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DIGITISING INDUSTRIAL POWER NETWORKS

WHY CLOUD BASED TECHNOLOGIES ARE BECOMING AN ESSENTIAL ENABLER OF EFFICIENCIES AND SUSTAINABILITY IN THE MINING SECTOR?

Manoli Yannaghas, Co-Founder and Managing Director, VoltVision

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WHAT IS CLOUD COMPUTING?

"Cloud computing has revolutionized the way businesses operate by offering scalable and cost-effective access to computing resources and data storage. With cloud computing, companies can store and process vast amounts of data, run applications and services, and manage their operations from remote locations.

This enables companies to focus on their core business activities and reduce their capital expenditures and IT operations costs. Additionally, cloud computing enables businesses to scale up or down their computing resources as needed, making it easier for them to respond to changing market conditions and business needs. Furthermore, cloud computing provides increased security, reliability and accessibility, leading to greater collaboration and improved decision-making for businesses."

- CHATGPT, OPENAI

HOW HAS CLOUD COMPUTING CHANGED OVER THE LAST 10 YEARS?

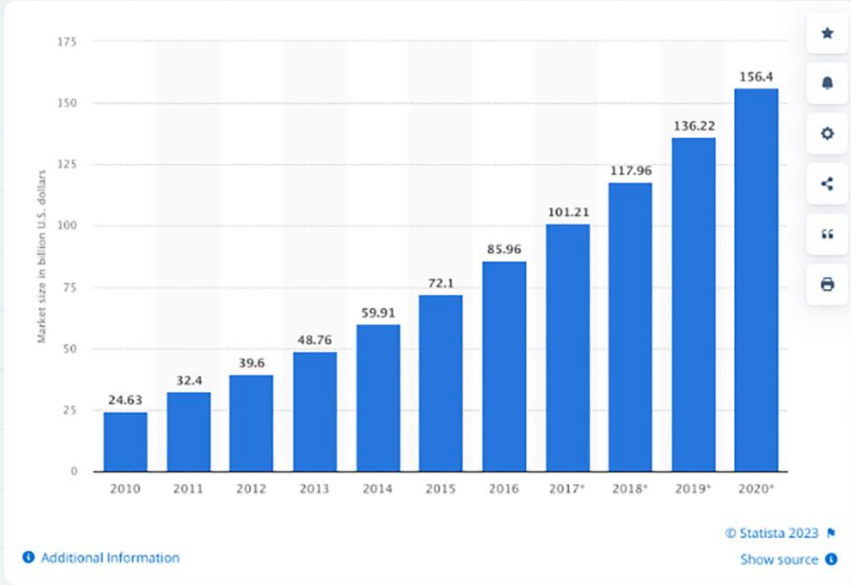
- **Cloud Innovation has been driven by Market Demand**
- Revenues from cloud-based businesses worldwide have grown from:

  2010 –$24.63BN

  2020 - $156BN

  2030 -$1054BN[1]

- Cloud innovation is being driven by some of the largest global technical corporations.
- This now affects all of our day-to-day lives.



[1] Market Research Future

THE CHALLENGE FOR MINING AND WHY IT MUST EMBRACE THE CLOUD

CHALLENGE FOR MINING

Decarbonisation/Green Energy Transition & Growing World Population and ongoing urbanisation = **more natural resources.**

Mining needs to meet this growing global demand with the smallest footprint possible. It needs help from technology to become more efficient and sustainable.

WHAT THE CLOUD OFFERS TO THE MINING SECTOR

- Improved Data Management
- Real Time Monitoring
- Enhanced Collaboration
- Increased Efficiency
- Improved Cost Management
- Advanced Analytics

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SPECIALIST CLOUD BASED TECHNOLOGIES

HELPING MINING BECOME MORE EFFICIENT AND SUSTAINABLE

Increased access to cloud-based technologies has fuelled the growth and proliferation of specialist, fast adapting, **cloud-based applications such as VoltVision**.

