travis-ci or Jenkins), configuration management as (puppet), software testing as redwoodhq, all these utilities are some of the examples of open source.

Automation for SMEs and companies that manufacture, service or sell products both online and offline or continuous improvement in their processes, examples are: machine-learning or learning of patterns (tensorflow), facial recognition, automatic labeling in movement, chat-bots (ChatScript) or artificial intelligence available to all thanks to its implementations in Open Source.

And Automation for everyone, for a much more digital world than 2017, for users where we automate our day to day, in our terminals with virtual butlers, with alarms for home, virtual assistants or IoT. examples: Calaos, OpenHUB, RaspberryPi, Arduino or mycroft ...

Free Software allows us the ability to experiment many times, with a very controlled cost. Free software allows the "little ones" to be as big as "the big ones".

Flipped Classroom



@dcaraban



[linkedin.com/in/dcaraban](https://www.linkedin.com/in/dcaraban)

David Carabantes Alarcón

Coordinator / Manager of the Virtual Campus



In the coming years the university will have mass courses available will be consolidated. The experience gained with MOOCs (Massive Open Online Courses), through platforms such as Open edX, will lay the foundations for more cooperative learning.

Teaching outside the classroom from virtual campuses at all educational levels, with systems such as Moodle, will continue to be possible thanks to the open source community of developers.

The model of inverse classroom or flipped classroom will be established by the advantages of being able to work in with practical cases and doubts regarding theoretical contents previously arranged in video format.

The number of interactive contents created with open source programming languages such as H5P will grow, and the use of OER, open educational resources will be enhanced. Teachers will continue to join the open access movement of publication in open access journals and their deposit in institutional repositories.

Undoubtedly, the use of mobile devices for teaching will increase, with educational applications in which augmented reality will increasingly take center stage.

Internationalizing Open Source software



Denisse Osorio de Large

Engineering Director at Cerner, an Apache Software Foundation Sponsor, and Director, Consumer Engagement Ops, Population Health Dev.

Internationalization should be just another unit test. As an intricate part of good software development internationalization seems like extra effort, and it is tempting to cut it out or kick it down the road. Doing so will ultimately result in software that does not realize its full potential. By internationalizing open source software, we are allowing a broader set of the world population to not only use it, but most importantly to contribute and improve it. Investing in the internationalization of open source is a natural next step that shows the maturity of where the software is in the lifecycle.

At Cerner we have business in several markets around the world, including the Middle East, Australia, Europe and South America. We have to make sure our solutions are internationalized. As an organization, we started creating a style guide that would help us with internationalization and to meet appropriate levels of accessibility. We needed to make sure we would reliably scale as we opened new markets. After several years of working on the style guide, we decided to open source it for others to use and contribute. We understand that internationalization is just one of the pieces needed for software to appropriately function in other markets. With internationalization out of the way, we can focus on the localization, which can be trickier to do correctly due to cultural differences.



@elalaralopez



[linkedin.com/in/eduardolaralopez](https://www.linkedin.com/in/eduardolaralopez)

Eduardo Lara López

Head of Operations



Each year the evolution and technological leap that we are living in is getting bigger and, above all, much larger, reaching more and more different areas every day, changes that affect us, almost always for the better, in our day to day and I am sure that 2018 will not cease to amaze us.

I would bet completely for the evolution of virtual assistants, they have come to stay, integrate and live with us. I think they will appear in many more aspects of our lives than we can imagine. Also, I am sure that they will start to be more proactive and be the ones who "suggest" us instead of just trying to respond, correctly, to our requests.

It is essential the opening of these "Advisors" to an Open Source environment for their own evolution, with an open and free program, which allows to accelerate their growth and to extract the maximum functionality of their Artificial Intelligence. "Siri" (Apple) and "OK Google" (Google) are no longer alone ..." Cortana (Microsoft), Alexa (Amazon) and Bixby (Samsung) have been the next to arrive to keep them company. Surely there are some more looking good for the party and they will not be the only ones!



Elena Sánchez

Co-Founder, Director of Business
Development, Developer



Undoubtedly, Open Source has been a trend in recent years in all companies that are dedicated to technology and digital creation, whether they are SMEs or large companies.

You can cover practically any project using open technologies, but if there is something that is remarkable in 2018 and successive years is the "boom" of IoT (Internet of Things). A new path is being opened in which different areas of the connected objects must be developed, from the analysis, the management of devices, the security or the networks that will be necessary to expand and develop new ways of action.

From 10 Atmospheres Studio, we are addressing this transformation for the following years in the area of electric mobility, where we hope to contribute our bit in a pioneering sector towards sustainable mobility.

I believe that knowledge is only useful when it is used to improve the environment in which we live, being responsible for building a better future for the following generations.

Being a good programmer is not about being good with English



@emilianbold

Emilian Bold

Committer and member of the Apache NetBeans
Podling Project Management Committee
Independent Java contractor at Joseki Bold SRL



When I started programming I was proud of using English applications and reading English documentation. It was an important stepping stone in my growth as a software developer. But over time I learned the importance of having the application in your native language.

The Open Source NetBeans IDE has multiple kinds of users. You have people just learning to program, generally Java. You have experienced developers and you have companies using the NetBeans Platform as their foundation for applications in various non-technical fields. Especially for beginners, having an interface in their own language is a huge sigh of relief. Because it's twice the work to learn to program and to learn a new language!

Being a good programmer is not about being good with English.

Non-technical NetBeans Platform applications cover domains with an lower English usage so we have to be localized out of the box. I started switching to Romanian for my phone as an experiment then stuck with it everywhere. I read somewhere that you are more analytical in a second language and I think it's true to a point.

You are more creative by using a well done localized interface because you use metaphors in your own language. Thus, Open Source software like NetBeans is the perfect breeding ground for localization. You get from the start a global user base as well as a global contributor base.

The future of i18n has already been here ever since the GNU gettext library: internationalization by default in all user-facing programs! It's an aspect where Open Source has been in many ways far ahead of commercial software as any determined community will localize their favourite app. The current infrastructure is only getting better so i18n is becoming much easier to manage.

Open Cities, Big Data



@EnriqueDiegoB



[linkedin.com/in/enrique-diego-bernardo-b16b0755/](https://www.linkedin.com/in/enrique-diego-bernardo-b16b0755/)

Enrique Diego Bernardo

Director of Technology
OpenExpo Europe Advisory Board



We can say that the "open" increasingly covers more areas of Information Technology, but it is also enabling new management and business models to emerge. In this sense, I believe that current trends such as Open Data, Open Source or even Open Hardware, will be adding new management models based on the open use of technology and business processes.

Emerging, for example, Open Cities, as a step beyond the Smart Cities, and that will be based on the participation of citizens in all areas, including the development of applications and systems in a collaborative and open.

For this, the semantics of information and data will be very important. The linked data, or Linked Data, can create explicit connections between information or source codes that are related to each other.

However, the great challenge will continue to be the processing of data in real time, from different sources and in an open manner. Big Data promises an unprecedented capacity for analysis, its combination with the philosophy of Open Data and code will allow that power can be shared by all improving public services



@francisbrosnanb



[linkedin.com/in/francis-brosnan-blázquez-1353a218](https://www.linkedin.com/in/francis-brosnan-blázquez-1353a218)

Francis Brosnan Blázquez
CTO



By 2018, we expect further deepening in Open Source technologies related to the IoT. These technologies will make it easier for integrators and end users to build IoT solutions that they can integrate with low-cost devices, based on Open Source.

Together with this trend, we also identify an increasing interest in providing Open Source solutions for the Supervision and security of the information exchanged in these IoT platforms, together with the blocking of unauthorized addresses.

These two tendencies, **the greater professionalization of Open Source solutions to do IoT and the improvement of platforms for security supervision and content, based in Open Source**, they will converge to make it easy to build open and secure IoT solutions

Development of NFV orchestration



@fjramons



[linkedin.com/in/fjramons](https://www.linkedin.com/in/fjramons)

Francisco Javier Ramón Salguero

Head of Network Virtualisation Initiative GCTO-Unit
OpenExpo Europe Advisory Board



The virtualization of network functions (NFV) and the software defined networks (SDN) have been consolidated as key technologies to build the new Telecommunications networks throughout 2017, where large operators have announced commercial deployments. Open source projects such as DPDK, OpenStack, ODL and OSM (of which Telefónica is a founding member) have been fundamental since the first deployments, and have paved the way for other development initiatives to be encouraged to be released as open source (eg the AT & T's ECOMP program began its transition to a community project this year).

Network elements and services become exclusively software components that are deployed in a general purpose, homogeneous and distributed infrastructure, where connections between elements are also created programmatically. A key element for an environment such as this one is manageable is the NFV network orchestration systems (in English, MANagement and Orchestration, MANO), which provide these platforms with the automation expected by both network application developers and suppliers. of telecommunications services.

The development of NFV orchestration through open source has consolidated as a trend in 2017, with ETSI OSM and LF ONAP as the maximum exponents of this revolution in orchestration, and it is expected to see notable developments in 2018, with 2 major releases planned in the case of OSM and 1 by ONAP by mid-year.

Likewise, the gradual incorporation of related technologies, such as Kubernetes, to the definition and management of the new generation of mobile and convergent networks (5G) and is expected to be consolidated decisively throughout 2018.

Open Source supports ROI & TCO



Gerardo Gómez

Manager of Information Technologies



Many companies invariably of their size, seek to reduce costs, in particular the famous ROI (ReturnOnInvestmet) and TCO (Total Cost Of Ownership) which are topics to be discussed in the evaluation of ICT projects.

