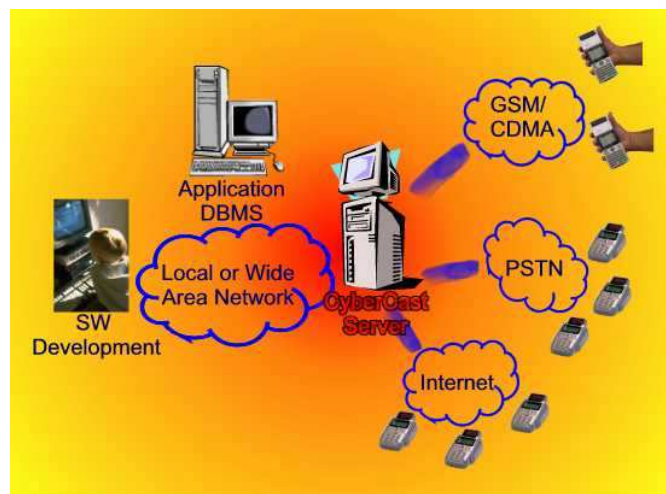


CyberCast



Broadcasting Software and Data to the
Cybernet Terminals

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Proprietary Notice

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Overview

The need to be able to remotely “manage” a number of installed devices, more particularly Payment Systems, translates from the need, by the provider of the systems to gain a competitive advantage represented by the ability of offering, on any type of CyberSoft based device, services such as:

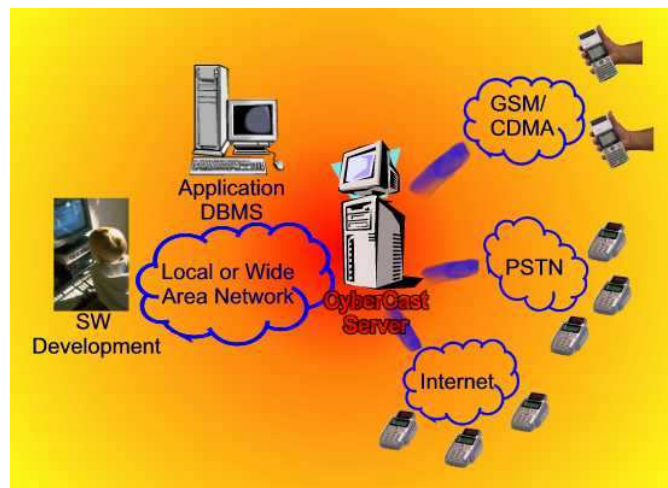
- Manage the whole payment network in a Client/Server fashion
- Update of the current application software being executed on the payment devices (clients) remotely and by the use of a server
- Replacement of the current application software being executed on the payment devices (clients) remotely and by the use of a server
- Addition of services/application to the current application software being executed on the payment devices (clients) remotely and by the use of a server
- Development of statistics about the payment devices activities, both for eventual billing/account purposes, maintenance and support, helpdesk
- The ability to broadcast on advanced transmission media, using the latest protocols/tools developed for the internet related needs (e.g. TCP/IP)
- Replacement, in case of drastic need, of the Operating System of the Client Payment Devices, this operation too, being performed remotely.
- Connectivity to a Data Base System for the Management of the network

All the above listed services can be implemented through the use of a Broadcasting System for Software and Data.

To this aim, Cybernet Technology has developed and is supplying **CyberCast**

The picture shows the various components that interact with **CyberCast**.

CyberCast is an architecture provided at both ends (client terminal, server computer) which allows efficient and open standard communication between the two for software/data exchange.



Legacy Systems Vs. Open Ended Systems

Most of the legacy payment terminal suppliers have come to the market with systems that, in order to broadcast Application Software to the terminals installed in the field, make use of proprietary architectures.

Legacy system mostly rely on a “monolithic” structure which **do not** normally allow operations such us:

- Seem less Broadcasting to other types of clients such as:
 - Cell phones
 - Vending machines
 - Payphones
 - Palmtops
 - Personal Computers
- Change in the medium from standard PSTN to:
 - TCP/IP on direct line or internet
 - Wireless
 - Ethernet
 - Infrared
 - Serial
 - USB
- Logical seem less connectivity to off the shelf packages such as:
 - BBS
 - Version Control Software
 - Windows 98, Windows 2000, Windows NT utilities
- Growth!

CyberCast as “the” Open Ended System by excellence

The architecture chosen for **CyberCast** is such to allow the user to transfer data/applications to any remotely installed CyberSoft, through a series of optional services, most of them off the shelf packages on the server side.

Cybernet supplies their systems with the base level of **CyberCast**, being asynchronous connectivity based on the XMODEM protocol. Thus this being a proven, popular and powerful type of data transfer protocol, in the **CyberCast** option lists other connection services are available.

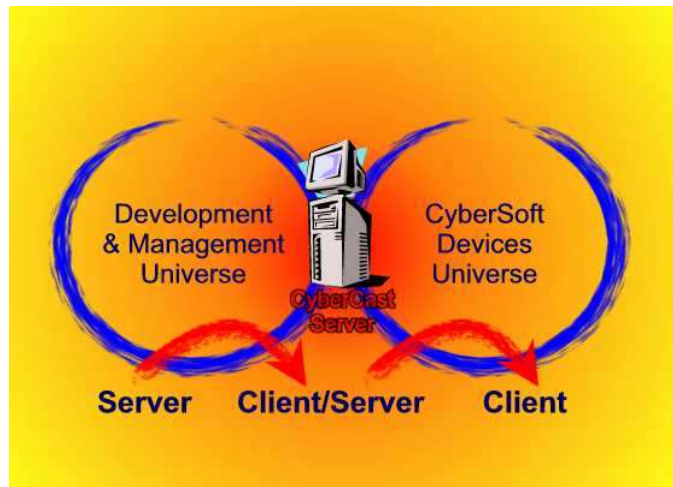
The possible choices span from the above mentioned asynchronous XMODEM which nicely couples with the off the shelf Windows 95 package HYPERTERMINAL, all the way up to TCP/IP on a PPP connection.

