ZELLA DC™

Making Edge Easy

Next generation server room solutions for the mining industry

zelladc.com

Smart Mines

The mining industry is relying more and more on technology to operate safe and effective mine sites.

Traditional mines are quickly transforming into Smart Mines that use information, autonomy, and technology to enhance safety, reduce operational costs, keep better track of employees and equipment, improve maintenance and boost productivity.

It's easy to see the benefits of adopting new technologies to run efficient mine sites:

- Reduce operational costs
- Automate operations
- Increase workforce safety
- Improve monitoring of operations
- Optimise long-term maintenance
- Ensure data security

However, innovation also means new challenges. One of the main challenges is that Smart Mines produce a lot of data 24/7.

Smart Mines - why so much data?

IIoT

The Industrial Internet of Things (IIoT) connects all the heavy machines, vehicles, equipment and devices.

Drones provide real-time aerial footage of mining sites for maintenance, monitoring, mapping, safety etc.

Autonomous vehicles connect to the managing software in real-time.

3D

3D imaging of ore deposits helps understand the geology for more efficient and waste-less mining.

Data optimisation and machine learning are valuable to optimise operations and save time and money.

Workers have monitoring devices with access to critical real-time information regarding operations.

3D printing increases flexibility and efficiency by producing on-demand parts for replacements and repairs.

All activities and incidents need to be recorded in real-time for safety reasons and for auditing purposes.

Challenges of the Edge

All this data has to be stored and processed locally, so we see an increase in Edge computing.

Edge computing allows for fast and secure processing with no latency - this is a crucial requirement for the smooth running of Smart Mines, particularly for autonomous vehicles, as any delay in data processing will most likely cause accidents.

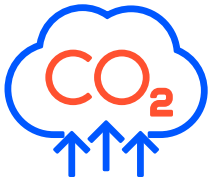
If you can't afford to lose even a millisecond, the only solution is on-site data processing.

But **traditional on-premise server rooms are time-consuming to plan and build and expensive to run and maintain**, especially in remote locations with limited infrastructure and specialised personnel.

Traditional server rooms are:

Expensive. The more data you produce, the more data storage you need. The more storage you need, the more money you spend. Server rooms require a lot of energy to keep them up and running 24/7, especially in hot environments where temperature control is paramount. So what drives up the costs?

- remote location
- hot and harsh environment
- hard to fly in qualified personnel
- limited infrastructure



Environmentally unfriendly. The more data you produce, the more carbon you release into the environment. Sustainability nowadays is becoming a core business strategy for companies of all sizes, so keeping your carbon footprint low is a priority. So why do Smart Mines produce so much carbon?

- 24/7 cooling (hot environment)
- processing a lot of data
- flying in specialised personnel

Smart Mines need a server room solution that is good for the environment and the bottom line.

We know mining

It all started 10 years ago in Perth, Western Australia, with an idea to solve IT difficulties on remote mine sites.

Remote mine sites are the toughest locations for IT data centres. We knew that if we could nail the data centre out on the mine site, we would have a solution that could work anywhere on earth.

With mining companies being our early adopters, we were able to mould, develop and optimise our micro data centres to the highest standards of health and safety, certifications, reliability and cyber-security.

The result? A uniquely innovative micro data centre that is:

- **Easy** from selection to deployment, maintenance, and management
- **Robust** and able to withstand Australia's harshest conditions
- **Fully contained** (think dust-free) and complete (with software)
- **Cost-effective** in terms of both infrastructure and energy usage
- **Scalable** – as you grow your business, you can grow your data centre
- **Secure** from unwanted entry in the physical and cyber dimension
- **Reliable** – minimising downtime from overheating and human error
- **Vendor-agnostic** – integrating all hardware and software seamlessly

This means that with our micro data centres you will be able to:

reduce your energy bills and save money

reduce your carbon footprint and meet your sustainability targets

ZELLA Pro

Our Zella Pro 12, Zella Pro 25 and Zella Pro 38 are all suitable for harsh mining environments.

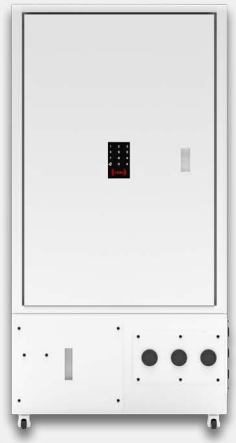
Our Zella Pro micro data centres are stand-alone housing units that replicate all of the cooling, security, power and monitoring capabilities of a traditional data centre on a much smaller, lower-cost scale, making it ideal for edge requirements.

