NEXTDC

Give your business the advantage of 100% Uptime

Australia's only completely fault tolerant data centres

Australia's only network of Tier IV certified data centres

Leading from the front to accelerate business, build confidence with stakeholders, acquire new customers, and maintain strong customer loyalty, requires focus on removing the distance between your data, applications, customers and staff. It also requires your data centre infrastructure investments to be well defined and fully supported, as millions of dollars are at risk if the wrong choices are made. Cost compound for every second of downtime which is why independent certification of resilience around data centre services can help you rest easier about uninterrupted digital availability.

If you are in pursuit of 100% uptime in your operations – with no margin for error – a Tier IV certification from the Uptime Institute (UI) is non-negotiable for every data centre in your digital infrastructure footprint. This is the only official certification that independently verifies a level of fault tolerance that ensures the failure of equipment does not impede the delivery of services. It means there are the necessary plant, equipment, and operational processes in place to counter every conceivable failure scenario.

In summary, fault-tolerant infrastructure can sustain multiple failures, such as power outages, network failures, or equipment malfunctions, without any impact on its operations. It is the only solution for any organisation with mission-critical applications and businesses that require continuous and consistent availability.

The numbers matter

Even the smallest of numbers can make the world of difference when it comes to data centre uptime. An outage of just one minute can have cascading effects across the organisation's value chain – and we're not just talking about lost sales while your systems are down, and your time and resources are consumed with isolating and remediating the issue.

What about the cost of lost data and workloads? What if your systems fail during a high-profile moment and you're left trying to fix the reputational damage, not to mention trust of your customers and stakeholders?

The evidence of how damaging an infrastructure failure can be is all around us. Most Australians remember the great "Census fail" of 2016. More recently, in 2022 and 2023, major technology companies and data centre services providers have been seriously impacted by infrastructure downtime through fire, extreme weather or cooling failures. According to UI research, public outage trends suggest there will be at least 20 serious, high-profile IT outages worldwide each year.

Why Tier IV data centre certification is important

The bottom line is that all colocation data centres you engage should carry third-party verification of their quality-of-service claims.

In the data centre world, UI is internationally recognised as the primary independent third-party audit and advisory body for assessing and certifying the resilience of digital infrastructure.

UI owns the trademark rights to the official "Tier" system which has been the global standard for rating the quality of facility design, construction, and operations for 25 years. This gruelling third-party assessment, certification and continual audit framework is the global industry benchmark that hyperscale, Government and enterprise customers know and trust. It rates buildings on a scale of Tier I to Tier IV with the latter (Tier IV) being the highest possible independent certification available in the world today for data centres.

UI also provides operational certification covering the people and processes required to match the quality of the facility. Tier IV Gold Operational Sustainability certification includes everything from training for personnel to real-time environment monitoring, metrics and reporting.

A word of warning – some data centre operators have been known to use the terminology of Tier 1 or Tier 4 in relation to their facilities. This is a giveaway that the facilities have not been independently audited by the Uptime Institute. The Roman numerals are trademarked by Uptime and matter!

The $100 million question

According to the UI's data centre ranking system:

Tier I: 99.671% uptime; maximum downtime of 28.8 hours per year

Tier II: 99.741% uptime; maximum downtime of 22.7 hours per year

Tier III: 99.982% uptime; maximum downtime of 1.6 hours per year

Tier IV: 99.995% uptime; maximum downtime of 0.4 hours per year

When you consider Gartner's estimation that the average IT downtime costs around US$5600 (AU$8500) per minute, a back-of-the-envelope calculation reveals the difference in annual downtime costs between a Tier I and Tier IV data centre comes in at US$9.6 million (AU$14.7 million) and US$134,400 (AU$205,000). In other words, downtime in a Tier I facility could cost you close to US$100 million (AU$147 million) over the course of a decade.

Even the difference between Tier III and Tier IV is not to be dismissed – coming in at US$537,000 (AU$810,000) v US$134,400 (AU$205,000).