We see hybrid technology solutions as one of the best options to provide our users with robust and quality solutions according to business needs. The combined use of Open Source tools (Linux, ERP, Asterisk, AMPPS, LDAP, Content Management, Network Monitoring) and Owners, have helped us reduce ROI up to 45% and TCO up to 35% in several of our projects and operational processes, for the next two years we will continue to maintain this strategy.

It is definitive that for this 2018 the percentage of companies that decide to use Open Source solutions will continue to grow, as will the percentage of processes managed with Open Source of the companies that are already users, as it will be in the case of us.

Big Data AI & security



@guillearch



[linkedin.com/in/quillermocastellano](https://www.linkedin.com/in/quillermocastellano)

Guillermo Castellano

Documentary Management Consultant



There have been no big surprises this 2017: Open Source, automation, big data, artificial intelligence and security have been the main trends in the IT sector. More and more voices are wondering how to manage the growing volume of data we produce, as it is clear that we can not save everything or in any way. **It is difficult to determine to what extent this awareness has influenced the acquisition of document management solutions, but market studies say that it has grown in 2017 and that this trend will continue in the coming years.**

The issues we will be talking about in 2018 will not be very different from the ones we have discussed this year. However, many times we focus on the projects carried out by large organizations and we forget that 95% of companies in Spain do not exceed 20 employees and have fewer resources to digitize than large accounts. One of the virtues of free and open source software is that it facilitates access to technology and I am convinced that it will continue to play an essential role in the digital transformation of SMEs, local administrations and social entities.

Greater integration of Open Source Software

arsys



[linkedin.com/in/hectorgarciagalan](https://www.linkedin.com/in/hectorgarciagalan)

Hector García Galán

Cloud Solutions Account Manager



The same micro service architecture that has driven the adoption of Open Source solutions in organizations is leading technical teams to turn to more flexible Cloud hosting platforms, with lower operational costs and easier to manage. We have seen it in recent years, in which DevOps and agile development methodologies have led to the emergence of the Cloud First approach, a phenomenon that can hardly be dissociated from Open Source.

In 2018, this trend will be reaffirmed, favoring a greater integration of Open Source software in Cloud infrastructure solutions, in any of its modalities and throughout its different layers. For example, for the deployment of Git repositories on Cloud platforms managed by the work teams themselves, guaranteeing the privacy of the developments and the total control of the projects.

In this way, in 2018 technicians can forget about the "iron" and its complexities in the deployment of business applications. Or, at least, not worry as much as before. And what is more important, we will contribute more actively to our organizations gaining agility in the processes of Digital Transformation that they are facing.

Front page for IoT on 2018



@ignacio_gilart



[linkedin.com/in/ignaciogilart/es](https://www.linkedin.com/in/ignaciogilart/es)

Ignacio Gilart

CEO & Co-founder



Since we knew, by intuition, one year ago, the Cloud has been consolidating little by little in the organizations, favouring enormously their digital transformation. The different agents involved in this transformation have contributed each one from its position that the organizations could overcome the challenges associated with the management of the fact in these new stages, especially in storage, with safety and with the associate normative fulfilment. In this sense, the technologies open source have played a protagonist role contributing not only with accessible hardware for all, but with the generation of standards that facilitate the interoperability.

In 2018 the adoption of the services cloud and the analysis and development of information and Big Data, they will keep on being big protagonists in its way towards the digital transformation. Much of the hand of this reality there will be associated the every time major adoption of APIs and new ecosystems and paradigms of development and deployment of applications.

On the other hand, Internet of Things (IoT), will be emerging, to turn into the big protagonist of 2018, consolidating already its existing applications in this matter, and revealing a big endless number of new accessible cases of use inside the organizations and in the everyday life of people. The challenges on the subject of cybersecurity associated with all this, together with the adaptation to new legislations, especially to the legislation of European ambience GDPR that will be of forced fulfilment in 2018, will determine the focus of investment of all the implied agents.

The technologies open source will be protagonists given its enormous acceptance as base of the construction of new products and related services, since they have demonstrated its aptitude to compete in terms of cost, of functionality and especially of interoperability.

Multiplatform applications and development

Igor Nedeljkovic Stankovic

Professor
Coordinator of Information &
Communication Technologies



The development of the multimedia applications have had a very big impact in the musical sector. The biggest part of artistic activities linked with the music at present are developed in the network. It does not happen this way with the music studies at institutional level, although the tendency in the networks demonstrates the opposite at particular level.

Two activities, artistic and didactic represent clearly an economic sector with their own entity. The Free Software and Open Source due to its inclusive and independent character, in this sense represent a powerful tool an hour to harmonize different platforms facilitating hence the interaction between these two works.

My forecast for the next year in open source will be that the applications multiplatform and the development of these ones will be tendency.

The Future is Open

6th & 7th,
June
2018

La Nave
Madrid

5th Fair and Annual Conference about Open Source, Free Software and Open World Economy (Open Data and Open Innovation) meet on June 6th & 7th, 2018 in Madrid more than 5000 professionals and companies looking to make business



5.000
Attendees



250
Speakers



+400
Exhibiting
Companies



13
Conferences
Room



200
Sessions



8
Professional
Forums



Startup
Connector &
Village



2018
Open Awards



10
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Open source in small and medium companies



[linkedin.com/in/igils88/](https://www.linkedin.com/in/igils88/)

Ismael Gil

Head of Technology



Thanks to the rapid advance of telecommunications, which we have been experimenting for years, coupled with a complete generational change, with the so-called Generation Y with economic capacity and confidence in the online world, electronic commerce is in Boom Almost anyone can start a small business, you just need a product to sell, a lot of desire and above all Open Source technologies.

The list of open source platforms and tools available to the user to set up their online business are innumerable, its low cost is one of the main reasons for its growth, but the best thing of all is an ever wider community that makes these technologies adapt daily to the needs of any type of business, growing at the necessary pace and solving day-to-day problems in the development of these platforms. Proof of this is to see how large multinationals such as BBVA are betting on these technologies, taking, for example, open payment gateway tools.

Undoubtedly, this 2018 we will see a great growth in the creation of new eCommerce driven thanks to Open Source technologies helping entrepreneurs to create their own business from the couch of their Home.



[linkedin.com/in/ivanhernandezbelda](https://www.linkedin.com/in/ivanhernandezbelda)

Iván Hernández

Software Development Manager
OpenExpo Europe Advisory Board



The sector of tourism and specifically the sector of Online Travel Agencies (OTA) have the increasingly priority challenge to customize and provide the best possible offer to its users. This translates into several aspects: more intuitive and easy-to-use (usability) platforms, adapted to all devices (responsive) but also that allow to recommend in the inspirational phase and offer support at all times, that is to accompany the user before, during and at the end of your trip.

To undertake these challenges it is necessary to have more and better data, about the preferences of the user, their activity, their history ... but being able to apply intelligence and speed to their analysis for later use in real scenarios and effectively . **This is what is achieved with Machine Learning.**

Thanks to Open Source, we have all tools, languages and platforms available to cover our most demanding needs. Now, the challenge is how to use them, how to select the right data and how to apply the necessary algorithms to achieve the objectives that are pursued. That is to say, thanks to Open Source, we all play in the same conditions and we can focus on the exploitation of information -which is what gives us value in each sector- instead of the infrastructure and the tools used.

Practical applications based on Blockchain



@Imolman



[linkedin.com/in/iñigo-molero-manglano-a6ab5b46](https://www.linkedin.com/in/iñigo-molero-manglano-a6ab5b46)

Iñigo Molero Manglano

Consultant in Communication
and Blockchain Technology



One of the most wonderful intangibles provided by Bitcoin first and the technology of the public Blockchain afterwards, is none other than the extraordinary diffusion, in this year 2017, of terms such as free software and open source.

Concepts that have always been there, available to anyone who knows how to access them and dare to use them to contribute to a common benefit. However, for the majority of people - among whom I include myself - who do not have the technical knowledge necessary to make a direct contribution, this dissemination and knowledge has also provided another way to join this cause.

Firstly, because we have come to understand the underlying philosophy of these terms, which has so marveled us and then because we have become defenders of these concepts and the extraordinary community that sustain them. I am convinced that next year we will be more and better and that in the same way that new programmers will join to improve this type of existing projects -or to launch new ones-, there will also be more advocates of them, more aware, and that In turn, they will be the new catalysts of this network effect that we like so much.

Therefore, as all these concepts are fed back, **in 2018 we hope to attend the first practical applications based on Blockchain with a global and extended use model that manages to open more eyes and awaken more consciousness. And all this has only begun**

SME's: cloud integrated services



[linkedin.com/in/javiergarciaalarcon](https://www.linkedin.com/in/javiergarciaalarcon)

Javier García Alarcón

CEO



In 2018, Open Source software will increase its penetration in the market, above all in SMEs, increasing the offer of integrated services in the cloud, mainly SAAS (Software as Service), optimizing costs through payment for use, utilization of multiplatform free web environments, increasing the mobility of its personnel, allowing the secure transmission of data (SSL, VPN ...), accessing more and more many "sophisticated" applications, (ERP, CMS ...) and with guaranteed support, being a real alternative to proprietary software, improving productivity and bidirectional communication with your customers, in real time and interconnecting them with your software.

The APPS for mobile phones and tablets will be another extension of business software. Hybrid clouds will grow, allowing your infrastructure to be privately connected to applications in the cloud in a secure manner.

Secure storage (data encrypted before intrusions and multisided redundant) will be crucial with real-time backup services and fault-tolerant environments, under the premise of "business continuity".

