Data Center Presentation

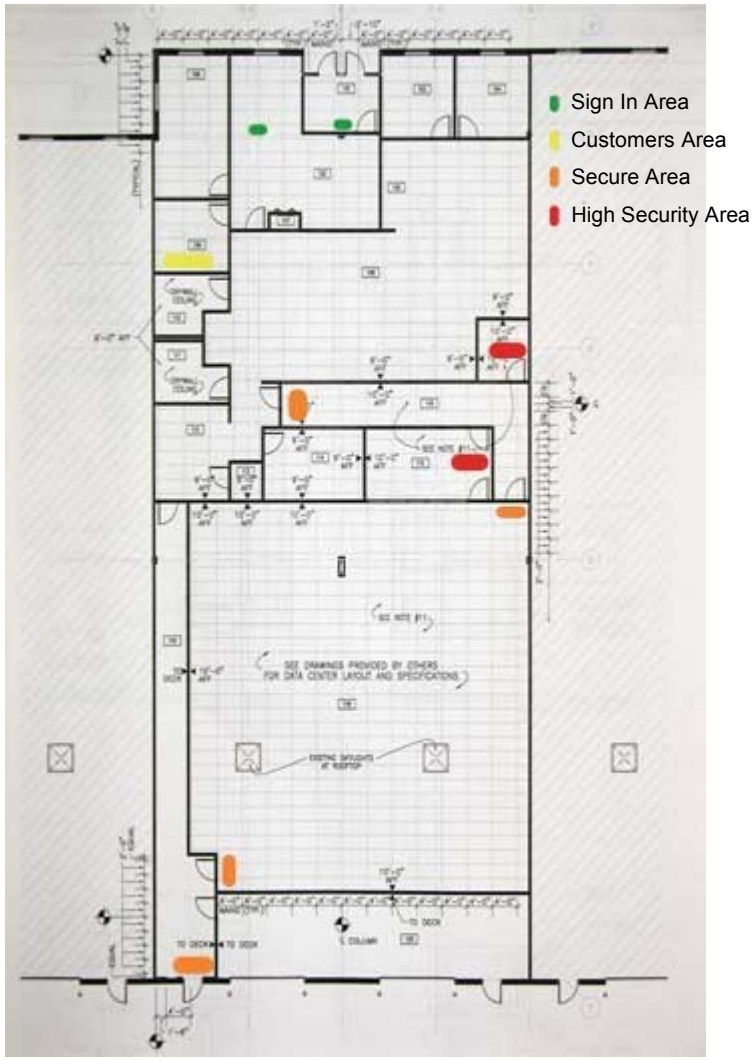
The NetSource Datacenter.

Agenda

- General Layout of Data Center
- Policies and Procedures
- Designed to Latest Standards
- High Performance
- High Reliability
- High Security
- Design Details (power, fire suppression, networking, cabinets)
- Summary

General Layout

- Secure entry requires NetSource staff to open door - sign-in
- Reception area for sign-in and waiting
- Customer work room for configuring equipment and working on servers with connection to customer network and Internet
- Telecom room – with redundant Internet
- Computer room entry 1 requires KeyCard/KeyFOB or escorted access
- Computer room entry 2 requires Key Code or escorted access
- Dock area available for large deliveries
- Temporary storage available



Policies & Procedures

- Staff fully trained in policy, procedures, and standards for security and working in an active data center
- Customers must sign-in/out themselves and equipment
- Customer/Vendors/Staff sign-off on Data Center procedures and acceptable use
  - Gives knowledge about critical systems in computer room
  - Prevents errors, abuse, and encourages good work habits
- Staff must read security policies
- Any work affecting operations must have a MAP (Methods & Procedures) plan

Studies show that human error accounts for 50% of all data center failures - if not managed.

Standards

- ANSI/TIA-942 Data Center Standard
- Procedures and Guidelines for Working Safely in an Active Data Center
- PCI Security Standard
- ANSI/TIA/EIA-568 A/B Standard
- ANSI/TIA-569 Standard
- NFPA-75 Fire Standard
- Strict Naperville City Code Compliance
- Documented NetSource Security Policies
- Support user organizations with other standards like SAS-70, HIPAA, PCI, etc.

Meeting standards makes sure everything is safe and works!

