



World of Open Source

Q3 2022

A Linux Foundation spotlight on open source around the world, looking at policy, activity, and trends

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Open source in brief

This quarter, there was a steady effort across the open source community to secure software supply chains. September saw the introduction of the [Securing Open Source Software Act](#), bipartisan legislation in the Senate to help protect federal agencies and critical infrastructure systems by strengthening software security. The OpenSSF posted a timely [blog post](#) summarizing the bill.

The European Commission published its [draft Cyber Resilience Act](#), which imposes additional cybersecurity requirements but exempts open source software developed outside of commercial activity. The European Parliament held the final vote on the [Digital Services Act \(DSA\) and Digital Markets Act \(DMA\)](#). In August, a French government task force [published](#) its latest list of open source software recommendations.

During this quarter, the Linux Foundation hosted numerous events. In August, Japanese industry and government leaders gathered to discuss long-term strategies and investments regarding mitigating security issues. Flagship Open Source Summit events took place virtually in Latin America and in a hybrid format in September at [Open Source Summit Europe](#), which brought over 1,500 open source community members (and many Garth Brooks fans) to Dublin in the second week of September, along with 800 online participants. We were proud to bring the global community together on European soil while announcing the launch of [Linux Foundation Europe](#), the [PyTorch Foundation](#), and the [OpenWallet Foundation](#), among many other noteworthy activities.

Globally, we saw continued efforts across open source communities, including shoring up cybersecurity, highlighting the benefits of open source, and improving policy surrounding supporting open source software. From a [new center](#) at The Indian Institute of Technology (IIT) Madras to develop open source artificial intelligence for Indian languages to a new [initiative](#) based in Kigali, Rwanda, to drive financial inclusion through more equitable digital technologies in Africa, many innovative efforts are appearing with a vision to make an impact.

We produced this quarterly update with the help of Linux Foundation partners and team members globally who shared noteworthy open source developments in their respective regions. As you uncover emerging policies and activities in your jurisdictions, you are welcome to forward them for inclusion in future issues. Please email pertinent content to research@linuxfoundation.org. We'd love to hear from you.

Hilary Carter

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The Linux Foundation

A stylized world map is shown in the background, rendered in white outlines against a blue-to-green gradient. The map is centered on the Atlantic Ocean, with Europe and Africa clearly visible. The background color transitions from a dark blue at the top to a light green at the bottom.

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Europe



- On October 4, the European Council [approved](#) the Digital Services Act (DSA), which protects the digital space against the spread of illegal content and ensures the protection of users' fundamental rights. The DSA defines clear responsibilities and accountability for intermediary services providers, such as social media, online marketplaces, very large online platforms (VLOPs), and very large online search engines (VLOSEs).
- On October 4, as [reported](#) in *Bloomberg*, Members of the European Parliament voted to force companies to adapt products that don't already feature a standard USB-C charger to use one. This would include iPhones, in Apple's case. A total of 602 lawmakers voted for the plan, with 13 against and eight abstaining.
- On September 29, the European Cloud Industrial Alliance hosted a workshop entitled [Towards A Resilient Cloud Infrastructure in Europe](#). They invited industry and political leaders to discuss future technology challenges: from sovereignty to artificial intelligence (AI). The agenda discussed *"how to build strategic autonomy based on open source/free software."*
- On September 16, Veronica Gaffey, the director-general for informatics at the European Commission, [emphasized](#) *"the importance of open source"* in the upcoming Interoperable Europe Act. The Act, which is still being prepared, *"draws on two decades of knowledge, aggregated by the Open Source Observatory, a hub of information on the development and use of open source in E.U. public services."* The upcoming Act follows the launch of [Interoperable Europe](#) in November 2021, an initiative that seeks to create a regulatory framework for a reinforced interoperability policy that will transform public administrations and assist their digital transformation.
- On September 16, the European Commission [announced](#) the launch of [code.europa.eu](#), the E.U.'s repository of open source software, which aims to facilitate the development of open source software projects maintained by the Commission and other E.U. institutions. Over 100 projects and 150 developers are on the platform, and the Commission's Office of Satellite and Product Operations (OSPO) is onboarding even more. Veronica Gaffey stated the desire to grow the Commission from *"an organization that consumes open source to one that builds its own solutions on open source, to ultimately a Commission that is closely involved in open source."*
- On September 16, OpenForum Europe hosted [Open Source Driving the European Digital Decade](#) in Brno, Czech Republic, for European policymakers. They organized it under the auspices of the Czech Presidency of the Council of the European Union.
- On September 13–16, the Linux Foundation [hosted](#) the Open Source Summit Europe in Dublin. It was a great pleasure to gather Europe's vibrant open source community in person again after a three-year break due to the COVID-19 pandemic. Over 1,500 people joined in person and another 800 virtually. The week was full of events about all things open source, ranging from the Linux kernel and containers to AI and software supply chains. We were particularly proud to announce the launch of [Linux Foundation Europe](#), the [PyTorch Foundation](#), and the [OpenWallet Foundation](#).
- On September 14, with U.K.-based Scott Logic, Linux Foundation Research published [World of Open Source: Europe Spotlight 2022](#). The report describes the *"state of open source"* across the European continent. It builds

a comprehensive picture by examining the current activity levels through consumption and contribution, inhibitors, motivators, and opportunities. Gabriele Columbro, general manager of the newly launched Linux Foundation Europe, wrote the foreword.