Secure enterprise-class email (such as our Synacor Zimbra-based platform) will be a necessity, integrating (already doing) document management and editing services, video conferencing, native access to cloud storage and in an interconnected environment with the rest of applications

Big Data, Machine Learning, IoT



@JavierGQu



[linkedin.com/in/javiergarciaquintela](https://www.linkedin.com/in/javiergarciaquintela)

Javier García Quintela

Director of Global IT Services and Operations
OpenExpo Europe Advisory Board



In our sector we consider the impulse of digitization as the trend of the Open Source world. Given the needs raised by this, it is a growing necessity to have reliable and proven components that can be combined to create solutions in an agile manner. It is a need that the Open Source software is capable of satisfying. Specifically, we see that they will be trend:

- **Big Data / Machine Learning / IoT:** Treatment of large volumes of data, which can be used to learn from our processes and our customers, from obtaining information, demoralized management and subsequent processing.
- **DevOps:** Adoption or extension of the use of containers in applications, both from third parties and internally developed. After an initially more complex architecture, the homogenization of deployment and operation processes appears.
- **Apification:** Adoption of technologies that allow a grouping in APIs of the services exposed by current applications, which allow a correct management of their life cycle, separating it from its consumption channels.

All these lines are supported by the cloud, where Open Source technologies are at the heart of a large part of the services offered.

General Regulation of Data Protection (RGPD)



@javierfrancia33



[linkedin.com/in/javier-ignacio-di-tata-francia-73514844](https://www.linkedin.com/in/javier-ignacio-di-tata-francia-73514844)

Javier Ignacio Francia

IT strategy consultant
Senior Project Manager (Radionexo)



The RGPD of rigorous application in mid-2018 prepares us for the future Internet 2.0 where the security of the digital person will be the responsibility of all those involved in the chain of custody of the data.

A quick walk through GitHub teaches us the evolution of the ecosystem and its growing perimeter of application. Free and open software, as a package or as an API, will be the option highlighted by companies that want to comply with the law and also maintain a governance of information across all types of documentary sources and accessible by both machines and humans.

However, the integration of FLOSS components presents risks and it is IT teams who must maintain a policy of continuous improvement and risk mitigation.

A style of life, a philosophy, a step towards future



Javier Luque Navarro

IT & Technological Manager



Open Source opens the doors to technological evolution. Companies and development communities focused on creating software and hardware that reaches everyone without the obstacles that closed systems entail, giving us the opportunity to create safe systems so that our day to day life is much easier. In healthcare settings like the one I manage, it already plays an important role. Cloud services such as own Cloud / Nextcloud, Freenas servers and encryption tools like VeraCrypt, help us protect the data of our systems, user information and patient data.

My outlook in terms of health is that we will notice a growth in data security and management, improving current tools and preventing the leakage of information, thus adapting to the new European data protection standards. In my opinion, the use of Open Source tools gives security and peace of mind, since millions of eyes review every day an infinity of lines of code, solving security and programming flaws, and making it more difficult for us to find surprises within it..

Artificial Intelligence, Machine Learning & Deep Learning



@Javiercn8



[linkedin.com/in/javiermarrodan](https://www.linkedin.com/in/javiermarrodan)

Javier Marrodán Gómez (吉瑞)

CHINA Manager



Artificial Intelligence, Machine Learning and Deep Learning are considered relevant technological trends worldwide. In addition, they provide disruptive applications in several industries, the most representative being robotics and "self-driven cars".

Future forecasts indicate that AI and ML will have an exponential development, which will contribute to a greater proliferation of Open Source open technologies. In fact, within the community and companies of the sector there is already a great development of reference ML libraries: XGBOOST, TENSORFLOW, KERAS, CAFFE and SCIKIT LEARN.

Also highlight HACKATHONES frameworks on ML, KAGGLE type.

"ML on device" is another trend of emerging interest, the mobile being key because Apple has added a bionic chip and Google has already responded with its AI chip from Intel in its Pixel smartphones. In order for the autonomous cars to be really operational, the cloud still has latency problems, and it is necessary for these cars to process data in real time at a local level.

It is worth mentioning China, an authentic world power in AI / ML thanks to multinationals such as BAIDU (百度) and ALIBABA (阿里巴巴). In the Asian country, AI Chips and 5G communications stand out. In addition, in Open Source (开源 软件), TENSORFLOW is also popular among Chinese developers.

In conclusion, the trend in the Data Science, AI and ML industry tends towards Open Source, because it currently provides the most powerful and versatile tools

Demand of open source professionals



@jrodpas



[linkedin.com/in/javier-rodríguez-pascua-237a2927](https://www.linkedin.com/in/javier-rodríguez-pascua-237a2927)

Javier Rodríguez Pascua

Manager



From the point of view of job offers in the ICT sector in recent years, an increase in demand for Open Source technology has been detected in all areas, from the profile of programmer, hardware, etc., to the highest level in terms of Big Data. Posts that were previously reserved only for specific technologies of the big players in the sector, have given way to request knowledge in free tools.

That is why from the Public Administrations is betting on a training that, every day, is oriented to this type of knowledge in the use and exploitation of Open Source tools, in such a way that they can cover the profiles demanded by the changing IT sector. In addition, it is betting on a digital transformation for everyone, from the smallest companies to the largest, of all the productive sectors. For this, and given the low cost in licensing provided by this type of solution, Open Source has much to contribute in the coming years.

In the large companies will continue to implement solutions based on Hadoop, hive, pig, etc., all in it on platforms that encourage migration to the cloud, such as OpenStack and / or Docker, and in smaller, continue to rise the CMS and best-known ERPs. In the customized solutions, we will bet on developments based on Angular, Node.JS and Express, continuing to increase the figure of the DevOps and the use of Open Source Frameworks that enable the increasingly fast and powerful developments.

In terms of mobile development, the growth of IONIC will continue, solving the problems of multiple developments (one per platform) for the same application. And...who knows, technology continues to evolve, and free software is very fast in its evolution.

Banking digital transformation. Blockchain and cryptocurrencies



@dejesuscuesta



[linkedin.com/in/jesuscuestaarza](https://www.linkedin.com/in/jesuscuestaarza)

Jesús Cuesta Arza

Fullstack Architect & Digital Marketing
consultant



Each month that passes, new fintech are being created and large companies such as Google, Facebook ... are approaching the banking sector in Spain. Are the banking entities taking notice? What strategy are you following to be able to face these different competitors?

On the one hand we have fintech, "companies that use IT to create and /or offer financial services more efficiently and less expensive". In recent years, they have been created and invested in hundreds of startups in this sector with the aim of obtaining a small part of the pie, which at that time was from the banks. A complicated plot to enter, due to the amount of regulations and limitations established by law, but not impossible.

Due to the clients that are obtaining, some banking entities have decided to buy some of these fintech (such as Openpay by BBVA) and in other cases to create accelerators (Innsomnia by Bankia) to participate in these innovative companies.

Next year, 2018, many changes await us in Spain on this plot. The strategy of technological absorption of Banco Popular by Santander, the large investment and digital transformation of more modest banks with their updating of architectures, and / or the creation of different companies by both BBVA and ING. And we can not forget the cryptocurrencies and Blockchain, where everyone is making a great effort, so that we do not stay out of this market.

DevOps, blockchain and cybersecurity tools

Astic



@jeslozrob



[linkedin.com/in/jesuslozano](https://www.linkedin.com/in/jesuslozano)

Jesús Lozano

, Partner of Astic
Head of IT department at IMSERSO



Although a critical point has been passed right now in the 2008 crisis, it seems that the “always growing up” has died. Low inflation and moderate growth will shape public administrations and their IT budgets.

As a result of this, the physical consolidation of CPDs that has been carried out in many public administrations has not always seen a significant improvement in cost savings. **Therefore, we will seek to implement DevOps tools of Open Source origin to improve the productivity of IT employees. The change of proprietary licenses by open software will also be affected, especially in non-critical systems.**

On the other hand, the challenge of cybersecurity will cause governments to invest in specialist IT personnel, which will mean an increase in the use of related tools, giving preponderance to those of free origin, of massive use by the cybersecurity community.

Finally, in 2018, the success of the possible implementation of Blockchain technology in the future Spanish Civil Registry, promoted by the Ministry of Justice, can be a very important boost to this technology.

The importance of internationalization to Apache projects



@jimjag



[linkedin.com/in/jimjag](https://www.linkedin.com/in/jimjag)

Jim Jagielski

Apache Software Foundation Vice
Chairman and Co-founder



For a long time, it has been understood that at its core, the real driving force behind successful and healthy open source projects are the open and healthy communities behind it. One definition of community is that it shares a common set of ideals and processes; a common mind-set and mutual understanding. This is all very valid and crucial, but with a too binding definition of community, instead of becoming an inclusive entity, a community can become exclusive, disenfranchising potential new members of said community.

A common issue is one of too heavy reliance on the expectation that “everyone” will be in the same, or close to same, time zone, hence a real desire that communication be asynchronous. But an even more real issue is one seldom given further thought, and that is one of internationalization and localization.

Too often, a project, even one focused on community, can forget that not everyone speaks (or reads) the same language, that certain data formats, like time and date stamps, can vary from location to location. There is the underlying assumption, unfortunately, that “everyone” speaks and reads English, for example, and uses the US-centric date formats. It is bad enough when software itself makes this inherent (and unchangeable) assumption, but when it is also part of the “expected way things are done”, it is even worse.

That is why internationalization is so important to Apache projects. We understand that even these “small” things are not so small at all; our projects and our software openly embrace “customization” to local standards and formats, and, in fact, is one exceedingly fantastic way to grow the project, by calling for, and accepting, patches that provide internationalization.

