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<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Introduction</b>	<b>ISSUE DATE: 31/05/2010</b>

## DOCUMENT HISTORY

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(\*) Action: I = Insert R = Replace

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## **1. Introduction**

### **1.1 Purpose of this document**

A Technological Infrastructure Plan primarily describes the technological infrastructure, its components and their relationships in order to fulfil the organisation's business needs. The components mentioned here are hardware, software and document components. In ITIL these components are also known as Configuration Items (CIs).

In order to elaborate an ICT Architecture Plan, the first requirement is to have a clear understanding of the existing technological infrastructure. The ICT Architecture will provide an overview of the technological infrastructure that is used by DG Taxation and Customs Union stakeholders and ITSM Team Members, regarding the components that make up the computing enterprise.

Information has to be collected concerning software (SW) (*e.g.* applications, middleware, operating system O/S), hardware (HW) (*e.g.* servers, gateways, routers, switches, firewalls) as well as the perception of how those CIs are related to each other and to the business objectives they support.

This ICT Architecture Plan will improve DG Taxation and Customs Union alignment with the Commission reference framework that is described in the Commission Enterprise IT Architecture Framework.

This static paper-based version of the ICT Architecture Plan will provide a uniform view of the infrastructure reflecting all changes on applications from 24/06/2009 to 31/12/2009 ("as is" situation at the end of December 2009).

The reference and applicable documents [§1.5] for the development of this deliverable are:

- The baseline in the Terms Of Reference with Technical Architecture documents;
- The Technical Infrastructure Plan (TIP pre-study [RD01]) which list the requirements of DG Taxation and Customs Union stakeholders for the IT Architecture Plan;
- The Commission Enterprise IT Architecture Framework (CEAF, [RD02]) explaining the different components of the architectural framework.
- The SE 8 4 1 2 System and Application portfolio document ([RD13]).
- Link with the CMDB ([RD13]).

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## 1.2 Scope of this document

This deliverable (DLV 8.6.1.3.2) is addressing business threads and applications covered by the specific contract SC06 (Customs, Excise and Taxation). All infrastructures needed to host and support applications for the threads in scope are documented. This version is an evolutive version of the DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2. (RD12).

### 1.2.1 The technical perspective

Whereas the Business, Functional and Application perspectives (mentioned in the CEAF document [RD02]) are largely independent from a specific technology, the technical perspective concerns the enabling hardware, software, and their physical locations that constitute the information systems and their software modules that support the business applications/data and processes. The technical perspective defines and documents the specific technical solutions, in addition to feasibility studies in the application perspective.

This perspective will document all the details necessary for implementation according to the selected technology. Artefacts at this perspective are mainly under the responsibility of the IT Software Architect(s) specialising in database, software and technical design. Technology changes over time and different technologies are currently in use at the Commission. The documentation of this perspective is therefore largely dependent on the technology chosen.

The *technology architecture* gives a static view of the hardware nodes and the software components that run on these nodes. It is the physical representation of the technology environment. The technology architecture documents the technical aspects of each channel, network and hardware device that connects client and server to perform the system.

### 1.2.2 Business Threads & Applications

DG TAXUD's IT systems are grouped in so-called Business Threads/

- Customs;
- Excise;
- Taxation.

The portfolio of IT services provided by DG TAXUD ([RD03]) is composed of a set of systems and applications. Applications covered by the specific contract SC06 are all applications used by the business threads in scope of this contract. Taxation business thread is out of scope of this document and therefore applications exclusively used by this business thread will not be covered in this document. Note that some applications are used by more than one business thread.

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### Customs

This thread includes the Economic Operators System oriented applications, Risk Information System, Activity Reporting Tool for the management of programmes, and the Data Dissemination System on Europa. These applications run currently on the ICT infrastructure of DIGIT/DC, and most of them are "hub" and "spoke" trans-European systems relying on CCN for the secure connectivity with the National Administrations.

This thread includes all systems and applications underpinning the New Computerised Transit System (NCTS). It is a fully distributed trans-European system with CCN at its core. It includes the New Computerised Transit System (NCTS), the Export Control System (ECS), the Import Control System (ICS) and applications underpinning these systems.

### Excise

The flagship of this thread is EMCS (currently under development) but there are a set of small- and medium-sized systems already in operation (SEED, EWSE, MVS). The excise systems are distributed trans-European systems with CCN at their core.

### Taxation

The flagship of this thread is the VAT Information Exchange System (VIES) which is complemented with the VAT on e-Services (VoeS), VIES-on-the-Web, Taxes in Europe, Taxation on Savings and e-Forms applications. VIES and Taxation on Savings are distributed trans-European systems, taking advantage of CCN. VIES-on-the-Web and Taxes in Europe are hosted at the DIGIT/DC.

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### 1.3 Approach

The following approach has been taken for the publishing of the document:

1. Get a clear understanding about the architectural models and the technical perspective as these understandings are necessary to build the Technical Infrastructure Reference.
2. Get a clear understanding about the technology used at all host sites within scope of this document.
3. Define possible attributes for classification of the applications and determine final classification.
4. Identify all applications within scope and organise them. Based on the Application Architecture Reference ([RD03], [RD04]) we can identify all used applications and organise them according to their final classification. We can also learn about the functional and application perspective in order to get a clear view on the technical requirements of the application.
5. Identify all of the components for every application. Components can be the application server software, the application client software, COTS, operating systems, etc.
6. Identify the kind of information needed for all CI's used by the application components. All main attributes of hardware and software CI's should be listed in order to gather the same information for every listed CI.
7. Collect all relevant information from the reference documents. In the reference documents we can find already a lot of information so we look for values of the attributes listed previously and include them in the document.
8. Identify the gaps in the information collected. After processing all the referenced documents we need to identify which information is missing and mark it as "<<<MISSING INFORMATION>>>" in the document.
9. Find the right person(s) to talk to and gather all the missing information about CI's and their attributes in order to complete this document.
10. Identify all supporting infrastructure to maintain the applications in scope. This infrastructure includes hardware and software for backup, monitoring, etc.
11. Draw network diagrams including all CI's used by the applications or for their support.

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## 1.4 Structure of this document

The document is divided in four major parts:

1. Technology & Classification
2. Infrastructure per site and inter-site connections

Note: the following two major parts, i.e. Infrastructure per application and CI details have been moved to the System and Application Portfolio [RD13].

### 1.4.1 Technology & Classification

In this part we give some explanation about the technology used to host different applications. We will not discuss the actual CI's but merely techniques and technologies involved and explain the terminology used throughout the document.

We also take a look at the functional and architectural models and the technical perspective as these are necessary to build the Technical Infrastructure Reference. Both models will be used to organise the applications and the technical perspective will define the kind of information we will collect.

These understandings will be the basis for a classification sheet that will be included with every application described.

<b>Classification</b>
BUSINESS THREADS
FUNCTIONAL MODEL
ARCHITECTURAL MODELS
DOMAINS OF RESPONSIBILITY
MODE OF DEPLOYMENT
MODE OF OPERATION
USED BY
HOSTED AT/ MANAGED BY

### 1.4.2 Infrastructure per application

To get a clear view of the overall complex infrastructure we need to compartmentalise the problem and take a look at every separate application. After documenting all applications of one architectural model we can combine all this information and thus creating an overall view for every architectural model.

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For every component we will gather all the CI's needed to make that component work. We will identify the application type, the database, WebLogic information and COTS (Commercial off the Shelf) software used [RD13]. This information will be the basis for a network diagram for every application.

### 1.4.3 Infrastructure per site

In this part we will describe the infrastructure per host site as a whole rather than per application. The sites in scope of this document are located in two countries:

- Belgium
- Luxemburg

For every site a network diagram will be provided and connections between sites will be described in an overall schema.

### 1.4.4 Document Maintenance

As this document is a snapshot of the situation at a certain point in time (end of December 2009) it is necessary to have a maintenance process in place in order to keep this document up-to-date.

Ideally, an evolutive version of this document should be planned for a yearly review; the actual revisions to be undertaken by the ITSM contractor will be specified in the relevant Specific Contracts.

## 1.5 Referenced documents & Applicable documents

### 1.5.1 Referenced Documents

ID	Document	Date	Version
RD01	Pre-Study DG TAXUD Technological Infrastructure Plan DG TAXUD_TP_pre_study v1.10.doc (TIP)	16/07/2007	1.10
RD02	The Commission Enterprise IT Architecture Framework (CEAF)	18/07/2005	1.0b
RD03	DG TAXUD Information Systems Architecture ITS- IRPT-ARD-001	09/07/2008	1.00
RD04	DG TAXUD Information Systems Architecture Reference: Annex A ITS-IRPT-ARD-001A	31/12/2009	2.01
RD05	<a href="http://www.vmware.com/virtualization">http://www.vmware.com/virtualization</a>	N/A	N/A
RD06	<a href="http://www.vmware.com/products/vi/vc/vmotion.html">http://www.vmware.com/products/vi/vc/vmotion.html</a>	N/A	N/A

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RD07	<a href="http://en.wikipedia.org/wiki/Disk_array">http://en.wikipedia.org/wiki/Disk_array</a>	N/A	N/A
RD08	<a href="http://en.wikipedia.org/wiki/Storage_area_network">http://en.wikipedia.org/wiki/Storage_area_network</a>	N/A	N/A
RD09	<a href="http://en.wikipedia.org/wiki/Logical_Unit_Number">http://en.wikipedia.org/wiki/Logical_Unit_Number</a>	N/A	N/A
RD10	<a href="http://edocs.bea.com/tuxedo/tux91/overview/overview.htm">http://edocs.bea.com/tuxedo/tux91/overview/overview.htm</a>	N/A	N/A
RD11	<a href="http://edocs.bea.com/wls/docs100/intro/chap1.html">http://edocs.bea.com/wls/docs100/intro/chap1.html</a>	N/A	N/A
RD12	DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.1.	22/12/2008	1.00
RD13	SE.8.4.1.2 System and Application portfolio.doc	31/12/2009	N/A

Table 1 – Referenced Documents

## 1.5.2 Applicable Documents

<b>Id</b>	<b>Reference</b>	<b>Title</b>	<b>Date</b>	<b>Version</b>
A1	DG TAXUD/2006/AO-007	ITT for ITSM	25/07/2006	N/A
A2	DG TAXUD/2007/CC/088	Framework contract	04/05/2007	N/A
A3	DG TAXUD/2007/DE/117	Specific Contract 02	19/09/2007	N/A
A4	DG TAXUD/2008/DE/114	Specific Contract 04	30/06/2008	N/A
A5	DG TAXUD/2009/DE/115	Specific Contract 05	29/06/2009	N/A
A6	DG TAXUD/2009/DE/128	Specific Contract 06	30/10/2009	N/A

Table 2: Applicable documents

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## 1.6 Abbreviations and Acronyms

The acronyms for applications are listed in the “Table 3 – List of Applications”, located in chapter 3.4 “List of applications”.

Abbreviation Or Acronym	Meaning
CCN/CSI	Common Communications Network/ Common System Interface
CCN/TC	Common Communication Network / Technical Centre
CDTA	Centrally Developed Transit Application
CEAF	Commission Enterprise IT Architecture Framework
CI	Configuration Item
CMDB	Configuration Management Database
COL	Customs Office List
COs	Customs Offices
COTS	Commercial Off-The-Shelf (software packages)
CT	Conformance Test
DC	Data Centre
DG	Directorate-General
DG TAXUD	Taxation and Custom Union Directorate-General
DIGIT	DG For Informatics.
ECS	Export Control System
EMCS	Excise Movement and Control System
HW	Hardware
ICT	Information and Communication Technology
ITIL	Information Technology Infrastructure Library
ITSM	IT Service Management
J2EE	Java 2 Enterprise Edition
LUN	Logical Unit Number (SCSI devices)
MSA	Member States
NA	National Administration
NAS	Network Attached Storage
NCA	National Customs Application

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Abbreviation Or Acronym	Meaning
NCTS	New Computerised Transit System
NECA	National Export Control Applications
NRACs	National Risk Analysis Centres
NTA	National Transit Application
OLTP	Online Transaction Processing
RAID	Redundant Array of Inexpensive Disks
SAN	Storage Area Network
SAT	Site Acceptance Test
SCSI	Small Computer System Interface
SPOF	Single Point Of Failure
SW	Software
TATAF	Tariff Applications Technical Architecture Framework
TEMPO	DG TAXUD Electronic Management of Projects Online
TIP	Technological Infrastructure Plan
VIES	VAT Information Exchange System
XML	eXtensible Markup Language

Table 3 - Abbreviations and Acronyms

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## 2. Technology & Terminology

In the different Data Centres virtualisation is a common technique to provide flexibility, transparency and safety in hosting the applications. So many applications are not running on physical machines but on a virtual infrastructure. For these applications we cannot define on which CI the components of the applications are running and therefore we will talk about clusters, diskgroups and SAN when describing the infrastructure of these applications and it is important to understand this terminology.

### 2.1 Virtual Servers & Workstations

Often virtualisation is obtained by the use of VMWare VMotion software which allows us to move an entire running virtual machine instantaneously from one server to another, meaning that the applications on that virtual machine can instantly run on different hardware.

#### 2.1.1 Virtualisation

“Virtualisation essentially lets one computer do the job of multiple computers, by sharing the resources of a single computer across multiple environments. Virtual servers and virtual desktops let you host multiple operating systems and multiple applications locally and in remote locations, freeing physical and geographical limitations. In addition to energy savings and lower capital expenses due to more efficient use of your hardware resources, you get high availability of resources, better desktop management, increased security, and improved disaster recovery processes when you build a virtual infrastructure.

In essence, virtualisation lets you transform hardware into software. Use software such as VMware ESX to transform or “virtualised” the hardware resources of an x86-based computer (including the CPU, RAM, hard disk and network controller) to create a fully functional virtual machine that can run its own operating system and applications just like a “real” computer.

Multiple virtual machines share hardware resources without interfering with each other so that you can safely run several operating systems and applications at the same time on a single computer.” (Source: [RD05])



Figure 1 - Virtualisation

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## 2.1.2 VMotion

“VMware VMotion technology, unique to VMware, leverages the complete virtualisation of servers, storage and networking to move an entire running virtual machine instantaneously from one server to another. The entire state of a virtual machine is encapsulated by a set of files stored on shared storage, and VMware’s VMFS cluster file system allows both the source and the target VMware ESX server to access these virtual machine files concurrently. The active memory and precise execution state of a virtual machine can then be rapidly transmitted over a high speed network. Since the network is also virtualised by VMware ESX, the virtual machine retains its network identity and connections, ensuring a seamless migration process.” (Source: [RD06])

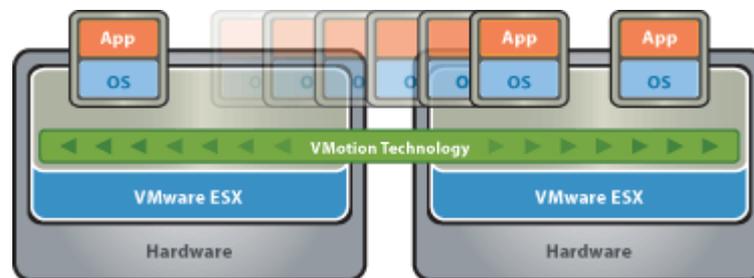


Figure 2 - vMotion

## 2.2 Storage

### 2.2.1 Disk Array

“A **disk array** is a disk storage system which contains multiple disk drives. It is differentiated from a disk enclosure, in that an array has cache memory and advanced functionality, like RAID and virtualisation.

Components of a typical disk array include:

- Disk array controllers;
- Cache memories;
- Disk enclosures;
- Power supplies.

Typically a disk array provides increased availability, resiliency and maintainability by using additional, redundant components (controllers, power supplies, fans, etc...) often up to the point when all single points of failure (SPOFs) are eliminated from the design. Additionally those components are often hot-swappable.

Typically, disk arrays are divided into five categories: NAS, Modular SAN arrays, Monolithic SAN arrays, Storage Virtualisation and Utility SAN Arrays.

DG TAXUD infrastructure will use most often SAN.” (Source: [RD07])

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## 2.2.2 SAN

“A *storage area network (SAN)* is an architecture to attach remote computer storage devices (such as disk arrays, tape libraries and optical jukeboxes) to servers in such a way that, to the operating system, the devices appear as locally attached.

SANs help to increase storage capacity utilisation, since multiple servers share the storage space on the disk arrays. The common application of a SAN is for the use of transactional accessed data that require high-speed block-level access to the hard drives such as email servers, databases, and high usage file servers.

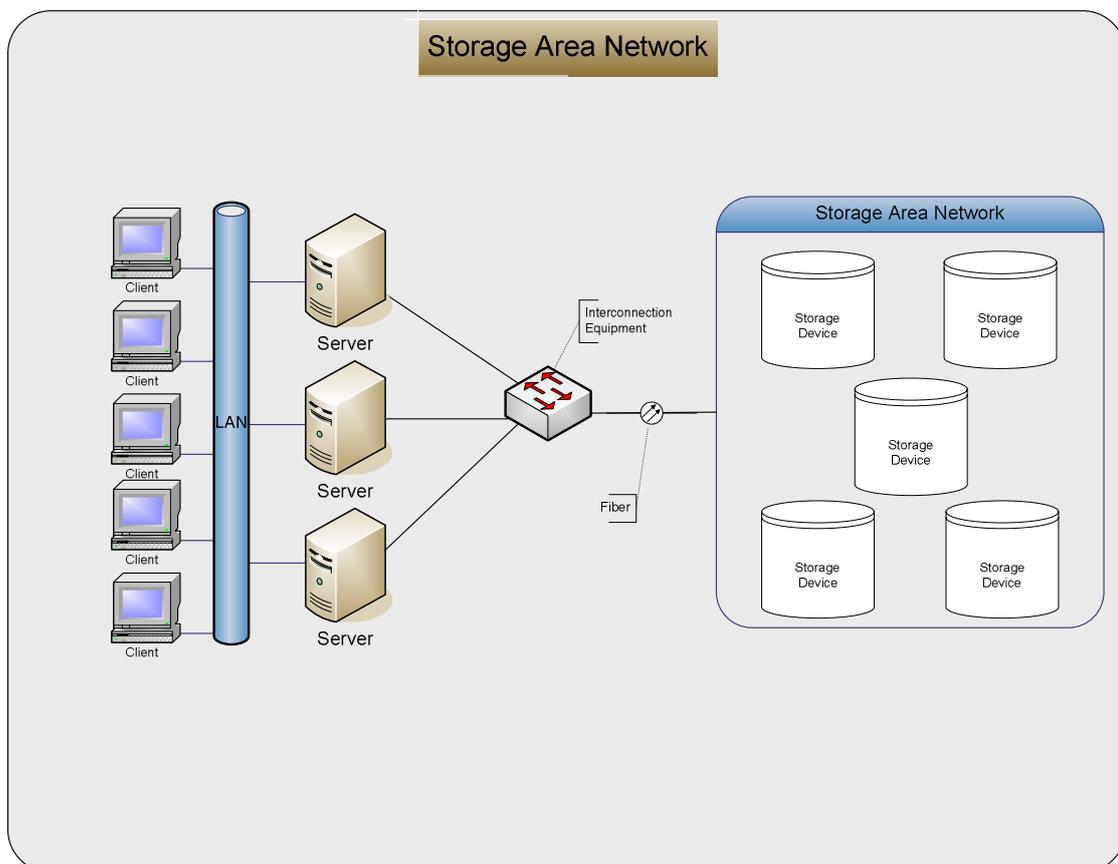


Figure 3 - SAN

Historically, data centres first created "islands" of SCSI disk arrays. Each island was dedicated to an application, and visible as a number of "virtual hard drives" (i.e. LUNs). Essentially, a SAN connects storage islands together using a high-speed network, thus allowing all applications to access all disks.

Operating systems still view a SAN as a collection of LUNs, and usually maintain their own file systems on them. These *local* file systems, which cannot be shared among multiple operating systems/hosts, are the most reliable and most widely used. If two independent local file systems resided on a shared LUN, they would be unaware of this fact, would have no means of cache synchronisation and eventually would corrupt each

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other. Thus, sharing data between computers through a SAN requires advanced solutions, such as SAN file systems or clustered computing.” (Source: [RD08])

### 2.2.3 LUN

“In computer storage, a **logical unit number** or **LUN** is simply the number assigned to a logical unit. A logical unit is a SCSI protocol entity, the only one which may be addressed by the actual input/output (I/O) operations. Each SCSI target provides one or more logical units, and does not perform I/O as itself, but only on behalf of a specific logical unit.

#### Examples

To provide a practical example, a typical disk array has multiple physical SCSI ports, each with one SCSI target address assigned. Then the disk array is formatted as a RAID and then this RAID is partitioned into several separate storage volumes. To represent each volume, a SCSI target is configured to provide a LUN. Each SCSI target may provide multiple LUNs and thus represent multiple volumes. This does *not* mean that those volumes are concatenated.

Another example is a single disk drive with one physical SCSI port. It usually provides just a single target, which in turn usually provides just a single LUN numbered zero. This LUN represents the entire storage of the disk drive.” (Source: [RD09])

## 2.3 Software

As a lot of the applications are based on Tuxedo and WebLogic we will explain some more about these products.

### 2.3.1 Tuxedo

“BEA Tuxedo provides the framework, or middleware, for building scalable multi-tier client/server applications in heterogeneous (dissimilar), distributed environments that extend from the Web to the Enterprise. Using BEA Tuxedo, users can develop, manage, and deploy distributed applications independently of the underlying hardware, operating system, network, and database environment.

Middleware consists of software services that exist *between* a client or server application *and* the operating system and network services on a system node in the network.

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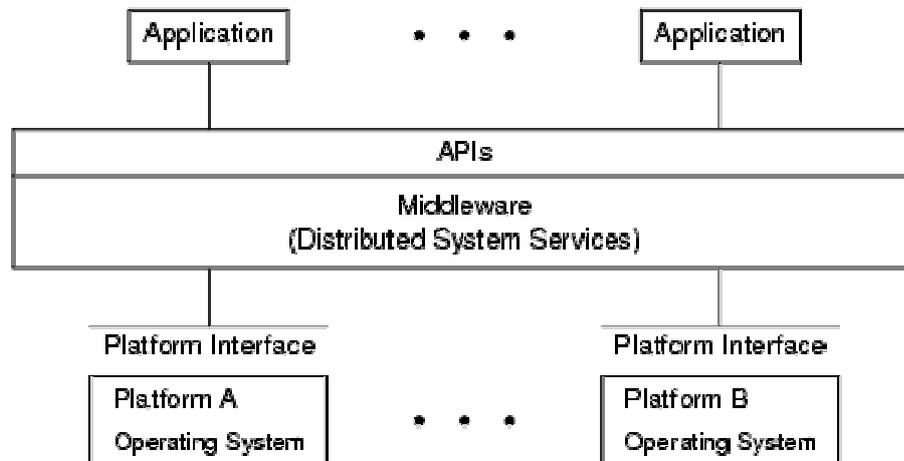


Figure 4 - Middleware

Middleware services provide a more functional set of application programming interfaces (API) than the operating system and network services. A main purpose of middleware services is to help solve application connectivity and interoperability problems.

The BEA Tuxedo system complies with the Open Group's X/Open standards, including support of the XA standard for two-phase commit processing, the X/Open ATMI API, and the X/Open Portability Guide (XPG) standards for language internationalisation. BEA Tuxedo also supports the CORBA specification for distributed application development, as well as any relational database management system, object-oriented database management system, file manager, or queue manager.

The BEA Tuxedo system and ATMI together implement the X/Open distributed transaction processing (DTP) model of online transaction processing (OLTP). The DTP model ensures that work being done throughout a client/server application is *atomically* completed, meaning that all involved databases are updated properly if the work is successful, or all involved databases are "rolled-back" to their original state if the work fails." (Source: [RD10])

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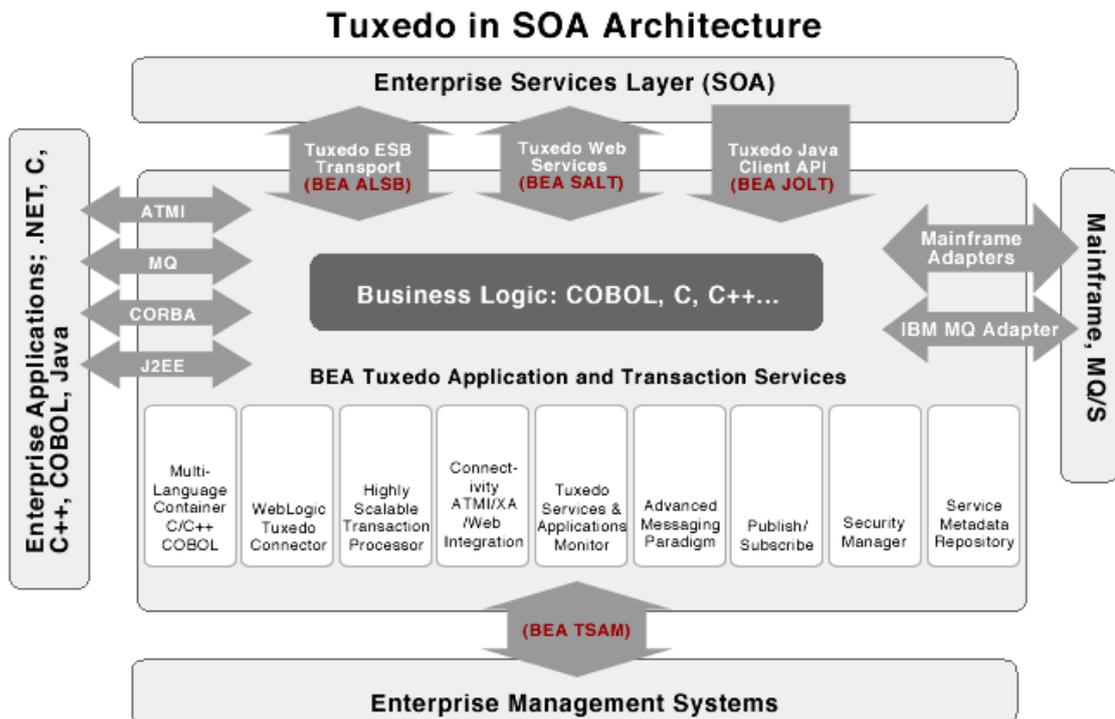


Figure 5 – Tuxedo in SOA Architecture

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### 2.3.2 WebLogic

“BEA WebLogic Server is a scalable, enterprise-ready Java Two Enterprise Edition (J2EE) application server. The WebLogic Server infrastructure supports the deployment of many types of distributed applications and is an ideal foundation for building applications based on Service Oriented Architectures (SOA). SOA is a design methodology aimed at maximising the reuse of application services.

The WebLogic Server’s complete implementation of the Sun Microsystems J2EE 1.4 specification provides a standard set of APIs for creating distributed Java applications that can access a wide variety of services, such as databases, messaging services, and connections to external enterprise systems. End-user clients access these applications using Web browser clients or Java clients.

In addition to the J2EE implementation, WebLogic Server enables enterprises to deploy mission-critical applications in a robust, secure, highly available, and scalable environment. These features allow enterprises to configure clusters of WebLogic Server instances to distribute load, and provide extra capacity in case of hardware or other failures. New diagnostic tools allow system administrators to monitor and tune the performance of deployed applications and the WebLogic Server environment itself. You can also configure WebLogic Server to monitor and tune application throughout automatically without human intervention. Extensive security features protect access to services, keep enterprise data secure, and prevent malicious attacks.

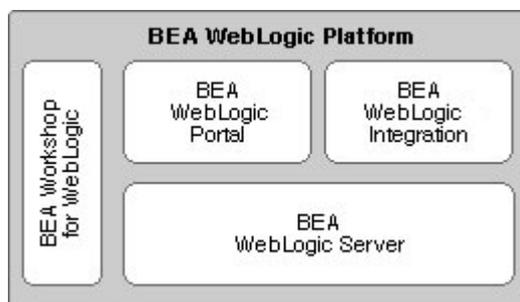


Figure 6 – BEA WebLogic

#### WebLogic Tuxedo Connector

The WebLogic Tuxedo Connector provides interoperability between WebLogic Server applications and Tuxedo services. The connector allows WebLogic Server clients to invoke Tuxedo services and Tuxedo clients to invoke WebLogic Server Enterprise Java Beans (EJBs) in response to a service request.” (Source: [RD11])

### 2.3.3 Oracle

An Oracle database is a collection of data treated as a unit. The purpose of a database is to store and retrieve related information. A database server is the key to solving the problems of information management. In general, a server reliably manages a large

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amount of data in a multiuser environment so that many users can concurrently access the same data. All this is accomplished while delivering high performance. A database server also prevents unauthorised access and provides efficient solutions for failure recovery.

Oracle Database is the first database designed for enterprise grid computing, the most flexible and cost effective way to manage information and applications. Enterprise grid computing creates large pools of industry-standard, modular storage and servers. With this architecture, each new system can be rapidly provisioned from the pool of components. There is no need for peak workloads, because capacity can be easily added or reallocated from the resource pools as needed.

### **2.3.4 Verity**

Verity 2K indexes all the data provided by the Member States that have been previously exported as XML flat files.

Some additional tools have been written:

- Converter: it allows to convert the word documents from one release to another;
- Indexer: it allows to index the content of the file;
- Calculator: it allows computing figures automatically in the Word documents based on statistical data.

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### 3. Systems and Applications

#### 3.1 Definitions

An *application* implements business actions, taking part of business transactions in business processes, inside a single domain of responsibility, according to the required quality of service.

A *system* is understood as sets of interacting applications and supporting the business processes which could span different domains of responsibility, making use of communication channels.

IT systems exist according to business needs. Therefore, they refer to business functions through the specification of business processes.

Moreover, systems may be supported by or composed with other systems, representing in some cases pre-requisites for their functioning. They can also interface other systems, possibly providing interoperability between business processes of different business domains.

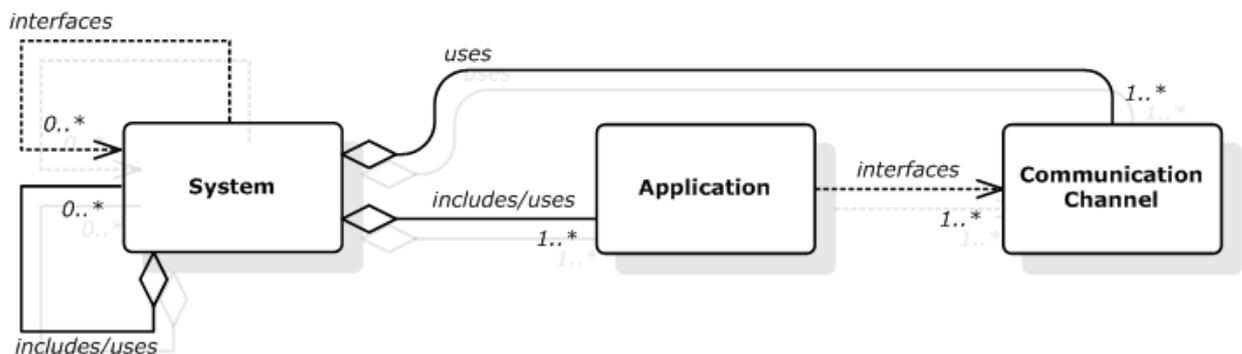


Figure 7 – Application and System

The set of applications composing a system provide the implementation of business actions taking part of business processes and therefore supporting their coordination. The following figure depicts the basic architectural pattern driving the distribution of the identified architectural components defined hereafter in this document:

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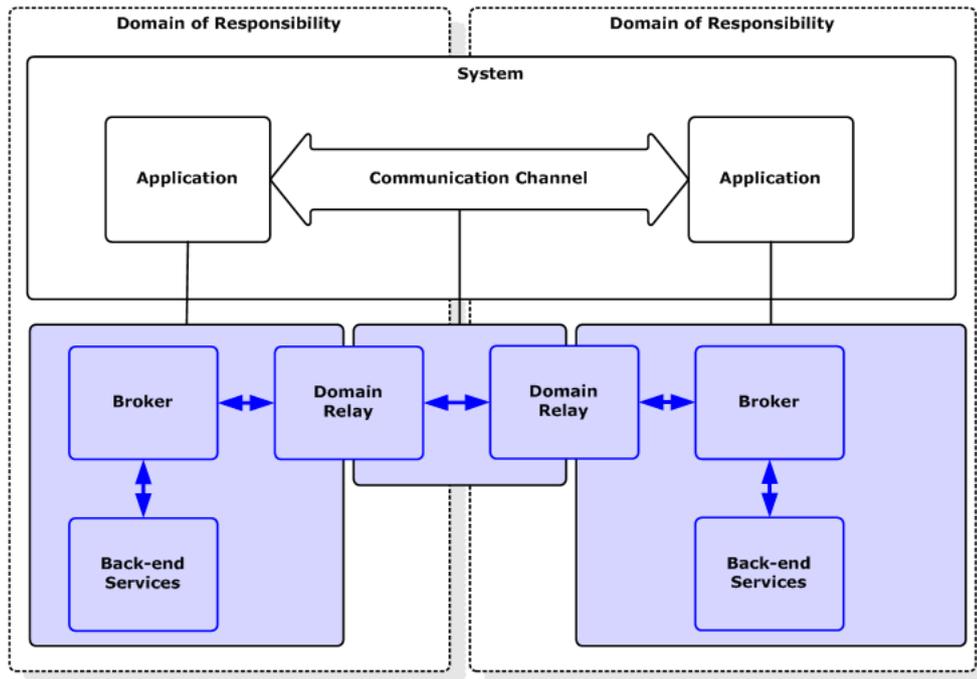


Figure 8 – Architectural Pattern

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## 3.2 Centralised Systems

### Economic Operators System Quota and Surveillance (QUOTA2)

The Customs Economic Operators System of the EU includes conventional and autonomous preferential Economic Operators System measures which take the form of customs duty reductions or exemptions on release for free circulation. Some of these measures are limited by quantity, in the form of Economic Operators System quotas or Economic Operators System ceilings. The Commission checks that the total quantity for all applications made by traders in the MSA does not exceed the limit for quota, and records when the limit for ceilings is reached. The surveillance of the quantities imported is a monitoring activity, which serves as input to trade and Economic Operators System negotiations.

