>

Transforming High Tech
through the Cloud Continuum

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Defining the future of cloud with High Tech

High Tech organizations face a unique set of challenges and must reimagine their future with cloud

High Tech companies are facing a massive upheaval. The world has changed significantly in the past 24 months. Most enterprises are relying on High Tech organizations to enable a "new normal" of working and living.

The High Tech industry has a unique relationship with the cloud.[1] They are providers, consumers, and enablers, all in one. They make the products and tools that build the cloud, interconnect and define communication between clouds, integral to the transformative process of 'moving toward cloud.'

In the midst of their own cloud transformations, some High Tech companies have been providing top-tier clouds for years, while others are seeking to find cost savings or phase out aging hardware. Some High Tech companies are even ahead of the game. They are using cloud as a fundamental part of their own DNA, demonstrating excellence as they unleash innovation to define new experiences to sell and connect with their own clients. We call these companies 'Cloud Continuum Competitors.'

> **For more information about cloud transformation in High Tech, read our [High Tech Industry Narrative](#).**

The journey to Cloud as a Continuum

Cloud is not a single destination, but an ongoing journey to a new wave of operating models

The pandemic has accelerated change for all businesses, with timelines for migration being compressed from years to months.[2] Accenture's research predicts that over the next three to five years, two-thirds of workloads will shift to the cloud.[3] This creates a whole new set of customer needs, with associated demand for products. With High Tech companies providing the tools and hardware for a large majority of that cloud, the likelihood for disruption (and opportunity) has never been higher.

In its recent research, Accenture completed a global survey of top companies across many industries and evaluated their cloud maturity. Among the 4,000 respondents, **193 were from the High Tech industry and almost all the organizations were present in the cloud. However, only a small subset were experiencing huge benefits from engaging fully with a new cloud operating model.**

These 'Continuum Competitors' in High Tech are using cloud for more than compute, storage and networking. They are leveraging cloud to differentiate their business, by first using the cloud to bring innovation into their product development, and then in turn delivering those products via the cloud to their customers. They utilize the entire spectrum of cloud capabilities from public, private, edge, and everything in between.

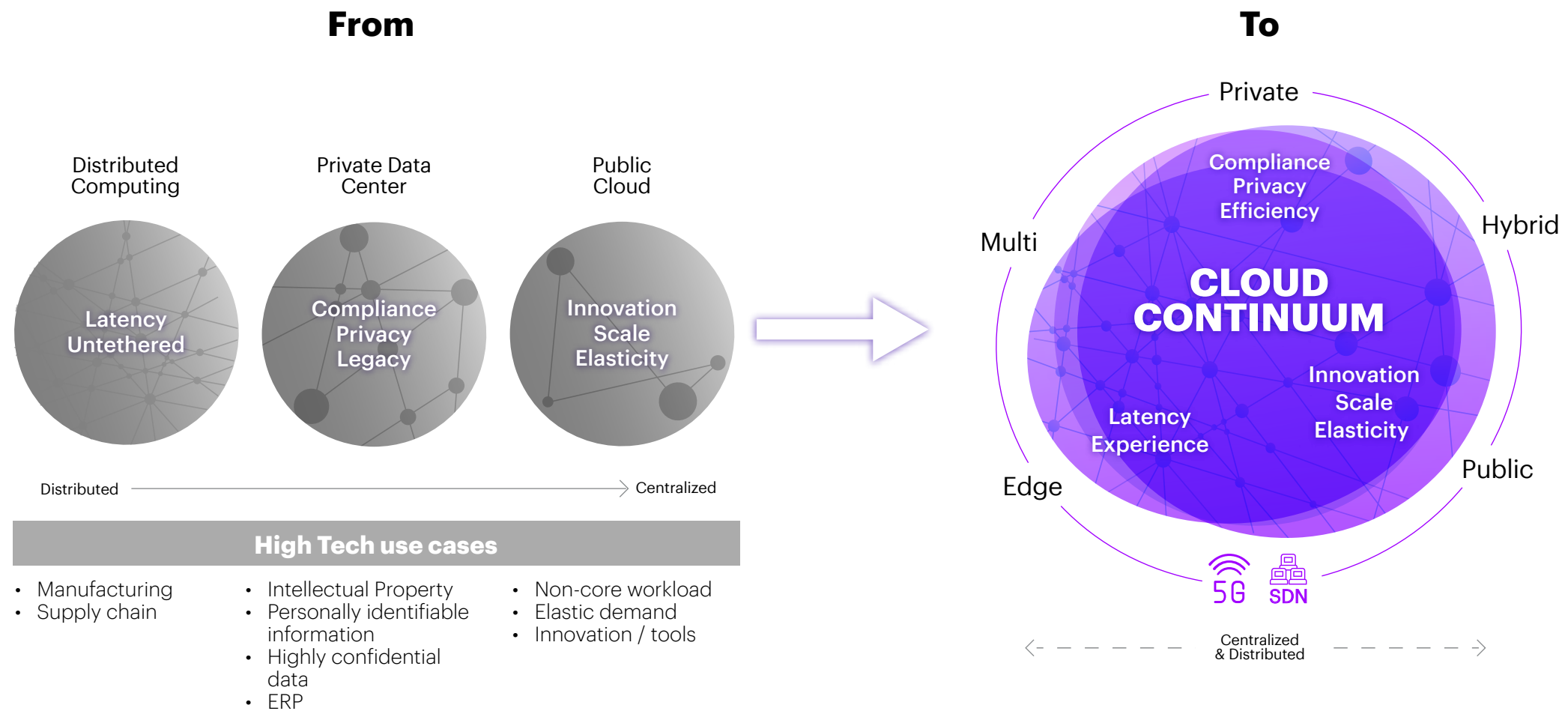These organizations are reimagining their processes, from their product roadmaps and business models to their go-to-market strategies. They are positioning their organization for a stable and profitable future by:

- Speeding up product development

- Increasing agility

- Optimizing manufacturing

Cloud Continuum Competitors embrace the cloud to grow their business as a tool, an ecosystem and an interface to new customers.