All projects that wish to truly “change the world” should recall that to do so, it must be accessible to the world at large.



@jormaral



[linkedin.com/in/jormaral](https://www.linkedin.com/in/jormaral)

Jorge Martín del Álamo

Digital Economy



In my opinion, the highlight during this 2017 that now ends in what relates to **Serverless technology has been the decided bet of the "big players" for this type of technology**. I would like to highlight, among other innovative announcements this year, the publication of repository of Serverless applications by Amazon, which undoubtedly represents a great step forward for the community of developers and companies to work together on the publication of webapps and apps , backend services, flow processing, chatbots, etc., in "serverless" mode. “

I would not like to stop mentioning the **great advances of Azure through its Functions tool**, which allows the development of applications with Serverless technology with a very easy-to-use web interface that is quite attractive.

Developers and community development in eGovernment



José Andrés Jiménez Martín

Optional Advisor
Specialization in Computing



[linkedin.com/in/jandresjimenez](https://www.linkedin.com/in/jandresjimenez)

Open Source and open data have and will have a major importance for Public Administrations and must necessarily be in the Digital Agenda of the Congress of Deputies.

It is essential that there is a relevant presence of public sector developers in the communities of the Open Source world in general and encourage the creation of specific communities for developments in electronic administration, where there is also an enormous potential to generate efficiencies and obtain implementations with great levels of quality and functionality.

And, related to the above, it is essential to continue deepening the culture of open data in Public Administrations, particularly in the facets of interoperability and reuse, and to persist in the path of leadership that Spain has had in this area for years

Open Source and renewable energies will revolutionize the industry



@joseluisabia



[linkedin.com/in/joseluisabiaealvira](https://www.linkedin.com/in/joseluisabiaealvira)

José Luís Abia

Epsilon Hack Co-founder



In this new technological world that we live, transformations have been imposed on highly disruptive devices and applications. The Linux and BSD operating systems have brought the "free software" philosophy, becoming a of the keys of the fourth industrial revolution, offering reliable, robust, operational and safe solutions, to Optimal cost. The implementation of cloud-based technologies leads to significant savings in IT infrastructures, off-site access, flexibility In sizing, deployments and operations, its implementation at the rate of "vertigo" poses risks, security challenges And access and identity management.

Renewable energies are in this reality, **why is Open Source important?** Offer applications that allow to dimension this type of infrastructures (SAM, PVWatts (NREL), among others), gives:

1. Transparency: source code, equations, algorithms, etc., open
2. Flexibility: adapt, improve the code, new versions.
3. Collaboration: right to copy and rewrite the code, correct, improve versions.

These advantages generate solid, logical applications. Free access guarantees that the application is maintained by all the community, allowing all types of renewable energy to calculate dimensions, costs and return on investment (ROI), creating financial models that help to make decisions about their type and characteristics. Creating collaborative models that compensate for excess local production, transferring them where they are required.

This environment allows to obtain ROIs of two figures, unthinkable years ago, possible thanks to the implementation of This technological revolution in this sector. The average growth forecast for the use of these OSS technologies will be around 2.9% for 2018.

New challenges in security and usability



[linkedin.com/in/josedesoto](https://www.linkedin.com/in/josedesoto)

José de Soto

CTO



From the consolidation of the use of the Cloud and the proliferation of IoT, the digital ecosystem has diversified and delocalised, creating new challenges in terms of security and usability, especially in the case of identity and access management.

The difficulties to access these services is raising the level of frustration of users. That's why the security supported by mobile devices will be a solution when providing a good experience for users, and keeping the security standards needed.

Also, the business agents prefer more often that each organization, department or person, determine the level of privileges of access required for each user or dependent resource. This delegated administration, together with the management of privileged users, will be another big area of work.

The growing cyberattacks, will establish the use of solutions capable of compiling information about user activity, to detect in real time and in an automatic way, strange behaviours that show a real risk or the perpetration of a cyber attack.

That's why Open Source will be the main driver in the generation of standards, solutions and services to face all these important challenges in 2018.

Public administrations will be Open Source



@LliureTIC



[linkedin.com/in/jlamador](https://www.linkedin.com/in/jlamador)

Josep Lluís Amador Teruel

Co-founder



From the year 2017 the amount of events and visitors in the Open Source world has been growing, just like we could see in the last edition of OpenExpo 2017 at La N@ve, Madrid. There were not only a growth in the number of visitors, but a growth in the amount of exhibitors and sponsors in the event where participated big software multinationals like RedHat or Microsoft.

A key sector in the growth of the Open Source solutions will be the public administrations, and we will see it in 2018 because of the involvement in new software projects and open technologies.

In the last years, two big cities like Madrid and Barcelona, have made a big bet for Open Source and they are still consolidating its implementation in their departments. The same has happened with other big European cities like Rome.

This trend will rule other cities and public administrations in the next years. And they will also bet on solutions with free software for all the advantages that the fundamental principles of technological sovereignty provide: greatest transparency, better competitiveness between software suppliers, reuse of solutions between different administrations and the reduction long term costs.

It is very important the public expenditure generated by the administrations where we all contribute for them to be accessible for all. The campaign “Public Money, Public Code” (<https://publiccode.eu/>) from the Free Software Foundation has had a big effect in all Europe and this will help to continue raising awareness about the benefits of free software in the different public administrations.

Structuring a data recording model



@grumman_zc



[linkedin.com/in/juanlclemente](https://www.linkedin.com/in/juanlclemente)

Juan Luís Clemente Martínez

Systems Manager



The health sector is in an exponential technological growth, being a sector where all the new IT areas converge. This dispersion is finding a lack of structural and budgetary support in IT departments to move forward, despite being considered a fundamental element of the new transformation. And this is where the Open Source community can find different lines of action.

In structuring a data recording model that allows the exchange of information in an era of hyper connectivity of objects, entities and subjects. In collaborating on EMR and HIE solutions that affect the new models of healthcare systems. To adapt more quickly to the new standard of hyper information where data mining of Big Data and AI are going to have a very differentiating role.

For a patient more and more informed as a central axis in this complex transformation, for a medical center that analyzes the enormous information it receives planning a constant improvement of its processes and for the research centers that will have data models that allow it to advance in his studies, the Open Source community has a lot to say yet.

My forecast for 2018 in Open Source continues in the maturation of the technologies that are breaking, I think that the IT departments of the sector need to accumulate experience in the new areas to carry out ambitious projects that in the medium term will change the way of interpreting health.

Innovation in the management, distribution and storage of images



[linkedin.com/in/juan-pablo-cid-rodriguez](https://www.linkedin.com/in/juan-pablo-cid-rodriguez)

Juan Pablo Cid Rodríguez

Competence Center PS Manager
IPS – Industrial and Production
Solutions



The current information and studies indicate that important increase has taken place in the number of images that are captured and safety systems are reproduced in devices as varied as cameras, mobiles, scanners, teams of electro medicine, devices of impression3D, AR, etc. The tendency is that these numbers will keep on increasing in the next years.

And so, the future will be driven to innovating management, distribution and storage of all these images. Undoubtedly in this task the "blockchain" (chain of blocks of crosscheck) will have a very important role. In this context it is necessary to highlight the importance of the contribution of an open community that could provide a global vision without limitations, to assure the success of this evolution towards the omnipresence of the image, its management, apprehension, storage and reproduction.

From our perspective as leaders in innovation and one of the companies with a major number of patents and development of intellectual property on a global scale, we believe that the key to confront this challenge consists in resting on alliances like the OIN (Open Invention Network).

In Hideki Sanatake words, Senior General Manager of Canon, "the technology Open Source, especially the cradle in Linux, has led us to an increase of our capacities in many segments of the industry, in addition to increasing our efficiency in the management of the products and services."

How Can I Help?



[linkedin.com/in/kmcgrail](https://www.linkedin.com/in/kmcgrail)

Kevin A. McGrail

Vice President of ASF Fundraising, ASF Assistant Treasurer, Chair Emeritus of Apache SpamAssassin, CEO of PCCC.com, and an Advisor at Virtru.com and SecurityUniversity.edu



As the VP of Fundraising at The Apache Software Foundation, I was intrigued by a quick "heatmap" created by Daniel Gruno in 2Q'17 that showed the cold and hot spots accessing apache.org from around the world.

Many hot spots I completely expected: Washington D.C., San Francisco, Sao Paulo, London, Oslo, Doha, etc. But some were completely unexpected. For example, Accra was a surprise and I have family there. But what shocked me a lot more was the cold spots covering what appears to be 80% of Africa.

I've learned since that according to IMF data, 19 of the 23 poorest countries in the world are in Africa. If we don't take a stand helping internationalize open source in Africa quickly, I predict the hurdles to changing this will continue to grow as they fall farther behind.

So I asked myself "How Can I Help?"

My answer: Building a community around Open Source Software is the best way I know to help close the gap. So I want to build on this bright spot in Ghana to expand Open Source outreach to Africa. We can do this with projects like Apache Fineract providing a core banking platform for helping the world's poor out of poverty and building more open source communities starting in Western and Southern African countries.

If you are interested in helping put together an OSS conference in Africa, let me know!

IoT towards a better prediction and risk management



@maribeldlvega



[linkedin.com/in/maribeldelavega](https://www.linkedin.com/in/maribeldelavega)

Maribel de la Vega

CIO

OpenExpo Europe Advisory Board



The insurance sector it's living a moment of transformation that affects the whole strategy of companies. There are breaking business models anchored in the time and that have worked perfectly for years there were reoriented more flexible, more agile models more focused to end client and to the personalization of the services and products.