It miniaturises the data centre into the size of an average refrigerator, offering its own cooling and power capabilities, significantly reducing operational and energy costs by 30-60%, and the on-premise IT footprint. Moreover, it allows for portability and can be moved from location to location and expanded to a set of "modular" data centres as business grows.

Zella DC micro data centres offer both physical and cyber protection for your edge computing.

Each Zella DC is robust, secure, with cooling systems that minimise energy cost while giving customers flexibility of size and sophistication.

All units are monitored for performance 24/7/365 even when there is no network available.



ZELLA Pro12™

ZELLA Pro25™

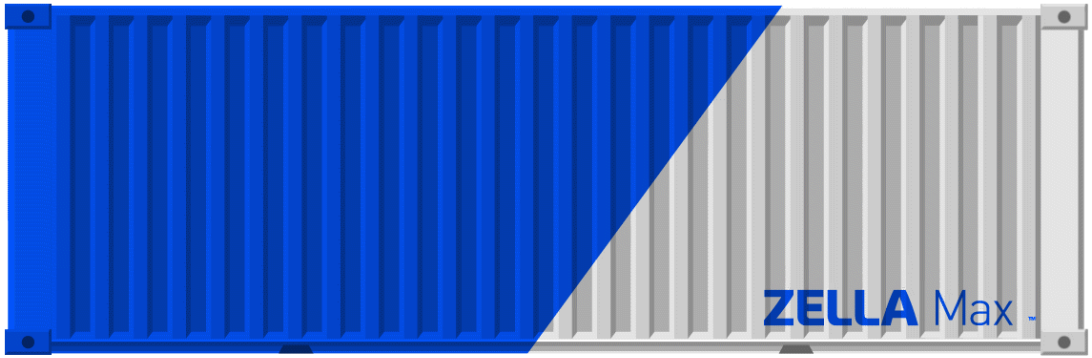
ZELLA Pro38™

ZELLA Max™

Zella Max is a 20ft scalable containerised all-in-one data storage solution for outdoor applications like mining sites.

Zella Max supports up to 6 Zella Pro 38 single and dual-cooling models, depending on the configuration. You can start with one and then add up to 6 as your business grow. Or add more containers. The flexible layout will allow you to match your own health and safety requirements.

- Suitable for both greenfield and brownfield construction sites.
- Durable containers built to rigorous international standards.
- Certified IICl and ISO-standard.
- Easily scalable (inside and outside)
- Monitored for easy management and control.
- Two layers of security, both at the Zella Pro and at the container.
- Multi-tenant architecture operating in a shared environment.



ZELLA Hut™

The Zella Hut has been designed for the outdoor environment and is available as a Zella Pro 12, Zella Pro 25 or Zella Pro 38.

Your data is completely protected from the elements as it's UV resistant, water proof and dust proof.

It's the ideal solution for remote locations as it's fully automated and it can be managed remotely.

UV resistant

Water proof

Fully Automated

Managed remotely

Easy & fast deployment

Dust proof

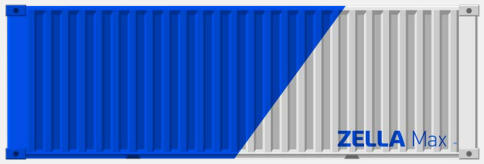
Keep your Smart Mine connected

A large distributed mine site may require more than one micro data centre.

Regardless of how many micro data centres you have, or what kind of solution you choose, you'll be able to centrally manage and control all your mdcs from one pane of glass.

Any Zella Pro can sit in an office, warehouse or donga - just pick the right size for you.

Our Zella Hut can sit on its on outdoor, so its perfect for those hard to reach spots with limited infrastructure.



The Zella Max can be placed anywhere where you need more processing power but don't have indoor space available.

Newmont Gold

Repurposing and Relocating

The Situation
This small, remote exploration site in PNG could only be accessed by a twin-propeller airplane onto which the Zella DC unit needed to fit. It's a tough environment with limited IT specialist personnel.

The Challenge
Mine sites go through a range of stages dependent on how much and what type of deposits are located in the exploration stage. In this case, after 12-months it was decided that the need for data management on site was less than anticipated.

The Outcome
The unit was operational for 2-years in PNG with 100% uptime in very challenging conditions. It was then **easily recommissioned in a new location** in Indonesia and is still operating at 100% uptime.

