INTEGRATED
CODING
SERVICES

Automation Systems

INTEGRATED CODING SERVICES (ICS)

Integrated Coding Services (ICS) is an integrated, fully modular and scalable IT platform aiming at real time, on line and scheduled services for mail and parcels image processing, barcodes recognition, addresses interpretation (automatic and video coded), sorting data transfer.

ICS has been conceived as an open and distributed IT infrastructure, ensuring both local and national connectivity and capable to carry on complete tasks like identification of mail items, attributes recognition, robust control of the physical mail processing and continuous support for mail business services.

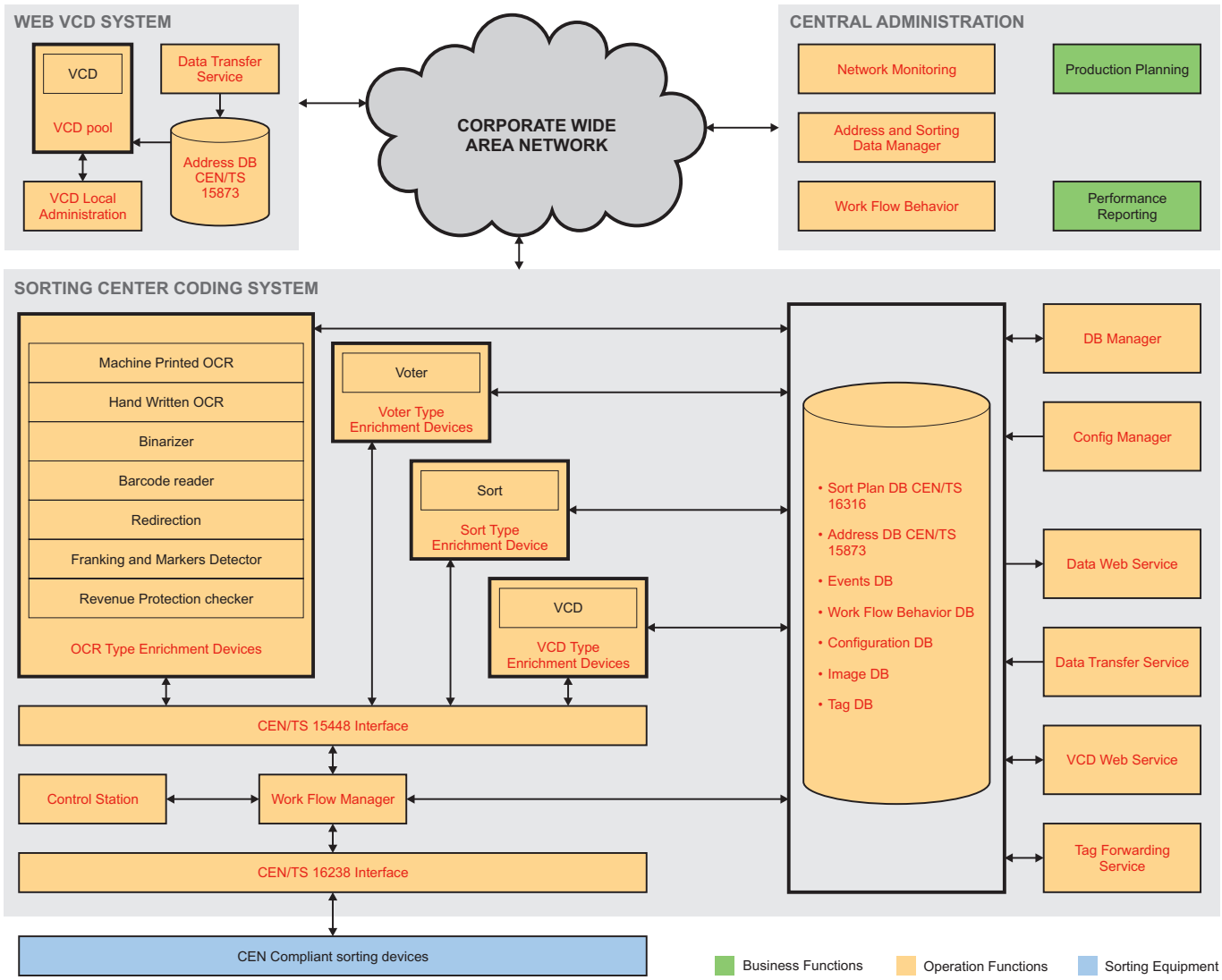
Thanks to its flexibility and scalability, ICS can be configured for a wide range of solutions: dedicated to single equipment, shared among all the operations in a single sorting center, up to cover an entire network in a highly distributed operational environment.

