



THE DIGITAL FUTURE OF MINING

A digital path towards transformation

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OVERVIEW

Digital readiness in the mining industry

The mining sector currently faces challenges surrounding volatile prices and demand, supply chain disruption, rising input costs negatively impacting cash flow, production pressures caused by delays due to temporary mine closures, and related health, safety and sustainability concerns.

And although mining operations have enjoyed a small upward trend recently, worldwide productivity is still around 25% lower today than in the mid-2000s.¹

Mining leaders need to review their enterprise-wide operations and view technology, data and digital infrastructure as key priorities to continued survival. Digital innovations such as automation, data analytics and artificial intelligence (AI) can help address falling productivity while increasing safety and security for miners through real-time decision support and future projections.

The question then isn't when to digitalise—it's how. While many mining companies have articulated a clear digital strategy, few have adopted the IT architectural changes needed to deliver on it.

¹ Gauthier Canart, Lukasz Kowalik, Mukani Moyo and Raj Kumar Ray. "Has global mining productivity reversed course?," McKinsey & Company, April 27, 2020. <https://www.mckinsey.com/industries/metals-and-mining/our-insights/has-global-mining-productivity-reversed-course>.



OVERVIEW

The drivers for digital change in mining

This guide outlines how to interconnect the infrastructure needed to fast-track improved business productivity and meaningful transformation.

The drivers for digital change in mining seek greater agility. Companies can create digital advantage and overcome these obstacles by connecting to our dynamic, ever-growing global ecosystem of resources, companies, world-class networks, clouds and IT service providers.



Increased pressure to address falling productivity

In addition to unprecedented disruption and change, there is intense scrutiny from external stakeholders—including investors, local communities and regulators—to set and report on environmental, social and governance goals.



Digital innovation adoption challenges

These range from siloed data and physical remoteness, to ageing networks, legacy systems and cloud complexity. This complexity often leads to IT constraints that prevent effective digital transformation.



Massive surges in data volume

There is a need to prioritise investing in a foundational infrastructure—and one that is scalable and cost-effective—to handle the load.



A greater focus on secure, real-time data processing, analysis and sharing

To unlock the most value from your data, you need sufficient network and infrastructure capacity to store, process, analyse and extract intelligence and insights that can be commercialised and acted on.



DIGITALISATION & MINING

The mine of the future

Global mining is under intense pressure to reclaim efficiency and manage volatilities. From remote mine locations, to high-risk operations, to uncertainty in what is even being dug up, mining is highly variable and unpredictable. This further intensifies the need for rapid digitalisation.

Despite slow adoption, it is evident that digital transformation is key to survival, as it addresses declining productivity while also ensuring safety and security for workers. In fact, digitalisation in the mining and resources sector could generate more than \$425B of value between 2016-2025.¹

This reveals significant potential in leveraging technology to build the mine of the future: one that is digitally enabled to offer better real-time decision support as well as accurate projections through next-generation real-time analytics.

¹ Digital Transformation Initiative: Mining and Metals Industry. World Economic Forum. January 2017.
<http://reports.weforum.org/digital-transformation/wp-content/blogs.dir/94/mp/files/pages/files/wef-dti-mining-and-metals-white-paper.pdf>.

DIGITALISATION & MINING

Why digitalisation matters

Digital has the potential to address these productivity challenges in mining and change the industry's approach to technology.



Digital connectivity and real-time data

Increased sensor use across mining sites allows for more accurate and consistent analysis. An enterprise-level overview via a fully integrated, cloud-enabled platform streamlines complex processes and standards, allowing for better decision-making.



Smart technology, IoT and automation

Integrated automation, while using robotics and drones in operations or autonomous vehicles for drilling, is potentially game-changing. Tele-remote and assisted-control equipment is becoming common, and deployment of autonomous equipment is already taking hold in haulage, drilling and other processes.



Rich analytics and intelligence

Complex mining tasks (e.g., geological modelling, predictive maintenance) are increasingly bound to algorithms. Easily translating data into useful information across all levels will be highly valuable for identifying areas for improvement, making optimal decisions and simulating projects.



CHALLENGES

Roadblocks to moving forward

Although technology provides greater certainty and predictability via more visible real-time data, there are still barriers to embracing further digital innovation.