### TARIFF Intégré Communautaire (TARIC)

The Community's integrated Economic Operators System supports the correct and uniform application of the Economic Operators System legislation for external trade within all MSA. All Economic Operators System related legislation for industrial and agricultural products is integrated into the TARIC system, including the totality of preferential measures. Furthermore, all commercial policy measures to be applied imports and exports are included in the system (*e.g.* Surveillance, quantitative restrictions, prohibition and anti-dumping measures).

### Data Dissemination System (DDS)

DDS is a web site with Customs, Excise and Taxation information. The system covers information coming from AEO, EBTI, ECICS, EORI, EXPORT, QUOTA2, SEED, SURV, SUSP, TARIC, Transit Customs Offices and the Transit Movement follow-up. For Taxation information, the system acts as a switch to the various national VIES systems in a transparent way.

### European Binding Economic Operators System Information (EBTI)

EBTI is a system for the exchange and consultation of classification decisions by the Member States, in order to support a uniform application of Economic Operators System classification against the customs nomenclature.

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### 3.3 Distributed Systems

#### New Computerised Transit System (NCTS)

The Transit Computerisation Project (TCP) aims at deploying the New Computerised Transit System (NCTS) across the EU, EFTA and all accession countries. The objective of NCTS is to optimise the management of the Transit system by using modern technology that will enable an efficient prevention/detection of fraud in the transit regime. NCTS was put in production in 2003. There are approximately 20 million Transit movements per year. The TCP is mandated to put in place a system based on the electronic exchange of the transit data between the National Customs Administrations in parallel and in anticipation of the movements of goods.

The New Computerised Transit System (NCTS) is a European wide system, based upon electronic declaration and processing and designed to provide better management and control of Community and Common Transit. It involves all EU Member States, the EFTA and V4 countries.

We can identify several subsystems in NCTS system supporting different groups of processes which make the NCTS system itself.

- **Core business subsystem** consists of “core NCTS agent applications” acting on behalf of NAs. The system is **trans-European Distributed** system.
- **Reference data subsystem** consists of central application for data maintenance and local repositories of reference data in each NA. The system is **trans-European Centralised** system. CS/RD is part of this system.
- **COL subsystem** consists of “client applications” for COL updates preparation, central system for COL information dissemination and local repositories for COL data in each NA. The system is a **trans-European Coordinated** system. CS/RD is part of this system.
- **Monitoring and statistics subsystem** which requests and gathers statistical information to produce and disseminate the reports on the system usage and performance. The system is **trans-European Centralised** system. CS/MIS is part of this system.

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### Export Control System (ECS)

The Export Control System allows the exchange of information in electronic form from the office of exportation to the office of exit and vice-versa. The office of export can then send this information to inform the economic operator and other government services that the goods have left the customs territory. ECS was put in production in 2007.

The Export Control System (ECS) is a part of the Automated Export System (AES). The objective of the AES is to ensure that export operations started in one Member State can be finalised in another Member State without re-submission of the same information. This includes the exchange of electronic messages related to the different stages of the operations amongst the various actors (customs, traders and other governmental administrations).

ECS is built according to the NCTS logic, but re-adapted for the export procedure. It starts when a Trader submits an export declaration to the proper Customs Office of Export. Then, after the acceptance of the export declaration, he/she receives the Export Accompanying Document (EAD) with a unique Movement Reference Number (MRN) which identifies the movement. Then the means of transport carrying the consignment covered by this document goes to the Office of Exit. Normally, the consignment arrives at the Office of Exit. The goods are presented to the Actual Office of Exit which processes the exit of the goods. Once the exit processing is completed, the Office of Export finalises the export operation.

### Import Control System (ICS)

The Import Control System allows the exchange of information in electronic form from the office of importation to the office of Entrance and vice-versa. The office of import can then send this information to inform the economic operator and other government services that goods have entered in the customs territory.

### Excise Movement and Control System (EMCS)

The EMCS computerisation project (ECP) aims to set up the Excise Movement and Control System which is an integrated computer system concerning the movement and control of products subject to excise under suspension arrangements of excise. The project consists in replacing the current system based on the circulation of the paper based Administrative Accompanying Document (AAD) by an electronic system relying on a secure workflow of electronic messages between all parties involved. It is going to replace current excise control systems (SEED, MVS, EWSE). Standard system developed by Commission contains only SUP (Start Up Pack) which provides basic functionality of EMCS. The main users of the system will be the economic operators.

It is currently planned that EMCS will be put in production in 2009.

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### 3.4 List of applications

<b>Application</b>	<b>Full Name</b>
ART	Activity Reporting Tool
CN	Combined Nomenclature
CRMS	Community (Customs) Risk Management System
CS/MIS	Central Services / Management Information System
CS/RD	Central Service/ Reference Data
CSI Bridge	Common Software Interface
DDS	Data Dissemination System
EBTI3	European Binding Economic Operators System Information
ECICS2	European Customs Inventory of Chemical Substances
ECN	EDI/CSI Node (Electronic Data Interchange, Common Systems Interface)
ECN+	EDI/CSI Node+ (Electronic Data Interchange, Common Systems Interface)
EoF	Exchange of Forms
EOS	Economic Operators System
EWSE	Early Warning System for Excise
GTT	Generic Test Tool
GWS	Generic Web Service
Http CCN Bridge	Http Common Communication Network Bridge
Http Internet Bridge	Http Internet Bridge
ISPP	Inward System for Processing Procedures
MVS	Movement Verification System
Quota2	Traffic Quota and Surveillance
SEEDv1	System of Exchange of Excise Data
SMS	Specimen Management System
SPEED/ECN including speed bridge	Single Portal for Entry or Exit of Data BRIDGE / ECN
SSTA	Standard Speed Test Application
STTA	Standard Transit Test Application
SURV2	Surveillance 2
SUSP	Suspensions
TA	Testing Application
Taric2	Economic Operators System Intégré Communautaire (Customs Economic Operators System)
TARREP	Taric Report
TEDB	Taxes in Europe Database
TOS	Taxation of Savings
TTA	Transit Test Application
UM	User Management
VAT REFUND	VAT Refund Module
VCT	VIES-on-the-WEB Configuration Tool
VEF	VAT e-Forms

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VIA	VIIES Initial Application
VIIES	VIIES
VIM	VIIES Monitoring
VNA	VAT Number Algorithms
VOES	VAT-on-e-Services
VOES RTA	VAT-on-e-Services Remote Test Application
VoW	VIIES-on-the-Web
VSS	VIIES Statistics Systems
VTA	VIIES Test Application
VWM	VIIES-on-the-WEB Monitoring
Web2000	Web2000

Table 4 – List of Applications

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## 4. Application Classification

We can define several ways to classify the applications. Possible classifications covered in this document are the following:

- Business Threads and Domains of Responsibility
- Functional and Architectural Model
- Mode of deployment and operation
- Host site

### 4.1 Business Threads

Business Threads are those listed in the section “0

Business Threads & Applications”.

<b>Applications used by Customs</b>	
ART	Activity Reporting Tool
CN	Combined Nomenclature
CRMS	Community (Customs) Risk Management System
CS/MIS	Central Services / Management Information System
CS/RD	Central Service/ Reference Data
CSI Bridge	Common Software Interface
DDS	Data Dissemination System
EBTI3	European Binding Economic Operators System Information
ECICS2	European Customs Inventory of Chemical Substances
ECN	EDI/CSI Node (Electronic Data Interchange, Common Systems Interface)
ECN+	EDI/CSI Node+ (Electronic Data Interchange, Common Systems Interface)
EOS	Economic Operators System
GWS	Generic Web Service
Http CCN Bridge	Http Common Communication Network Bridge
Http Internet Bridge	Http Internet Bridge
ISPP	Inward System for Processing Procedures
Quota2	Traffic Quota and Surveillance 2

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SMS	Specimen Management System
SPEED/ECN including SPEED/BRIDGE	Single Portal for Entry or Exit of Data / ECN Single Portal for Entry or Exit of Data / BRIDGE
SSTA	Standard Speed Test Application
STTA	Standard Transit Test Application
SURV2	Surveillance 2
SUSP	Suspensions
Taric2	TARIFF Intégré Communautaire (Customs Economic Operators System)
TARREP	Taric Report
TTA	Transit Test Application
UM	User Management
Web 2000	Web2000

Table 5 – Applications used by Customs

<b>Applications used by Excise</b>	
DDS	Data Dissemination System
EWSE	Early Warning System for Excise
MVS	Movement Verification System
SEEDv1	System of Exchange of Excise Data
TA	Testing Application

Table 6 - Applications used by Excise

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<b>Applications used by Taxation</b>	
EoF	Exchange of Forms
GTT	Generic Test Tool
TEDB	Taxes in Europe Database
TOS	Taxation of Savings
VAT REFUND	VAT Refund Module
VCT	VIES-on-the-WEB Configuration Tool
VEF	VAT e-Forms
VIA	VIES Initial Application
VIES	VIES System
VIM	VIES Monitoring
VNA	VAT Number Algorithms
VOES	VAT-on-e-Services
VOES RTA	VAT-on-e-Services Remote Test Application
VOW	VIES-on-the-Web
VSS	VIES Statistics System
VTA	VIES Test Application
VWM	VIES-on-the-WEB Monitoring

Table 7 – Applications used by Taxation

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## 4.2 Domains of responsibility

The global IT infrastructure for Trans-European Systems is decomposed into three domains with their related responsibility boundaries.

### Common Domain

The Common Domain is the environment that allows the various National Administrations to intercommunicate and falls under the responsibility of the Commission. It contains all the applications, hardware and software related to services being used by all the National Administrations and DG TAXUD itself, and forming an infrastructure or an environment facilitating the cooperation of all the parties.

### DG TAXUD Domain

In addition, a clear distinction can be established between the Common Domain and the “private domain” of DG TAXUD, called hereafter DG TAXUD Domain that includes the applications supporting the internal DG TAXUD processes.

### National Domain

The National Domain is located in the National Administration Environment. The National Domain operates as a “national network” which allows the National Administration, and the National Offices (*e.g.* Customs or Excise Offices) to communicate to one another and it provides the “National Customs Application” (NCA). It contains all the applications, hardware and software which are under the operational responsibility of the National Administrations.

### External Domain

The External Domain is the environment between the Trader applications and the NA. It contains the applications used by the economic operators to typically communicate with their local National Administration.

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## 4.3 Functional Model

### Centralised Process

A Centralised Process typically addresses “Central Services for MSA” as well as “Direct Services for Citizens”, by functionally exchanging information through one-way notifications.

It is a process initiated by DG TAXUD which supports business functions offering central services for Member State Administrations and possibly direct services to citizens.

### Coordinated Process

A Coordinated Process addresses “Central Services for MSA” as well as “Transfers to Members States Administrations”, by functionally exchanging information through one-way notifications or two-way conversations via a central coordinator, typically DG TAXUD.

It is a process initiated by Member State Administrations and centrally coordinated by DG TAXUD. Such a system provides central services for Member State Administrations for the support of business services transferred to them.

### Distributed Process

A Distributed Process typically addresses “Transfers to Members States Administrations”, by functionally exchanging information through one-way notifications or two-way conversations between all Central Domain actors.

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## 4.4 Architectural Models

Models of trans-European systems can be classified according to the way they support the business and functional constraints, mainly regarding the Mode of Delivery, at the business perspective level, and the Functional Model at the functional perspective level, including the type of Business Coordination.

Modes of Delivery	Direct Services for Citizens	Central Services for MSA	Transfers to MSA	
			Centralised Process	Distributed Process
Functional Model			Coordinated Process	
Centralised Systems	★	★		
Coordinated Systems		★	★	
Distributed Systems				★

Table 8 – Architectural Models

Applications can be classified in two main categories: Central Applications and “National Customs Application” (NCA).

An Architectural Model defines the way software components are distributed through the various Domain of Responsibility and how they interoperate together to support the business processes.

From DG TAXUD point of view, IT systems can be represented in architecture models and divided in categories for the Trans-European systems. This will serve for the categorisation of applications presented in the document.

### Centralised Systems

A Centralised TES has its main system functionality operated in the DG TAXUD domain. National Administrations are able to interact with and exchange information through the Centralised TES. The applications of the centralised TES are accessible to the National Administrations remotely.

Centralised TES are developed in the frame of projects managed by DG TAXUD IT units. Although operated by DG TAXUD/A4, the IT systems are hosted centrally at the Data Centre of DG Informatics (DIGIT/DC) or in ITSM. In most cases, Centralised IT systems require a small or no development effort by the National Administrations, unless there is a need for specific interfacing between “national customs application” (NCA) and the centralised application(s).

All National Administrations connect to a common network and exchange information with a Central Application (located at DIGIT DC).

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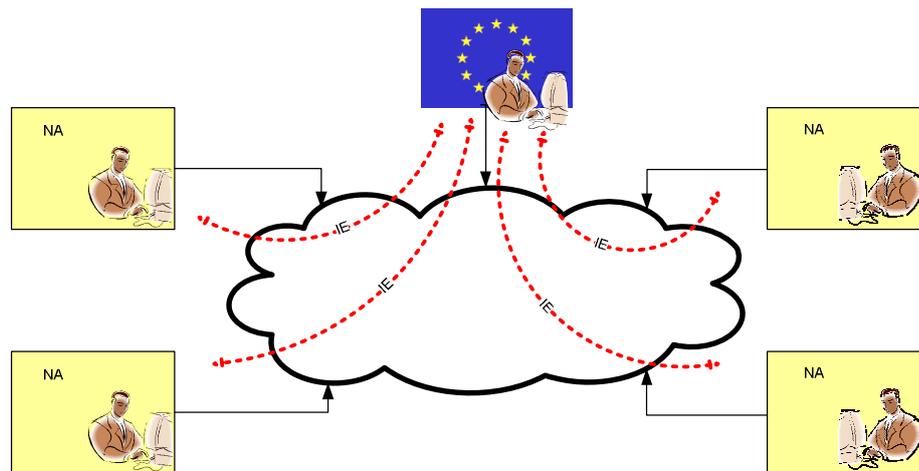


Figure 9 – Centralised Systems

### Distributed Systems

A Distributed TES has the main system functionality operated in the Central Domain of each National Administration (distributed) and is under the responsibility of each National Administration. Users (NAs, National Offices, Traders) are able to exchange information directly with users and applications in other Member States/countries over the CCN by using the Nationally Developed Application (NDA).

An example of a Distributed TES is the NCTS system.

Distributed TES are developed and operated by the National Administrations. DG TAXUD/A3 takes the role of coordinator for the whole lifecycle of the system and ensures a proper interface between the NAs and all other parties involved in the development of the system, including the contractors. Certain system components may be developed under the responsibility of DG TAXUD (units A3 and A4), mainly those implementing message exchange coordination, management of central data repositories, monitoring and testing applications. This involvement of DG TAXUD may vary from project to project.

All National Administrations connect to a common network and exchange information with another one.

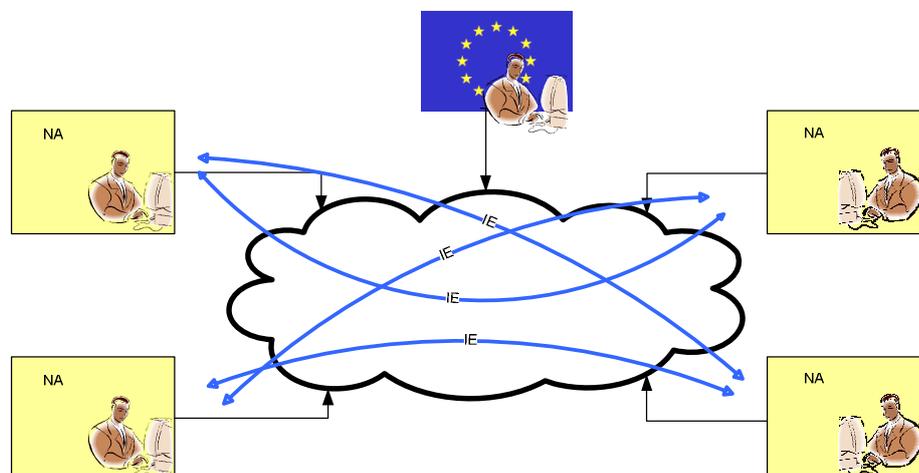


Figure 10 – Distributed Systems

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### Coordinated Systems

A Coordinated Process addresses “Central Services for MSA” as well as “Transfers to Members States Administrations”, by functionally exchanging information through one-way notifications or two-way conversations via a central coordinator, typically DG TAXUD.

It is a process initiated by Member State Administrations and centrally coordinated by DG TAXUD. Such a system provides central services for Member State Administrations for the support of business services transferred to them.

## **4.5 Mode of Deployment**

### Centrally deployed Application

This type of application implements services deployed in the Central Domain. It provides a set of services from a central organisation, typically DG Taxation and Customs Union that implements the business activities supporting coordinated business processes.

DG Taxation and Customs Union Domain includes Central Applications and Private Applications, communication together through private communication channels. They also communicate with third parties through Government-to-Government Communication Channel and Government-to-Citizen Communication Channel.

Current central applications operated in DG Taxation and Customs Union are mostly designed according to architectural principles defined in the Economic Operators System Applications Architecture Framework, as well as by the NCTS Central Applications Architecture.

### Nationally deployed Application

Implementing services deployed in the Central Domain. Set of services provided by a National Administration, implementing the business activities supporting in particular distributed business processes.

Central Domain includes “national customs application” (NCA) communicating with third parties through Government-to-Government Communication Channel and Government-to-Citizen Communication Channel.

NA applications are not developed by DG Taxation and Customs Union. They are fostered with the usage of centrally-developed (DG Taxation and Customs Union) components like ECN and ECN+.

## **4.6 Mode of Operation**

Mode of operation is the organisational distribution of the responsibility regarding the day-to-day operational activities supporting the execution trans-European systems.

Typically, the applications are operated either centrally, in the DG TAXUD domain, or locally, in the Central Domain.

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### Centrally Operated

Mode of operation of an application or a communication channel performed by a support team under the responsibility of DG TAXUD.

### Locally Operated

Mode of operation of an application or a communication channel performed by a support team under the responsibility of a National Administration.

### Commonly Operated

Mode of operation of an application or a communication channel performed by multiple support teams under the mutual responsibility of several parties, typically DG TAXUD and National Administrations.

## **4.7 Host Sites**

A detailed description and addresses of the host sites are in the next chapters.

All sites in scope of this document are described:

- Belgium
  - XXX: Data Centre (XXX)
- Luxemburg
  - Luxemburg: Data Centre (DIGIT)

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## 5. Infrastructure per application

As we saw in the previous chapter there is no single way to classify applications. Therefore the applications will be listed alphabetically and classified in a logical order of appearance within the different threads.

- ART
- CN
- CRMS
- CS/MIS
- CS/RD
- CSI Bridge
- DDS
- EBTI3
- ECICS2
- ECN
- ECN+
- EoF
- EOS
- EWSE
- GTT
- GWS
- Http CCN Bridge
- Http Internet Bridge
- ISPP
- MVS
- Quota2
- SEEDv1
- SMS
- SPEED / ECN including Speed bridge
- SSTA
- STTA
- SURV2
- SUSP
- TA

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- Taric2
- TARREP
- Taxes in Europe Database
- Taxation of Savings
- TTA
- UM
- VAT Refund Module
- VIES-on-the-WEB Configuration Tool
- VAT e-Forms
- VIES Initial Application
- VIES
- VIES Monitoring
- VAT Number Algorithms
- VAT-on-e-Services
- VAT-on-e-Services Remote Test Application
- VIES-on-the-Web
- VIES Statistics Systems
- VIES Test Application
- VIES-on-the-WEB Monitoring
- Web2000

For every application you can find all up to date information within the CMDB, i.e. list the CI's needed to run all its components and for every CI the necessary attributes are documented [RD13].

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## 5.1.1 ART

### Activity Reporting Tool

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, Central Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	N/A
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The Activity Reporting Tool (ART) is the system for the exchange and consultation of information on expenses made by Member States and Candidate Countries in the framework of the Customs and Fiscalis programs.

ART covers all activities that have been developed under the programs Fiscalis and Customs and supports a number of reporting obligations.

The information to be gathered concerns both the follow-up of activities and the management of the financial data. The Commission and the participating countries both enter data into the database.

The Commission enters a number of “proposals” leading to “actions” and “events”, while Member States enter “participant” information. ART supports the evaluation of the achievement of the set objectives and the expected results on action, event and participant level. The financial and follow up reports are produced directly from the ART.

The technical perspective characteristic of the application is derivative of Tariff Applications Technical Architecture Framework characteristics and is described in the description of the framework. Interactive users interactively access the system by a web application based on HTML and Java Server Pages JSP or a full-featured Swing-based Java client. The applications using the TATAF can be accessed from the internet browser or have dedicated thick client Java Swing application prepared. The applications can be also accessed via CSI messaging. The applications based on TATAF are usually delivered either over CCN network or DG TAXUD internal network. Thin client applications use HTTP and HTTPS protocols to access the web application. Thick clients connect to the Economic Operators System application using RMI protocol. The messages are exchanged between the application and the CCN Bridge using JMS. Applications based on TATAF require a Java development environment to run. The

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framework is ready to be deployed on the BEA WebLogic Application Server. All persistent data is stored in the Oracle relational database.

### Network Diagram

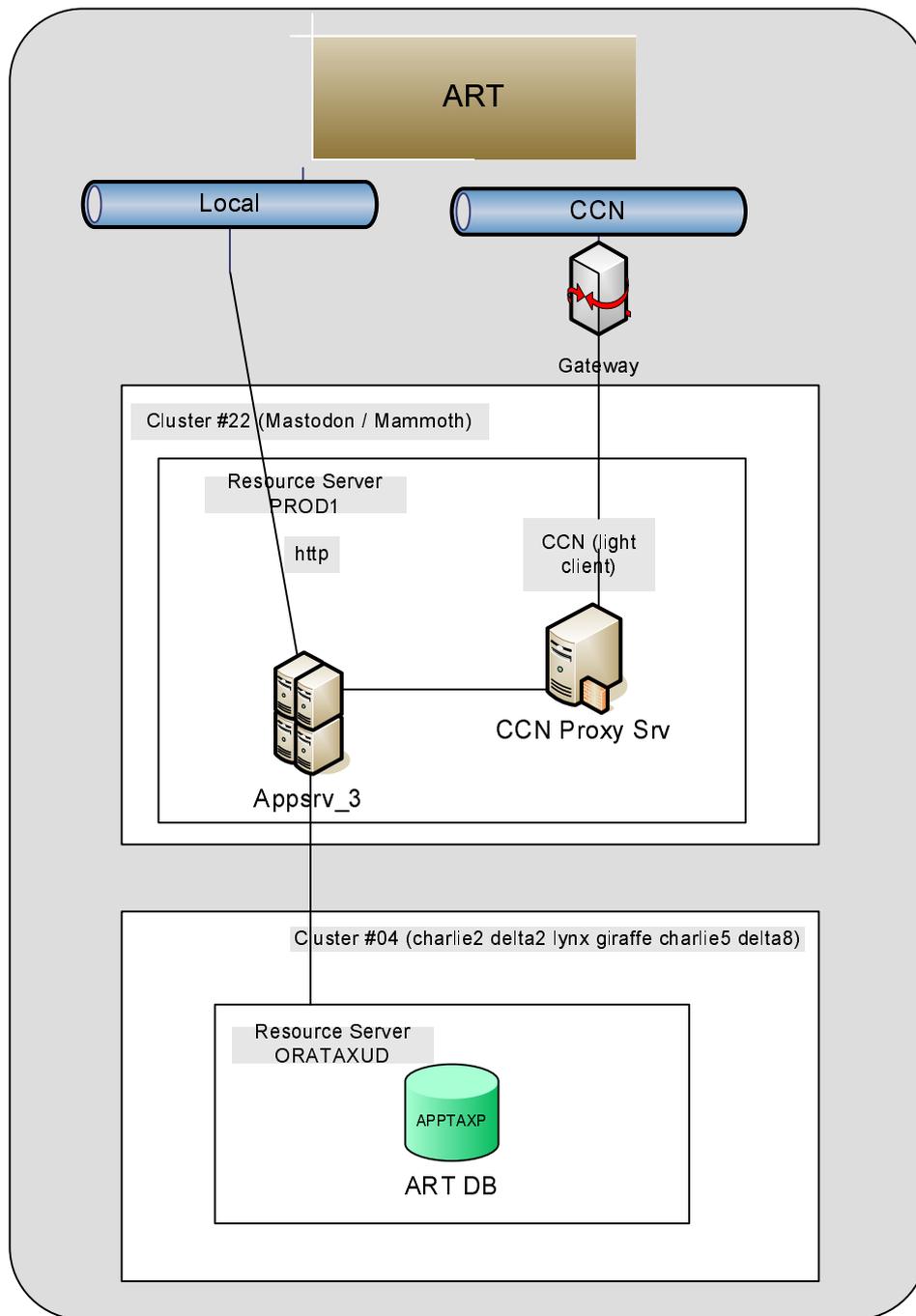


Figure 11 - ART

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## 5.1.2 CN

Combined Nomenclature

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF, TARIC
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

In order to monitor the flow of goods into and out of the European Union, the goods are identified with reference to a nomenclature for Economic Operators System and statistical purposes, the Combined Nomenclature. The CN consists of a table of goods descriptions with related codes together with rules and notes for its interpretation.

The main purpose of the system is to maintain the whole publication cycle of certain legislation. The CN management system supports the publication process of the CN regulation and explanatory notes and solves potential inconsistencies between linguistic versions.

The system facilities allow the management of the set of modifications to the document, starting from its initial version as a manuscript in electronic form up to the new publication version. The system supports versioning and translation processes. It also generates reports on the impact of a set of changes, proposed or already approved, on the regulation as a whole. It is possible to export all/updated CN descriptions to TARIC.

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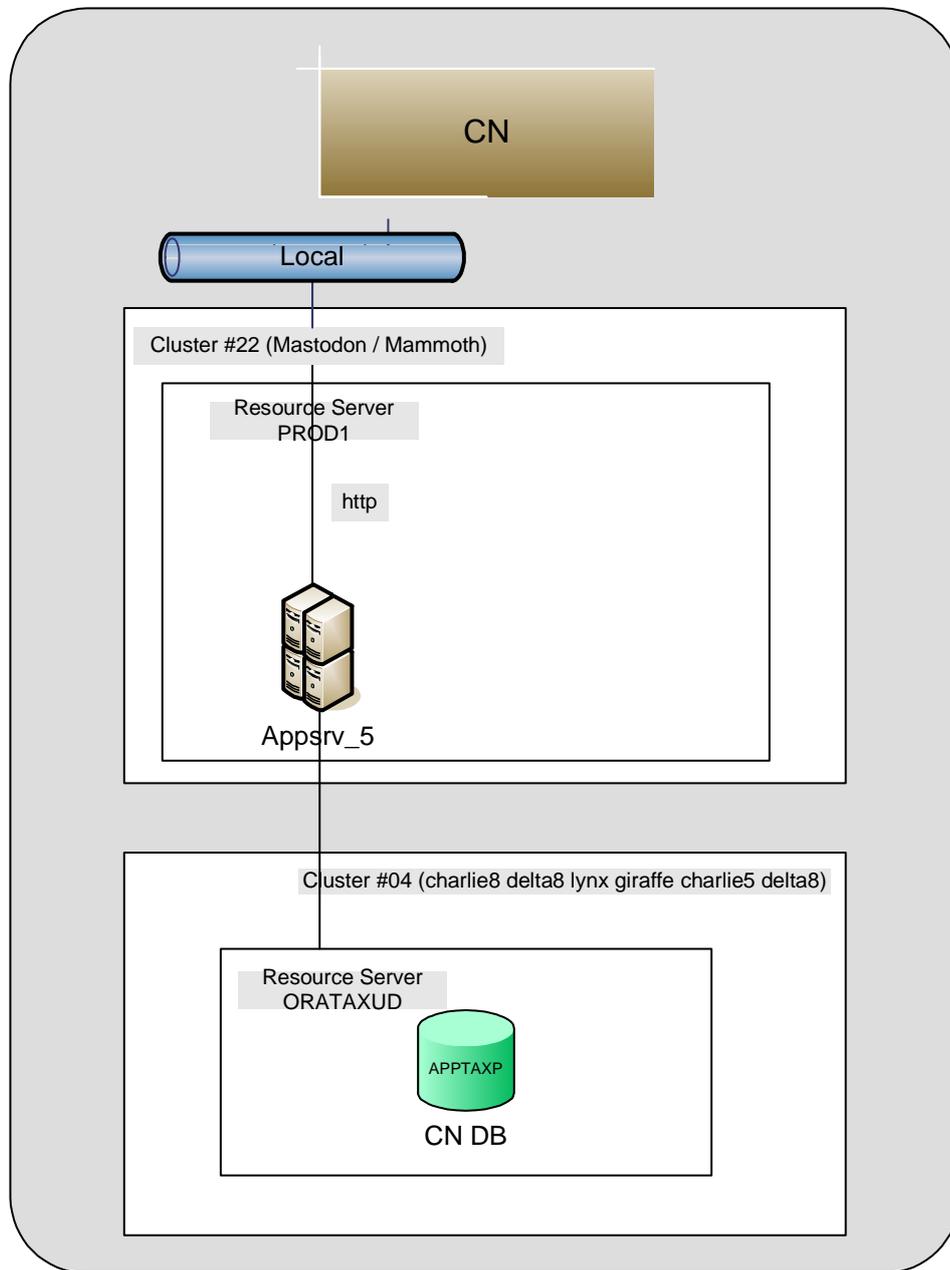


Figure  
12 -  
CN

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System

Classification	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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MODE OF OPERATION	Centrally Operated
USED BY	N.A
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

The CRMS is an essential element in the strategic development and implementation of a standard Risk Management Framework in the customs services of the European Union. The purpose of CRMS is to ensure the management of risk information and the exchange of risk information between National Risk Analysis Centres (NRACs - including DG TAXUD) and Customs Offices (COs, i.e. ports, airports...) in the Member States.

Simple and easy to use forms dealing with routine control concerns must be exchanged rapidly between NRACs and COs. NRACs and COs are able to create risk information forms and feedbacks. It is possible for all addressees of risk information forms and feedbacks to be notified by the central system that there is information awaiting their attention.

A risk information form should raise the awareness of the concerned parties with regard to goods which could pose a threat to health or safety of citizens and other potential irregularities (e.g. false declaration, counterfeit goods). Beside the risk information form, a feedback function is available in order to evaluate the action taken by either a CO or a NRAC on receipt of a risk information form.

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Network Diagram

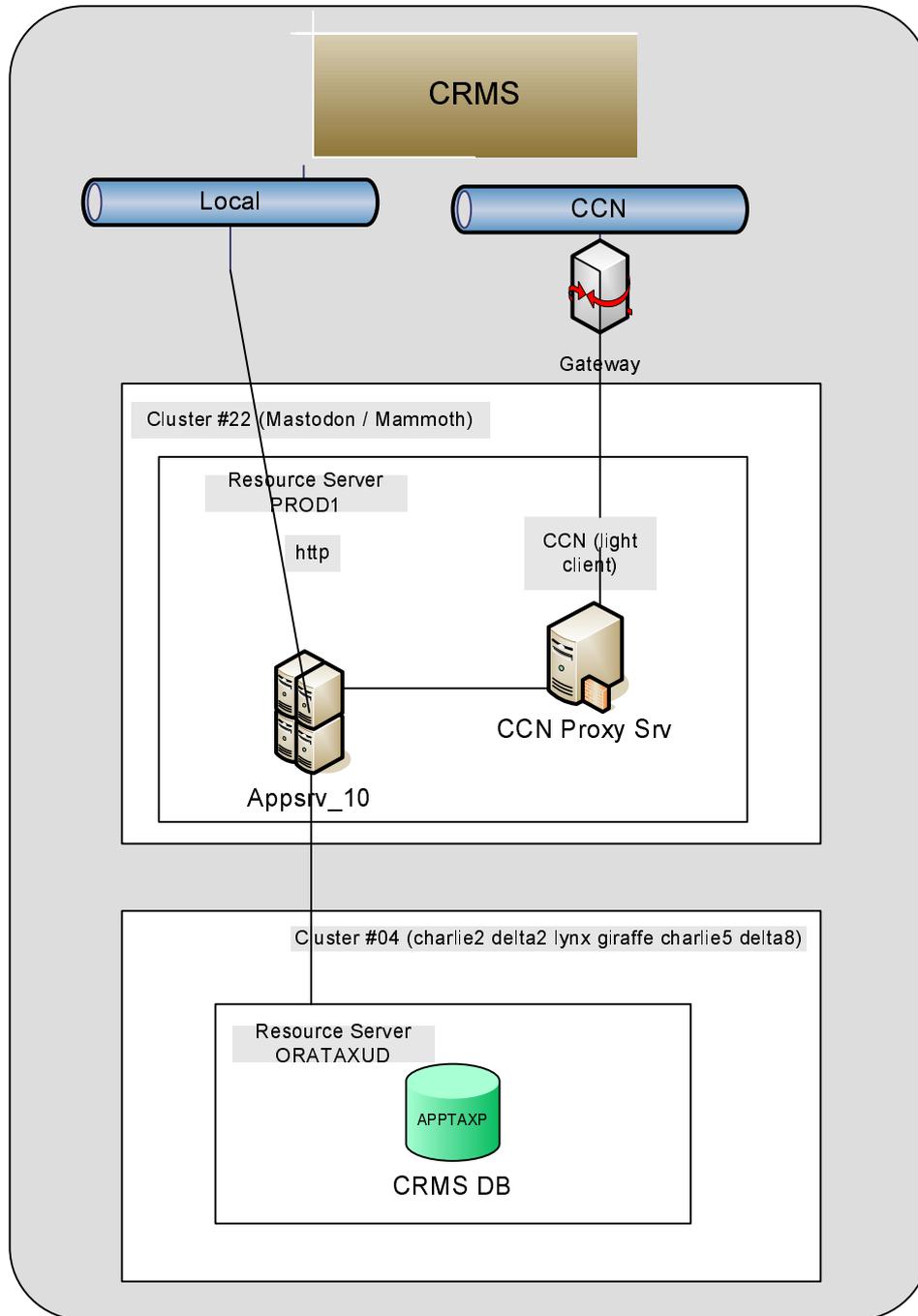


Figure 13 – CRMS

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## 5.1.4 CS/MIS

Central Services / Management Information System

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System, Coordinated System, Distributed System
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	MSA – DG TAXUD
HOSTED AT/ MANAGED BY	XXX, DC XXX

### Description

New Computerised Transit System (NCTS) is based on the electronic exchange of the transit data between the National Customs Administrations in parallel and in anticipation of the movement of the goods. NCTS provides a fully computerised Customs regime for goods which enter into the Common Transit.

