



The Pronet Data Center

A trusted environment

Robust security protection, amazing Internet connectivity, always-on power, and industry compliance standards bring you the best quality and service available.





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Executive Summary

IT infrastructure and the applications and data they support are mission critical to every enterprise regardless of industry. Disruptions to an enterprise's applications and data due to loss of services provided to the facility (power, cooling, etc.) or even natural disasters can be catastrophic. Moreover, network downtime can have a considerable financial impact due to lost revenue, productivity and data, not to mention the long-term detrimental effects on a firm's image when customers encounter a situation when the services being provided to them are unavailable due to a site outage. Pronet Solutions Corp understands that our clients, our partners (and their clients), and even our own data systems and services demand a premier technology facility that can provide a 100% dependable data center with high-speed Internet connectivity, always-on power and availability, and premium physical security control systems. To provide and support continued communications for our business operations, Pronet has partnered with 1301 Fannin and their premium data center service offering in Houston, Texas.

The Houston Data Center is a Tier IV secure data center facility located at 1301 Fannin, directly in the heart of the Central Business District in downtown Houston, Texas. Rated as a Category 5 hurricane-resistant facility (with 200mph-rated glass, including outer Kevlar sheathing), and carrying N+2 redundant systems, a built-in power plant, and state-of-the-art HVAC – all of which have been designed for the Data Center to be completely self-sustaining for a minimum of 10 days before tapping into a guaranteed and contracted fuel supply system – the Houston Data Center has experienced absolutely zero down time since its construction in 1984. Moreover, the Houston Data Center is directly connected to two independent power distribution grids, one that supplies the City of Houston's emergency police and fire systems, and the other that services the Texas Medical Center, which is not only the largest medical center in the world, but must also maintain services to over five million annual patient visitors. The Houston Data Center is also home to a fully redundant and self-reconstructing backbone fiber grid, providing direct access to a phenomenal network linked to core sites that are distributed among over 60 core sites across the United States. Finally, the Data Center provides multiple layers of hardened physical security, including a 24x7x365 manned security presence, a minimum of 36 digital security cameras with digital storage, card key access systems, locked cabinets and cages, and a restricted access policy available only to pre-approved client personnel, who must be escorted by security personnel.

As a result, our Data Center provides a comprehensive, robust, reliable, and high-quality solution, in terms of compliance, performance, and security.



Security & Environmental Controls

Our Houston Data Center located at 1301 Fannin Street in downtown Houston not only leverages the extremely robust infrastructure inherent in the building property and structure, but also adds additional layers of redundancy and backup systems on top of those provided by the building. The building was purposefully and specifically built with security controls and sustainability in mind, as it was constructed as the "banking data center" for the State of Texas and the Pulse Network. The Data Center currently houses the Federal Reserve Bank Vault with 24x7x365 security systems in place. Moreover, the amazing electrical power supplied to and within this facility has led to absolute zero downtime since it was constructed in 1984. The building even survived the massively destructive forces of Hurricane Ike in 2008, which caused over \$38 billion in damages and was the third costliest tropical cyclone in United States history. Both during and after Hurricane Ike, while many businesses and other local data centers experienced lengthy downtime and outages that disrupted their core businesses services, our Houston Data Center suffered no harm and continued running 100% without a glitch. The building is specifically designed to not be connected to any of the Houston downtown tunnels, is not located in a flood zone, nor has it ever had any flooding issues. Our Data Center's Tier IV, 784,143 square foot facility offers a 24 hour, on-site remote hands service, automated monitoring of power, environmental controls, and fire detection/prevention systems (accessible both onsite and remotely from redundant Network Operations Centers (NOCs).



Physical Security

- Multiple layers of hardened physical security:
 - Card key access at lobby
 - Card key access at elevators
 - Card key access to Data Center levels
 - Security personnel must unlock cabinets/cages for access
 - Client personnel must be on pre-approved access list and will only then be escorted to their cabinet/cage
- 24x7x365 manned security presence
- A minimum of 36 digital security cameras for 24 hour surveillance with digital storage



Power Distribution

- Connections to two separate utility company substations
- Backup power generators
 - Six (6) 1,040 KVA and three (3) 2,000 KVA diesel systems
 - 10 day onsite fuel supply (60,000 gallons)
 - Operations tested weekly.
- Eight (8) 3,000 KVA Transformers
- Three (3) GE 500 KVA UPS (in parallel)
- 4 Megawatts of dedicated power
- Additional Liebert 625 KVA UPS systems
- Additional Data Center battery back-up room
- Diverse 'A' side 'B' side power bus delivery w/diverse power distribution units (PDUs)
- Overhead delivery
- Multiple amperage and voltage options
- DC power option