Legacy network issues

Mining sites generating volumes of data leads to strained capacity, poor user experiences and cost inefficiencies on legacy networks.

Latency caused by distance and remoteness

Network delays due to geographical distance hinder real-time analytics and collaboration. While many firms are moving their data and software to the cloud, it is important to watch for unexpected costs and avoid overreliance on a single provider.

Cloud complexity

New and increasingly cost-competitive cloud providers are coming into market. But moving data between providers entails egress charges with complicated pricing models, presenting technical and cost challenges.

Data security risks

The average mining company manages hundreds if not thousands of applications at once, generating data exposed to risks at every touchpoint. These risks escalate where data is distributed between multiple partners and third parties.

Siloed data

Traditional IT infrastructures do not have the capability to process all the data typically siloed at remote mining sites and offices, quickly and cost-effectively.

Integration challenges

Lack of data and device integration hinders rapid adoption of technologies like AR/VR, IoT and drones. Data's full value cannot be realised unless it can be seamlessly integrated for rapid access, safe storage and meaningful processing.



THE RIGHT ARCHITECTURE

Overcoming industry challenges

Digital innovation and connectivity have significant potential to create greater value for the mining industry, its customers and the wider community. Accelerating digital adoption now is critical for resources industries to thrive in the new normal.

The digital opportunities available are plenty, and advancement through smart technology continues to accelerate rapidly.

Digitalisation, automation, analytics, IoT and AI produce data in considerable quantities, requiring an architecture that can securely and cost-effectively solve performance, scalability and flexibility challenges.

Companies can do so through re-architecting, which involves distributing the digital infrastructure onto a global interconnection platform which can integrate operations, IT systems and devices across partner and supply chains in multiple locations for deeper, real-time analysis and future projections.

THE RIGHT ARCHITECTURE

Three keys to building advantage

Digital leaders across all industries are prioritising three major infrastructure deployment initiatives—along with direct and secure interconnection—to achieve strategic advantage.

Digital Core

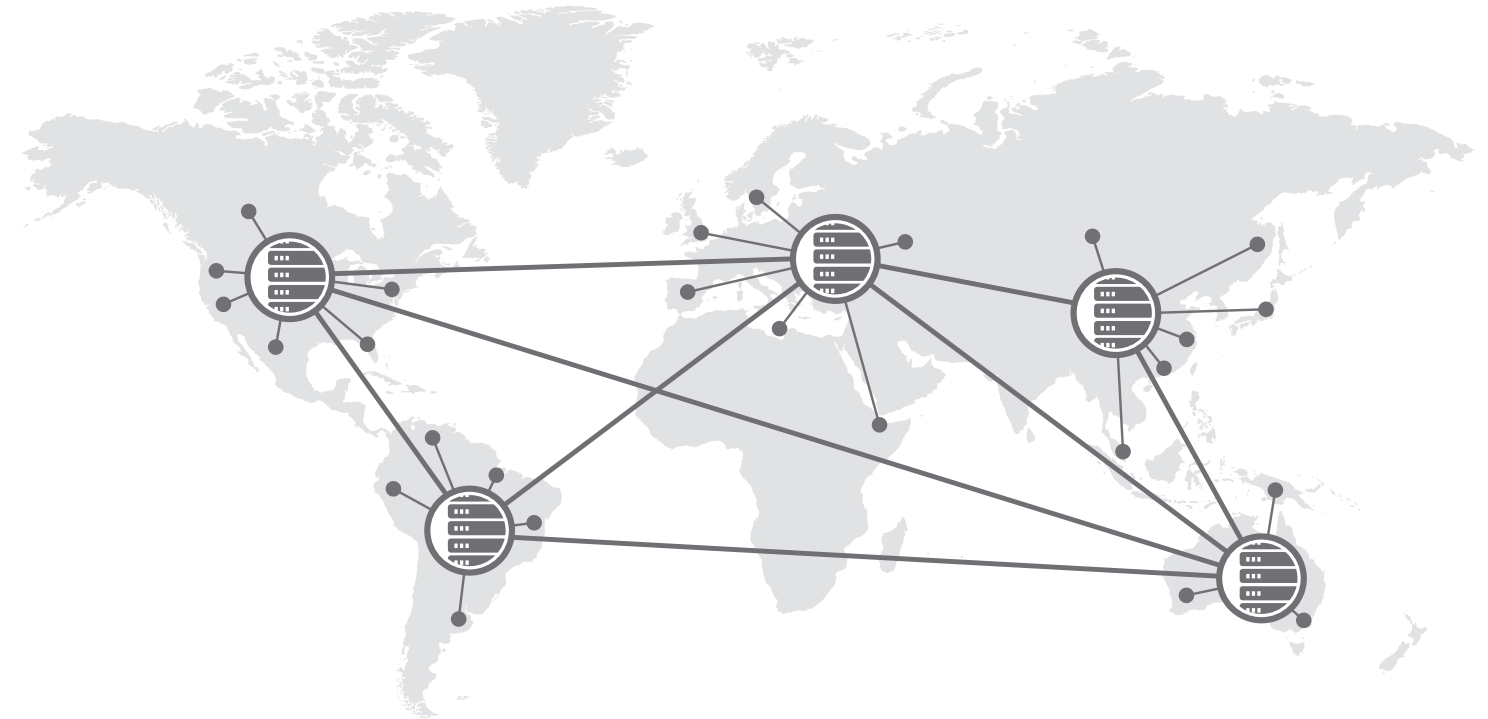
When mining organisations strategically distribute their infrastructure adjacent to dense concentrations of clouds and networks, they gain the scale, performance and flexibility of a next-generation, hybrid multicloud architecture with a global reach.