Central Services/Management Information System (CS/MIS) is one of the applications of a Centrally Developed Transit Application (CDTA) suite that has been developed to support NCTS and ECS, ICS.

CS/MIS provides the facilities needed to monitor and report on the operation of NCTS from the system, business and resources points of view.

- Monitoring and handling of the NCTS operations
- Reporting on NCTS and ICS, ECS-related traffic (messages, NCTS Movements)
- Reporting on NCTS and ICS, ECS resource utilisation
- Monitoring and handling of “national customs application” (NCA) unavailability - National Transit Applications (NTAs), National Import Control Application (NICAs) and National Export Control Applications (NECAs).

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Network Diagram

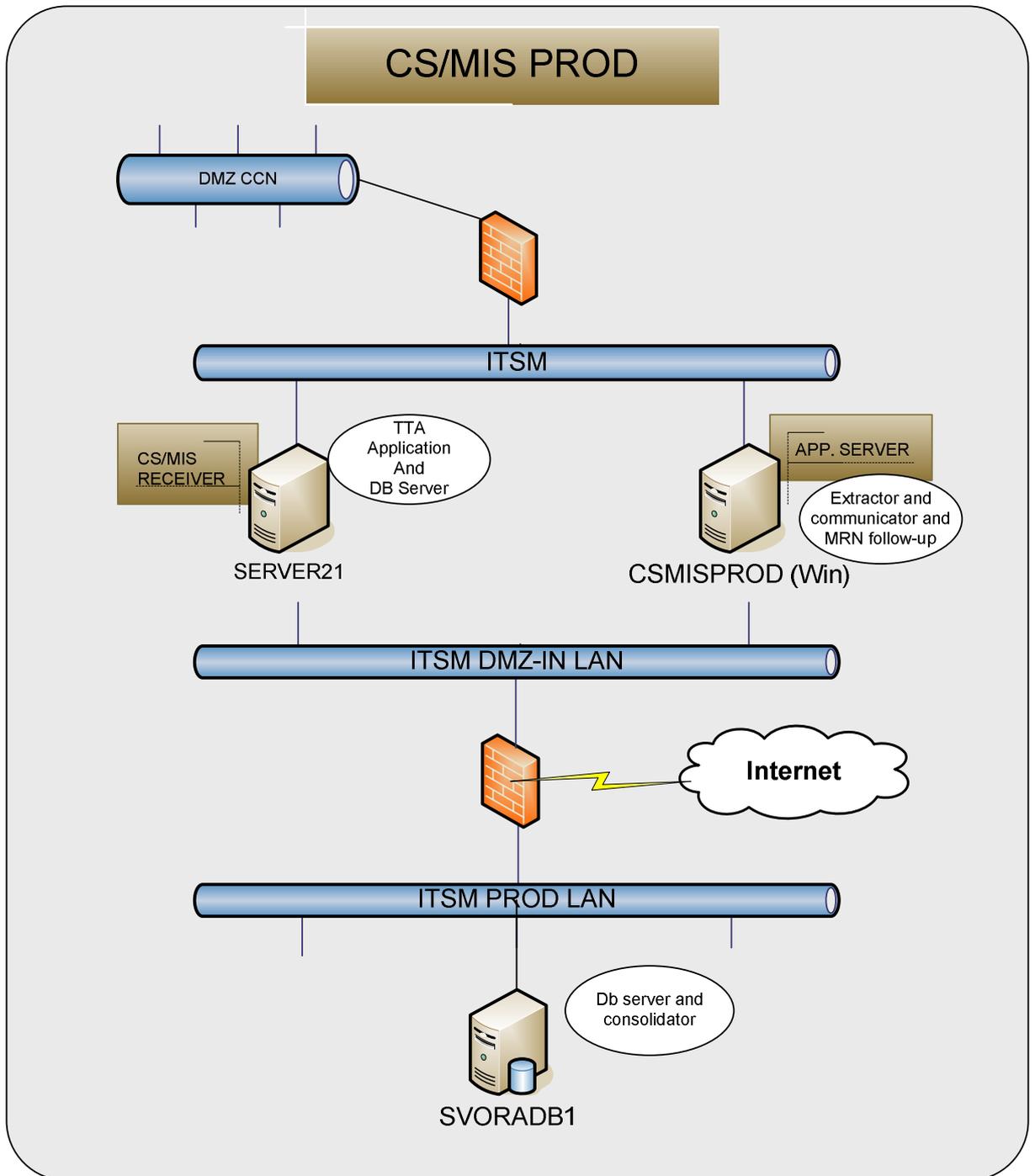


Figure 14 – CS/MIS

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## 5.1.5 CS/RD

### Central Service/ Reference Data

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System, Coordinated System, Distributed System
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	MSA – DG TAXUD
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

New Computerised Transit System (NCTS) is based on the electronic exchange of the transit data between the National Customs Administrations in parallel and in anticipation of the movement of the goods. NCTS provides a fully computerised Customs regime for goods which enter into the Common Transit.

Central Services/Reference Database (CS/RD) is one of the applications of a Centrally Developed Transit Application (CDTA) suite that has been developed to support NCTS.

The main functionality of the CS/RD system is to store and distribute common reference data. The two main groups of data are:

The Customs Office List (COL) in all participating countries: This is a list of the Customs Offices of Export and Exit and Excise Offices.

The Common Reference Data (RD): reference data such as country names, currency codes, units of measure etc.

The repository is located centrally at the Common Domain - Central Services Office. The notifications of every modification of the COL and RD are sent to all National administrations (NAs) of Member States (MSA).

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Network Diagram

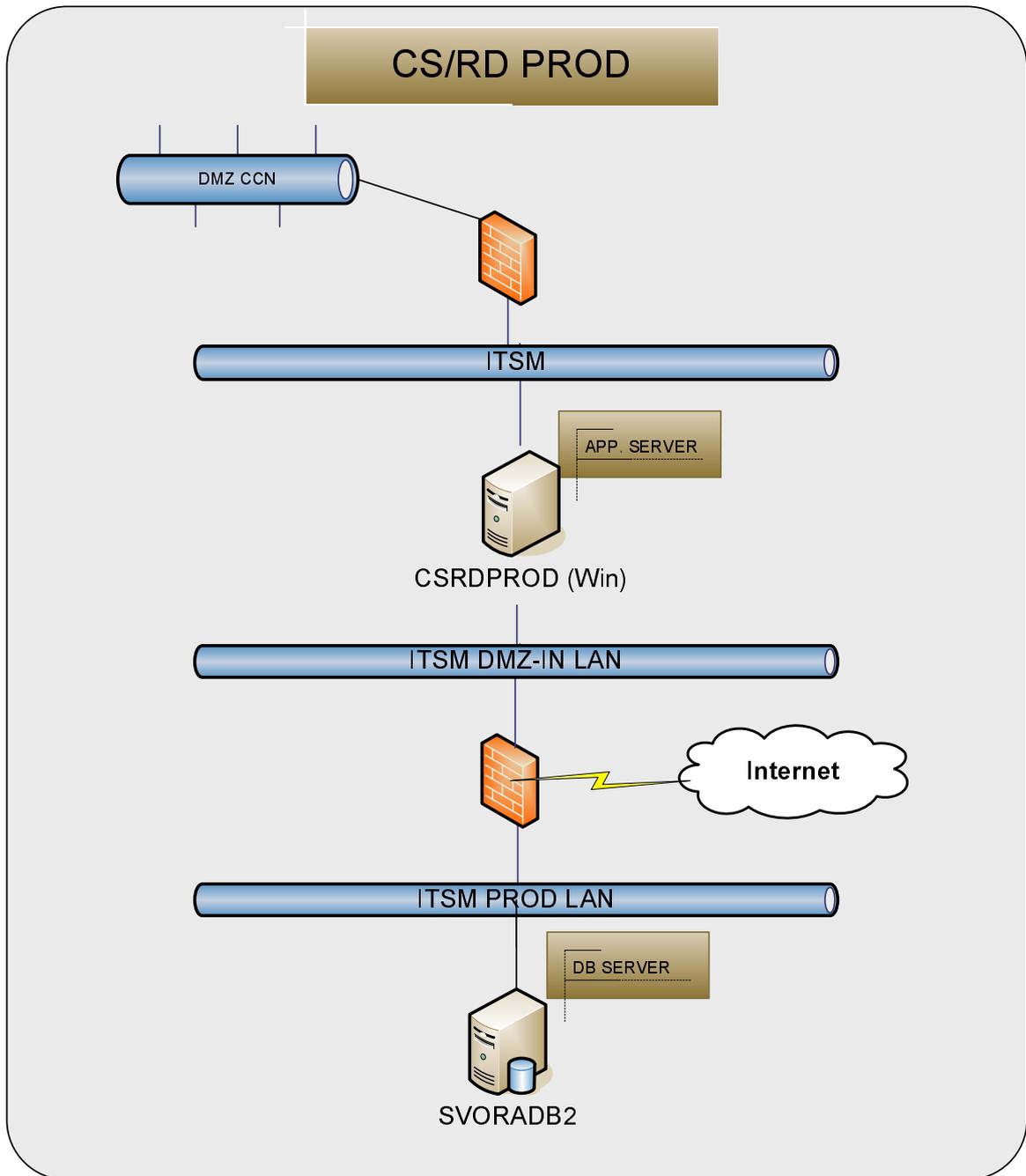


Figure 15 – CS/RD

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### 5.1.6 CSI Bridge

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF applications
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

CCN\CSI plays a main role in the DG TAXUD technical architecture, as it provides message exchange between common domain applications and the outside world. The CSI Bridge is the link between CCN network queues and the JMS queues used by the DG TAXUD or MSA applications deployed on BEA WebLogic application servers. It's a J2EE application, which contains two Message Driven Beans. Each of them is triggered when one of the incoming queues contains new messages. When it happens a simple mapping is made, and the messages are forwarded to the outgoing queue.

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Network Diagram

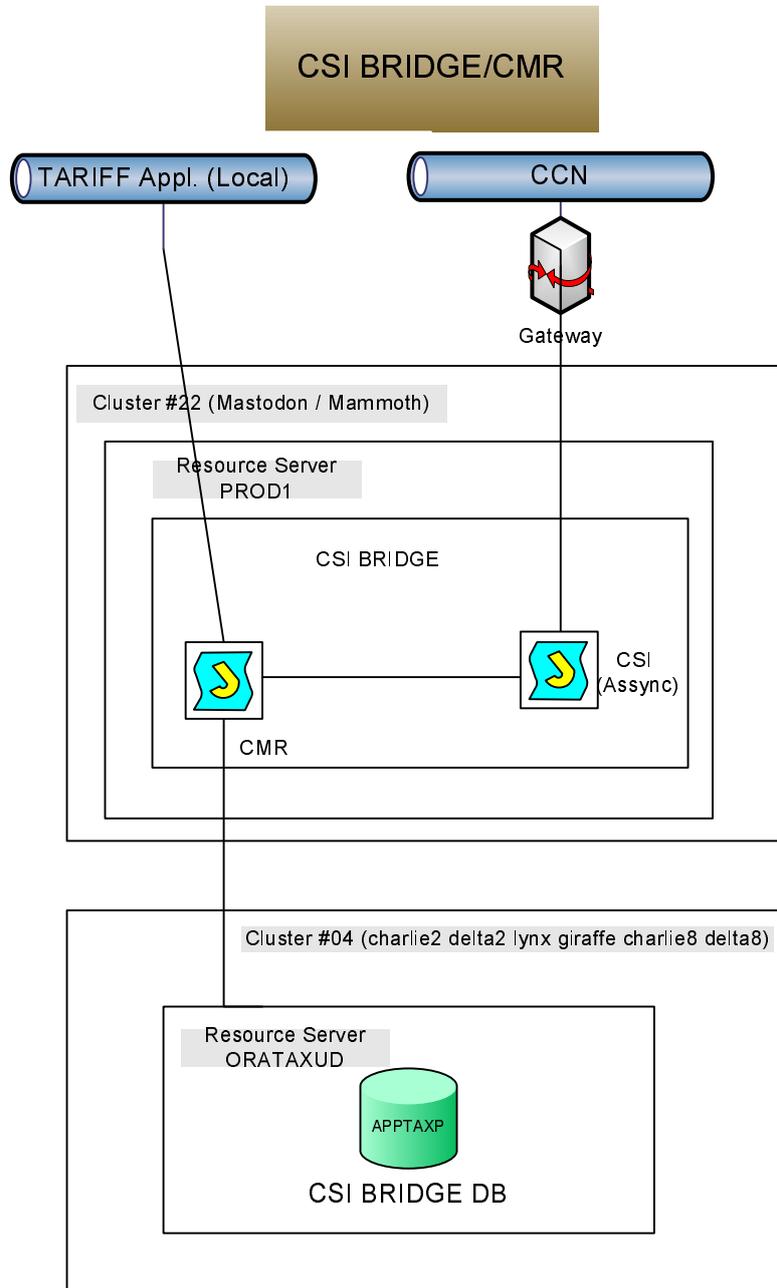


Figure 16 – CSI Bridge

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## 5.1.7 DDS

Data Dissemination System

<b>Classification</b>	
BUSINESS THREADS	Customs, (Excise)
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	See applications drawing...
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

The Commission develops and operates several databases in conjunction with Member States Customs and Taxation Services. The databases are part of the information systems of Taxation and Customs Union.

The Data Dissemination System (DDS) is the public website for customs and Taxation information. The system covers information coming from various DG TAXUD systems. For Taxation information the system acts as a switch to the various national VIES systems in a transparent way. The system supports all languages including the new languages.

Currently, DDS provides data from EOS, COL, DDS, EBTI, ECICS, Export MRN Follow-up, QUOTA, SEED, Surv2, Suspensions, TARIC, Transit MRN follow-up and VIES.

Tuxedo is the COTS to run the DDS application and IPlanet is used as a web server for the application.

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Network Diagram

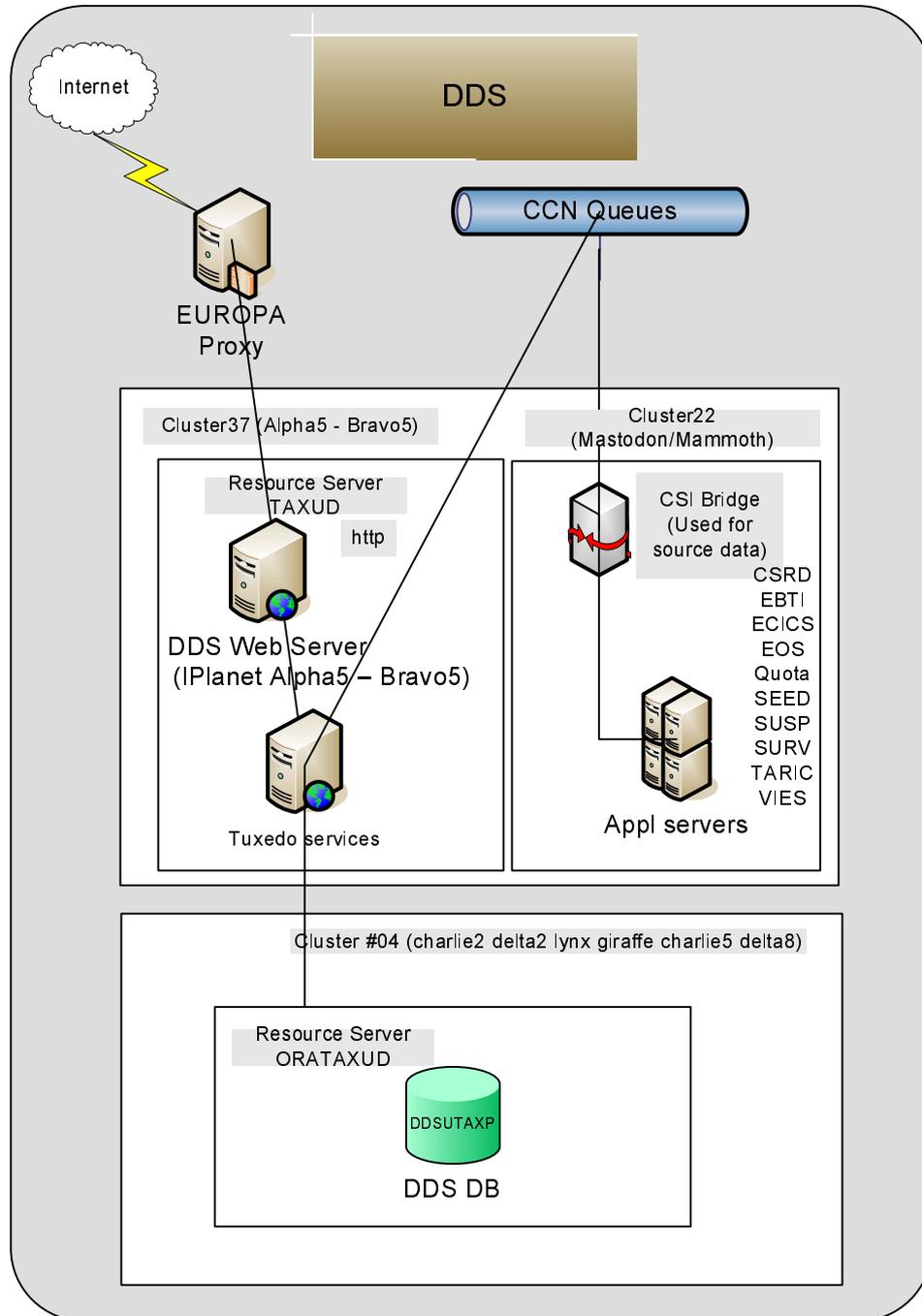


Figure 17 - DDS

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### 5.1.8 EBTI3

#### European Binding Economic Operators System Information

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF, MSA
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The Commission has established a Binding Economic Operators System Information (BTI) procedure for information on the Economic Operators System classification of goods, provided by the European customs authorities, in order to ensure the uniformity of the application and to eliminate the differences of the Economic Operators System classification rules within the European Union, in order to guarantee the equality and the legal protection of the operators in terms of decisions taken by the different customs authorities.

The European Binding Economic Operators System Information system ensures effective management of the procedure. The system ensures the transparency of customs information and provides a guarantee of equality for the operators. It enables to facilitate and verify the classification of a good and ensures coherence of classification of the different national authorities, by searching for divergent or incorrect classifications. The system also allows looking for attempted fraudulent practice by operators.

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Network Diagram

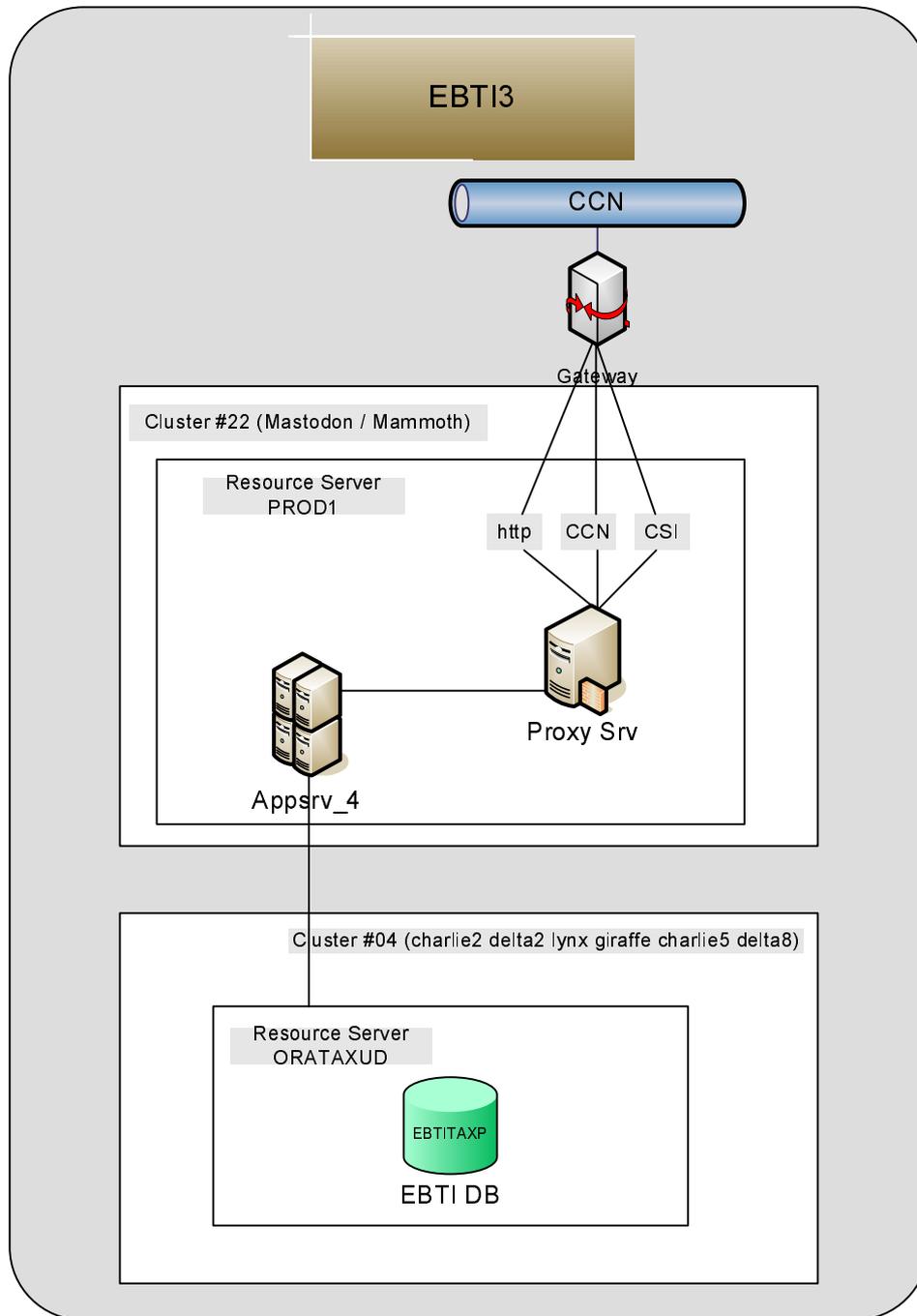


Figure 18 – EBTI3

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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## 5.1.9 ECICS2

European Customs Inventory of Chemical Substances

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF, DG TAXUD
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

The main goal of the European Customs Inventory of Chemical Substances system (ECICS) is to provide a central repository with information on chemical substances, relevant to the customs departments in order to ascertain proper control over their movements (import, export, transit). The ECICS2 facilitates the maintenance and consultation of the classification of chemical products, described by chemical names and synonyms in all official languages, CAS (Chemical Abstract System) references and chemical structure drawings and references to documents on the classification decision.

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Network Diagram

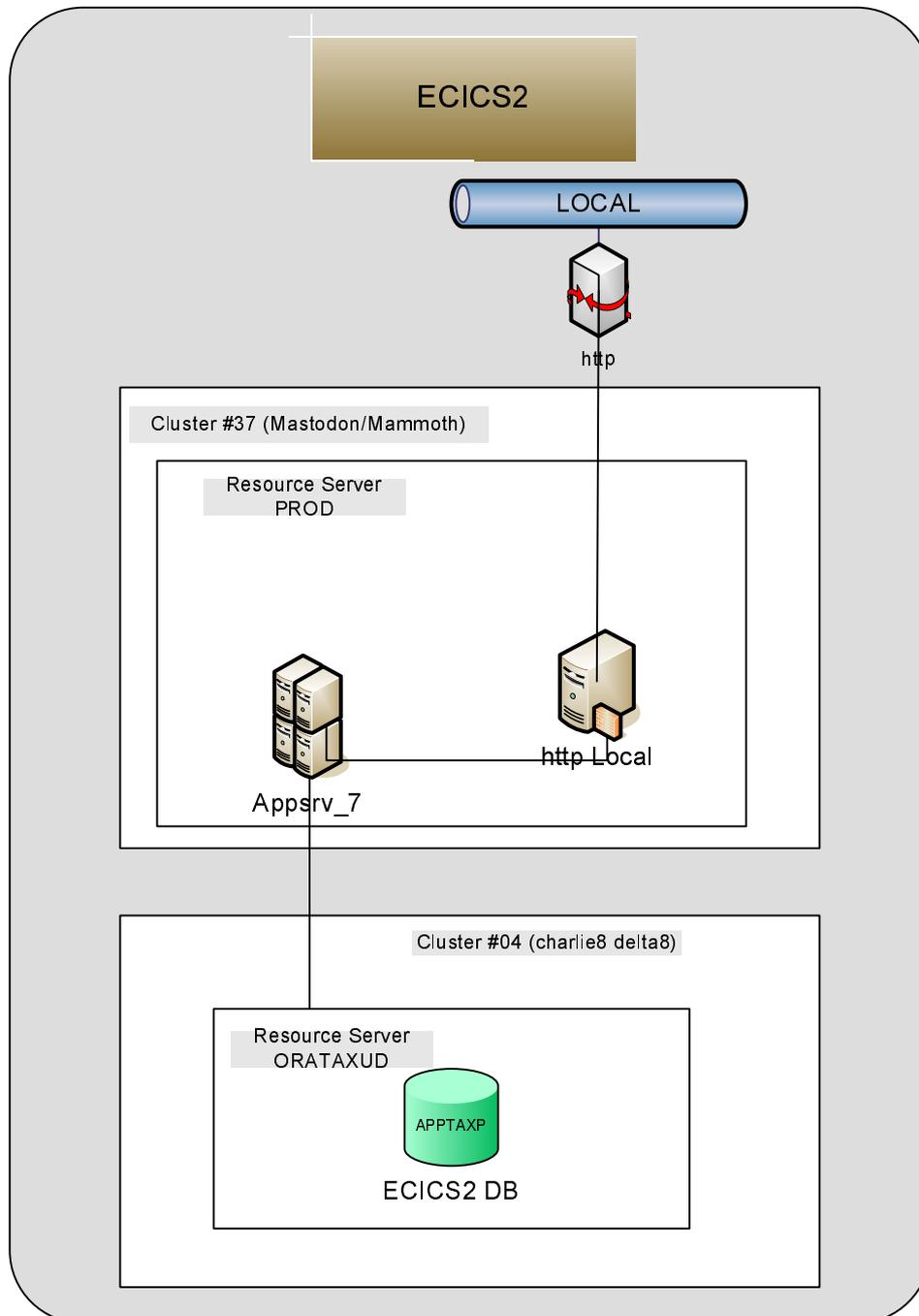


Figure 19 – ECICS2

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.10 ECN

EDI/CSI Node

(Electronic Data Interchange, Common Systems Interface)

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	Central Domain
MODE OF DEPLOYMENT	Nationally Deployed
MODE OF OPERATION	Locally Operated
USED BY	Distributed Application
HOSTED AT/ MANAGED BY	Member States

#### Description

New Computerized Transit System (NCTS) is based on the electronic exchange of the transit data between the National Customs Administrations in parallel and in anticipation of the movement of the goods. NCTS provides a fully computerized Customs regime for goods which enter into the Common Transit.

Electronic Data Interchange (EDI)/Common Systems Interface (CSI) Node (ECN) is one of the applications of a Centrally Developed Transit Application (CDTA) suite that has been developed to support NCTS.

The ECN is the technical crossroad for the various domains in the customs related business. The ECN also provides translation and communication services to applications belonging to these domains. The communication is implemented with the CCN/CSI dedicated network and service. Business messages issued or received are placed on or retrieved from the CCN/CSI gateways.

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Network Diagram

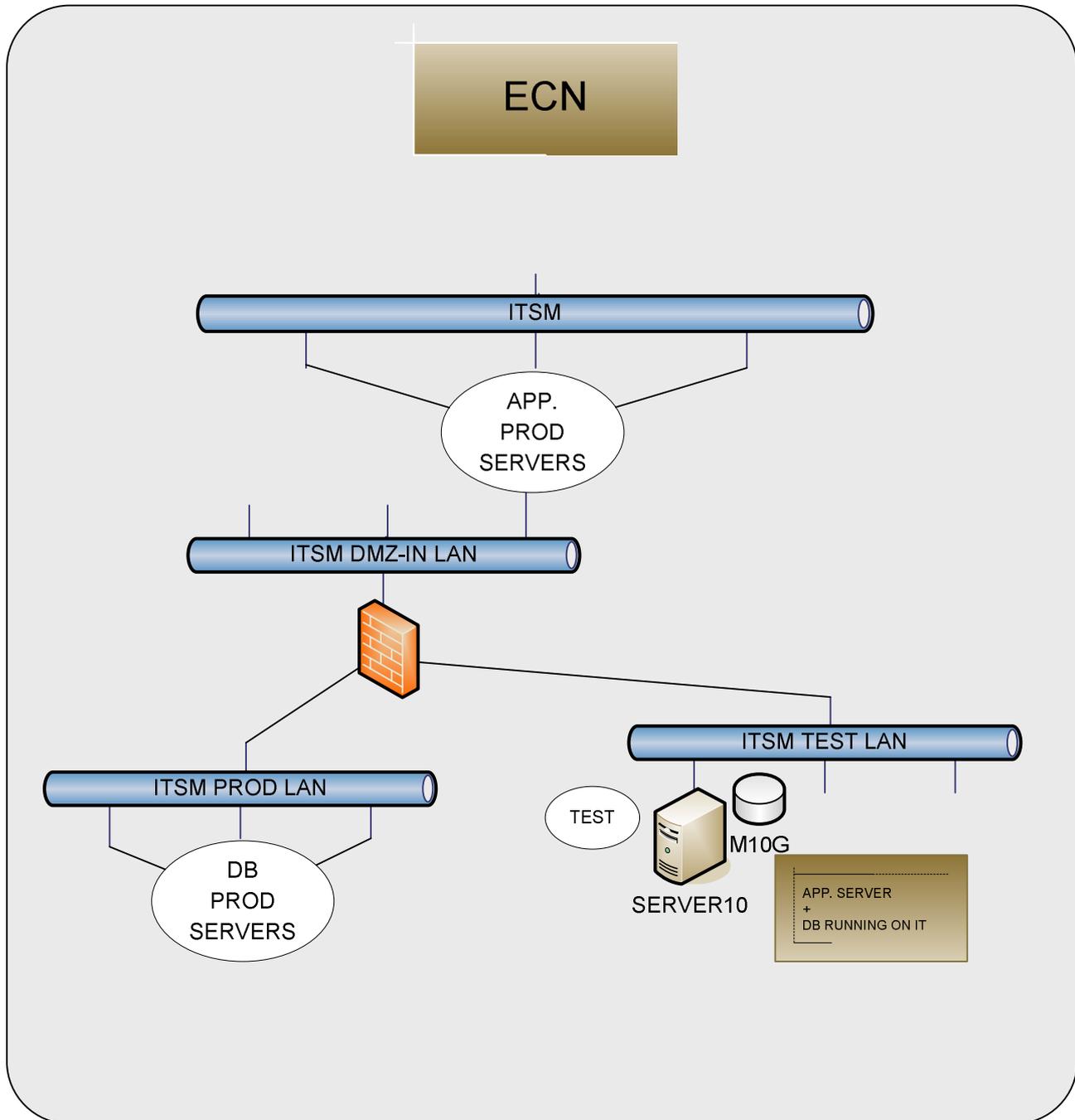


Figure 20 - ECN

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
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### 5.1.11 ECN+

EDI/CSI Node+

(Electronic Data Interchange, Common Systems Interface)

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	Central Domain
MODE OF DEPLOYMENT	Nationally Deployed
MODE OF OPERATION	Locally Operated
USED BY	ECS
HOSTED AT/ MANAGED BY	Member States

#### Description

The Export Control System (ECS) allows to National Customs Administrations the electronic exchange of information from the office of exportation to the office of exit and vice-versa. The office of export can then send this information to inform the economic operator and other government services that the goods have left the customs territory. The ECS is based on the New Computerised Transit System (NCTS) solutions.

The ECN+ application has been developed to support ECS.

The purposes of the ECN+ application are:

1. To receive messages from the member state's own National Export System (NES), and then to manage the international exchange of information about export movements among the NES of the involved member states;
2. To handle the national communication between a MS ECN+ system and its own NES;
3. To provide a manual input of data when involved member state's National Export System is unavailable or it does not own a NES.

