Uptime Institute®

Tier Certification:

The Global Data Center Standard

March 2019

Uptime Institute®

Protecting the availability and reliability of your critical digital platform

When business operations rely on uninterrupted digital infrastructures, you can't take chances. And when investing millions of dollars in your data centers, you want to be certain each is designed, built, and managed for maximum availability and performance, minimizing downtime due to human errors and their remediation. The Uptime Institute Tier classification system is the globally recognized standard for data center performance, with over 1,200 Certifications for Data Center Design, Construction, and Operational Sustainability issued in over 85 countries. Uptime Institute's Tier Certification is the industry standard for data center reliability.

The foremost benchmark of performance

Uptime Institute Tier Certification provides an independent, proven measure of the capability of your infrastructure to meet the performance level your business depends on. With Tier Certification, you know your data center will be able to deliver the business services your company needs, day in and day out.

Tier Standards are an unbiased set of infrastructure and operating criteria that are unique in the industry for their rigor and comprehensiveness. No other credential carries the weight and stature of Tier Certification, and no other data center standard is actually certified by the standard's author itself.

When it comes to the workings of core infrastructure systems—the beating heart of your data center—and the knowledge to operate and maintain them most effectively, Uptime Institute is the globally recognized worldwide authority.

Tier Certifications alone provide the assurance of IT performance and system availability that today's inter-connected, 24 × 7 global business environment demands. First released over 20 years ago, the Tier Standards remain as relevant today as when first developed. Here's why:

- **Performance based** – Tier Standards are performance-based, not prescriptive. Any design solution that meets the requirements for availability, redundancy, and fault tolerance is acceptable. This latitude allows you to incorporate a wide variety of infrastructure and system solutions to best meet your organization's goals for IT operations, costs, sustainability, and uptime.
- **Technology neutral –** in an ever-changing technology landscape, Tier classification does not require or rely on any fixed set of technologies. The Standards are able to encompass new and innovative solutions for data center systems and engineering, such as modular configurations, OCP, and leading-edge power and cooling approaches.
- **Vendor agnostic –** Uptime Institute is an independent services organization without any affinity to hardware or brand. This enables the Tier Standard criteria to be vendor-neutral and unbiased.
- **Flexible –** The performance-based nature of the Tier standards gives organizations flexibility to comply with local statutes, codes, and regulations while enjoying full Tier certification and the business benefits of doing so.
- **Hands-on –** no other company provides the on-site support to assure your data center performs the way it needs to support the business. Tier Certification of Constructed Facility and Tier Certification of Operational Sustainability go far beyond simple document approval. Our experts are on site for inspection, process review, and system operation demonstrations under full load conditions. We make certain that your data center maintains maximum availability and can sustain the designed performance that your business-critical digital infrastructure demands.

Simply put, Uptime Institute's Tier Certification is helping Enterprises, owners and operators increase efficiency, reduce risk and cost, and meet the highest levels of infrastructure performance around the globe.

Rigorous certification supports business continuity

The world's leading colocation and enterprise data center organizations rely on Uptime Institute for guidance. Like them, you can protect the foundation of your vital digital business infrastructure by obtaining Tier Certification.

Tier participation starts at the design phase, then continues through construction and commissioning, culminating with certification of ongoing operational effectiveness.

The Tiers are designated levels I thru IV with progressive criteria for power, cooling, maintenance, and redundancy to match different functional and performance standards required by the business. Tier levels allow your organization to align data center infrastructure investment and operating practices with your specific business mission, growth and technology strategies, and your uptime need.

Tier Certification of Design Documents (TCDD) recognizes the potential (as designed) infrastructure (topology) functionality and capacity of your data center. Based on a thorough review of your architectural and engineering plans, TCDD validates that the facility and system design is consistent with your uptime objectives for a new project. It ensures that your organization's significant capital investment yields the desired result. Receiving TCDD is an important first step to earning Tier Certification of Constructed Facility.

Tier Certification of Constructed Facility (TCCF) ensures that your facility has been constructed as designed, and verifies that it is capable of meeting your defined availability requirements. Even the best laid plans can go awry, and common construction phase practices or value engineering proposals can compromise the original design intent. The TCCF process includes a site visit with live demonstrations. We road test your system function under full load, validating that the facility can deliver the performance you require.

TCCF ensures that your approved designs have been properly executed in the built facility environment, with no errors or oversights. The TCCF process is often the most comprehensive Quality Assurance check that a facility receives before Go Live. Organizations know that they can rely on Uptime Institute to ensure data center capability and performance.

Tier Certification of Operational Sustainability (TCOS) verifies that site management and operations practices and procedures are in place to keep your data center humming. It ensures that your organization is taking the right steps to avoid preventable errors and maintain performance on an ongoing basis.

Achieving TCOS ensures that your operations are in alignment with performance requirements and availability expectations to support the business mission. Following the Operational Sustainability standards, you avoid expending more resources than necessary by focusing efforts where they matter most. TCOS demonstrates to stakeholders and the market the effectiveness of your facility management practices and risk mitigation.

