

Proof Of Concept Lab Testing: Service Product Configuration Documentation

Dedicated Collocation Service

Version 1.0 August 2002



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SECTION 1

Product Overview



Telefonica Data USA, Inc. (TData USA) delivers high availability Dedicated Collocation Service to its customers who locate their data processing equipment in its Miami, FL KeyCenterTM or New York City Internet data centers. This document describes the details of the U.S. version of Dedicated Collocation Service, as it is configured and delivered from these two (2) facilities. <u>Dedicated Collocation Service that is delivered from Telefonica Data, S.A. Internet data centers other than these two (2) facilities may differ from the version of Dedicated Collocation Service described by this document. This is an important point to remember when selling cross-border Dedicated Collocation Service that is delivered via multiple Telefonica Data, S.A. Internet data centers located around the world.</u>

A. Service Description

This section of this document describes the TData USA Dedicated Collocation Service product. This description includes an overview of the target customer audience that is expected to purchase this Dedicated Collocation Service, the standard "service components" included with this service, and the optional service components that may be purchased at additional cost. The purpose of this section is to familiarize the reader with the overall Dedicated Collocation Service product offering, without presenting the detailed configuration and service delivery information (which is presented in other sections of this document) associated with this TData USA service product.

Target Customer Audience

TData USA's Dedicated Collocation Service product is expected to be purchased by a small number of customers whose need for managed data center services align with the features and benefits offered by TData USA's Dedicated Collocation Service. The Dedicated Collocation Service is not expected to be purchased by the large market that exists for very small collocation and managed data center services engagements. Rather, TData USA's Dedicated Collocation Service is expected to be purchased by those customers whose primary focus is functionality, reliability, and accountability (redundancy and Service Level Agreements) and not cost.



The target customer audience for Dedicated Collocation Service has been defined by the location of the Miami KeyCenterTM facility, customer geography, and type of customer business operation. This definition is listed below:

- <u>Headquarters</u> operations located in South Florida all sizes
- Any multinational with <u>Latin American business unit headquarters</u> operations located in South Florida all sizes
- U.S.-based multinationals who have <u>any operations</u> located in South Florida, the Caribbean, South America, or Europe all sizes
- Web application developers and Application Service Providers (ASPs)

Features And Benefits

TData USA's Dedicated Collocation Service provides a wide range of features and benefits that it's customers will find compelling because of the approach these customers use to operate and manage their mission-critical computing systems. These features and benefits include:

- The Miami KeyCenterTM facility is connected to Telefonica Data, S.A.'s global ATM/Frame Relay/IP network (please refer to Figure 1 for a map detailing the fiber routes that comprise this network). This network provides world class, global Internet and private network connectivity through over 100 peering and transit agreements. The Telefonica Data, S.A. network routers located in the Miami KeyCenterTM facility are directly connected to six (6) Tier 1 network providers UUNET, Sprint, Cable & Wireless, Teleglobe, KPNQwest, and Verio. South Florida local loop connectivity is available via regulated BellSouth digital services or the unregulated BellSouth MIX network.
- The Miami KeyCenterTM facility is interconnected to all of Telefonica Data, S.A.'s Internet data centers located around the world. This interconnectivity provides unsurpassed facility and data redundancy for mission critical customer data and computing systems.
- Miami is the nexus of all major South American and Caribbean Basin undersea cable systems. It is also a major European undersea cable termination point. These undersea cable systems include the Columbus III (Europe), Americas II (Caribbean Basin), Emergia Fiber Route (South America & Puerto Rico), ARCOS (Caribbean Basin, Central America, & South America), and Maya-1 (Caribbean Basin & Central America) routes. Telefonica Data, S.A. owns and operates the Emergia Fiber Route undersea cable which is interconnected to all of these undersea cable systems.







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- On-site, full time Facilities, Systems Engineering, and Enterprise Management Solutions Center (EMSC - NOC) departments operate the Miami KeyCenterTM facility 24 x 7 x 365 and deliver TData USA service products via their qualified, certified personnel.
- TData USA's unique SecureSuiteTM private server rooms provide data-center-withina-data-center security and privacy for a single customer. Each SecureSuiteTM is physically walled off from the rest of the Miami KeyCenterTM facility and its fire, security, electrical, and HVAC systems operate independently from all other of these systems located throughout the KeyCenterTM facility.
- The Miami KeyCenterTM facility is located twenty-three (23) miles from the Atlantic Ocean and cannot be affected by hurricane storm surge.
- The Miami KeyCenterTM facility has been constructed to withstand winds of up to one hundred fifty-five (155) miles-per-hour (MPH). This level of wind speed is the threshold that defines Category 5 hurricanes.

Taken together, the features and benefits listed above offer TData USA customers world class telecommunications and managed Internet data center services that support and enhance the operation of their mission-critical computing infrastructures. The focus of all TData USA facilities and services is on high availability, quality, and value. We deliver this focus via our KeyCenterTM facility and our staff of qualified, certified personnel.

Standard Service Components

Dedicated Collocation Service is a service that provides TData USA customers with highavailability, secure, Internet data center floor space onto which they can install and operate their mission-critical data processing equipment. The <u>standard</u> components of our Dedicated Collocation Service offering include the following:

- Location of customer equipment inside our bunker-like Miami, FL KeyCenter[™] or New York City Internet data center facilities.
- 24" data center-style raised flooring that provides forced-air HVAC
- Highly secure equipment <u>cabinet(s)</u> that house and protect customer equipment; each cabinet is dedicated to a single customer (hence, Dedicated Collocation Service)
- (2) 120 VAC, 20 ampere electrical circuits, including power strips, per equipment cabinet
- Up to (4) Category 6 copper and (1) 6-conductor 62.5 micron fiber cables per equipment cabinet. These cables provide physical connections to <u>optional</u> switched TData USA Ethernet Internet access ports. <u>NOTE: This cabling does not include any form of switch or router installed in the customer cabinet(s).</u>



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Optional Service Components

<u>Optional</u> Dedicated Collocation Service components may be purchased <u>at additional cost</u>. These optional service components extend or modify the functionality of our standard Dedicated Collocation Service to meet the unique requirements of each TData USA customer. Optional Dedicated Collocation Service components are listed below.

- <u>Racks and Caging</u>; used in lieu of our standard equipment cabinets for customers whose equipment installation requires racks instead of equipment cabinets
- <u>Future Floor Space Reservation</u>; *when available*, allows our customers to reserve contiguous floor space for future purchase
- <u>SecureSuiteTM Private Server Rooms</u>; unique data-center-within-a-data-center rooms completely walled off from the rest of the KeyCenterTM facility. These rooms provide total isolation from other KeyCenterTM areas and are only accessible using photo-ID "smart card" badges. The fire control, security, electrical, and HVAC systems located in each SecureSuiteTM are operated independently from any other of these systems located throughout the KeyCenterTM facility in order to provide maximum security and reliability.
- <u>Administrative Cubicles</u>; *when available*, may be rented for use as on-site administrative office work space *shared with other customers and employees*
- <u>Configuration Labs</u>; *when available*, may be rented for use as a computing systems configuration lab; *each lab is dedicated to a single customer*
- <u>Additional Electrical Circuits</u>; a wide variety of additional electrical power may be purchased at additional cost, including both 120 VAC and 208 VAC circuits

Service Level Agreements (SLAs)

TData USA guarantees the availability of its Dedicated Collocation Service through the use of redundant infrastructure, an on-site Facilities Department staffed by qualified personnel, and 24 x 7 x 365 facilities maintenance contracts with reputable, financially sound, support vendors. However, the possibility does exist that a combined failure of redundant facilities infrastructure could occur. If this type of failure should occur, TData USA's Dedicated Collocation Service customers may lose access to critical HVAC or electrical services, both of which are required for the continuing operation of their Internet computing infrastructure. In the event that a TData USA customer experiences a loss of access to either electrical or HVAC services, the following Service Level Agreement (SLA) availability metrics will be used to determine the point at which TData USA is considered to have not met its obligation to deliver these services:

- Electrical Service ... 99.99% availability per month.
- HVAC Service ... Temperature will be maintained at a level in accordance with each customer's equipment manufacturers published



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operating temperature range except that the lowest temperature that will be maintained by TData USA will be 70 degrees Fahrenheit, <u>per month.</u> Humidity will be maintained between 35% and 70%, <u>per month.</u>

<u>No other SLAs are included with TData USA's Dedicated Collocation Service</u>. SLAs that apply to other TData USA service products (e.g., Managed Networking's network availability SLA) may be found by referring to the service product configuration documentation for the appropriate TData USA service product. The above SLAs are calculated for each month of the year – cumulative SLA compliance measurement over multiple or sequential months is not offered by TData USA. For the purpose of calculating SLA compliance, the 1st day of each month "resets" the compliance calculation to 100% compliance by TData USA.

Management And Reporting

The coordination of all resources associated with the delivery of Dedicated Collocation Service falls under the management of TData USA's KeyCenterTM Facilities Department. This department is responsible for the 24 x 7 x 365 operation of the KeyCenterTM building and all of its associated plant machinery. This includes the following areas of operation:

- Building maintenance
- Fire control systems
- HVAC systems
- Electrical systems
- Door access control systems (including "smart card" badging system)
- Server Room raised floor configurations (including equipment cabinets and caging)
- On-site, 24 x 7 x 365 security personnel
- Video surveillance systems
- Tennant services (e.g., telephone, voice mail, customer cubicles, work labs, etc.)
- Shipping & receiving
- Telecom Room cabling, electrical, HVAC, and raised floor configurations

A variety of reports can be provided to TData USA customers regarding the performance of the above areas of operation. As of the date of this document, all reports must be hand-generated using the individual reporting systems associated with each of the areas of operation listed above. The areas of operation for which hand-generated reports are available are as follows:

- HVAC systems
- Electrical systems
- Door access control systems (including "smart card" badging system)
- On-site, 24 x 7 x 365 security personnel
- Tennant services (e.g., telephone, voice mail, etc.)
- Shipping & receiving

Required customer reports must be developed by the Facilities Department. A charge for this development may be required, depending upon the complexity and frequency of the required report.



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B. TData USA Service Products Affinity

In addition to the optional service components described above, additional TData USA service products may be purchased to complete or compliment each customer's unique Internet infrastructure environment. For example, many of TData USA's Managed Networking Service components are required in order for each customer to complete the connection of their Dedicated Collocation Service to the public Internet. These service components include:

- 100 Mbps or 1Gbps Ethernet Internet Access Port
- IP Address Management
- Domain Name Management

Even though copper and fiber cabling are included as standard components of our Dedicated Collocation Service, this cabling is not connected to an active TData USA switched Ethernet Internet Access Port as a standard component of our Dedicated Collocation Service (which means that no connection to the Internet exists). Each customer must purchase at least one (1) TData USA Ethernet Internet Access Port, a service component of our Managed Networking Service, and at least one (1) Dedicated Internet Access Service circuit, another TData USA service product, in order to complete a connection to the Internet. Likewise, unless each customer provides their own IP address space and a DNS management function, they will need to purchase the IP Address Management and Domain Name Management service components of our Managed Networking Service in order to be able to exchange information with computers connected to the public Internet.