Environmental Control

- Temperature guaranteed between 64-78°F (17-25°C)
- Relative humidity guaranteed between 30-70%
- Four (4) 1,200 Ton Chillers
- 2 Cooling Towers
- 3 Chilled Water Risers
- 500 tons of robust and redundant HVAC
- 6x 30-ton, 7x 40-ton, and 2x 20-ton Liebert air handling units for N+2 redundancy
- Underfloor water dams with liquid sensors
- 16' floor to ceiling clearance
- 18" clear raised floor delivery



Fire Detection/Prevention

- VESDA (Very Early Warning Smoke Detection) throughout the data center
- Zoned dry-piped pre-action sprinkler system

Rack Cabinets & Cages

Our Data Center provides both lockable cabinets and flexible caged space. The provided cabinets are 42U (1 U = 1.75 inches), 25"W x 36"D x 84"H, and they include a mounted fan that moves heat out of the cabinet at 500 cubic feet per minute. Also included is a 10 outlet 20 amp power strip for both the primary and redundant power feed.



Cabinets have:

- 19" or 23" shelves
- Mounting rails
- Redundant power strips
- Fan Ventilation
- Perforated Doors
- Electronic Locks



Caged space is custom designed for each customer based upon the physical rack footprint and power/cooling requirements. Our data center in Houston is rated at a power density capacity of 240 Watts/ft². This rating takes into account not only total available power to the center but also cooling requirements. Thus, racks that require large power feeds require more cooling space than a cabinet can accommodate, and this is also considered during design.

By choosing a Data Center with such a strong commitment to our business security organizations who fall under compliance regulations, such as the Sarbanes-Oxley Act of 2002 (SOX) (more particularly, Section 404), the Gramm-Leach-Bliley Act (GLBA), the Payment Card Industry Data Security Standard (PCI DSS), the Health Insurance Portability and Accountability Act (HIPAA), etc., can rest assured knowing that all security requirements have been satisfied.

Connectivity Services

The Data Center does not operate on a single network backbone, but instead it connects directly to a redundant fiber grid disbursed across more than 60 cities and core sites in the United States. This is important because we receive what no other service provider can offer – direct access to a fully redundant Tier I Internet. If any of the connections to the Tier 1 provider were to fail or suffer performance issues, traffic is automatically re-routed via Border Gateway Protocol (BGP) to the next available and open path. As a result, the Data Center network has lower instances of data loss and a greater quality of service of even that of lower Tier providers.

Our Data Center supports connectivity across the public Internet at speeds ranging from T1 and DS3 to OC-12, and Ethernet connectivity from 10Mbps to 10 Gigabit Ethernet. Moreover, the fiber connectivity incorporates Quality of Service (QoS) metrics to drive the route management process. As a result, services received by the Data Center are monitored and accessed against the performance of all the fiber routes, continually adjusting the routing of data to ensure exceptional performance across the entire Internet. This enables our Data Center facility to:

- 1) Select the most available open path and bypass downed links in the majority of cases, resulting in near zero packet loss and greatly reduced latency,
- 2) Route traffic locally, reducing latency caused by round-trip propagation delay,



- 3) Optimally select a choice of multiple backbones to route data to if the destination is multi-homed, and
- 4) Continue routing to the Internet even if one or more of the connections to the Internet fails.

This technology provides multiple global views of the Internet that allow traffic to be routed based on performance metrics. These views into the other provider networks enable the Data