Digital Edge

Transform commerce, user interaction and local processing capabilities by aggregating mine site resources within access hubs in strategic locations with high concentrations of networks, users, devices and cloud on-ramps.

Digital Exchange

Join powerful mining ecosystems and participate in new industry exchange centres to transform business processes, build new forms of value and leverage these marketplaces to deliver new offerings.



For mining companies to gain a digital advantage, they need the right architecture.



USE CASE 1

Digital infrastructure in practice

Using high-performance network connectivity for real-time data insights

A global resources company had years of siloed data that needed to be consolidated and analysed quickly and cost-effectively.

Equinix helped the company adopt a hybrid architecture by integrating its existing Dell private cloud infrastructure, running Schlumberger and Delfi, to the Google Cloud Platform.

The high-performance connectivity provided the company with secure and reliable access to the public cloud, allowing them to stream, process and analyse their data in a useful way with minimal latency. This gave them access to real-time insights to predict faults, reduce waste and recognise trends for production optimisation.

USE CASE 2

Digital infrastructure in practice

Leveraging global data centres for
reduced latency and increased savings

Globally diverse mining sites present a unique challenge for data processing. For example, consider a global collaboration between an engineering firm in Sweden with a mining company headquartered in Perth—the traditional long-haul connectivity required to transfer data end-to-end would consume a lot of time and money.

With Equinix, the company can leverage Equinix Fabric™ and our ecosystem of data centres in 60+ major business markets on five continents. This reduces latency and transfer costs by routing data through the nearest Equinix International Business Exchange™ (IBX®) data centres—in this case, one of our three Stockholm facilities. The result is a much cheaper, faster and easier alternative to traditional end-to-end connectivity models for data transmission.





USE CASE 3

Digital infrastructure in practice

Building a multicloud architecture with edge connectivity to reduce data costs

With legacy data systems and regulations requiring mine data to be held for extended periods of time, most mining and resources companies face a hodgepodge of data storage devices, platforms and even cloud networks.

Egress charges between cloud platforms are often exorbitant, making it expensive and inefficient for companies to access data from multiple sources at once.

By using Platform Equinix®, Equinix Metal™ and Equinix Fabric—and by designing their architecture with a single source of truth at the edge—companies will be able to transfer data in and out of various clouds at a 50% lower average cost.



TRANSFORMATION ROADMAP

Digitalise with a step-by-step transformation strategy

Companies who prioritised interconnection as part of their digital transformation journey saw a 328% return on investment, 30% minimum latency reduction and a total planning and implementation time of six months.¹

This shift in business and delivery architectures requires a digital edge strategy and placement of strategic control points next to users, clouds and networks. By building your digital edge alongside the largest industry ecosystems on Platform Equinix, you can bring together all the right places, partners and possibilities.