TData USA service products that complete, enhance, or extend the functionality Internet infrastructure environments will undoubtedly be of interest to TData USA customers. Take TData USA's Managed Storage Service product offering, for example. Many TData USA customers require a large volume of data storage in order to properly operate their Internet infrastructure environment. Instead of purchasing, installing, configuring, monitoring, and maintaining their own expensive disk storage arrays and technicians, many customers will elect to purchase a large volume of data storage capacity from TData USA via our Managed Storage Service product offering. This is an excellent example of the "service product affinity" that exists between our Dedicated Collocation Service and other TData USA service products (in this example Managed Storage Service, in an a-la-carte manner, that constitutes the customized Internet infrastructure solution that each customer ultimately purchases from TData USA. The most common service product affinities that exist between TData USA's Dedicated Collocation Service is summarized in Figure 2, below.



Figure 2:

"Service product affinities" that exist between Dedicated Collocation Service and other TData USA service products.

Service Product Name	Affinity Service Product	Product Components	Function
Dedicated Collocation	Managed Networking	100 Mbps / 1 Gbps Ethernet	Connects customer
Service	Service	Internet Access Port	equipment to
			KeyCenter Internet
			backbone network
		IP Address Management	Assignment &
			management of
		Domain Name Management	Domain name
		Domain Name Management	registration and DNS
			service
	Dedicated Internet		
	Access Service		
	Managed Servers		
	& O/S Service		
	Mana and Otamana		
	Managed Storage		
	Service		
	Managed Backup		
	Service		
	Monitoring Service		
	Managed Security		
	Service		
	Monitoring Service		

The Dedicated Collocation Service product affinities listed in Figure 2, above, describe those TData USA service products that are most often purchased in conjunction with Dedicated Collocation Service. Figure 2 is meant to be used as a checklist to present to TData USA customers the most relevant TData USA service products (and their associated service components) that will complete, extend, or enhance their Dedicated Collocation Service environment.



SECTION 2

Service Components Configuration

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This section of this document presents the various service components, and their associated configuration options, that comprise the Dedicated Collocation Service. These service component configurations were developed as a result of Proof Of Concept Testing that proved the business viability of these configurations in a Production Pilot Test. The information contained in this section is intended to be used to develop customized Dedicated Collocation Service solutions that meet the unique business and technology requirements of each TData USA customer.

A. KeyCenter[™] Specifications

All dedicated collocation services are delivered within the walls of TData USA's Miami, FL KeyCenterTM Internet data center building. This building was specifically designed and built to house the mission-critical Internet and enterprise computing systems of the Global 100 and the Fortune 1000. Great attention was paid to securing the building from natural disasters as well as man-made threats. The remainder of this section details the specifications for the Miami. FL KeyCenterTM building.

Building Construction

The Miami, FL KeyCenterTM building was constructed to operate 24 x 7 x 365 as an Internet data center that provides an uninterrupted flow of commercial information to and from the public Internet and private networks. The KeyCenterTM building must support the installation of commercial computing systems as well as be able to withstand 100-year weather events, including hurricanes and flooding.

- 176,058 gross square feet
- 9 ¹/₄" pre-cast concrete walls & roof using 3,000 lbs/sq. ft. tensile strength rebar steel for reinforcing throughout
- Maximum 155 MPH wind resistance (lower threshold of Category 5 hurricane) for roof membrane, the weakest component of the building
- Located 23 miles from Atlantic Ocean in West Miami-Dade County; cannot be affected by Atlantic hurricane storm surge



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- Foundation (and first floor) 4" reinforced concrete slab has been built 4.4 inches above the Federal Emergency Management Agency (FEMA) 100-year flood level
- 1st floor live load is 400 lbs./sq. ft. (PSF)
- 2nd floor live load is 200 lbs./sq. ft. (PSF)
- Three (3) diverse conduit systems enter the building from the East, South, and West and provide multiple, redundant, fiber pathways to the Telecom Room.
- Lightning protection meets or exceeds NFPA 78 Lightning Protection Code and UL Master Label Code 96A standards for lightning protection.
- Entire building meets or exceeds all relevant South Florida Building Codes, including hurricane protection codes

The KeyCenter[™] building is located in the Beacon Tradeport LightSpeed commercial business park. It is adjacent to other Internet infrastructure companies who have located in the same business park in order to provide a wide range of leading edge Internet services from a single location.

Security

This is the physical security that protects the contents and personnel located at the Miami, FL KeyCenterTM building.

- Five-stage security policy used to grant entry to the KeyCenterTM facility "smart card" photo-ID badge, photo-ID badge PIN, visual identification against photo kept in security computer database, screening of individuals and their possession through an airport-grade metal detector, and bulletproof mantrap operated by on-site security officers.
- 24 x 7 x 365 on-site security officers.
- 24 x 7 x 365 operation of all security systems.
- Commercial bulletproof entry mantrap with airport-grade metal detector; manned and controlled by on-site security officers.
- Bulletproof Facility Control Room; houses on-site security officers and centralized KeyCenterTM machinery plant monitoring and control equipment.
- Facility-wide electronic door access control system restricts access to each of the KeyCenterTM facility doors using a combination of electronic locks, "smart card" photo-ID badges, and badge readers.
- SecureSuiteTM customers control the access list for their private server room.



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- Exterior and interior video surveillance cameras record activities at all exterior entrances to the KeyCenterTM building as well as all interior entrances to SecureSuitesTM and public collocation areas. Interior exits of all SecureSuitesTM and public collocation areas are also monitored by video surveillance cameras.
- All parking areas are monitored 24 x 7 x 365 by video surveillance cameras.
- A 24 hour-per-day video record is made from cameras located throughout the KeyCenterTM facility. Video tapes are rotated every 24 hours. Recorded video tapes are stored in an on-site, fireproof media safe and are retained for 30 days before being reused.
- Electronic door locks are interfaced to the video surveillance cameras in order to provide automatic alarm notification in the event that a door controlled by an electronic lock is either held open or forced open. An alarm event is generated, the video surveillance camera monitoring the affected door is immediately switched onto the alarm video monitor located in the Facility Control Room, and an audible alert sounds to notify the onsite security officers that a door alarm has been received.
- A seven foot (7°) high fence surrounds the perimeter of the KeyCenterTM facility.

Visitor Access

Access to the KeyCenterTM facility is strictly controlled by on-site TData USA Facilities Department personnel. All visitors must enter the facility through the front lobby door using a "smart card" photo-ID badge and PIN number. In order to obtain a KeyCenterTM badge and PIN number a *Badgeholder Information Form* must be completed and submitted to TData USA Facilities Department management for approval. Please refer to the section of this document titled, *Service Delivery Process*, subsection, *B. Unique Dedicated Collocation Service Delivery Process Requirements*, for details on the process used by TData USA to issue KeyCenterTM badges and PIN numbers.

Entry to the KeyCenterTM facility is accomplished using the following sequence of events, in the order listed:

- 1. The visitor places their KeyCenterTM badge next to the badge reader located on the outside of the front lobby door for approximately three (3) to five (5) seconds. When the "smart card" has been read by the badge reader a beep will be emitted by the badge reader.
- 2. The visitor's 4-digit PIN number is entered on the keypad.
- 3. If the PIN number is validated against the visitor's KeyCenterTM badge, the front lobby electronic door lock will unlatch and allow the visitor to enter the bulletproof mantrap.
- 4. On-site security officers located inside the bulletproof Facility Control Room will compare the photo contained in the electronic record that has been displayed on their computer monitor (this occurred when the visitor's badge was scanned by the front lobby door badge reader) to the face now present in the bulletproof mantrap.



- 5. If the face on the security officers' computer screen matches the face of the visitor who gained access through the front lobby door, the visitor is asked to place any metal objects through the pass-through box located in the bulletproof mantrap glass and then walk through the metal detector.
- 6. If the visitor successfully passes the metal detector test the security officers located in the Facility Control Room will unlock the mantrap bulletproof door and admit the visitor to the front lobby.
- 7. Any items passed through the bulletproof mantrap are scanned and verified by a security office. The visitor is required to sign the Visitor Log that notes the date and time of entry, their name, and other pertinent security information. The visitor may now proceed through those doors to which his KeyCenterTM badge gives access.

When the visitor is ready to leave the KeyCenterTM facility they sign out of the Visitor Log, any packages are inspected by a security officer, and the bulletproof mantrap door is opened by the security guard to allow exit through the front lobby door.

The heart of the KeyCenterTM visitor access control process in the Simplex *iSecure Pro* application software. This application directly controls all electronic door locks in the KeyCenterTM facility. Through the use of programmable Access Levels, the *iSecure Pro* software creates logical groups of doors that can be opened with a "smart card" badge that is used in conjunction with a Simplex badge reader. When a KeyCenterTM badge is created, individual *iSecure Pro* Access Levels are assigned to each badge (based upon the information contained on the *Badgeholder Information Form*). The *iSecure Pro* server validates the badgeholder each time they scan their badge across a Simplex badge reader and looks up their Access Level in a SQL database. If the badgeholder has been granted the Access Level to which a door belongs, the electronic door lock will open and allow the badgeholder passage through the door. If the badgeholder has not been assigned access to a door, entry through the door will be denied. All badge scanning activity is recorded by the *iSecure Pro* SQL database and can be reported.

In addition to the electronic door locks, all electronically controlled KeyCenterTM doors contain a ChexIt "crash bar" door opener installed on the inside of the door. This device allows exit from any room, per Miami-Dade Fire Code, even if the electronic door lock is locked. The ChexIt crash bar works by activating an alarm and a 15 second door unlock delay. 15 seconds after pressing the ChexIt crash bar the electronic lock will unlock and allow egress from the room. If the ChexIt alarm continues for 30 seconds or more an alarm will be sent to the Facility Control Room, the video surveillance camera nearest the affected door will be switched onto a console monitor located in the Facility Control Room, and the KeyCenterTM on-site security personnel will be notified that there is a problem with the door.



Fire Control

The fire control systems installed to protect the KeyCenter[™] facility from the threat of fire use state-of-the-art commercial fire detection and suppression equipment. The purpose of the fire control system is two-fold: 1.) detect a pre-fire condition or fire, and 2.) suppress an active fire.

A Very Early Smoke Detection Apparatus (VESDA) <u>fire detection system</u> is used to detect pre-fire conditions and actual fire events. The purpose of the VESDA system is to notify KeyCenterTM Facilities Department personnel of conditions that could erupt into a fire or that have already become a fire. For example, an overheated wire causes its insulation to emit minute amounts of combustible material that can be detected by the VESDA system, even before the insulation catches fire. When the VESDA system detects such a condition, it generates an alarm that notifies KeyCenterTM Facilities Department personnel that a fire condition has been detected in the KeyCenterTM building. <u>The VESDA system also sounds a KeyCenterTM-wide general fire alarm that notifies all building occupants to immediately evacuate the KeyCenterTM building.
</u>

The VESDA system also calls the KeyCenterTM monitoring service, who then calls the Miami-Dade Fire Department. If the VESDA system has sensed a pre-fire condition, the KeyCenterTM Facilities Department personnel will have some amount of time to identify the pre-fire condition and, hopefully, prevent the condition from becoming a fire. If the VESDA system detects a fire condition, the same alarm is sounded. In the case of an actual fire detection event the Miami-Dade Fire Department will arrive within seven (7) minutes of the VESDA alarm to deal with the fire. <u>PLEASE NOTE: The VESDA system only provides fire detection functionality; it does not control or provide any type of fire suppression functionality</u>. Separate fire suppression systems installed throughout the KeyCenterTM facility will provide fire suppression if <u>their</u> fire detection systems trigger a release of fire suppression agents (i.e., fm200 or water). <u>The primary function of the VESDA system is as a fire condition "early warning system."</u>

• A Notifier brand fm200 gas <u>fire suppression system</u> is installed beneath the raised floor in all SecureSuiteTM, public collocation, and Managed Services areas of the KeyCenterTM facility to suppress electrical fire (since only electrical wiring is permitted beneath the raised floor in the KeyCenterTM facility). Fm200 gas is the latest generation of gas-based fire suppression systems used to protect equipment and data in mission-critical data centers. The fm200 gas suppresses a fire by preventing fire combustion at a molecular level. The byproducts of this chemical reaction are a slight lowering of temperature and a small reduction of oxygen (approximately 8%) in the immediate area of the fm200 gas release.