M2
Melbourne

TIER IV DESIGN — NEXTDC Limited, M2 Melbourne, Expires 2 November 2019, UPTIME INSTITUTE CERTIFIED

TIER IV FACILITY — NEXTDC Limited, M2 Melbourne Phase 1, 19 December 2017, UPTIME INSTITUTE CERTIFIED

TIER IV OPERATIONS — NEXTDC Limited, M2 Melbourne Phase 1, Expires 11 August 2022, UPTIME INSTITUTE CERTIFIED GOLD

M3
Melbourne

Tier IV Design Documents (Building A, Data Halls A1, A2, A5, and A6)

Tier IV Constructed Facilities (Building A, Data Hall 1

B2
Brisbane

TIER IV DESIGN — NEXTDC Limited, B2 Brisbane, Expires 4 April 2019, UPTIME INSTITUTE CERTIFIED

TIER IV FACILITY — NEXTDC Limited, B2 Brisbane Phase 1, 29 September 2017, UPTIME INSTITUTE CERTIFIED

TIER IV OPERATIONS — NEXTDC Limited, S2 Brisbane Phase 1, Expires 21 August 2021, UPTIME INSTITUTE CERTIFIED GOLD

P2
Perth

TIER IV DESIGN — NEXTDC Limited, P2 Perth, Stages 1 and 3, Expires 25 June 2022, UPTIME INSTITUTE CERTIFIED

TIER IV FACILITY — NEXTDC Limited, P2 Perth, Day 1, Data Hall 1 (Level 2), Valid Until 7 September 2021, UPTIME INSTITUTE

S2
Sydney

TIER IV DESIGN — NEXTDC Limited, S2 Sydney, Expires 21 May 2021, UPTIME INSTITUTE CERTIFIED

TIER IV FACILITY — NEXTDC Limited, S2 Sydney Phase 1, Valid Until 18 March 2022, UPTIME INSTITUTE

S3
Sydney

TIER IV DESIGN — NEXTDC Limited, S3, Phase 1, Expires 15 August 2023, UPTIME INSTITUTE CERTIFIED

Tier IV Constructed Facility (Phase 1, Data Hall 2A)

Evaluating data centre providers?

Ask these two questions during the data centre selection process to ensure the provider is certified and accredited to the highest standards.

Do you have accreditation from the Uptime Institute? If the answer is no, we recommend giving serious consideration to whether this operator will be able to meet your resilience requirements.

If the answer is yes, what are the accreditations for (Design Documents, Built Environments (Facility) and Gold Operational Sustainability) and which Tier have you achieved for each (I, II, III or IV)?

It always pays to verify these claims, which you can do at UI's website.

Tier IV certification is the peak of the tier classification system created by UI. NEXTDC's certifications in operational sustainability and fault tolerant data centre design (Tier IV) demonstrates the independent verification of our facilities' ability to withstand individual equipment failures or distribution path interruptions and maintain IT operations.

The main features of Tier IV certification include:

- Fault tolerance, where multiple paths simultaneously serve the critical environment.
- Redundant components and systems at every level, including power supply, cooling, networking, and storage. This ensures resilience in the face of any environmental factors, including natural disasters.
- Continuous cooling, as well as fire segregation and leak containment between all N+1 paths and critical equipment.

Ensuring exceptional resilience of your critical IT infrastructure comes down to achieving all these requirements. Individual equipment failures or distribution path interruptions caused by unexpected or planned events, will not impact IT operations inside a Tier IV data centre.

Why innovation is important

Achieving and maintaining Tier IV accreditation requires a degree of innovative thinking in the design, build and operations of the facility.

For example, to successfully achieve the level of superior fault tolerance that UI mandates for Tier IV data centres, NEXTDC approach this from two different angles:

1. The addition of differential fault protection and isolation transformers added to the design of the electrical system
2. The complete fire-segregation of each power string.