We need to work with the information under a different perspective. Options as the IoT begin to have a relevant importance in the insurance products, changing the approach towards the biggest prediction and prevention of risks and especially thanks to the use that the Artificial intelligence and the analytical advanced post can do with this information, providing to the sector the possibility of finding new sources of income till now not even discussed, new models of insurance and new niches of market.

The role that Open Source can play in this future it is excellent. Companies, till now, have focused the use of Open Source for web solutions and in some cases for the big it dates, but the revolution of the AI and this type of solutions will change radically the model of architectures used till now in corporations.

Open hybrid cloud solutions



@mfo358



[linkedin.com/in/mercedesfo](https://www.linkedin.com/in/mercedesfo)

Mercedes Fernández Ortiz

IT Business Manager



The cornerstone of companies is to find a new solution open in hybrid cloud which would allow customers to develop and run workloads, securing and monitoring them, so that they can optimize their investments, improving their productivity.

It is about facilitating migration to the cloud at the pace of each organization and user. Developers can create new applications in the cloud or on-premises using the same tools, work environments and times.

Open Source technologies offer companies incredible potential to innovate quickly and create. Like any software program that you can have on any device, you also need the peace of mind of knowing that it will work correctly and that it is safe.

Times have already changed



@fictiziaescuela



linkedin.com/in/MercedesSparkling/

Mercedes G. Guimerá

Business Training Manager
& BDM Enterprise



We are living in a time of continuous changes. There have been many technologies what have disappear and many more have appeared. In so demanding environments like web development, IoT and cybersecurity is necessary to be able to learn fast and adapt the different trends and technologies as they are appearing.

We are also seeing how each time the idea of making trainings to be supported in the development of Open Source projects while courses, allowing students to build a portfolio realistic and useful.

On this new period there is not only the need of educating ourselves in technical areas or being qualified in specific areas of technology, **but it is also necessary to be able to acquire new abilities or develop the one we already have, trying to be truly multidisciplinary and collaborative.** Either as a leader, member of a team or community, it is essential that professionals will know how to adapt in a flexible way to this new working market.

Fortunately and although there is still a long way to go in terms of attitude and mentality change, it is fantastic being able to say that the trend we highlight from FICTIZIA by companies, is to offer specially made training to their employees with the purpose of enriching and increase talent, and also to improve its percentage of retention. It is not a secret if we say it is more expensive in the middle term to acquire talent to keep it.

All the makers of the change should make an exercise of responsibility, because we are going to determine the future use of technologies in wrong or right direction. **I think that the conclusions is known by all of us: “The big wave” o robotization, IA and decentralization were already here, 10 metres away from you. So you better pretend you didn’t see it because this way you won’t feel it (very unlikely) or maybe don’t think very much about it and get a surfboard and surfing it from the point you want.**

Hybrid Business Solutions (best-of-breed)



@miguel_abreu



[linkedin.com/in/miguelangelabreu](https://www.linkedin.com/in/miguelangelabreu)

Miguel Abreu

General Manager
ASOLIF Vicepresident



In the latest survey on the Future of Open Source, 90% of the companies that replied assured that the use of Open Source had helped them improve their efficiency, improve the interoperability of their systems, and encourage innovation.

These three elements make open source an essential ingredient to improve the competitiveness of any business, and for that reason I believe that in **2018 open source will no longer be seen as a key element at the level of infrastructure, operating systems and databases, and will accelerate its adoption process in key business departments such as marketing, finance or human resources.**

We will see more often the inclusion of open source software in ecosystems usually dominated by proprietary software, and we will see solutions of both types coexisting, which will complement each other to allow companies to achieve greater efficiency in their operations, thus creating hybrid ecosystems that enhance the best of each software, what is known in the technological world as a "best-of-breed" approach.

This "best-of-breed" approach encourages innovation, because it allows changing technological elements in an agile way, as if they were pieces of Lego®, allowing companies to evolve technologically in a sustainable manner, on their way to achieving your business goals.

Collaborative Economy: we shape the future



@miguelparada



[linkedin.com/in/paradamiguel](https://www.linkedin.com/in/paradamiguel)

Miguel Parada

WEB programmer, trainer, consultant in
Social Media and digital marketing



During the last years we have seen how the collaborative economy has become a widely popular term and how it increasingly takes more areas of society along a process that we can define in many less silent ways. For example, the largest private transport company is called Uber and does not have any taxi, the most important vacation accommodation company is called AirBnB and neither has any hotel owned, with BlaBlaCar you can organize your trips more efficiently or as an alternative DiaCamma save by sharing your vehicle on your daily way to work. The key to its success is, paraphrasing the old Nokia slogan, in its "connecting people".

These are some examples of what the collaborative economy can offer in its different business models to society. All have in common strong support in open source technologies and free for the proper functioning of their platforms. Increasingly accessible technologies mean that in the past, small ideas that could seem economically unviable today have a chance of success where the main capital is once again human value.

2018 will not be the consolidation of the collaborative economy, something more than evident the one that is like this at present with an enviable growth. Yes it will be the year in which the user will have more importance than ever since the future uses that we find will shape our future.



@monivalle



[linkedin.com/in/cvmonicavalle](https://www.linkedin.com/in/cvmonicavalle)

Mónica Valle
Founder
Journalist & presenter



2017 has been the year of Wannacry, NotPetya and definitely of ransomware. What will the next year bring us? Talking about cybersecurity and computer attacks, it is not easy to predict it. This is a changeable sector that evolves very fast. However, many experts and companies from the sector are able to discern what is to come, analysing the last threats and trends in cybersecurity.

The threats against the privacy of the data or the ransomware are without any doubt some of the main trends in cybersecurity for 2018, and also the attacks against critical infrastructures, malware or treats during big events like the Football World Cup. Some of the trends for 2018 are:

- Bitcoin and cryptocurrency are living an explosive growing time. This means that the cyber criminals has marked it like a potential market to attack in 2018.
- IoT is not a trend itself. It is an everyday reality. The smart devices are in digital houses and companies. But it is also true that the risk in their communications and operating systems will grow at the same time.
- Cloud technology and the infrastructure that holds it is in constant evolution. And there are still weaknesses that provide a back door for criminals to access to files or spread out through the network.
- Mobile devices will continue being one of the main centre of attention for cyber criminals in 2018. While companies are still allowing their customer to use their mobile devices with corporate purposes, there is the need of a security protocol to avoid the non-authorised access and to guarantee the confidentiality of data.

eLearning & creation of communities



@npujades



[linkedin.com/in/npujades](https://www.linkedin.com/in/npujades)

Natalia Pujades

CEO



In my opinion, Open Source educational tools with a more promising future are those that manage to turn a class into very positive experiences. For example: I see a lot of future in **the tools that manage to recycle the teacher at the same time as their students, as would be the case of e-learning.**

I also create more and more indispensable tools that encourage testing the knowledge of students through the game, such as creating Quizzes such as Kahoot or similar tools. Both to reward the good behavior of the group of students at the end of class, and to obtain results for each student.

Finally, **the creation of community helps that learning is not only in class, but be part of a group to help each other sharing their projects.** For example, Scratch, the Open Source block programming language, consists of a very large international community. That also rewards good practices, with powers such as being "Scratcher", and being able to develop multiplayer videogames.

In the future, I think that students will be tutored more to see what skills they have and what they want to deepen more. Increase of self-taught students: there will be a strong growth of self-learners and more and more young people. Searching in the networks, more specific training that they have not found in the universities or in training cycles

Open Source will continue to contribute to innovation



linkedin.com/in/nicolasinfer

Nicolás Infer Arrom

Head of Digital



In an exciting moment of transformation and digital disruption, the open code will keep on contributing to the innovation. Its collaborative essence provides main advantages as it is cost and time saving while contributing to the technological advances such as Internet of things, SmartCar, Smart City, Smart Home, artificial intelligence, among others.

Almost all the sectors are turning out to be affected by the digital transformation, and the software sector has already turned out to be affected and has contributed to these big changes through that we are living in this dazzling moment.

This way these advances, they will help the companies and its different areas (marketing, sales, human resources and operations) to be more efficient and to be able to innovate. In particular in the field of marketing, all the advances will centre on the idea of “customer centric”, where the technology will help us give the best possible service to clients.

Between all, and with this collaborative philosophy we will keep on creating a much better world.



[linkedin.com/in/nito-martinez-18a735](https://www.linkedin.com/in/nito-martinez-18a735)

Nito Martínez

Managing Partner



Currently, developing a global and secure Cloud strategy is essential, Open Source technologies such as Kubernetes, Docker and Swarm represent the simplicity of complex cloud deployments, making it easier for companies to jump into the cloud.

The big wave of Big Data, its high volumes and different data structures, has given rise to new technologies in the form of NoSQL, highlighting open technologies such as Apache Hadoop, Apache Spark, etc., in terms of BBDD NoSQL is MongoDB and Apache Cassandra which are having a big push in NoSQL strategies.

In today's times where the security of large companies has been put to the test it is necessary to have mechanisms for continuous deployment that allow "reactive" systems, which in addition to providing improvements in scalability, responsiveness, resilience, elasticity and message orientation , inherently provide continuous security environments.

In the face of cyber threats, it is key to have the mentioned mechanisms, so that, when finding a vulnerability in an environment, be it operating system, library, or code, the application of an immediate patch is possible, by:

- Detection of the affected images / components
- Patch the affected component
- Deploy the new version without loss of service (rollout)

Growth of open source platforms in 2018



@osrecio



[linkedin.com/in/osrecio](https://www.linkedin.com/in/osrecio)

Oscar Recio

Senior Lead Developer



The world of the electronic commerce has been maturing in the course of time. In 2018 we will see like those small ecommerce that were growing in SaaS platforms SaaS, they have been inclined to turn into Open Source to keep on fulfilling its growth expectations, that unfortunately SaaS systems were not able to due fulfil due to it's nature.