The fm200 system includes its own system of smoke detectors (a combination of ion and photoelectric smoke sensors) that operate independently from all other fire detection and suppression systems installed throughout the KeyCenterTM facility. The system is triggered when one (1) smoke detector goes into an alarm condition. A warning bell and accompanying flashing strobe alarm is generated <u>inside the area where the affected smoke detector is located</u>. No other areas of the KeyCenterTM are alerted EXCEPT that an alarm is produced at the master fire control panel in the Facility Control Room. This 1-detector



alarm does not trigger the release of fm200 gas. However, this alarm does serve as a warning to the KeyCenterTM Facilities Department that urgent attention is required in the affected area. If a second smoke detector should go into an alarm condition while the first detector is also in an alarm condition, the fm200 system immediately starts a thirty (30) second countdown to release the fm200 gas. <u>A KeyCenterTM-wide general fire alarm is generated</u>. All strobes and sirens throughout the KeyCenterTM facility will become active, signifying to the building occupants that an immediate <u>KeyCenterTM evacuation is required</u>. Unless the countdown abort button is pressed (these are located at every door inside the SecureSuiteTM, public collocation, and Managed Services areas of the KeyCenterTM), or a reset of the fm200 system occurs at the main Notifier fm200 panel (located in the Facility Control Room), the fm200 gas will be released thirty (30) seconds after the second smoke detector goes into alarm condition.

• A SimplexGrinnell pre-action, "dry pipe," sprinkler system has been installed in all abovefloor and return air plenum spaces located in the SecureSuiteTM, public collocation, and Managed Services areas of the KeyCenterTM facility. This state-of-the-art system provides zoned sprinkler water fire suppression that limits collateral damage to critical computing equipment and data. The system accomplishes this through the use of compressed air and individual sprinkler head water release mechanisms.

The <u>pre-action</u> sprinkler system piping installed throughout the KeyCenterTM facility is filled with compressed air, not water. This has been done to eliminate the possibility of accidental water discharge. For example, suppose that during the installation of computing equipment a sprinkler head is accidentally broken. If the sprinkler pipe to which the head was attached was full of pressurized water an immediate release of water would take place and the computing equipment and data located in the area of the release would be damaged. However, since the pre-action sprinkler pipe is filled with compressed air, no damage to computing equipment and data would occur. Instead, a pre-action system trouble alarm is generated that indicates a loss of air pressure. The damaged sprinkler head is replaced, the attached pipe is re-pressurized with compressed air, and the system returns to normal operation.

How, then, does water get released in the event of an actual fire? The pre-action system contains its own group of ion and photoelectric smoke detectors <u>which are not connected</u> to any of the other fire detection and suppression systems installed throughout the <u>KeyCenterTM facility</u>. These smoke detectors work in connection with the pressurized air and water connected to the pre-action system to determine which medium should fill the sprinkler piping. In normal operation (with no alarms present) compressed air fills the sprinkler pipe. <u>When one (1) or more smoke detectors goes into alarm condition a</u> <u>KeyCenterTM-wide general fire alarm is generated</u>. All strobes and sirens <u>throughout the facility will light and sound to signify that an immediate general</u> <u>evacuation of the KeyCenterTM facility is required</u>. To activate the release of water it takes two (2) or more smoke detectors going into alarm to release the compressed air and fill the sprinkler pipes with pressurized water. Even when the sprinkler pipes are filled with pressurized water, there is no release of water until the glass bulb in each sprinkler head forces the pre-action system to release water in a "zoned" manner. The water release zone is



determined by the heat of the fire as it spreads.

- Involved Computer Room Air Conditioning (CRAC) Units close their dampers and shut off as soon as either an fm200 or pre-action sprinkler fire suppression system alarm is received. This prevents the spread of toxic fumes throughout the KeyCenter[™] facility by the HVAC system.
- A wet pipe sprinkler system is installed in all administrative and corridor areas of the KeyCenterTM facility. The sprinkler piping in this system contains pressurized water, not compressed air. Release of water occurs when any of the system's attached sprinkler head glass bulbs burns through due to the heat of a fire. When one (1) or more smoke detectors goes into alarm condition a KeyCenterTM-wide general fire alarm is generated. All strobes and sirens throughout the facility will light and sound to signify that an immediate general evacuation of the KeyCenterTM facility is required.
- Fire alarm pull stations are located at the doors of all SecureSuiteTM, public collocation, and Managed Service areas of the KeyCenterTM facility. Pull stations for both the fm200 and the pre-action sprinkler systems are located at these doors. All other areas of the KeyCenterTM facility have pre-action or wet pipe pull stations installed in easy-to-see locations. <u>Pull stations are not a component of the VESDA system since it is not a fire suppression system.</u>
- The KeyCenterTM facility is monitored 24 x 7 x 365 for fire system trouble and fire alarms. Fire alarms detected by the monitoring service are immediately called to the Miami-Dade Fire Department and a fire rescue team is dispatched to the KeyCenterTM facility. The nearest fire station is located at the Miami-Dade Communications Complex on 41st Street approximately two (2) miles east of 107th Avenue (approximately seven (7) minutes drive away).

Environmental Control (HVAC)

The Heating Ventilating and Air Conditioning (HVAC) system installed at the Miami, FL KeyCenterTM facility provides fully redundant, state-of-the-art air cooling and air handling functionality. The HVAC system automatically controls the temperature and humidity inside the KeyCenterTM facility regardless of outside weather conditions. It does this through a system of automated, interconnected, redundant, chillers, cooling towers, Computer Room Air Conditioning (CRAC) Units, and air handlers.

- N + 1, Trane brand, 485-ton commercial chillers provide chilled water to the CRAC Units and air handlers located throughout the KeyCenterTM facility. This chilled water is used to extract heat from the air throughout the building. The air handling units cool and dehumidify outside air, or provide air handling services to administrative areas, while the CRAC Units cool and dehumidify the production areas of the KeyCenterTM facility.
- N + 1, Evapco brand, UB Series cooling towers provide the chilled water to cool the Trane chillers. The UB Series of cooling towers are able to withstand wind speeds of up to 246 miles-per-hour (MPH). The Evapco cooling towers and the Trane chillers are wired with an electronic interlock so that if the Evapco cooling tower stops functioning



the Trane chiller will automatically enter a programmed shutdown in order to prevent damage to the chiller from overheating.

• Redundant CRAC Units provide pressurized air conditioning via the KeyCenterTM raised flooring system. CRAC Units range in size from 18 tons to 30 tons and are connected to the KeyCenterTM chilled water piping system. Temperature and humidity are sensed by thermostats installed in the areas where each CRAC Unit delivers its cooled air. These thermostats are connected to the Johnson Controls building management system which directly controls the operation of each CRAC Unit based on set points programmed into Johnson Controls' *MetaSys* building management software.

<u>IMPORTANT COMPETITIVE DIFFERENTIATOR</u>: The intake for each KeyCenterTM CRAC Unit is connected directly to the KeyCenterTM return air plenum. Almost all existing competitor data center air conditioning units intake heated air directly from the room in which they have been installed. <u>By connecting the intake of the KeyCenterTM</u> <u>CRAC Units directly to the return air plenum, TData USA is able to effectively double the cooling capacity of its CRAC Units</u>. This becomes significant when high-density "blade servers" and 1U, multi-processor servers (which produce high levels of heat) are installed by customers in the KeyCenterTM production areas. <u>TData USA will be able to continue</u> to accept the installation of these high heat output devices long after competitor data centers have exhausted their air conditioning capacity and are unable to accept additional customer equipment installations.

- Outside and inside air handlers are located throughout the KeyCenterTM facility. Outside air handlers condition outside air by cooling, filtering, and de-humidifying it before it reaches the interior areas of the KeyCenterTM building. Inside air handlers distribute precooled air from the outside air handlers to the administrative areas of the KeyCenterTM building. In concert with the air exhaust system, the air handlers also assure that an acceptable number of air exchanges takes place every hour in order to maintain healthy interior air quality.
- The KeyCenterTM building features a revolutionary chilled water piping design that ensures that chilled water can never reach electrical or data circuits and cause loss of KeyCenterTM services to TData USA customers. All KeyCenterTM chilled water piping is installed beneath the raised floor located in the corridors of the KeyCenterTM building. The entire floor and walls (up to the level of the raised floor tiles) of every KeyCenterTM corridor have been coated with a special waterproof epoxy that isolates all corridors underneath the raised floor tiles from the adjoining production areas. This isolation creates a waterproof "canal" in every corridor that acts as a containment vessel in the event of a chilled water system leak. Gravity floor drains are also located in these corridors and are connected to the city sewer system. These drains function to automatically remove water from the corridor canals in the event of a chilled water leak. KeyCenterTM CRAC Units are also installed in the corridors of the KeyCenterTM building and are connected to this isolated chilled water piping system. Special leak detectors are installed beneath each CRAC Unit that will detect the failure of piping in either the CRAC Unit or the 12 inch chilled water piping system.



NOTE: The Appendix contains a document titled, *Telefonica Data USA, Inc. Miami KeyCenter*TM - *Phase I Electrical And HVAC Systems Capacity Calculations* that will explain how the cooling capacity value of 71.2 watts-per-square-foot and the electrical heat dissipation value of 68.7 watts-per-square-foot were calculated for SecureSuiteTM Private Server Room #4. These are the per-square-foot cooling and heating capacities installed during Phase I of the KeyCenterTM facility build-out.

Electrical

The Miami, FL KeyCenterTM facility was designed around a fully redundant electrical distribution system that delivers 100% uptime. Two different types of electrical distribution redundancy are key to the delivery of clean power to KeyCenterTM customer equipment: electric utility company power feed redundancy, and KeyCenterTM electrical distribution system redundancy. Electric utility company power feed redundancy is provided by the following KeyCenterTM electric systems:

- Two (2) separate Florida Power & Light (FP&L) electric power feeds connect to the Miami, FL KeyCenterTM building. <u>Both of these power feeds originate at the FP&L</u> <u>Beacon Substation located at 107th Avenue and 21st Street in Miami.</u> One feed is underground and the other feed is overhead. Each feed is rated to carry a maximum of 20,000,000 volt amperes. TData USA has purchased 4 8,000,000 volt amperes guaranteed capacity on each of these two (2) feeds. <u>Each KeyCenterTM electric power feed is connected to a different side of the Beacon Substation, which is served by two (2) separate FP&L power grids. Therefore, each KeyCenterTM FP&L electric feed is connected to two (2) separate FP&L power grids that both serve the Beacon Substation.
 </u>
- Redundant FP&L 13,200-VAC-to-480 VAC transformers deliver 480 VAC, 3-phase power to the KeyCenterTM building. This FP&L system includes an Automatic Transfer Switch (ATS) that automatically switches an interrupted FP&L electric power feed to the second power feed to avoid the loss of FP&L power to the KeyCenterTM building. One (1) FP&L electric power feed is capable of carrying the entire KeyCenterTM Phase 1 electric load.
- Two (2) Siemens 4,000 ampere switchboards connect the two (2) 480 VAC, 3-phase FP&L electric power feeds to the KeyCenterTM electric power distribution system through a series of motor driven, high amperage circuit breakers. The entire KeyCenterTM Phase 1 electrical load is carried through these two (2) switchboards. Each Siemens switchboard is controlled by an automated Programmable Logic Controller (PLC) that contains the sequence of events and timing logic that control the operation of the switchboard circuit breakers. This sequence of events and timing programming is stored in the non-volatile memory of the PLC so that the programming can never be lost.