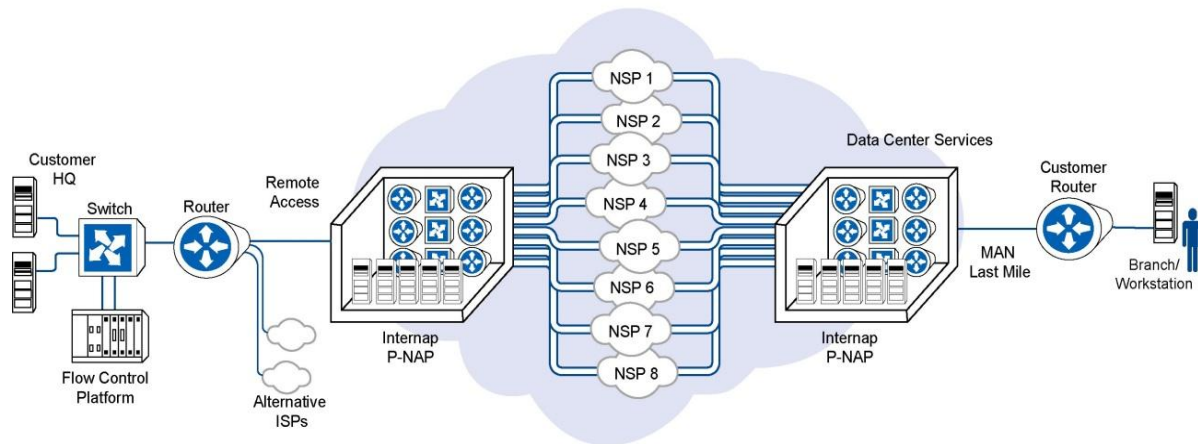


Figure 2-1: A total technology solution. Redundant system combines intelligent routing technology with built-in reliability, redundancy and superior client support to increase customer productivity.

Center to receive a reduced average time to repair severed connections. Also, as one of the largest paying customers to the NSPs, the Data Center is able to open trouble tickets directly since pre-established escalation procedures have been granted. All in all, our Data Center offers:

- 1) Internet connectivity 100% of the time,
- 2) less than 45milliseconds(ms) round trip latency,
- 3) less than 0.3% packet loss,
- 4) less than 0.5ms jitter *across the entire Internet*, not just a single backbone component,
- 5) Industry-leading, proactive Service Level Agreements (SLAs), and
- 6) Premier 24x7x365 customer support

Backbone Carriers

Our Data Center offers the most robust network connectivity in the Houston area. Multiple carriers come together in a private connection room located inside the Data Center, and all carriers have dual, diverse and redundant entry into the facility.

- AT&T – POTs, DS1, DS3, OC12
- Qwest(OnFiber) – Metro Gig-E



- Phonoscope – Metro Gig-E, Dark Fiber
- Alpheus – DS1, DS3, Metro Gig-E
- Time Warner – DS1, DS3, Metro Gig-E
- Verizon – DS1, DS3, Metro-Gig-E
- XO – POTS, DS1, DS3, Metro Gig-E, OC192
- Level3 – Metro Gig-E
- AboveNet – Metro Gig-E
- Comcast – Metro Gig-E

Service Level Agreement

Our Service Level Agreement and arrangement leads the industry, providing unmatched customer service and support throughout the Network Operations Center and offering better guarantees of network reliability, scalability and performance than all of the major Network Service Providers. While most NSPs only offer SLAs across their network, the Data Center's unique architecture allows us to have an SLA that covers the entire Internet by identifying traffic jams, bottlenecks and other performance-inhibiting problems and routing traffic around those trouble spots. Our SLA guarantees us 100% network availability, 100% provisioned power, less than 0.3% packet loss, less than 45ms latency, and less than 0.5ms jitter across the entire Internet. Therefore, we are provided a vital piece of our comprehensive carrier-class Data Center solution, and as such, we can entrust the critical applications of our business and also those of our partners and customers to our Data Center and all services provided. As a result, we can provide our clients and partners robust services simply because we have the best.

Customer Support

Both a local account team and the Data Center NOC provide us technical support and customer service. A National Account Manager (NAM), a Technical Consultant (TC) and a Sales Operations Manager (SOM) comprise the local support team. An Install Engineer (IE) and a provisioning team will supports our systems during service installation and local circuit setup, and the NOC provides technical support throughout the life of service.

Network Operations Center (NOC)

Beyond intelligent performance routing, we also point to our NOC support provided by the Data Center as fundamental to our high quality Data Center services. Staffed with skilled, certified engineers, the NOC monitors all elements of the Data Center, all major Internet backbones simultaneously, manages network performance, oversees and routes millions of transactions per day, and provides world-class customer service.



Unlike other provider NOCs, the traditional first-level administrative ticket taker and the extended Average-Time-to-Respond (ATTR) schedules associated with ticket priorities are eliminated. Rather, the engineer who assumes immediate responsibility for the ticket typically answers calls to the Internap NOC within five rings. As a result of this premium support model, 90% of any trouble tickets are resolved at the first level.

The NOC also provides:

1) **Proactive Notifications.**

The customer is contacted first with outage notifications or other connectivity issues, most times before the customer ever realizes a problem exists.

2) **Fast Speed to Answer.**

The average time for a customer call to be answered is 4 -5 seconds, one of the best answer times in the industry.

3) **Less than 0.3% Abandon Rate.**

The call abandon rate is less than 0.3%. The typical abandoned call is not due to wait time, but rather the customer decides it's not necessary to talk to the NOC or the issue can wait.

4) **24x7x365 knowledgeable staff.**

Engineers who are trained in network diagnostics and engineering can be reached any time of the day. The Data Center operates redundant NOCs in over 60 cities across the United States.