- The E.U. has announced it will fund the virtual [European Lighthouse on Secure and Safe AI](#) (initially announced on September 14, 2021 — see [here](#)) with approximately €7.5 million of investment, with a further €2.5 million from the U.K. and Switzerland. The ambition is to produce a “*CERN for AI*,” building on the industry and academic network established by the European Laboratory for Learning and Intelligent Systems. CISPA Helmholtz Center for Information Security in Saarbrücken, Germany, will coordinate it.

Policy updates

- On September 15, the European Commission [published](#) its draft Cyber Resilience Act. It will require manufacturers of “*products with digital elements*” (that is, both hardware and software) to comply with various cybersecurity requirements, including mandatory vulnerability analyses (including SBOMs) and providing fixes for up to five years. To avoid hampering innovation or research, the regulation won’t cover open source software developed “*outside the course of a commercial activity*.” See coverage by the [FT](#), [Politico](#), [TechCrunch](#), [Forbes](#), [The Register](#), and [ComputerWeekly](#).
- On September 1, the European Commission [opened a San Francisco office](#). It will liaise with Silicon Valley companies affected by E.U. technology regulations. Gerard de Graaf will lead this office. Gerard is a senior European Commission official who oversaw the Digital Services Act and Digital Markets Act, legislation on illegal social media content, and digital platforms’ anticompetitive behavior, passed in July 2022.
- On July 5, the European Parliament held the final vote on the [DSA and DMA](#), following a deal reached between the European Parliament and European Council on April 23 and March 24. The DSA sets clear obligations for digital service providers, such as social media or marketplaces, to tackle the spread of illegal content, online disinformation, and other societal risks. The DMA sets obligations for large online

platforms acting as “*gatekeepers*” (platforms whose dominant online positions make them hard for consumers to avoid) on the digital market to ensure a fairer business environment and more consumer services.

- On June 30, in an attempt to regulate the risks associated with trading crypto assets, the European Parliament and Presidency of the European Council reached a [provisional agreement on the Markets in Crypto Assets regulatory proposal](#), which covers issuers of unbacked crypto-assets and so-called “*stablecoins*,” as well as the trading venues and wallets that hold crypto-assets. This regulatory framework aims to protect investors and preserve financial stability while allowing innovation and fostering the attractiveness of the crypto-asset sector. This will bring more clarity to the E.U., as there has not yet been any regulation at the E.U. level.
- On June 21–22, the working group on the European Initiative for the Digital Commons, comprising 16 E.U. Member States, presented the initial findings at the [Digital Assembly](#) hosted by France’s current Presidency of the European Council. This follows the [European Initiative for Digital Commons](#) (February 2022), which discussed the following: opportunities to mobilize funding available in the E.U., a European incubator for the digital commons, and the means to provide guidance and assistance to the E.U. Member States.

Cybersecurity updates

- On July 26, [No More Ransom](#), an online public-private partnership to help victims recover ransomed data, celebrated its sixth anniversary. It is a collaboration between law enforcement (Europol and the Dutch National Police) and approximately 188 partner organizations. The goal is to provide free decryptors and tools for different ransomware strains. There are currently 136 open source tools that cover some 165 ransomware variants, and to date, over [10 million people have downloaded](#) the decryption tools.

Country updates

France

- On August 5, [Le Socle Interministériel de Logiciels Libres \(SILL\)](#), an inter-ministerial task force for open source software in the French government, [published](#) (in French) its latest list of recommended (and not recommended) open source software (see [Twitter](#)).
- In June 2022, France launched a [public consultation](#) (in French) to develop an “open source, interoperable and sovereignly controlled software platform on a French and European scale for embedded deep machine learning,” ([quote](#) from LinkedIn).

Russia

- On September 5, Russia’s TASS news agency [reported](#) (in Russian) that Deputy Finance Minister Alexei Moiseev shared that the Ministry of Finance and Bank of Russia are rethinking their approach to cryptocurrencies.

Spain

- In September, Red Eléctrica de España and Alliander [announced](#) their joint efforts with the open source distribution engine GridCal to run power flows. This is another example of how organizations can collaborate thanks to open source on foundational technology problems in a specific sector.

United Kingdom

- On September 29, [London.js](#) launched its refreshed JavaScript meetup at [Netflix HQ](#), London, to a sold-out audience of 150 JavaScript developers. Talks included “Automating GraphQL Schema” and “Managing Tech Imposter Syndrome.”
- On September 26–30, Brighton convened [Brightcon](#), an annual conference where the community of the open source framework for LCA Brightway could meet. This year, it focused on interactivity, training for newcomers, and promoting citizen science.
- On September 22, the Fintech Open Source Foundation ([FINOS](#)) hosted [Tech Gateway](#), a DEI event in the City of London that brought under-represented communities together with FINOS members NatWest, Goldman Sachs, GitHub, Red Hat, and EPAM to explore tech training and opportunities.
- On August 8, *Nature* [reported](#) that researchers at the Alan Turing Institute — the U.K.’s national research center for AI and data science — have called for “a new, human-centered, distinctly public sector approach to data science and AI.”
- On July 7, OpenUK published its [State of Open: The UK in 2022](#) report.
- On July 4, *Aiven* [published](#) the results of its survey on the use of open source technology in the U.K. government. (Russian)

A stylized world map is visible in the background, rendered in a light blue color against a dark blue gradient. The map shows the outlines of continents and major landmasses.