Both of the KeyCenter'sTM FP&L 480 VAC, 3 phase electric power feeds are connected to each Siemens switchboard. In the event of a loss of one (1) FP&L power feed, the PLC will automatically switch the load from the failed FP&L power connection to the second FP&L power connection (remember, each of the FP&L power connections has enough capacity to carry the entire KeyCenterTM electrical load) via a series of opening and



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closing circuit breaker operations. When power is restored to the failed FP&L feed, the Siemens PLC reverses the circuit breaker operation and restores the load to the now-active FP&L power feed.

In the event that both FP&L power feeds are lost, the Siemens PLC will initiate the start of the backup generators and switch the load from FP&L to the generators. Each Siemens switchboard is connected to its own dedicated 2,000 kVA (2 megawatt) Caterpillar diesel-powered generator. These generators are designed to supply 480 VAC, 3-phase electrical power to the Siemens switchboards should <u>both</u> FP&L power feeds be lost. The process of switching from a failure of both FP&L feeds to backup generators takes approximately ten (10) seconds. The process begins when the PLC senses that <u>both</u> FP&L feeds have been lost. As soon as the PLC has detected this condition, the PLC instructs the Caterpillar generators to start. When the power feed circuit breakers then connects the running generators to the switchboard. From this point forward the Siemens switchboards are receiving 480 VAC, 3-phase electrical power from the generators, not FP&L.

Two (2) generators are running after this switchover from FP&L power has occurred (remember each switchboard is connected to a dedicated generator and <u>both</u> switchboards will have lost FP&L power). In the very unlikely event that one (1) of the running backup generators should malfunction, a third emergency backup generator is always standing ready. If a running backup generator should fail, the Siemens PLC senses this condition, shuts down the malfunctioning backup generator, starts the emergency backup generator, and switches the affected switchboard to the emergency backup generator.

When <u>either</u> of the FP&L power feeds are restored, the Siemens PLC will wait a specified amount of time to make sure that the FP&L power is stable then disconnects the backup generators and switches the switchboards to the restored FP&L power feed(s). <u>All of this circuit breaker switching is done automatically by the Siemens PLC and does not require any human intervention to complete. This includes restoring the switchboard loads to FP&L power and shutting down the backup generators (many U.S. data centers must manually complete this operation).</u>

- Separate life safety and freight elevator Automatic Transfer Switches (ATS) preserve Siemens switchboard power capacity for future increases in customer electrical circuits load.
- Switchboard monitoring is performed via Siemen's *WinPC* software. This software application monitors the performance of the entire Siemens switchboard system and reports historical events and trends. The KeyCenterTM on-site Facilities Department personnel use *WinPC* to balance the KeyCenter'sTM electrical load across its 3-phases of power.

The above description dealt with the redundancy of the KeyCenter'sTM electric utility company power feeds. The second type of electrical system redundancy installed by TData USA at its KeyCenterTM facility is electrical distribution system redundancy. TData USA has accomplished this redundancy through the use of the following electrical distribution system design.



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The power received by each Siemens switchboard is connected to a number of electrical loads throughout the KeyCenterTM building. For example, the switchboards directly feed the Trane chillers, the CRAC Units, and the air handling units (as well as other types of heavy machinery). These types of electrical loads can afford to lose electrical power for small periods of time without negatively impacting the delivery of Dedicated Collocation Service to TData USA customers. However, the electrical circuits to which KeyCenterTM customer equipment is connected can never lose power without negatively impacting TData USA customers. Therefore, TData USA has installed a highly redundant, state-ofthe-art, commercial Uninterruptible Power Supply (UPS) system that supplies electrical power to customer equipment. This commercial UPS system receives its power from the Siemens switchboards (as 480 VAC, 3-phase electricity), converts this AC power to Direct Current (DC) power, charges a large battery farm, then converts the batteries' DC power to ultra-clean 120 or 208 VAC, 3-phase power that is delivered to customer equipment. Since the power output of each KeyCenterTM UPS is obtained from its associated battery farm, each UPS can provide power to its maximum rated load for approximately twelve (12) minutes if there has been a total loss of both the FP&L power feeds and all backup generators.

<u>The KeyCenterTM UPS system acts as a "buffer" for the FP&L power anomalies that occur</u> <u>each day.</u> This means that TData USA customers never experience the surges, spikes, brownouts, and blackouts that affect the FP&L system, whether these events last a fraction of a second or hours. Since the KeyCenterTM UPS system is the source for all customer electrical power there is never any "switching" that takes place to move customer equipment from FP&L power to UPS power (as is the case with much smaller singlecomputer UPS systems). <u>Customer equipment is never connected to FP&L power, only</u> the KeyCenterTM UPS system. The KeyCenterTM UPS system is a true online UPS system that always supplies power from its battery farm and never from the FP&L power feeds.

- The KeyCenterTM UPS system utilizes a unique, matrixed multi-UPS design that ensures that all UPSes simultaneously support the entire customer equipment electrical load. This design is the state-of-the-art in data center UPS systems. Many existing data center UPS systems dedicate a specific customer electrical load to a specific UPS. In the event of a UPS failure, the customer equipment attached to its dedicated UPS would stop receiving electrical power. In the KeyCenterTM UPS system design, all four (4) 750 kVA PowerWare UPSes are matrixed together to act as one, large, UPS. If one (1) of the four (4) UPSes in the KeyCenterTM UPS system should fail, the remaining three (3) UPSes would continue to provide uninterrupted electrical power to the entire customer equipment load. The KeyCenterTM UPS system has a total capacity of 3,000 kVA (3 megawatts). Less than 50% of this capacity (1,500 kVA) can ever be consumed by KeyCenterTM customer electrical load (due to circuit breaker design "downstream" from the UPS system). This means that the KeyCenterTM UPS system has N + 1 redundancy for UPS electrical capacity, a much more important measure of reliability than the traditional N + 1 UPS units.
- The method used by TData USA to construct its unique, matrixed, UPS system is to employ eight (8) Digital Static Transfer Switches (DSTS). Each DSTS acts as UPS "A-B switch" that connects the KeyCenterTM UPS system to multiple Power Distribution Units



(PDUs) which then connect to customer electrical circuits. Each DSTS is connected to two (2) of the KeyCenter'sTM 750 kVA PowerWare UPSes and is controlled by an ultrafast switching Silicon Controlled Rectifier (SCR). One (1) of these UPSes is designated as the primary UPS and the other UPS is designated the secondary UPS. The Primary UPS provides power to a transformer located in the DSTS that converts the 480 VAC, 3-phase power received from the UPS to 208/120 VAC, 3-phase power that can be used by customer equipment. This 208/120VAC power is then sent to multiple Power Distribution Units (PDUs) located throughout the KeyCenterTM facility. Customer equipment is connected to the PDUs (explained in more detail, later). In the event of a UPS failure, the DSTS' SCR switches out the failed UPS and immediately connects the secondary UPS to the 208/120 VAC, 3-phase transformer. This switching operation occurs in approximately 20 cycles, a short enough period so that no interruption of electrical service to customer equipment occurs. Each DSTS can connect to a maximum of six (6) PDUs. Each DSTS PDU connection is protected by a 225 ampere, thermally protected, circuit breaker.

Power Distribution Units (PDUs) are the last leg of the KeyCenterTM electrical distribution system. There are twenty-one (21) PDUs installed in Phase 1 of the KeyCenterTM build out. Each PDU contains two (2) separate power panels. Each power panel is protected using one (1) 225 ampere molded case switch (the same as a circuit breaker except there is no thermal protection). Each power panel can hold a maximum of eighty-four (84) 120 VAC, single phase circuit breakers. Therefore, a PDU can contain a total of one hundred sixty-eight (168) 120 VAC, single phase circuit breakers. It may seem that each PDU can deliver a maximum of 450 amperes (2 - power panels x 225 amperes = 450 amperes) but this is not the case. Each PDU can only deliver a maximum of 255 amperes of current. The two (2) - 225 ampere breakers and the two (2) power panels have been provided for electrical circuit configuration flexibility only and cannot be added together to obtain 450 amperes of electrical current.

The PDUs are used to modify the electrical circuits that are connected to customer equipment. A wide range of customer electrical circuits can be configured from each PDU. These circuits include: 120 VAC single phase, 20, 30, 40, 50, and 60 amperes; 120 VAC 3-phase, 30, 40, 50, and 60 amperes; 208 VAC single phase, 30, 40, 50, and 60 amperes; and 208 VAC 3-phase, 30, 40, 50, and 60 amperes.

NOTE: The Appendix contains a document titled, *Telefonica Data USA, Inc. Miami KeyCenter*TM - *Phase I Electrical And HVAC Systems Capacity Calculations* that will explain how the cooling capacity value of 71.2 watts-per-square-foot and the electrical heat dissipation value of 68.7 watts-per-square-foot were calculated for SecureSuiteTM Private Server Room #4. These are the per-square-foot cooling and heating capacities installed during Phase I of the KeyCenterTM facility build-out.



Building Management System

The Miami, FL KeyCenterTM facility is monitored and controlled by a state-of-the-art, sophisticated, Building Automation System (BAS). This system is manufactured, installed and supported by Johnson Controls, the world's leading building automation controls company. The KeyCenterTM Johnson Controls BAS directly controls and monitors the set points for most of the machinery located throughout the KeyCenterTM facility. The KeyCenterTM BAS is controlled by Johnson Controls' *MetaSys M-5* software application. Through the use of the *MetaSys M-5* graphical interface KeyCenterTM Facilities Department personnel are able to directly control and monitor, in real time, the following KeyCenterTM machinery systems:

- HVAC
- Generators
- Fire Control

The Johnson Controls' KeyCenterTM BAS also monitors, but doesn't control, the KeyCenterTM electrical system (and in the process acts as a backup monitoring system to the Siemens *WinPC* software application). The *MetaSys M-5* software reports in real-time the status and performance of all controlled and monitored machinery. This is particularly useful for the KeyCenterTM on-site Facilities Department personnel who are responsible for keeping the KeyCenterTM facility operational at all times. The *MetaSys M-5* software also stores historical snapshots that are used for trend analysis.

Raised Floor Access System

The raised floor access system installed throughout the KeyCenterTM facility is designed for the following uses:

- Support for computing systems equipment
- Delivery of under-floor air conditioning
- Concealed location for KeyCenterTM infrastructure (e.g., piping, electrical, etc.)
- Control of static electricity

TData USA has installed a bolted stringer raised access flooring support system that is 24 inches in height with pedestals installed 24 inches on center. The access floor tiles used with this support system are 24 inches by 24 inches in size. These access floor tiles are filled with cementatious material and are coated on the top surface with an anti-static covering to prevent the build-up of static electricity across the raised floor. The following specifications characterize the load limits of the KeyCenterTM raised access flooring system:

- Manufacturer (support system and access floor tiles) ... Interface Architectural Resources
- Access Floor Tile Model ... Atlantic Series, FS-1000 Access Floor Panel "64" Cup
- Rolling load limit 10 passes ... 800 lbs.
- Rolling load limit 10,000 passes ... 600 lbs.
- Static load limit per square inch ... 1,000 lbs.
- Uniform load performance per square foot ... 250 lbs.
- Impact load limit ... 150 lbs dropped from a height of 36" anywhere on the tile



• Ultimate load limit – entire floor ... 3,250 lbs.

