

Intelligent Customer Advocate System - ICAS White Paper

Introduction

Making smart business decisions are challenges communication companies face today. Access to the complex legacy application environments is difficult. Analyzing and understanding the cryptic data elements required highly trained experts. Making correct and consistent decisions in a timely fashion is imperative.

There are also many changes affecting the telecommunications business environment that require rapid response in order to remain competitive and profitable. A Company's ability to meet these challenges will determine its success in the future.

Changes

The only constant in the business world is change. Communication companies especially are experiencing a rapid rate of change in many areas of their business. The way a service provider handles these changes will determine its success. The changing environment includes:

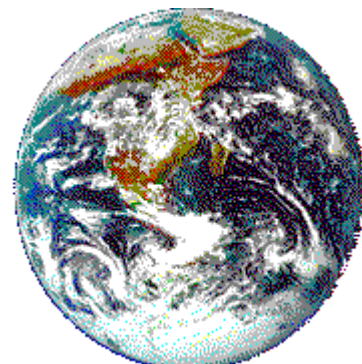
- **Regulatory Changes** - the 1996 Telcom Reform Act has opened new business opportunities and the requirements for access to business and network data. New markets are opening up, new products are rapidly becoming available and the need to foster a competitive environment has been dictated.
- **Increased Competition** - as part of these new opportunities there also is increased competition in all areas of business. Service providers will need to be quicker, smarter and

more responsive in this new environment.

- **New Products** - In addition to opening up the traditional telephone market for increased competition, there will be a number of new markets, products and services.
 - Local Service - will be available for long distance providers
 - Long Distance - will be available to the local service providers
 - Cable - Cable companies will enter the telephone marketplace. Local and long distance providers will be able to offer the cable company products and services.
 - Number Portability products
 - Internet products and services
 - Wireless, Paging products and services
 - Segmented Customer Retention Products - product and services for targeted customers
- **Globalization** - Products and services will be marketed and available worldwide.

Business Drivers

Deregulation and competition are causing service providers to find innovative ways of improving service



quality while reducing costs and the time required to introduce new services.

- **Regulatory Business Drivers** - There will continue to be regulatory issues for data access, level of service for customers and competition as well as extensive reporting demands.
- **Reduce Expenses / Increase Productivity** - In order to become and stay competitive, service providers will need to be "lean" and highly productive.
- **Quickly Penetrate New Markets** - With the changes in regulation, service providers will be able to offer new products to their existing customers and be responsive to new opportunities.
- **Retain Customers** - Service Providers will also need to be able to identify and retain their profitable customers.
- **Control of Intellectual Property** - The "knowledge base" of a company is its competitive edge against competition. The company must be able to leverage the "knowledge base" to its own competitive advantage.

Ideal Solutions

The ideal solution that will best address the above issues will be one that is open, flexible, modular and extensible.

- **Open** - A solution that is built around **industry standards** will allow for a communications company to take advantage of the latest technologies available from a variety of vendors. The benefits of implementing solutions based on industry standards are well documented in the communications industry.
- **Flexible** - A flexible solution allows changes to be easily made that

address rapidly changing business needs.

- **Modular** - A solution set that can be implemented in many areas of business using a common framework.
- **Extensible** - To extend a solution to its fullest capability in similar or dissimilar functional areas.

Knowledge Base

A Company's competitive advantage is based largely on its intellectual resources and more importantly on how effectively those resources are utilized. Harnessing this knowledge base and applying it to business drivers will strategically position a company for substantial gain.

Internet

The Internet is rapidly expanding in many areas that will have a significant impact on the way communications companies conduct business. The Internet will facilitate the development of cross-functional products with features currently found in the telephone, personal computer and television. These new products will have a significant impact on businesses, entertainment, home use and communications.

Many technologies are becoming standards based on the popularity of the Internet. Other powerful technologies are emerging which include:

- Internet access from many devices including computers, telephones, paging systems and many more
- Universal Worldwide access from a global network
- Internet Languages including JAVA and ActiveX
- Internet tools including CyberObject's Experlet™ - Internet expert system based on CLIPS

The Intelligent Customer Advocate System - Framework

CyberObject has developed a framework built on industry standards that captures a company's "knowledge base" and effectively applies it to address specific business needs.

The ICAS framework incorporates the following standards:

- Graphic User interface based on Internet JAVA capable Browsers and Industry standard desktop operating environments
- JAVA as the desktop enabling language and tool set for Internet enabled programs
- CORBA as the object architecture that coordinates the client and server environments
- CyberObject's Internet oriented expert system compatible with CLIPS
- Security Manager (CORBA) that allows for secure transactions based on digital signatures
- Communications Proxy for defining communication links from the ICAS server to legacy host environments
- Database interfaces to standard relational databases, data-marts or data warehouses including Oracle, Sybase, Informix, NCR, SQL Server, etc.

