

File data services to support modern manufacturing



Smart file data services deliver resilience and intelligence to the modern manufacturing organization.





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The Manufacturing Landscape

The manufacturing sector faces a unique set of challenges as it moves into a complex future. With disruptions from natural disasters to data breaches, manufacturing has to be agile and resilient enough to withstand uncertainty and unexpected shocks.

The landscape has become increasingly tricky to navigate, particularly due to the ongoing disruptions presented by the economy; supply chain disruptions and geo-political upheaval; the uncertainties of market competitiveness; cyberattacks, fraud, talent migration, and theft; and the expected disruptions of regulatory changes and pandemic aftershocks.



Digital initiatives can transform how manufacturers approach business and will allow it to embed resilience throughout the organization.



The Challenges Ahead

In a recent analysis of the challenges facing the manufacturing sector entitled [“Risk, resilience and rebalancing in global value chains”](#), McKinsey found that supply chain shocks are “becoming more frequent and severe”, with disruptions that last up to two months now occurring every 3.7 years, and that companies can expect to lose up to 42% of a year’s EBITDA every 10 years.

Another study undertaken by [Vodafone Business](#) found that only 31% of manufacturing firms globally were considered Fit for the Future (FFTF). The report defines FFTF as a business that:

- ✓ Has a positive approach to change and the future
- ✓ Has a technology roadmap in place
- ✓ Recognizes the importance and value of technology in resolving business challenges
- ✓ Developed a future-proof strategy
- ✓ Aligned with trends and thought leaders
- ✓ Is agile and capable of adapting to changes and challenges

The report underscored the importance of engaging in digital initiatives that can transform how the organization approaches business and will allow it to embed resilience throughout the organization. It also found that it is not too late for companies to set out on their digital journey – those that hesitate now could be lost, but those that take a step towards solutions that can support growth and agility will be far more capable of withstanding the shocks and challenges that lie ahead.





Regardless of niche or market, manufacturing firms don't exist in isolation – they're always part of a supply chain and will rely on other companies to ensure that goods and services reach their destinations. They also rely on labor and talent to remain innovative and on track. These two factors can fundamentally impact the success of a firm and its growth potential.”

Andres Rodriguez

Founder and Chief Technology Officer at Nasuni

However, another challenge that continues to shape how the sector approaches digital is internal resistance. Many companies are struggling to gain buy-in from decision-makers who are still reluctant to replace well-worn manual solutions with digital toolkits. Their reasons align with the challenges felt by organizations on a macro level: security and resilience.

They're not convinced that cloud storage and data management platforms are capable of handling the loads and demands presented by their unique operational expectations, and they're not prepared to put invaluable data at risk.

- ✓ Is security robust enough to ensure that intellectual property and data will be absolutely secure from cyberattacks and the ongoing cyberthreat?
- ✓ Does the system have the requisite latency and resilience to handle the extensive data loads that the sector and business demands on a daily basis?
- ✓ Are cloud technologies and platforms capable of operating seamlessly 24/7/365 without dropping the load or impacting the business?
- ✓ Can the new technologies coexist with legacy applications so the business isn't forced to reinvent every aspect of every system?
- ✓ Will the solutions they have invested into give them the digital edge they need to take advantage of Manufacturing 4.0 and remain a leader in innovation, and ahead of the competition?

The Search for Resilience

Forrester believes that it's critical for companies within the industrial sector to invest in solutions that will drive innovation and allow for improved visibility into services. The research firm suggests that it's within the cloud, the Internet of Things (IoT), and smart integration that companies will find resilience and the ability to handle intense loads across multiple layers of infrastructure.

Meanwhile, research from Accenture found that storage for manufacturing organizations – traditionally a weighty cost that asks for significant investment into internal systems and processes, can come in at 20- 40% cheaper if it runs in the cloud, and that's before accounting for savings from space consolidation, reduced power consumption, and labor costs.

The latter statistic does come with well-established caveats, however. As earlier research from Forrester points out, the level of value you can achieve depends on the kind of business you run and how much sense cloud file storage makes in your particular environment.

It's an important point. Technology is not a one-size-fits-all solution. It has to be implemented within the right parameters and with a partner that isn't going to try and fit a square solution into a round hole.

Manufacturing organizations within this sector need solid business continuity planning, clear strategic visibility into cloud and data infrastructure, and the ability to withstand disruption.



Cloud allows companies to shift from underutilized on-premise hardware to flexible pay-by-the-use computing capacity. [This] can lead to 20%-40% cost reduction if compared to traditional on-site deployment, not inclusive of the additional savings from physical space consolidation and power consumptions reduction. ... around 20%-30% of the IT labor can [also] potentially be eliminated depending on the size of the organization."