At the same time, in the platforms of electronic commerce Open Source will experience a big change in trend. The above mentioned change will turn out to be promoted by communities big experts to help and guide the platforms to know its current and future market needs .

For large companies the election of an Open Source platform will stop being a barrier thanks to the functionalities implemented by the eCommerce platforms and it's development.

Professional practices in legal issues



@therealpadams



linkedin.com/in/pauljadams

Dr. Paul Adams

Engineering Lead: Search and Personalization



Certain principles of Open Source development are becoming the “de facto” standard for Modern software production: transparency, inclusivity, adaptability, collaboration, community. These are the pillars at the heart of an Open organization. As these practices have become standard, likewise they are becoming increasingly understood and professionalized

For organizations taking part in Open Source, or even steering specific communities, the increased need for professional practices around legal issues will become most important in 2018.

In particular, we are seeing organizations of all sizes levelling up their appreciation of license compliance. 2017 saw the rise of compliance projects such as OpenChain from the Linux Foundation (<https://www.openchainproject.org/>) and tooling projects like Quartermaster (<http://qmstr.org/>). Through the coming year we should expect these initiatives to drive crucial conversations industry-wide.

The “pillars” of a truly Open organization truly are the foundation of what makes Open Source participation great. Through the coming year, we are all going to learn, however, that adoption of these principles must be done safely and further initiatives around this topic are almost inevitably going to appear.

Containers, big data and databases



Pedro Jesús Rodríguez González

Head of Service - Digital Impulse General Directorate of
Telecommunications and New Technologies - Ministry
of Development



Analyzing the trends in Open Source in the field of public administrations is useful to distinguish two areas: the workplace and what we might call the CPD. Thus, we can observe that while in the workplace the tendency is to continue being a very niche technological option, in the field of service infrastructures the tendency is that the solutions based on Open Source are majority and preferred.

In our environment, it is expected that 2018 will be the year of the hatching of containers and, in this field, the most consolidated technological solutions on the market are Open Source. In particular Kubernetes and Docker, are going to be the main protagonists of the containerization of applications in the Public Sector.

The Big Data is another line of work that will continue to grow in public administrations in 2018, although much remains to reach its zenith. In this field tools such as Spark or Hadoop are imposed in the public sector on their own competitors.

Finally, although in a more timid way, in 2018 we will see the use of NO-SQL Documentary databases grow in the administrations. In this field, options like MongoDB are a very important contender.

Trend 2018: customer experience on real time



Pedro Marin

Head of DevOps

The customer experience in the particular ambience, is an information source that it can enrich, and in a very significant way, the definition of services that are offered at present adapting them to the demand of the market.

The storage and analysis of the large number of information that is generated in the process of compilation of information will be a big challenge which Open Source will face in the future.

At present there are projects that offer us a wide variety of possibilities and the companies that are employed at projects Open Source they are conscious of the complicated thing that proves to analyse and to structure this Big Data and of the need to advance in these fields. The companies support is necessary like Apache Kafka, Elastic. coor Rancher (in addition to many others), which, with its products, offer big hardware to face to structural difficulties putting at the disposal of its clients its service consultancy and of hosting. This point is of vital importance when the scope of your architecture is imperative. Open Source realizes already all this and he is helping the entrepreneurs to forge its initiative safer a better future.

AI, Deep Learning, Big Data, Cloud



[linkedin.com/in/psteitz](https://www.linkedin.com/in/psteitz)

Phil Steitz

Apache Software Foundation Chairman



Since its incorporation in 1999, the all-volunteer, not-for-profit Apache Software Foundation has been the hub for Open Source innovation by developing, stewarding, and incubating more than 350 leading Open Source projects, beginning with the Apache HTTP Server —the world's most popular Web server software.

Today, more than 680 individual ASF Members and 6,460 Committers across six continents successfully mentor and lead dozens of innovations through our community-led, meritocratic process known as "The Apache Way". Apache projects power some of the world's most visible and widely used **applications in Artificial Intelligence and Deep Learning, Big Data, Build Management, Cloud Computing, Content Management, DevOps, IoT and Edge Computing, Mobile, Servers, and Web Frameworks, among many other categories.**

Apache's freely available enterprise-grade software has been downloaded hundreds of millions of times, with countless software solutions distributed under the Apache License, benefiting billions of users across the globe every day. Underscoring our motto "Community Over Code", the collective Apache community is booming: we are welcoming nearly 300 new code contributors and 400 new people file issues each month! We invite you to participate in our many project mailing lists, mentoring initiatives, and educational events.

The evolve of the Open Source technologies



@pilucidi



[linkedin.com/in/piergiorgiolucidi](https://www.linkedin.com/in/piergiorgiolucidi)

Piergiorgio Lucidi

ASF Mentor, Committer and member
Apache Community Development PM Committees
Chief Technology Evangelist and Enterprise Information
Specialist at TAI Solutions



Content Services continually represent a practical and effective example of how an entire technological area can drastically evolve according to the needs we are facing now.

All the possibilities we have, thanks to Open Source technologies, allow us to easily store, search, aggregate and view content in a natural way, not only at the user interface level but also in the understanding of the content itself.

The management and understanding of different languages given by the latest generation of frameworks are opening important opportunities. Some of these roads have been tested and others have yet to be discovered.

The platforms we can build today include important benefits such as self classification, tagging, training, intelligent suggested and so on.

The representation of the content as we imagine it today has become increasingly intelligent and the applications are becoming more sensitive to the different characterizations of each different language.

Mobility and the ability to make different services interact using standard APIs will lead to a greater adoption of Open standards for the public good in terms of transparency and interoperability

Deep Learning, Docker + Kubernetes



@raulrivero



[linkedin.com/in/raul-rivero](https://www.linkedin.com/in/raul-rivero)

Raúl Rivero

Head of Architecture
OpenExpo Europe Advisory Board



I am obsessed with two big topics:

- On the one hand, I think we are living a turning point where deep learning is accelerating the massive adoption of conversational interfaces and the robotization of duties like driving.
- On the other hand, all related with Docker + Kubernetes is coming back to restructure the way we make and deploy our applications.

Open Source as lever for the intelligent mobility



@rgil



[linkedin.com/in/rgilh](https://www.linkedin.com/in/rgilh)

Rafael Gil Horrillo

CIO

OpenExpo Europe Advisory Board



Undoubtedly one of the technological trends nowadays are the Smart Cities. And an essential component of the same ones is mobility. Flexibility, connectivity, diversity, sustainability. . . everything for what we ask to the system of mobility of a city needs the management and the knowledge of immense quantities of information from different sources. The opening of the information that generate the different systems of the city is different those in new cities.

Considering the variety of entities involved in the effort to obtain these intelligent cities (public, private, academic, etc.), the high volume of generated information, and the request of which this information is opened, its difficult it to imagine in a platform that is not based on open standards.

This way it has been understood, for example, by the European Union, which bets for promoting and impelling innovative projects and of R&D in the frame of Smart Cities. This way, <http://icos.urenio.org/> it is a community dedicated to the intelligent cities, in which to find solutions Open Source to facilitate the integration project development. <https://www.firmware.org/smartcities/> is another platform that wants to turn into the technological "heart" of these cities. And further away, <http://www.oascities.org/> it incorporates cities of the whole world. Based on technical aspects: API and model of open information, wants to shape a global community of entrepreneurs and entities that allows to create services for Smart Cities, with standards of portability and interoperability.

It is not possible to discuss that Smart Cities and one of its bases, the intelligent mobility, is one of the big levers of current innovation and it will continue to do so in the next years. And Smart Cities cannot be understood without the base of the Open Source.

The new data protection will be in our agenda



[linkedin.com/in/rqcamus](https://www.linkedin.com/in/rqcamus)

Ramón Gutierrez Camus

Chief of System Engineering Area



On May 25, 2018 the new data protection law will be applied with all its consequences – included sanctions, which can come up to 4 % of the invoicing – the “General Regulation of Protection of Information of the European Union” (GDPR). The norm demands an even more active responsibility from us for the securing, access, transmission, conservation or elimination of information of a third party, in addition to the obligation to notify any safety breach. It is even proposed to use some such technical measurements like the coding or the "anonimation" of the information.

The information that we will obtain will be probably the same one, but it will be accompanied by new events of extra access, of mechanisms of coding, of skills of anonymity, of a guarantee that date has been deleted...and we will need to monitor all these events, almost in real-time.

The combination of several solutions Open Source each of these skills will be able to contribute with reasonable deployment costs, at the time that they will allow us to realize the opportune risks analyses; to audit and, in its case, to correct the code source.

Open Source: challenge for public service and new administrations



[linkedin.com/in/ramonramon](https://www.linkedin.com/in/ramonramon)

Ramón Ramón

International consultant in technology applied to
politics and communication.
Teaching and divulging



In many countries, mainly in Latin America, electoral processes will be held and there will be some governments renewal. In this democratic context of transformation, the development of the technology and its uses play a fundamental role, allowing a social and political transformation to be achieved.

Undoubtedly, the technological transformation derived from the collaborative work will generate more and better changes in favour of the civil society, by what before the implicit demands in this transformation these will have to be attended by effective actions in the public service and the public administration. It is the challenge which we will face as democratic nations and a society that aspires to be better informed.

Being optimists, for the changes of administrations, who are the new leaders will have to include in its government agenda the incursion or the strengthening of Open Source in the public administrations, improving and optimizing the resources, open information and encouraging the exercise of the transparency. To use free technologies they encourage the local industry, the transparency and the account capitulation, in addition to be efficient at the public expenditure in hardware.