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Asia and the Pacific

Country updates

Australia / New Zealand

- In September, after an [unprecedented breach](#) of 9.8 million customers from Australia's second-largest wireless carrier Optus, the Australian government considered instituting stronger cybersecurity laws. Australian law does not allow for fines related to this breach.

China

- In September, the Chinese Academy of Information and Communications Technology (CAICT) launched the Extended Reality and Metaverse Alliance. Nearly 200 entities have joined, involving virtual humans, immersive audio and video, human-friendly terminals, critical devices, infrastructure, business platforms, innovative applications, and many other key aspects of the metaverse ecosystem (read in Chinese [here](#)).
- In July, the CAICT launched a certificate program for software with high-quality original code. Using open source safely has become a key task for the digital transformation of industries, and the certificate program intends to address this challenge. Its evaluation framework comes with comprehensive coverage of mainstream languages, iterative updates of component vulnerabilities, and extensive support of open source licenses (read in Chinese [here](#)).

India

- In September, the GitHub for Startups program [expanded its reach](#) to include startups in India.
- In September, as [reported](#) in *OpenSourceForU*, IIT Madras started a center to develop open source AI for Indian languages.
- On September 19, as [reported](#) by *Business Standard*, an executive at the National Payments Corporation of India [discussed](#) the benefits of switching to open source software technologies, which helped save costs and dependencies on third-party vendors.

Japan

- On August 23, the Linux Foundation and OpenSSF, backed by the Ministry of Economy, Trade, and Industry, convened cybersecurity experts from Japanese companies, government agencies, and research institutes at the Open Source Security Summit Japan. See the [blog](#) by Brian Behlendorf and [article](#) from ZDNet Japan (in Japanese).
- In August, Japanese automakers announced their new investment in making batteries for electric vehicles (EVs). *Reuters* [reported](#) that Toyota Motor invested \$5.3 billion in Japan and the U.S. for EV battery supply. *CNBC* [reported](#) that Honda and LG Energy Solution built a \$4.4 billion EV battery plant in the U.S.

Korea

- In September, Microsoft [issued an advisory](#) about ZINC, a threat actor linked to North Korea, weaponizing vulnerable open source software.

Singapore / Vietnam

- From September 20–21, the Commonwealth Secretariat [held a conference](#) in Singapore on addressing cybercrime in Asia, where participants discussed how to address increasing cyber risks.
- On September 16, the Vietnam Ministry of Information and Communications [launched a campaign](#) to clean up malicious software in cyberspace.
- In August, over 20 senior cybersecurity leaders [participated](#) in the first U.N.–Singapore Cyber Fellowship Programme to develop expertise in cyber and digital security policymaking.



A stylized world map is visible in the background, rendered in a dark blue/purple color with a thick black outline. The map is positioned on the left side of the image, with the continents of North America, South America, and Europe visible. The background of the entire slide is a gradient from dark blue at the top to a bright red at the bottom.

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Middle East and Africa

Technology updates

Data

- On September 27, Brookings Institute's *Techstream* [reported](#) on Russia's data localization laws that have impacted tech companies and nonprofits, such as Wikimedia Foundation. Currently, an Israeli nonprofit agency represents the latest example of expansion.

Digital Transformation

- In September, *Eureka!ert* [reported](#) that Carnegie Mellon University established a new initiative based in Kigali, Rwanda, to drive financial inclusion in Africa by creating more equitable digital financial services.
- In July, *Btrust* [announced](#) the creation of the African Open Source Cohort, aimed at decentralizing bitcoin FOSS.

Artificial Intelligence / Machine Learning

- In September, as [reported](#) in *IT-Online*, NVIDIA [collaborated](#) with the United Nations Economic Commission for Africa to create the United AI Alliance, an initiative to support governments and developer communities in ten nations to improve data science training and technologies to improve policymaking.

Open Source Community Management

- In July, *Microsoft Care Gh* [reported](#) that GitHub Sponsors launched in six new countries in Africa.