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Network Diagram

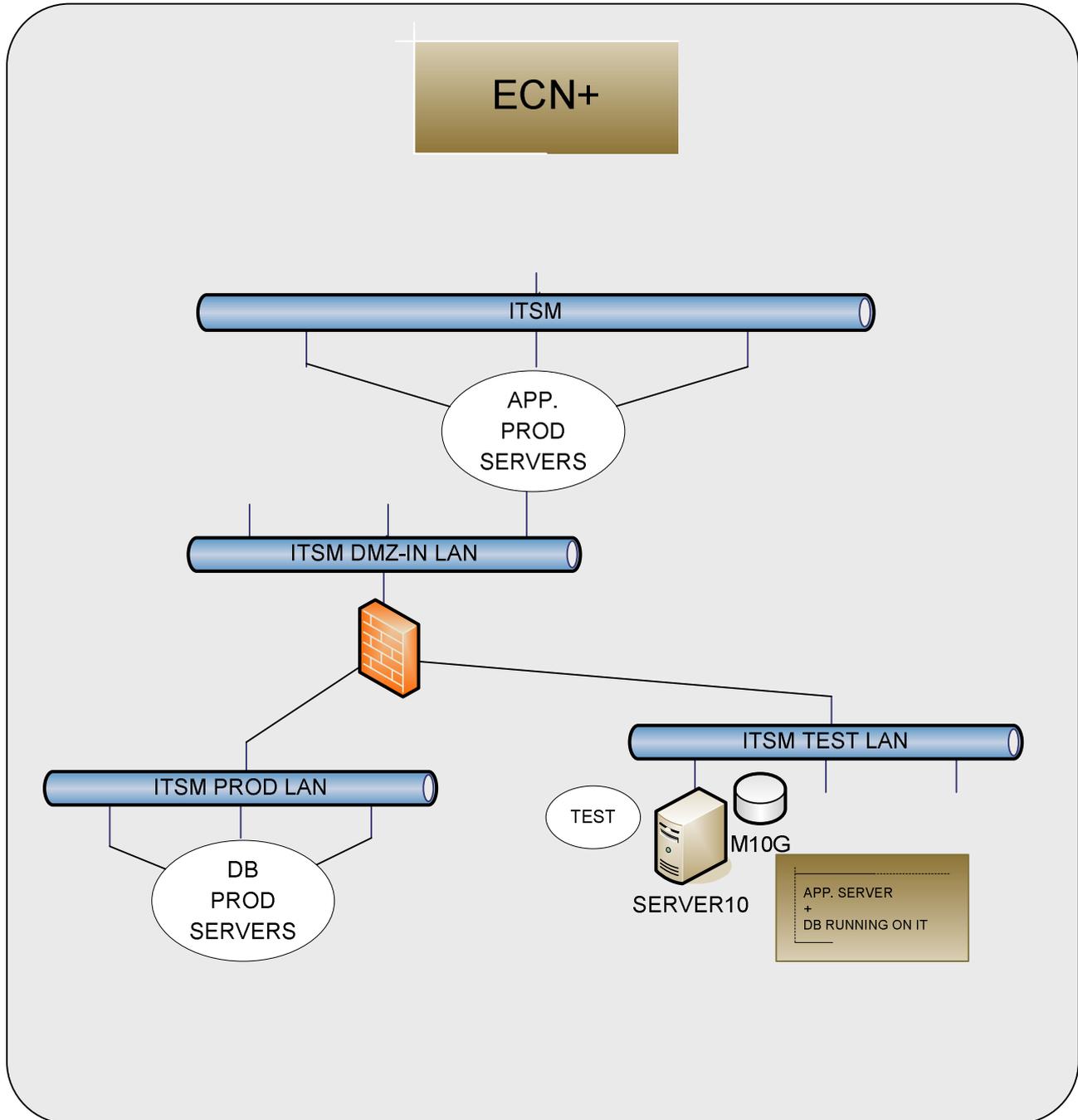


Figure 21 – ECN+

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
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## 5.1.12 Exchange of Forms

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Coordinated system
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, National Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	ITSM
HOSTED AT/ MANAGED BY	Member States

### Description

Electronic Forms exchanged between MS to retrieve / verify information, in the framework of the “Administrative Cooperation”

The e-form system:

- Uses XML for the forms data to allow the automatic processing of the forms;
- Provides the MS with a form implementation that will allow them to load, edit and save the form data while easing the support of the different languages;

Three Forms are concerned:

- MISSING TRADER FORM (SCAC 383 Annex 1 Rev 2) = commonly used as a simplified form for a fast exchange of information in case of suspected fraudulent operation
- REQUEST FOR NOTIFICATION = commonly used to notify of an administrative decision to another MS who communicates it to its taxable person
- FORM "SCAC 2004" = commonly used for exchange of spontaneous data and information requests.

An e-form is completed by the first MS-A who will, after completing their part, generate an XML document.

This XML document is sent to the other MS-B who will import it and fill out the rest of the form, depending on how the first MS-A completed their part.

This information is sent back to MS-A (also in XML format)

The XML file can only be sent through a secured mailbox (e.g. CCN-Mail2)

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## Network diagram

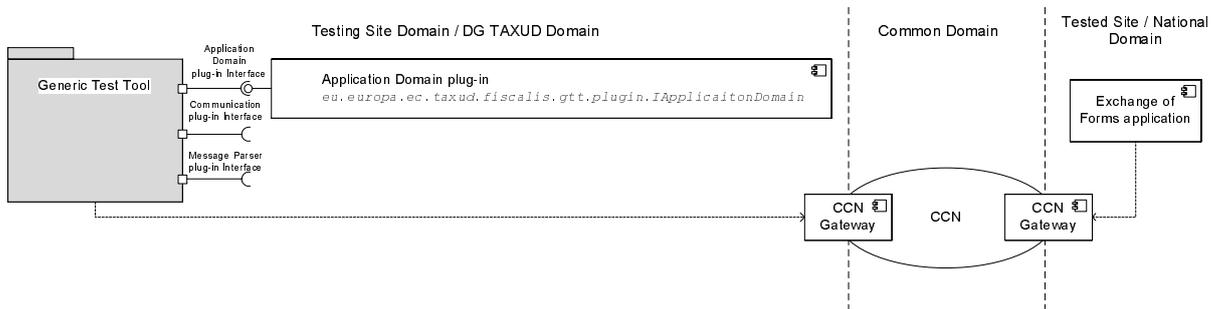


Figure 22– Exchange of Forms

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.13 EOS

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, Central Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF, MSA
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The application is a part of EOS system which consists of central EOS application, national EOS applications and DDS application. The EOS application regroups AEO (Authorised Economic Operator) and EORI (Economic Operators Registration and Identification).

The technical perspective characteristic of the application is derivative of Economic Operators System Application Architecture Framework technical characteristics which description can be found in the section documenting the framework.

The main goal of the EOS system is to facilitate the management of certificates for the Economic Operators System (EOS). The system provides the facilities for the management of EOS applications submitted to a competent customs authority by an economic operator. The entire maintenance of EOS certificates is also performed in the system. It enables the registration of EOS certificates issued by the competent customs authorities when an EOS application is accepted as well as the suspension and the revocation of the EOS certificate.

The EOS application and the EOS certificate are the core objects of the EOS system.

EOS applications are submitted to a competent customs authority by an economic operator (the applicant). EOS application includes essential information about the applicant and its customs activities. Legal registration numbers such as the number of Value Added Tax payer (VAT) or Trader Identification Number (TIN) must be provided

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Network Diagram

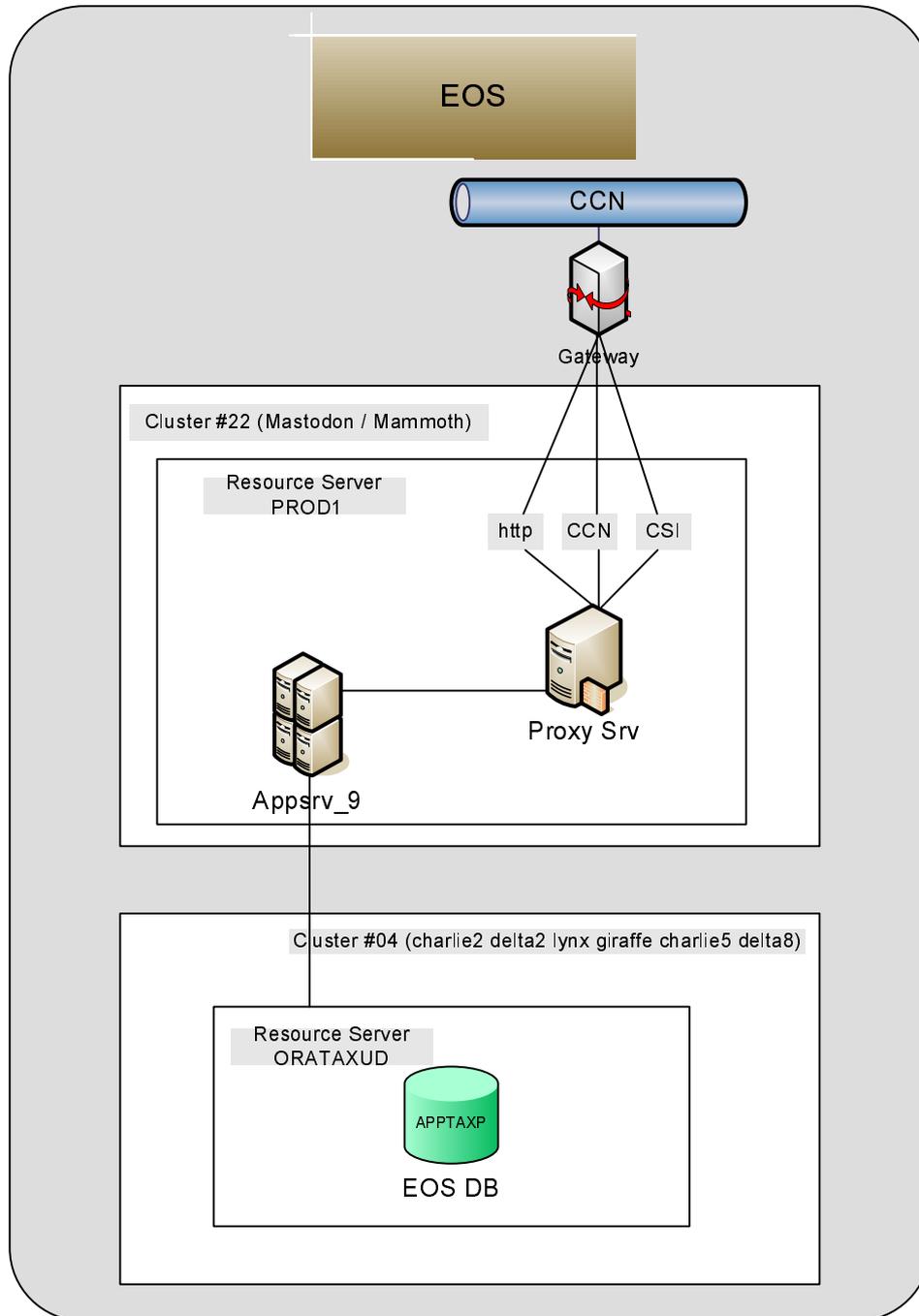


Figure 23 - EOS

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.14 EWSE

Early Warning System for Excise

<b>Classification</b>	
BUSINESS THREADS	Excise
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	National Domain
MODE OF DEPLOYMENT	Nationally Deployed
MODE OF OPERATION	Locally Operated
USED BY	Distributed Application
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

Early Warning System for Excise (EWSE) enables central liaison offices in Member States to exchange information or warning messages as soon as they are in possession of the Administrative Accompanying Document (AAD) information, and at the latest when the products are dispatched. As part of this exchange of information, a risk analysis based on the AAD information is carried out before a message is sent.

EWSE provides e-forms for creation, validation and sending of EWSE Information/Warning messages and replying to them with EWSE Feedback messages.

The source of the initial information is the accompanying administrative document (AAD) for the movement under duty-suspension arrangements of products subject to excise duty, defined in the Commission Regulation. The submission of AAD by the trader triggers the message exchange process between Member State Administrations (MSA) of departure, transit and destination of the consignment.

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Network Diagram

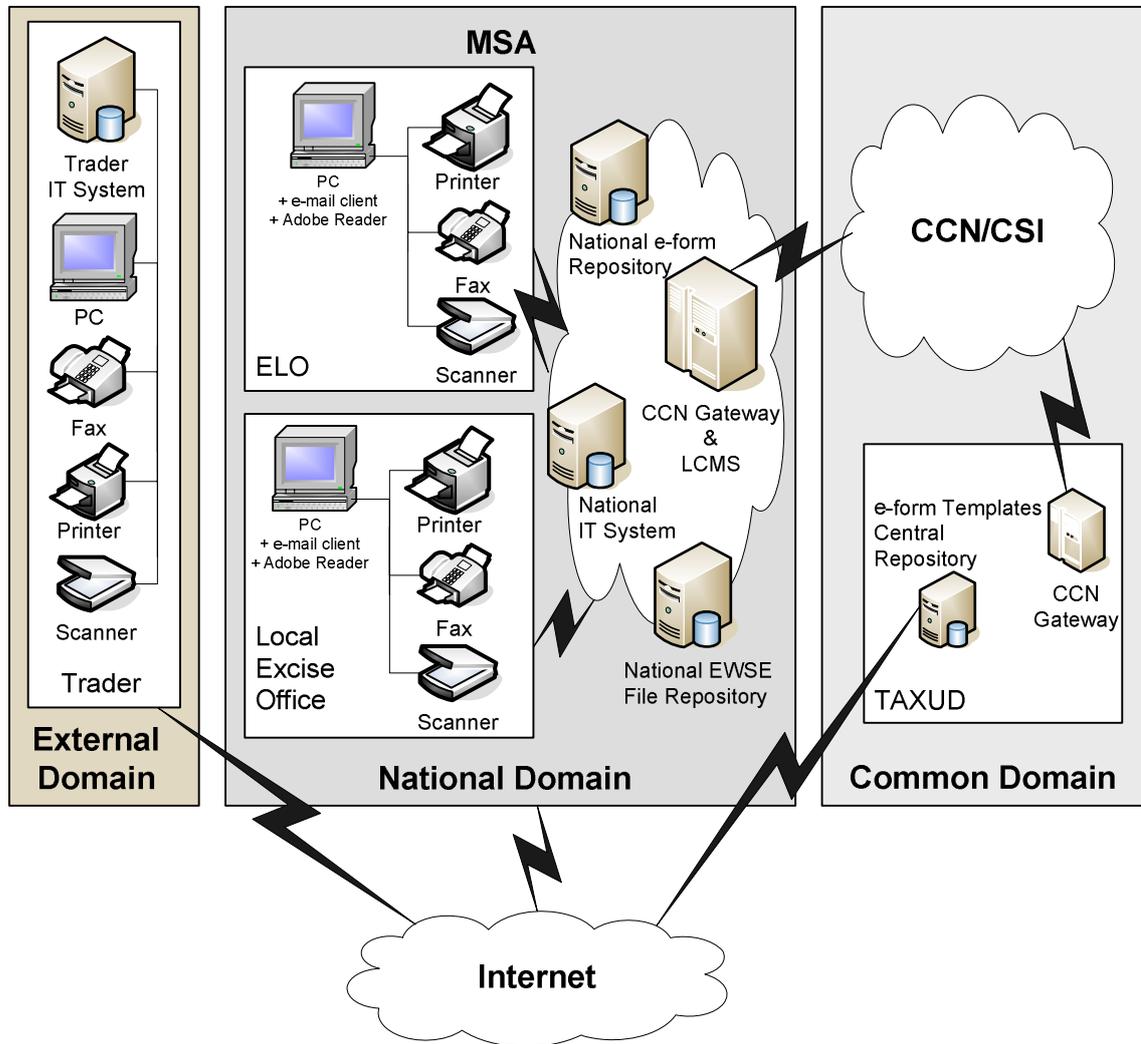


Figure 24 - EWSE Architecture Overview

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.15 GTT

Generic Test Tool

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Centralised Systems
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed Application
MODE OF OPERATION	Centrally Operated
USED BY	ITSM
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

Generic Test Tool is a tool intended to be the basis of new test tools for various application domains and application protocols for the exchange of structured messages, i.e. XML.

The core principle is that the GTT is a basic platform that offers the bulk of services needed to perform a set of tests. Specific test applications will be developed for the different application domains that may add to the functionality provided by the GTT.

Plug-ins are currently available for:

- Taxation of Savings;
- Exchange of Forms;
- Vat Refund Module.

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### Network Diagram

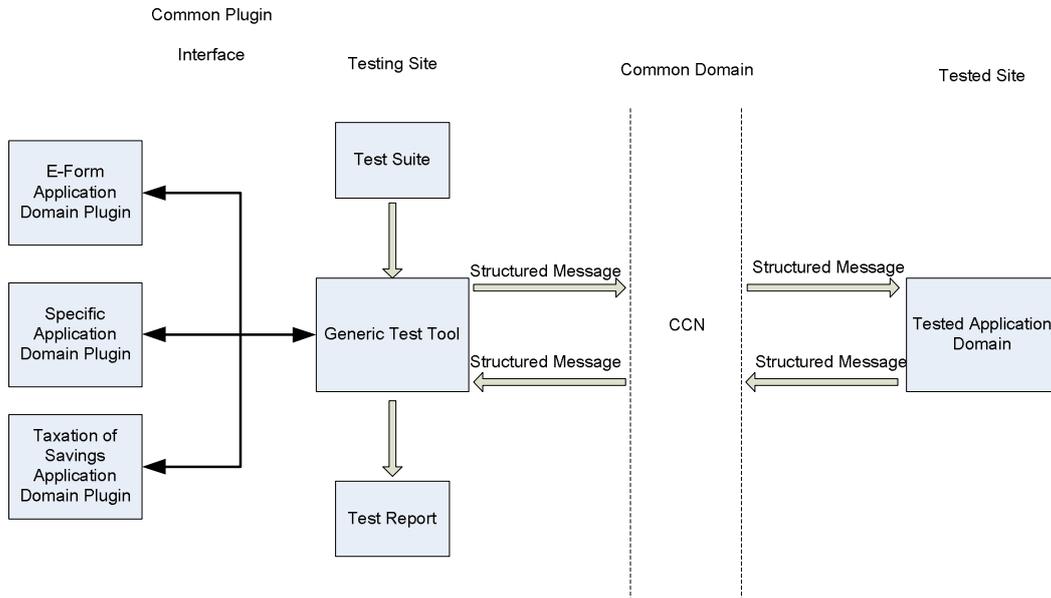


Figure 25– Generic Test Tool

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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## 5.1.16 GWS

GWS Generic Web Service

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	Public
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

The generic web service invocation exchange scenarios allows the member states to test their ability to connect the web service infrastructure of the Commission.

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Network Diagram

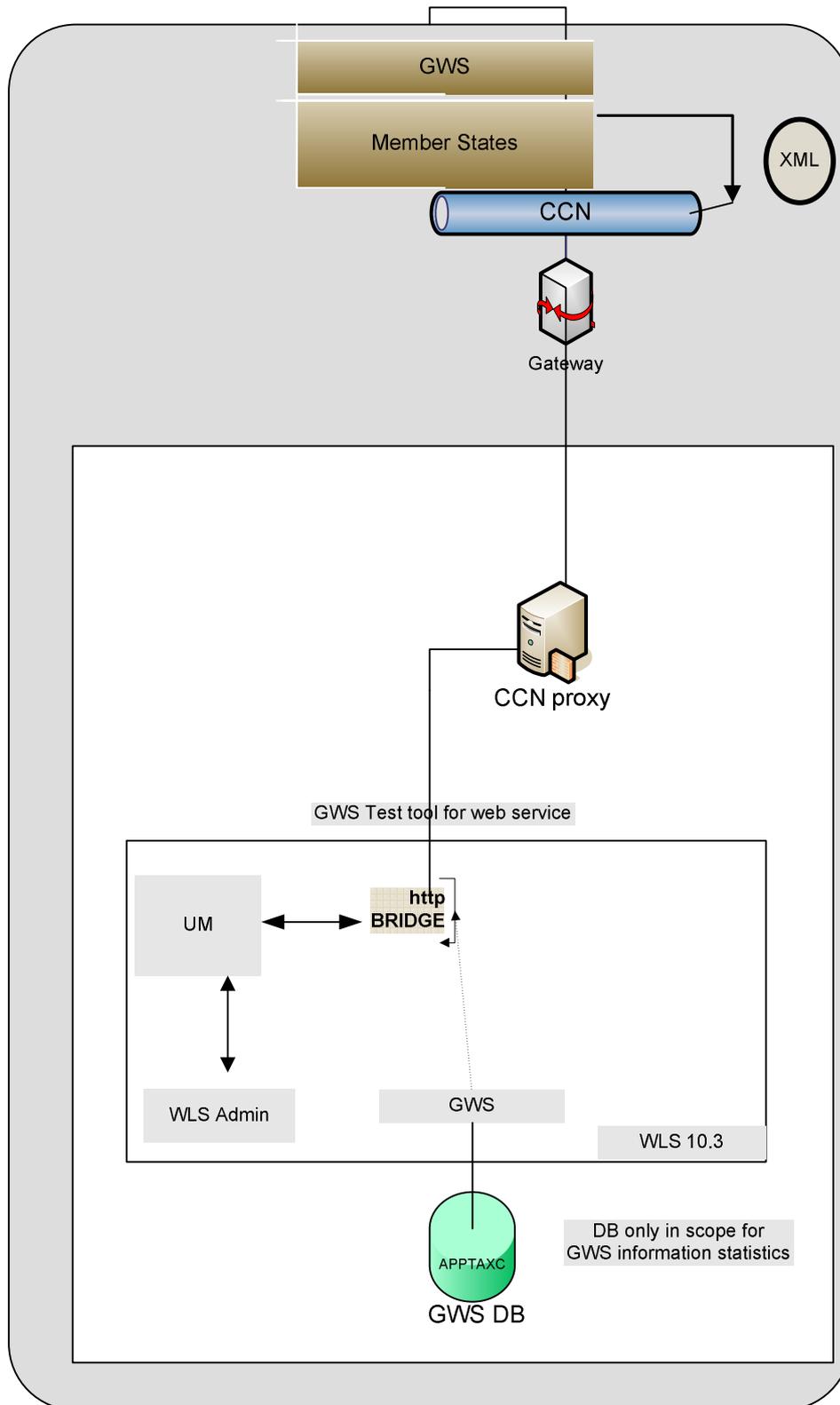


Figure 26 - GWS

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### 5.1.17 HTTP CCN Bridge

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	CCN
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The HTTP Internet Bridge is a dedicated application deployed in the WebLogic domain. Like the HTTP CCN Bridge it is a nexus in the chain of user authentication over the Internet. In other words it finishes the work started by the HTTP CCN Bridge. It adds an authentication key to the user session and forwards to an URL which gives the user access to a specific application.

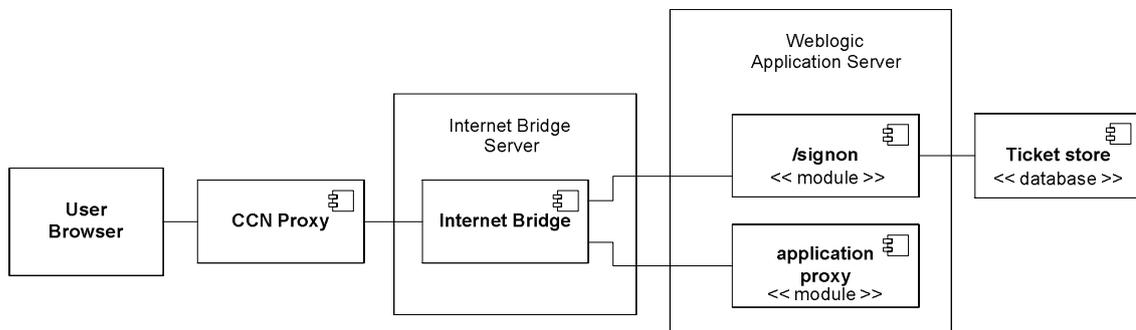


Figure 27 - HTTP CCN Bridge

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Network Diagram

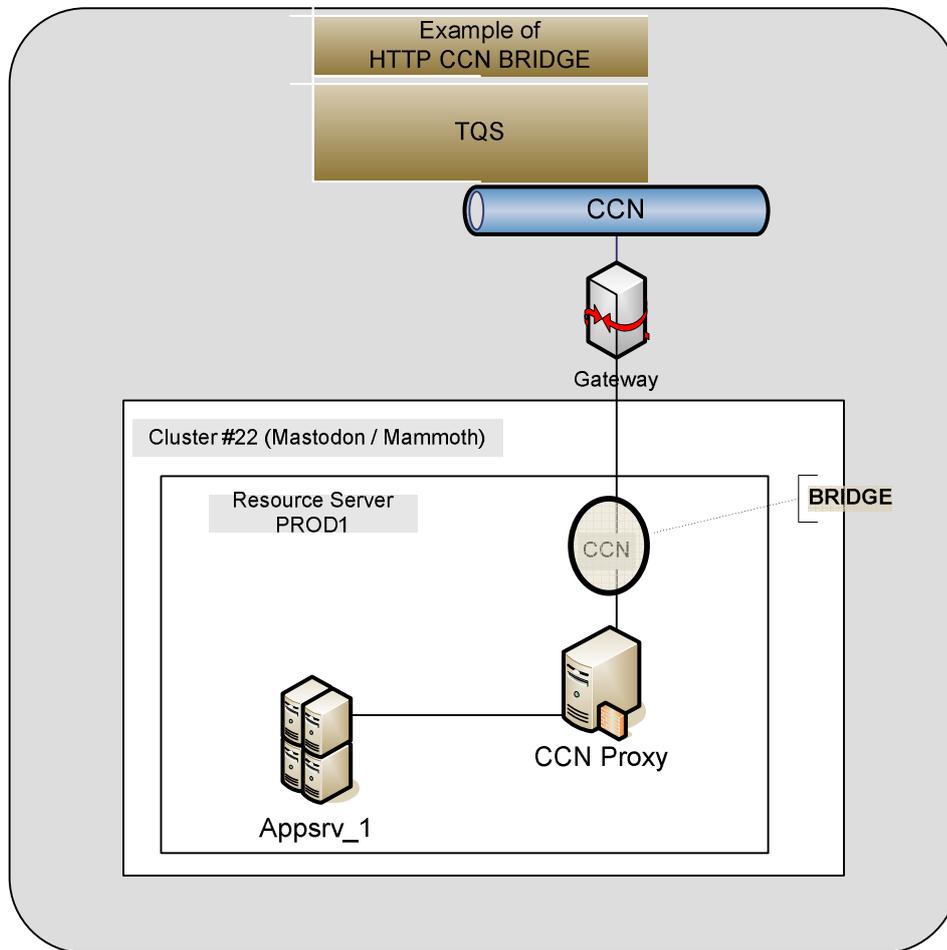


Figure 28 – Example of HTTP CCN Bridge

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### 5.1.18 HTTP Bridge

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	CCN
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The HTTP Bridge is a dedicated application deployed in the WebLogic domain. Like the HTTP CCN Bridge it is a nexus in the chain of user authentication over the Internet. In other words it finishes the work started by the HTTP CCN Bridge. It adds an authentication key to the user session and forwards to an URL which gives the user access to a specific application.

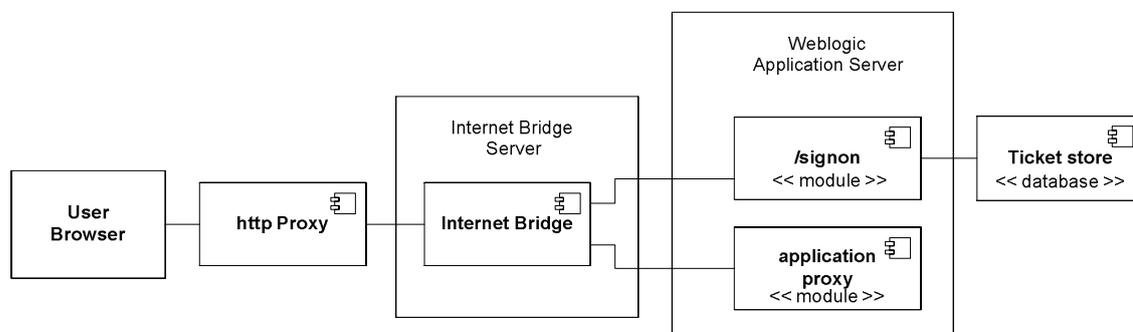


Figure 29 - HTTP Bridge

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Network Diagram

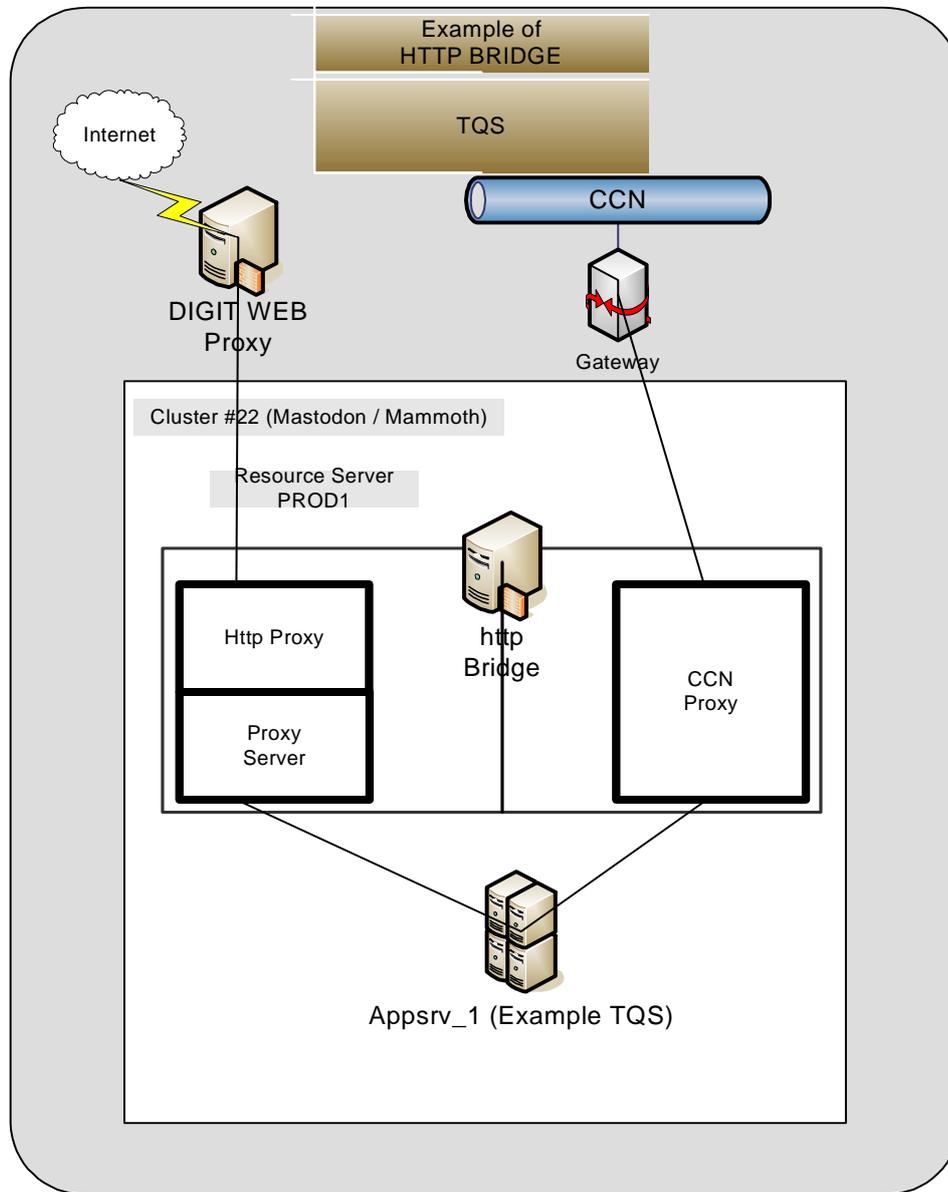


Figure 30  
- Example of HTTP Bridge (TQS)

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rd System for Processing Procedures

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	Central Domain
MODE OF DEPLOYMENT	Centrally Deployed

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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<b>MODE OF OPERATION</b>	Centrally Operated
<b>USED BY</b>	TARIFF, MSA
<b>HOSTED AT/ MANAGED BY</b>	DIGIT, DC Luxemburg

### Description

The inward processing arrangements allow Community operators to be relieved from import duties for components imported from third countries with a view to being processed in the Community and subsequently re-exported. Inward processing is categorised as a customs procedure with economic impact. Therefore the use of this regime is conditional upon granting an authorisation by the customs authorities. This authorisation contains all particulars and conditions in relation to the use of the procedure.

Main objective of the application is to manage information concerning the IPR (Inward Processing Relief) authorisations. The system facilities allow registering applications for import with a view to being processed and re-exported (inward processing) and decisions regarding granting, rejection, annulment, revocation.