From silos to Cloud Continuum

Organizations can realize more value from the cloud by using it as a continuum of seamless—not siloed—capabilities for the ever-changing business

From

To

Distributed Computing

Private Data Center

Public Cloud

Latency Untethered

Compliance Privacy Legacy

Innovation Scale Elasticity

Distributed ──────────────→ Centralized

High Tech use cases

- Manufacturing
- Supply chain

- Intellectual Property
- Personally identifiable information
- Highly confidential data
- ERP

- Non-core workload
- Elastic demand
- Innovation / tools

Private

Multi

Hybrid

Compliance Privacy Efficiency

CLOUD CONTINUUM

Innovation Scale Elasticity

Latency Experience

Edge

Public

5G   SDN

← ─ ─ ─ Centralized & Distributed ─ ─ ─ →

High Tech cloud obstacles

High Tech organizations are facing challenges as they embrace the cloud

Migration to cloud can be difficult for any organization, but High Tech companies face a unique set of challenges. There are also varying levels of cloud maturity depending on geography. (see sidebar 1).

Making operational changes to legacy methods and reworking product development processes to leverage cloud requires **investment and change**. This requires the right people with the right skills and tools.

Security and compliance is also a primary concern for High Tech companies. Secure methods for storing and distributing data are vital to protect the most important assets, including intellectual property. While cloud security is improving, giving up data control gives rise to more private and hybrid solutions.
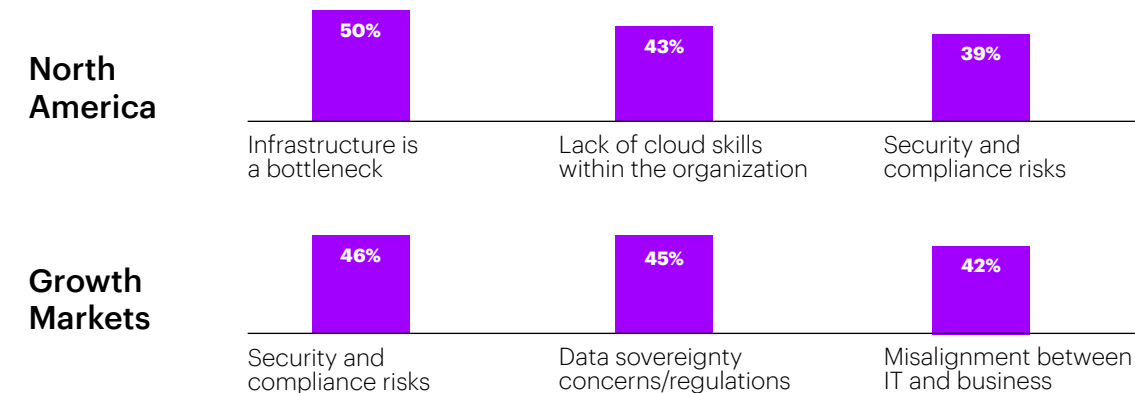
Some companies still view cloud as a cheaper method of buying infrastructure, or simply a way to stop paying for a data center. This mindset restricts the long-term value proposition of embracing the cloud as a continuum. With the right **strategy and commitment**, cloud can unlock new market positions, differentiation, and agility.

High Tech specific cloud challenges

High Tech companies use private and hybrid clouds to a greater degree than firms in other industries. This makes infrastructure more challenging - from **architecture to management** - especially as companies continue to focus on governance, security, and regulatory compliance.

Cloud Continuum companies are also in competition for scarce cloud skills. In order to grow quickly, they need to hire **talent with the knowledge and skills** to address these key concerns as referenced earlier.

High Tech challenges vary by geography

North America

| 50% | 43% | 39% |
| Infrastructure is a bottleneck | Lack of cloud skills within the organization | Security and compliance risks |

Growth Markets

| 46% | 45% | 42% |
| Security and compliance risks | Data sovereignty concerns/regulations | Misalignment between IT and business |

Sidebar 1

Unlocking Cloud Continuum benefits for High Tech

High Tech Continuum Competitors use the cloud as the basis of their future operating models, reaching towards the future. Cloud unlocks new ways to interact with all parts of their business, and allows them to offer new products and services.

High Tech Continuum Competitors are using cloud to differentiate. They are also creating and innovating the technology, software, and hardware that improves the cloud for their clients.

Continuum Competitors are seeing between **1.2x (NA) and 2.7x (Europe) higher cost reduction** than those just retaining their legacy hardware.

Furthermore, Continuum Competitors are using the cloud for more than just savings, **with 89%-90% of firms reporting that they use cloud to enhance collaboration among employees and make their work more interesting**. They are also leveraging the cloud to:

- Drive innovation for their own operations

- Provide a marketplace for their ongoing technology offers

- Undertake capital or operational improvements

Cloud Continuum best practices

Cloud Continuum Competitors view the cloud as a permanent commitment to reinvention

Current state of practices

Disconnected Agility: Some parts of business are agile, but others are a bottleneck

Waterfall Goals: Waterfall approach to IT estate - big changes done infrequently

Cloud-last Apps: Cloud only when developing new apps, but core stays legacy

Makeshift Talent Strategy: Tactical use of cloud in digital transformation, fills in gaps

IT Conservation: Keeping-the-lights-on, no new cases

Scale Inflexibility: Perpetually underutilized or overwhelmed servers

Continuum practices

Feed-it-forward Agility: Speed time to future markets, again and again

Continuous Goals: Alignment is continuous, not episodic

Cloud-first Apps: Cloud's the developers' default

Talent Transformation: Compress transformation continuously

IT Experimentation: Unremittingly upgrade experiences

Scale Awareness: Predict the power requirements for new generation of Cloud-AI Services

Figure X

Differentiation leads to success

Continuum Competitors are forward thinking, looking not only at costs savings, but also ways they can truly differentiate themselves through the use of cloud

Because High Tech players are both builders and users of the cloud infrastructure/tools, their product roadmaps are uniquely impacted by the cloud.

Retain Legacy
Non virtualized, dedicated infrastructure

New tech adoption: **0%**
Continuum Practices: **0%**
Key benefit: **Keep-the-lights-on**

Companies focused solely on retaining their legacy infrastructure may miss savings and innovation opportunities.