The NOC is responsible for monitoring and for trouble resolution issues related to all Internet services at the Data Center. This includes trouble resolution for circuit outages, routing/path trouble, latency and/or packet loss issues, server issues, security issues/DoS attack responses, and monitoring of capacity and network database information for all active circuits and Managed Customer Premises Equipment.

The NOC proactively monitors all customer bandwidth services 24x7, and, upon receipt of an alarm regarding a customer service inquiry, the NOC immediately begins the trouble resolution process. The NOC also communicates all relevant maintenance windows and outage notifications to all Data Center tenants. In the event of an issue, the NOC identifies what the trouble is, what steps are being taken to fix the problem, and what action is planned to return service to normal. While specific situations may differ, the NOC attempts to respond to trouble alerts, whether from an NSP or from a Data Center tenant, in a systematic manner by

1. Verifying the trouble
2. Opening a "trouble ticket"
3. Qualifying the trouble and assessing customer and network impact



4. Notifying impacted customers
5. Troubleshooting based on trouble qualification
6. Updating the ticket with related work
7. Providing regular customer updates
8. Resolving the trouble and notifying customer
9. Confirming resolution and closing the ticket
10. Following up with post-mortem as appropriate

We are always amazed by the proactiveness, competence and professionalism of the Data Center NOC. These guys are the best in the business!

Satish Movva, VP & CIO, Interim HealthCare, Inc.

Maintenance Events

Currently, and due to the fact that the system is in full swing, the Data Center does not have a defined regularly scheduled maintenance window for the provisioned services. When a maintenance event is warranted and scheduled, the NOC will attempt to re-schedule any conflicting maintenance event upon receipt of a reasonable request from a Data Center tenant whose services may interfere with the scheduled window. The NOC notifies customers as far in advance as possible for all maintenance events, including provider maintenance events. Typical notification is two to five days prior to an event and adheres to the following strict policy for all maintenance events:

1. Maintenance event notifications sent at least 48 hours in advance are deemed Planned Events.
2. Maintenance event notifications sent with less than 48 hours' notice are deemed Unplanned Events.
3. Maintenance event notifications sent with less than 2 hours' notice are deemed Emergency Events.

Most maintenance events are non-intrusive to Data Center tenants, although some events may have minimal impact on customer networks. Listed below are examples of non-intrusive and intrusive maintenance events:

Non-intrusive:

- Router configuration/download changes
- NSP maintenance (Note : may cause route re-convergence for some routes)
- Core router maintenance
- Facility PDU/UPS/HVAC maintenance



Intrusive:

- Router IOS upgrades
- Telco provider maintenance (on customer circuit only)
- Router hardware replacement/upgrade

Due to the nature of the redundant infrastructure, most intrusive maintenance events are rare.

I would describe the Data Center with three words: effective, responsive and professional. I have dealt with a large number of Network Operation Centers throughout my career and these guys definitely stand out.

Victor Alba, Director of Internetworking, Gomez

Escalation Process

Each trouble incident or service request is assigned a ticket number, and all changes, updates and resolution information are noted in the ticket as they occur. Data Center tenants have the ability to request that an incident be escalated at any time during the life cycle of the ticket if they believe a suitable resolution to an issue has not been delivered by the account team. The escalation process allows for closer review of a problem to determine if additional resources or increased levels of communication are needed. Prior to the startup of service, the National Account Manager (NAM) and the Technical Consultant (TC) can address the majority of administrative and technical issues. A regional Market Manager and a regional Technical Manager can provide management support for any escalated issues.

The NOC notifies and updates customers every two hours via email, except when more frequent updates are required or requested by the customer, and except in the case of customer circuit outages when communication via email is not possible.

Dedicated Support Team

The client support team is distinctive in its steadfast commitment to providing direct access to certified IP engineers at its Network Operations Center (NOC). Technology professionals are on call with a global view of the entire environment and information to resolve all issues quickly, effectively, satisfactorily. Direct access to expert technical staff is saves everyone time and money by minimizing troubleshooting and downtime.

The NOC also assists all customers with DoS attacks by first diagnosing a suspected attack and then determining the best method by which it can be mitigated, if possible. Mitigation techniques may include filtering or blackholing of suspect traffic either on the NOC network or an upstream provider. A DoS Response SLA guarantees the NOC will respond within 10 minutes



of receipt of a completed Security Request form. There is no substitute for accountability. We offer our clients secure, online access to usage graphs, request forms, and service guides.

Frequently Asked Questions (FAQs)

What kind of external risks might impact the data center facility?