The "ultimate load limit" is the measure of the maximum weight that each access floor tile can hold without additional support. If additional pedestals are installed beneath a single floor tile that tile can hold a maximum weight of 3,800 lbs. This weight limit is a KeyCenterTM Facilities Department policy limit meant to minimize the risk of access floor tile failure due to improper placement of additional pedestals beneath access floor tiles. Combining all of the specifications listed above, the TData USA Facilities Department has created the following KeyCenterTM Access Floor Load Limit Policy:

"Loads greater than 600 lbs. require the use of plywood no thinner than 3/8" over the raised floor. Loads in excess of 3,250 lbs require additional pedestals beneath each access floor tile over which equipment will be installed. <u>NO LOADS EXCEEDING 3,800</u> <u>LBS. ARE PERMITTED ANYWHERE ON THE KeyCenterTM RAISED FLOOR</u> <u>SYSTEM!</u>"

The above load limit policy has been posted above the doors leading from the KeyCenterTM loading dock to the raised floor areas of the KeyCenterTM facility.

Equipment Cabinets

The KeyCenterTM Facilities Department has standardized on the use of equipment cabinets, instead of equipment racks and caging, to house customer equipment collocated in the KeyCenterTM facility. This decision was made in order to maximize KeyCenterTM revenue-per-square-foot and to lower the cost of Dedicated Collocation Service for TData USA customers. This "win-win" approach to housing customer equipment works for the following reasons:

- 1. TData USA can install more equipment cabinets than racks and caging in the available KeyCenterTM production raised floor areas. This means that more revenue-per-square-foot will be generated using equipment cabinets as opposed to using racks and caging to house customer equipment.
- Each TData USA equipment cabinet occupies less KeyCenterTM production raised floor space than a comparable rack and caging solution. Since TData USA customers can install the same amount of equipment in an equipment cabinet than can be installed in a rack and caging solution, the cost for standard Dedicated Collocation Service is reduced because of the floor space not consumed by racks and caging.

The equipment cabinet that TData USA has selected to house customer equipment is the "Paramount" model manufactured by APW-WrightLine. This equipment cabinet provides unmatched strength, security, configuration flexibility, and cable management features. A summarized list of these features is presented below.

Standard Equipment

- APW- Wright Line "Paramount" model cabinet
- 60 gauge steel, all black cabinet; open on bottom and sides (side panels are additional)
- Ceiling mounted fan tray w/(4) 110 CFM fans wired to a single 120 VAC plug
- Bronze front door frame with black perforated center panel



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- Perforated rear door and cabinet top
- Toolless, infinitely adjustable rack mounting rails; square 10-32 mounting nut with holes spaced at 3.75" on center
- Medecco key lock
- Reversible doors for left or right handed operation
- Spring loaded hinges for easy door removal
- Single cabinet load capacity is 1,500 lbs; 2 or more ganged cabinets is 2,000 lbs
- 24" width; 36" depth
- Occupies 12 square feet of raised floor space
- Supports the use of 21U and 42U mounting rails
- (2) 24", 10 outlet, 120 VAC, 20 ampere power strips w/ twist lock male plug
- Cabinet grounding kit
- Integrated front & rear cable raceways built into top of cabinet; includes raceway covers
- Front to back cable passthroughs built into rack mounting rails

Optional Equipment

- Sun Microsystems sliding rails; 21U and 44U rails
- Anti-tip extensions
- MAS Hamilton push button friction lock
- Rack-mounted fixed shelves; 16.6" wide x 28" deep x 2" tall
- Rack-mounted rollout shelves; 16.6" wide x 28" deep x 2" tall
- Non-rack-mounted fixed shelves; 18.5" wide x 29.57" deep x 1.38" tall
- Non-rack-mounted rollout shelves; 18.5" wide x 29.57" deep x 1.38" tall
- 30" wide x 36" deep cabinet
- 48" wide x 36" deep cabinet
- 24" wide x 42" deep cabinet
- 30" wide x 42" deep cabinet
- 48" wide x 42' deep cabinet
- Vertical divider panels for adjoining cabinet separation; available for 36" &42" depths
- Plexiglas front door insert w/ perforated perimeter
- Solid or vented side panels w/ 2 locks per panel
- Compaq, Hewlett Packard, Dell, IBM, ALR, NEC, and many other rack mounting hardware solutions

The Standard Equipment cabinet described above will be used for all standard Dedicated Collocation Service customers. The Optional Equipment listed above is not included in TData USA's standard Dedicated Collocation Service offering. <u>PLEASE NOTE:</u> Cabinet sizes other than the standard 24" wide by 36" deep configuration will incur additional floor space monthly recurring charges. However, this Optional Equipment can be installed by the KeyCenterTM Facilities Department for an additional one-time charge. <u>PLEASE NOTE:</u> The above equipment cabinets are made-to-order and take a minimum of three (3) weeks lead time from receipt of order by APW-WrightLine to delivery of the cabinets at the KeyCenterTM facility. Equipment cabinets other than the "Paramount" model described above may only be used if approval is obtained from the KeyCenterTM Facilities Department prior to installation of the cabinets in the KeyCenterTM facility. This includes all customer-owned equipment cabinets. Installation and grounding of the standard "Paramount" equipment cabinet is included in the



pricing for standard Dedicated Collocation Service. <u>Non-"Paramount" equipment cabinets may</u> require an additional installation and grounding charge.

Racks And Caging

All equipment racks installed in the KeyCenterTM facility require the use of caging to protect the customer equipment housed in the racks. <u>Every rack and caging installation is designed and priced by the KeyCenterTM Facilities Department on a case-by-case basis. The standard equipment rack used by TData USA for rack and cage installations is described below:</u>

Standard Equipment

- Chatsworth open relay rack; model 55053-X03
- 19" wide by 84" tall
- All aluminum construction using 6061-T6 aluminum
- Integrated anti-tip base mounting plates
- Clear protective finish
- Tipover protection provided via under floor UniStrut and AllThread bolted to each rack

Optional Equipment

- Power strips
- Shelving
- Cable management accessories
- Caging (

TData USA does not include any of the "Optional Equipment" listed above in its standard rack configuration since this equipment varies so widely from customer to customer. The KeyCenterTM Facilities Department will work closely with it rack and caging customers to arrange for the installation of this Optional Equipment at the time the standard racks are installed. Installation of Optional Equipment will be done at an additional one-time charge, with the exception of caging, which will also include a monthly recurring rental charge. Equipment racks other than the Chatsworth model described above may only be used if approval is obtained from the KeyCenterTM Facilities Department prior to installation of the racks in the KeyCenterTM facility. This includes all customer-owned equipment racks. Installation and grounding of the standard Chatsworth equipment rack is included in the pricing for standard Dedicated Collocation Service. Non-Chatsworth equipment racks may require an additional installation and grounding charge.

B. Service Components

Each of the service components that comprises TData USA's Dedicated Collocation Service will be described in detail in the following paragraphs. These service components can be configured into a wide range of dedicated collocation solutions in order to meet the unique collocation requirements of each TData USA customer. <u>All available configurations for each service component are included with each service component description, below. Configurations not present in this document are not standard configurations.</u> However, TData USA will consider all customer configuration requests, even if they are not presented in this document.



The features that are common to all Dedicated Collocation Service components have been described in the section titled, "A. KeyCenterTM Building Specifications," above. Configuration details that are specific to each service component will be described in the following paragraphs. This approach to describing the features of each service component configuration was selected as a means to reduce repetitive information throughout this document. Therefore, each service component configuration will be comprised of 100% of the content contained in the section titled, "A. KeyCenterTM Building Specifications," above, plus the applicable service component configuration described in the following paragraphs.

SecureSuite[™] Private Server Room Dedicated Collocation

TData USA has pioneered the concept of completely enclosed, dedicated collocation rooms using standard stud walls that are built from sub-floor to roof. The purpose for this type of enclosed room is to provide a single customer with separate, secure, and private collocation space which only they control. TData USA has named this concept SecureSuitesTM Private Server Rooms.

This name conveys the concept that each collocation space is configured as a "suite" that provides high security and privacy. While all of this is true, the depth of this "high security" feature is not apparent at first glance. Each SecureSuiteTM is surrounded by stud walls through which access is controlled by electronic door locks, "smart card" badges, and their associated badge readers. This is the obvious level of security that would be expected for such a secure collocation configuration. However, in addition to door access control security, each SecureSuiteTM room has been constructed with <u>separate</u>, dedicated fire control, electrical, HVAC, and security systems that operate independently from all other of these systems means that the equipment and data located in each SecureSuiteTM room are independently protected from all other areas of the KeyCenterTM facility.

For example, if a fire occurred in the public collocation area, fire suppression systems would not release in any SecureSuiteTM Private Server Room. However, all equipment located in the public collocation area would be affected by the release of the public collocation fire suppression systems. This same concept is true for the electrical, HVAC, and security systems located in all SecureSuiteTM rooms. This "separation of systems" feature provides the highest level of Dedicated Collocation Service security offered by TData USA.

TData USA's SecureSuiteTM Private Server Room Dedicated Collocation Service includes all of the features contained in the standard Dedicated Collocation Service <u>PLUS</u> the following features:

- A separate room surrounded by stud walls that is dedicated for the use of a single TData USA customer. Access to the SecureSuiteTM is totally controlled by the TData USA customer (with the exception that the KeyCenterTM Facilities Department and the on-site security personnel will also have access to <u>all</u> SecureSuiteTM Private Server Rooms).
- Separate, dedicated fire control, HVAC, electrical, and security systems that operate independently of all other of these systems installed throughout the KeyCenterTM



facility.

- 100% of all electrical service available through the Power Distribution Units (PDUs) installed in each SecureSuiteTM can be configured as needed by the customer. <u>There</u> will be an additional cost to change the already installed electrical power distribution system in any SecureSuiteTM Private Server Room. Please contact the KeyCenterTM Facilities Department for the electrical service specifications for each SecureSuiteTM Private Server Room.
- 100% of all HVAC service to each SecureSuiteTM can be configured as needed by the customer. <u>There will be an additional charge for reconfiguring the existing HVAC system serving any SecureSuiteTM Private Server Room.</u> Please contact the KeyCenterTM Facilities Department for the HVAC service specifications for each SecureSuiteTM Private Server Room.
- 100% of all raised access floor space within each SecureSuiteTM may be configured as needed by the customer. <u>There will be an additional charge to reconfigure any of the raised access flooring already installed in each SecureSuiteTM Private Server Room. <u>This includes the addition of walls, partitions, or other means of creating separate spaces within each SecureSuiteTM Private Server Room.</sup> Please contact the KeyCenterTM Facilities Department for the raised access floor specifications for each SecureSuiteTM Private Server Room.
 </u></u>
- Additions and changes can be made to the interior of each SecureSuiteTM by the customer. These changes will incur additional costs and must meet all applicable South Florida Building Codes. <u>A MIAMI-DADE COUNTY FIRE MARSHAL</u> <u>INSPECTION MUST TAKE PLACE AFTER ANY ALTERATIONS TO A</u> <u>SECURESUITETM. VIOLATIONS NOTED BY THE FIRE MARSHALL MUST BE</u> <u>CORRECTED BEFORE THE CUSTOMER CAN COMMENCE OPERATIONS IN</u> <u>THE SECURESUITETM.</u>
- <u>All applicable KeyCenterTM processes and policies must be adhered to by the customer.</u> This is true for all of the Dedicated Collocation Service processes and policies contained in this document as well as other KeyCenterTM Facilities
 Department processes and policies that have been published that govern the operation and support of the KeyCenterTM facility. <u>All SecureSuiteTM customers and their personnel must agree to abide by these policies in order to occupy any SecureSuiteTM Private Server Room.</u>

Telecom Room Dedicated Collocation

TData USA's Telecom Room Dedicated Collocation Service is designed for the use of Tier 1 and Tier 2 network backbone carriers (e.g., AT&T, Sprint, UUNET, et al). Telecom Room collocation space is intended to house these carriers' termination equipment for the purpose of physically connecting their fiber optic network backbones to the KeyCenterTM facility. Only in rare instances should non-Tier 1 and non-Tier 2 carrier customers be allowed to collocate in the Telecom Room and then only with the approval of TData USA senior executive management.