Migrate Only
Find lowest cost and/or best performance, public or private

New tech adoption: **40%**
Continuum Practices: **38%**
Key benefit: **Cost reduction**

High Tech companies achieve cost saving by migrating to the cloud, however this is not their primary goal. Only 60% of High Tech companies report cost savings as a benefit of migrating to the cloud, compared to 80% of companies in other industries.

Continuum competitors go beyond cost reduction. They use cloud to create differentiation- through public cloud partnership and/or private/hybrid cloud investment and expertise.

Cloud Continuum Competitors
Cloud in all forms: Public, Private, and Hybrid.

New tech adoption: **72%**
Continuum Practices: **77%**
Key benefits: **Cost reduction,innovation, speed-to-market, cross sell & up-sell, diversification, compliance, simplification.**

High Tech Continuum Competitors use cutting edge tools, applications and processes that leverage massively available and scalable infrastructure.

Some are developing applications in-house and running hybrid clouds but a growing number of customer clouds are built for single industries or applications.

These clouds can offer unique opportunities to jumpstart business opportunities or reduce development costs.

Note: Data on this slide is from the global cross-industry research results, which include High Tech companies.

Shaping a future of growth

Strategic leaders are discovering how to capitalize on the Cloud Continuum

With High Tech at the forefront of the Cloud Continuum, the leaders are defining strategies that utilize cloud innovation to its fullest.

The 'Cloud Continuum'[4] report lists four key approaches to the cloud that are common across Continuum Competitors. These approaches also apply to High Tech companies. They are defining strategy and innovation to unlock future opportunities and growth.

These approaches are applicable to any High Tech company using the cloud, whether the firm is an early-adopter or just starting on their cloud journey.

How to become a Continuum Competitor

01.
Know where you want the Cloud Continuum to take you

02.
Establish cloud practices to support and augment existing technologies

03.
Accelerate innovation to deliver exceptional experiences

04.
Provide continuous strategic commitment

The many places Cloud Continuum can take you

Define vision, vulnerabilities, shortcomings and capabilities. Plan for the future and follow through.

Capitalizing on the cloud's full potential

Your Cloud Continuum strategy can help you realize your full business potential

To achieve the full potential of your enterprise in the cloud, it's important to develop a Continuum strategy involving three key facets:

- Define a vision that clearly states the core values and future aspirations

- Identify competitive vulnerabilities and shortcomings

- Develop a clear classification of capabilities, anchored on where your organization is today versus its future aspirations, leveraging the full extent of the Continuum

The Continuum is not just one technology, but many—each with its own strengths and limits.

The most successful cloud strategies utilize the full Cloud Continuum, including private, hybrid and public architectures. Continuum Competitors use these architectures to enable differentiation with analytics, high performance compute, artificial intelligence (AI) and machine learning (ML).

Edge computing is also ripe for cloud and Continuum improvement. Private cloud architectures that work alongside public cloud are becoming increasingly popular. 5G connectivity has massively expanded the possibilities for connecting devices anywhere.

Simply understanding what capabilities are even available on the continuum can be hard, let alone understanding how to use them. It is important to first create a clear strategy and priorities before leaping head-first into adoption. This will keep an organization moving forward in the same direction.

Continuum Competitors lead the pack not just in formulating ambitious visions, but also at realizing them. For example, in North America, Asia, and Latin America, High Tech Continuum Competitors aim for 1.4x more ambitious financial and operational goals (e.g. faster time to market, increased cross sell or up sell, and increased number of customers).

Continuum Competitors are 3.3x more likely to have adopted AI-augmented knowledge work globally.

01.

Siemens makes the right connections

Siemens AG, a 174-year-old company, rapidly pivoted to Industry 4.0 and became a highly advanced industrial manufacturer a few years ago, largely enabled by the Cloud Continuum.

Siemens made the decision to help engineering and manufacturing companies use vast amounts of data from their factories, equipment, and production processes to operate more efficiently—all in alignment with the company's Industry 4.0 vision. To do so, it recognized those companies would need to embrace digital transformation—driven by

automation, edge and cloud computing. It also understood those companies use a diverse landscape of different platforms, so offering cross-platform interoperability with innovation was important.

Siemens chose to proceed with a multi-cloud, best-of-breed approach, working with multiple cloud providers to broaden the choice of platforms offered to companies, as well as investing in an advanced set of capabilities across those providers to continually optimize and improve manufacturing.