- | | |
|----|-----------------------------------|
| No | Inside the 100-year flood zone? |
| No | Earthquake-prone area? |
| No | Hazardous neighboring industries? |
- Distance to next airport: [17 miles - George Bush Intercontinental](#)
Other risks: [Hurricane](#). See [flood & wind protection features](#) below.

What kind of generic security features are implemented at the data center facilities?

- | | |
|-----|--|
| Yes | Flood prevention measures? |
| Yes | Water detection in raised floor? |
| n/a | Seismic-protected structure (if in earthquake-prone area)? |
| Yes | Wind-resistant up to 300km/200mi per hour? |
| Yes | Heat-and fire-zoned detection system? Specify: Preaction Dry Pipe |
| Yes | Aspirating smoke detection? Specify: VESDA |
| Yes | Fire alarm automatically forwarded to local fire brigade? |
| Yes | Fire suppression (e.g. O ₂ reduction) |
| Yes | Fire extinguishers in all rooms? |
| Yes | Fire extinction system (water)? |
| Yes | Fire extinction system (gas)? Specify: Inergen |
| Yes | Fire extinction initiated automatically? |
| No | Fire brigade based on same campus? |
| Yes | Do server rooms have raised floors? Specify: 18" having 150 lbs/ft² |
| Yes | No inflammable materials exist in server rooms? |

Other notes: The Fire suppression system for the majority of the facility is pump and gravity feed (750 gpm), both wet and preaction, with 36 zones, a 25,000 gallon tank size, 12" riser pipe size, Notifier detector and fire panels and remotely monitored. Part of the Data Center employs a Fike and Notifier Preaction and Gas Suppression system (gas type: Inergen), with a Vesda smoke detection system throughout the entire center. Systems are tested daily, weekly, quarterly and annually on a routine schedule.

What kind of physical security features are implemented at the data center facilities?



- Yes Gated facility?
- Yes Camera-monitored and video recorded facility entry and exit points?
- Yes Secured facility entry points, including shipping and receiving docks?
- Yes Controlled access to facility and/or server rooms; access only for authorized staff?
- Yes Controlled and logged access to facility and/or server rooms?
- Yes Biometric access control to facility and/or server rooms?
- Yes Access to facility and/or server rooms includes mantrap/security turnstile?
- Yes Main access to facility with card or biometric scan devices, including logging?
- Yes Security personnel at main entry point and logged entry for visitors 24x7x365?
- Yes Video controlled server rooms?
- Yes Is your authorization/access concept designed with segregation of duties?
(e.g. segregation of infrastructure and data center with access for authorized personnel only to the relevant areas)?

Notes: The Data Center has multiple layers of hardened physical security, a 24x7x365 security presence (on-site guards), closed circuit television surveillance with digital storage of tapes, multiple layers of electronically controlled card access, individual locked cages, cabinets and suites. Enforcement response times are estimated to be 5 minutes or less (Houston Police department).

What kind of disaster protection features are in place at the data center?

Redundancy Protection

- Yes Generators with stateful failover?
- Yes Fully redundant generators with stateful failover?
- Yes Uninterruptible power supply (UPS) with adequate capacity for data center infrastructure?
- Yes Separate power sources and power distribution feeds? Specify: 2 physical building entry points
- Yes Connection of all hosted systems to a dual power feed to prevent power outages?
- Yes Redundant air conditioning?

Facility Staff and Availability

- 100% Facility rated uptime.
- Yes Security personnel shift coverage? Specify: 24x7 operations (365-day operations)

Systems Maintenance Schedules

UPS	Daily, Weekly, Quarterly & Annually
Generators	Daily, Weekly, Quarterly & Annually
DC Plant	Daily, Weekly, Quarterly & Annually
HVAC	Daily, Weekly, Quarterly & Annually



Are there any single points of failure? No. There are no single points of failure. All hardware equipment is fully redundant. The Data Center offers a 100% network availability guarantee in accordance with its service level agreement.

With which telecommunications providers does the data center contract? The Data Center contracts with many Tier1 Internet backbone transits: AT&T, Verizon (MCI), XO Communications, Sprint Global Crossing, Verio, and more. The Houston Data Center has over 20Gbps of service capacity, and it provides a 100% availability guarantee.

Are the telecommunications providers redundant? Yes. The Data Center operates a private connection room where these providers connect: AT&T, Verizon/MFS, AboveNet, Qwest/OnFiber, Alpheus, Phonoscope, Time Warner, XO, and Level3. These providers all have dual, diverse and redundant entry points into the facility.

Does the Data Center manage data center operations in other cities? Yes. The Data Center has operations in over 60 cities across the United States.

Network Map: Tier I Redundant Backbone