Such an Open Ended System will always allow the user to grow with the change in technology while using the most efficient tools at his avail for the specific needs of his system.

The **CyberCast** Concept

CyberCast is built on an end-to-end architecture which has still though respects the STIP mandate of interoperability amongst small terminals.

This architecture is based on a client server approach, which positions the Broadcaster server as the logical gateway between the management environment and the client universe.



Client Architecture

Every CyberSoft based device is seen as a client to the **CyberCast** server. The CyberSoft Hardware Abstraction Layer (HAL) contains primitives to allow for this.

A client can receive data/application through several physical interfaces. In the case of a JADE client, for example, the transfer can happen via the following physical media:

- Serial Port (from a Server Computer or a Server Device with cloning)
- USB Port (from a Server Computer)
- Modem (from a Server Computer)

Cybernet technology has provided the JADE systems with the basic options for both Serial Port and Modem (on Asynchronous XMODEM protocol).

The JADE architecture is designed in such a way that the Master Control Application has jurisdiction over the client part of the data exchange protocol.

The picture shows the layers involved in the process.

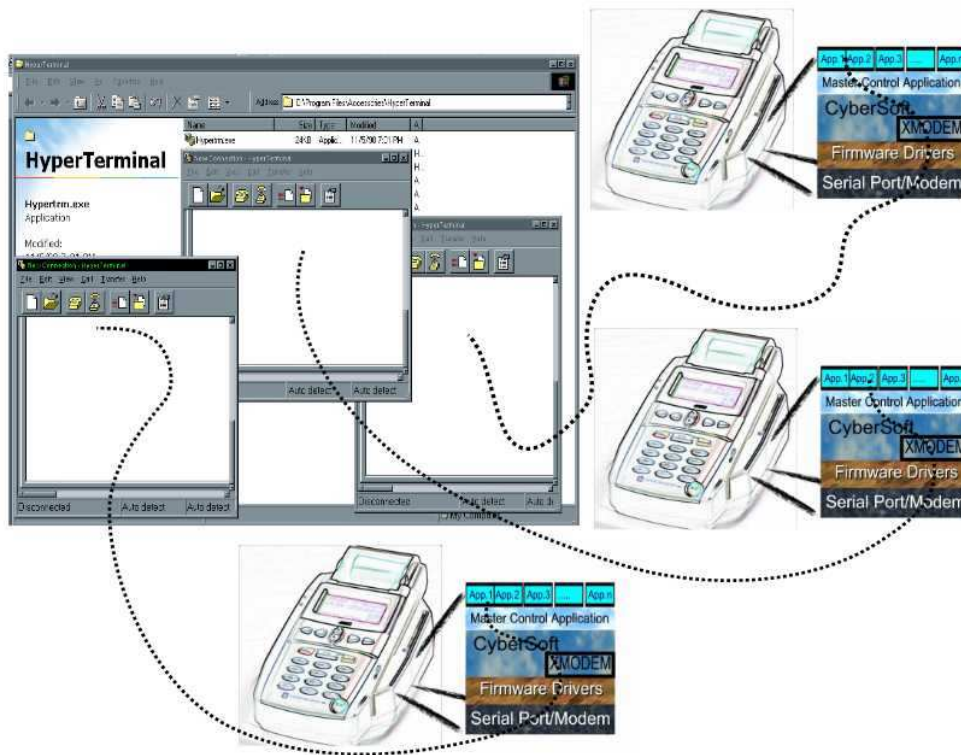
Once a new application is needed, the Master Control Application (MCS) issues a request to CyberSoft for a new session of XMODEM to be spawned. XMODEM will dialogue with the Server's counterpart and provide MCA with the requested information, e.g. a new application.



Server Architecture

An off the shelf Hyperterminal application which is provided with Microsoft Windows 95, 98, 2000 or NT can be used as Broadcaster Server for the XMODEM base option of **CyberCast**.

As many sessions of Hyperterminal as the utilised number of ports can be spawn concurrently.



Conclusions

Cybernet's policy and strategy are the ones of "fast time to market, open architecture and full bundled basic solution"; concluding this document we would like to expand on these key competitive advantages and how they are fulfilled by the choices made designing **CyberCast**:

Fast time to market

No further development is needed to the application on the client side nor to the Server. **CyberCast** is an end-to-end architecture ready to be used "as it is" or developed upon in case of higher articulated requirements (in which case Cybernet will be available to help). Since reception of the terminals the operator will be able to build a network by using an off the shelf Windows based system running Hyperterminal or an Unix system running an XMODEM protocol. Set-up time: one hour!

Open Architecture

Cybernet has opted for a STIP compliant Operating System on their small terminals and for a fully open approach to Software Broadcasting. This to allow every operator to either use the offered package, develop on it, or even replace it with any system it might be more convenient to use.

Additionally, if the operator uses other types of CyberSoft based devices; every one of those clients will support **CyberCast** and hence will be manageable in a consistent homogenous manner. This applies also to **legacy payment terminals**

Full bundled basic solution

Although key intellectual property and high value are incorporated in **CyberCast**, Cybernet has chosen to bundle the base level of the solution into their products for no additional charge. This as a final practical statement reflecting the strong willingness of Cybernet's to understand the competitive needs in the extremely aggressive market of Payment Systems.