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Network Diagram

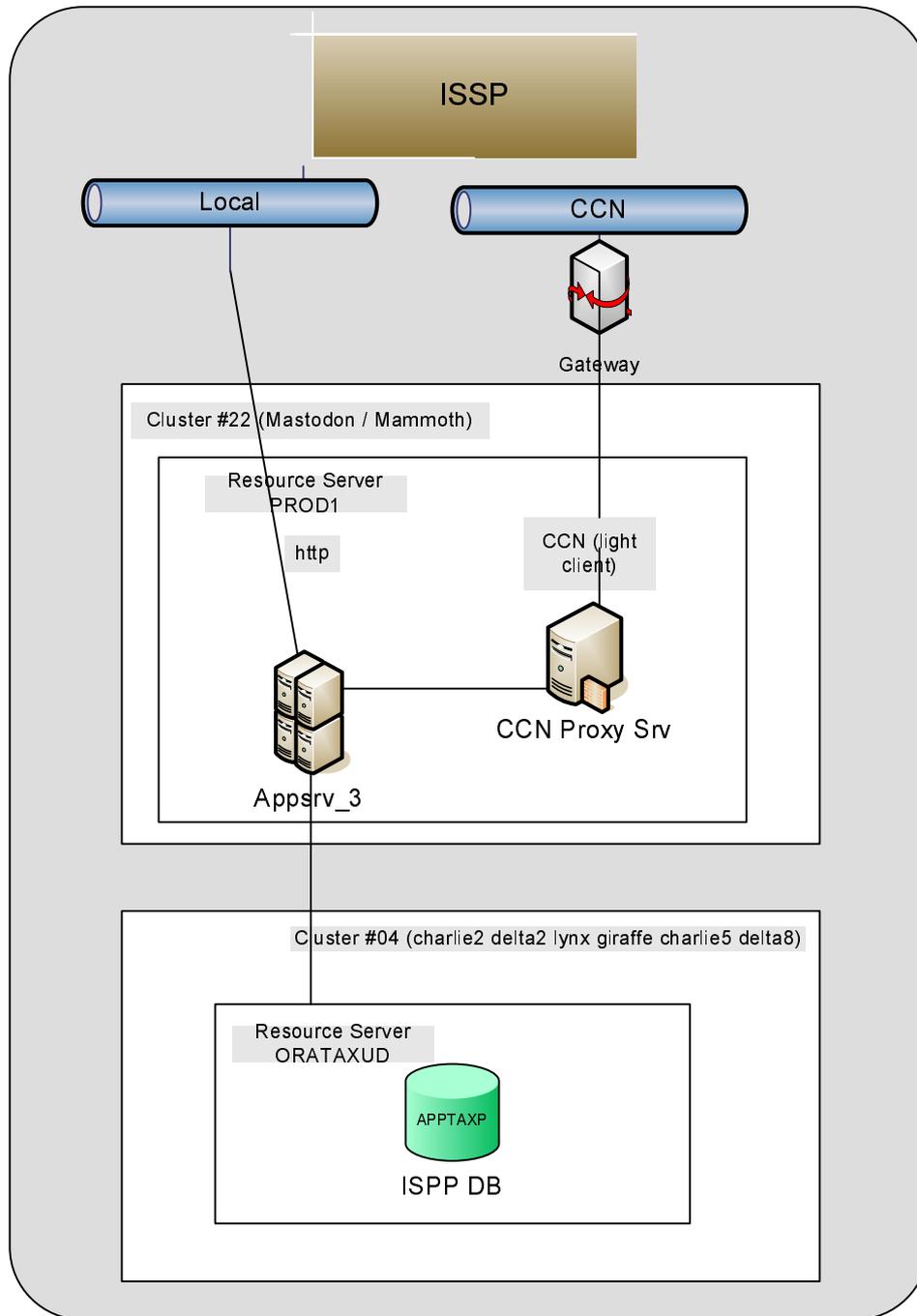


Figure 31 - ISPP

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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## 5.1.20 MVS

### Movement Verification System

<b>Classification</b>	
BUSINESS THREADS	Excise
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	National Domain
MODE OF DEPLOYMENT	Nationally Deployed
MODE OF OPERATION	Locally Operated
USED BY	Distributed Application
HOSTED AT/ MANAGED BY	Member States

#### Description

The Movement Verification System (MVS) is one of the components of administrative assistance between Member States (MS) in the excise field. MVS allows the services responsible for monitoring movements to verify individual movements of goods in the framework of duty suspension procedure. MVS is applied after goods have been consigned and involves simple exchanges of information based on specific queries for the verification of the movements. The information necessary to carry out spot checks under MVS is exchanged by means of a uniform control document.

The MVS application consists of three modules, an e-form module, a CCN Mail 2 module and an Administration module.

The e-form module covers the preparation, submission and reception of MV Request, MV Reminder and MV Deadline Report messages via the Common Domain.

The CCN Mail 2 module covers the exchange mechanism for these messages via the Common Domain, and is developed by the Commission outside the scope of this project.

The Administration module covers the creation of statistics. This module is implemented as pre-defined Excel sheets. The statistics message is transmitted either as an Excel file, or as a file in CSV format.

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Network Diagram

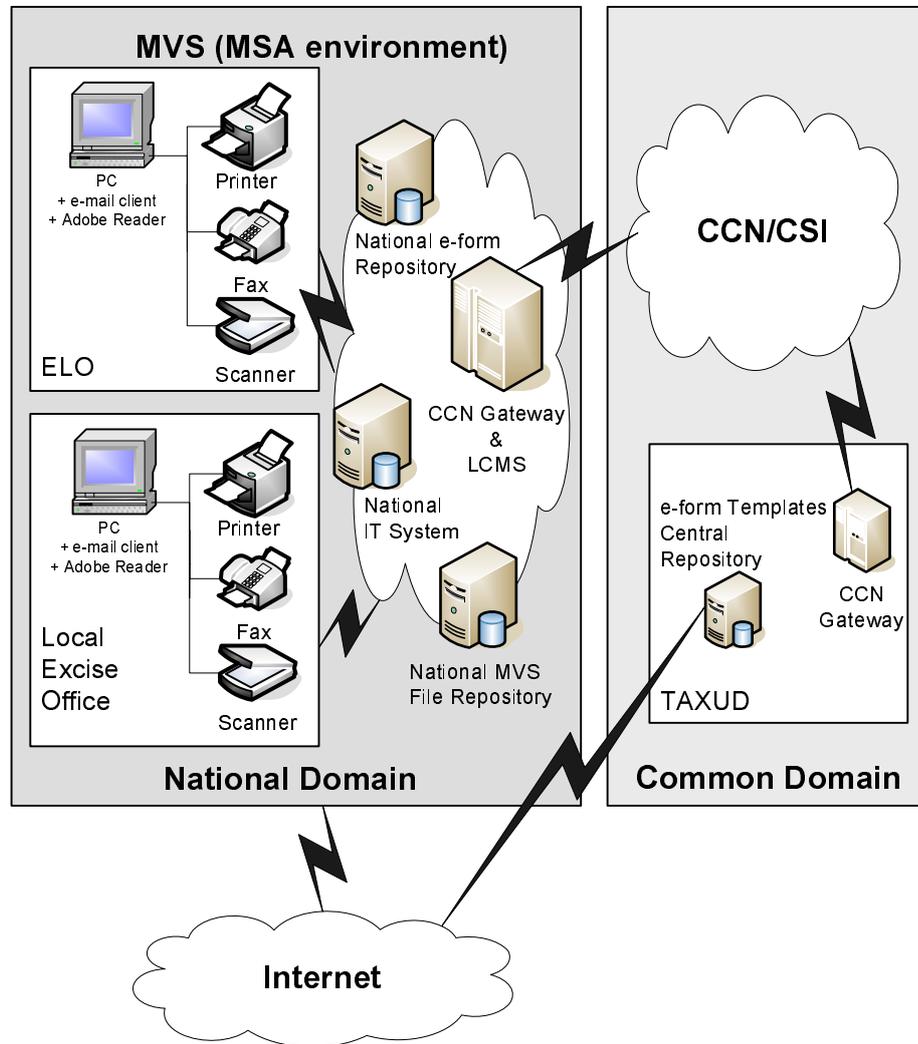


Figure 32 - MVS Architecture Overview

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### 5.1.21 QUOTA2

Traffic Quota and Surveillance

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF, DG TAXUD
HOSTED AT/ MANAGED BY	DIGIT

#### Description

The QUOTA2 application supports the daily processing of the customs declarations concerning a Economic Operators System quota. The Economic Operators System quota is any pre-set value or quantity of given goods, which may be imported during a specified period with a reduction of the normal customs duties and beyond which any additional quantity of these goods can be imported by paying normal customs duties. Importers wishing to benefit from Economic Operators System quotas must make a quota drawing request in accordance with Community and national requirements.

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Network Diagram

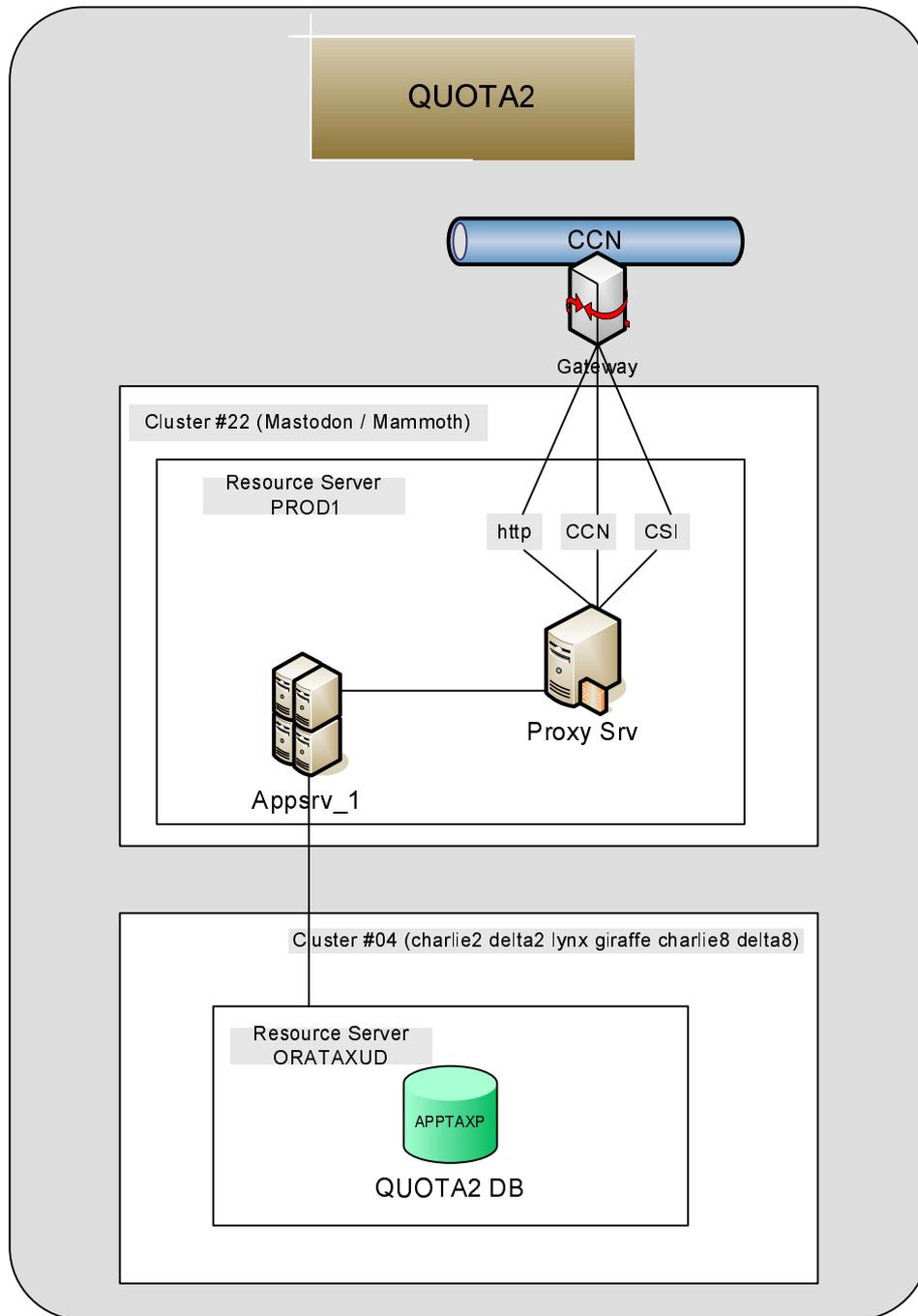


Figure 33 - QUOTA2

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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## 5.1.22 SEEDv1

System for Exchange of Excise Data

<b>Classification</b>	
BUSINESS THREADS	Excise
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System, Coordinated System, Distributed System
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	MSA – DG TAXUD
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

The SEED application (System for Exchange of Excise Data) provides the core of the SEEDv1 platform and offers services for managing, storing and consulting information on the Economic Operators register. The role of this module is to provide a scalable and efficient platform to facilitate the efficient exchange of SEED data between MSAs. The SEED focuses on offering stable persistence mechanisms and a robust communications model for exchanging information between users. In all cases, MSAs remain the owners and maintainers of any business data stored by SEED – the SEED application is the mechanism for storing and propagating information between interested parties.

Member State Administrations exchange registers of authorised warehouse keepers and registered traders, and premises authorised as tax warehouses.

The System for Exchange of Excise Data (SEED) provides the following central services:

- Consolidation of the information sent by all countries in a central repository;
- Consultation of the SEED central repository via on-line web interface;
- Extraction of the content of the SEED repository on request;
- Automatic dissemination of the content of the SEED repository whenever the data from any of the Member States has been updated;
- The uploading the lists of all Excise Offices (EOL) in all Member States into the Customs Office List (COL) and consultation of excise offices information;
- Limited access to the SEED information for economic operators, in order to perform simple verification queries.

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Network Diagram

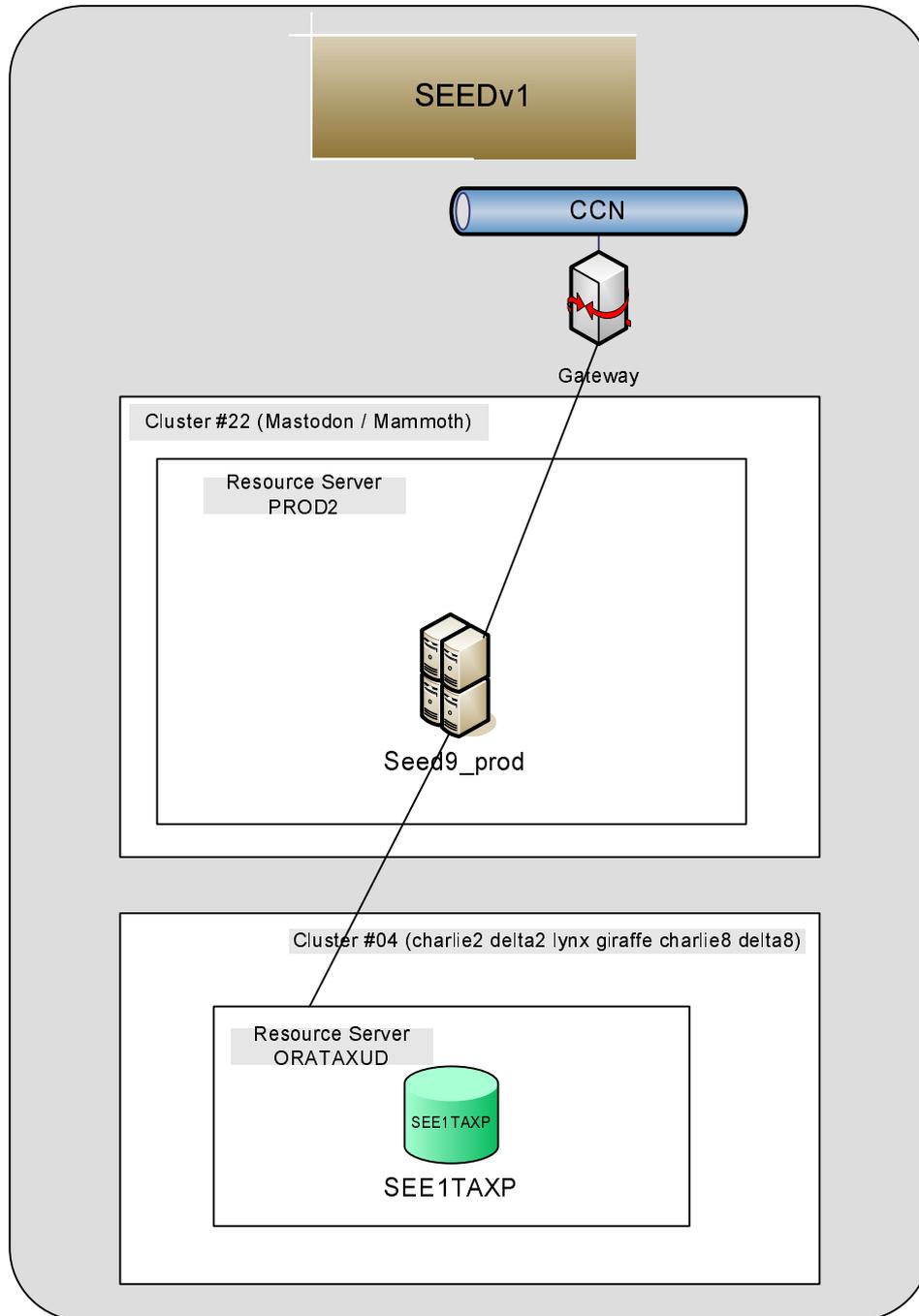


Figure 34 – SEEDv1

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### 5.1.23 SMS

#### Specimen Management System

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, Central Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The issuing bodies of the stamps, seals and certificates in the various countries must provide the Commission with the specimen information. The Commission itself provides the Member States and other co-operating countries with the specimens of stamps, seals and certificates in the context of several administrative co-operation procedures. With these they can perform probes of shipments and documents.

The purpose of the specimen management system is to disseminate specimen information quickly and accurately throughout the Community and its partner countries. Issuing bodies send their data on paper and Commission staff captured it, validates and enters information into the system. Various information about the specimen such as name, image, validity period, incident reports etc. is stored in the database. Inquiries can be performed on the information according to various criteria, both by the Commission staff and the National Administrations.

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Network Diagram

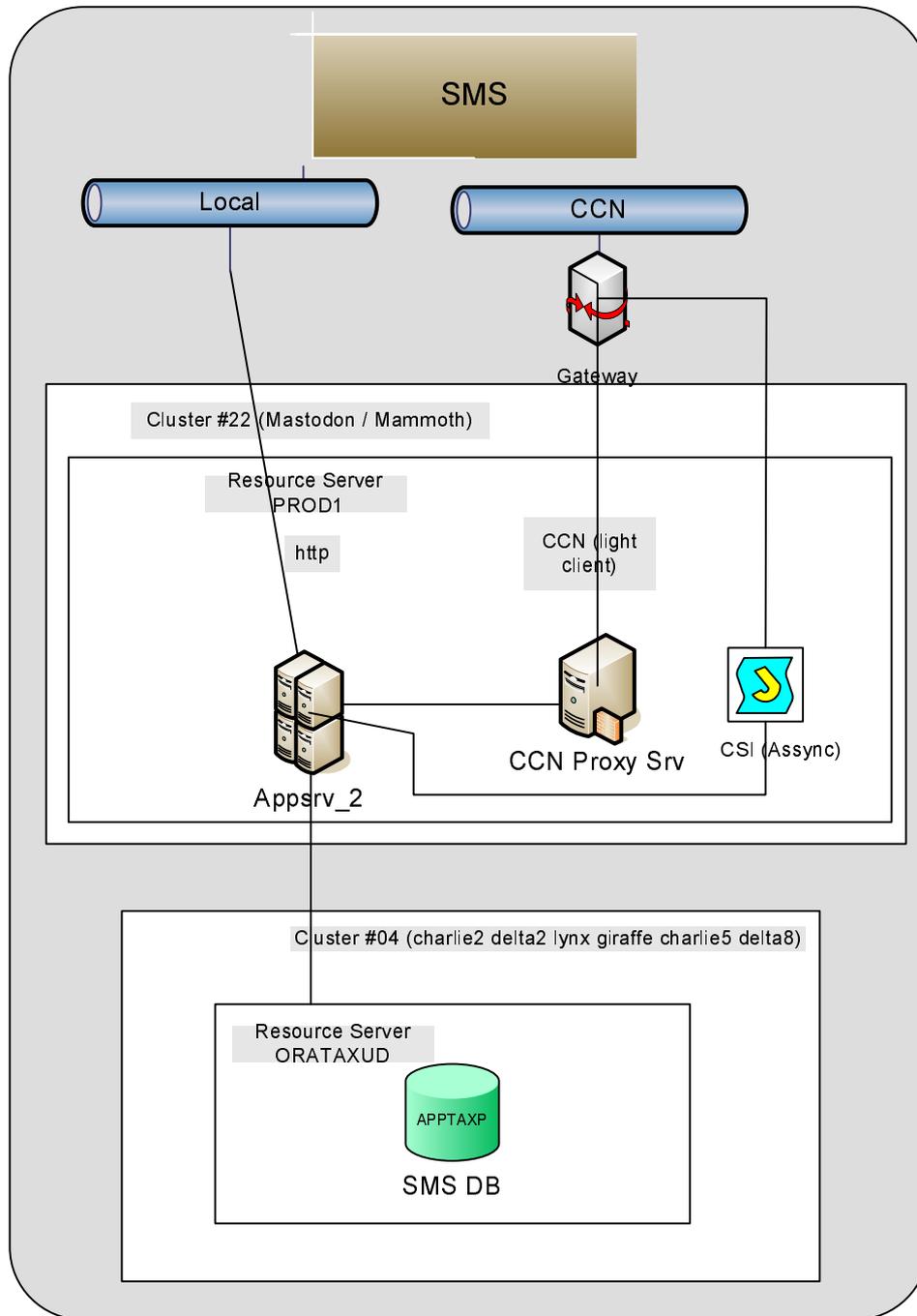


Figure 35 - SMS

DG TAXUD	REF.: ITS-IRPT-INF-SC06-005-ICT
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### 5.1.24 SPEED/ECN including SPEED BRIDGE

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	Central Domain
MODE OF DEPLOYMENT	Centrally Operated
MODE OF OPERATION	Locally Operated
USED BY	NCTS-TIR
HOSTED AT/ MANAGED BY	SPEED-ECN: XXX DC. SPEED-BRIDGE: CCN/TC

#### Description

Application designed to receive TIR movements from the Member States, translate, filter and forward the TIR messages to the destined SPEED Partner.

Single Portal for Entry or Exit of Data (SPEED) to exchange customs information with 3rd Countries (SPEED Partners).

Perform information exchanges with 3rd Countries in order:

- to perform Customs Controls in a time frame, which meets the expectations from Economic Operators;
- to alleviate the congestions at border crossing;
- to increase the safety and security in the field of movement of goods.

#### Network Diagram

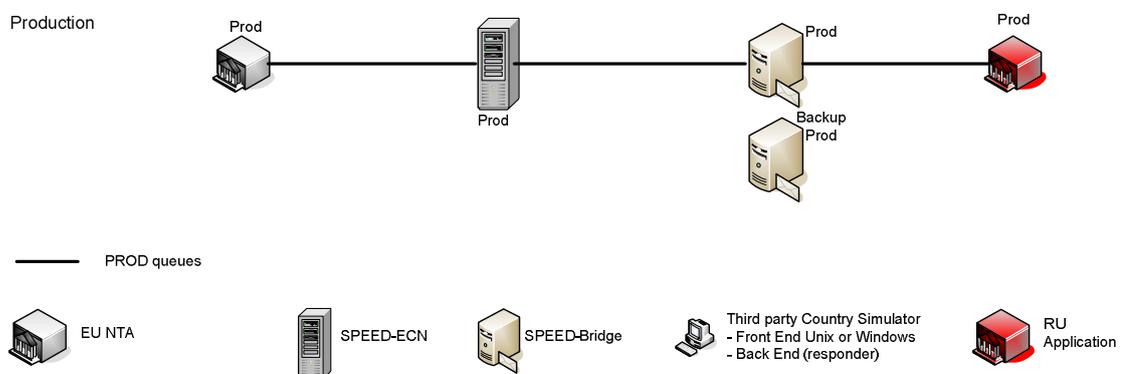


Figure 36 - SPEED -ECN

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.25 SSTA

Standard Speed Test Application

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	Central Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	NCTS, SPEED
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

SSTA offers the NA a light PC application to execute, in a cost effective manner, the mandatory National (Mode 1) Tests before applying for conformance Testing (Mode 2). Mode 1 tests assure the compliance of the NTA with the SPEED specifications for the interface with the Common Domain and the External Domain

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Network Diagram

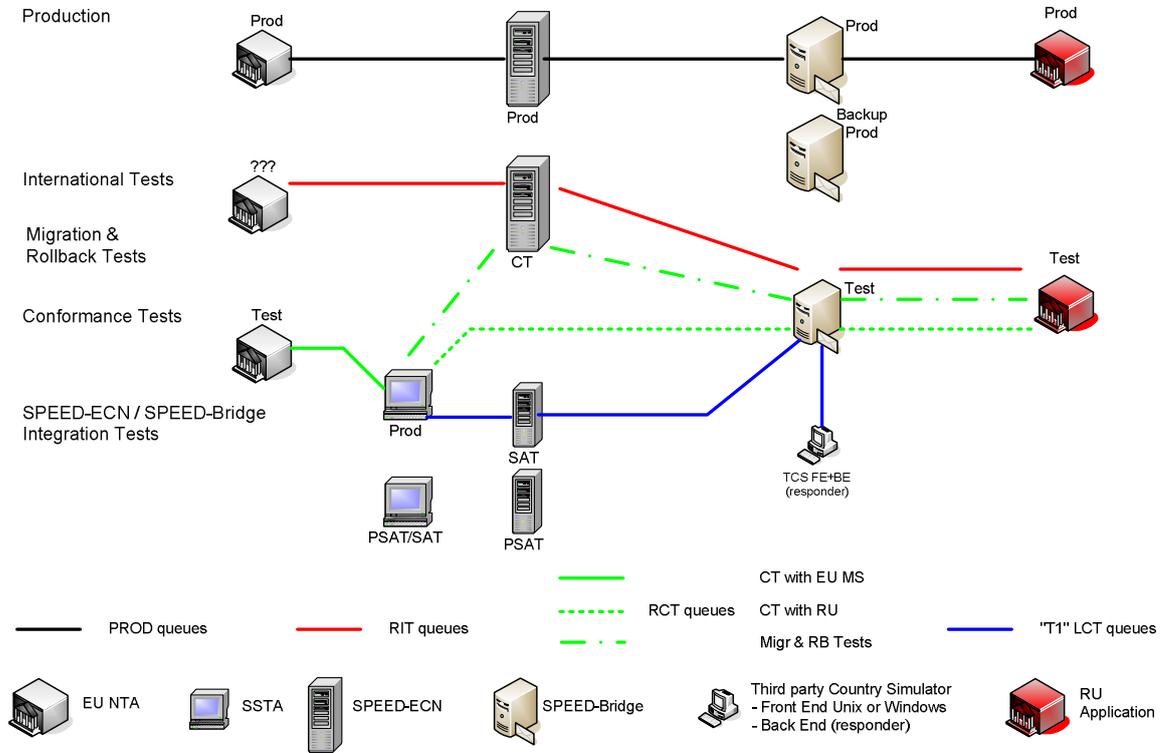


Figure 37- SPEED -ECN

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.26 STTA

Standard Transit Test Application

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	National Domain
MODE OF DEPLOYMENT	Nationally Deployed
MODE OF OPERATION	Locally Operated
USED BY	NCTS / TTA
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

Standard Transit Test Application (STTA) is one of the applications of a Centrally Developed Transit Application (CDTA) suite that has been developed to support NCTS.

The main purpose of the STTA application is the testing of the conformity of a National Customs Application (NCA) – national transit application (NTA) or national export control application (NECA) – against the specifications for the Common and External Domains. The testing of the NTA/NECA with STTA is message-oriented. The NCTS system specifications provide the definition of several types of information exchange messages (IEs) that can be exchanged between the applications during their operation.

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### Network Diagram

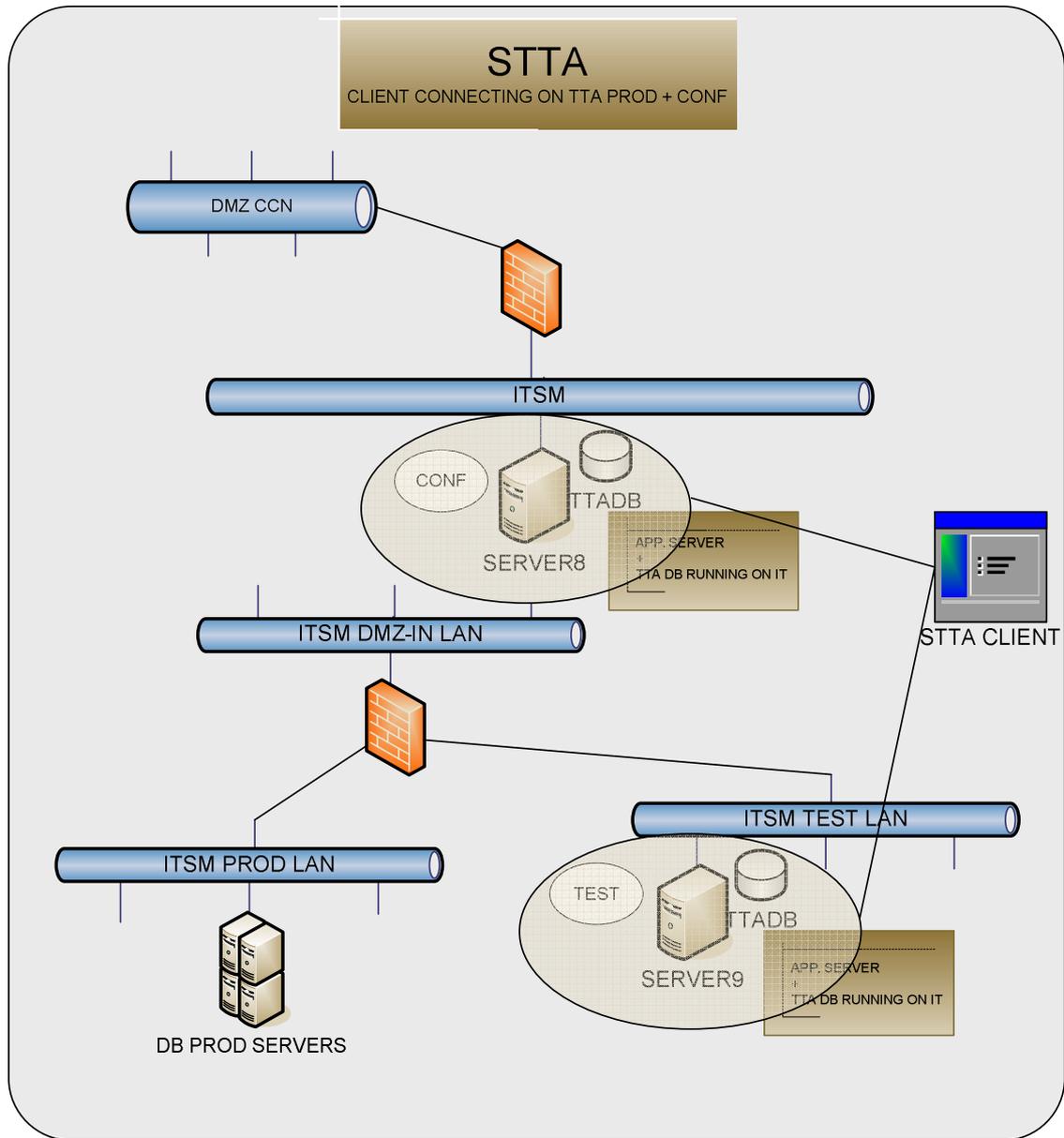


Figure 38 - STTA

STTA is only used as a Client interface and not connected with the database. Only the TTA application is connected to the database.

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### 5.1.27 SURV2

#### Surveillance 2

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	TARIFF, MSA
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The SURVEILLANCE application enables European Commission to supervise the imports and exports for particular products. The Member States are able to send directly statistical information coming from an import or export transaction after the declaration has been finalised for the goods under surveillance. SURV2 is an isolated system on the specific domain (TARIFF\_PROD2 on resource PROD1).

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Network Diagram

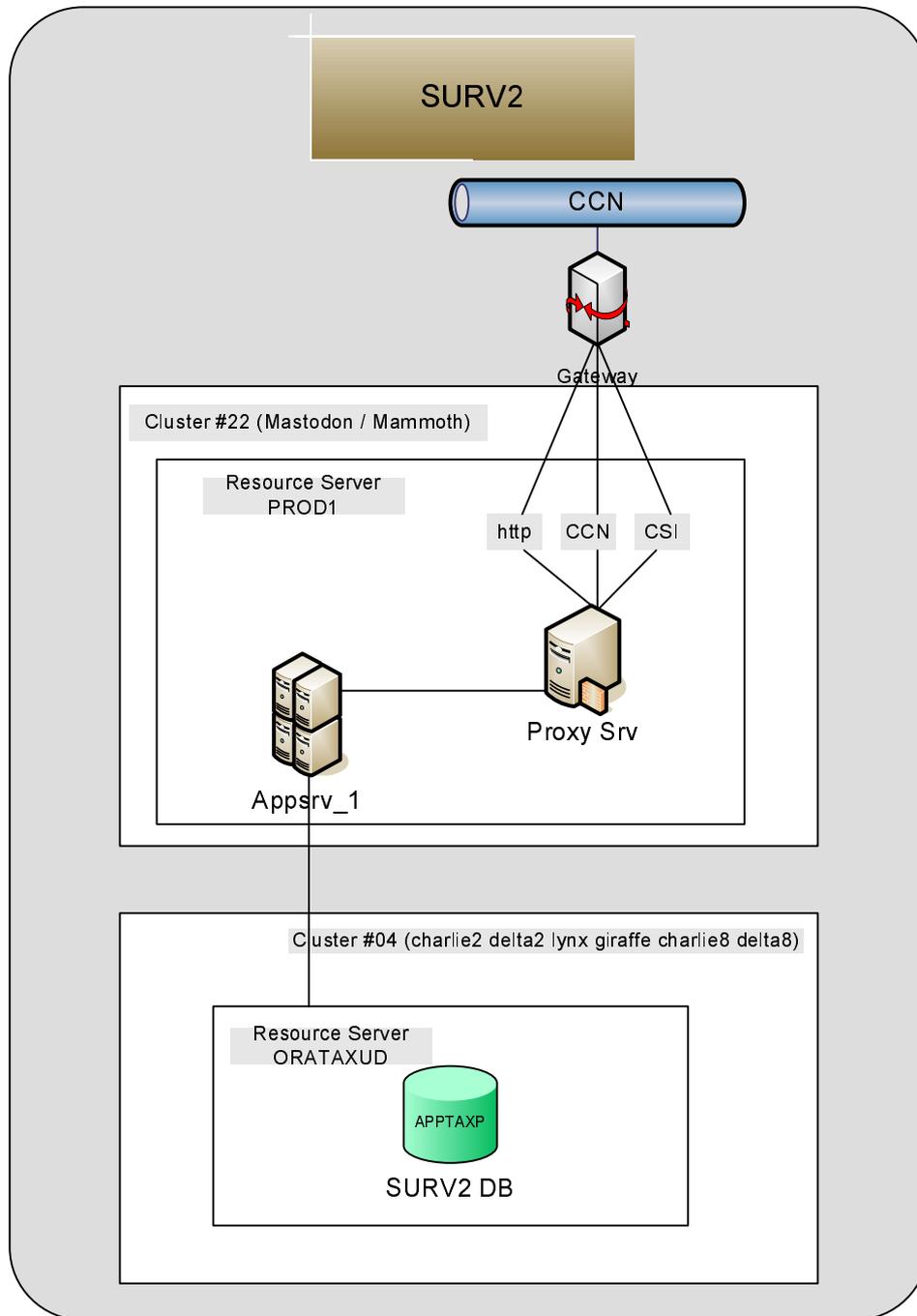


Figure 39 – SURV2

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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## 5.1.28 SUSP

### Suspensions

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	DDS, TARIC
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

The Suspensions system supports the legislative work for regulations covering the suspensions of autonomous TARIC duties and quotas for certain products. The Suspensions system facilitates the management and consultation of suspensions and provides a tool for the publication of the suspension regulation in the official journal. It also generates working documents, which are discussed with Members States administrations during the preparation of such a regulation.