ICS executes the logical workflows of the mail images, implementing:

- Data enrichment and arbitration strategies
- Automatic recognition of mail addresses and capture of other relevant mail attributes
- Local or remote video task operations
- Storage and retrieval of images and other information
- Any key function required to support the mail process

ICS has been designed to integrate existing postal and logistics operator environments by means of standard CEN Interfaces. The hierarchical structure of image dispatching solution allows easy integration of extra image enrichment nodes (e.g. additional OCR, other VCS vendors and/or complex voting system) complying with standard interface specifications.

ICS is a widely deployed system providing proven reliability as a complete system as well as integrating third party image acquisition, sorting machines, central directory and sortplan management systems and mail information and production management systems.



ICS FUNCTIONAL DESCRIPTION

The functional architecture of ICS can be divided into different layers devoted to specific features:

Workflow Manager
It supports the physical process of mail items managing for their whole lifetime the data flowing along the components of the network (postal equipment, coding resources, data bases, etc.). It provides:

- Optimized selection and timing (on-line vs. deferred) of the most appropriate coding resources (deferred time and location configuration; network information sharing)
- Sorting information extracted from available external sources
- Sequencing Support (traffic distribution for all sequencing equipment; coding depth fine control)
- Management of different mail products: ordinary, priority, registered, undelivered items, return to senders, etc.

Coding Infrastructure
It provides recognition services, dynamic coding depth control and data capture for value added services:

- Indicia Recognition (images full attributes capture barcodes localization and reading; symbols and marks recognition; data extraction and arbitration for multi-criteria sorting)
- Automatic machine printed and handwritten multi-line address recognition
- Multi-source cross-arbitration (including third parties enrichment devices)
- Ergonomic Videocoding distributed at network level:
  - Multistep mode (step-by-step coding process – outward, inward, delivery point – performed through a single image submission) vs Multiphase (step-by-step coding process – outward, inward, delivery point – performed through multiple image submissions)
  - Business recipients/Postal Boxes assignment;
  - Training mode
- Management of special value added services

Central or Local Administration (CA/LA)
A Central or Local Administration layer manages the "business rules" of mail processes (i.e. sorting/coding strategies), provides management and operational tools for configuring and monitoring the system, streamlines operational activities and optimize delivery service levels at a center or national level:

- Data Management (process data acquisition, storage and reporting)
- Process Configuration (centralized coding levels management and coding depth control strategy; VCD Image/Results Flow Control)
- VCD workload management and balancing
- VCD configuration (priority levels and users log-in/password; resources configuration)
- Quick modeling of new services
- Coding Directories and Sort Plans information management
- Planning Support Systems
- Integrated process control and performance monitoring for each center
  - Plant monitoring/control (graphical views, real-time status/working data, KPIs)
  - Production and mail flows monitoring
  - Operational management support through workstations (mail input/output, stock areas, mail aggregates)
  - Presentation and reporting

All local ICS components are designed to be interfaced with the CA/LA, allowing configurability of all coding and mail flow processes.

DEPLOYMENT AND UPDATING

Featuring silent and fully remote software distribution and installation capability of each component, ICS solutions can be integrated in highly dynamic operating environments. ICS is open to integration with the most reliable COTS IT system management solutions available on the market.

INTERFACING WITH THE IT ENVIRONMENT

ICS can manage multiple external interfaces with different types of proprietary and non-proprietary Information Systems, such as National Reporting Systems, Sort Plans and Address Directory Management Systems, Production & Logistic Support Systems, Mail Traffic Measurement Systems, Mail Delivery Support Systems, automated or non-automated Help Desks, Mail Quality Measurement Systems, Long-Term Production Planning and Optimization Systems.

VALUE ADDED AND BUSINESS SERVICES

ICS manages local and/or central databases containing all significant information on individual postal objects, including all the events occurred during their processing. This capability, together with the high

customizability of the solution, provides close coupling between physical mail acquisition/sorting processes and the dynamics of business logic rules.

In the following some examples of value added mail services supported by ICS:

For private citizens / small business

- Change of Address (recipient name recognition and printing of new address during standard sorting process)
- Hold mail (recipient name recognition and printing of customer requested delivery day in the week during standard sorting process)
- Scheduled delivery (recipient name recognition and printing of scheduled delivery date on items during standard sorting process).