Accenture, "Report: Cloud-enabled manufacturing"



Cloud services allow organizations rich control over vast environments all over the world. They achieve what it would have taken hundreds of people to do in the past. And they allow for companies to gain access to digital solutions that span every level from infrastructure to the application level to IT.”

Andres Rodriguez

Founder and Chief Technology Officer at Nasuni

This is echoed by [McKinsey](#), who found that while cloud investment is increasing within the industrial sector, it is becoming more complex. This is not just due to the rise in large-scale adoption of digital technologies and the radical shift towards Industry 4.0 – [the evolution and revolution of how manufacturing uses technology](#) – but, as the firm suggests, also due to companies that aren’t realistic about the costs or about how complicated it can be to implement cloud technology.

This isn’t to say that cloud and digital storage and data management platforms are too difficult to embrace, but rather that companies need to have a more strategic and realistic view of how these solutions will deliver on their promised value. They need to invest in tools that resolve key issues such as workloads, cybersecurity, and cost, and that allow them to squeeze out every last drop of value from their ecosystems and investments.



Foundations of a Modern Manufacturing Organization

The modern manufacturing organization may consist of multiple facets, but among the most important is its ability to redefine its data management and storage architecture. The ability to synchronize large files, rapidly transfer high volumes of small files, and collaborate across multiple sites and geographies is critical to ensuring smooth workflows and innovative processes.

It's storage that empowers and enables the manufacturing firm when it comes to shifting its legacy infrastructure, redefining the shape of its data analytics and decision-making, and embedding digital throughout its architecture.

With the right storage architecture in place, organizations are on track to take advantage of:

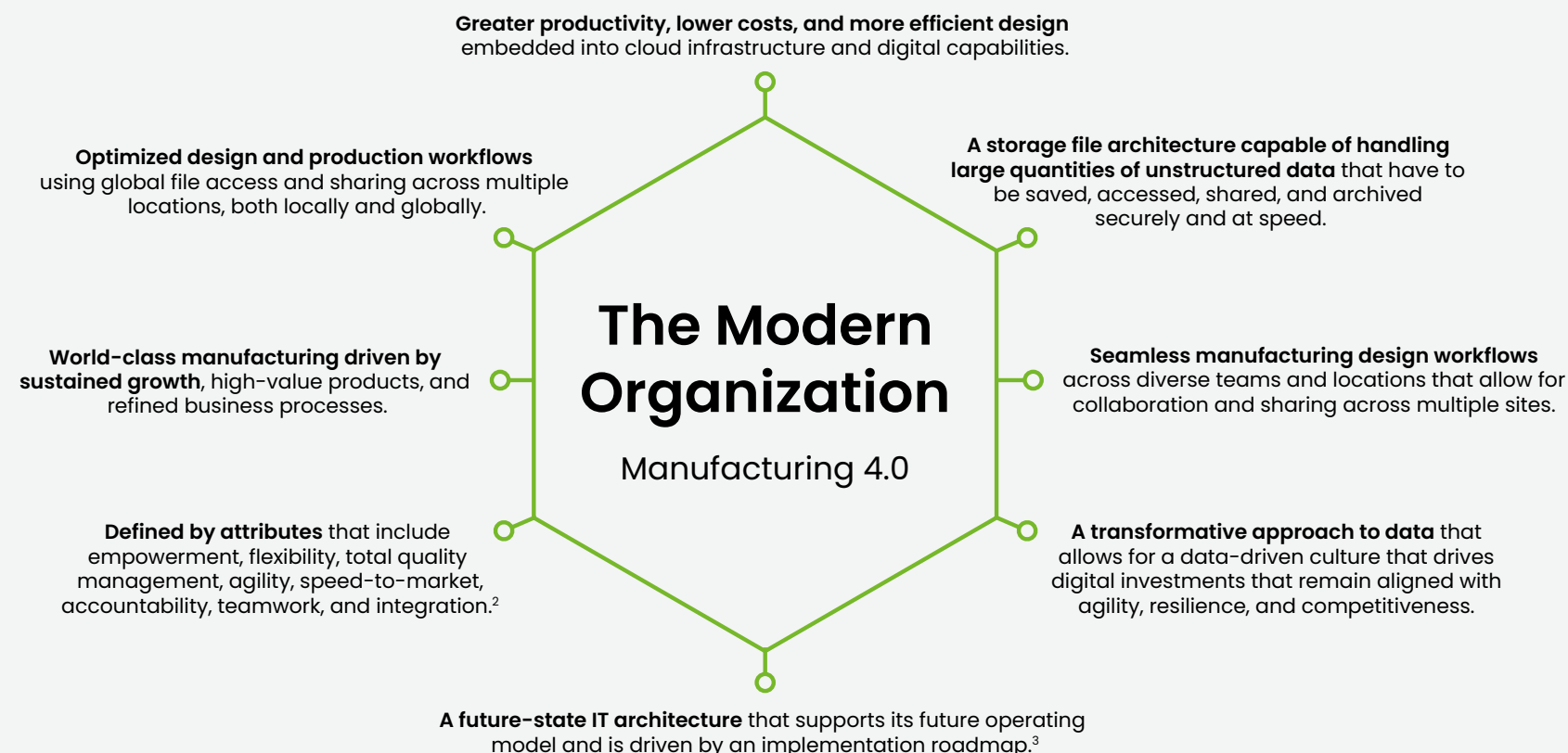
- 1 Industry 4.0 and 5.0
- 2 Business Continuity
- 3 Cybersecurity
- 4 Hybrid and Remote Agility
- 5 Collaboration and Innovation
- 6 Measurable Cost Savings



