

# LF Edge's State of the Edge 2021 Report Predicts Global Edge Computing Infrastructure Market to be Worth Up to \$800 Billion by 2028

- *COVID-19 highlighted that expertise in legacy data centers could be obsolete in the next few years as the pandemic forced the development of new tools enabled by edge computing for remote monitoring, provisioning, repair and management.*
- *Open source hardware and software projects are driving innovation at the edge by accelerating the adoption and deployment of applications for cloud-native, containerized and distributed applications.*
- *The LF Edge taxonomy, which offers terminology standardization with a balanced view of the edge landscape, is based on inherent technical and logistical trade offs spanning the edge to cloud continuum is gaining widespread industry adoption.*
- *Seven out of 10 areas of edge computing experienced growth in 2020 with a number of new use cases that are driven by 5G.*

**SAN FRANCISCO – March 10, 2020** – State of the Edge, a project under the LF Edge umbrella organization that established an open, interoperable framework for edge independent of hardware, silicon, cloud, or operating system, today announced the release of the 4th annual, State of the Edge 2021 Report. The market and ecosystem report for edge computing shares insight and predictions on how the COVID-19 pandemic disrupted the status quo, how new types of critical infrastructure have

emerged to service the next-level requirements, and open source collaboration as the only way to efficiently scale Edge Infrastructure.

Tolaga Research, which led the market forecasting research for this report, predicts that between 2019 and 2028, cumulative capital expenditures of up to \$800 billion USD will be spent on new and replacement IT server equipment and edge computing facilities. These expenditures will be relatively evenly split between equipment for the device and infrastructure edges.

“Our 2021 analysis shows demand for edge infrastructure accelerating in a post COVID-19 world,” said Matt Trifiro, co-chair of State of the Edge and CMO of edge infrastructure company Vapor IO. “We’ve been observing this trend unfold in real-time as companies re-prioritize their digital transformation efforts to account for a more distributed workforce and a heightened need for automation. The new digital norms created in response to the pandemic will be permanent. This will intensify the deployment of new technologies like wireless 5G and autonomous vehicles, but will also impact nearly every sector of the economy, from industrial manufacturing to healthcare.”

### **The pandemic is accelerating digital transformation and service adoption.**

Government lockdowns, social distancing and fragile supply chains had both consumers and enterprises using digital solutions last year that will permanently change the use cases across the spectrum. Expertise in legacy data centers could be obsolete in the next few years as the pandemic has forced the development of tools for remote monitoring, provisioning, repair and management, which will reduce the cost of edge computing. Some of the areas experiencing growth in the Global Infrastructure Edge Power are automotive, smart grid and enterprise technology. As businesses began spending more on edge computing, specific use cases increased including:

- Manufacturing increased from 3.9 to 6.2 percent, as companies bolster their supply chain and inventory management capabilities and capitalize on automation technologies and autonomous systems.
- Healthcare, which increased from 6.8 to 8.6 percent, was buoyed by increased expectations for remote healthcare, digital data management and assisted living.
- Smart cities increased from 5.0 to 6.1 percent in anticipation of increased expenditures in digital infrastructure in the areas such as surveillance, public safety, city services and autonomous systems.

“In our individual lock-down environments, each of us is an edge node of the Internet and all our computing is, mostly, edge computing,” said Wenjing Chu, senior director of Open Source and Research at Futurewei Technologies, Inc. and LF Edge Governing Board member. “The edge is the center of everything.”

**Open Source is driving innovation at the edge by accelerating the adoption and deployment of edge applications.**

Open Source has always been the foundation of innovation and this became more prevalent during the pandemic as individuals continued to turn to these communities for normalcy and collaboration. LF Edge, which hosts nine projects including State of the Edge, is an important driver of standards for the telecommunications, cloud and IoT edge. Each project collaborates individually and together to create an open infrastructure that creates an ecosystem of support. LF Edge’s projects (Akraio Edge Stack, Baetyl, EdgeX Foundry, Fledge, Home Edge, Open Horizon, Project EVE, and Secure Device Onboard) support emerging edge applications across areas such as non-traditional video and connected things that require lower latency, and faster processing and mobility.

“State of the Edge is shaping the future of all facets of just edge computing and the ecosystem that surrounds it,” said

Arpit Joshipura, General Manager of Networking, IoT and Edge. “The insights in the report reflect the entire LF Edge community and our mission to unify edge computing and support a more robust solution at the IoT, Enterprise, Cloud and Telco edge. We look forward to sharing the ongoing work State of the Edge that amplifies innovations across the entire landscape.”

### **Other report highlights and methodology**

For the report, researchers modeled the growth of edge infrastructure from the bottom up, starting with the sector-by-sector use cases likely to drive demand. The forecast considers 43 use cases spanning 11 verticals in calculating the growth, including those represented by smart grids, telecom, manufacturing, retail, healthcare, automotive and mobile consumer services. The vendor-neutral report was edited by Charlie Ashton, Senior Director of Business Development at Napatech, with contributions from Phil Marshall, Chief Research officer at Tolaga Research; Phil Shih, Founder and Managing Director of Structure Research; Technology Journalists Mary Branscombe and Simon Bisson; and Fay Arjomandi, Founder and CEO of mimik. Other highlights from the State of the Edge 2021 Report include:

- **Off-the-shelf services and applications are emerging that accelerate and de-risk the rapid deployment of edge in these segments.** The variety of emerging use cases is in turn driving a diversity in edge-focused processor platforms, which now include Arm-based solutions, SmartNICs with FPGA-based workload acceleration and GPUs.
- **Edge facilities will also create new types of interconnection.** Similar to how data centers became meeting points for networks, the micro data centers at wireless towers and cable headends that will power edge computing often sit at the crossroads of terrestrial connectivity paths. These locations will become centers of gravity for local interconnection and edge exchange,

creating new and newly efficient paths for data.

- **5G, next-generation SD-WAN and SASE have been standardized.** They are well suited to address the multitude of edge computing use cases that are being adopted and are contemplated for the future. As digital services proliferate and drive demand for edge computing, the diversity of network performance requirements will continue to increase.

“The State of the Edge report is an important industry and community resource. This year’s report features the analysis of diverse experts, mirroring the collaborative approach that we see thriving in the edge computing ecosystem,” said Jacob Smith, co-chair of State of the Edge and Vice President of Bare Metal at Equinix. “The 2020 findings underscore the tremendous acceleration of digital transformation efforts in response to the pandemic, and the critical interplay of hardware, software and networks for servicing use cases at the edge.”

Download Report

Download the report [here](#).

State of the Edge Co-Chairs Matt Trifiro and Jacob Smith, VP Bare Metal Strategy & Marketing of Equinix, will present highlights from the report in a keynote presentation at Open Networking & Edge Executive Forum, a virtual conference on March 10-12. Register [here](#) (\$50 US) to watch the live presentation on March 12 at 7 am PT or access the video on-demand.

Trifiro and Smith will also host an LF Edge webinar to showcase the key findings on March 18 at 8 am PT. Register [here](#).

## **About The Linux Foundation**

Founded in 2000, the Linux Foundation is supported by more than 1,000 members and is the world’s leading home for

collaboration on open source software, open standards, open data, and open hardware. Linux Foundation's projects are critical to the world's infrastructure including Linux, Kubernetes, Node.js, and more. The Linux Foundation's methodology focuses on leveraging best practices and addressing the needs of contributors, users and solution providers to create sustainable models for open collaboration. For more information, please visit us at [linuxfoundation.org](https://linuxfoundation.org).

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