The range of services included with Telecom Room Dedicated Collocation Service is no different than the standard Dedicated Collocation Service with the following exceptions:

- <u>Telecom Collocation customers have the right to purchase network cross-connect services to other carriers also collocated in the Telecom Room</u>. This is the primary reason that Tier 1 and Tier 2 network backbone carriers collocate in a particular facility. <u>TData USA customers that are not collocated in the Telecom Room are not allowed to directly cross-connect to any carrier located in the Telecom Room without the written permission of <u>TData USA senior management</u>. Non-Telecom Room customers may only cross-connect to the carriers located in the Telecom Room through the KeyCenterTM Access Layer (see the description of TData USA's Managed Network Service for an explanation of the KeyCenterTM Access Layer).</u>
- Both equipment cabinets and racks and caging solutions are available for use in the Telecom Room. Please see the section titled, *Racks And Caging*, for a description of the racks and caging optional service. <u>The racks and caging optional service will be an additional charge service</u>. Equipment cabinets are included with the price of Telecom Room Dedicated Collocation Service.
- Typical telecomm termination equipment requires the strengthening of the KeyCenterTM raised floor system to accommodate the installation of DC power plant. Please see the section titled, *Raised Floor Access System*, for the details on raised floor loading specifications. <u>Strengthening the raised floor access system is an additional charge service that is not included in the Telecom Room Dedicated Collocation Service.</u>
- DC power is <u>not included</u> as a part of the Telecom Room Dedicated Collocation Service. Each Telecom Room collocation customer must install their own DC power plant, at their expense.
- Electrical power may be custom configured as required by each Telecom Room collocation customer. <u>However, this custom configuration will be an extra charge service delivered by the KeyCenterTM Facilities Department. A wide range of customer electrical circuits can be configured from the PDU(s) serving the Telecom Room. These circuits include: 120 VAC single phase, 20, 30, 40, 50, and 60 amperes; 120 VAC 3-phase, 30, 40, 50, and 60 amperes; and 208 VAC 3-phase, 30, 40, 50, and 60 amperes.</u>
- The Telecom Room is a shared access area and is not dedicated for the use of any single customer.

Managed Services Dedicated Collocation

TData USA offers a series of managed data center services for those customers who desire to outsource some or all of the operation and support of their computing systems infrastructure. The range of managed services offered by TData USA runs from the procurement of hardware and software to the operation and management of customer network security systems (please refer to the specific managed service product documentation for details about each TData USA



managed service product offering). Regardless of which managed services are purchased by a TData USA customer, all of these managed services are delivered from a separate, isolated, and secure KeyCenterTM Managed Services Dedicated Collocation Service area.

Those customers who desire to outsource 100% of the operation and support of their computing systems infrastructure to TData USA do so by first purchasing TData USA's Managed Services Dedicated Collocation Service. These customers' computing systems infrastructure are located in TData USA's secure Managed Services Dedicated Collocation Service area. This secure collocation area is isolated from all other areas of the KeyCenterTM facility and is managed and operated by TData USA's Systems Engineering Department. The scope of the each outsourced managed services arrangement may vary from customer to customer, but at a minimum, the following conditions apply to the Managed Services Dedicated Collocation Service:

- Customer equipment must be installed in TData USA's standard equipment cabinets (please refer to the section titled, *Equipment Cabinets*, for detailed equipment cabinet specifications) that are located in TData USA's Managed Services Dedicated Collocation Service area.
- Customers will only be allowed inside TData USA's Managed Services Dedicated Collocation Service area during initial installation and configuration of their computing systems infrastructure and for major system upgrades. At all other times management and support of the customer's equipment and designated software will be performed by TData USA's Systems Engineering Department personnel.
- TData USA's standard Dedicated Collocation Service is included with the price of Managed Services Dedicated Collocation Service. Optional Dedicated Collocation Service components are available at additional cost (please refer to the *Section 1, Product Overview*, sub-section, *Optional Service Components*, for details).

Public Dedicated Collocation

This TData USA Dedicated Collocation Service component is designed for the "do-it-yourself" customer who desires to collocate their equipment in the KeyCenter[™] facility. Customer equipment is located in a public shared access area that contains multiple TData USA Dedicated Collocation Service customers. Each TData USA customer located in this public shared access area installs their equipment in either equipment cabinets or racks that are enclosed with caging. Purchasers of Public Dedicated Collocation service are 100% responsible for the installation, support, and maintenance of their computing systems infrastructure. These customers may purchase, on an a-la-carte basis, TData USA managed services to augment the functionality of their computing systems infrastructure. The standard Dedicated Collocation Service features are included with this TData USA service offering. Optional Dedicated Collocation Service components are available at additional cost (please refer to the *Section 1, Product Overview*, sub-section, *Optional Service Components*, for details).



C. Amenity Services

The TData USA KeyCenterTM Facilities Department offers a selection of "Amenity Services" that are designed to enhance TData USA customers' day-to-day operation of their computing environments. These services include administrative work areas, configuration and testing labs, and complete cabling services. A description of each of these Amenity Services is contained in the following paragraphs. Each of these Amenity Services is priced by the KeyCenterTM Facilities Department on a case-by-case basis.

Cabling Services

The Miami, FL KeyCenterTM Facilities Department is responsible for all KeyCenterTM backbone cabling infrastructure. As such, the KeyCenterTM Facilities Department offers cabling services to TData USA customers who wish to outsource the design and installation of their cabling system. On-staff, certified, cabling personnel can develop and install both copper and fiber cable plant solutions to meet the requirements of any computing systems platform. The KeyCenterTM Facilities Department provides all material and labor. Each cable run is tested with the appropriate testing equipment to certify that it meets manufacturers' terminated specifications. A printed report showing these test results is provided for each installed cable run. All cable runs and terminations are also labeled and documented for future reference.

Administrative Cubicles

The KeyCenterTM facility has been designed to accommodate the administrative needs of TData USA customers through the creation of a "customer cubicle area." This KeyCenterTM space has been furnished with standard office cubicles, telephones, voice mail, a shared FAX machine, a shared Internet connection, and a shared, high-speed black and white laser printer. A long distance calling code is available for making long distance calls (the standard telephone service doesn't include long distance service). Private networking is also available. <u>The Administrative Cubicles area is a shared, common access area that almost all KeyCenterTM visitors can access. It is not a secure area.</u> The KeyCenterTM Facilities Department is responsible for the installation and maintenance of all Administrative Cubicles services. <u>PLEASE NOTE: Administrative Cubicles area of the KeyCenterTM.</u> Administrative Cubicles are intended to only be used to perform routine office tasks such as e-mail, voice mail, telephone calls, etc. Please see the next topic, Work Labs, for the description of a KeyCenterTM service that allows connection to the production areas of the KeyCenterTM facility.

Work Labs

Many customers need a private space in which to conduct their initial installation configuration activities. The KeyCenterTM has available a set of small rooms that can be rented by TData USA customers for this purpose. Known as the Work Labs, these rooms each contain six (6) - 4-pair Category 6 copper cables and one (1) - 6-conductor 62.5 micron fiber cable. Each room measures approximately 6 feet by 8 feet. TData USA customers are allowed to cross-connect the equipment kept in their Work Lab to their computing infrastructure located in the production areas of the KeyCenterTM facility in order to be able to complete their setup configuration work. Each Work Lab is dedicated to a single customer so that their staff can simply lock the door of the Work Lab and return to their work as they left it.



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Miscellaneous Services

The KeyCenterTM Facilities Department can make arrangements for the rental of two additional items often requested by TData USA customers: furniture and cordless telephones. If a TData USA customer requires office furnishings for their collocation needs, the KeyCenterTM Facilities Department will coordinate with the TData USA customer to arrange for the purchase or lease of standard office furnishings. Additionally, cordless telephones are available for monthly rental from the KeyCenterTM Facilities Department. These cordless telephones can be used anywhere in the KeyCenterTM building. They are ideal for those TData USA customers whose cellular telephones can't receive calls through the KeyCenter'sTM 9 ¹/₄" thick concrete walls.



SECTION 3

Service Delivery Process



The "installation" of TData USA's service products is referred to as its "service delivery process." This term is used in place of the word "installation" since TData USA's service products are complex managed data center services whose features and benefits are realized through the delivery of services by qualified and certified TData USA personnel. This section of this document will present the service delivery process by which TData USA installs, configures, and supports its Dedicated Collocation Service. TData USA's service delivery processes represent the foundation upon which its customer service is built and maintained.

A. Delivery Process Overview

Much of TData USA's service delivery process is repetitive from service product to service product. This service delivery consistency enables TData USA to understand each customer's unique service delivery requirements while maximizing implementation efficiencies through the use of repeatable processes. Therefore, the majority of what will be presented in the following paragraphs will echo the service delivery processes defined for all other TData USA service products. The specific processes associated with the delivery of the Dedicated Collocation Service may be found in the section titled, "Unique Dedicated Collocation Service Delivery Process Requirements." The Dedicated Collocation Service delivery process is intended to accomplish the following business goals:

- Maximize customer satisfaction by properly managing customer expectations
- Eliminate service component configuration mistakes
- Meet project milestones
- Reduce project cost in order to maximize project profitability

Pre-Sales Engineering

TData USA utilizes a "sales engagement" model that treats the sale of its service products as an "installation project." The first phase of this installation project is the sales process. TData USA sales personnel present the TData USA story to prospective customers. Once a prospective customer requests a proposal from TData USA, a Pre-Sales Engineer is assigned to the opportunity. This Pre-Sales Engineer is the technical resource that works closely with TData USA sales personnel and the customer to accomplish the following:

• Define and document the customer's Future State Vision



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- Document the customer's Current State Environment
- Document the Requirements Definition (often referred to as the "gap analysis") that will take the customer from their Current State Environment to their Future State Vision
- Develop and document the customer's Solution Design. This documentation includes specific products and services described by a written Bill Of Materials.

The four (4) consultative selling steps listed above assume that only a "sales level" analysis of each step is required to arrive at a final Solution Design. If the customer is seeking a Solution Design that requires more that one (1) week of time on the part of the sales team, a longer-term professional services engagement should probably be proposed to the customer. <u>Please note that the sales team is not responsible for developing the Implementation Plan.</u>

Engagement Management

At some point during the sales process the sales team will obtain a signed Term Sheet from the customer. This Term Sheet is a binding commitment from the customer to proceed with the implementation of the Solution Design that has been developed by the Pre-Sales Engineer and the sales team. The Term Sheet is also used by the TData USA legal department as the input data for the Master Services Agreement (MSA) and applicable Exhibits documents that form the final customer contract.

