TAKE BACK CONTROL

DATA UNCHAINED: THE KLARRIO MANIFESTO

Klarrio
STREAMING AHEAD

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01

TAKE BACK CONTROL

At Klarrio, we develop cloud-native, cloud agnostic, secure-by-design software solutions to empower our customers, to control their data, limit cloud costs, and optimize performance.

But that only partly defines us. Our goal for everyone we work with is for all parties to get the very most they can from our alliance, including several critical factors that we believe differentiate us from similar providers in our category.

This is the purpose behind **The Klarrio Manifesto**. It clarifies our core beliefs, our history, our points of difference, and how we help clients take back—and keep—control of their data.

No matter the category they're in, or how large or small they may be.

"We must harness the Internet's energy before the information it has unleashed buries us."

Vincent Cerf, Internet Pioneer

02

CONNECTING WITH THE AGE OF HYPERCONNECTIVITY

The last few decades have been a continuing explosion of advanced connectivity solutions. The rise of broadband, cloud computing, Internet of Things (IoT), the emergence of loosely coupled architectures, and now, the evolving applications of AI.

It was around the turn of the millennium, however, that gave real impetus to the rise of the digital economy. That was when connectivity solutions switched from dial-up modems to broadband internet.

Before broadband, internet connections were sporadic and slow, and few devices even connected to the internet at all. But once broadband spread to households, the number of connected devices exploded. In fact, in many countries today household access to broadband is considered a basic utility. This has led to a worldwide surge in internet connectivity that continues to diversify and grow.

According to DataReportal, more than 5.5 billion people were using the internet at the beginning of 2025, representing almost 68% of the world's population. This is nearly 2% higher than the 2024 usage total of around 66%.

03

THE RISE OF THE FOUR DIGITAL POWERHOUSES

In his classic business book, *The Four*, Scott Galloway, a Professor of Marketing at NY, discusses what he refers to as "The Hidden DNA of Amazon, Apple, Facebook, and Google."

As Galloway points out, these four companies have not only generated unprecedented wealth, they have also created a level of competition that literally didn't exist in the past. In short: *The Four* have become so large and so pervasive their only true competition is each other.

But their extreme dominance isn't all roses. Amazon has virtually gutted the traditional retail industry. Apple has literally redefined the way people communicate with each other. As of 2025, Facebook has over 3 billion monthly users, and in some markets Google commands a 90% share of the most powerful media advertising method.

Unfortunately, companies are in business to make money and oftentimes have little interest in how many people lose their jobs, how lives and other businesses are disrupted, or what regulations are needed to ensure their power remains legitimate and under control.

Social or environmental impact isn't their concern. Making more and more money is.

In his seminal book, *Who Owns the Future?*, Jaron Lanier, the father of virtual reality, cites the dangerous concentration of money, power, and control among the digital networks as the most critical economic and social concern of our time.

With such realities in mind, combined with the unprecedented influence digital powerhouses now yield, the days of the traditional business structure are fading fast.

04

THE THUNDER CLOUD

The avalanche of the digital juggernauts led to a game-changing milestone that throttled traditional business models forever—the emergence of the cloud.

Amazon launched it in the beginning by deciding to sell its spare server capacity, and after other companies started using it and developing their own cloud solutions as well, it wasn't long before the idea caught on like wildfire.

Cloud technology became available in the US as early as 1998, and by 2003 it had spread to some parts of Europe.

Cloud technology's core appeal was its ability to eliminate excess hardware costs by making it available to lease or rent. Before its arrival, the cloud's amount of computing power, storage, and bandwidth was previously accessible to a select few only.

But those days are over. Cloud computing leveled the playing field between the corporate giants, medium- and smaller-sized organizations, and even startups.

A NEW DATA APPROACH, A NEW ECONOMY

LinkedIn. Airbnb. Uber. X.

Several companies that were mere startups a few years ago are now some of the most famous brands in the world. These companies are all part of the "New Economy" based on digital advancements, and they all incorporate some form of messaging, chat, or other communication functions into their services.

In addition, their core business propositions are all driven by data and customer insight.

Traditional client-server architectures proved highly inadequate for handling such exploding volumes of data. Relational databases—which were relatively static and relied on standard query environments like SQL—became insufficient. In a modern digital landscape, characterized by diverse data types, including images, movies, music, and unstructured text, the traditional approaches just didn't work.

