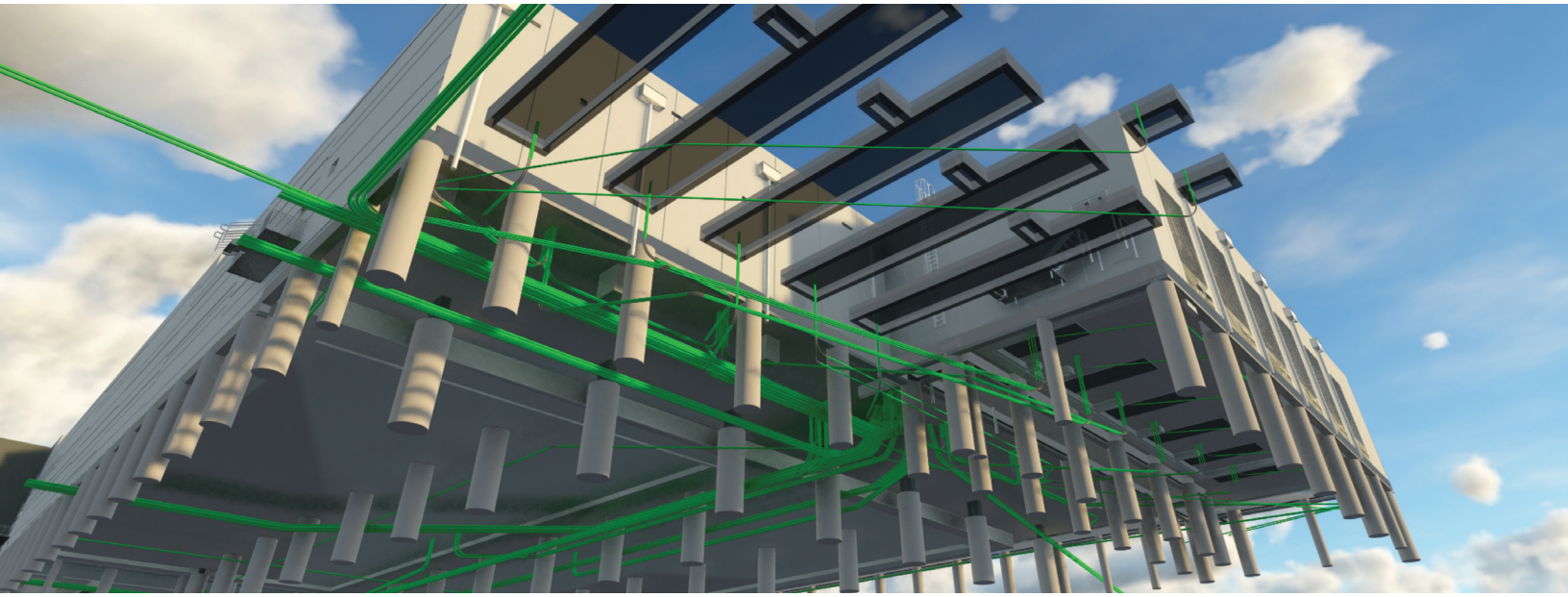
DATA FOUNDRY

# PURPOSE-BUILT VS. RETROFITTED DATA CENTERS



As an IT professional, you understand the importance of minimizing risk. This is especially important when choosing a data center to host your mission-critical systems. Many data centers are retrofitted facilities—frequently old warehouses or other large, open buildings that have been converted into a data center. Those conversions require compromises in critical data center design elements, which expose you to unnecessary risks that can result in downtime, damage to your equipment, or loss of data.

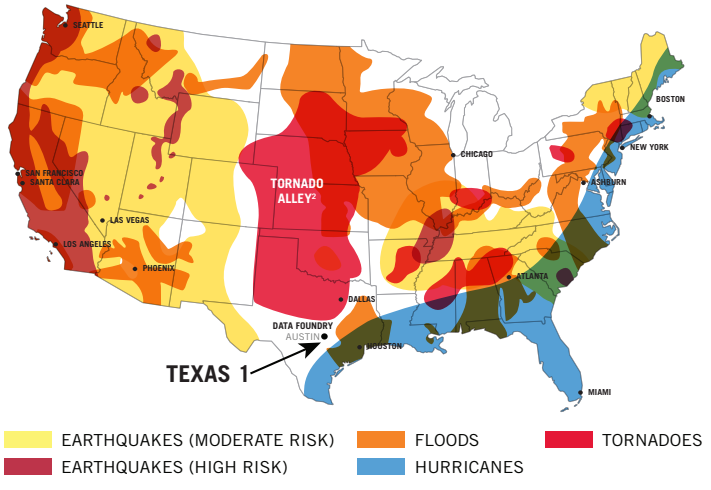
A purpose-built data center (PBDC) is designed from scratch with the needs of your business in mind. Moreover, it provides the flexibility to accommodate your evolving business requirements and future growth. In short, a PBDC offers the most capabilities with the lowest risk.