In 2018 we will be participants and protagonists of the social, political and democratic, changes derived from the use of Open Source and the elements that accompany him, like the exponential increase of the use of Free Software, allowing and strengthening the technological sovereignty.

AI is the new electricity and is open source

Roberto Gómez Espinosa Martín

Head of Technology CTO



[linkedin.com/in/robertogomezespinosamartin](https://www.linkedin.com/in/robertogomezespinosamartin)

The fast advance of the technologies AI is based on 3 props: volume of available information, GPUs and the sharing of knowledge. All the big technological companies have Ai laboratories, publish their advances and share its results with the community. It is a feedback process advancing every day. Traditional software is being replaced by Deep Learning [DL]. DL codifies automatically very complex algorithms. The problem to be solved is how to store the volume of information. Costly traditional algorithms of producing and maintaining, are being replaced by DLmodels with very top capacities, easier to maintain and to update.

Some sectors where the revolution AI begun and that will be trend are: Health, Finance, Smart Cities, Retail, Energy, SelfDriving cars and Autonomous drones. @Karpathy, a reference in education and diffusion of Deep Learning with its course CS231n (2016), calls to this revolution Softwared 2. 0. Other figures of theworld AI since @AndrewYNg they call it “The New Electricity”.

Microsoft, Google, Facebook, Stanford, Berkeley, MILA. . , DeepMind publish many of the architectures of it’s new DL models. The community studies the models, trains them, improves them and publishes them again. Every day new LEGO AI open source are incorporated into the bookstore of Engineer Software 2. 0

Imagination will be the limit to the creation again software. Happy Coding!



[linkedin.com/in/romain-coplo-2485916](https://www.linkedin.com/in/romain-coplo-2485916)

Romain Coplo

Sales Director Cloud



The cloud industry has favored innovation and democratization of IT services in all sectors. But, at the same time, the consolidation of cloud providers has led to a trend towards concentration, with the danger that some conglomerates will forge de facto regulations that limit market freedom.

Openness is an essential value for OVH, and therefore we are committed to a model based on open and multicloud environments that favor the freedom of users to choose their own suppliers, distribute their applications among several solutions and decide on the location of their data, avoiding so dependencies. This model is also a guarantee for the players in the sector to continue innovating and developing their competitiveness, offering the solutions that customers demand.

In 2018, we will continue working to promote this open cloud as a way to promote innovation and sustained growth in the market, and that is why we have joined the initiative to set up the Open Cloud Foundation, an international organization composed of research centers, clients, regulatory bodies and suppliers that fight to guarantee a cloud that fights the captivity policies of certain suppliers and promotes technological standards for an open, reversible and interoperable cloud.

The establishment of an electronic Administration



Rubén Tadeo Rodríguez

Representative Councilman of Security, Civil Defense
Electronic Administration, Civil Attention
and Town councilor of East Quarter



The public administrations we must manage our politics on the base of beginning of democracy, accessibility, equity, solidarity, collaboration, etc. and be capable of impregnating the same values, in all our public action, including the use and development of the technology applied to the service of the services and in the communication with the citizenship.

On the other hand, the public sector realizes strong and individualized economic investments to develop and to implant technological solutions in proprietary software, what supposes an exponential expense of the public resources for the rendering of similar service and does not generate comeback of the investment in terms of knowledge like assets for the organization.

The free software is based on the values of the ethics of collaborative hacker providing the elements necessary for the development of communities of interest for the common good and generation of collective intelligence, therefore we believe that it is an opportunity to guarantee the beginning and public values, to advance in the efficiency and the sustainability of the administration and to introduce new elements for innovation-

We live in a technological world where the Eadministration of resources is a reality and for 2018, I have the conviction that Open Source and the free software will spread in the development and implantation of solutions in the Public administrations, and more specifically in the implantation of an Electronic Administration, like an extension of the politics that move the ethical beginning and rights of the projects FLOSS to the technological Public administrations projects.



@Mendez



[linkedin.com/in/salvadormendez](https://www.linkedin.com/in/salvadormendez)

Salvador Méndez

CTO



One of the key tendencies in 2018, and that will be an authentic agent transformer in the next years, will be “machine learning”, the dream of every programmer, is to create a system capable of learning by itself. Learning of the machines does not come to take the place of people, it offers the possibility of improving substantially the productivity that we are capable of reaching. The capacities of calculation that offers the environment “cloud” are key at the time of being able to offer these services. The technological progress of the datacentres offers a cost price reduction that leads to a major penetration of this technology in the market. Free software projects in the environment “cloud” as in “machine learning”, play an important role at the time of expanding this knowledge on to the market and achieving a more rapid adoption in the productive sector.

Focusing on the sector of the mass media, this year has already begun to speak about the writings robot, systems capable of generating informative contents with the immediateness and the needs that the reader demands in the last years. This technology not only will have an impact in the writing, but also in the readership. The platforms of the mass media will have to be capable to continue the patterns of reading of the users to adapt the content to its preferences.

On the other hand, it becomes necessary to keep on improving the contents distribution models. The majority of the readership gains access to the information that mass media publishes across mobile devices. Devices as Sony Xperia Touch, which allows to do of any surface a tactile screen, or the Epson EB595Wim, an interactive projector with tactile screen, will allow to consume information in different forms and the means we must adapt our contents to offer an experience of reading.

NFV & SDN will be the trend in telecommunications



@salvamoya82



[linkedin.com/in/salvamoya](https://www.linkedin.com/in/salvamoya)

Salva Moya

Lead Developer



Open Source in the field of communications faces the proprietary technology to offer to the sector the flexibility, polyvalence and the opportunities that appear in a digital environment that changes quickly and in a constant way.

This is way many of the technological innovations that arose some years behind and that they have pushed strongly this 2017 will be key for the modernization of the infrastructures of telecommunications under the Open Source umbrella, we speak about already known NFV (Network FunctionVirtualization) and SDN (SoftwareDefined Networking), between others.

Technologies of orchestration of networks NFV, since it is a HAND(Management and Orchestration) along with already consolidated methodology DevOps turns into the main catalysts of the above mentioned modernization in the Telco during the next years.



@ALCBDS_Ayto



[linkedin.com/in/sergio-caballero-benito-08464912](https://www.linkedin.com/in/sergio-caballero-benito-08464912)

Sergio Rafael Caballero Benito

**General Director
of Information Technology**



In the last five years the state of the art in the field of Open Source software has only improved the quality of existing solutions in addition to the number and areas where they can be applied to solve ICT requirements with their user / client areas. The current state of maturity has reached a high level providing solutions in virtually any field, from operational security, tools for conducting audits, monitoring systems, ticketing management appropriate to best practices such as ITIL, CRM, ERP, bases of data, content managers and WEB management, tools for data analytics, virtualization platforms, document management, to mention some ICT fields as an example.

Many of these solutions are world-class references in terms of quality, robustness and reliability. In addition, for some time, the uncertainty regarding support in large companies / institutions has improved, with the passage of versions licensed under GPL, BSD, MPL, GNU, Creative Commons (CC) to paid versions in different modalities / flavors, reducing and giving guarantees to business processes. Today, selecting one or another technology does not depend on the existence of software on Open Source, the duality is fully guaranteed; the choice of software on open platforms is our decision. In our case the support on Open Source technologies is allowing us to gain flexibility in project management, allowing us to start them with the initial editions, and depending on different internal variables, establish a roadmap towards versions with greater support.

In my opinion, the forecast of trend in open source for 2018 will continue to increase progressively and geometrically, this increase being more intense as the implemented solutions are known by other Institutions, allowing to see their potential and acting as facilitators; At the same time, ICT development in areas such as IoT, Smart Cities, Artificial Intelligence and Industry 4.0, sectors where Open Source already plays an essential role, will be decisive in this progression.

Cibersecurity, IA y Big Data



[linkedin.com/in/sergiorsg](https://www.linkedin.com/in/sergiorsg)

Sergio R. Solís

CTO



The year 2017 was the year of WannaCry, the year of ransomware and the leaks of the American security agencies. Filtering has been uncovered years ago and the focus has been placed on information security as a key to the viable and civic sustainability of an increasingly technician society.

Without cybersecurity, there is no information security and without security of information, technologically advanced societies will not be fruitful. The fundamental pillars of cybersecurity are knowledge and practice and both issues owe much to the Open Source philosophy.

For decades there are Open Source tools that have allowed us to learn, develop and analyze the technology and means at our disposal to strengthen it. And having source code also allows us to review and improve it.

The next big step in evolution is already taking place: it is Artificial Intelligence for the acquisition and analysis of Big Data. The AI is and will be able to efficiently correlate huge amounts of data, which must be able to acquire and extract the necessary information that allows us to detect information leaks to specific security vulnerabilities

When users are in the loop, code does not matter ! Community over code !



@stephaneribas



[linkedin.com/in/stephaneribas](https://www.linkedin.com/in/stephaneribas)

Stéphane Ribas

Manager of the SEISM team
FLOSS Community management expert



Over the last decades, Free/Libre Open Source Software (FLOSS) overwhelmed the IT landscape changing drastically the rules of the game (technical and business). Important projects such as GNU Linux, Asterisk, Mozilla, etc. has proved that from an ideal (and naive ?) vision, people could collaborate together and build important-critical open system widely shared.