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Network Diagram

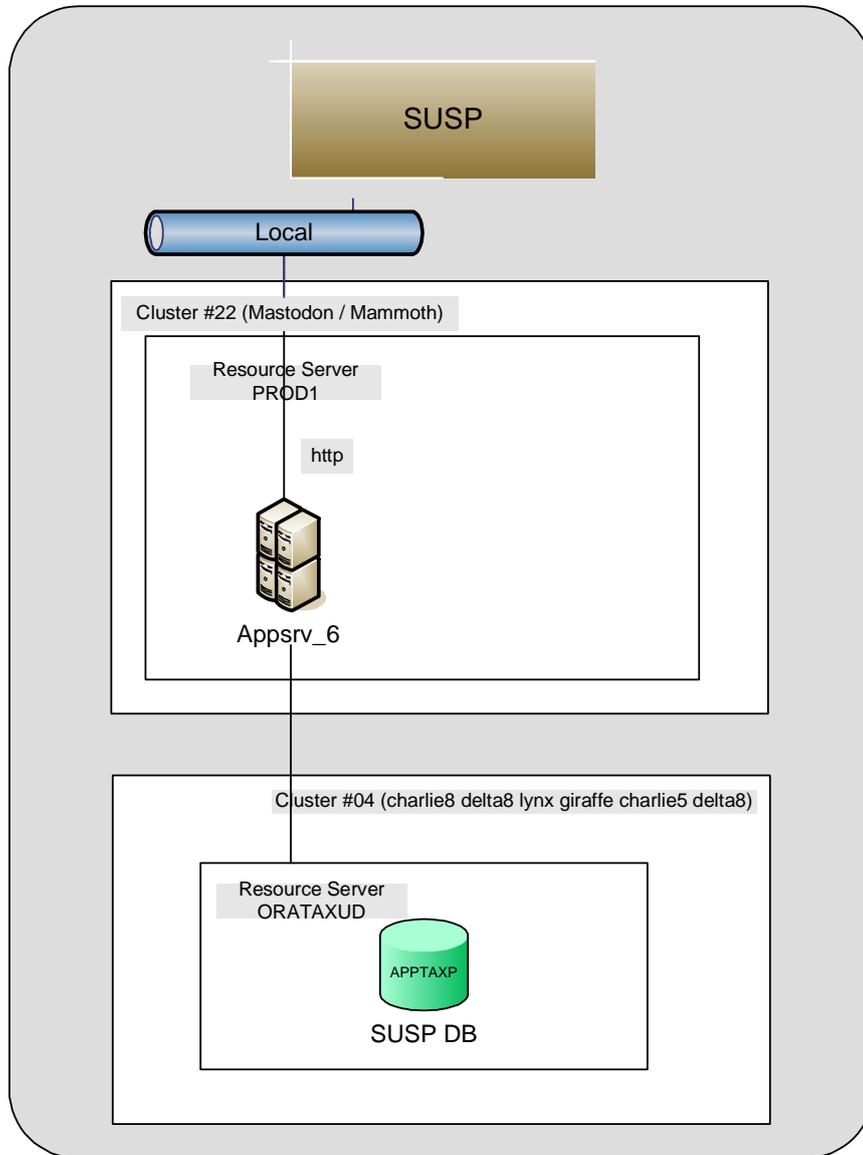


Figure 40 - SUSP

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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## 5.1.29 TA

### Testing Application

<b>Classification</b>	
BUSINESS THREADS	Excise
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Coordinated System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Deployed
USED BY	EMCS-MSA
HOSTED AT/ MANAGED BY	DIGIT

### Description

Application for testing National Excise Administration.

TA consists of two modules:

- Testing Application Core Module
- Testing Application Web Module

The TA Core Module is based on service components that describe services having related functionalities.

As depicted in *figure 42* - TA Core Module defines the following service components:

- Testing Engine component is able to read scenarios exported from CTP as well as identify and execute actions described in the Scenario Definition Language;
- Validation Service component is responsible for four validation types, as follows: syntax, semantic, field-by-field and sequence;
- Backend Service component manages access to data resources and performs message instantiation and archiving operations;
- Application Flow Control Service component provides the communication means between TA deployed in the Common Domain and NEA under test deployed in the National Domain.
- Security Service component provides authentication security services to the internal users (system administrator) and authorisation security services to the external users (MSA operators);
- Administration Data Repository stores user related information (e.g. roles);
- Application Data Repository stores data specific information for validation purposes; this repository contains also reference data related information

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such as: Trader Authorisation, Tax Warehouse, Temporary Authorisation, Excise Offices List and Business Codelists;

- Metadata Repository stores specific information such as IE templates.

The TA Web Module is based on three-tier software architecture. See figure 43 who shows a simplified view of this architecture:

### Network Diagram

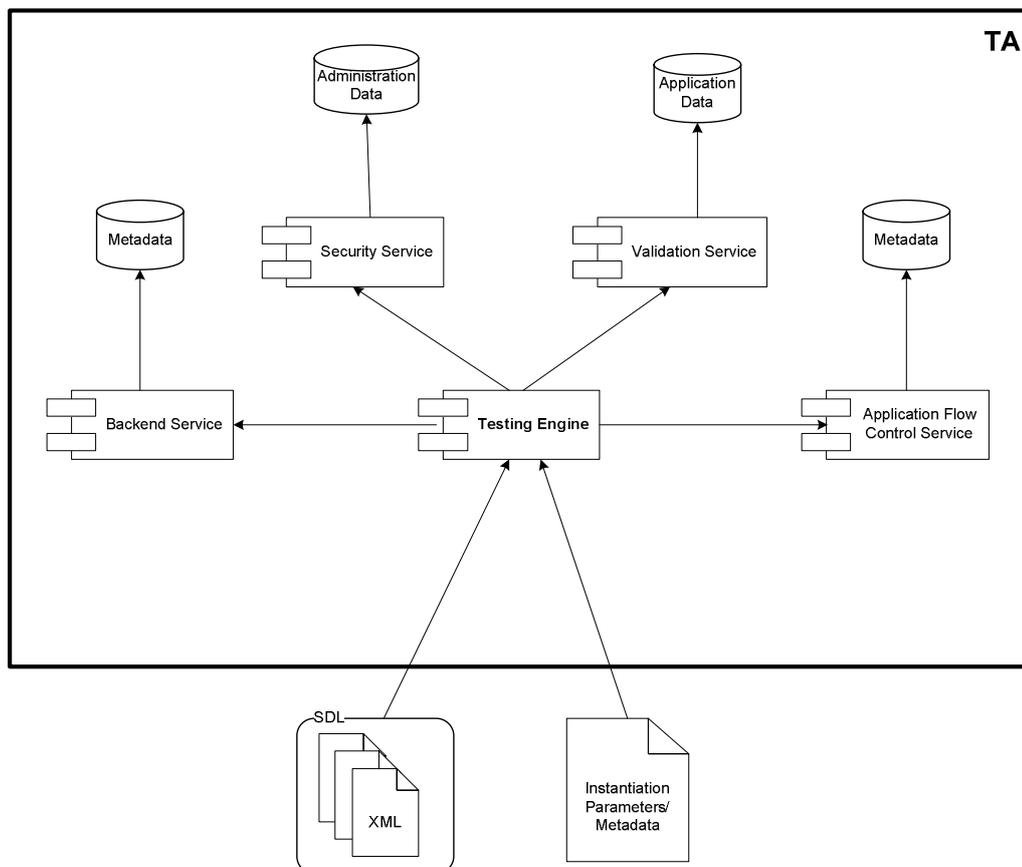


Figure 41 - TA Core Module Component Architecture View

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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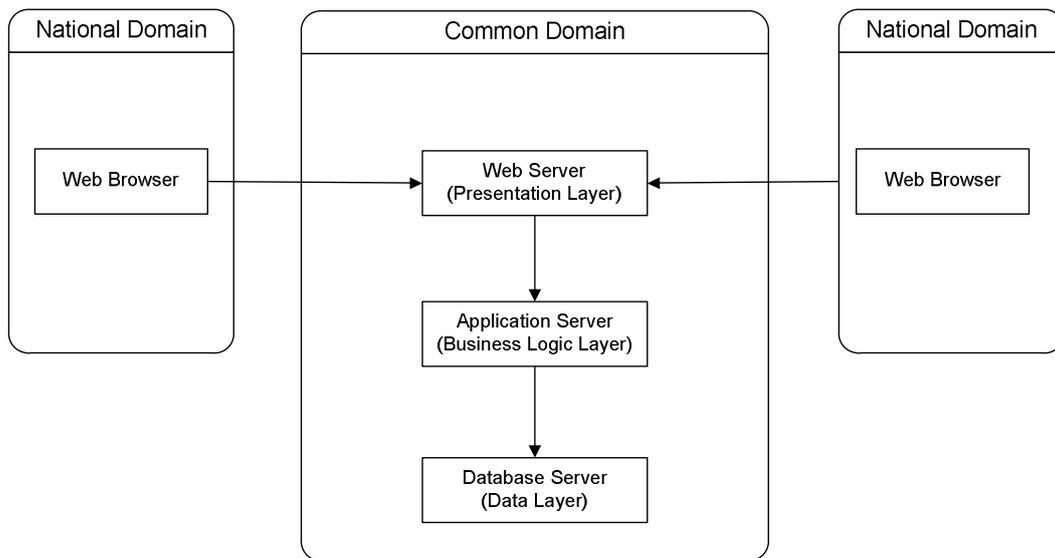


Figure 42 - TA Web Module 3-tier Architecture View

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.30 Taric2

TARIFF Intégré Communautaire (Customs Tariff)

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	DG TAXUD
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

TARIC (TARIFF Intégré Communautaire) is the integrated customs tariff of the European Community (EC). TARIC includes customs measures for the European Economic Community (EEC), the European Atomic Energy Community (EURATOM), and the European Coal and Steel Community (ECSC), and a supporting goods classification maintained in all Community languages. Most of the TARIC measures are tariff or non-tariff customs measures to support the import of goods.

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Network Diagram

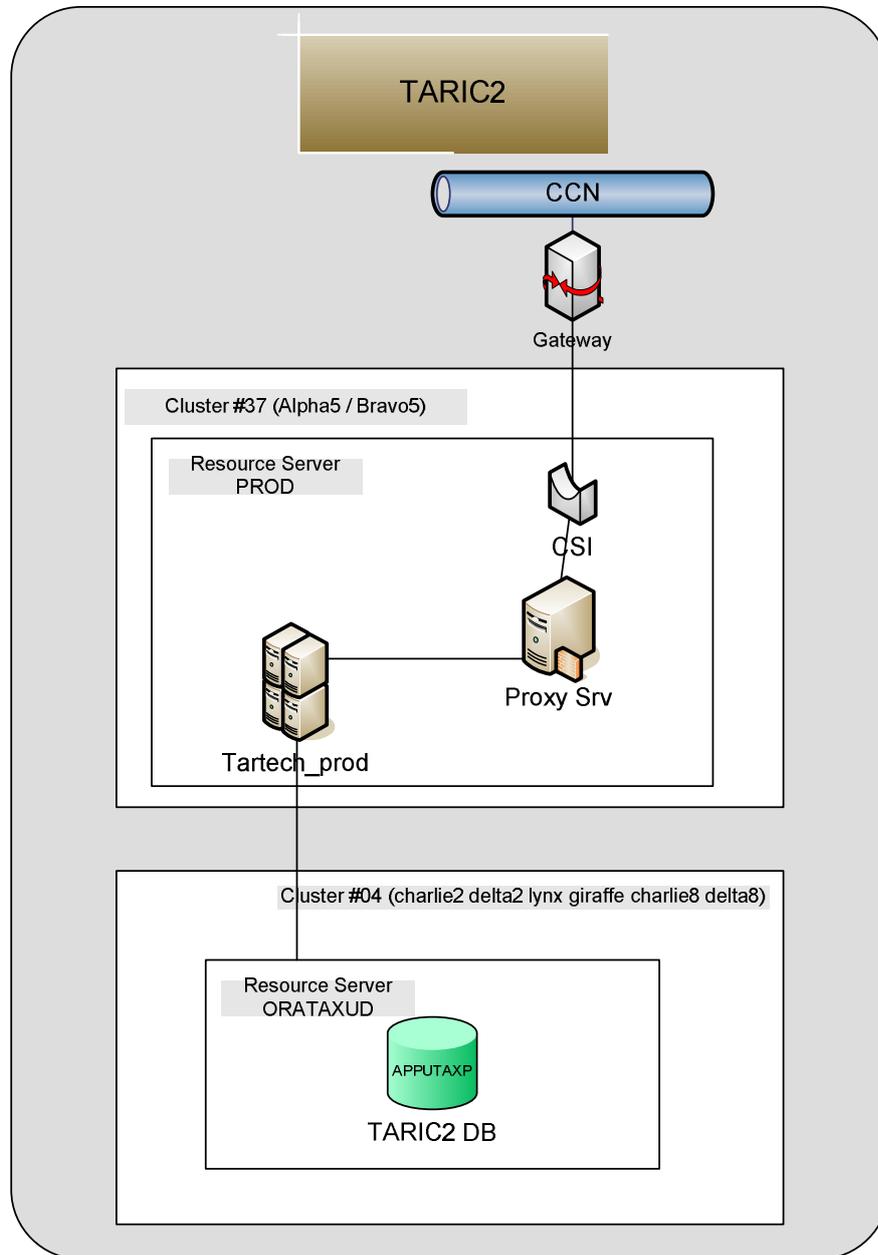


Figure 43 – TARIC2

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.31 TARREP

#### Taric Report

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	DG TAXUD
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

Taric reports application replaces and expands the reporting capabilities provided originally by TARIC application.

The application allows the reporting of some data related to control reports (used for controlling/verification of the manual/automatic data capturing), information reports (for listing of the captured data), and management report (used for reporting of the communication with Member States).

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Network Diagram

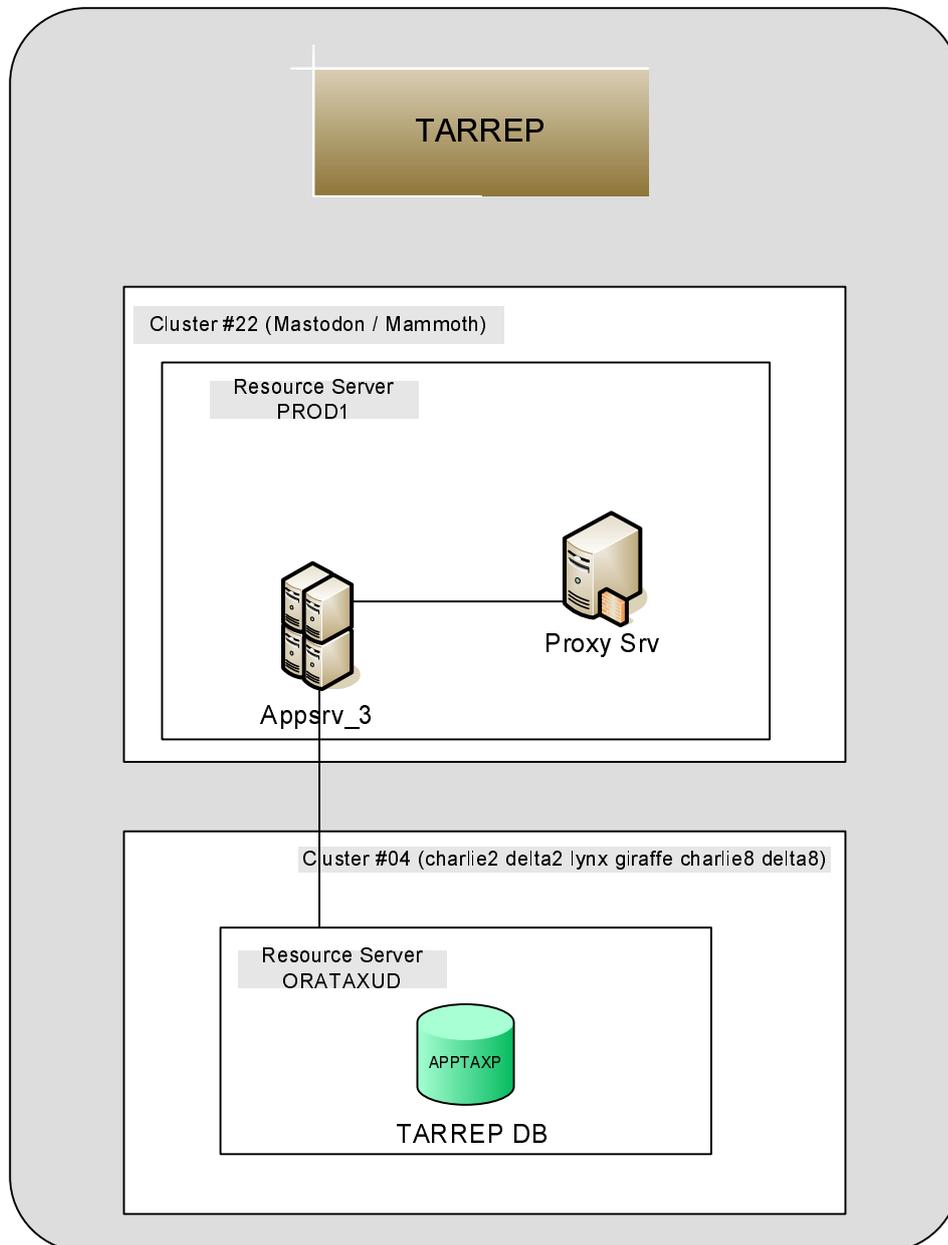


Figure 44 - TARREP

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.32 Taxes in Europe Database

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Coordinated Systems
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Deployed Application
USED BY	MSA, DG TAXUD, Public
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The “Tax in Europe Database (TEDB)” system provides the following functionalities:

- To provide citizens, Member States, companies and any other institution or individual with access to the information in the Inventory of Taxes available on the Europa web site, and to allow them to navigate, browse and search this information through the different documents;
- To ease the process of production and publication for DG TAXUD.

The information managed in the Tax in Europe Database (TEDB) is mainly a set of tax forms each describing a tax in a Member State. The Tax forms are filled in by the Member States and sent to DG TAXUD for verification and publication on the Europa web site.

#### Network Diagram

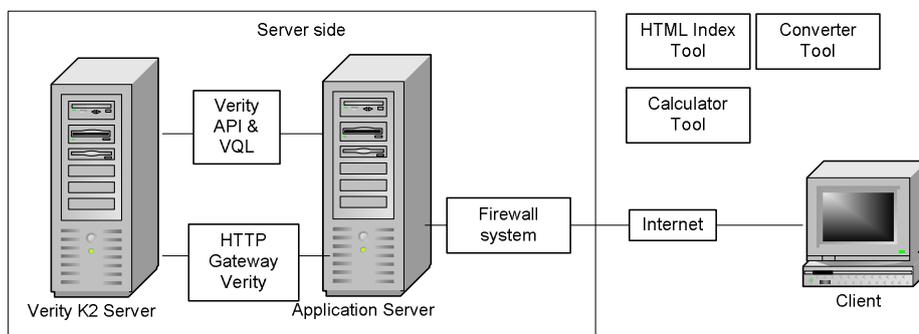


Figure 45 – Taxes in Europe

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### 5.1.33 Taxation of Savings

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Coordinated Systems
DOMAINS OF RESPONSIBILITY	National Domain Common Domain
MODE OF DEPLOYMENT	Nationally Deployed Application
MODE OF OPERATION	Commonly Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	Member States

#### Description

For the Taxation of Savings application DG TAXUD provides only proposal of high level application architecture. Leaving implementation decisions up to concerned Member State the DG TAXUD defines a list of non-functional requirements that national applications should met.

According to principles established by the European Union, in the situation when the interests are paid by an entity in one Member State of European Union and a recipient of interest payments is resident of another Member State of European Union, then process of taxation of those interests falls under the authority of the second. Meaning that tax return forms should be submitted in the Member State of Relevant Interest Recipient and also there taxes on interests should be paid. Also withheld taxes should be transferred from other Member States to the Member State of Relevant Interest Recipient. Therefore it is necessary to ensure a flow of relevant information between all Member States and the Taxation of Savings System provides such functionality.

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### Network Diagram

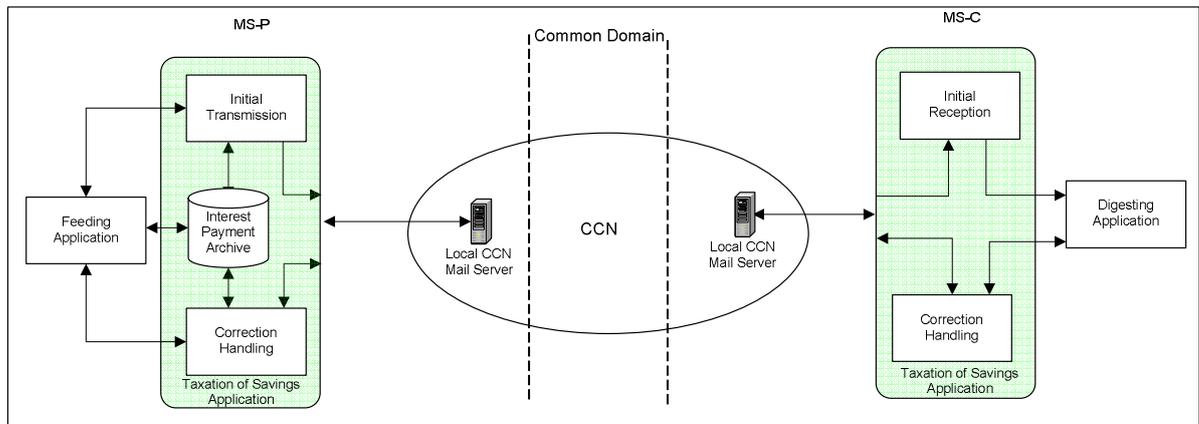


Figure 46 – Taxation of Savings

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.34 TTA

#### Transit Test Application

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process, Coordinated Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	Testing services for NCTS, ICS, ECS and Distributed Application
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

Transit Test Application (TTA) is one of the applications of a Centrally Developed Transit Application (CDTA) suite that has been developed to support NCTS.

The main purpose of the application is verifying the technical conformance of a “national customs application” (NCA) – national transit application (NTA) or national export control application (NECA) – national import control application (NICA) against the NCTS specifications for the Common Domains. The test of the NTA/NECA/NICA focuses on the IE’s that an NTA/NECA/NICA may exchange with a counterpart NTA/NECA/NICA over the Common Domain. The purpose of the testing is to verify that the candidate NTA/NECA/NICA must be able to properly generate and/or respond to the functional IEs.

The TTA is used to execute pre-defined scenarios with pre-defined roles and test data in order to verify the messages per role against the expected outcome using an automated mechanism. The TTA provides the NTA/NECA a remote console that allows the TTA operator to setup, execute, and monitor the execution of test scenarios, as well as view logs on the execution. Furthermore, the TTA is able to play multiple roles of Customs Offices in one instance applicable.

A client interface STTA is connected to the TTA application, in order to test the conformity of a National Transit Application (NTA), National Export Control Application (NECA) and National import control application (NICA).

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Network Diagram

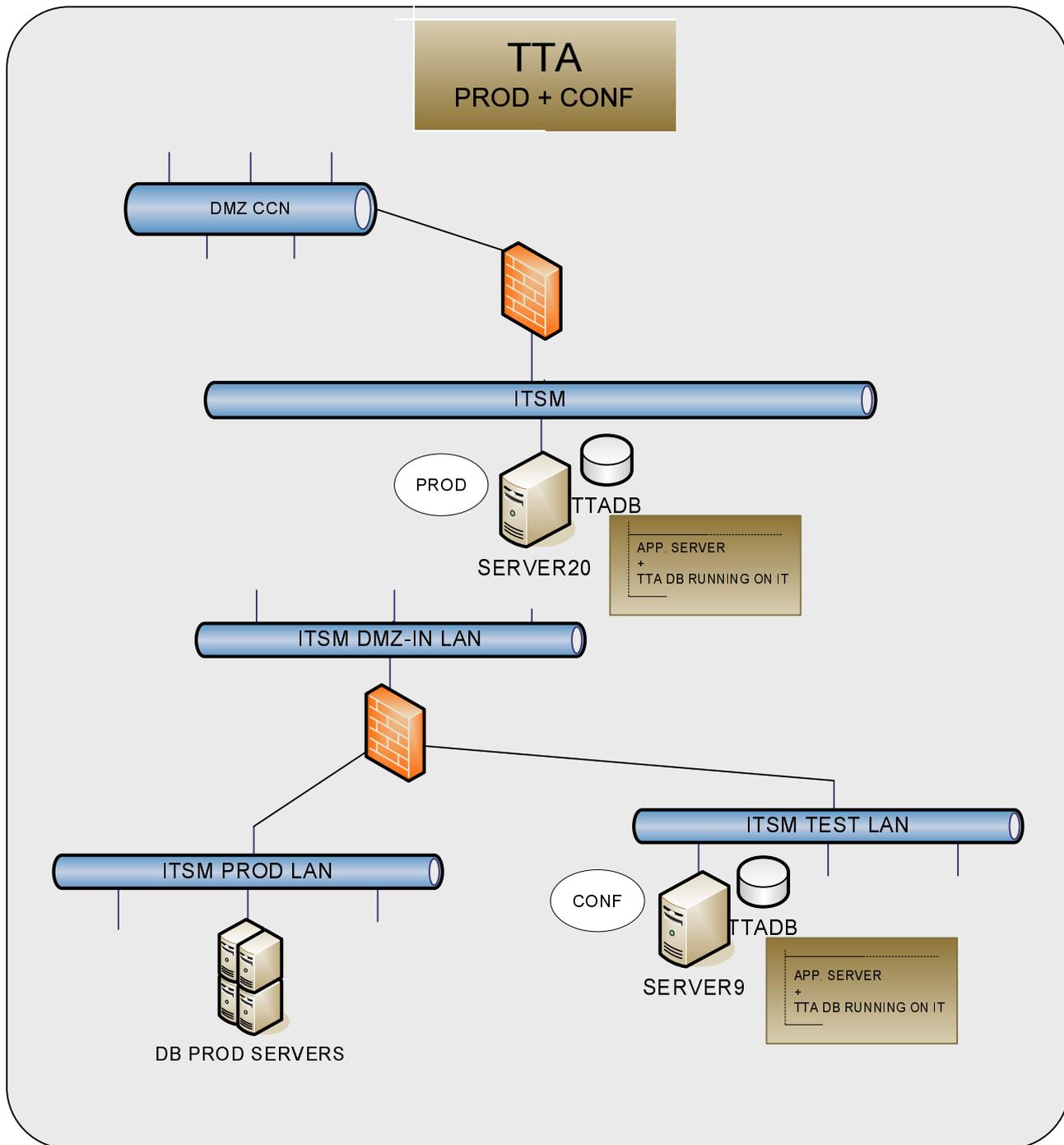


Figure 47 – TTA

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.35 UM

#### User Management

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised
ARCHITECTURAL MODELS	Centralised
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally deployed
MODE OF OPERATION	Centrally deployed
USED BY	AM/DG TAXUD/MSA, Weblogic Applications
HOSTED AT/ MANAGED BY	DIGIT/ AM

#### Description

The User Management Module (UM) is responsible for the management of users for a number of applications, and the security of those applications.

The User Management Module operates at the functional level. This means it encapsulates the Weblogic security infrastructure with its groups and group memberships. Individual users can be assigned the right to execute a specific business functionality defined for specific applications by associating them with the security policy of that functionality. The User Management Module will translate this in order to allow the Weblogic Server Security Infrastructure to take care of the authorization. Specifically, using a mapping between the business functionality and the Weblogic groups, the system will add the user as a member to the mapped Weblogic Server groups. Before a user can execute one of the functionalities of the application included in the business functionality, the Weblogic Server Security Infrastructure will check if the user is a member of (a combination of) the mapped groups, and allow the execution only if that check is successful.

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Network Diagram

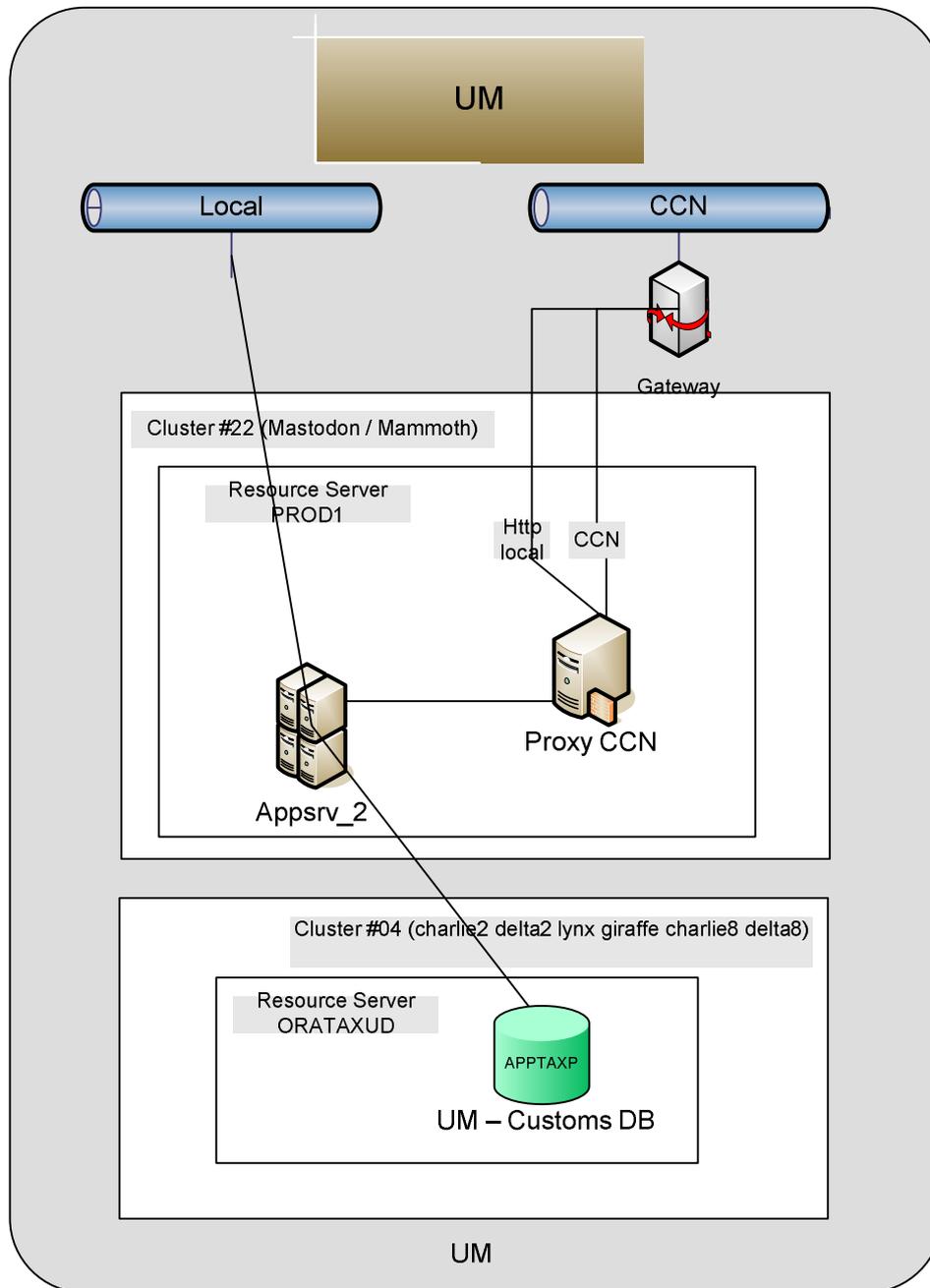


Figure 48 – UM

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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### 5.1.36 VAT REFUND

#### VAT Refund Module

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Coordinated system
DOMAINS OF RESPONSIBILITY	National Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	ITSM

#### Description

The paper VAT Refund procedure for reimbursement of VAT incurred by EU taxable persons in Member States where they are not established has been replaced as of January 2010 by a new fully electronic procedure, thereby ensuring a quicker refund. More specifically, the new procedure covers the special case where trader registered in a given Member State wants to be refunded of VAT gathered in another Member State. This new procedure tries to simplify the recovering process by allowing the involved traders to directly issue a VAT Refund application in its Member State of establishment for VAT collected in the other Member States. Such an application is then relayed by the Member State of establishment to the involved Member State(s) of refund.

The Vat Refund fallback modules were provided to the Member States who did not implement successfully the new electronic procedure. Their use is under the sole responsibility of the Member States Administration using them.

The VAT Refund modules include:

- CCN/CSI Communication module;
- VAT Refund Application e-Form and VAT Refund Receipt e-Form;
- VAT Refund Decision Form and Decision viewer;
- NETP Notification Date module.