01

Industry 4.0 and 5.0

Industry 4.0 and Industry 5.0 are the next-generation evolution of manufacturing. Industry 4.0, defined by IBM as an approach that’s “revolutionizing the way companies manufacture, improve and distribute their products”, is the integration of multiple digital technologies into a cohesive ecosystem.



¹[Reference](#)

²[Reference](#)

³[Reference](#)



The value in manufacturing typically results from Industry 4.0 and Industrial Internet of Things use cases that are strongly enabled by and scaled through cloud technology.”

McKinsey,

“Clearing the air on cloud: How industrial companies can capture cloud technology’s full business value”¹



McKinsey believes that Industry 4.0 has the potential to improve operational effectiveness, capture shifting value pools, and build the foundations for digital transformation. They also note that firms are still en route to achieving this potential due to cautious adoption and steady digital transformation approaches.

Industry 5.0 is the next evolution down the chain. Here, the human and the machine come together to achieve the objectives of Industry 4.0, but with social values and prosperity becoming central to its overarching purpose. The European Union defines it as a complement to Industry 4.0 and “a [vision] of industry that aims beyond efficiency and productivity as the sole goals, and reinforces the role and the contribution of industry to society”.

It is critical to have the right infrastructure in place to ensure that the business is capable of fully realizing the potential of both Industry 4.0 and Industry 5.0, and remain competitive in a highly volatile environment. Cloud storage is key to ensuring that data is secured, operationally accessible, and integrated across multiple systems and platforms.

02 Business Continuity

From wars and civil unrest, to earthquakes and power outages, disruption is an ever-present threat to businesses. It's therefore crucial for organizations to be capable of withstanding the impact of system shocks and uncertainty, across the realms of operational efficiency, cybersecurity, scalability, agility, and more.

Business continuity is also the key to transforming those challenges into opportunities. Companies that have woven resilience into the very fabric of their structure and strategy are not only more likely to pivot successfully in conditions of uncertainty, but will also have the digital tools required to ensure operational efficiency.

By implementing a robust and reliable cloud platform that facilitates multi-site management and scalability, companies can ensure that they have always-on business continuity with data protection and ransomware recovery.

Companies can consolidate their file data infrastructure with simpler solutions that combine file storage, snapshots, ransomware detection and mitigation, and file access for hybrid workers and facilities across multiple regions.

This will provide them with a resilient foundation, as the business will be assured that invaluable data is protected and available on demand, and that remediation in the event of corruption is simple, rapid, and accurate.

Having a cloud-based infrastructure that can store your data and make it accessible anywhere, at any time, is a proven route to robust business continuity and stability in the face of disruption.



03

Cybersecurity

The IBM Security X-Force Threat Intelligence Index paints a picture of a sector under attack and facing an intense, and growing, cybersecurity threat. Manufacturing has become a leading cyber-target, with unpatched software being the cause of around 44% of ransomware attacks and a 33% increase in attacks due to a vulnerability exploit.

Considering the size and volume of data and file sharing that takes place within the manufacturing environment, security is a non-negotiable priority. Additionally, the scale of physical infrastructure that manufacturers need to utilize, combined with an inherently globally distributed layout within enterprises and across supply chains, makes centralized control of security functions especially challenging. Companies need to invest in true ransomware resilience that ensures files, data, and systems are accessible from anywhere and at any time without exposing the organization to risk.

Implementing a storage and file-sharing solution that comes with built-in, trusted and scalable security means that security teams spend less time and resources investigating the source and location of an attack, how it happened, and the extent of the damage.