However, many people underestimate the importance of communities over those successful projects ; **we are facing a digital world where the increasing connections at international level raise a need for remote collaboration with communities of experts around the world and computing information technologies have fostered the development of new collaborative ways of working in the R&D domain, often evolving towards the creation of organised & successful communities.** But launching a community and developing it successfully is not always a spontaneous action but relies on different structured approaches ; answer a need ; accept to share ; be open - really open ; accept to dilate the control ; be transparent ; and sustain a positive community network.

Last but not least, in this text, we are focusing on FLOSS governance, but how could we live from open projects ? How can we guarantee project sustainability ? ... well ... Doing business on Open Source is not selling a code that we did not pay but earn his life around a code that is not sold.

Open Source - The critical supplier to your organisation



@SJMackintosh



[linkedin.com/in/stuartmackintosh](https://www.linkedin.com/in/stuartmackintosh)

Stuart J Mackintosh

Chairperson



The Free and Open Source software industry is now a critical supplier to your organization; there are no proprietary alternatives. **Cloud models have become a popular option but we can see a growing trend for companies to take control of systems and data. This is driven in part by the upcoming GDPR which strengthens the requirement to understand where data is and what happens to it across the EU from May 2018.**

Open source enables the organization to realize this control and take responsibility. Therefore the technology provider must build a model of delivering innovation as their competitive advantage.

Successful projects require robust delivery processes and open source, with its many layers, requires specialist skills to ensure performance and security are appropriately implemented.

The UK benefits from strong government endorsement of open source and this can be seen in practice, with the NHS pioneering core open source technology and processes. Education establishments are catching up but still yet to grasp the importance of free and open source throughout learning.

In 2018 we will find more organizations engaging with the free and open source software industry and communities; those who do not build relationships will find themselves at a disadvantage.

The importance of the internationalization



Tobias Soloschenko

Committer and member of the Apache Wicket Project
Management Committee



I think there will be more and more cloud services that companies are going to use and internationalization is going to be more important than ever before. Web frameworks are going to provide interface for configuration or for eCommerce purposes.

Because of the complexity of technology nowadays open source can help companies to increase their speed, or in case of startups, establish the process of internationalization aligned with the requirements of digital transformations to keep their offerings to be interesting for their customers. This is much easier to achieve by using proven and well supported (web) frameworks, also by people who may get used by similar requirements before in their daily work. Internationalization goes along with globalization which requires the knowledge of the interaction between different cultures also covered by open source communities during the planning and development phase of functionalities. All in all this enables companies to rely on a broader base of knowledge

Communities: Developer Evangelist



@kom_256



[linkedin.com/in/ulisesgascon](https://www.linkedin.com/in/ulisesgascon)

Ulises Gascón González

TPM @Google, Co-Founder @OSW (Open Source Weekends), Instructor @Fictizia, Residency Advisor @GoogleCampus



When talking about community, many feelings always appear and each person interprets them in a different and personal way. The world of communities has changed a lot in recent years and this is due to many factors. To start a time this part emerged a great generational change that is giving way to new types of community and leaders, with different values and approaches. Frankly, we are living an era where diseased communities focused on the theory and focused on the handful of people who lead them.

Almost all communities have had to make an examination in recent years about the diversity and inclusiveness of its members, not all have survived this.

The profile of potential members of the communities is increasingly diverse in all aspects, including non-technical people and this should be embraced by all without exception. We are seeing communities around the world that join sporadically to achieve greater goals as a team.

The rise of Open Source makes many companies see how a great ally to existing communities, leaving behind the idea of creating new artificial communities based on a single technology or corporate product. Promoting figures such as the Developer Evangelist that are gradually becoming more popular in many companies.

We expect a new world of strong, diverse communities working together to make the entire open source movement bigger. The growing murmur ...

Peace, Love and Open Source (OSW Motto)

2018 trends



CONCLUSIONS

MACHINE & DEEP LEARNING

BLOCKCHAIN

HYBRID CLOUD & PaaS

These are the most outstanding trends gathered from the professionals that took part to the creation of our eBook.

MACHINE & DEEP LEARNING

We have been talking about AI for decades, as far as Deep Blue, but since then it has evolved greatly and people are now talking about deep learning and machine learning. In other words, we move forward trying to create systems that are capable to learn and that are not only based on an algorithm, but also on an automatic learning process.

In the words of Jim Hare, vice president of investigations at Gartner "AI offers exciting possibilities, but unfortunately, most vendors are focused on the goal of simply building and marketing an AI-based product rather than first identifying needs, potential uses and the business value to customers."

The steering committees, through their different IT departments, are realizing AI's full potential and are hence noting that the sector is undergoing a revolution. As a result, the business world is not lagging behind, because we can find AI are, in very different ways, contributing to decision making or analysis. This allows to have more value and a competitive advantage thanks to the big amount of data generated inside and outside the companies.

We are also noticing it in the voice and image recognition systems, as for instance with the boom of the virtual assistants. In this case, we could mention LinTo, the Open Source assistant that tries to compete with Amazon or Google, or the customer support systems that are becoming more and more efficient.

Even then, it will take AI a few more years to reach maturity. In the words of Duncan Stewart, Deloitte Canada's director of technology, media and telecommunications research: "Machine learning technology is going prime time by 2020".

BLOCKCHAIN

Blockchain, the technology behind Bitcoin, is one of the revolutions we are living in the finance sector, changing the way we trade through a decentralized model.

In the words of Ettienne Reinecke, Technology Director of Dimension Data: “Last year, when we looked at the top digital business trends for 2017, we predicted that centralised transaction models would come under attack. We were spot on. In the financial services sector, we’ve seen the US and European capital markets moving onto blockchain platforms, and similar activity in markets such as Japan. Considering how conservative and compliance-focused this sector is, that’s quite remarkable.”

This technology, known as cryptocurrency, has lots of potential not only in the financial environment, but also in many other areas or sectors that are called to evolve to Blockchain.

This article from Forbes gives us a good idea of its full potential in the real world: ➡

HYBRID CLOUD & PaaS

There is no need to introduce Cloud Computing, it's a technology we have been living with for a few years now, and we see it getting bigger and bigger every year. What we see now is an evolution of the business world Cloud towards a new order where companies are investing more to get access to hybrid clouds.

Radhesh Balakrishnan, General Manager, OpenStack, Red Hat said: "The worlds of containers and OpenStack will blend... Additionally, I predict private cloud efforts will gain further momentum in 2018 driven by application modernization efforts, resulting in "hybrid cloud by default" to become the standard operating procedure for enterprises."

The reason why most companies want to invest in the hybrid cloud is that it combines the attributes of the public and private cloud. While the public cloud has flexibility and scalability, the private cloud has security, control and property attributes.

In the domain of the hybrid cloud, we can see a trend towards "platform as a Service" and container apps. The hybrid cloud will soon offer PaaS services, which will allow developers to update and implement new applications and roles in a continuous way through container apps.

"Nearly 82% of the global enterprises have formulated hybrid cloud strategy till 2018 and more than 60% of the large enterprises are planning to implement hybrid clouds by 2020." (Infoholic – "Cloud Hybrid Cloud Computing): ➡

2018 Trend

EVOLUTION OF THE PAST YEAR'S TRENDS

On top of the input of sector experts in this study, we also relied on other sources such as:

The BBVA study: “The 10 main technological trends to 2018”: ➡

The Gartner report: “Gartner Top 10 Strategic Technology Trends for 2018”: ➡

As a conclusion, like we said earlier, the 2017 trends are still current and prevailing in 2018, and in many cases we are talking about trends that will remain important and relevant during the year.



EVOLUTION OF THE PAST YEAR'S TRENDS

DIGITAL TRANSFORMATION

It has become a reality in the daily life of companies, although many of them, unfortunately do not have a clearly defined strategy, because they don't know how to start with it. This causes longer adoption times in a constantly evolving market.

OPEN DATA

It is the key driver in the public field, and it is one of the main points in the digital transformation of the public bodies, because they work with data. They are using this data in a more efficient way when they can share it and they give the possibility to third party companies to create value based on this data. We will keep heading towards a smart data era.

IoT

IoT, Smart Cities and Smart Homes have been around for decades, but we are now seeing many technological actors making a stronger move towards them. The evolution and consolidation of these technologies rely on the standardization over the next few years. This will be a good thing when operating a system, reusing and improving the success stories.

CYBERSECURITY

In 2017 we have seen companies and the general public raise their awareness on cybersecurity, mostly due to different cyber-attacks (WannaCry). It is clear that it doesn't matter who or how, but when the next cyber-attacks will occur, companies will try to be more prepared although it is technically impossible to be entirely safe. And most of the time, one of the keys is to have a contingency plan to react faster and to minimize the impact.

Coming soon...



OpenExpo Europe 2018

OpenExpo Europe 2018, 5th Fair and Annual Conference about Open Source, Free Software and Open World Economy (Open Data and Open Innovation) gathers on June 6th & 7th, 2018 in Madrid more than 5000 professionals and companies looking to generate business.

The aim of OpenExpo Europe is to present, discover and evaluate the solutions and trends of the industry offered by Open Source, Free Software and Open World Economy.

An event focused on ROI

2 days, 13 conference rooms, +250 speeches , +400 participant companies, +5.000 professionals, 10 training courses, 8 Forums, +5.900m2.

Coming soon...



OpenExpo Europe 2018



The Future is Open

6th & 7th,
June
2018

La Nave
Madrid

5th Fair and Annual Conference about Open Source, Free Software and Open World Economy (Open Data and Open Innovation) meet on June 6th & 7th, 2018 in Madrid more than 5000 professionals and companies looking to make business



5.000
Attendees



250
Speakers



+400
Exhibiting
Companies



13
Conferences
Room



200
Sessions



8
Professional
Forums



Startup
Connector &
Village



2018
Open Awards



10
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