High Performance

- 1 Gbit/s Internet backbone connection
  - Cisco 7200 NPE/400 router
  - Fiber connection (PA-GE interface)
- 100 Mbit/s customer connections
- 10 Mbit/s customer connections
- Configured speed connections
- Network monitored for low latency and packet loss (<1% packet loss)
- 96 fiber pairs for unlimited growth (more can be added later)

High Reliability

- N+1 redundancy throughout, or better
  - Power with N+1 UPS and generator backup
  - Multiple Internet connections with BGP4 routing
  - N+1 air conditioning with generator power backup
  - FM200 fire suppression plus dry-pipe pre-action
- Concurrent maintainability
  - Systems can be taken down for maintenance without affecting data center operations.
  - UPS with N+1 redundancy with bypasses
  - Any air conditioner can be turned off for repair
- Spare parts for fast repair

High Security

- Locked front door, security entrance
- Two locked doors for computer room entry
  - KeyCard or KeyFOB on one door
  - Key Code on second door
  - Only authorized personnel allowed
- Video surveillance at entries and computer room
  - 30 to 90 day digital video storage
  - Video server in high security area
- Locked cabinets
- Motion & entry detection with alarms
- PCI standards compliant
- Security alarms to police

Computer Room Details

- Where all the hosting servers and NetSource servers are located
- Contains cabinets, UPS, HVAC, fire suppression tanks, cable management, main distribution area (MDA)
- Raised flooring – 2 feet, perforated tiles
- Ceiling height is 10 feet from finished floor
- Cabling under the floor, power distribution over the cabinets
- Smoke detectors, heat detectors
- Gasketed doors to prevent gas leakage
- Signage: warning, exits, emergency lights
- Ramp entry/exit and back exit
- NOC windows
- Direct entry to NOC, locked

Network Design Details

- 1Gbit/s Above.net fiber Internet connection
- 96 fiber pairs available for growth
- DS3 XO Internet connection
- BGP4 routed to Internet with internal OSPF
- /20 portable IP space (16 class C networks)
- Redundant internal backbone network
  - Allows fail-over with single failures
  - Customers can have redundant nets
- No single point of failures in backbone
- Concurrently maintainable
- Diverse physical paths inside and outside
- Main distribution area for centralized cable management - pre-wired to EDAs
- Equipment distribution areas for local cable management

Fire Suppression Details

- Redundant and independent fire systems
- Three stage FM200 gas system
  - Stage 1, one smoke detector, rings alarm
  - Stage 2, two smoke detectors, strobe alarm and 30 second countdown
  - Stage 3, gas system discharges
  - Includes override and reset buttons
  - Detects at ceiling and below raised floor
- Two stage pre-action sprinkler system
  - Stage 1: two smoke detectors or one heat detector (135 F), fills water pipes
  - Stage 2: Heat (155 F) discharges water
- Trouble alerts & alarms bring fire department
- Tampering will alert fire department
- Fire alarm stations for immediate alarms
- 6 month maintenance schedule and testing

Power Details

- UPS has built-in N+1 redundancy
  - Power control modules configured N+1
  - Battery supply works if any batteries fail
  - PDUs with circuit breakers to each rack
  - Remote monitoring of UPS and PDUs
  - Remote power control of each outlet
  - Automatic bypass if components fail
  - Manual bypass available for maintenance
  - Hot swap maintenance (batteries, contrl)
- 350 KW Generator backup
  - Generator starts in < 10 seconds
  - 500 gallon gas tank
  - Refueling scheduled every 12 hours
  - ATS allows automatic fail over and testing
  - Periodic self testing
  - Secured with locked fence, video

Security Details

- Multiple levels of secure door entry
  - Front door with electronic lock
  - Computer room has two doors with locks
  - Locks have KeyCard/KeyFOB/Code access
  - Independent card & code access on doors
  - Security levels limit access to rooms
- Video surveillance throughout
  - Cameras at all entries
  - Cameras at doors of computer room(s)
  - Cameras inside computer room(s)
  - Advanced digital video with 90 day storage, motion detection, alarms, more
- High security room for video server, keys, etc.
- Locked cabinet doors, combination locks, etc.
- Security alarms, detects opened doors and motion, alerts police

NOC & Monitoring Details

- Secure network operations center (NOC)
  - Windows to computer room for observing
  - UPS and generator based power
  - Multiple flat panel screens for monitoring
  - Direct door to computer room
  - Protected by electronic lock
- Sophisticated monitoring of operations
  - Sysorb/Nagios/MRTG monitoring tools
  - Duplicate/redundant monitoring systems
  - Flat panel screens for continuous status
  - Bandwidth monitoring, network sniffing, trouble alerts, power status/control, etc.
  - Centralize power and air management
  - Video monitoring of secure areas
  - Audible alarms
- Expert and experienced network operators

Summary

- Data center designed to ANSI/TIA 942 standard
- NetSource provides a high performance hosting environment
- NetSource provides a reliable hosting environment
- NetSource provides a secure hosting environment
- NetSource provides a safe hosting environment