01.
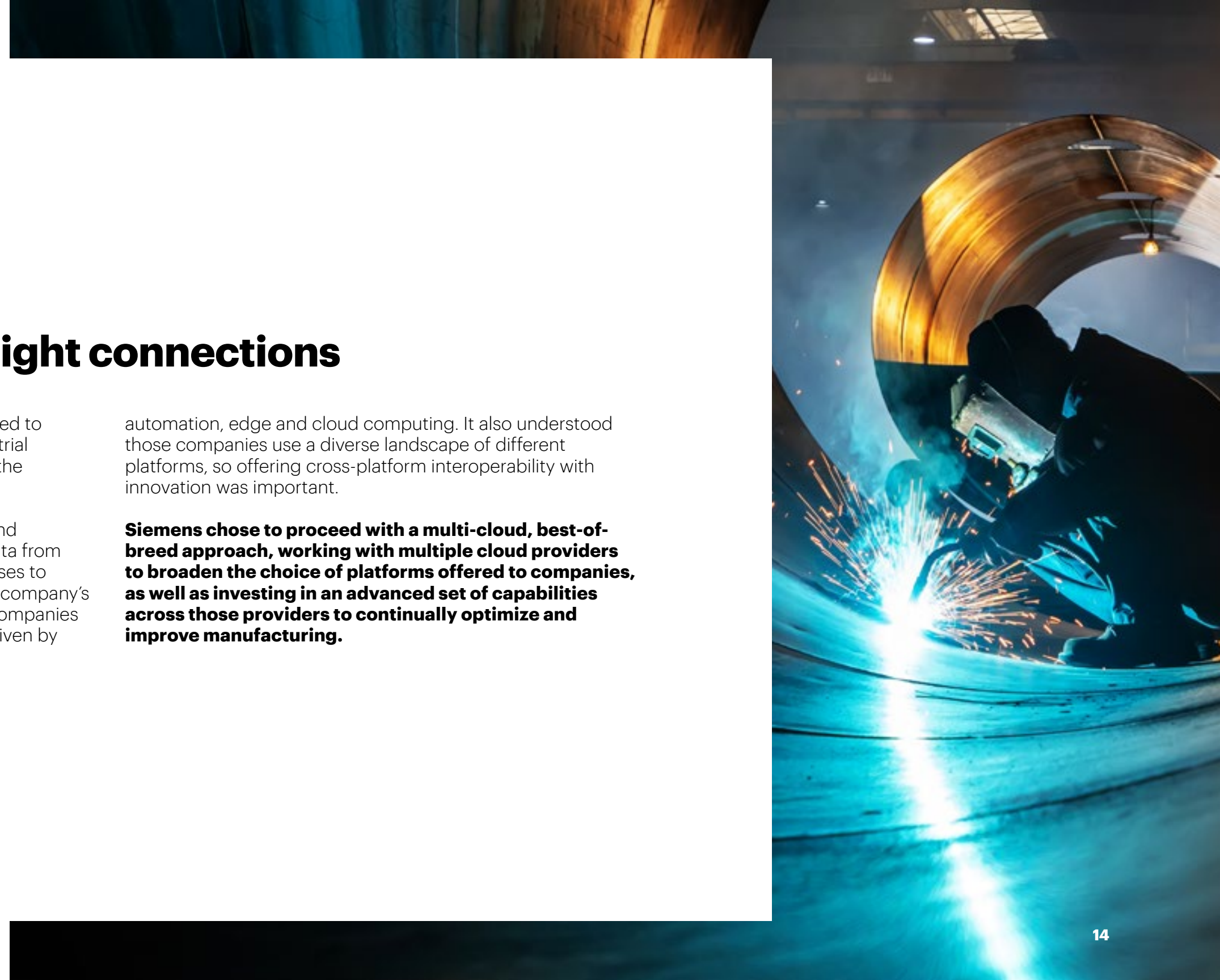
In Depth: Siemens embraces smarter manufacturing

Siemens Cloud Continuum journey has saved the company significant time and resources. In 2012, the company entered a strategic collaboration with Amazon Web Services in and followed up with a series of other investments, resulting in the development of MindSphere in 2017. MindSphere is a cloud-based operating system built on native AWS technologies. It can process data, in real-time, from thousands or even millions of devices and sensors in plants, systems, machinery, and products dispersed throughout production processes and supply chains. All this is possible due to an architecture where edge and cloud computing are working seamlessly to deliver the same business outcome.

MindSphere was deployed that same year at Siemens's own factory in Monterrey, Mexico, which manufactures more than 28 million circuit breakers and switches every year for the US market. The factory had difficulty monitoring the overall efficiency of equipment, including unplanned downtimes and uneven quality of production.

By connecting the factory to the cloud, workers were able to view problems—such as a malfunctioning machine—in real-time and make immediate improvements. By 2018, Siemens made MindSphere available on Microsoft Azure, which enabled

a bigger base of customers to achieve quick time-to-value and scale across the enterprise.

In 2019, Siemens announced a new cooperation with Google Cloud to optimize factory processes and improve productivity on the shop floor. By combining Google Cloud's data cloud and AI/ML capabilities with Siemens' Digital Industries Factory Automation portfolio, manufacturers were able to visually inspect products or predict wear-and-tear of machines on the assembly line. Another solution from its digital enterprise portfolio, Industrial Edge, allowed manufacturers to collect local data from IoT devices, which could then be preprocessed and sent to the cloud in small packages.

Siemens' Cloud Continuum saved both time and money, as central management of edge devices and apps reduced deployment and maintenance expenditures.

Today, Siemens' multi-cloud strategy allows it to offer a range of cloud-based solutions to customers in many other industries, including healthcare and infrastructure, to bring greater efficiency and cost savings from their machines and processes.

Establish cloud practices to support and augment your technologies

Migration alone is not sufficient. Companies must use cloud as a fundamental ingredient and pursue technology adoption.

Being agile helps to thrive and grow

In a world where roughly one-third of workloads are in the cloud, a winning strategy hinges upon not just migrating to the cloud, but also continuously building upon the migration. For instance, it's smart to build on cloud with edge, leverage Platform as a Service (PaaS) services to assemble and consume newer capabilities, and adopt and apply AI/ML technologies on your data and processes.

Agility separates successful Continuum Competitors in this space and those who are still up-and-coming. Continuum Competitors are in a state of continuous innovation. They are adopting and integrating new technologies, without just chasing 'the next big thing.'

These competitors are able to evaluate and utilize new technologies faster, which means they reap the benefits faster—improving their supply chain, bringing products to market faster and improving their customer's experiences.

However, innovation comes at a price.

The key to success is combining adoption with practices that bring discipline and help companies achieve change outside of technology at the same rate. Successful Continuum Competitors follow at least four out of six best practices (referenced in Figure X).

Companies that follow at least four out of the six best practices are able to adopt 30% more technologies.

02.

$8B communications hardware provider adopts Everything-as-a-Service

A leading global provider of mission-critical communications hardware with ~$8 billion in annual revenue undertook their journey on the Cloud Continuum to better traverse and succeed at adopting an Everything-as-a-Service (XaaS) model.

They had been experimenting with XaaS[5] offerings, but were not achieving the desired scale. Their technology platforms in communications, software, video, and services make cities safer and help communities and businesses thrive, which has led to a new era in public safety and security. Public safety and commercial customers globally depend on their solutions to keep them connected, from every day to extreme moments. The client serves more than 100,000 customers in over 100 countries and has a rich heritage of innovation spanning 90+ years.

Accenture assisted this company with the planning and execution process. The first step was completing an as-is assessment and to-be design for capabilities, technology, and operating model.

A series of workshops and interviews helped create a clear view of the pain points to be solved, and a concrete vision and strategy for their own future with cloud and XaaS. Below are some of the key deliverables.