ICAS addresses the following business drivers and results in the following benefits:

- **Regulatory Business Drivers** - ICAS can be implemented as an enabler or tool for Competitive Local Exchange Carriers - CLECs to access the legacy host environment for trouble receipt and screening. ICAS can be easily implemented over the Internet / Intranet to allow a company to comply with the Telcom Reform Acts requirements for access. This could enable an RBOC

to offer long distance products and services and achieve parity.



- **Reduce Expenses / Increase Productivity** - Within trouble receipt and screening, ICAS can improve the bottom line productivity of an organization. Improvements include:
 - Reduce Receipt-to-Screen time
 - Reduce non-productive dispatches
 - Improve Front-end Close Outs
 - Reduce Customer Contact Time
 - Reduce training requirements of Maintenance Administrators - MAs
- **Quickly Penetrate New Markets** - ICAS flexibility in rules management and administration allow it to be responsive to product changes and adapt to new business opportunities.
- **Retain Customers** - Customer service will be improved due to the efficiency of the MA's response to customer troubles.
- **Control of Intellectual Property** - ICAS captures the "knowledge base" of the trouble receipt and screening function. ICAS enables the use of the "knowledge base" for a competitive advantage.

The ICAS approach allows for the following:

- **Flexibility**
 - ICAS can be implemented on just about any desktop computing platform, running just about any operating system and can interface to just about any legacy host environment.
 - ICAS can be implemented as an overall solution for trouble receipt

or can be implemented tailored to meet the application needs of a specific end-user

- ICAS can be implemented internally on a corporate LAN / WAN or implemented over an Intranet / Internet.

- **Modular**

- ICAS can be implemented with Intelligent Network Evaluation Tools - INET and the Footprint Database as a modular comprehensive approach to repair.

- **Extensible**

- ICAS can be implemented in a single business area and expanded to many business areas as the "smart agent" solution.
- ICAS can be used to solve business needs by applying different



"knowledge bases".

ICAS Trouble Receipt and Analysis Solution

CyberObject's current implementation of ICAS is in a Trouble Receipt and Analysis application for the communications industry. ICAS allows a non-sophisticated user easy access to legacy applications and data through an intelligent agent interface. The targeted areas of trouble reporting and analysis are in the areas of POTS for consumer and small business.

The ICAS approach allows for an interface to the legacy environment with centralized administration, support and control of the ICAS rules. ICAS

supports one software environment and one version of the application for any user regardless of desktop platform. ICAS support requirements are minimized since it is deployed over the network as a "thin client" resulting in additional savings and support benefits.

ICAS Host Legacy Host Proxy

The current ICAS product set is primarily targeted at POTS users in consumer and small business. The legacy host environment accessed includes the following. The names of the hosts may vary from company to company.

- LMOS, MLT
- WFA, DO, DI, C
- CRIS, BOCRIS
- SOCS, SO
- PREDICTOR, JMOS
- MARCH, APRIL
- TIRKS, COSMOS

CyberObject has experience using the following protocols and interface methods to access host information:

- LAN, WAN, Intranet, Internet
- Contract/Navigator
- Screen Emulation
- Datakit
- TCP/IP
- TN 3270

Future ICAS Business Solutions

The vision for ICAS is to expand its functionality to allow it to be the "Single-Point-of-Contact - SPOC" solution for the communications industry. This includes the following functions:

- Other areas of repair including Specials, Centrex, ISDN, SARTS and others. By defining additional communication proxies and building the "knowledge base" rules, ICAS can be extended into these very complex special product areas.

- Technician Support Tools to remote ICAS terminals. All information stored in the Footprint Database is accessible to help the technician clear a trouble faster. Additional diagnostic and test functions can be included in an Intelligent Technician - ITEC product. With GPS / GIS capabilities, the ITEC terminal will help manage the dispatched workforce.
- "Smart Interactive Voice Response - (IVR)" systems can use the intelligence that drives customer point-of-contact receipt and analysis. This will allow for a Virtual-Point-of-Contact - VPOC, reducing the need for RBOC personnel for trouble receipt and analysis. The voice response and recognition can be used for complex intelligent legacy interaction from the legacy environment.
- Service Order Provisioning - In the future, ICAS can be expanded to include the complex provisioning of products and services.



Summary

The ICAS solution is a powerful framework that can meet your business needs in today's changing environment. The ICAS framework is designed around industry standards that can be leveraged to maximize your return on investment.

The ICAS solution is currently available for trouble receipt and analysis for internal call centers as well as external CLECs. The vision for future enhancements for ICAS will allow:

- Expansion to include the knowledge base and connectivity for use in

Specials, Centrex, ISDN, SARTS and other areas.

- Use for Technician Support as an Intelligent Technician - ITEC solution.
- A Single-Point-of-Contact - SPOC solution for customer contact. ICAS



will be an intelligent interface for all types of complex legacy systems including service order and provisioning.

- A Virtual-Point-of-Contact - VPOC for "Smart IVR" solutions.