**This paper outlines four key areas in which a PBDC is a superior choice to a retrofitted facility.**

## 1. Strategic Location

Where retrofitted facilities are built is a function of what sites were available. This inevitably leads to compromises. In contrast, PBDCs are located deliberately where compromises do not need to be made. Location is critical, for several reasons:

**Weather:** A weather-resilient building is of course important (see Section 2 below), but ideally a data center would be situated in a location where the incidence of severe weather or natural disasters is minimal—for instance, outside of floodplains and far away from fault lines.




*US Natural Disaster Map*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**Utility access:** A PBDC can be located at the intersections of multiple electrical, power and water sources, which is essential should one fail and a back-up source be needed.

**Customer convenience:** Retrofitted facilities may be located in places that, for example, lack sufficient parking or easy loading dock access, or are located far from major highways, airports or hotels.

## 2. Weather Resilience

Purpose-built data centers are designed to higher standards of performance and capable of withstanding extreme weather conditions. Retrofitting an existing building to those standards is prohibitively expensive and often simply impossible. A few examples:

**Thick walls:** PBDCs are constructed with 10-inch thick cinder block or concrete walls and 6-inch thick concrete roofs to withstand sustained winds equivalent to an F3 tornado. Retrofitted buildings rarely have precast walls and are typically able to withstand gusts of only 90 mph.

**Closed roofs:** Whereas retrofitted buildings may have rooftop skylights or access doors, PBDCs have no openings or access points on the roof, reducing their vulnerability.

**Secure foundations:** As further protection against environmental disasters, PBDCs are built on caisson pier foundations driven into bedrock. Pre-retrofit buildings were typically built without the critical needs of today's IT systems in mind, or when engineering standards for earthquakes and floods were less stringent than today's requirements.

*Purpose-built data center under construction*

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## 3. Customer-Centric Design

The space within a purpose-built data center is designed from the ground up to meet the needs of your staff. It provides a work environment that is:

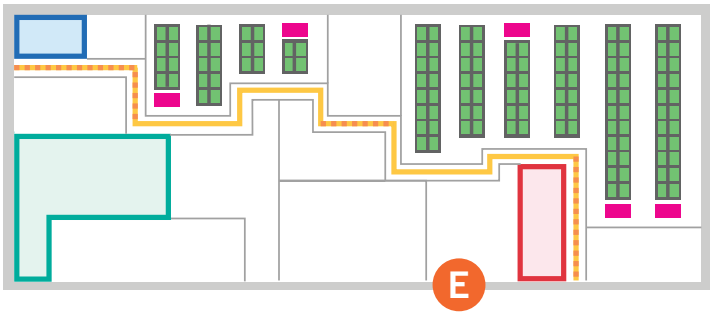
**Efficient:** A PBDC enables technicians to perform everyday tasks efficiently. In contrast, the maze-like configuration of many retrofitted spaces can complicate and slow down otherwise simple procedures, and even present a risk of injury to staff. One example: a PBDC is constructed with a depressed slab foundation, making it easier to load equipment at ground level. But in most retrofitted buildings, equipment must be hauled up a ramp to a raised floor, which is slow and potentially dangerous. Similarly, managing emergency situations or troubleshooting complex infrastructure issues become much easier when the entire facility is laid out to maximize efficiency. By planning rooms around efficient rectangles from the outset, a PBDC makes it easier for customers and staff to navigate and use the data center. In contrast, when reconfigured for data center operations, retrofitted buildings often end up with poorly-planned floor space and odd-shaped rooms.

**Flexible:** Unlike most retrofitted facilities, space in PBDCs can be quickly reconfigured to meet changing needs. Retrofitted facilities lack a depressed concrete slab under raised white floor space. Some PBDCs have depressed slabs, but they are shallow. Data Foundry's PBDCs have 36-inch depressed slabs under data halls to allow enough space for cooling high-density cabinets. PBDCs also have higher ceilings than most retrofitted facilities which allows for the addition of Vertical Exhaust Ducts (VEDs), another high-density cooling feature. These cooling features in addition to a simple floor plan allow customers to scale in place for as long as possible.

**Secure:** World-class protection from unauthorized access is designed into every PBDC. Access to the entire facility is limited to one or two points. Access to discrete areas within the building can be controlled, as well. Retrofitted data centers are not able to offer security with this degree of flexibility. Older buildings may be hard to secure, with too many points of vulnerability.