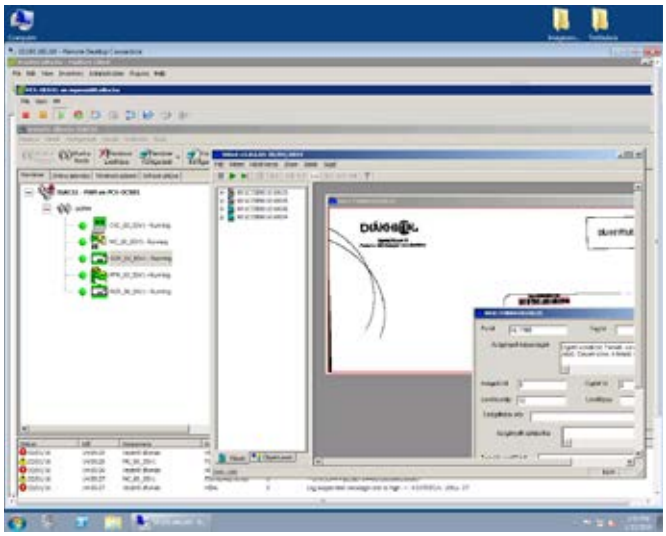
For Large Business Mailers

- Domestic/International Business Reply mail (segregation and counting of business reply mail during standard sorting process)
- Business Return to Senders
- Online acquisition of customer predefined tag-destination lists
- Hybrid and inverse hybrid mail;

For the Business Rules

- Tracing at individual object and tray level;
- Electronic notification and digital services;
- Foreign mail information systems.

INTEGRATED CODING SERVICES



ICS MAIN TECHNICAL DATA

System technologies

- Fully SOA paradigm
- Highly scalable HW infrastructure;
- Built on Microsoft® platforms (.NET, SQL Server, IIS)
- Videocoding services based on WCF web service (SOAP) interface
- Certified for VMware virtualization technology
- Distributed, real-time SW infrastructure
- TCP/IP based LAN/WAN middleware
- XML-based data interfaces
- Application level diagnostic (SMNP,WMI)

Interface Standards

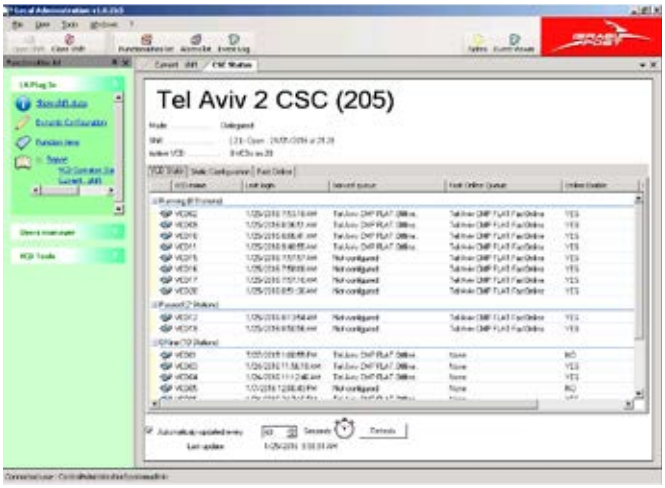
- CEN-TS-15448-2008, CEN-TS-15873-2009,
- CEN-TS-16238-2011, CEN-TS-16316-2012.

ICS TECHICAL DESCRIPTION

ICS components and applications adopt state of the art technologies, including:

- Market standard hardware and software consolidated environments
- Standard communication tools and protocols
- Use of databases (Oracle; Microsoft SQL Server) accessible through commercial standard protocols;
- Application software developed with standard programming languages
- Web services approach
- Recovery & redundancy policies
- Security policies
- Coding components based on distributed pool architecture, granting the automatic balance of the workload
- Powerful and secure interfaces, focused on ergonomics

ICS operates using a software virtualization environment, based on Blade servers and VMware Infrastructure. Adopting this solution, servers have been consolidated reducing the network switch infrastructure, the power and cooling requirements as well as improving health and administration of mission critical applications.



LEONARDO
SECURITY & INFORMATION SYSTEMS

For more information please email infomarketing@leonardocompany.com
Leonardo S.p.A.
Via Puccini 2 - 16154 Genova - Italy - Tel: +39 010 65821 - Fax: +39 010 6582898