Instead, the relevant decision-makers and security teams can receive real-time alerts that provide a detailed log of activity and IP addresses across all locations and allow for teams to scope and identify the source of attacks at speed.

Combined with immutable versioning, providing regular snapshots of file servers to enable easy rollback to a healthy version if an attack occurs this will not only reduce the number of employees affected by an attack, but also embed enterprise - level security and minimize downtime, reputational damage, and loss of IP.

⁴ [Reference](#)



in 2021 ransomware actors attempted to ‘fracture’ the backbone of global supply chains with attacks on manufacturing, which became 2021’s most attacked industry (23%), dethroning financial services and insurance after a long reign. Experiencing more ransomware attacks than any other industry, attackers wagered on the ripple effect that disruption on manufacturing organizations would cause their downstream supply chains to pressure them into paying the ransom.”

IBM, “IBM Report: Manufacturing Felt Brunt of Cyberattacks in 2021 as Supply Chain Woes Grew”⁴

04

Hybrid and remote agility

The manufacturing sector relies on collaboration and project management across multiple locations and geographies. Centers of excellence are frequently sited in different corners of the globe, and experts send vast quantities of information and huge files to different teams at different times of day.

For example, engineering teams situated in Asia, Europe, and America who focus differentially on design, simulation and assembly, will need systems that allow them to regularly send incredibly large files, without worrying about file corruption, data loss, or limited access to the information.

They also want technology that empowers them to work smoothly and within a system that's integrated, accessible, and easy to use.

One of the biggest challenges faced by manufacturing firms today is the ability to manage large file sharing across locations. At present, organizations typically face a dichotomy: either centralize servers at priority locations and accept delays in accessing files at other locations; or replicate file servers across locations, creating ongoing difficulty in tracking and reconciling multiple versions between different servers. You want a simplified hybrid work infrastructure that solves these challenges with a single solution, minimizing the need to manually consolidate information from multiple points and platforms. This ensures that remote and hybrid users can quickly and confidently access the data they need through an intelligent, intuitive interface.



Manufacturing, like any engineering discipline, has high demand for file storage and data management that delivers high availability. In addition, people are working from centers of excellence based all over the world, sharing vast quantities of information asynchronously and synchronously and they need capacity and accessibility.”






Andres Rodriguez,

Founder and Chief Technology Officer at Nasuni



There is immense value in a storage solution that allows for the organization to respond to hybrid and remote working demands with agility. One that can integrate file shares within an ecosystem and provide productivity tools such as desktop synchronization, and external file and folder sharing to enhance user productivity and provide access to files from any device.

This makes it key to look to data management and file storage solutions that tick these boxes:

-  High-performance collaboration
-  Intuitive productivity tools
-  Frictionless workflows between collaboration platforms
-  Scalable and affordable storage
-  Files that can be synchronized, managed, searched and accessed from anywhere

05

Collaboration and Innovation

- **Provide highly agile infrastructure for a reliable storage solution.** This is extremely useful in situations where offices have limited physical infrastructure, and within manufacturing supply chains that are distributed across multiple locations, so there is the need for a solution that lets users access, search, and collaborate on files without having to rely on VPN connections and local file servers. Instead, you can create a centralized file data system that allows flexible access from distributed locations while you retain control.
- **Secure your external files and folder collaborations.** Organizations working with clients, contractors, and supply chain partners need to share files without compromising control, performance or security. If you enter the Microsoft ecosystem, you can leverage Microsoft Teams, Microsoft Office 365, and third-party solutions like Slack to provide frictionless access to file shares that complement workflows across different collaborative tools in a secure environment.
- **Enhance project collaboration** with a solution that supports complex workflows for distributed teams so they can share and engage across multiple sites. The cloud is the answer to providing improved design efficiency, greater productivity, and lower costs.
- **Drive innovation,** engineering excellence, and the agility you need to stay competitive by embracing the cloud for scalable file services.



We are at our most efficient when our manufacturing facilities are running. Any downtime costs us money. Nasuni has increased productivity across the company by dramatically improving file access across our many remote offices.”

Sandy Bodell,

Vice President of Information Technology
at the Cooley Group

06

Measurable Cost Savings

If you invest into the right types of technology, you can consolidate your file data in easily expandable, highly durable object storage at a fraction of the cost of an on-premises solution. The key is to ensure that your data is still available at the edge with the performance your applications and users need. With today's technology, this is entirely possible.

Leveraging the ubiquity and flexibility of the cloud, you can replace traditional network attached storage (NAS) and file server infrastructure while consolidating file data in an easily scalable cloud object storage platform that comes at a much lower cost.