These offer the mining sector low-capex quick ROI solutions, that can improve efficiencies and sustainability across the mining lifecycle.

Circulor

Satelytics

IoT.nxt bridging the edge

CONUNDRUM

MACHINEMAX

inductosense

insight terra

ISOMETRIX

V | V


WE DIGITIZE HV & MV INDUSTRIAL POWER NETWORKS,
TRANSFORMING YOUR DATA INTO ACTIONABLE INFORMATION.

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VOLTVISION CLOUD BASED TECHNOLOGY

DATA EXTRACTION

VoltVision's **V-CUBE** technology is able to extract hard to access high resolution power data by retrofitting to (multi manufacturer) existing electrical protection equipment

CLOUD PLATFORM

ViViD IoT cloud platform ingests large data volumes at high speed and performs critical transformation of "data" into "information" that can be used to manage all electrical assets

EXPERT ANALYSIS

Highly qualified technical team provides access to analysis not widely available resulting in improved production, safety, and emissions efficiency

PRODUCT USP'S

- Flexible solution means clients can design a tailored product appealing to wider customer base
- Solution delivers significant cost/CO2 reductions on existing operations plus large CAPEX savings
- Retro-Fit installation requires no on site presence reducing cost and speeding up delivery
- Benefits for senior management, operations and engineering staff
- Only retrofit solution able to monitor high voltage electrical networks (most industrial applications)

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WHOLE HV/MV POWER NETWORK

Inaccessible HV/MV Power Data made accessible with V-CUBE

V-CUBE

Raw Power Data seamlessly and securely transmitted to the cloud

HV/MV ELECTRICAL ASSETS

Live access to COMTRADE files including Waveform and Harmonics

WHAT IS VOLTVISION DIGITISATION?

CLIENT HISTORIAN / DATA LAKE

Data from V-CUBE can be sent direct to Client Historian/ Data Lake

Data from Client's Historian / Data Lake can be analysed and visualised through ViViD

ViViD PLATFORM

Transform and Analyse

Visualise and Recommend

ACTIONABLE INFORMATION

ALERT CONTROLS

V | V

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ENDEAVOUR GOLD MINES

Complete: Retrofit Digitisation

- After the initial trial, in December 2022 VoltVision finished the power network digitisation of all 6 of Endeavour's West African mines.
- All sites monitoring power consumption, quality and efficiency .
- Centralised dashboarding available on site and across Company.
- Performance alerting against benchmarks including KPI's
- Automated report generation.
- Group monitoring, auditing and reporting of Scope 1 & 2 emissions data.
- Asset management & fault prediction on larger motors.
- Early operational improvements identified and changes made at one site.

INITIAL TANGIBLE IMPROVEMENTS:

- Significant power-associated OPEX reduction.
- 18,000t/annum reduction in CO2 emissions.
- Reduction in Kw per ton needed for processing.
- Power quality CAPEX saving.
- Downtime reduction using live Data.
- Identification of flaws in protection programming allowing for upgrades and increase in protection equipment effectiveness.

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SUMMARY

- Improvement of Cloud Computing will continue as development and innovation improves.
- Fears around security, connectivity are no longer applicable.
- Internal and external opportunities to adopt new technology are proven to lead to improved operational efficiencies which in turn positively affects sustainability.

"Mine managers have to keep track of hundreds of workers. Million-dollar equipment. Fluctuating commodity markets. Productivity. Consumables. Maintenance. Safety. The list goes on. That's why there's so much technology to make things easier. By now, most mines use an array of sensors, software, and telecommunications to ease some of the load. Regular practices like automated dispatching and drill hole placement thrive thanks to these systems. But, there's a key issue holding mines back from taking the next step in productivity gains…"

They're afraid of clouds.[2]

2 https://www.wencomine.com/post/can-cloud-computing-work-mining

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Manoli Yannaghas, Co Founder and Managing Director, VoltVision

E: manoli@voltvision.live

M: 07881820818

www.voltvision.live