Country updates

Israel

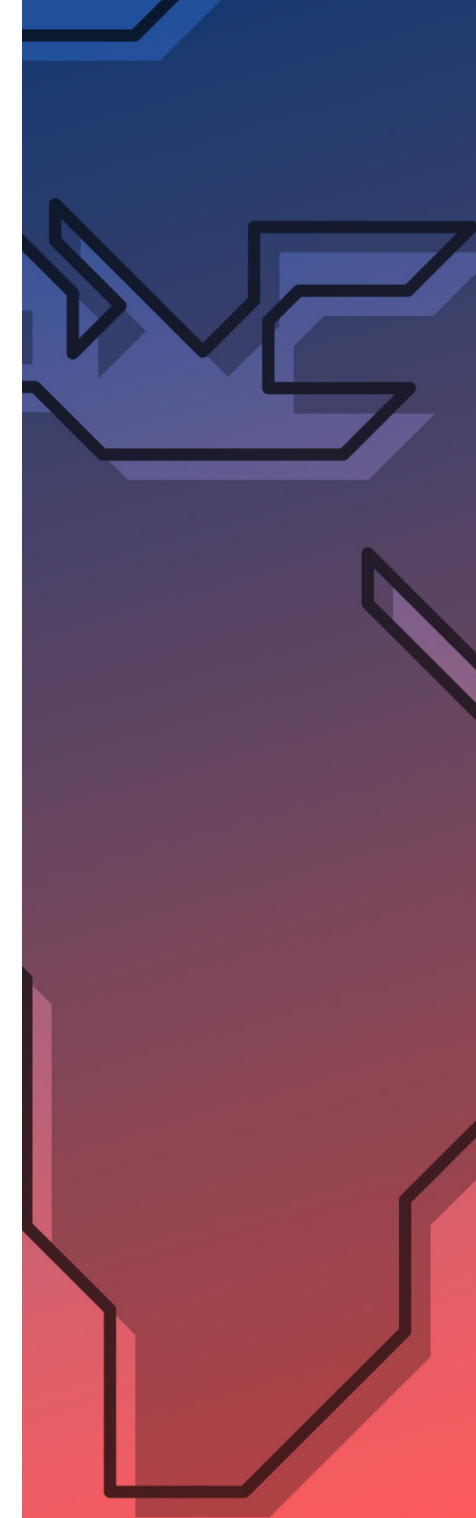
- On September 28, *The Times of Israel* [reported](#) on high-level meetings between the Israeli head of national security with U.S. officials in Washington to expand the relationship between the two countries on technological efforts. One of the stated goals is to *“form a U.S.–Israel technological partnership in critical and emerging technologies, as well as in areas of global concern: pandemic preparedness, climate change, artificial intelligence, and trusted technology.”*

Nigeria

- On August 10, IDS Inc. and DeRisk Technologies partnered with De Montfort University Dubai to offer Certified Blockchain Professional - FinTech and Certified Hyperledger Developer courses to upskill over 82 CXOs, managers across various operations, and IT architects and developers at the Central Bank of Nigeria (see the announcement [here](#)).

Ghana

- On September 23, QZ [reported](#) that Mozilla has added Ghana’s most popular language, Twi, to Common Voice, a crowd-sourced open source database of audio that can aid speech recognition software.



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The Americas

Technology updates

Biomedical

- On September 27, the *Chan Zuckerberg Initiative* [published](#) profiles of three researchers in Latin America advancing Biomedical Science.

Blockchain & Cryptocurrency

- On September 11, *CoinIntelTelegraph* [reported](#) on Latin America's readiness for cryptocurrencies and the need to integrate them into existing payment systems.
- On September 9, *Ledger Insights* [reported](#) on how Inter-American Development Bank issued tokenized bonds and its involvement in LACChain, the public permissioned network with over 90 organizations running nodes using Hyperledger Besu.

Telecommunications

- On September 28, *bnamericas* [reported](#) on the status of telecommunication companies in Latin America and their adoption of open source technologies, such as O-RAN for 5G deployments.

Country updates

Argentina

- On August 27, as [reported](#) in *Business2Community*, the fifth largest province of Argentina, Mendoza, announced that it was now accepting cryptocurrencies for tax payments. According to the announcement, the service supports various popular crypto wallets, including Binance, Bitso, Buenbit, Lemon, and Bybit. This move follows the announcement by the mayor of Buenos Aires, Horacio Rodriguez Larreta, in April this year that the city's municipal government would partner with local providers to facilitate payments in crypto.

Brazil

- On September 20, as [covered](#) in *Rest of World*, Brazilian tech pioneer Ricardo Sangion explained fintech's footprint on Latin American industries. Like Pix, which is an instant payment service in Brazil that launched in November and is now used by 55% of the population, the success of FinTech was thanks to *"government incentives, regulation, and tech investment from the big players... When there are really big players that come along and are eager to participate, it's easier for others to follow suit,"* according to Sangion.
- In September, the *Society for Science* [published](#) a profile of Luiz Fernando da Silva Borges, a computer engineering student in Brazil who has worked on and improved open source ventilator technology in the fight against COVID-19.

United States

- On October 7, President Biden [signed an Executive Order](#) directing the United States to implement its commitments under the new E.U-U.S. Data Privacy Framework. The framework will protect the privacy of data transferred between the E.U. and the U.S. while alleviating European concerns about data surveillance by U.S. intelligence agencies. This is critical to the future of the world's largest bilateral trade and investment relationship.
- On October 4, as [reported](#) in *MIT Technology Review*, the White House unveiled a [new AI Bill of Rights](#), which outlines five protections Americans should have in the AI age. It says that Americans should be protected from unsafe or ineffective systems; that algorithms should not be discriminatory and systems should be used equitably, and that citizens should have agency over their data and should be protected from abusive data practices through built-in safeguards. Citizens should also know whenever an automated system is being used on them and understand how it contributes to outcomes. Finally, people should always be able to opt-out of AI systems in favor of a human alternative and have access to remedies when there are problems.
- On September 21, as [reported](#) by the *Center for Strategic & International Studies*, the US Commerce Department's Bureau of Industry and Security (BIS), in coordination with the National Institute of Standards and Technology (NIST), released an [interim final rule](#) on September 9 clarifying that U.S. companies no longer require an export license to release certain cryptographic technologies and software in

the context of legitimate “standards-related” activities to entities on the BIS [Entity List](#).