As a result, if an electrical fault develops on any part of the system, that part is very quickly isolated — and in the case of fire, contained — while the rest of the system remains unaffected, ensuring continuous availability of power throughout the data centre without interruption.

Yet another example of where innovation has helped achieve fault tolerance: With recent advances in cooling technology, NEXTDC have developed a simplified and highly segregated cooling system solution, which is fault tolerant and meets each data centre's cooling requirements.

In addition to our cooling system technology playing a crucial role in achieving fault tolerance, they help to ensure our data centres are cooled in the most sustainable, and power efficient way possible. This in turn contributes to a lower Power Usage Effectiveness (PUE) rating, a critical measurement that indicates the overall energy efficiency of the facility.

Can I run my own Tier IV data centre?

Unless your organisation's core business is digital infrastructure, building and maintaining your own Tier IV data centre is not a viable proposition for most. There are several reasons for this:

- **Cost:** It represents a significant capital investment to build, maintain and certify a completely fault tolerant data centre.
- **Skills and resourcing:** The data centre industry is currently facing a significant skills shortage of qualified professionals to design, build and operate facilities, and you'll be throwing your hat into a very competitive ring.
- **Ability to scale:** With agility and flexibility being the watchwords for most organisations in the digital era, your digital infrastructure is going to need to scale alongside it – and that's going to be a challenge if the growth is exponential. In the current environment, you could find yourself rebuilding your entire footprint in as little as five years' time.

In short, DIY TIer IV infrastructure is not really an option if you cannot compromise on availability. The smarter option is to partner with an expert and get back to doing what you do best – that is, core business, innovation and growth opportunities.

Tier III v Tier IV – what's the difference?

Tier III

Concurrently Maintainable

A Tier III data centre requires no shutdowns for equipment replacement and maintenance. A redundant delivery path for power and cooling is added to the redundant critical components of Tier II so that each and every component needed to support the IT processing environment can be shut down and maintained without impact on the IT operation.

Tier IV

Fault Tolerance

Tier IV site infrastructure builds on Tier III, adding the concept of 'Fault Tolerance' to the site infrastructure topology. Fault Tolerance means that when individual equipment failures or distribution path interruptions occur, the effects of the events are stopped short of the IT operations.

Tier IV advantages

Eliminate Risk

Insulate your organisation from risks and financial overheads associated with downtime. NEXTDC's facilities offer the highest level of redundancy and fault tolerance – meaning guaranteed uptime of your most critical infrastructure and availability of your data.

