



## Data Center Specification, Operating Parameters and Minimum Requirements

### General Specifications

Given the criticality and 24/7 nature of operational requirements, Tulix Systems' Colocation and Hosting Facility design meets high industry standards in accordance with Uptime Institute Tier III Design Topology. The facility also meets the requirements of PCI TPP DSE Data Security Standard 1.2.1. Operational Sustainability shall be no less than 99.999%. All major power and LAN components are Concurrently Maintainable from facility demarcation to Customer solution. Support services shall be available 24/7/365. All equipment components (CRAC, Generator and UPS) are maintained by manufacturer certified maintenance technicians in accordance with manufacturer's recommendations.

### Facility

The hosting facility is in compliance with the following requirements as minimums.

#### General Description

Customer's Solution shall be housed in a Raised Floor environment Data Center with a 150 # Floor Load design minimum. All critical components are able to undergo Concurrent Maintenance including full outage and be Fault Tolerant with N+1 Redundant Capacity at minimum.

#### Power

Power to Customer's Cabinets shall consist of at least two true A/B Simultaneously Active Distribution Paths each of which is diverse from the data center primary switchgear through UPS, Transformer and Power Distribution Unit with completely diverse paths. Data Center power distribution shall provide for Remote Monitoring over Internet and Power Management. RPP/PDU shall have the capacity to feed 208 volt 3 phase power to Customer's solution. Distribution Configuration shall be diverse path and in a tray or wire way environment providing for short notice addition of power feeds to Customer's Cabinets if needed. Facility design shall provide for an average of 3kw per cabinet. Facility UPS shall be N+1 in a 4X4 configuration with a separate and independent 4X2 transformer allowing for both Internal and Full Failure External System Bypass. Utility feeds contain an ATS to provide for Automatic Generator activation.

The facility is on the "Grady" power grid which is fed by three Southern Company Power Stations. Data Center is fed by its own power feed independent of building feeds and has



its own Natural Gas full capacity generator. Circuit loads are measured and monitored independently and power usage loads may be viewed by customer remotely at any time.

### **Climate Control**

Data Center is cooled by a Raised Floor air Distribution system which provides for complete distributed air flow regardless of individual CRAC failure or down time maintenance. Center is based upon a Hot/Cold Aisle Design providing for even air distribution with minimal eddy and hot points. Ducted solutions are not acceptable. All Condenser and/or Chilled Water is routed below or external to the Data Center environment preventing any possibility of water condensation or leakage affecting computer room equipment. All CRAC units are Professionally Maintained by factory certified personnel and are covered by a scheduled periodic preventative maintenance program. CRAC units provide no greater than a 68° F discharge air temperature. Air flow temperatures are constantly monitored and can be viewed by Customer externally via the internet.

### **Fire Suppression**

Fire suppression systems are Dry Chemical Halon, FM-200 or equivalent complying with NFPA and UA requirements. Neither Dry Pipe nor Wet Pipe sprinklers are acceptable. Fire suppression annunciation panel alarms are directly connected to First Responders requiring no human action for notification. Systems are third party inspected by NFPA certified technicians at least annually.

### **Facility Access and Security**

The Data Center Facility provides secure access in accordance with industry recommendations and PCI requirements. A Security Guard is on premises conducting access control and rounds at all times. Data Center access is Biometric in nature to control access to specified approved personnel. Biometric Access must be Electronically Logged and Stored. Internal Data Center and External building Access Points are equipped with Video Surveillance. Data Center Surveillance is both Video and Motion Detection with monitoring available to Customer via Internet. Cabinets are 42U, HP Quick Rail Compatible, ventilated on both front and back with secure, uniquely locked doors.

## **Network**

The Data Center LAN and WAN connection is in compliance with the following requirements as minimums.

### **General Description**

Tulix Systems' Data Center Network is Fiber Based, uses fully managed Edge and Distribution Switches and is able to meet PCI Standard 1.1. Architecture is designed for simultaneous processing over and above a fail over architecture such that traffic continuously flows through primary and secondary paths. Data Center has the capacity to provide fiber fed 1 Gbps port speeds to Customer's Cabinets.