- On September 21, U.S. Senators Gary Peters (D-MI) and Rob Portman (R-OH), Chairman and Ranking Member of the Senate Homeland Security and Governmental Affairs Committee, [introduced](#) bipartisan legislation, the [Securing Open Source Software Act](#), to help protect federal agencies and critical infrastructure systems by strengthening software security. OpenSSF released a [summary](#) of the bill. Initial coverage is available in [Fedscoop](#), [FCW](#), and [Washington Post](#), with further [analysis](#) at ZDNET.
- In August, the NSA, ODI, the DoD, and others [released](#) *Securing the Software Supply Chain: Recommended Practices for Developers*.
- On August 25, the White House issued a [directive](#) that requires public access to all research papers funded by U.S. government research grants by 2025.
- On August 3, *Reuters* [reported](#) on a new bill introduced in the U.S. Senate that proposes making the Commodity Futures Trading Commission the direct regulator of the biggest cryptocurrencies.
- On July 19, National Cyber Director Chris Inglis [hosted](#) the National Cyber Workforce and Education Summit at the White House to discuss how to address the labor shortage and other challenges for U.S. cybersecurity. The Linux Foundation’s executive director Jim Zemlin [was an attendee/presenter](#).
- On July 14, *MIT Technology Review* published an [article](#) about the U.S. Military’s desire to better understand the Linux Kernel and its impact on critical infrastructure and software components.
- On July 11, the Cyber Safety Review Board, a 15-strong independent body in the U.S. Department of Homeland Security set up by U.S. President Joe Biden in 2021, [published](#) its *Review of the December 2021 Log4j Event*. It recommends, among others, driving the adoption of best practices, building a better software ecosystem, and making long-term investments in digital security.
- In July, the Council on Foreign Relations [published](#) its Independent Taskforce Report on *Confronting Reality in Cyberspace Foreign Policy for a Fragmented Internet*.

A stylized world map is visible in the background, rendered in a dark blue color against a lighter blue gradient. The map shows the outlines of continents and major islands.

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Worldwide industry sector updates

Additive Manufacturing

- In September, *AI/3DP* [reported](#) on EVA, an open source modular extrusion system, and a spinoff of the Rat Rig project.

AI and Machine Learning

- On September 28, Intel discussed its effort to embrace open programming standards in AI, security, and quantum computing. [Coverage](#) at *SiliconAngle*.
- On September 12, Meta transferred PyTorch, one of the world's most important and successful deep learning frameworks, to the Linux Foundation. With over 2,400 contributors who built nearly 154,000 projects using PyTorch as a foundation, PyTorch has become one of the primary platforms for AI research and commercial use. The new PyTorch Foundation will launch with a governing board of leaders from AMD, Amazon Web Services, Google Cloud, Meta, Microsoft Azure, and NVIDIA. Creating the PyTorch Foundation ensures that business decisions made by a diverse group of members are transparent and open. See this [blog](#) by Jim Zemlin, executive director of the Linux Foundation; this [blog](#) by Soumith Chintala, cofounder of PyTorch; and this [blog](#) by Meta for more details.
- On September 7, GitHub shared [research findings](#) on the impact of GitHub Copilot, an AI pair programmer, on the productivity and happiness of developers. Its survey of 2,000 developers and experiment with 95 developers found that GitHub Copilot supports faster completion times, conserves developers' mental energy, helps them focus on more satisfying work, and have more fun with their coding.
- The E.U.'s proposed AI Act, a cross-sectoral regulatory framework for using AI systems across the E.U. and its single market, risks creating legal liability for open source

developers when developers use their software in general-purpose AI systems, according to the [Brookings Institution](#) (see more by [TechCrunch](#)).

- On August 23, *The Wall Street Journal* [reported](#) that Anyscale announced \$99 million in funding in an additional round, led by A16z. The company's commercial offering is built on Ray, open source software designed to link the siloed computer and data technologies that are necessary to build and run AI applications in a distributed system.
- In August, *MIT Technology Review* reporter, Melissa Heikkilä, [set out to find out](#) what GPT-3, a model developed by OpenAI, knew about her.
- On August 8, *Bloomberg* reported that Baidu Inc [announced](#) it had secured [permits to operate self-driving taxis in Wuhan and Chongqing](#), deploying the first fully autonomous self-driving taxis on China's roads.
- On July 28, [Google DeepMind](#), in partnership with EMBL's European Bioinformatics Institute (EMBL-EBI), [released](#) the predicted structures of over 200 million proteins — nearly all cataloged proteins known to science — in the AlphaFold Protein Structure Database (AlphaFold DB).
- On July 28, Princeton University hosted a workshop on [The Reproducibility Crisis in Machine Learning-based Science](#), which over 1,700 people attended. See the workshop recording [here](#) and coverage by *WIRED* [here](#).
- On July 20, [OpenAI](#) began to offer its AI image-making program [DALL-E 2 as a paid-for service](#) to the one million people on its waiting list.
- On July 12, the BigScience Project led by HuggingFace announced the release of [BLOOM](#), the first multilingual large language model produced by a collaboration of over 1,000 researchers from over 70 countries and 250 institutions—the

largest collaboration of AI researchers in history. See [Nature](#), [Tech Review](#), [TechCrunch](#), and [VentureBeat](#).