The receipt of the signed Term Sheet by the Engagement Management organization triggers the "hand-off" of the newly signed opportunity from the Sales organization to the Operations organization for implementation. An Engagement Manager from the Operations organization is assigned to the new opportunity to function as the customer's advocate inside the TData USA organization. This assignment is made in order to obtain the necessary resources to complete the implementation of the new opportunity. After implementation has been completed, and the customer's solution has been transitioned to steady-state operation, the Engagement Manager continues to function as the customer's advocate. In this role, the Engagement Manager continues to manage TData USA resources in order to provide the customer with timely reports, review meetings, access to senior management, and the opportunity to purchase additional TData USA service products.

A number of forms and processes must be completed by a variety of departments within TData USA in order for a new opportunity to be properly implemented. In general, the implementation process is completed in the following three (3) stages:

1. Project Transition From Sales

In this stage of the implementation process the Sales organization completes a number of forms that clearly communicate to the Operations organization the scope of the project, customer information, draft Solution Design, Bill Of Materials, etc. Commencement of the implementation project can not begin until all of these forms and processes have been completed and delivered to the Operations organization.

2. Project Opening/Implementation



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In this stage of project implementation the Engagement Management organization controls the opening of the project, finalization of the Solution Design, creation of the Implementation Plan, and commencement of the implementation project. The Engagement Management organization is also responsible for managing the Project Manager(s) assigned to the project in order to ensure that the project remains on budget, on schedule, and meets or exceeds customer satisfaction. The Engagement Manager is responsible for all project scope change management and project communications.

3. Project Closing

In this stage of the project implementation the Engagement Manager is responsible for setting up the steady-state support environment that will be required to operate and maintain the customer's newly implemented Solution Design. This activity includes setting up account(s) for the customer on TData USA's Web portal and the production of both an Operations and customer Run Book that contains all of the instructions for operating and maintaining the customer's Solution Design. The customer signs an Installation Acceptance Form, certifying that their Solution Design has been properly implemented and has been transitioned from implementation to steady-state operation. A post mortem review is held to determine areas of improvement and a customer satisfaction survey is completed by the customer.

Upon completion of the implementation process the Operations organization is responsible for the ongoing support and maintenance of the customer's newly-installed Solution Design. <u>The</u> Engagement Manager continues to stay in contact with the customer and is the person solely responsible for managing the customer account through time (Sales does not come back into the picture after the implementation hand-off occurs unless requested by the Engagement Manager). This responsibility includes upselling the customer additional TData USA service products.

B. Unique Dedicated Collocation Service Delivery Process Requirements

All of the service components associated with the Dedicated Collocation Service product are managed and delivered by the Facilities Department. As the operator of the KeyCenterTM facility itself, the Facilities Department has the expertise and staff to deliver TData USA's Dedicated Collocation Service. The following paragraphs describe the Facilities Department's unique requirements for participation in any implementation project that involves Dedicated Collocation Service.

The Service Request Form

The Facilities Department interfaces with the service delivery process via its *Service Request Form*, a sample of which is contained on the following pages. The front side of this form is used to describe the specific Dedicated Collocation Service components that are being purchased by the customer. This side of the form also includes signature lines for both the customer and a TData USA authorized manager. "Total Estimated Cost" means just that – <u>estimated TData USA cost</u>. The final cost incurred by TData USA during the delivery of the requested Dedicated Collocation Service components will be passed from the Facilities



Department to the Engagement Manager. <u>It is the responsibility of the Engagement Manager to</u> manage the profitability of each Dedicated Collocation Service implementation project, not the <u>Facilities Department</u>.

The back side of the *Service Request Form* is used to record the actual expenses associated with the work requested on the front of the form. The back side of the form is used after actual invoices associated with the services requested on the front side of the form have been received by the Facilities Department. <u>The back side of the form is used to calculate the actual cost for each implementation project.</u> The expense categories codes listed along the left side are used to categorize the type of work performed and product(s) received on each vendor invoice and are to be entered in the "Expense Categories" column. The "A1, A2, A3, …" codes are to be used when the pre-printed codes don't adequately describe the products and services contained on a particular invoice.

Once a Service Request Form has been signed by either the customer or the Engagement Manager (preferably the Engagement Manager so that the Facilities Department doesn't get involved in the customer relationship and confuse something for the Engagement Management organization) the Facilities Department will meet with the Engagement Manager to understand the scope and timing of the Dedicated Collocation Service implementation. From this point forward, until the completion of the implementation project, the Facilities Department will take its direction from the Engagement Manager. The Facilities Department functions as another TData USA resource that is managed by the Engagement Manager, including postimplementation, steady-state management and support of each customer's Dedicated Collocation Service environment.

The Badgeholder Information Form

One of the service components that is included with TData USA's Dedicated Collocation Service is physical access to the Miami, FL KeyCenterTM Internet data center facility. TData USA's Facilities Department operates and manages all KeyCenterTM security functions, including the electronic door access control system. The KeyCenterTM electronic door access control system eliminates the need for escorted access to customer equipment via the use of a "smart card" badge, PIN number, and badge reader system. Each KeyCenterTM badge contains a microchip that is encoded by the Facilities Department with door access levels. These door access levels allow customers access to their equipment but prevent them from gaining access to any other portion of the KeyCenterTM facility.

The *Badgeholder Information Form* is used to capture relevant security data about each person who is issued a KeyCenterTM badge. This form is completed by customer personnel who desire access to the KeyCenterTM facility. The TData USA Engagement Manager is responsible for having the form completed and submitting the completed form(s) to the Facilities Department for review and approval. Once received, Facilities Department management reviews the form(s) for appropriate access level recommendations (made by the Engagement Manager after consulting with their customer) and approves or re-submits the form(s) to the Engagement Manager for revision. Once the form(s) have been approved by Facilities Department management, the customer badge(s) and PIN number(s) are created and delivered to customer personnel by the Facilities Department.



Data	Miami KeyCenter [™] Facilities Department	MIA-
Date of Request:		Page 1 of
Customer Name		
Brojoct Name:		
SOW Name:		
Facilities/Services:		
Infrastructure:	<u>Special Services:</u> <u>Amer</u>	<u>nities:</u>
	□Client_directed labor	⊐Cubicles ⊐Work labs
		☐Private networking
		☐Standard telephones
	□Other	Cordless telephones
\Box Fiber cabling		□ l ong distance
Copper cabling	□Other	
□Telecom Room	[□Shared Internet access
	[□Shared IP printing
□Security control	[Storage space
☐Overhead FlexTrav	[]Other:
□Installation labor	Ξ	□Other:
□Other	[□Other:
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Service Expense Tracking Form Miami KeyCenter[™] Facilities Department

MIA-

Page 1 of _____

Data Customer Name: _____

Project Name: _____

			Invoice No			Expense	Invoice
		Vendor	Work Order No.	Invoice	TData USA P.O. No.	Categories	Amount
Expense Category Codes:	1			Date			
A Raised floor	2		-				
B Cabinets	2		-				
C Racks	3		-				
D Caging	4						
	5						
G Fiber cabling	6						
H Copper cabling	7		-				
I Telecom Room	'		-				
J Fire control	8						
K Security control	9						
L Overhead FlexTray	10						
M Installation labor	11		-				
N Cleaning			-				
P Cubicles	12		-				
Q Work labs	13						
R Furniture	14		-				
S Private networking	15		-				
T Standard telephones	10		-				
U Cordless telephones	16		-				
V Long distance	17						
Y Internet access	18		-				
Y Shared IP printing	19		-				
Z Storage space	10		-				
A1	20		-				
A2	21						
A3	22		-				
A4	23		-				
A5	24		-				
A7	27		-				
A8	25						
A9	26						
A10	27		-				
A11	28		-				
Δ13	20		-				
A14	29		-				
A15	30						
			-				

Page Total ...



Data

Badgeholder Information Form Miami, FL Internet Service Center (ISC) Facilities Department