### **Multi-Homing**

The Data Center is Multi-Homed with three independent, industry recognized Tier 1 providers supplied through fully Diverse Paths from Data Center to Bandwidth Provider remote switches such that damage to one feed shall not



affect or damage the other. The Data Center has Multiple Edges each independently receiving different provider connections so that failure by any provider or any Edge Device shall not affect network performance.

## **LAN**

Data Center LAN is connected to the Internet with a connection speed of 10 Gbps. Distribution to Customer's panel shall be by diverse path dual feeds at 1 Gbps via fiber. All LAN Fiber is provided and installed in accordance with ANSI/TIA/EIA 568-B.1 across SMF Fiber with MMF fiber to the Cabinets. Fiber shall be tested in accordance with TIA/TBS-140.

## **Single Point of Failure**

Edge Routers and Switches shall be providing Simultaneous Processing within the LAN as opposed to providing an inactive failover structure. Feeds are diverse and cross connected in such a manner that the LAN has no single point of failure from the Internet Cloud to the Customer's Switches/Firewalls.

## **Network Management**

LAN, WAN and VPN are Monitored 24/7 with traffic capture and logged record. The monitoring system shall automatically notify via text or email of system failure or degradation. Notification is to both Tulix Systems and Customer.

## **Route Optimization**

Multi-Homed Bandwidth from Three Tier One Suppliers (Level 3, Telia-Sonera, Cogent) using an Internap 10GX FCP. 45 mbps commit.

## **Backbone**

Tulix Systems' Data Center connects to the Internet via direct connection to multiple Tier 1 providers with a latency of no greater than 2 ms Speed to Backbone. All feeds shall Direct Connect from the Bandwidth Provider's switch to the Data Center Edge without intervening hops. Connection between Customer's cabinets and Edge Router shall consist of no more than two internal hops. Data Center shall be able to connect to the Application Point via VPN or MPLS.

## **SLA**

LAN and Internet Connection shall have a 99.999% Uptime guarantee and is able to certify that performance over a five year period. Trouble Tickets shall be answered in no less than 15 minutes.

## **Support Capacity**

In that Customers house Application Servers and Storage Devices, the function of which are critical, Tulix Systems provides support and assistance with Network Gear, Network Feeds, Firewalls, Hardware, OS Software and Application Components. In that Tulix Systems is Developer and ASP in addition to Facility Operator our technicians provide smart support well above the standard qualifications of normal data center technicians.



## **Network Support**

Data Center is able to manage and support Customer's Switches, Firewall and Server configurations including Firewall Settings for PCI compliance.

## **Software Technician**

Tulix Systems has on staff programmers and administrators capable of providing Installation, OS Maintenance, Update Installation and Troubleshooting for Microsoft and Linux servers. Additionally on staff personnel should be able to troubleshoot and support PHP, MS SQL, MySQL and Oracle.

## **Hardware Technician**

Tulix Systems is able to Troubleshoot, Maintain and Repair Customer's and Operator's equipment onsite. A Spare Parts Inventory shall be maintained for standard server parts including processors, memory, hard drives and NIC Cards.

## **24/7/365**

Tulix Systems shall provide on staff Monitoring and Support on a 24/7/365 basis. Additionally automated support systems shall monitor servers and applications using Get Requests, Log Ins, Ping and HTTPS testing with automatic failure notices being generated to Operator and Customer.

## **Systems Programming**

Tulix Systems has on staff personnel familiar with E-Commerce Implementations who can provide assistance to Application Provider. Operator should have at least five years experience programming, managing and supporting e-commerce applications.

## **Service Mix**

In order to be able to customize services to the Customer Tulix Systems is able to demonstrate experience in Hosting, Managed Hosting, Colocation, Programming and ASP delivery.

## **Green Initiatives**

In an effort to promote environmentally sound policies in line with recent policy adopted by the Federal Government; Tulix Systems is able to submit to Customer a Green Initiative Performance Program for their operations. This program addresses the recommendations of the Green Electronics Council and Standard Performance Evaluation Corp. All servers and equipment meet requirements of the 80 Plus power guidelines. Green Initiatives address the Seven Step program including Consolidation, Power Management, Energy Efficiency, Power Supplies, Internal Barriers, EPA Standards and Environmental Advocacy.