- In tandem with the release of BLOOM, a novel license for open source machine-learning models called [Open & Responsible AI Licenses \(OpenRAIL\)](#) is also now available. Coverage:
- On July 7, [as reported](#) by *The Verge*, Meta open sourced its early-stage AI translation tool that works across 200 languages.

Automotive

- On September 30, *RT Insights* [published](#) an op-ed on why Open Source is the Best Road Ahead for the Software Defined Car.
- On September 27, Linux Foundation and AGL member Renesas [launched](#) an integrated development environment that allows engineers to rapidly create software for automotive electronic control units containing multiple hardware devices without the use of hardware.
- On September 22, *Forbes* [reported](#) that Qualcomm would be expanding partnerships with Linux Foundation and AGL members Mercedes-Benz and Red Hat.
- On September 8, *Detroit News* [reported](#) that EV battery software firm Voltaiq launched a “community edition,” an open source platform meant to house datasets collected from battery cells and computer code for algorithms and models used to assess their performance.

Biotechnology

- In August, *Founder Playlist* published an [informative list](#) of open source tools for computational biotechnology applications.

Blockchain

- On September 15, the Ethereum blockchain completed a long-awaited system upgrade known as “the merge,” which changed how it verifies transactions. See more details in this [FT](#) column. The merging of the Ethereum blockchain and Beacon Chain has shifted the technology from a “proof-of-work” system to one known as “proof of stake,” making individuals or companies who have staked their tokens as collateral for the security of the network the validators of each new block of transactions added to the chain. This change promises to reduce Ethereum’s energy consumption profile significantly.
- On August 23, ENERES, which provides energy agent services and electricity wholesale trading, [announced](#) that it would convert renewable energy usage data into NFTs and conduct a demonstration project in collaboration with Yamatogawa Sake Brewery in Fukushima Prefecture to verify how to use them. In other words, it will issue NFTs based on the renewable energy usage data used during the sake manufacturing process, which it records on ENERES’ blockchain platform.

Cloud

- On August 31, Kubernetes ecosystem and CNCF member Ambassador Labs announced that it [raised \\$20 million](#) to expand its cloud native API Gateway product and sales efforts.
- On August 23, *The New Stack* [published](#) a case study covering how travel company Trivago ran a regional failover test using Istio and Kubernetes.

Creative Industries

- On September 27, Spanish startup Penpo, which provides an [open source platform for designers](#), raised \$8 million in an investment round led by Decibel as signups for its open source alternative to Figma rocketed by 5,600% after Adobe's \$20 billion move to acquire Figma.
- On August 10, Microsoft announced it would open source its library of 1,538 3D emojis, making them free for creators to remix and build upon. Microsoft hopes this will encourage more creativity and inclusivity in the emoji space. They are available on Figma and GitHub. See coverage by *The Verge* [here](#).

Cybersecurity

- On September 1, *ZDNET* [reported](#) that attackers had focused on Linux servers as ransomware targets.
- On August 25, *The Register* [reported](#) on a LastPass hack, including source code leaks.
- On August 24, *Hacker News* [reported](#) on GitLab issuing a patch for a critical flaw in its Community and Enterprise software.
- On August 25, *Lawfare* [published an article](#) about the geographic unknowns of open source software security.
- On August 8, *WIRED* [reported](#) that GitHub announced its plans to support code signing, a sort of digital wax seal, for npm software packages using the code-signing platform [Sigstore](#) to guard open source against supply chain attacks.

- In August, Cisco's Talos Intelligence Group published a [blog](#) about using the C2aaS "Dark Utilities" platform in observed malware campaigns.

CI/CD

- On September 28, CloudBees [announced](#) its acquisition of ReleaseIQ to expand the company's DevSecOps capabilities.
- On September 22, CD Foundation [announced](#) the formation of the Supply Chain Maturity Model Workstream to define a shared framework to discuss and measure supply chain maturity.
- On September 20, Cider Security [published](#) the findings of its research regarding how they abused repository webhooks to access internal CI systems at scale.
- On August 26, CD Foundation project [Tekton published](#) the audit results and accompanying report of its security review.
- On August 23, *Forbes* [published an article](#) highlighting the importance of CI/CD security from a software supply chain perspective.
- On August 11, [an article](#) published on *TechTarget* highlighted how threat actors can compromise CI/CD pipelines and break out into enterprise networks and cloud environments.
- In August, Slack [published a blog](#) post describing how it implemented the Circuit Breaker pattern to improve its CI/CD pipeline availability.
- On July 26, CircleCI [announced](#) GitLab support on CircleCI.



