



STL Partners interviews GECCO: Innovating with edge form factors

Edge computing continues to gain traction. While it is not yet clear whether edge computing will be more sustainable than cloud data centres environments, a number of vendors have already begun to explore a range of options to minimise their carbon footprint. STL Partners sat down with GECCO, an edge server manufacturer, to understand how they are addressing this challenge through exploring innovative form factors.

Grace Donnelly, Senior Consultant

STL Partners: Please can you tell us a little bit more about GECCO and how it came about?

GECCO: Green Edge Computing Corp was founded on a deeply held belief that the world needs a multi-server computing solution that is not only optimised for deployment at the edge, but that also offers a way to address the surprisingly large carbon footprint of conventional servers and communications networks that comprise data centres and the cloud. Before founding GECCO we had been informally collaborating on technology projects for well over a decade, looking for new ways to bring about positive changes in how technology can be applied to global challenges, and we saw the widespread need to reduce energy consumption and GHG emissions as an opportunity for technological innovation. We feel that the explosive growth in demand for cloud and edge computing -- and the associated massive demand for energy and materials -- is a rare opportunity to bring together our complementary experience in start-up companies, cloud computing, cybersecurity, ruggedised systems, and go-to-market strategies.

STL Partners: What is unique about the offering?

GECCO: For many organisations and use cases that cannot, or do not wish to, rely solely on cloud computing, the GECCO EdgePod™ is a rugged and secure compact multi-server computing platform ideal for on-premises installation. When compared to blade or rack-mount systems intended for traditional cloud computing data centres, the EdgePod requires 90% fewer materials and less energy to produce, uses 75% less energy to operate, and lasts twice as long. However, we acknowledge that it is not a case of cloud versus edge deployments. In reality, both play an important role, but it can happen that workloads that could be run at the edge are instead run in cloud data centres. Gecco deployments are also scaled to the computing requirements where it is installed and modularly scalable as computing needs change as new software is deployed.

Although embedded computers and controllers are widely deployed at the edge today, they often don't meet the need for a multi-server general-purpose computing environment. For many years that need was filled by expensive on-premises computer rooms, many of which migrated to the cloud for cost-saving reasons over the last two decades. As the volume of data and the need for rapid local decision-making has increased, this approach now faces higher latency, limited bandwidth, and rising costs for connections and storage.

The EdgePod's modularity and other design innovations reduces the total cost of ownership by up to 50% and generates 80% lower greenhouse gas emissions than deploying conventional cloud computing technology at the edge. What is truly unique about the solution is that it delivers general purpose, enterprise-grade CPU and GPU-based multi-server computing to the edge in a manner that has been purposely designed for the unique operational needs of the edge, where ruggedness, security, size, weight, power and cooling would create challenges for conventional systems.

STL Partners: You mentioned that GECCO can help to generate up to 80% fewer GHG emissions when compared to conventional data centre technology. How have you been able to substantiate that figure?

GECCO: The GECCO EdgePod servers are physically about 90% smaller compared to conventional blade and rack-mount servers that are commonly used for edge deployments. This means our solution requires fewer raw materials, and a significantly smaller physical footprint that results in a much smaller capital cost for

installation and deployment. Together with lower overall operating costs the innovations in the EdgePod establish our credentials as a clean technology company.

To validate the claims of 80% lower emissions, we carried out an in-depth analysis of the EdgePod's Scope 2 GHG emissions caused by direct energy consumption, and Scope 3 emissions caused by indirect energy consumption from manufacturing, deployment and operations, repairs and maintenance, to end of life. We then determined the comparable operating and lifetime emissions caused by computing systems that use conventional blade and rack-mounted servers in on-premises computer rooms, telecom closets and enclosures deployed at the edge.

The resulting analysis indicates that over the 10-15 year lifespan of the EdgePod, GHG emissions may be less than 20% of the emissions resulting from the conventional approach. Our analysis does not include the impact of lower GHG emissions resulting from reduced demand on network communications, which may also contribute to the overall result depending on individual use cases.

STL Partners: So how does GECCO contribute to more sustainable outcomes?

GECCO: In 2022, a worldwide web of fibre and wireless networks and about 8,000 data centres comprise the internet and the cloud, and their combined energy needs are expected to more than double over the next decade to handle an exponential growth in global data. The energy demand for data centres already exceeds 200 Terawatt-hours (TWh) and are often overbuilt, typically operating at less than half of peak capacity. Communication networks require another 220 TWh and are often pushed to their limits, especially at their furthest reaches – that is, at the edge.

The GECCO EdgePod offers a solution that sizes the computing system to the actual need for processing power, at the edge of the cloud where most of the data is expected to be produced and consumed in the coming decades. This avoids the need to transmit huge volumes of data over giant networks to massive data centres, and reduces the demand for both, making computing more sustainable. With GECCO's solutions delivering compute to the edge at up to 80% lower carbon footprint, and millions of servers being deployed yearly, we believe we can dramatically reduce the carbon footprint of ICT while demonstrating a computing architecture that is much more conducive to circular supply chain economies and green practices.

STL Partners: How was it possible to shrink the footprint of GECCO servers to such a degree?

GECCO: GECCO innovates by using proven technologies that have a strong pedigree of performance in defence and aerospace, including ruggedized components for harsh environments and low power (but still powerful) devices that are designed for more compact applications. By bringing fresh thinking to the problem of multi-server computing needs in an edge deployment, we have dramatically reduced both the physical and environmental footprint. Shrinking the physical technology has the direct effect of shrinking several common industry problems such as heat, power consumption and cooling as well as shrinking the energy, cost & materials to manufacture, ship, operate, maintain, upgrade and recycle.

STL Partners: Which industries are most interested in this offering, and why do you think that is?

GECCO: The GECCO EdgePod appeals to any industry or use case that struggles to accommodate conventional blade or rack-mount computing systems due to limitations in space, weight, physical ruggedness/reliability, availability of power and cooling resources, ability to reduce carbon footprint, or ensuring secure operations in remote locations with latency or bandwidth constrained network issues. Our approach is being embraced by a dozen industries including retail, defence, manufacturing, resource industries, smart buildings/cities, telco, and space. Each use case resonates with a slightly different mix of benefits among size, weight, power, cooling, ruggedness, and TCO.

STL Partners: What's next for GECCO?

GECCO: GECCO is focused on executing against significant interest in the EdgePod™ platform and we look forward to a period of rapid growth as we deploy the solution to forward-thinking decision makers that want to include innovative and sustainable computing systems in their IT plans. Given the sheer scope of the edge computing landscape, we are targeting several market segments and are open to exploring further relationships that will create turnkey value at the edge. In particular, we see much opportunity with edge software vendors who require a hardware platform to optimise software deployment as well as service providers, such as telcos, looking to enable effective Multi-access Edge Computing (MEC) and/or container/VM orchestration at scale.

STL Partners: Thank you for your time!

If you're interested to learn more about GECCO, you can visit their website at <https://www.g3cco.com/>.

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