To tackle these challenges, most of the "New Economy Companies" developed their own software frameworks. They lacked true security by design, but these new architectures were built to be always-available, high-performance, and capable of managing larger data volumes efficiently.

They also embraced distributed computing, replacing the traditional client-server architectures with a more dynamic and scalable model to cope with the ever-growing volume of data (the big data era.)

THE ADVENT OF OPEN-SOURCE SOFTWARE

Most of these new innovations didn't come from traditional software licensing houses. The goal wasn't to commercialize this new technology; it was simply a way to meet their skyrocketing business needs.

So, the good news is that open-sourced solutions were open to others from the very beginning, and pioneers shared their new architectures freely with the community, hoping for feedback, contributions and improvements.

Which is just what they got. Today, numerous distributed, scalable—and highly powerful—architectures have been open-sourced. To name a few:

- Facebook released Cassandra
- LinkedIn launched Kafka
- Google developed Kubernetes
- And Uber developed Jaeger.

With all of these options—and more—combined, we now have many new firms and software houses that offer both commercial and non-commercial open-source license agreements.

Ostensibly, at least, everybody seems to win.

"Our experience in working with limited resources, like memory, computer power, and storage, along with the challenge of providing true security by design laid the foundation for Klarrio's belief that, to survive, every organization absolutely must control its own data completely."

Kurt Jonckheer, Klarrio CEO and Co-Founder

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OUR HISTORY: DECADES OF DATA ENGINEERING INNOVATIONS

What's Klarrio's place in all of this? Every single member of our core leadership team has experience that goes back to the year 2000—the very beginning of the new world we live in today.

Long before the cloud and open-source software were household names, our founders worked in the telecommunications industry. They developed gateway firmware for broadband equipment; and embedded full triple-play TCP/IP stacks into compact, cost-effective hardware.

In fact, our Co-Founder, Dirk van de Poel, was even one of the co-authors in the standardization of remote device management protocols like TR-69, and recognized for his contributions as a distinguished engineer and fellow by the Broadband Forum.

Before founding Klarrio, we also launched Virdata, an incubation program that set out to build one of the first PaaS solutions for the IoT.

This multicloud IoT platform demonstrated horizontal scalability with hundreds of millions of connected devices at unprecedented low infrastructure costs. It also laid the groundwork for Klarrio's expertise in cloud-native, distributed computing, as well as Lambda and Kappa architectures.

Initially, open-source tools and the cloud were chosen to overcome the enormous cost of full-blown data centers, or expensive, proprietary distributed solutions. Such a necessity proved to be fortunate because it led new companies—and our own team—through a valuable learning phase that spanned over a decade.

As a result, the core Klarrio leadership team decided to morph their collective knowledge and years of experience into a new company that offered the skills and experience needed to partner with organizations who required the new digital strategies, emerging software and data architectures to survive.

Klarrio was officially founded in 2016, and the doors to the future were opened.

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WHAT WE ARE FACED WITH

Since 2010, there has been a staggering annual increase in the volume of digital data created. According to Statista, 120 trillion gigabytes of data were created in 2023—60 times more than in 2010. What's more, the amount of data created each year is anticipated to surge more than 150% beginning in 2025.

Consequently, many organizations, lacking in-house IT infrastructure expertise, often resort to SaaS and PaaS solutions for a number of reasons.

But here is the rub. Once a company commits to a proprietary cloud model, it loses control over key (and often critical) aspects, like performance, security, intellectual property, and long-term costs. Another danger is the unvetted outsourcing of critical IT operations or processes that no organization should ever let an outside entity control.

So here is the bad news that too many enterprises are forced to learn way too late in the game:

"Relying on 'fool-proof' technology or third-party proprietary solutions just doesn't work." Each organization that does so eventually loses control over its destiny.

It doesn't have to be this way.

07

WHAT WE STAND FOR

Our core belief is that each organization, no matter how large or small, should control its own destiny. This requires keeping unrelenting custody of your data, software, services, and core intellectual property.

We also believe it's a moral duty to deliver solutions where people can truly control their data, future-proof their organizations via open-source and distributed frameworks, and remain resilient against any dominant hyperscaler or distant authority.

Future-proofing involves much more than data custody. It's also a matter of minimizing the loss that happens when digital resources are over-used or needlessly wasted. True future-proofing should take a holistic approach that promotes resource sustainability as a best practice for the organization as well as for society as a whole.