Data

- On September 4, *The Register* [reported](#) on the dominance of open source databases. According to the 2022 Stack Overflow survey (sample of 70,000 users), the most used database systems are PostgreSQL (46.5%) and MySQL (45.7%). The future of the database is open source.
- On August 31, *The Next Platform* [reported](#) on Meta's release of Velox, an open source run-anywhere database execution engine written in C++.
- On August 29, *TechCrunch* [reported](#) on StarTree raising \$47 million to fund their Apache Pinot-based data analytics platform.
- On August 24, *TechCrunch* [reported](#) that Zilliz, the startup behind the Milvus open source vector database for AI apps, raised \$60 million and relocated to San Francisco.
- On August 23, *Datamation* [released its list](#) of the top software-defined datacenter trends, one of which is the Linux Foundation's Software-Enabled Flash.

Edge Computing

- On September 27, the Linux Foundation Networking project [announced](#) the ONE Summit, which covers the entire open networking, edge, and Internet of things ecosystem and they will hold on November 15–16, 2022.
- On September 21, *ZDNET* [reported](#) on StarlingX's version 7.0, the latest iteration of OpenInfra Foundation's open source cloud stack for Edge computing.

Education & Research

- On July 13, *Nature* [reported](#) that Schmidt Futures, a science and technology-focused philanthropic organization founded by Eric and Wendy Schmidt, was investing \$40 million in establishing a Virtual Institute of Scientific Software to fund the maintenance of researcher-written code.

Energy

- In September, in conjunction with Linux Foundation Energy and other partners, Linux Foundation Research launched a survey regarding readiness in the energy sector and among utilities for digital transformation related to the energy transition. Energy and utility professionals who want to participate can complete the survey [here](#).
- On September 16, *DataCenterDynamics* [reported](#) on Meta and other companies setting up a new Energy Storage Solutions Consortium to “provide an open-source, third-party-verified methodology to quantify the GHG benefits of grid-connected energy storage projects.”
- In August, *SiliconAngle* [reported](#) on Recurve, an open source platform to build virtual power plants by linking utilities and other power providers, raising \$18 million in funding.
- On August 30, *Canary Media* [published](#) a call by Singularity Energy for open sourcing data and methodology for measuring and monitoring carbon emissions from the U.S. electric grid.
- On August 16, *HPCWire* [reported](#) on President Biden's signing of the Inflation Reduction Act, the largest component of which is a \$369 billion investment in transitioning the U.S. to cleaner energy sources in pursuit of decarbonization. This will require new technologies, including open source, which is mandated in [parts](#) of the law.



Entertainment

- On August 8–9, the Academy Software Foundation held its [Open Source Days](#) event in Vancouver, Canada, and showcased new projects, including rawtoaces, Rez, OpenAssetIO, OpenFX, DPTEL, and Open Review Initiative. Keynote [replays](#) are available on YouTube.
- On August 5, DreamWorks Animation [announced](#) its intent to release its proprietary production renderer, MoonRay, as open source software later this year.

Financial Services

- On September 8, the International Swaps and Derivatives Association, the International Capital Market Association, and the International Securities Lending Association [announced](#) the appointment of [FINOS](#) to provide a repository and foster the growth of an open source community for the Common Domain Model (CDM). The CDM shall establish a common digital representation of trade events and actions across the lifecycle of financial products. The aim is to migrate to FINOS by the start of 2023.
- On September 13, the Linux Foundation announced plans to launch the [OpenWallet Foundation](#) (OWF). Its mission is to set best practices for digital wallet technology through collaboration on open source code as a starting point for anyone who strives to build interoperable, secure, and privacy-protecting wallets. The effort will focus on building an open source software engine that other organizations and companies can leverage to develop their own digital wallets. The idea is that the wallets created under the OWF umbrella will support various use cases, such

as identity verification, payments, and digital key management. See coverage by [Decrypt](#) and [The Register](#).

- On July 13, the Linux Foundation FINOS held the [Open Source in Finance Forum London](#). Notable announcements included a newer version of the FDC3 protocol, 2.0, which helps drive desktop interoperability across the financial services ecosystem. See additional coverage in [Yahoo News UK](#).

Healthcare and Medical

- On September 20, The Center for Medicare and Medicaid Services [conducted a webinar](#) with Linux Foundation Public Health on September 20 entitled “*Modernizing Healthcare at the Federal Level with Open Source*.” It launched its open source office as part of its Office of Digital Services.
- In September, Digital Square [announced](#) a new funding rounding solicitation for digital health public goods to promote open source projects globally.

Internet of Things

- On September 14, *The SSL Store* [published](#) an in-depth look at Matter, the consumer device interoperability standard.
- On August 10, *WIRED* [reported](#) on the release of the firmware analysis platform [Ofrak](#).

Open Source Program Office and Community Management

- On September 1, *The Register* [reported](#) on Apple's migration of Webkit to GitHub to encourage broader community visibility and participation.
- On August 27, [André Staltz](#) published a [blog](#) about TTOSA, or *"Time until an open source alternative,"* on the favorite closed-source technology. He writes, *"All software will be open source, and no one will make money with software."*
- On September 12, TODO published the [fifth annual Open Source Program Management Survey results](#) that examine the prevalence and outcomes of open source programs.
- On September 12, TODO announced the first in-person OSPO Gathering in Europe in Stockholm. Hosted by OSPO at Ericsson and co-organized by TODO, OpenChain, OpenSSF, and CHAOSS, European organizations will get the opportunity to connect with open source peers and learn how to start an OSPO based on specific region needs under the Chatham House Rule. The option to [RSVP is now open](#).
- People from OSPO at SAP, DB, Siemens, Aiven, eBay, and Bosch put together a new TODO [guide on contributing to or launching open source projects](#).