Flexible

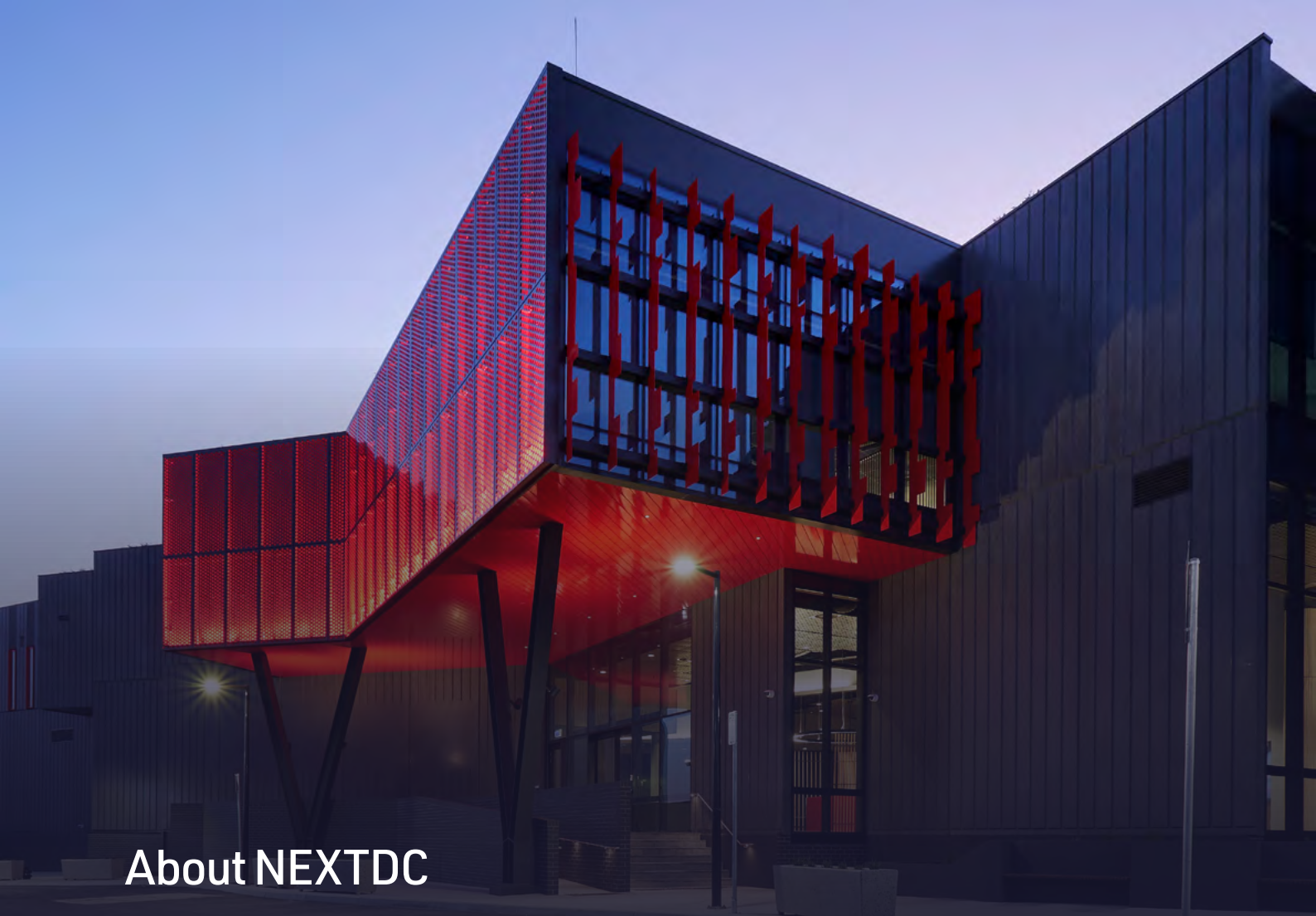
Every business is different and with the landscape changing so rapidly, it's important our data centres are built with flexibility in mind. Whether you need a bespoke data centre solution, scale your existing service, select or switch up service/cloud providers or simply determine the right connectivity between your data centres, locations, clouds and serviced – we'll help build a solution that suits your needs now and the years to come.

Cost efficient

Our mission is delivering customers the best competitive value, always. Our new generation facilities are delivered at the same cost per MW and supported under one national contract nationwide.

Scalable

Our business was built to grow as yours does. Whether your critical infrastructure is housed in one NEXTDC facility, or across multiple, you have the ability to scale your data centre service as and when you need to. Regardless of your location(s) you have full access to the one national ecosystem of carriers, service providers, cloud platforms and vendors. As your infrastructure grows in-line with your customer and business demands, our ecosystem will be there to support and compliment you every step of the way.



About NEXTDC

NEXTDC's data centres form the digital infrastructure platform that support the new digital society. They meet the highest reliability standards for power, connectivity and security.

Customers have the option to colocate critical infrastructure in six NEXTDC data centres across the country that hold Tier IV certification, for design, build and operations. It represents the only Australian data centre network independently certified for complete fault tolerance.

We can help you reach new markets, engage more customers and build business resilience to support your long-term growth and innovation agendas. To find out how NEXTDC can help your business embrace change and build resilience as you continue to lead your transformation agenda, contact us on 13 NEXT or visit www.nextdc.com/contact.

NEXTDC where the cloud lives™ 13 NEXT sales@nextdc.com www.nextdc.com