We don't believe in one-size-fits-all approaches that take the easy route in terms of short-term sales and client acquisition. We also believe it's unethical to misrepresent the benefits of generic PaaS and SaaS hyperscale offerings, while ignoring the negative long-term impact on a client's budget, data governance, and performance.

In simpler language—we think a superficial approach is fundamentally wrong in the long run.

> *"How can you be in control of the products and services you deliver if you turn the core technology of your enterprise over to third parties without any insight or proactive participation on your part?"*
>
> **Dirk van de Poel**, CPO & Co-Founder

08

THE KLARRIO MANIFESTO

Klarrio's point of view has nothing to do with going against the grain. Instead, it's about going in a direction we truly believe in, regardless of the current trends, short-term fads, or quick-sale opportunities of the day.

In fact, we have a clear set of 10 principles we believe every digital-driven company should operate by, not only to obtain success today but to remain competitive in the future. We call these principles **The Klarrio Manifesto.**

I. CONTROL YOUR DESTINY

The first guiding principle is to understand that "moving everything to the cloud" is not a one-size-fits-all solution. We take a tailored approach, carefully evaluating each business case to develop the most effective strategy.

We might, for example, design a multi-vendor set-up, running software simultaneously across multiple public and private cloud providers to ensure scalability and prevent vendor lock-in.

Additionally, we could integrate on-premise solutions equivalent to cloud in efficiency, and then leverage cloud-native technologies within a public data center to create a robust hybrid strategy that mitigates single-vendor dependency and promotes flexibility on what to run where.

In both examples—and in **all** cases involving our approach—our ultimate goal is to allow you to control your destiny. Cookie-cutter solutions just don't work, and in our opinion, are actually dangerous to pursue.

II. REMAIN INDEPENDENT

Once you move your organization's data to proprietary cloud services, you may be unable to migrate to other solutions without considerable effort and costs. What's more, any single vendor can have the power to increase its fees on a whim.

Vendor lock-in can also damage business continuity. If your business-critical processes are entirely dependent on one provider and the service is down, your operations will literally come to a halt.

But by leveraging open-source frameworks and custom, cloud-native and cloud-agnostic solutions, you, not the vendor, remain in control—and completely independent.

Independence also implies knowledge on the side of the customer. As a result, Klarrio offers a joint development partnership that includes training through our tutorrio academy framework. Controlling your destiny mandates a proactive center of knowledge.

III. ENSURE PERFORMANCE & RELIABILITY

With SaaS and PaaS services, you have no control over performance. Multiple processes might be running on the same virtual machine, so the potential for inconsistency is an inherent problem from the very beginning. Also, if your application or use case absolutely requires low latency, responsiveness, and reliability, top-tier performance is literally mandatory.

But most Saas and PaaS providers don't provide Service Level Agreements (SLAs) with absolute guarantees. In most cases they only offer, at best, SLOs to meet service uptime for a limited number of services.

We believe this isn't enough and that stronger guarantees are essential for optimum performance and reliability. It's part of our DNA, and it should be an essential component of every organization that relies on critical data.

IV. CONTROL EXPENSES

Many companies opt for using SaaS and PaaS cloud solutions because the initial cost of getting started is very low, or in some cases, even free. Especially for companies with small-scale rollouts or proofs-of-concept, this type of cloud model can certainly be much cheaper than setting up hardware servers themselves.

But there is a catch. As the consumption of these companies grows—whether it's data volume, applications, or something else—costs will increase accordingly.

Unfortunately, many data decision-makers have no idea of this potential outcome. They simply believe that public cloud services are always the most cost-effective option.

Not true. We make sure our clients and partners are aware of the potential for cost escalation from the very beginning and suggest strategies and customized solutions to avoid it.

"At a large scale, creating solutions based on open-source software can be ten times more cost-efficient than opting for proprietary SaaS and PaaS services."

Martin Braem, COO

V. ENSURE TRANSPARENCY & SECURITY

Transparency is an essential requirement for most organizations—especially those that need to have end-to-end visibility of their data-driven supply chain. They need to know where the software is coming from as well as its exact functionality.

For these organizations, it's critical to ensure there are no backdoors or security vulnerabilities that could compromise their operations. But with a proprietary cloud solution there is no transparency whatsoever. In fact, you don't see the underlying software at all.

This is (or at least should be) a very serious red flag for countless reasons. No matter how well intentioned, blind trust doesn't guarantee your data will be protected against risks that can cause real harm to your organization.

That's why transparency is always a major concern for whatever strategy Klarrio develops for our clients.