- Co-created a two-year tactical roadmap of 70 initiatives to achieve target state

- Re-prioritized IT initiatives to tie with business priorities

- Defined to-be decision authority and pilots to launch customer success and new NPI forums

- Created microsite to socialize project across organization

Application innovation by global software provider

A global provider for consumer and enterprise markets with 13 aging data centers is leveraging the Cloud Continuum to forge a path to consolidate cost savings, while leveraging the development and delivery agility of a cloud infrastructure.

Accenture helped this company create a plan to reduce their data center footprint. We helped access, architect, and roadmap their journey to their future state environment. As part of the assessment, the team identified and analyzed a total of 1,000+ applications. Accenture assisted with the cloud service provider selection and architecting the future state environments in the cloud, helping with the following actions:

- Dispositioned all identified applications into a proposed reference architecture (both public and private clouds)

- Completed future Infrastructure low level design

- Designed hybrid cloud security model for the future state

- Identified network requirements

By leveraging a converged infrastructure private cloud tied to multiple public clouds, Accenture created a flexible infrastructure solution that enabled rapid development and delivery of software assets. Accenture is now contracted to migrate applications into one of their public cloud provider's environment. In addition, the team is currently setting up a migration factory for ~40,000 workloads into the cloud and is negotiating additional workloads into a second cloud provider.
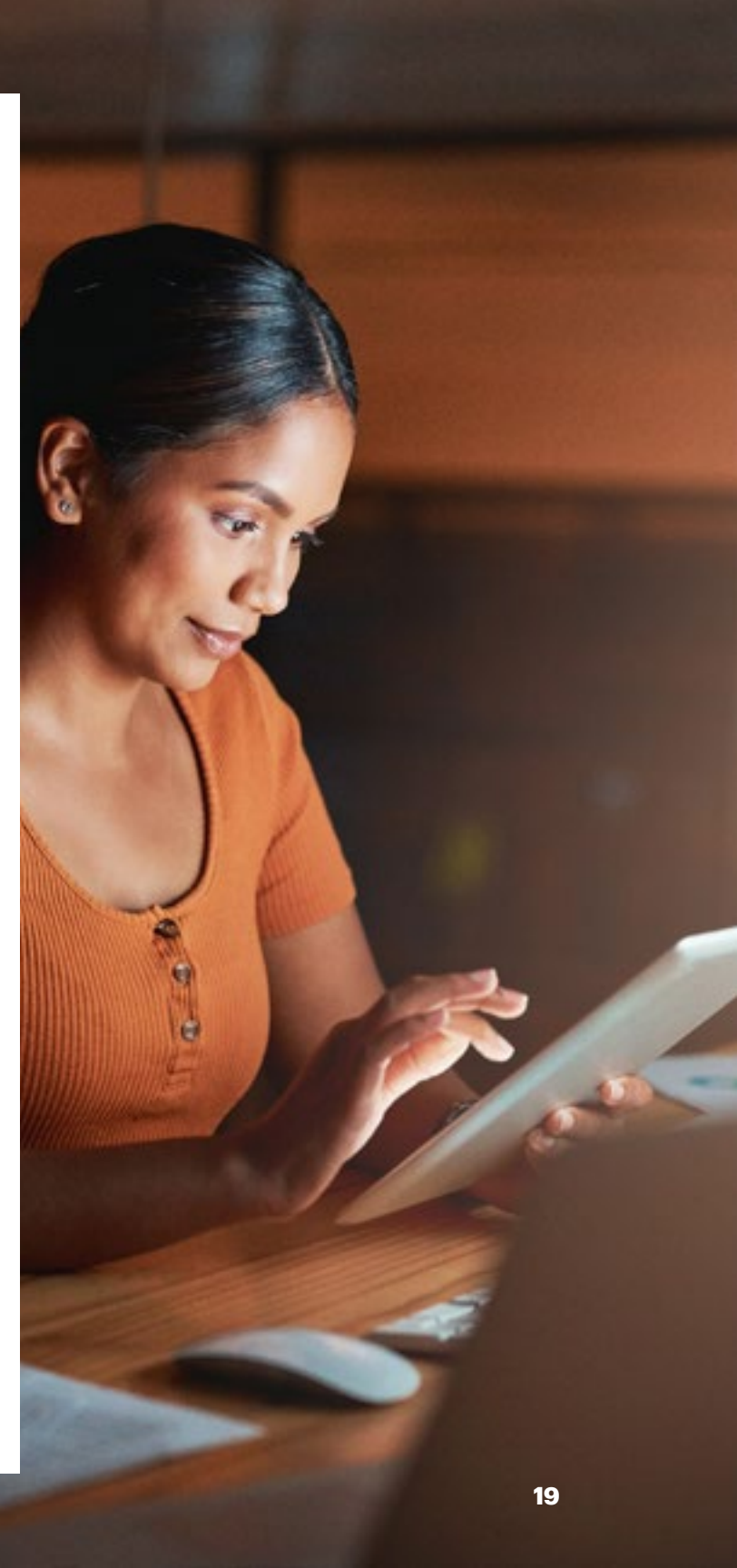
Accelerate innovation to deliver exceptional experiences

Spread experiences across products, services, delivery, and the entire business.

03.

Experience is everything

It's important to remember the cloud is an enabler and a stepping stone, not the end goal. Cloud and the Continuum enables High Tech companies to build better experiences that are human-centric, rethinking how they:

- Deliver their products and services

- Build an employee experience

- Engage with customers through delivery models

To Continuum Competitors, experience-obsessed reimagination of their business is a competitive differentiator, which is enabled only by advancing on the Cloud Continuum. They also make their investments visible and accessible to both employees and customers.

In fact, these organizations go beyond the traditional notions of optimizing customer and employee touchpoints to innovate and deliver on exceptional experience.

90% of High Tech Continuum Competitors in North America, and 100% in growth markets, use the cloud to enhance collaboration among employees and encourage ambitious projects that cut across business functions and geographies.

They use the cloud to make work more interesting and data-driven by reducing manual tasks and maintenance work. They used cloud-based tools to make technology more approachable. Across the board, they natively provide employees with human-centric experiences that seamlessly flow across different applications.

**The result: human-centric experiences.**

03.