"We've replaced our entire file storage infrastructure with Nasuni and cloud object storage for about the same cost as we were paying for backup before."

James Green, Director of IT at SAS International



A cloud approach puts capacity at the core of the system, and this is where the data, the single source of truth, is located. Then you have high-performance edge appliances that deliver the file storage capability that allow you to go from a few 100 terabytes of data to petabytes without having to re-architect and without having to think about how to put more storage into different facilities; it automatically brings the capacity online in a way that's cost-effective and elastic."

Andres Rodriguez,
Founder and Chief Technology Officer at Nasuni

A Look Back

The manufacturing sector may face numerous challenges, both today and on the economic horizon, but within these challenges are opportunities. Opportunities to step forward into a digitally-defined future that empowers businesses to fully realize the value of Industry 4.0 and 5.0, as well as cost-savings, rigorous cybersecurity, and robust business continuity.

Opportunities that are easily realized with the right technology – technology that is increasingly ubiquitous and accessible.

Organizations within this sector will experience measurable benefits from cloud storage and data management platforms, as these can handle the loads and demands presented by their unique operational expectations, and by their customers. With the right partner and technology, your business can swiftly modernize and transform how it handles its data and collaboration without putting it at risk or losing a competitive advantage.

It's essential that your technology investment ticks the boxes of security, speed, business continuity, and seamless integration with legacy apps. And that you remain ready to innovate without being hindered by your infrastructure.

Fortunately, this technology exists.



Case Study: Redefining Manufacturing Potential

Nasuni provided a manufacturing organization a file data platform to deliver simplified storage with smart cloud services

Simplicity, ease of use, and intelligent integration were key requirements for a leading manufacturer implementing a storage and data management solution. With more than 40 locations worldwide, it needed an accessible and seamless file service architecture to integrate with legacy infrastructure and transfer vast quantities of file data at speed.

The firm uses CAD and Adobe InDesign, along with other data- and storage-hungry applications. Machinery on the floor reads and shares product data and imagery to run the lines, and the volume of files located across multiple premises was causing problems that significantly impacted productivity. They needed visibility and efficient access for files sitting in different silos and facilities.

To resolve these challenges and improve overall data management and storage capabilities, the firm developed a proof of concept (PoC) with Nasuni. Overcoming several obstacles, including user training and redirecting application paths, Nasuni ensured that the migration exceeded expectations.

In addition to seamless ongoing management of data and files, the solution automatically syncs files across multiple locations. Without background scripts needed to sync locations manually, sharing information has become quicker and more convenient.





It is also using the platform for archival purposes, reducing storage space and costs, as only a small subset of data needs to be cached locally. With data sitting in the cloud, the company has lessened its footprint on-site, and it's easier for IT to optimize resources and spend.

Performance wise, when machines capture product images to support quality control processes, they are now uploaded to a folder share, regularly scraped, and then archived.

Nasuni ensures that data retains its quality and can be accessed on demand.

Moving forward, the firm will use Nasuni to create more resilient and secure smart facilities. By providing regular snapshots of file changes, Nasuni's ransomware protection functionality enables precise rollback for rapid remediation of cyberattacks, minimizing risk and facilitating business continuity.

Having observed substantial benefits relative to traditional backup server methods, it intends to deploy this service across the company in the near future.

Preparing for the Future

Moving forward, businesses must innovate rapidly to compete for opportunities while preparing for greater uncertainty and risks. Organizations and supply chains will become even more globally distributed.

With technologies like cloud enabling easier collaboration, companies can take a granular approach to locating the best combination of specialized skills, labor costs, and resource and transportation costs, for specific elements of their operations. Currently inseparable processes will be distributed across the globe, with hyper-specialized employees and technologies contributing to multiple independent project groups.

This will support economic growth in many regions, with new business markets and opportunities emerging alongside. However, retaining centralized control over security policies and ensuring business continuity becomes more challenging; compounded by greater geopolitical risks, system shocks and regulatory complexities.

Resilience and security must be designed into business developments from the outset – not only mitigating immediate threats, but preemptively laying the foundations to adapt to new ones.

Being future-fit, therefore, requires multiple adaptations at the level of technical innovation, people, and processes. While resilience and agility are the underlying drivers, IT infrastructure forms the foundations of the response. All innovation will depend on storage systems that enable files to be shared rapidly, accessed easily, and collaborated on in dynamic geographically distributed contexts, while being secure and allowing deployment of centralized policies.



Let's talk

Want to find out more about how Nasuni can provide your business with a fluid data infrastructure designed for the hybrid cloud world?

Nasuni's hybrid cloud platform unifies file and object data storage to deliver effortless scale and control at the network edge.

[Learn more](#)