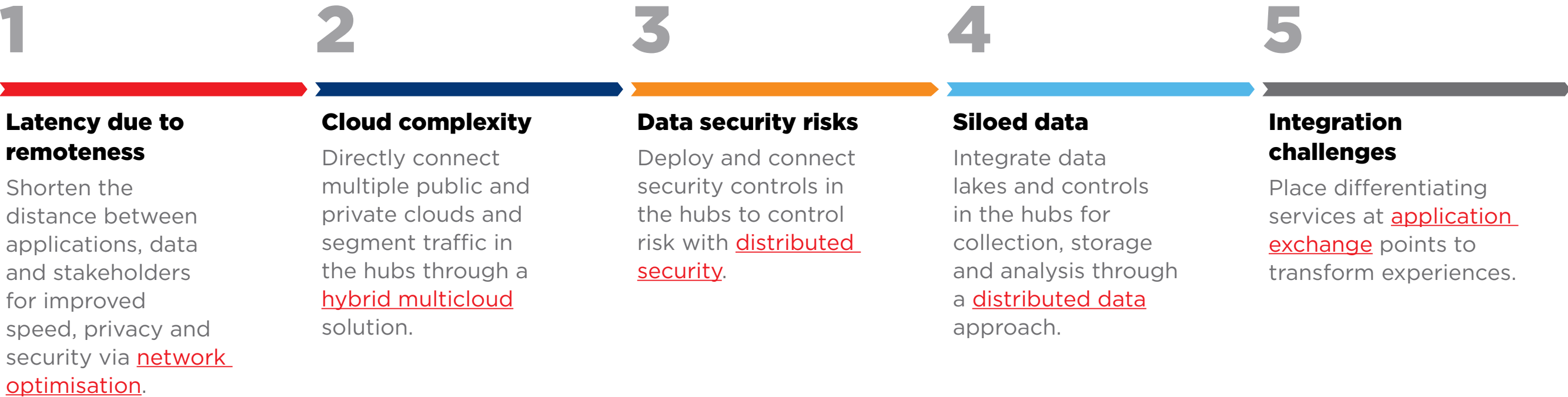
1. "Total Economic Impact™ Study," Forrester, Commissioned by Equinix, April 2019.
<https://www.equinix.com/resources/analyst-reports/interconnection-total-economic-impact-study>.



TRANSFORMATION ROADMAP

Digitalise with a step-by-step transformation strategy

Re-architect digital infrastructures onto a globally distributed interconnection platform. Integrate operations, IT systems and devices across partner and customer ecosystems.





WHY EQUINIX

Leverage our partnership to solve digital transformation challenges

A global leader in digital infrastructure

Equinix boasts the most cloud on-ramps globally and houses 1,800+ networks and 2,950+ cloud, IT and system integrator services. Our software-defined solutions mitigate the need for physical infrastructure, enabling you to scale quickly, simply and cost-effectively into new markets.

Access to global locations

Move data between clouds and across the globe with high performance and low costs via our interconnection hubs, allowing for more effective global operations and collaboration.

Agility for a digital mining business to stay competitive

We help you build a better infrastructure and connect you to our dynamic, ever-growing global ecosystem of world-class networks, clouds, IT service providers and mining companies to fast-track your digital advantage.

Flexible and scalable hybrid multicloud infrastructures

Our cloud-dense, carrier-neutral data centre enables secure, direct access to your data anywhere, anytime—even across multiple clouds—to enable real-time analysis and performance improvements.

A trusted advisor in digital transformation

In addition to our internal team of global solutions architects and network architecture specialists, we also have a strong community of world-class partners to help overcome existing challenges and prepare for emerging ones.

Fast-track with our best-of-breed partners

Connect to everything you need to succeed. Choose from current vendors, providers, regional specialists and innovators in the industry's largest ecosystem.



Get started

Request a detailed briefing or strategy workshop with our experts.

Contact us

Learn more at Equinix.com.au.

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Locations in Sydney, Melbourne,
Canberra, Adelaide, Brisbane and Perth