Samsung elevates customer experiences

Samsung NEXT Ventures, the investment arm of Samsung NEXT—is an innovation group within Samsung dedicated to identifying new growth opportunities. They are leveraging the Cloud Continuum to provide an exceptional customer experience by getting close to where customers are—with edge computing. As such, it is developing innovative approaches to offset the lower compute power and lower data processing capabilities of edge devices.

Samsung imagines a future in which every device in its vicinity draws on the resources of every other device around it to form a system stronger than the sum of its parts—an ecosystem of connected doorbells, smart speakers, and TVs, all within the same neighborhood. The resulting mini clouds—formed of edge devices owned by multiple people or even companies—could combine the low-latency benefits of computing on the edge, with some of the brute computing power of the cloud, bringing together the best of both worlds.

Meanwhile, at Samsung Research, experts are exploring AI to make customer interactions with devices and appliances hassle-free and natural. It's what the company calls "multimodal interactions," where devices and appliances can offer multiple modes of interaction, including speech, sight, and touch. For a customer, this could mean giving sign-language directions to vacuum cleaners or voice commands to turn on or off air-conditioners. Today, AI systems use deep learning to achieve this type of elevated user experience.

Mini clouds of edge devices combine the best of both worlds—the low latency benefits of computing on the edge, with the brute computing power of the cloud.

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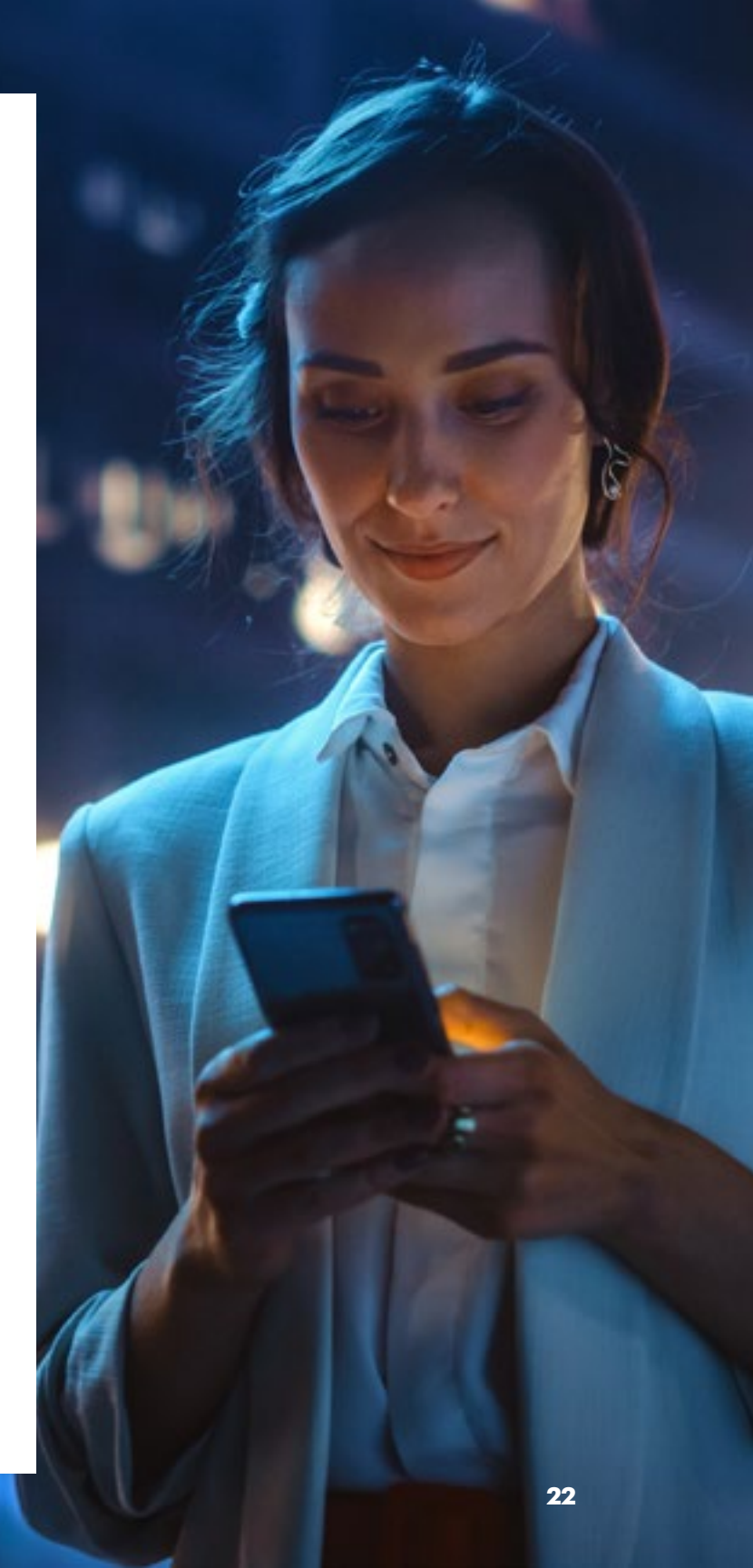
Munters mixes it up with VR

Munters is a great example of how an organization can use the Continuum to reimagine and reinvent the employee experience. Munters, a maker of energy-efficient air treatment and cooling systems for industrial and agricultural applications, found onsite client visits were difficult during the pandemic. Thus, they enabled engineers to use mixed reality, powered by Vuzix Smart Glasses, to collaborate remotely with clients via real-time video, images, gestures, real objects, and more.

These glasses can be plugged into their enterprise resource planning (ERP) and asset management systems by technology partner IFS Cloud, powered by Azure.

Today, this experience is used by more than 200 of Munters' engineers worldwide.

Forced by the pandemic to provide customers unique experiences and serve them in new—and virtual—ways, some companies compressed their digital transformation and leapfrogged to higher performance level. To learn more, read about the Leapfroggers here.

The cloud requires continuous commitment

Cloud must be embraced as more than a cost-saving measure. Leaders must set objectives, build culture, and create awareness to make cloud effective.

Build your own reality

Put your customized business plan into action with the Cloud Continuum

You build a strategy, implement good cloud practices and build new experiences for your customers and employees. It's important to remember that a core requirement for success is to continually repeat the cycle: innovate, embrace and expand.