Recognizing that a data center environment is never static, TCOS awards expire after three years (Gold), two years (Silver) or one year (Bronze). Companies that recertify with Uptime Institute on a regular basis have experienced continued improvements in performance and efficiency.

An unmatched track record for risk management

Uptime Institute Tier Certifications are more robust than other compliance or benchmarking systems that rely on sampling, representative analysis, or self-assessment. They serve as a common standard throughout the industry, and have stood the test of time for more than 20 years, easily embracing new technologies while remaining the preeminent benchmark of performance.

Operating as a Tier Certified data center is proven to lower your risk of unplanned outages, cost of operations and safeguard your IT infrastructure from human errors and associated downtime. In fact, many insurance companies have now recognized the unique rigor and risk management impact of Uptime Institute's Tier Certification through their reduced premiums.

The Tier classification system explained

As defined in Uptime Institute's *Tier Standard: Topology and Tier Standard: Operational Sustainability*, each Tier level (I thru IV) has a set of associated performance criteria. These can be met by a wide variety of technology and engineering solutions.

Tier Certification ensures that facilities are held to the same consistent standards of performance measurement worldwide. Tiers are progressive; each Tier incorporates the requirements of all the lower levels.

Tier I: Basic Capacity – A Tier I data center infrastructure is designed to support business information technology (IT) needs beyond an office setting. This means there is a dedicated space for IT systems, and must include an uninterruptible power supply (UPS), and dedicated cooling equipment that won't get shut down at the end of normal office hours.

Tier II: Redundant Capacity Components – Tier II facilities are designed to provide an increased margin of safety against IT process disruptions, and enable some regular maintenance activities to be done without interrupting live operations. Key elements of a Tier II data center are redundant critical power and cooling components, such as UPS modules, chillers or pumps, and engine generators or some other backup power supply.

Tier III: Concurrently Maintainable – A Tier III data center is designed to run without interruption. It doesn't need to shut down for equipment replacement and maintenance. Redundant delivery pathways for power and cooling are added to the redundant critical components of Tier II. If your business relies on 24 x 7 IT availability, Tier III ensures that each and every component needed to support the digital environment can be shut down and maintained without impact on live operation.

Tier IV: Fault Tolerance – Tier IV site infrastructure builds on the capabilities of Tier III, and adding the concept of Fault Tolerance. Tier IV is the highest level of availability, performance and resilience that a data center can achieve, designed to support mission-critical operations.

Fault Tolerance means that when an individual piece of equipment fails or a distribution path interruption occurs, the effects of the event are stopped short and prevented from ever impacting critical IT operations. Operations are fine-tuned to ensure effective and seamless maintenance, operations, and response to any fault.

Reaching your mission critical goals

Data center infrastructure costs and operational complexities increase at each progressive Tier Level, as more investment is required in equipment and staffing. It is up to the data center owner to determine the Tier Level that fits the business need. No level is "better" than another; matching infrastructure to the business needs in performance ensures companies are not over-invested or taking on too much risk.

Typically, Tier I and Tier II are tactical solutions, usually driven by first-cost and time-to-market more so than life-cycle cost and performance (uptime) requirements. Organizations at these levels typically do not depend on real-time delivery of products or services for a significant part of their revenue stream.

Tier III and IV are for organizations with rigorous uptime requirements, where business continuity, contractual or service level requirements, and long-term viability are important. These organizations know the business cost of a disruption—in terms of actual dollars—and the impact to market share and ongoing mission imperatives.

The data center gold standard

In addition to a Tier level designation, facilities can also earn Tier Certification at a Bronze, Silver or Gold rating. These ratings signify the extent to which a data center is optimizing its infrastructure performance and exceeding the baseline Tier standards:

- **Bronze** signifies that certification criteria were met; however considerable opportunities exist for improvement to the building and operations to leverage the full potential of the current infrastructure.
- **Silver** denotes that the installed infrastructure is close to realizing its full potential, yet opportunities for improvement exist.
- **Gold** certification shows that the organization is managed and operated to the fullest potential that the installed infrastructure will provide. Sometimes, this potential is even exceeded thanks to the facility operator's industry-leading procedures and processes.

About Uptime Institute

Uptime Institute is an unbiased advisory organization focused on improving the performance, efficiency, and reliability of business-critical infrastructure through innovation, collaboration, and independent certifications. Uptime Institute serves all stakeholders responsible for IT service availability through industry leading standards, education, peer-to-peer networking, consulting, and award programs delivered to enterprise organizations and third-party operators, manufacturers, and providers. Uptime Institute is recognized globally for the creation and administration of the Tier Standards & Certifications for Data Center Design, Construction, and Operational Sustainability along with its Management & Operations reviews, FORCSS® methodology, and Efficient IT Stamp of Approval.

Uptime Institute is a division of The 451 Group, a leading technology industry analyst and data company. Uptime Institute has office locations in the U.S., Mexico, Costa Rica, Brazil, U.K., Spain, U.A.E., Russia, Taiwan, Singapore, and Malaysia.

 190316_BR_01 C