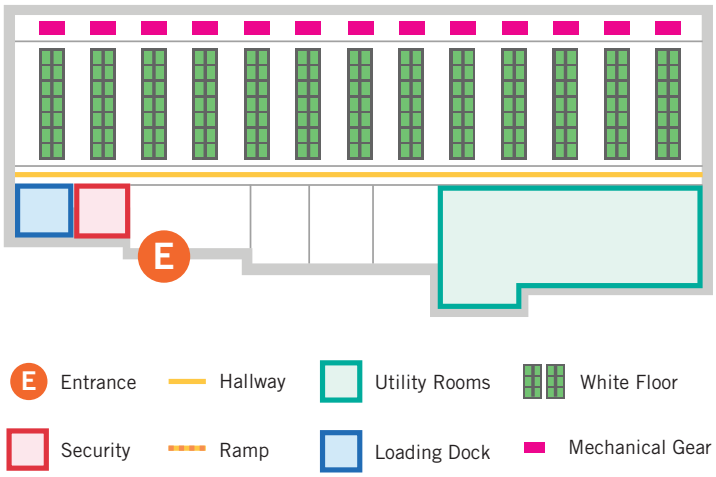
**Comfortable:** PBDCs provide amenities that are not always available in retrofitted buildings, such as media conference rooms, break rooms, showers, and workstations with wired and wireless Internet access.

### Retrofitted Facility




- Maze-like configuration
- Ramps up to white floor
- Odd shaped rooms
- Mechanical gear on white floor
- Maintenance on white floor
- Loading dock in rear of building
- Complex infrastructure layout
- Separated white floor

### Purpose-Built Data Center




- Simple floor plan
- No ramps
- Mechanical gear in gallery
- Maintenance off white floor
- Loading dock and entrance near security booth
- Simple infrastructure layout
- Single white floor space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## 4. Robust Infrastructure

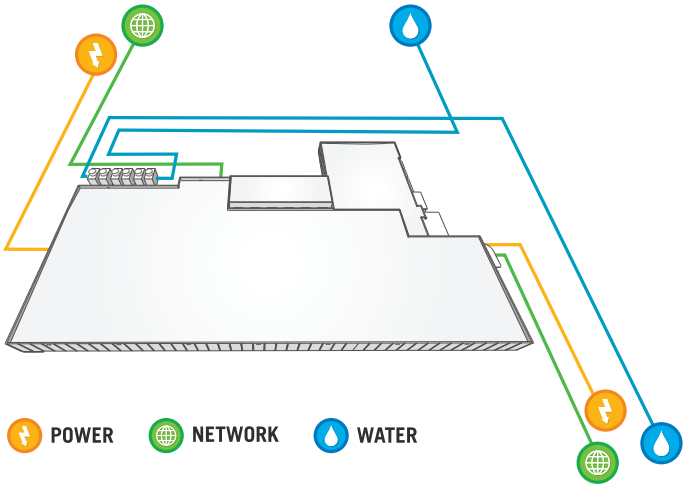
Purpose-built data centers employ power and cooling systems that meet the high-density computing requirements of modern IT equipment, with built-in redundancies that ensure continuous uptime. Some of the critical infrastructure design elements PBDCs offer include:

**Underground placement:** Unlike retrofitted buildings, PBDCs are constructed with all electrical and telecom conduits, water lines and fuel storage tanks underground for protection against accidental, deliberate or weather-induced damage. Retrofitted buildings must compromise with the placement of critical equipment and conduit due to the lack of space and increase cost.

**Accessibility:** In a PBDC, equipment is located where it can be most easily maintained and serviced with minimum disruption to customers. One example: placing back-up generators indoors, where they'll function more reliably and be easier to service in inclement weather. These options are typically not available in a retrofitted facility.

**Redundancy:** Retrofitted data centers may offer some redundancy, but multiple levels of redundancy are built into every part of a PBDC's infrastructure, leaving no component or system with a single point of failure. A PBDC has dual electrical and water feeds from diverse locations and distribution sources, so supplies are available even if one source is temporarily disrupted.

*Underground Conduit*




*Redundant Utility Connections to Texas 1*

### PURPOSE-BUILT DATA CENTERS: MORE PERFORMANCE, LESS RISK

In today's hyper-competitive business climate, you can't afford downtime or distractions from running your operations. A purpose-built data center gives your organization peace of mind. The design of a PBDC ensures there's less likelihood of service interruptions—and, if issues do arise, that they will be easier and faster to resolve. By delivering more uptime, greater flexibility, better security, more convenience and reduced risk, a purpose-built data center enables you to focus on your business, not on your infrastructure.

### ABOUT DATA FOUNDRY

Data Foundry is a privately held company headquartered in Austin, TX that provides colocation, disaster recovery and man-aged services for enterprise customers across a variety of industries, including energy, healthcare and financial services.

The company's premier data centers are supported by experienced onsite technicians, security staff and customer support 24x7x365. Founded in 1994, Data Foundry was one of the first 50 Internet Service Providers in the United States. Today, Data Foundry operates purpose-built, carrier-neutral data centers in Texas and operates a global network with colocation pres-ences worldwide. For more information, visit www.datafoundry.com or call 1.888.839.2794.

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