However, an abundance of choice can also lead to paralysis when a company is faced with too many options and has to consider them for existing and future goals. It's therefore critical that leaders understand how to balance their own Continuum ambitions with strategic priorities that will keep the business focused.

Specifically, leadership needs to balance the goals and strategy, and align them with business objectives. They must accept appropriate levels of risk and evangelize a culture of agility and growth.

Between budgets, alignment between businesses and IT, incentives, risk and measuring success… there are plenty of pitfalls. Leadership must become champions for their cloud strategy and advance initiatives with clarity and commitment.

Organizations also must recognize the "all-hands" nature of the challenge—and everyone across the organization needs to be aware of the cloud's potential and best practices. Innovation can come from anywhere, and when more people with varying perspectives and skillsets are invited into the conversation, more possibilities abound.

Leadership is responsible for not only setting ambitious yet attainable goals and touting an exciting vision, but also ensuring organization-wide education and evangelism. Leaders should intentionally go through the enterprise and ask, "What awareness are we building?" and "How well do employees at all levels understand the goals and the potential of the Cloud Continuum?"

Customized NetApp cloud usage drove $1.5B in revenue

NetApp as a business is moving to the cloud.

Mark Chadwick
Vice President, Strategic Partners,
Worldwide Partner Organization, NetApp

NetApp embraced a top-down, strategy shift from traditional hardware to cloud-enabled sales. They invested in decoupling their hardware and software offerings to create offerings on the cloud. They partnered with previous competitors (CSPs) to expand customer base and market opportunities.

They give customers the ability to use and consume NetApp customized for them

NetApp set the strategy from leadership to adjust the business to accommodate the shift to cloud: activating the sales organization and adjusting compensation plans, etc.

NetApp is a long-established hardware company. They embraced the change inherent in the cloud market and made moves to separate the OS from their hardware so that it could be offered to clients as an OS on top of a virtual machine (VM) accessed

from a hyperscaler. The result is equivalent to a NetApp storage array running in a public cloud environment, making it easier and more economical to manage.

NetApp embraced the growth of the CSPs, aggressively changing its business model to seize the market opportunity.

"From a vendor perspective, we've been working very closely with the CSPs to transition some of the products in our portfolio to run in the cloud," says Mark Chadwick, managing director, strategic partners at NetApp. "That introduces mobility, flexibility, scalability, and other benefits largely found through cloud deployments."

NetApp cloud developers aren't just building these products for end-users. "Our engineering teams are actually leveraging the cloud for their development," Chadwick says. "It's a way to both increase agility and demonstrate the effectiveness of the products to the customer base."

It's all part of the company's strategic shift to a more cloud-centric posture. "NetApp as a business is moving to the cloud," Chadwick says. "We've quit building data centers. We're doing more and more with the hyperscalers. So, for a lot of the offerings that NetApp actually builds, our own internal IT is the first customer."

# Everything-as-a-Service business models expand customer reach and revenue

A large multinational information technology company was experiencing significant competitive pressure and customer demands for a subscription-based option for many of their compute, storage, security, and networking offerings. Due to a series of targeted acquisitions, an opportunity for Everything-as-a-Service (EaaS) emerged, and they wanted to bundle many solutions into a single offer (hardware, software, services) and finance them.

Accenture partnered with the company to conduct a Software-as-a-Service (SaaS) assessment and roadmap for their existing software business. This included evaluating operating capabilities and the current state of several business units and offerings against industry best practices. The teams focused on sales, customer success, finance, marketing, and organizational areas. Accenture also helped evaluate their business systems

to provide actionable recommendations to change front and back office systems to conduct frictionless subscription and consumption transactions.

Working with Accenture, the company was able to deliver on it's commitment and successfully transition to an as-a-service (AaS) model that had a significant impact to their channel. This presented an opportunity to grow their services through its channel strategy. Since they were a hardware provider, special focus was given to protecting the existing business while growing a new (SaaS and Network-as-a-Service (NaaS)) business.

A commitment to embracing cloud as a new way of doing business (rather than a competitor to be avoided) has enabled the company to create new revenue, evolve business models and unlock better ways to serve customers.
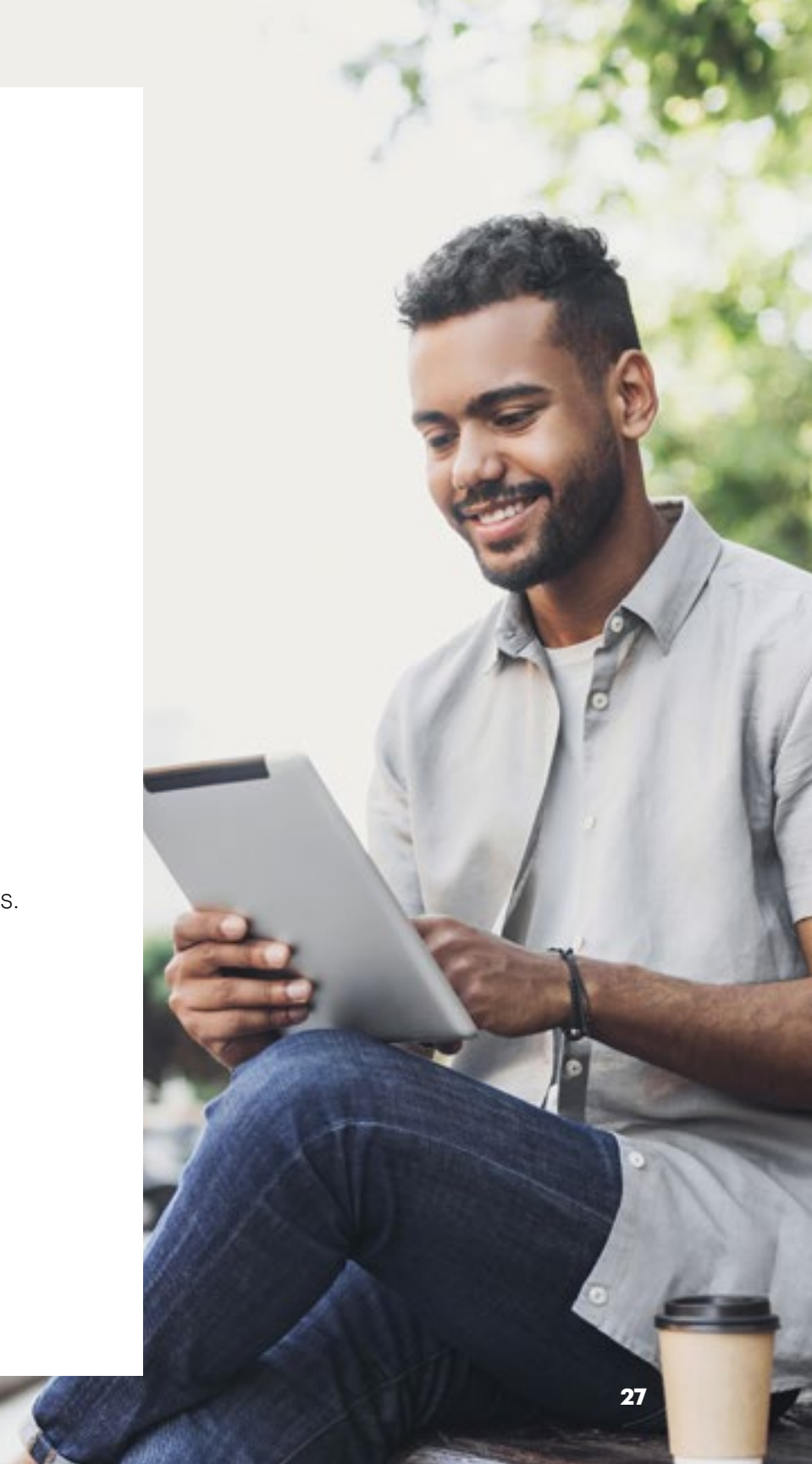
Conclusion: The potential of becoming continuous

