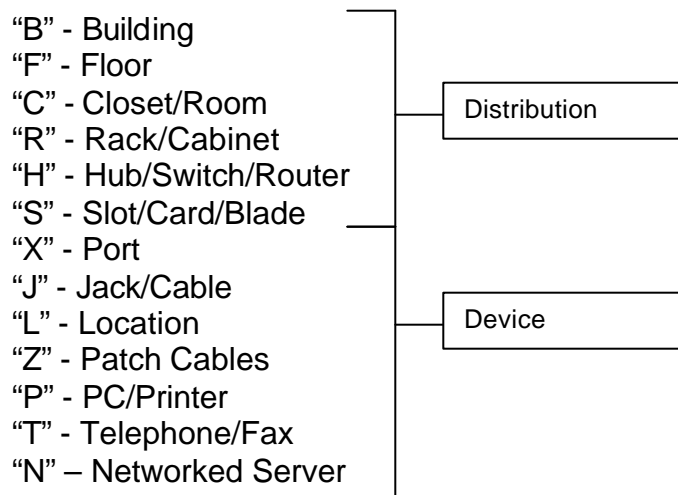


Title: NetTrax™ Technology Overview.

Purpose: Provide an Overview of the NetTrax™ System

Overview: NetTrax™ is an infrastructure labeling protocol that places a Code 39 barcode on each component of the actual connection. Each component's unique barcode becomes the "pointer" to that item's detail within the database. Once labeled, data collection occurs through the use of a handheld Palm scanner. The handheld unit facilitates the scanning of the barcode value, the input or review of an item's detail, and the transfer of connection information to the database. The data is two-way synchronized and stored into a database where authorized personnel can access it over the Internet, at any time and from any location.

Naming Schema: To enforce data integrity and ensure that like components that do not usually connect to each other cannot be inadvertently scanned and connected to each other during the data collection process, alpha qualifiers are deployed as part of the barcode value.



Label Product: Self-laminating identification labels containing laser printed Code 39 barcodes as well as "human-readable" information are deployed throughout the Telecommunication infrastructure. Labels are matched in size and material based on the infrastructure component and enterprise environment.

For components that are too small for conventional labeling (i.e., patch panel ports, switch ports, etc.), a laminated letter-sized QuickCard™ is used to display multiple barcode values for a single area. QuickCards™ are sealed in using a 7 mil. laminate pouch that is heat-sealed and punched with a grommet insert for easy attachment to racks.

NetTrax™ Technology Overview

Application: Developed by Network Dynamics, the handheld application enables forms-based data entry, edit and query capabilities within the palm of your hand. Information look-up can be achieved by scanning a component's barcode anywhere within the connection string. The returned information includes all other components that make up a physical connection. Further drill-down within any of the returned records will display a particular component's detail.

Data

Collection: Data collection is facilitated by the use of Symbol Technologies' Palm-based pocketable computers with integrated scan engine. Units are 100% compatible with Palm OS® hardware and software and are powered by a 33Mhz DragonBall VZ Processor. Connectivity information is scanned and indexed within the NetTrax™ handheld application and can be retrieved in the field through individual barcode scans or manual component selection from lists available within the application. Mobile information is synchronized (two-way) with the NetTrax™ Information Server ensuring record accuracy for all authorized mobile devices within the enterprise.

Synchro-

nization: Collected data must be synchronized to the NetTrax™ Information Server to ensure enterprise-wide access to the most current information. Connectivity between the handheld and the NetTrax™ Information Server are established using a 10Mbps Ethernet Cradle via a TCP/IP connection¹ and secured with Certicom™ SSL data encryption technology.

NetTrax™ Information

Server: Component and connectivity information is synchronized to Microsoft® SQL 2000™ running on Windows® 2000 Server with Internet Information Services (IIS 5.0). Browser based access to client data and reports are facilitated through Active Server Pages (ASP) with VeriSign® 128-bit encryption. Client data can only be changed, updated or deleted using an authorized handheld device and are not provided direct access to the backend data². The implementation of separate Client 'groupings' with individual Users, further limit access to component and connectivity data within the system.

¹ Must have DHCP Server and IP Access to the Internet using the NDC - Application Service Provider (ASP) model.

² Under the NDC - Application Service Provider (ASP) model.