Semiconductors

- On September 13, *FIERCE Electronics* [reported](#) on a deal between NIST and Google for open source chips to be used in research applications.
- On August 25, *The Register* [reported](#) on Alibaba Cloud's launching of a RISC-V developer platform for Edge SoCs.
- On August 25, *HPC Wire* [reported](#) on the competition between rapidly evolving RISC-V-based AI chips.
- On August 22, *eeNews* [reported](#) that RISC-V processor IP company Nuclei System Technology Co. Ltd. (Shanghai, China) raised hundreds of millions of yuan (100 million yuan is approximately US\$15 million) in additional funding.

A stylized world map in a dark blue color, showing the outlines of continents. It is positioned in the background of the slide, with a lighter blue rectangular area on the right side containing the main title and subtitle.

World of Open Source: Q3 2022

Highlights from Open Source Summit Europe

On September 13–16, we hosted the Open Source Summit Europe in Dublin. It was a great pleasure to gather Europe's vibrant open source community in person again after a three-year break due to the pandemic. Over 1,500 people joined in person and another 800 virtually. The week was full of events about all things open source: from the Linux Kernel and containers to AI and digital supply chains. We were particularly proud to announce the launch of [Linux Foundation Europe](#), [PyTorch Foundation](#), and [OpenWallet Foundation](#).

Launch of Linux Foundation Europe

- On September 13, we officially launched [Linux Foundation Europe](#) with over 15 founding members. The foundation's mission is to accelerate the growth of thriving open collaborative efforts focused on challenges and opportunities of all European constituencies, from individuals to public and private sectors, while providing an on-ramp for European projects and companies to succeed and collaborate on a global scale.
- Gabriele Columbro, the Managing Director of FINOS, will serve as Linux Foundation Europe's first managing director. At the Summit, he said, *"The LF is already in Europe. More than a third of our members are from Europe, split evenly across regions. So why are we launching a European branch of the Linux Foundation? The foremost reason is that Europe is a unique region that includes a supranational entity (the E.U.) that aligns goals and defines a collaboration framework that crosses borders. And we realized there was a need to support this type of collaboration."*
- The foundation intends to focus its activities on developing open source software that tackles existing problems within specific vertical industries. Its first project is the newly announced [OpenWallet Foundation](#), which will launch in Q4 and focus on building an open source software engine

that other organizations and companies can leverage to develop their own digital wallets.

- We were also happy to publish our study with Scott Logic, [World of Open Source: Europe Spotlight 2022](#), which describes the "state of open source" across Europe. At the Summit, Hilary Carter, VP of Research at the Linux Foundation, said, *"This study shows that open source remains an apolitical key to fostering the digital commons, enabling innovations that can originate in Europe and become de facto standards used worldwide."*

Launch of the PyTorch Foundation

- We were thrilled to announce that PyTorch, one of the world's most important deep learning software projects today, is moving to the Linux Foundation, where it will thrive under the newly formed PyTorch Foundation. With over 2,400 contributors who built nearly 154,000 projects using PyTorch as a foundation, PyTorch has become one of the primary platforms for AI research and commercial use. Dr. Ibrahim Haddad, the executive director of Linux Foundation AI & Data, will become the new foundation's executive director.
- Beating us to the race, Mark Zuckerberg shared this news before the Summit on Facebook, *"Some AI news: we're moving PyTorch, the open source AI framework led by Meta researchers, to become a project governed under the Linux Foundation...I'm excited to keep building the PyTorch community and advancing AI research."*
- Moving PyTorch to the Linux Foundation enables vendor-neutral governance and is a natural step as an open source project matures. [Soumith Chintala, PyTorch's lead maintainer, said](#), *"The next stage of our organizational progress is to support the interests of multiple stakeholders,*



hence moving to a foundation is good. We chose the Linux Foundation as it has vast organization experience hosting large multi-stakeholder open-source projects with the right balance of organizational structure and finding specific solutions for these projects.”

- The new PyTorch Foundation will launch with a governing board of leaders from AMD, Amazon Web Services, Google Cloud, Meta, Microsoft Azure, and NVIDIA. Creating the PyTorch Foundation will ensure business decisions are transparent and open by a diverse group of members.
- See this [blog](#) by Jim Zemlin, executive director of the Linux Foundation; this [blog](#) by Soumith Chintala, cofounder of PyTorch; and this [blog](#) by Meta.

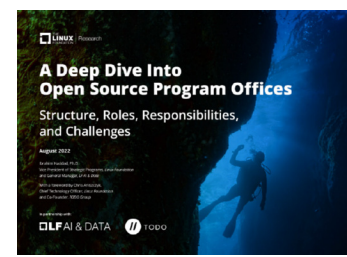
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