Laš Name:	Badgeholder Information		
Employer: Relationship: Work Address:	Last Name:	First Name:	
Work Address:	Employer:	Re	elationship:
Title:	Work Address:		
Cell Phone: Pager: Driver's License: Driver's License: Badge Information	Title:		Work Phone:
Driver's License:	Cell Phone:	Pager:	
Badge Information	Driver's License:		
Badge Information			
Badge Information Date of Issue: Card Class: Card Class: Picture File Name: Picture Name:			
Badge Information			
Badge Information Date of Issue: Badge Type: Card Class: Access Type: Encoded Card #: PIN: Picture File Name: PIN: Picture File Name: PIN: Picture File Name: Employer Access List Manager: () Yes () No Permanent Access Levels Granted: Employer Access List Manager: () Yes () No Permanent Access Levels Granted: Barver Room #1 Barver Room #2 M1 Managed Services, Phase 1 3 Server Room #3 N1 NOC Room, Phase 1 Aserver Room #4 Od Office 1, Phase 1 D1 TData Cubicles, Phase 1 Ob Office 2, Phase 1 D1 TData Cubicles, Phase 1 Oc Office 2, Phase 1 Ba Storage Room #1, Phase 1 Oc Office 4, Phase 1 Ba Storage Room #1, Phase 1 Od Office 4, Phase 1 Ba Storage Room #2, Phase 1 UJ UPS Room, Phase 1 Ba Storage Room #2, Phase 1 UJ UPS Room, Phase 2 Special Use Access Levels Granted: Barterian Barterian UJ UPS Room, Phase 2 Barterian Barterian Barterian Barterian Barterian Barterian Barterian Ba			
Badge Information			
Date of Issue:	Badge Information		
Card Class:	Date of Issue:	Badge Type:	
Encoded Card #: PIN: Printed Card #:N/A Picture File Name: Employer Access List Manager: () Yes () No Permanent Access Levels Granted: Employer Access List Manager: () Yes () No Permanent Access Levels Granted: Employer Access List Manager: () Yes () No Permanent Access Levels Granted: Employer Access List Manager: () Yes () No Permanent Access Levels Granted:	Card Class:	Access Type:	Card Status:
Picture File Name:	Encoded Card #:	PIN: Printe	ed Card #: <u>N/A</u>
Permanent Access Levels Granted: I Server Room #1 LD Loading Dock Server Room #2 M1 Managed Services, Phase 1 Server Room #3 N1 NOC Room, Phase 1 Server Room #4 Of Office (all), Phase 1 C1 Corridors, Phase 1 Ob Office 2, Phase 1 C1 Corridors, Phase 1 Ob Office 2, Phase 1 C1 Corridors, Phase 1 Ob Office 3, Phase 1 C1 Corridors, Phase 1 Ob Office 4, Phase 1 E1 Electrical Equip., Phase 1 Oc Office 4, Phase 1 Si Security Room, Phase 1 Ga Storage Room #1, Phase 1 T1 Telecom Room, Phase 1 Gb Storage Room #2, Phase 1 U1 UPS Room, Phase 1 U2 UPS Room, Phase 2 Special Use Access Levels Granted: U2 UPS Room, Phase 2 U2 UPS Room, Phase 2 Signature: Printed Name: Printed Name: Signature: Signature: Printed Name: Signature: Signature:	Picture File Name:	Employer Acces	s List Manager:()Yes ()No
1 Server Room #1 LD Loading Dock 2 Server Room #2 M1 Managed Services, Phase 1 3 Server Room #3 N1 NOC Room, Phase 1 4 Server Room #4 O1 Offices (all), Phase 1 C1 Corridors, Phase 1 Oa Office 1, Phase 1 D1 TData Cubicles, Phase 1 Oc Office 2, Phase 1 D1 TData Cubicles, Phase 1 Oc Office 3, Phase 1 E1 Electrical Equip., Phase 1 Od Office 4, Phase 1 Ga Storage Room #1, Phase 1 T1 Telecom Room, Phase 1 Gb Storage Room #2, Phase 1 U1 UPS Room, Phase 1 Gb Storage Room #2, Phase 1 U2 UPS Room, Phase 2 Special Use Access Levels Granted:	Permanent Access Levels Granted:		
¹ / ₂ Server Room #2 ¹ / ₁ Managed Services, Phase 1 ¹ / ₂ Server Room #3 ¹ / ₁ NOC Room, Phase 1 ¹ / ₄ Server Room #4 ¹ / ₁ Old Offices (all), Phase 1 ¹ / ₄ Server Room #4 ¹ / ₁ Old Offices (all), Phase 1 ¹ / ₄ Administration, Phase 1 ¹ / ₁ Old Office 2, Phase 1 ¹ / ₁ Collocity, Phase 1 ¹ / ₁ Old Office 4, Phase 1 ¹ / ₁ D1 TData Cubicles, Phase 1 ¹ / ₁ Old Office 4, Phase 1 ¹ / ₁ D1 TData Cubicles, Phase 1 ¹ / ₁ Old Office 4, Phase 1 ¹ / ₁ D1 TData Cubicles, Phase 1 ¹ / ₁ Old Office 4, Phase 1 ¹ / ₁ D1 Totata Cubby ¹ / ₁ Security Room, Phase 1 ¹ / ₁ Ga Storage Room #1, Phase 1 ¹ / ₁ U1 UPS Room, Phase 1 ¹ / ₁ Collocation, Phase 1 ¹ / ₁ U2 UPS Room, Phase 2	1 Server Room #1	LD Loading Dock	
3 Server Room #3 IN1 NOC Room, Phase 1	\Box 2 Server Room #2	□ M1 Managed Services, Phase 1	
A Server Room #4 Ot Office (a), Phase 1	\square 3 Server Room #3	\square N1 NOC Room, Phase 1	
C1 Corridors, Phase 1 Ob Office 2, Phase 1	\square 4 Server Room #4 \square A1 Administration Phase 1	\Box O Office 1 Phase 1	
D1 TData Cubicles, Phase 1 C Office 3, Phase 1 E1 Electrical Equip., Phase 1 FL Front Lobby Ga Storage Room #1, Phase 1 Gb Storage Room #2, Phase 1 U1 UPS Room, Phase 1 Gb Storage Room #2, Phase 1 U2 UPS Room, Phase 1 U2 UPS Room, Phase 2 Special Use Access Levels Granted: Image: Signature: Date Approved: Printed Name: SC Operations Manager:	\Box C1 Corridors. Phase 1	\Box Ob Office 2. Phase 1	
E1 Electrical Equip., Phase 1 Od Office 4, Phase 1 FL Front Lobby S1 Security Room, Phase 1 Ga Storage Room #1, Phase 1 IT1 Telecom Room, Phase 1 Gb Storage Room #2, Phase 1 U1 UPS Room, Phase 1 L1 Collocation, Phase 1 U2 UPS Room, Phase 2 Special Use Access Levels Granted:	D1 TData Cubicles, Phase 1	□ Oc Office 3, Phase 1	
Image: Starting Room, Phase 1 Image: Starting Room, Phase 2 Image: Starting Room, Phase 2	E1 Electrical Equip., Phase 1	Od Office 4, Phase 1	
Ga Storage Room #1, Phase 1 In Telecom Room, Phase 1 Gb Storage Room #2, Phase 1 U1 UPS Room, Phase 1 L1 Collocation, Phase 1 U2 UPS Room, Phase 2 Special Use Access Levels Granted:	□ FL Front Lobby	□ S1 Security Room, Phase 1	
Special Use Access Levels Granted:	\Box Ga Storage Room #1, Phase 1 \Box Gb Storage Room #2, Phase 1		
Special Use Access Levels Granted:	\square G Storage Room #2, 1 hase 1	\Box UPS Room Phase 2	
Approvals Printed Name: Printed Name:	Special Use Access Levels Granted:		_ <u></u>
Approvals Printed Name: Printed Name:			
Approvals			
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Approvals			
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Signature: Printed Name: Date Approved: SC Operations Manager:	1 ^{or} Level Manager:		
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SC Operations Manager:	Date Approved:		
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Signature: Printed Name:	Signature:	Printed Name:	
Date Approved:	Date Approved:		
*** PLEASE COMPLETE THE BACK SIDE OF THIS FORM ***	*** D IEAG	E COMPLETE THE BACK SIDE OF THIS F	-ORM ***

Conditions Of Use

I, ______, agree by my signature below, that I will abide by the policies and processes used by Telefonica Data USA, Inc. to operate and manage its Miami, Florida Internet Service Center (ISC) located at 11300 N.W. 25th Street, Miami, Florida 33172, for which this badge has been issued.

Signature

Printed Name

Date Signed

TDUSA-BIF-1.0a/7-01

SECTION 4

Appendix



The documents contained in this section are designed to support some portion of the foregoing text. Miscellaneous documents that shed light on a topic or that provide additional detail have also been placed in this Appendix.

A. Supporting Documentation

The following documents support the Dedicated Collocation Service by detailing certain aspects of this TData USA service offering. A majority of this documentation is provided to enlighten the reader about certain technical aspects of a particular service component.

KeyCenter[™] Phase I Electrical And HVAC Systems Capacities Calculations

This document was created as an internal KeyCenterTM Facilities Department reference work to be used to explain how heat dissipation and cooling capacities are calculated for SecureSuiteTM Private Server Rooms. The example given in this document is Server Room #4. Very often prospective customers inquire as to the heat dissipation and cooling capacities of the Miami, FL KeyCenterTM facility. This document explains how this is calculated.

It is important to note that the original architect's design criteria for the entire Miami, FL KeyCenterTM facility regarding electrical heat dissipation and cooling capacities are as follows:

- Electrical heat dissipation ... 100 watts per-square-foot at 70% diversity
- Cooling capacity 50 watts per-square-foot

When calculating the electrical heat dissipation and cooling capacities <u>for the entire</u> <u>KeyCenterTM facility</u>, these values are correct. However, when the calculations are run for <u>cooling capacity</u> in each SecureSuiteTM Private Server Room the result is around 70 watts persquare-foot of capacity. This apparent discrepancy is due to the fact that an average of 50 watts per-square-foot cooling capacity is correct for the combined square footage of the KeyCenterTM Phase 1 project, which includes low heat output areas such as corridors, administration areas, and the loading dock, as well as high heat output areas such as the SecureSuitesTM. <u>For high</u> <u>heat output areas only</u>, the amount of cooling capacity is greater than the KeyCenterTM-wide 50 watts per-square-foot average. In fact, the amount of cooling capacity in high heat output areas is approximately seventy (70) watts per square foot, the result arrived at in this document.



Page A



Telefonica Data USA, Inc. Miami KeyCenter[™] - Phase I Electrical And HVAC Systems Capacity Calculations

July 8, 2002

Some of the most frequently asked questions about the Telefonica Data USA, Inc. Miami KeyCenterTM facility concern the operating capacities of its electrical and HVAC systems. The purpose of this document is to explain the history behind the development of these systems operating capabilities and the actual production capacities that are being delivered as of the date of this document.

A memorandum dated October 17, 2000 was sent to Telefoncia Data USA, Inc. executive management by Spillis Candella DMJM (Telefonica Data USA, Inc.'s architect) for their review and approval. This memo detailed the design criteria for the Miami KeyCenterTM facility HVAC system. The memo also included the design criteria for the electrical system to be installed in the "Computer Server Rooms." This design criteria is quoted from the original memo, below:

"A. Chilled Water Plant -

Designed to handle 50 watts/sq. ft. of heat dissipation based on gross square footage of computer space (including corridors). Two chilled water plants are anticipated to be built within the facility to handle the cooling load of the entire building. Since the entire building will be constructed in phases, provisions will be made in the chiller rooms to allow for the installation of future chillers and pumps.

 B. Computer Server Rooms –
 Based on 100 watts/sq. ft. of heat dissipation with 70% diversity. This is based on net Server Room square footage. A temperature of 72 deg. F with 50% relative humidity will be maintained in these rooms."

Important points to note about the above design criteria are:

- 1. The chilled water plant specification of 50 watts/sq. ft. refers to <u>chiller capacity only</u>. Actual cooling of the computer server rooms is provided via DataAire Computer Room Air Conditioning (CRAC) Units, which are connected to the chilled water plant. The measure of computer server room air conditioning capacity is expressed in A/C tons per CRAC unit.
- 2. Electrical heat dissipation is calculated using a <u>diversity factor of 70%</u>. This means that for the entire square footage in each computer server room, only 70% of the square footage will produce 100 watts/sq. ft. The remaining square footage will produce no heat dissipation.

Air conditioning cooling capacity is calculated individually for each computer server room. Using computer server room #4 as an example, the following calculation arrives at its watts-per-square-foot cooling capacity:

Total Square Footage:3,198Total A/C Tonnage:78 tonsCRAC Unit Operating Factor:.90 (% of maximum CRAC Unit cooling capacity)BTUs per A/C Ton:12,000 (at nominal chilled water temperature of 44 deg. F)BTUs per Watt:3.7

((78 Tons Total A/C Cooling Capacity x .90 CRAC Unit Operating Factor x 12,000 BTUs per Ton) / 3.7 BTUs per Watt) / 3,198 Total Square Footage = 71.2 watts sq./ft. cooling capacity

As the above calculation shows, a maximum of 71 watts-per-square-foot of cooling capacity is available to computer server room #4. The "CRAC Unit Operating Factor" used in the formula above represents the percentage of maximum CRAC Unit cooling capacity that is delivered during normal operation of the CRAC Units (CRAC Units are never run at maximum capacity).

Electrical heat dissipation capacity is also calculated on a per-computer-server-room basis. Again, using computer server room #4 as the example, the following calculation arrives at its watts-per-square-foot electrical heat dissipation capacity:

Heat Dissipation Design Capacity:	100 watts/sq. ft.
Diversity Factor:	.70 (% of total square footage that will produce heat)
Total Square Footage:	3,198
Total Available Amperes:	1,350 (assumes replacement of existing RPP thermal breakers
	with 225 ampere molded case switches)
UPS System Power Factor:	.95 (% of total available amperes)

((1,350 Total Available Amperes x .95 UPS System Power Factor) / (3,198 Total Square Footage x .70 Diversity Factor)) x 120 VAC = 68.7 watts/sq. ft. heat dissipation capacity

The use of the "UPS System Power Factor" (.95) reduces the maximum heat dissipation capacity for computer server room #4 from 72.35 watts/sq. ft. to 68.7 watts/sq. ft. This Power Factor must be used to calculate true maximum heat dissipation capacity because the UPS system itself "consumes" about 5% of the total amperes it delivers to the RPPs (in this case 1,350 amperes).

Since the Miami KeyCenterTM facility has a maximum cooling capacity of 71 watts/sq. ft., and it produces a maximum of 68.7 watts/sq. ft. heat dissipation, there exists 3.3% more cooling capacity that heat dissipation. This margin of cooling capacity is designed to offset temporary spikes in heat dissipation that may occur when each computer server room is operating at full heat dissipation capacity.