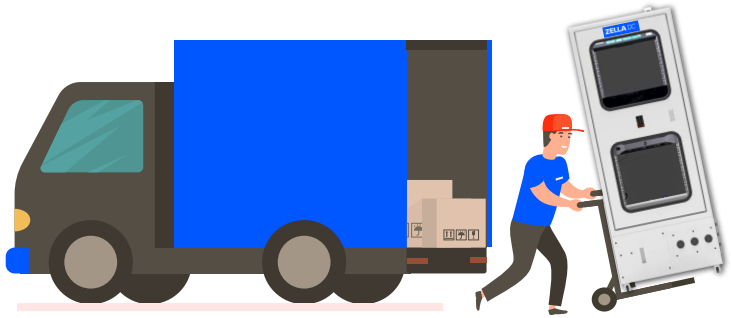
Moving a Zella Pro

Moving house is not fun, but relocating a whole office is certainly a lot more difficult; the main reason behind this is that IT equipment is hard to move.

In particular, relocating a server room is a complex and costly process; you will need to plan well in advance to ensure you:

- minimise downtime
- build a dedicated space in the new office
- implement proper cooling environment
- ensure you have the correct power management in place
- back up your data
- organise transport
- factor in IT staff overtime

With our range of micro data centres relocating your server room can be as easy as unplug - transport - plug in.



Atlas Mines

Tough Edge Environment

The Situation
The location was a busy office without a dedicated server room to house essential ICT equipment. The Zella DC units were located in the hallway near to desks where people worked.

The Challenge
In day-to-day operations the units needed to be quiet enough to work next to in close proximity. But the real challenge came from hot, cyclonic nature of the weather patterns in this part of Western Australia which sent a massive weather event that devastated the office complex.

The Outcome
The roof peeled off in the cyclone and the office was flooded destroying all equipment - except the Zella Pro units. The Zella Pro was quickly decommissioned and then recommissioned in another location with no data being lost.

Protecting your data

All our Zella Pros are designed to keep your data safe and secure and to minimise your downtime.

Cyber security is a priority of course, but physical security is also paramount.

Not only we've built in standard strict security access to prevent unathorised personnel to tamper with your data, but all our Zella Pros are also built to protect your servers from external elements.

Our units are all:

- water proof
- heat resistant
- dust proof

West Musgrave, BHP

Remote and hard to reach location

The Situation

When the Zella Pro was first sent out to this remote mine site, it was in the very early stages of the exploration process. No specialist on-site IT personnel were available at all.

The Challenge

Minesites go through a range of stages dependent on how much and what type of deposits are located in the exploration stage. In this case, after 12-months it was decided that the need for data management on site was less than anticipated.

The Outcome

The unit was therefore decommissioned and sent to another BHP site in Chile. the versatility of our Zella Pros allow them to be relocated with ease anywhere in the world, even in the most remote locations.

Easy to deploy anywhere

As our Zella Pros are so compact, they are easily deployed even in remote or difficult to reach areas.

Typically the size of a fridge, the Zella Pro can easily go on a truck or on a train so you can easily move it between your locations if needed.

And don't forget how easy it is to unplug and replug your Zella Pro - all you need is your trusted electrician and a local qualified air conditioning technician.

It's also very easy to move the Zella Pro to a different room or floor as it has wheels and it will fit through most doors and elevators.

Billiton Mitsubishi Alliance

Longevity and durability

The Situation
Our units have been in operation on this site in Queensland for over 10 years. They have endured fine coal dust, tremors from the open mine site in close proximity and wet seasons with major electrical storm events and humidity. One of the units sits outdoor, under a shelter.

The Challenge
The tough environment is definitely a challenge, with the dust, tremors water and humidity all being a potential risk to servers. With the infrastructure distributed over such a large mine site, maintenance can also become costly and difficult.

The Outcome
The is Zella DC's longest operating unit having been in constant action with the same cooling system for over 10 years. There are two units in different locations in this large mine site and they are both managed centrally from the head office.

Long term savings

It's easy to see how investing in one of our micro data centre will result in long term savings and peace of mind.

Our Zella Pros are extremely durable and able to survive even in the harshest environments. They are built to last for years so you don't have to worry about upgrading your IT infrastracture again in a few years.

With maintenance being so easy, you will also be saving money by not having to fly in specialist IT personnel. Anybody on site will be able to go through the quick 2 hours yearly inspection by following an easy checklist.

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