The CCN/CSI communication module allows VAT Refund messages to be sent to or received from other Member States via the CCN.CSI.

The VAT Refund Application form allows viewing and creating VAT Refund Application and Receipt messages.

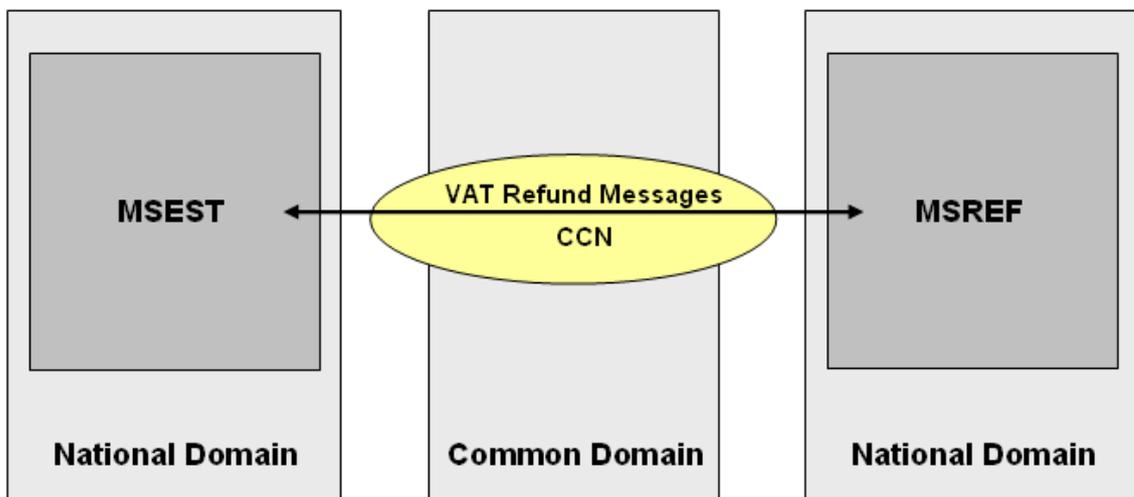
<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
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The VAT Refund Decision Viewer allows a user to create a new VAT Refund Decision from a VAT Refund Application or view an existing VAT Refund Decision.

The NETP Notification Module allows a Member State to prepare an NETP Notification message based on a received VAT Refund Receipt or VAT Refund Decision message.

### Network Diagram

Actors and domains



MEST = Member State of Establishment  
MSREF = Member State of Refund

Figure 49 – VAT Refund Module

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### 5.1.37 VIES-on-the-WEB Configuration Tool

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised Systems
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed Application
MODE OF OPERATION	Centrally Operated
USED BY	ITSM
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The objective of the VIES-on-the-Web Configuration Tool is providing a web interface for managing the VIES-on-the-Web application.

The application offers the following functionalities:

- Rights and User Managements
  - Read
  - Filters
  - Translator
  - Admin
- Reading and editing configurations files
- Reading and editing translations for VIES-on-the-Web Interactive
- Downloading logs and raw data files
- Keep an history of the modifications made using the application

The VIES-on-the-Web Configuration Tool is used to adjust parameters of the VIES-on-the-Web application in order to attain a desired level of performance and security. Also as the VIES-on-the-Web application according to the requirements is to be available in all European languages the VIES-on-the-Web Configuration Management service is exploited as a manager of translations.

The VIES-on-the-Web Configuration Tool allows managing user profiles, configuration (e.g. URL, Port, Proxy, Proxy Port, maximum number of concurrent requests), error

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mapping, translations, logging details. It also enables authenticated users to download logs and statistics as well as to view the history.

### Network Diagram

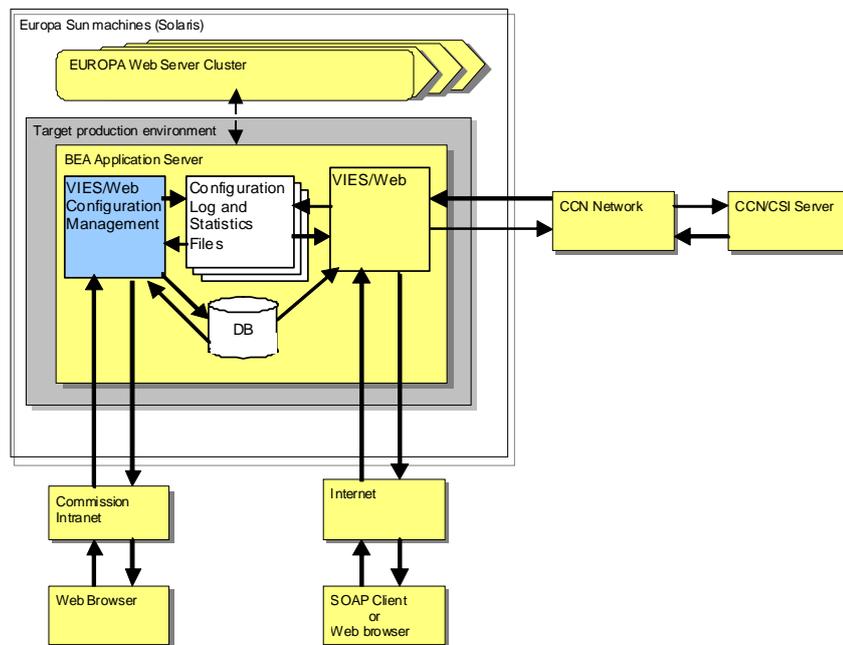


Figure 50 – VIES On-the-Web Configuration Tool

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### 5.1.38 VEF

VAT e-Forms

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Coordinated system
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, National Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	ITSM

#### Description

Electronic Forms exchanged between MS to retrieve / verify information, in the framework of the “Administrative Cooperation”

The e-form system:

- Uses XML for the forms data to allow the automatic processing of the forms;
- Provide the MS with a form implementation that will allow them to load, edit and save the form data while easing the support of the different languages;

3 Forms are concerned:

- SCAC Form 2004: Exchange of spontaneous data and information request;
- SCAC Notification Form: Notification of administrative decision to another MS;
- SCAC Missing Trader Fraud Form: Simplified form for fast exchange of information in case of suspected fraudulent transaction.

An e-form is completed by the first MSA who will, after completing their part, generate an XML document.

This XML document is sent to the other MS-B who will import it and fill out the rest of the form, depending on how the first MS-A completed their part.

This information is sent back to MS-A (also in XML format)

The XML file can only be sent through a secured mailbox (e.g. CCN-Mail2)

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

## Network Diagram

### Actors and domains

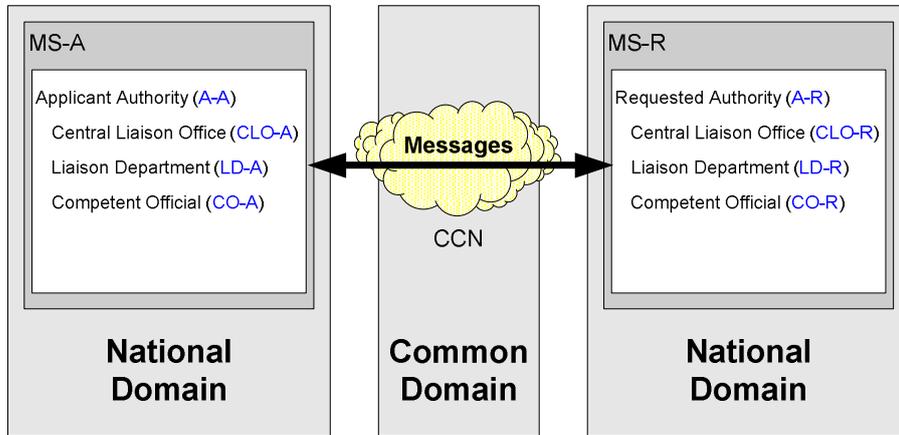


Figure 51 – VEF

DG TAXUD	REF.: ITS-IRPT-INF-SC06-005-ICT
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### 5.1.39 VIES Initial Application

Economic Operators System

Classification	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Coordinated Systems
DOMAINS OF RESPONSIBILITY	National Domain
MODE OF DEPLOYMENT	Nationally Deployed Application
MODE OF OPERATION	Locally Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	Member States

#### Description

The VIES Initial Application is made available by DG TAXUD to the National Administrations as a reference to create their own national application implementing the VIES protocol (all VIES messages).

#### Network Diagram

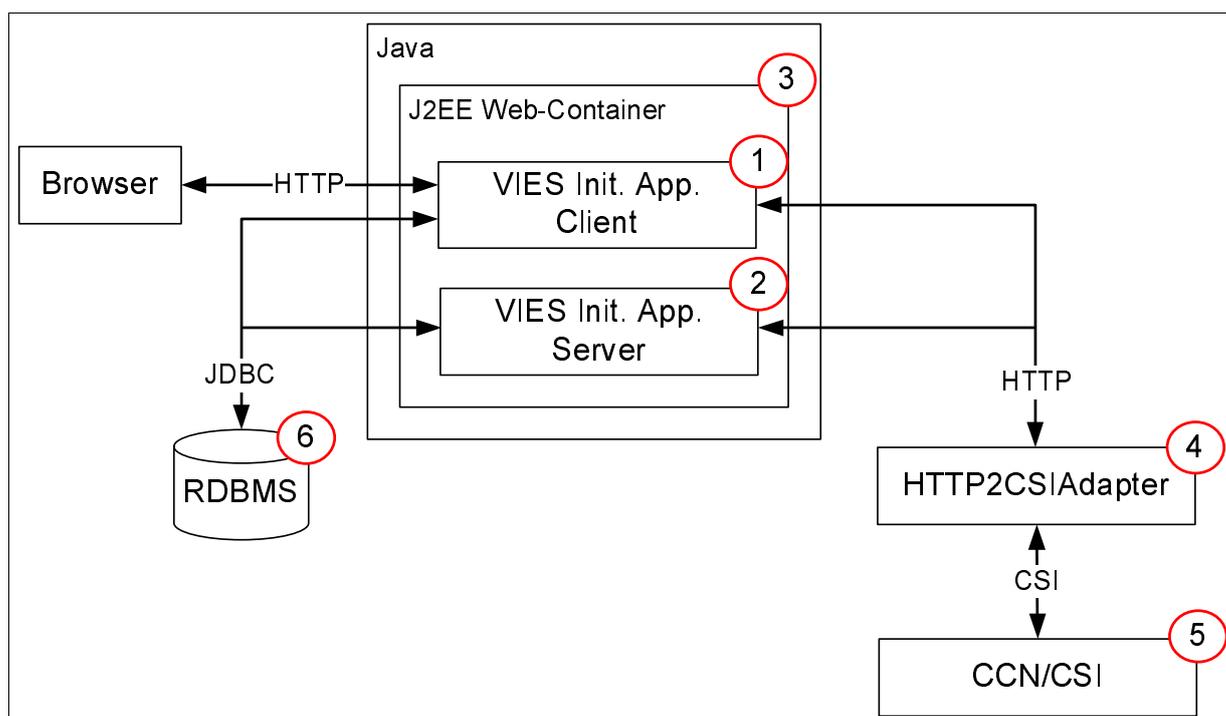


Figure 52 – VIES Initial Application

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

## 5.1.40 VIES

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Coordinated system
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, National Domain
MODE OF DEPLOYMENT	Nationally Deployed (Distributed)
MODE OF OPERATION	Locally Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	Member states

### Description

The core of VIES system (VAT Information Exchange System) constitutes national VIES applications and databases. Each Member State is obliged to maintain an electronic database which should contain the VAT identification numbers of its traders; such information would extend to the name, address and, where appropriate, the date of cessation of validity of the number. That information should be available "without delay" for tax administrations and other authorised users (e.g. EOS CDCO or VIES-on-the-WEB). This provides the facility to make an immediate check on the validity of a VAT identification number in another Member State. In addition, Member States must ensure that traders themselves are given the facility to confirm the VAT status of their intra-Community customers. The Database maintained by Member State should also enable each Member State to obtain "directly and without delay from each (other) Member State" access to information in the form of a quarterly list of the VAT identification numbers of all intra-Community purchasers in that Member State, together with the associated net total turnover value in relation to each of these VAT numbers. On request, the values given can then be further broken down into the individual amounts declared by each supplier in the Member State that collected the data. This information can then be used by the Member State receiving it to compare with the value of intra-Community acquisitions declared on the VAT periodic returns, and ultimately checked against the purchasers' accounting records.

In respect to requirements placed upon Member States, information exchanged between National VIES applications can be divided into two main categories:

- Identification data enabling a Member State to verify that a particular VAT number from another Member State is valid, or has been valid (VAT and Historical VAT information)
- Turnover data information submitted by traders in every Member State.

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<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

Network Diagram

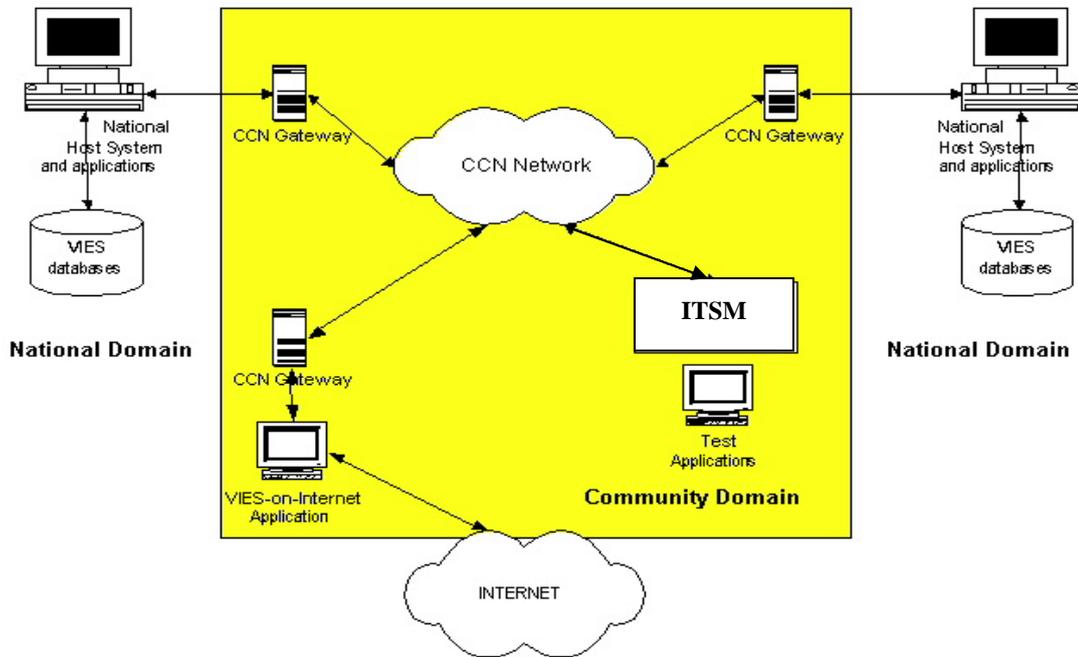


Figure 53 – VIES System

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### 5.1.41 VIES Monitoring

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Centralised Systems
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed Application
MODE OF OPERATION	Centrally Operated
SYSTEMS USED BY	ITSM, DG TAXUD
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

The core of VIES system (VAT Information Exchange System) constitutes maintained by Member States national VIES applications and databases, which should be able to provide VAT information to various tax administrations and other authorised users without delay. Therefore it is necessary to verify the accessibility of the different Member States VIES applications, for that purpose VIES Monitoring is used. The VIES Monitoring periodically sends preformatted VIES messages to each Member State in both synchronous and asynchronous modes. The response received is used to verify “on-line” the availability of the Member States VIES application.

The VIES Monitoring Application is made up of two parts:

- The **Monitoring Engine**, that sends periodically VIES requests to each Member State and records the response to these requests in Statistics Files;
- The **Display Module**, that is updated by the Monitoring Engine and displays the current status of the VIES services in the monitored Member States, as well as maintaining a history.

The first of them - the Monitoring Engine sends periodically VIES requests to each Member State (eight types of VIES Messages R\_VATR, R\_HVATR, R\_L2F2, R\_L1F2, R\_L2F1, R\_L1F1, R\_L1C and R\_L1CM). Information concerning response received from each Member State is recorded in statistical log files. The purpose of this operation is check the availability of the VIES service and its response time, not to check the correctness of the response returned or the validity of the VAT number submitted. Therefore, the application does not parse completely the response returned. The Monitoring Engine runs on a Linux host at the site of the contractor who is responsible for monitoring the compliance of Member State VIES applications with the Service Level Agreement.

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
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The second module - the Display Module retrieves information from the statistical log files generated by the Monitoring Engine and displays graphically the current availability of the VIES services in the different Member States. The purpose of the second module is to provide the end user with a graphical display of the current availability of the different VIES services in different MS. However displayed are information related only to two types of messages R\_VATR and R\_HVATR.

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Infrastructure per application	ISSUE DATE: 31/05/2010

Network Diagram

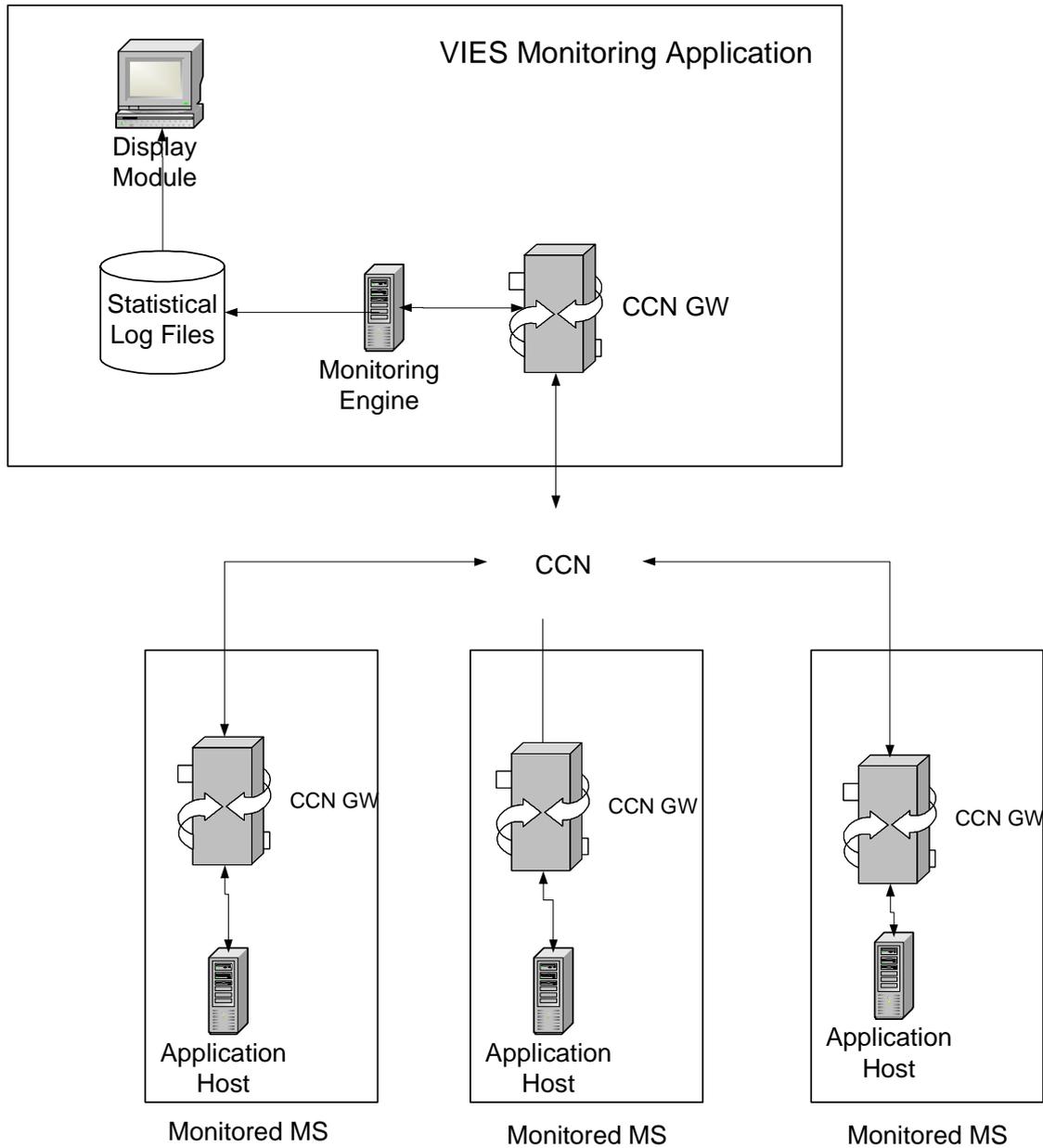


Figure 54 – VIES MONITORING

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

## 5.1.42 VAT Number Algorithms

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	National Domain
MODE OF DEPLOYMENT	Nationally Deployed Application
MODE OF OPERATION	Locally Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	Member States

### Description

Member States have to communicate the algorithm used to structure a VAT number in their country, so that VIES messages about invalid VAT numbers are stopped before entering the CCN network. The VAT Number algorithms are deployed locally by Member States to check the validity of VAT numbers.

### Network Diagram

VAT Number Algorithms application is not deployed alone; it is deployed within VIES on the Web, VIES Test and VIES Initial applications. Not applicable to provide network diagram.

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### 5.1.43 VAT-on-e-Services

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Coordinated system
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, National Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	Member States

#### Description

VAT on eServices (VoeS), is a special scheme which rules the VAT legislation and procedure applicable for traders who are not established in the EU but who provide electronically supplied services to non-taxable persons established within the EU.

This special scheme has led to the implementation of the dedicated system “VoeS” for exchange of information between MS.

The scheme provides for traders not established within the EU, supplying specific eServices, an electronic means of:

- Registration for VAT;
- Submission of VAT return;
- Payment of VAT due;

in a single MS of their choice irrespective of the MS of residence of the non-taxable client. This simplified system allows the non-established taxable person to use a Member State of identification dedicated web site to access an automated system for registering and declaring VAT on-line. The data for the three above-mentioned VAT obligations is then submitted via Internet or e-mail or any other electronic means to this Member State of identification by the non-established taxable person.

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### Network Diagram

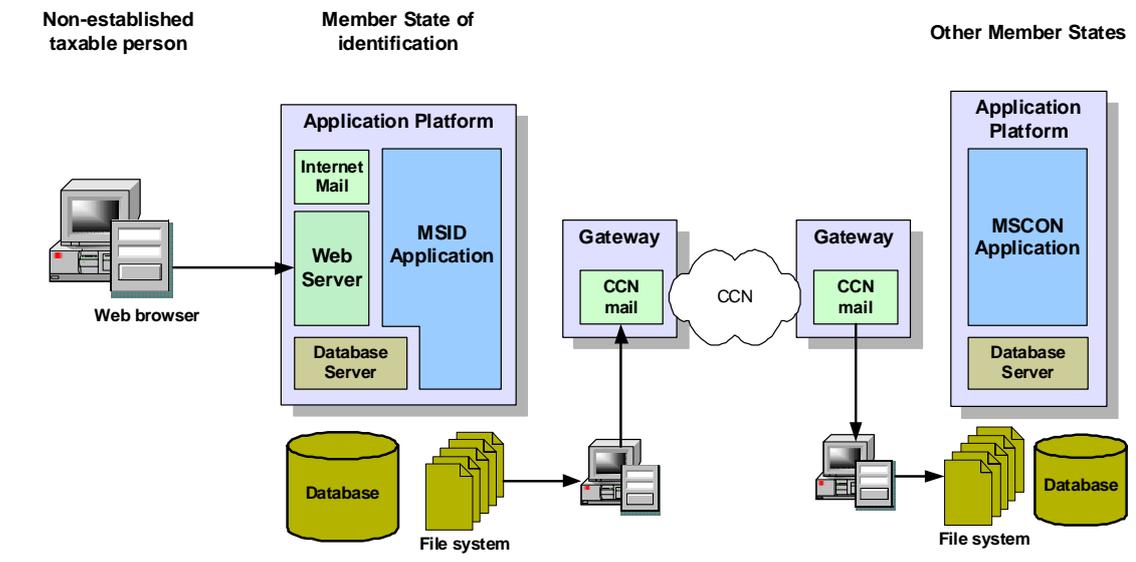


Figure 55 – VAT-On-e-Services

DG TAXUD	REF.: ITS-IRPT-INF-SC06-005-ICT
DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2	VERSION: 2.00
Infrastructure per application	ISSUE DATE: 31/05/2010

#### 5.1.44 VAT-on-e-Services Remote Test Application

Economic Operators System

Classification	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Distributed Process
ARCHITECTURAL MODELS	Coordinated system
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain, National Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	ITSM
HOSTED AT/ MANAGED BY	Member States

##### Description

VoeS covers exchange of defined messages between National VoeS Applications. Each Member State maintains its own National VoeS application and electronic database. Therefore it is necessary to confirm that National Administrations have implemented correctly the rules governing the e-commerce functionality in the Common Domain into their local applications. **VoeS Remote Test Application (VoeS RTA)** is dedicated to test that the National VoeS application can process correctly messages coming from Member States of identification and to produce, based on correct input coming from the NETPS, the messages that must be sent to the Member States of consumption.

##### Network Diagram

Not applicable

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### 5.1.45 VIES ON THE WEB

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised Systems + MSA
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed Application
MODE OF OPERATION	Centrally Operated
USED BY	ALL
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

#### Description

The objective of VIES-on-the-Web is to allow traders involved in the intra-Community supply of goods or of services to obtain confirmation of the validity of the VAT identification number of any specified person. There is no Central VAT database at Community level; the verification is done against the national VAT database using the synchronous R-VATR service of the traditional VIES system.

VIES-on-the-Web is centrally developed and is operated by DG TAXUD

The application can be accessed by any of two interfaces:

- HTTP Web Page access (Interactive).
- API (SOAP Web Service)

VIES-on-the-Web is accessible from the Europa and DG TAXUD web server which is the public website. It enables anyone with Internet access to perform the validation of current EU VAT Numbers. The validation has the form of a Yes or No answer, retrieved from the National VIES applications. VIES-on-the-WEB does not maintain its own database; it can only direct requests for information to the existing National VIES applications. The user is required to define in a request the country supposedly controlling that VAT number and the requesting VAT number. If authorised by the concerned member state, the more detailed information concerning the Trader associated with the VAT number, such as Name and Address may be provided.

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### Network Diagram

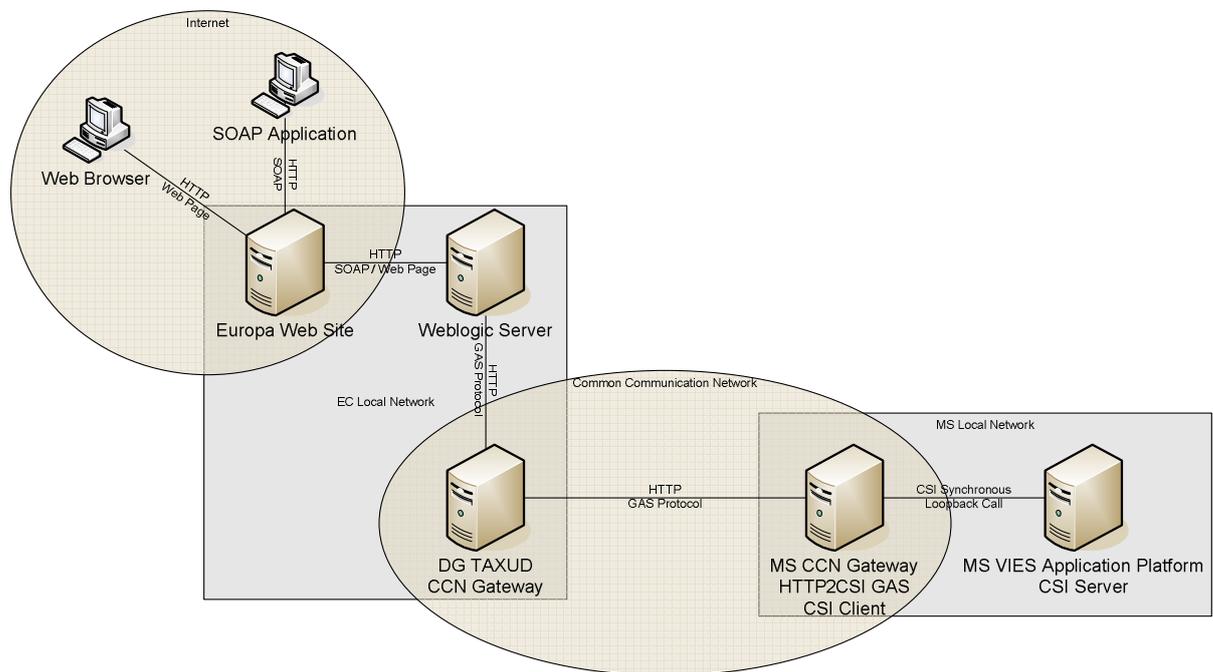


Figure 56 – VIES ON THE WEB

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

### 5.1.46 VIES Statistics System

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Coordinated Systems
DOMAINS OF RESPONSIBILITY	Common Domain
MODE OF DEPLOYMENT	Centrally Deployed Application
MODE OF OPERATION	Commonly Operated
USED BY	ITSM, DG TAXUD
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

The VIES Statistics System collects and processes differential information from various sources in several formats. On the basis of this information it provides consolidated statistics concerning VIES System and VIES-on-the-WEB:

- VIES – Exchange of VIES messages;
- VIES-on-the-Web – Usage of VIES-on-the-Web application;
- SLA – MS servers day and night availability;
- Service Calls – Information extracted from the SMT.

The system uses a central database at ITSM premises but input files are received from several sources:

ITSM (Monitoring and SMT)  
CCN/TC (VIES Traffic)  
DG TAXUD (VIES-on-the-Web)

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<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

## Network Diagram

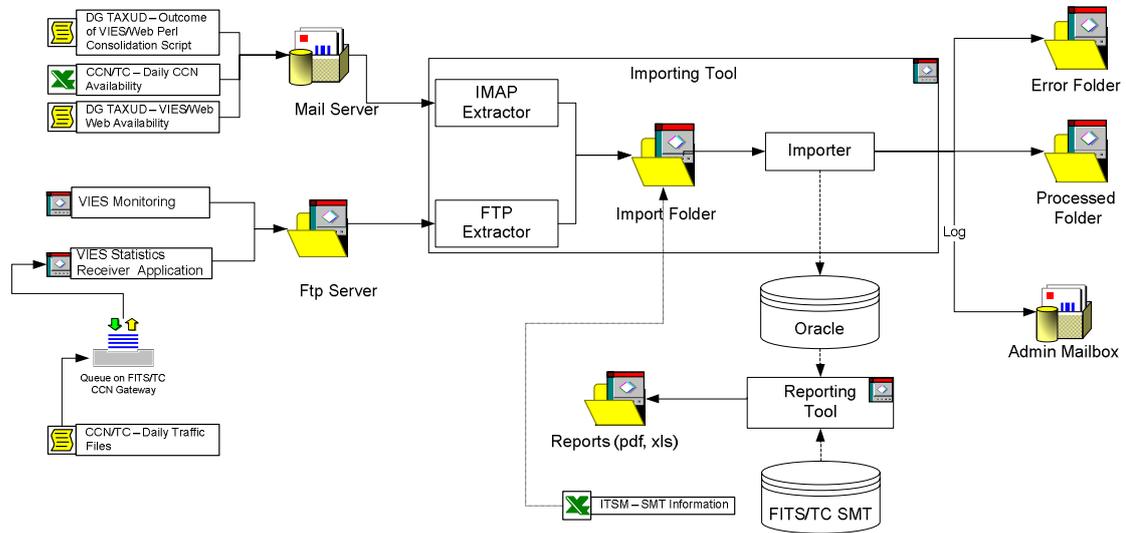


Figure 57 – VIES & VIES On-the-Web Statistics

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
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### 5.1.47 VIES Test Application

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Coordinated Process
ARCHITECTURAL MODELS	Coordinated Systems
DOMAINS OF RESPONSIBILITY	National Domain Common Domain
MODE OF DEPLOYMENT	Centrally Deployed Application
MODE OF OPERATION	Centrally Operated
USED BY	MSA
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

VIES System covers exchange of defined messages between National VIES Applications. Each Member State maintains its own National VIES application and electronic database. Therefore it is necessary to confirm that National Administrations have implemented correctly the rules governing exchange of VAT and turnover information in the Common Domain into their local applications. VIES Test Application is dedicated to test if the National VIES application is able to provide correct support for exchange of information with other Member States and authorised users.

VIES Test Application emulates a Member State providing a tested National VIES application with a party to exchange information with. When VIES Test Application acts as an Applicant Member State (MS-A) the tested National VIES application (MS-T) fulfils a role of a Requested Member State (MS-R). Accordingly when VIES Test Application assumes role of a Requested Member State (MS-R), the tested National VIES application (MS-T) acts as an Applicant Member State (MS-A).