Be ready for every opportunity that comes your way with the Cloud Continuum

High Tech Continuum Competitors are not only ahead of the pack, but they are also redefining what the cloud can be through innovative use cases.

They are:

- At the forefront of smart manufacturing

- Building supply chains that interconnect and respond

- Providing the largest private and hybrid cloud environments

- Utilizing cloud to solve their own industry challenges

- Creating cloud solutions for the other industries

Reframed as a strategic opportunity, the cloud equips High Tech companies to unlock new business initiatives and avoid being outpaced by the competition. Former hardware providers can switch to software-defined offerings, creating innovative solutions for their customers.

Cloud creates a whole new set of customer needs, with associated demand for products. The use of cloud-centric tools and techniques streamlines development and supports innovation. From an operational standpoint, a strategic hybrid multi-cloud delivers the high-performance, resilient, elastic, and secure computing platform needed to support modern product development.

Accenture can help your organization become a Cloud Continuum Competitor. Connect with us to learn how your company can accelerate reinvention.

25 technologies

enabled for the Cloud Continuum

A spectrum of capabilities and services from public through edge and everything in between

Cloud

- Cloud SaaS
- Cloud IaaS
- Cloud Paas
- Hybrid Cloud (mixed computing, storage, and services environment made up of on-premises infrastructure, private cloud services, and a public cloud)
- Serverless computing
- Cloud-native applications
- Containers
- Microservice architectures
- Multi-cloud

Real-time data capture and analysis

- Data lakes (data repository)
- Streaming /real-time data
- Big data analytics

AI and automation

- Deep learning
- Physical robots
- Vision systems
- Natural language systems
- Tiny ML
- Federated learning
- RPA (Robotic Process Automation)

Security

- Cyber threat intelligence (CTI)/Active Defense
- Endpoint detection and response:
- SIEM (security information and event management):
- Trust-based architectures

Internet of things

- Internet of Things (IOT)
- Edge/fog computing

Six practices

for the continuum

Continuum practices—cloud is a permanent commitment to reinvention

Feed-it-forward agility: Speed time to future markets, again and again

Continuous goals: Alignment in continuous, not episodic

Cloud-first apps: Cloud's the developer's default

Talent transformation: Compress transformation continuously

IT experimentation: Unremittingly upgrade experiences

Scale awareness: Predict the power requirements for new generation of cloud-AI services

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[3]4 Keys to Cloud Continuum Success, Accenture, 2021
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Siemens makes Industrial Data accessible and actionable. New services enabled by the Mendix low-code platform enable data-driven decision making in factories and across enterprise data source.

Siemens and Microsoft partner to deliver secure, scalable and open Industrial IoT applications to support industrial organizations' digital transformation.

Siemens brings power of Mendix low-code enterprise application development platform to MindSphere, April 16, 2019.

A pilot version of the IoT operating system MindSphere from Siemens is now available on Microsoft Azure. Customers and partners of both companies can access MindSphere solutions via the cloud computing platform, May 19, 2018.

Industrial Edge: Exploit the full potential of your machine and plant data to increase your competitive edge and generate new business models.

Siemens Mindsphere, Case Study, Amazon Web Services.

Industrial Edge for machine- and plant builders: The easiest way to integrate information technology into machines.

MindSphere is the cloud-based, open IoT operating system from Siemens that connects your products, plants, systems and machines, enabling you to harness the wealth of data generated by the Internet of Things (IoT) with advanced analytics.

Industrial Edge is the SIEMENS platform to host applications from different vendors on a computing platform close to the shopfloor.

Siemens Digital Industries Software and AWS have been working together since 2012. In 2017, AWS collaborated on the development and delivery of MindSphere®v3.

Siemens Smart Infrastructure Chooses AWS as its Preferred Cloud Provider for SAP Environments, December 3, 2020.

Siemens Advanta & Amazon Web Services: Bringing business into the cloud and your partners for industrial IoT solutions.

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Siemens Healthineers moves more computing to the cloud to support value-based care development, August 6, 2018.

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Samsung's head researcher wants human–AI interactions to be a multisensory experience, December 09, 2020.

The future of AI is on the edge.

Samsung Research, Artificial Intelligence: In the future, AI technology will become much more prevalent and we will interact with smart devices on a daily basis.

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How COVID-19 spurred one manufacturer to roll out remote field service in days, April 20, 2020.

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