VI. CUSTOMIZE

Car engines are specifically designed for each vehicle's purpose. So are data-driven solutions.

The majority of today's digital transformation challenges can't be fixed with off-the-shelf, one-size-fits-all SaaS and PaaS solutions offered by dominant hyperscalers. Achieving solid data integration typically requires a hybrid infrastructure and a software layer meticulously crafted to the needs of the organization.

We customize every strategy and project to achieve the customer's goals—in the short-term as well as the future.

VII. CLOUD AGNOSTIC

We believe very strongly in cloud-agnostic architecture. In fact, it's one of the primary ways we help customers control their destinies.

Our tailored solutions can be deployed both on premise and on public cloud infrastructure. Because we clearly identify and minimize proprietary SaaS, PaaS, or other dependencies, our customized solutions can always be migrated as needed.

With Klarrio, you can move about wherever and whenever you want.

VIII. CLOUD-NATIVE, ELASTIC & REAL TIME VISIBILITY

In our age of hyperconnectivity, inconsistent workload variations are ubiquitous. Predicting how many resources you will need—storage, bandwidth, computational power—is impossible with a traditional approach.

That's why Klarrio's applications are built in a cloud-native format and run in a distributed manner. This gives you the elasticity you require to handle the continuous launching and shutting down of infrastructure (whether physical or virtual) without the whole system breaking down.

In addition, we specialize in real-time data processing and event-driven architectures. This is particularly useful for immediate insights or actions based on all data in motion. With data streaming, you can avoid processing data in larger chunks and, of course, avoid the latency that comes with batch processing.

IX. OPEN-SOURCE FRAMEWORKS

Most of the open-source frameworks we use were designed to mitigate digital transformation challenges. Examples include:

- Apache Kafka
- Apache Flink
- Apache Spark
- Kubernetes
- Prometheus
- And others that empower you to remain in control of your business-critical solutions.

Since open-source licensing varies according to each specific option, some of which could affect your intellectual property (IP), we carefully evaluate each component to ensure compliance and protect your interests.

X. OWN YOUR DATA

It's essential to have a flexible and adaptable approach to data governance that not only accommodates different legal requirements and cultural norms today, but to also be able to ensure data security, privacy, and protection as regulations change in the future.

Having control over where your data resides also eliminates layers of complexity and the potential for governmental interference, regardless of whatever the political climate may be at the time.

In the end, there is only one way for an organization to truly optimize its data opportunities—which is to ***own your own data***. When you give away your private information and personal IP, you also give away your power.

It's a belief our team has had from the very beginning. And with the growing disruptions, prevalence, and power of AI, we believe in it even more strongly today than when we first opened our doors.

"We implement security and privacy by design and prioritize data ownership and protection. We're dedicated to our customers' compliance with GDPR and NIS2 regulations, and we were members of the International Data Spaces Association and Gaia-X from day one. Everything we do promotes secure, trusted data exchange and data sovereignty.

Bruno De Bus, CTO

09

SO WHAT HAPPENS NOW?

While it's impossible to predict the future with absolute precision, we always think ahead to anticipate the unexpected. Learning from past experiences, remaining agile when facing new challenges, and staying ahead of game-changing trends are crucial.

The rapid evolution of disruptive technology will continue to accelerate at an extraordinary pace. To keep up, the appropriate mindset is just as crucial as the right technical skills. Challenges should not be considered obstacles but rather as opportunities for growth.

As Alan Kay famously said, *"The best way to protect the future is to invent it."* Traditional architecture will only take you so far. This is why we build custom, cloud-agnostic, and cloud-native software solutions. To future-proof your data strategy, you need to make sure your data is under your control, accessible, secure, resilient to failure, and your platform can handle it.

Those who look beyond the confusing marketing messages, who believe in doing things the right way instead of the easy way, and who truly wish to take their destinies into their own hands will discover that building a sustainable and future-proofed enterprise is not only possible, but the right thing to do.

No matter what the future throws at you.

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Klarrio specializes in large-scale and real-time data processing implementations. We offer deep expertise in cloud-native and hybrid solutions. But more importantly, we have the experience you need to understand where you've been, where you are today, and how best to achieve your goals going forward.

We're much more than a software solutions provider. Klarrio offers proactive and sustainable open source innovations with no vendor lock-in, all while working as a trusted partner who ensures you always remain in complete control of your own data.

Control your destiny. Contact us today.

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