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

Network Diagram

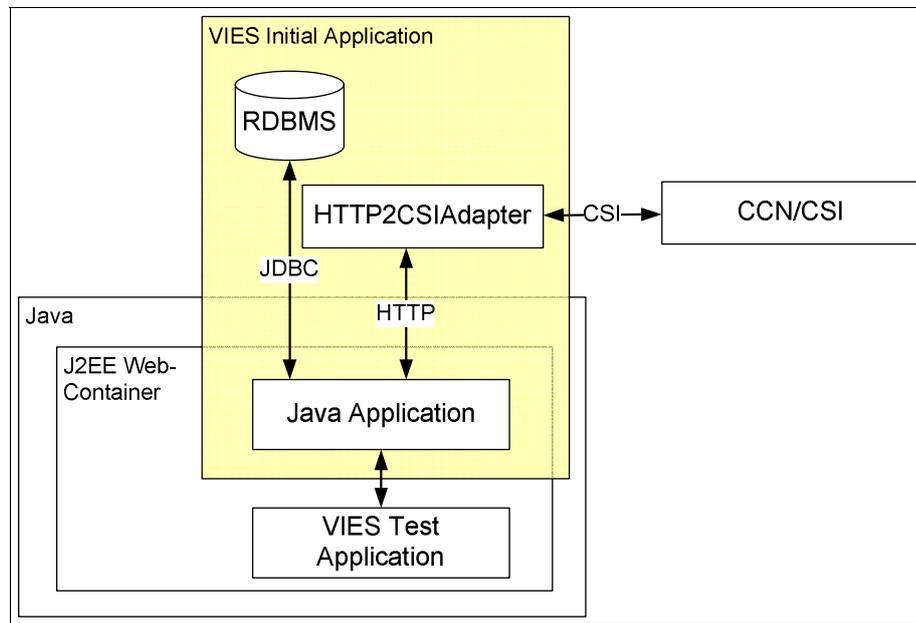


Figure 58 – VIES Test Application

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

## 5.1.48 VIES-on-the-WEB Monitoring

Economic Operators System

<b>Classification</b>	
BUSINESS THREADS	Taxation
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Centralised Systems
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed Application
MODE OF OPERATION	Centrally Operated
USED BY	ITSM, DG TAXUD
HOSTED AT/ MANAGED BY	DIGIT, DC Luxemburg

### Description

The objective of the VIES-on-the-Web Monitoring is to check the availability of the VIES-on-the-Web services.

The application is composed of three modules:

- A web engine module, which sends the request to the VIES-on-the-Web application, parses the answer and sends a status to the Visualisation part;
- Another engine which is responsible to collect information on the state of the server where VIES-on-the-Web application is running (like CPU usage, size of log files, number of process...);
- A visualisation module, which is responsible to display the status received from the engine as well as to keep a history of the received status.

The application is dedicated to control operational status of the VIES-on the-Web. One of its functionalities is to control whether requests sent to Member States with utilisation of VIES-on the-Web are processed correctly. Another one is to monitor performance parameters of VIES-on the-Web production server.

The VIES-on-the-Web Monitoring (Web Engine Module) periodically sends requests to the VIES-on-the-Web. Those requests are directed by the VIES-on-the-Web to a proper addressee (Member State). Results of requests, an answer or an error, are recorded in a log files. Received answers are verified, however the application does not check the correctness of the response returned, or the validity of the VAT number submitted. VIES-on-the-Web Monitoring does not parse completely the response returned, but checks that the response to a given request is the proper VIES-on-the-Web response message. Afterward a precise defined message is created and sent to an element of the VIES-on-the-Web Monitoring responsible for displaying of results (Visualisation Module). Beside visualisation of the current monitoring status this part of the application also stores received messages which are accessible as historical data.

<b>DG TAXUD</b>	<b>REF.: ITS-IRPT-INF-SC06-005-ICT</b>
<b>DG TAXUD Technical Infrastructure Reference DLV 8.6.1.3.2</b>	<b>VERSION: 2.00</b>
<b>Infrastructure per application</b>	<b>ISSUE DATE: 31/05/2010</b>

The VIES-on-the-Web Monitoring (Server Hardware Monitoring Engine) collects information concerning the state of the server where VIES-on-the-Web application is running (like CPU usage, size of log files, number of process). Monitoring results are formatted into a precise defined message and sent to an element of the VIES-on-the-Web Monitoring responsible for the display of it (Visualisation Module).

### Network Diagram

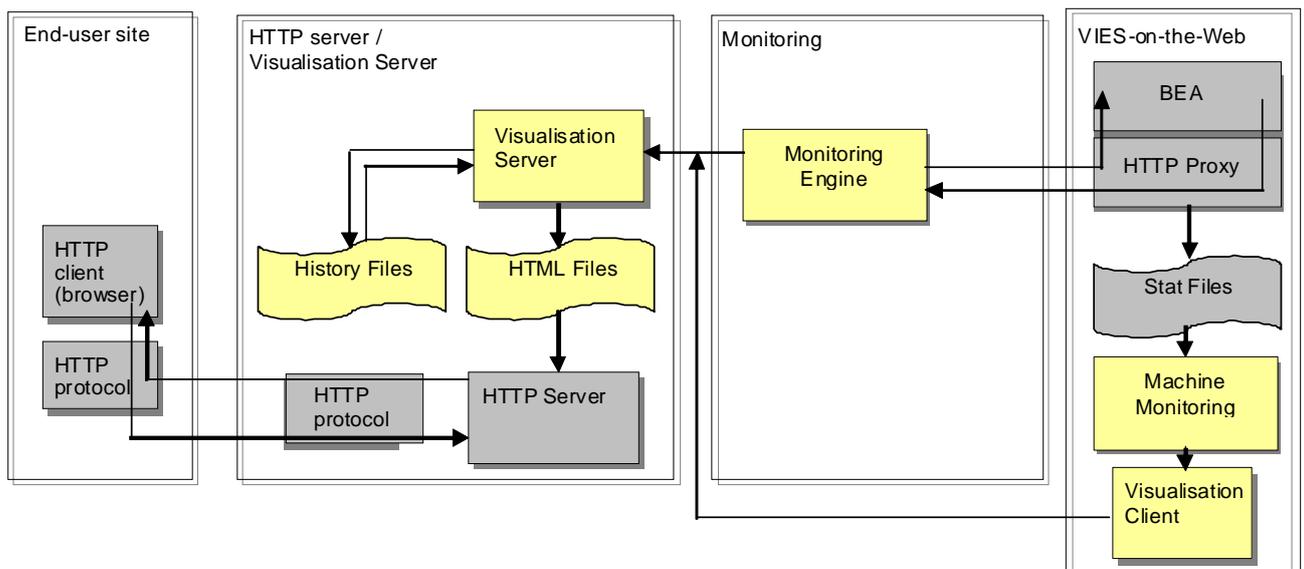


Figure 59 – VIES-On-the-WEB MONITORING

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### 5.1.49 Web2000

<b>Classification</b>	
BUSINESS THREADS	Customs
FUNCTIONAL MODEL	Centralised Process
ARCHITECTURAL MODELS	Distributed System
DOMAINS OF RESPONSIBILITY	DG TAXUD Domain
MODE OF DEPLOYMENT	Centrally Deployed
MODE OF OPERATION	Centrally Operated
USED BY	MSA, DG TAXUD, Contractors.
HOSTED AT/ MANAGED BY	XXX, DC XXX

#### Description

Web2000 is a content data management system for the issues related to the New Computerised Transit System (NCTS) or Integrated Economic Operators System management system (ITMS). Web2000 facilitates the communication and the information sharing among National Administrations (NA), contractors and the Commission. Via Web2000, National Administrations can access, view and follow-up their calls, find the links to various applications, access the project baseline and download documents or application releases.

The NCTS Web 2000 covers the several main functional sections:

- Central Help Desk targeted to the communication between the NAs and the Central Project Team (CPT);
- Operational Section contains the links to the operational or training environments for various applications;
- Project Section contains documentation, manuals, demos and presentations, project planning and progress, etc...
- TCP-Office Network (TCP-ON) Section meeting documents, contractual documents and information related to the project office in general.
- WEB 2000 server is also used as the ITSM portal and has the historical and new service calls regarding Customs, Excise and Taxation;
- The service catalogue;
- Some static and utility pages: news and help, etc...

Web2000 application is still in use and is accessible through the ITSM Portal homepage. Web2000 is planned to be phased out as from the go-live of the new ITSM Portal.

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Network Diagram

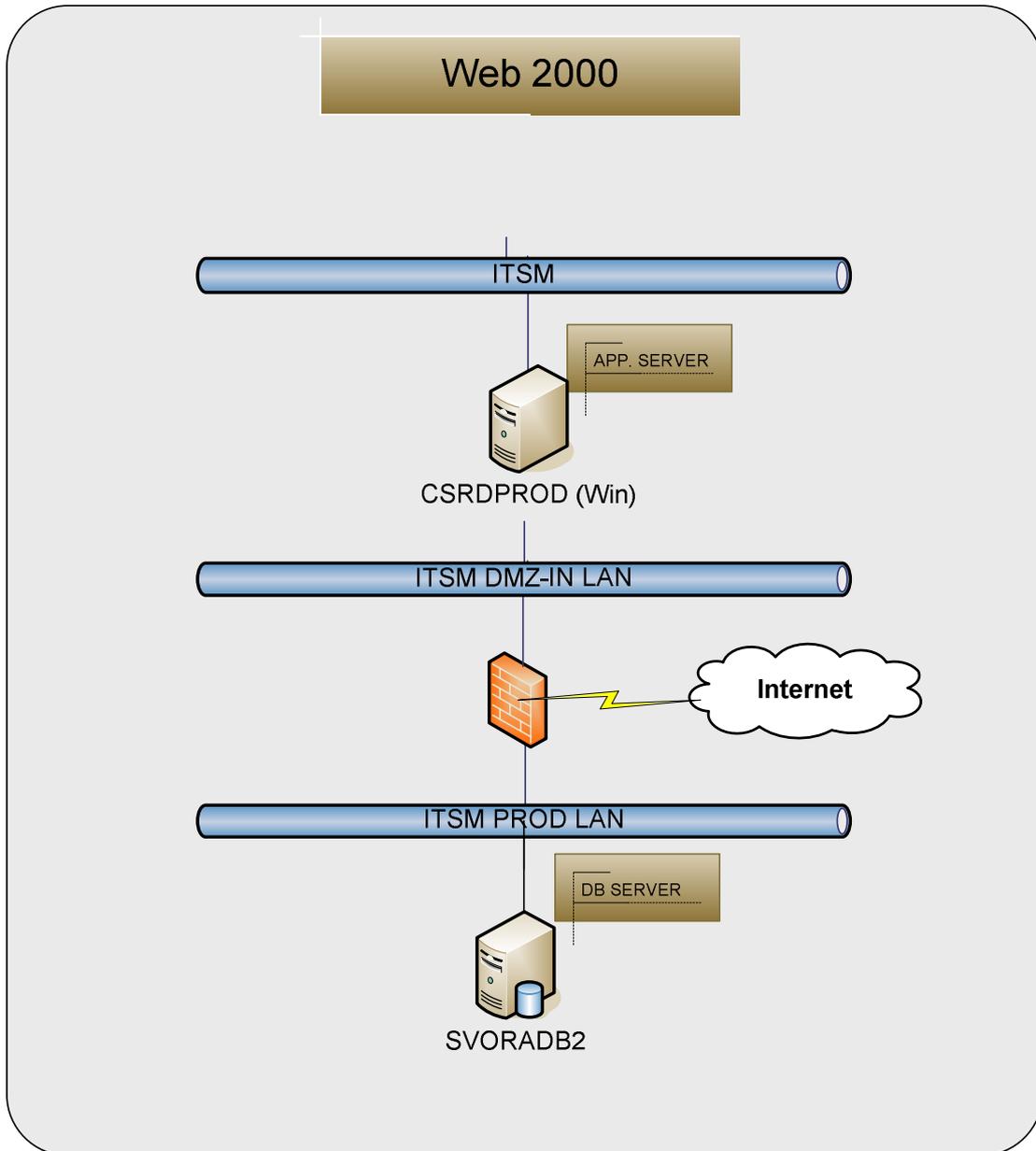


Figure 60 – Web 2000

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## 6. Infrastructure per site

### 6.1 Sites & Resources

The XXX uses a dedicated network – further noted *ITSM internal network* - across its premises in order to fulfil its contractual duties as supplier of the ITSM services.

The services to be supplied require a remote intervention encompasses those defined by ITIL under Service Support, Service Delivery, Business Perspective and Application Management, and this for the IT systems of the Directorate-General for Taxation and Customs Union (DG TAXUD).

The IT systems of DG TAXUD are physically spread over the European Commission (EC) Data Centre (DC) in Luxemburg, the premises of the National Administrations (NAs) of the MS – interconnected via CCN -, the premises of the XXX and that of other external contractors. In particular, continuous updates that must be used by IT Systems hosted by the XXX and triggered by the CCN/CSI network are transferred via the CCN connection in the DC of XXX. Previously (at the time of closure of the picture in this deliverable) it was via a dedicated Leased Line interconnecting the Telecom centre of the XXX and that of the EC in Brussels (XXX).

The XXX assures the provision of the ITSM services with resources deployed in XXX (Service Desk), XXX (Data Centre), XXX (Application Management and Testing) and XXX (Data Centre and Support).

CCN/TC is located at XXX, XXX and the CCN backbone is managed by XXX.

All sites in scope of this document are:

- Belgium
  - XXX: Data Centre (XXX);
  - XXX: Data Centre (XXX);
  - XXX: CCN TC (XXX).
- Luxemburg
  - Luxemburg: Data Centre (Digit).

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## 6.1.1 Resource Locations

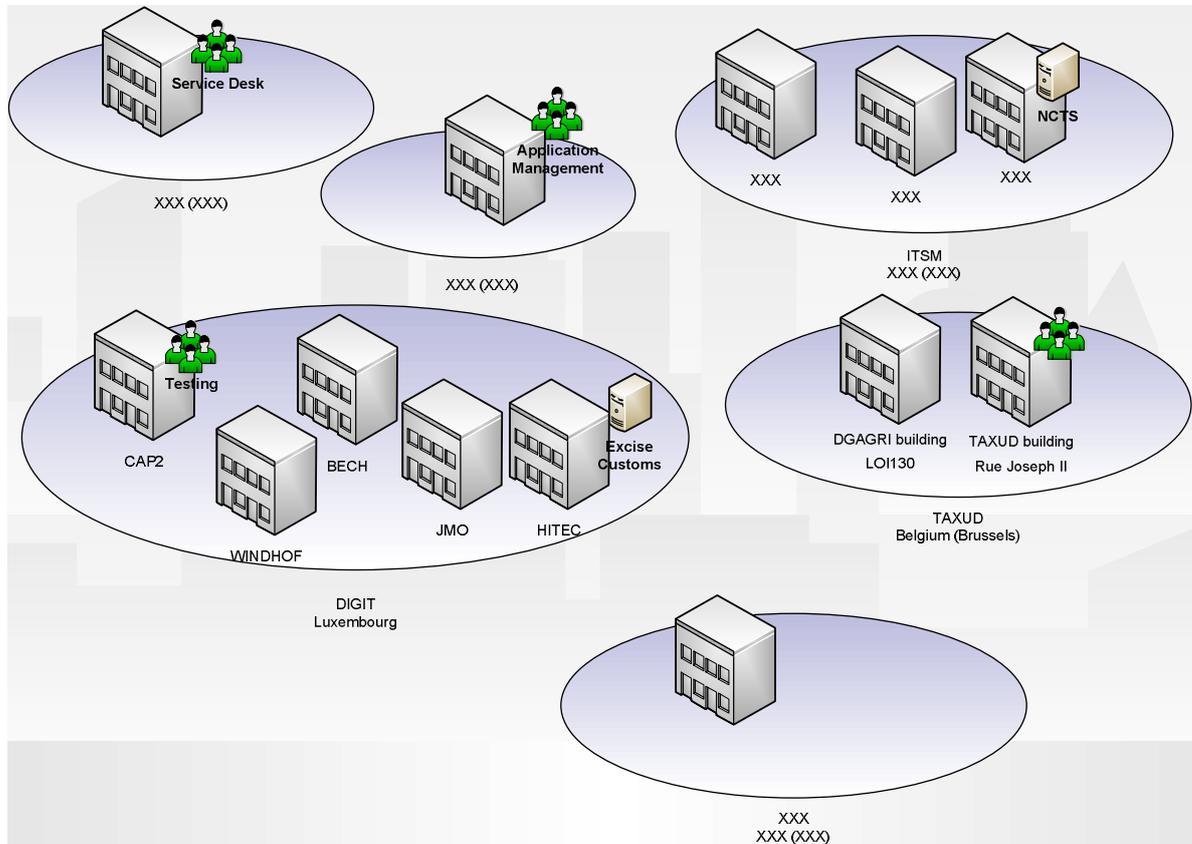


Figure 61 – Resource locations

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## 6.1.2 Address List

XXX XXX	mainly for computer system storage and management, hosting of IT systems participating to the applications provided by DG TAXUD
XXX	to assure the management of the project
DIGIT Rue Alcide de Gasperi L-2920 Luxemburg Luxemburg	Direction Générale Informatique
XXX	CCN TC

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## 6.2 Infrastructure at ITSM

### 6.2.1 Datacenter XXX

The schema below describes the dedicated ITSM peripheral physical infrastructure in the XXX and XXX XXX sites.

The XXX hosts the ITSM system support team, as well as hosting servers in its Data centre.

The XXX, XXX Data centres are connected LAN to LAN and form a single private LAN. This is transparent to the application users as applications running on servers physically located in XXX or XXX or XXX are reachable via the LAN to LAN connection between the data centres.

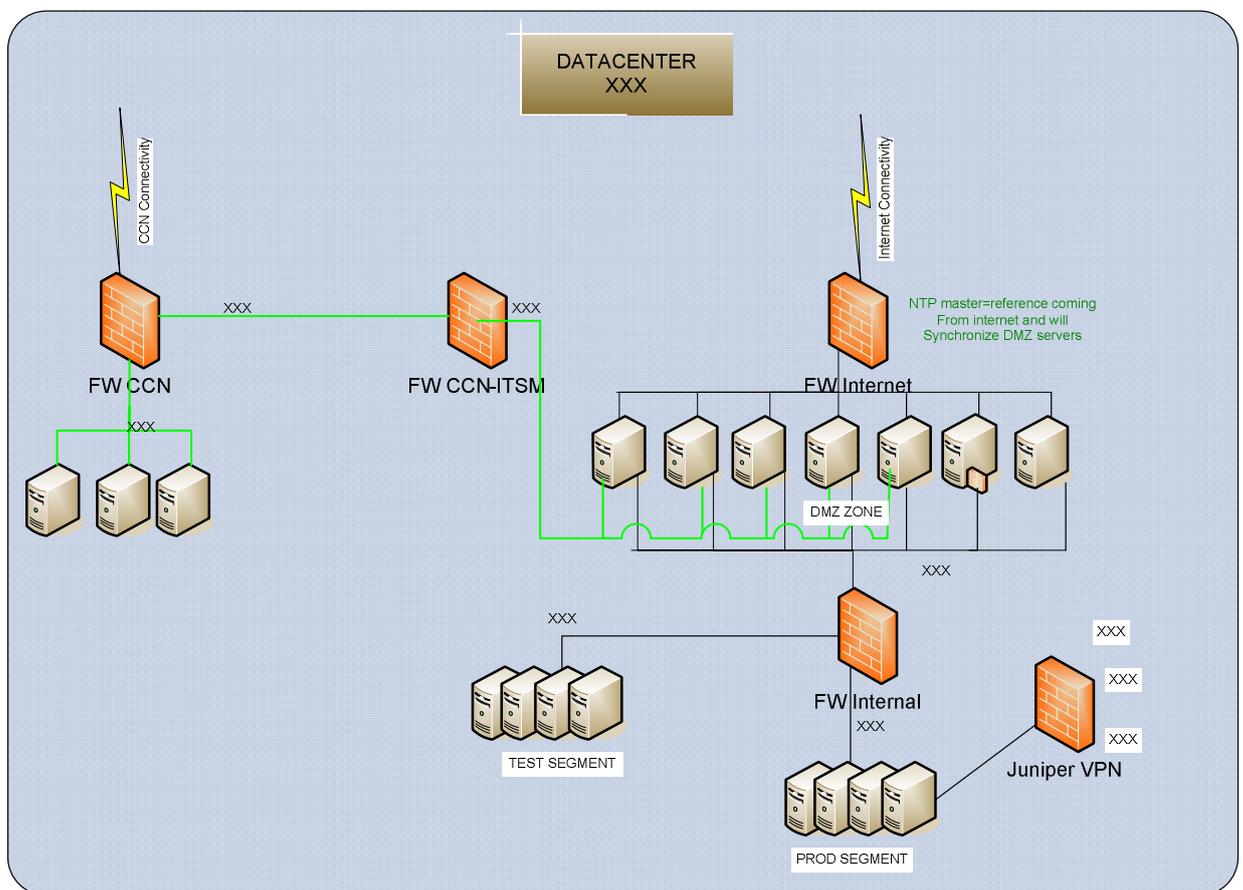


Figure 62 – Datacenter XXX

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## 6.3 Infrastructure at DIGIT

### 6.3.1 Datacenter Luxemburg

The DMZ is a segregate area hosted at DIGIT, where the servers are isolated from the common SNET network with firewalls. This DMZ area is hosting the applications running for DG TAXUD that need to be accessible via the CCN backbone or via Internet (Europa website). This area is not hosting the databases that are used for the applications.

The following figures give you a clear overview of the network at DIGIT (DMZ and SNET Network):

XXX

Figure 63 – DG TAXUD environment in the DIGIT DC

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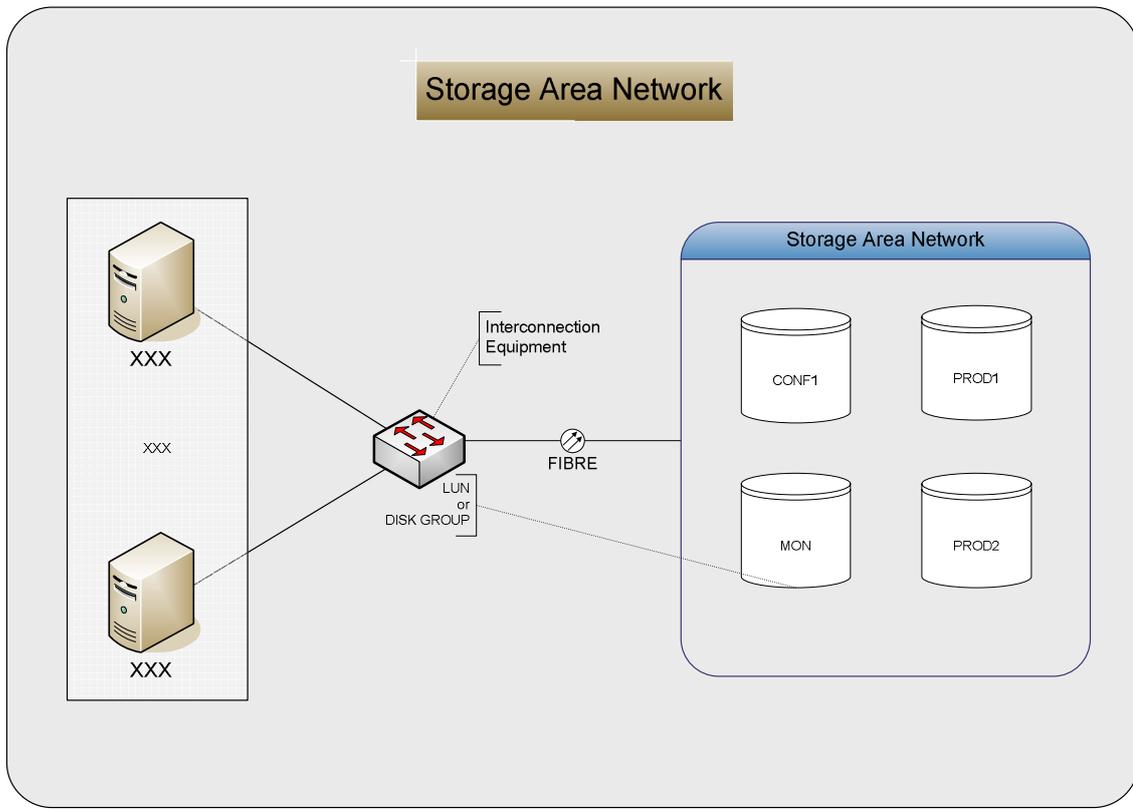


Figure 64 – Storage Area Network with LUN's

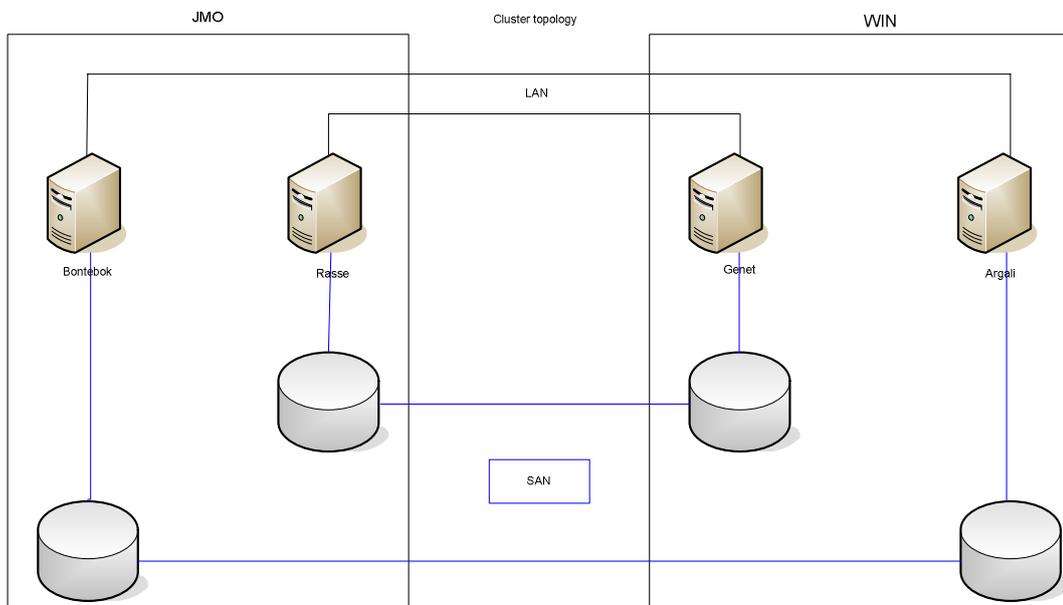


Figure 65 – Storage Area Network in DMZ at DIGIT

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### **6.3.2 Infrastructure at XXX**

XXX is the host for the CCN Backbone and is located at XXX. All lines for the network backbone are provided by XXX.

### **6.3.3 CCN**

The trans-European systems developed and operated within DG TAXUD rely all on the Common Communication Network (CCN). The CCN allows a harmonised approach to the application development and operation, in compliance with the regulatory constraints of the European Commission in the context of data transmission.

The CCN allows the coexistence of several application flow types meeting different needs of interoperability between National Administrations.

The exchange channels are based on:

- The proprietary Common System Interface (CSI) protocol meeting the need of interoperability between heterogeneous systems;
- The standard HTTP or HTTPS protocol used by services offered on the “CCN Intranet”;
- CCN Mail (SMTP);
- SOAP.

Each CCN site comprises at least two CCN gateways. Functionally the CCN Gateways are used as follows:

- One production CCN Gateway: provides all trans-European Applications in production phase with operational CCN/CSI services;
- One Backup/development CCN Gateway: provides
- Operational CCN services to applications under development/test;
- Backup services in case of failure of the production CCN Gateway.

The CCN Gateways are connected to the CCN backbone via an encryption box (SSG), a TCP/IP router (CPR) and a leased line. This infrastructure is duplicated to allow the automatic data switching in case of failure of the primary leased line.

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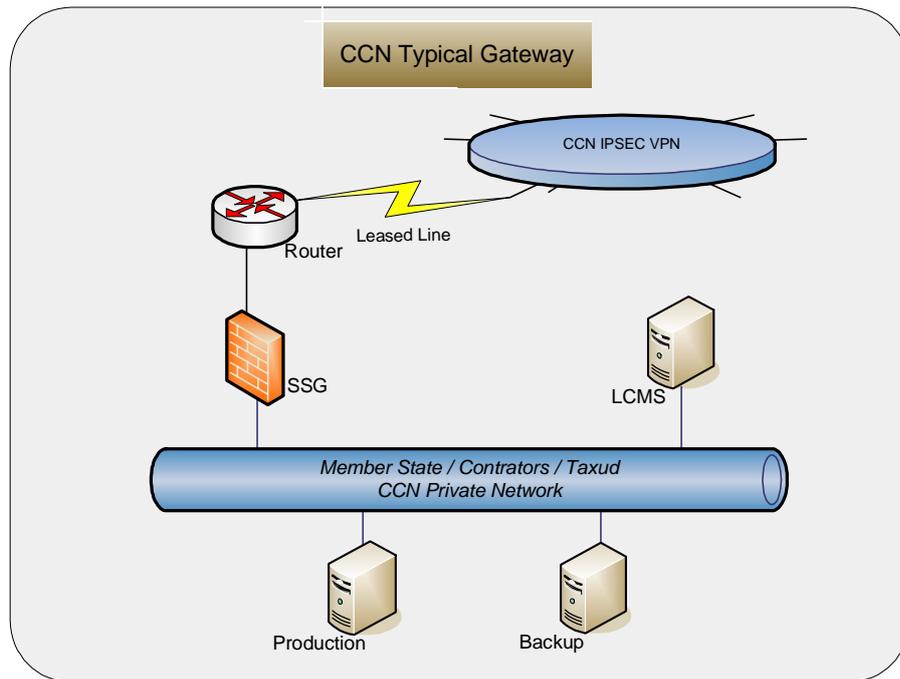


Figure 66 – CCN typical gateway

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## 6.4 Infrastructure at Remote Sites

### 6.4.1 Support & Management

XXX, XXX, XXX.

The schema below describes the dedicated ITSM peripheral infrastructure setup in the different XXX sites (XXX, XXX) which connect to the XXX Data centres using VPN through Internet connection.

The XXX users use their desktop and/or laptop to launch the remote desktop tool to access the virtual workstations running in the XXX Data Centre (XXX).

The XXX (XXX) site hosts the ITSM project management, quality management and business monitoring teams. The XXX (XXX) site hosts the ITSM Infra and Monitoring team.

XXX

Figure 67 – Infrastructure ITSM and remotes

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## **6.4.2 DG TAXUD**

XXX

Figure 68 – DG TAXUD infrastructure

Figure 27 - HTTP CCN Bridge shows the general configuration of the standard connectivity between DG TAXUD and CCN. DIGIT hosts two gateways (noticed P2 and B2) in XXX at the DIGIT Telecom Data Centre of the Commission.

## **6.4.3 NA's**

The Infrastructure of National Administrations follows a specific, country-dependent strategy. It is not the scope of this document to describe each of them.

Please refer to the document ([RD03]), for more details on National Applications technical architecture.



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## 7.2 Logical Network Diagram.

The figure below describes the logical network view of the hosted infrastructure; this is a logical view rather than physical because of the virtualisation of some the servers. Two business threads are hosted at ITSM: NCTS and ITSM thread. Note: all lines on the figure represent standard network connections.

XXX

Figure 70 - logical network view of the hosted infrastructure

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## **8. Conclusions & Recommendations**

### **8.1 Information Gathering**

The recommendation proposed for all technical information details, reflecting all changes on applications from 24/06/2009 till 31/12/2009, are as from this document referred to in the application portfolio.

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## 8.2 Static vs Active CMDB

A configuration management database (CMDB) is a repository of information related to all the components of an information system. Although repositories similar to CMDBs have been used by IT departments for many years, the term CMDB stems from ITIL. In the ITIL context, a CMDB represents the authorised configuration of the significant components of the IT environment. A key goal of a CMDB is to help an organization understand the relationships between these components and track their configuration. The CMDB is a fundamental component of the ITIL framework's Configuration Management process. CMDB implementations often involve integration with other systems, such as Asset Management Systems. These integrations may make use of either a real-time, federated design or an ETL (extract, transform, load) solution.

ETL is a process in data warehousing that involves extracting data from outside sources; transforming it to fit business needs (which can include quality levels), and ultimately loading it into the end target, i.e. the data warehouse.

This document could be considered a static CMDB as it describes the infrastructure at a certain point in time but it is more logical that this document would be derived from an active CMDB.



An active CMDB should be put in place and this document should be a report derived from this CMDB. This way the information in the report could be much more accurate and maintaining the data would be much easier.

Automatic inventory of hardware and software CI's can be done to populate the CMDB and connectors with other data sources can be put in place. Processes to keep the CMDB accurate and up-to-date should also exist and Service Management Processes should fully integrate with the CMDB. This way the CMDB will still be accurate when for example a new disk is inserted in the SAN, an application is moved to another LUN or a new version of Oracle is installed on some servers.

Support for the discussed applications can only be effective if Service Management processes are in place and a CMDB solution is build to provide the necessary information to these processes.

Figure 71 – Active CMDB

As stated in the Technical Infrastructure Plan, the CMDB will be the main source for the creation of the TIP (RD01). It is recommended, during the process of selection of

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the database, to consider the requirements risen in the TIP to select the best tool to fulfil them.

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## **Annex A. Application inventory**

The tables presented here are a copy of the Application Inventory. The actual inventory will be provided in a separate document ([RD13])

<b>Application</b>	<b>Business Thread</b>	<b>Domain of Responsibility</b>	<b>Functional Model</b>	<b>Mode of Operation</b>	<b>Mode of Deployment</b>	<b>Systems</b>	<b>Architectural Model</b>	<b>Host Site</b>
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## Annex B. CI Details

### Servers & Domains

Host Name	Level	Cluster ID	Serial	Brand	Type	OS	CPU	Memory	Location	Owner or Current Responsible
-----------	-------	------------	--------	-------	------	----	-----	--------	----------	------------------------------

### Clusters

Application	Apps Version	#CLUSTER	Disk Group	IP	COTS	COTS Version	DB Name
-------------	--------------	----------	------------	----	------	--------------	---------

### Database

Cluster	DB Server Name	DB Name	DB Version	DB Soft	Table Space Size
---------	----------------	---------	------------	---------	------------------

See full reference in the CMDB and detailed information can be found in the document ([RD13])

\* HT = Hyper Threading = Feature that simulate a CPU. Ex: In this case, you have 2 Physical CPUs + 2 Logical CPUs. Windows Operating Systems will see 4 CPUs but please take good note that it cannot be considered as a true Physical CPU. If you have 1 Physical CPU with HT enabled, the benefit provided by the logical CPU would be estimated around 20-30%, not 100%.