

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: Police reform and migration management – Central database for foreigners

Publication reference: EuropeAid/133837/DH/SUP/RS

Abbreviations

No	Acronym	Description
1.	ACL	Access Control List
2.	AD	Active Directory
3.	ARP	Address Resolution Protocol
4.	CDF	Central Database for Foreigners
5.	CE	Conformité Européenne
6.	CLI	Command-line interface
7.	DBMS	Database Management System
8.	DDR3	Double Data Rate 3 (memory)
9.	DHCP	Dynamic Host Configuration Protocol
10.	DIMM	Dual In-line Memory Module
11.	DWH	Data warehouse system
12.	ECC	Error-correcting code (memory)
13.	ETL	Extract, Transform, Load
14.	EU	European Union
15.	EUD	Delegation of the European Commission to the Republic of Serbia
16.	FC	Fiber Channel
17.	FCoE	Fiber Channel Over Ethernet
18.	FIS	Foreigners Information System
19.	FRONTEX	European Agency for the Management of Operational Co-operation at the External Borders of the European Union
20.	Gbps	Gigabits Per Second

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No	Acronym	Description
21.	GHz	Gigahertz
22.	GIS	Geographic Information System
23.	GUI	Graphical User Interface
24.	HDD	Hard Disk Drive
25.	HTTP	Hypertext Transfer Protocol
26.	IGMP	Internet Group Management Protocol
27.	IPA	Instrument for Pre-Accession Assistance
28.	iSCSI	Internet Small Computer Systems Interface
29.	IT	Information Technology
30.	KMV	Keyboard, Mouse, Video
31.	LACP	Link Aggregation Control Protocol
32.	LCD	Liquid Crystal Display
33.	LDAP	Lightweight Directory Access Protocol
34.	LLDP	Link Layer Discovery Protocol
35.	MAC	Media Access Control (address)
36.	MAF	Manufacturer Authorization Forms
37.	MB	Megabyte
38.	Mbps	Megabits Per Second
39.	MFA	Ministry of Foreign Affairs
40.	Moi	Ministry of Interior
41.	MSTP	Multiple Spanning Tree Protocol
42.	NAS	Network-Attached Storage
43.	NES	National Employment Service
44.	NTP	Network Time Protocol
45.	ODBC	Open Database Connectivity
46.	PCI	Peripheral Component Interconnect
47.	PDU	Power Distribution Unit
48.	PoE	Power-Over-Ethernet
49.	RADIUS	Remote Authentication Dial In User Service
50.	RAID	Redundant Array of Independent Disks
51.	RoHS	Restriction of Hazardous Substances

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No	Acronym	Description
52.	RSTP	Rapid Spanning Tree Protocol
53.	SAN	Storage Area Network
54.	SAS	Serial-Attached SCSI
55.	SATA	Serial Advanced Technology Attachment
56.	SFP	Small form-factor pluggable
57.	SNMP	Simple Network Management Protocol
58.	SOAP	Simple Object Access Protocol
59.	SQA	Software Quality Assurance
60.	SSD	Solid State Drive
61.	SSH	Secure Shell
62.	STP	Spanning Tree Protocol
63.	TACACS	Terminal Access Controller Access-Control System
64.	TB	Terabyte
65.	TCP/IP	Transmission Control Protocol/Internet Protocol
66.	UPS	Uninterruptible Power Supply
67.	URL	Uniform Resource Locator
68.	USB	Universal Serial Bus
69.	VLAN	Virtual Local Area Network
70.	VPN	Virtual Private Network
71.	W3C	World Wide Web Consortium
72.	WEEE	Waste Electrical and Electronic Equipment
73.	WSDL	Web Services Description Language
74.	XML	Extensible Markup Language

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Column 1-2 should be completed by the Contracting Authority

Column 3-4 should be completed by the tenderer

Column 5 is reserved for the evaluation committee

The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the Contracting Authority shows the required specifications (not to be modified by the tenderer),
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words "compliant" or "yes" are not sufficient)
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
1.	INFORMATION			
1.1	<p>Relevant Country background</p> <p>The Republic of Serbia is a potential candidate for EU membership. On 29 April 2008 Serbia signed the Stabilization and Association Agreement (SAA) and an Interim Agreement on trade-related measures with the EU. On June 14 2010, the European Council agreed to launch the ratification process for the SAA and on 22 December 2009 the country's application for the EU membership was submitted.</p> <p>Visa liberalization for Serbian citizens (as well as citizens of Montenegro and Macedonia) travelling to the Schengen area was granted by the European Council, after consultation with the European Parliament, on 19 December 2009. It applies to holders of biometric passports travelling to the Schengen area. This decision was based on substantial progress by Serbia in the area of justice, freedom and security and fulfillment of the specific contributions set out in the roadmap for visa liberalization.</p> <p>Serbia covers an area of 88,361 km² and borders eight states: Hungary, Romania, Bulgaria, Macedonia, Albania, Croatia, Bosnia and Herzegovina and Montenegro. The total length of the border is 2,114 km. There are 91 border crossings on the territory of Serbia out of which 77 border crossings are for international traffic (41 road, 13 railway, 4 airport and 12 river crossings), 18 border crossings are for local cross –border traffic, two border crossings are for inter-state traffic and one border crossing is for exceptional traffic.</p> <p>The Control of the state borders is performed according to the standards of Integrated Border Management with a growing need to eliminate disparities between individual border crossing points and to improve control at the borders with Macedonia, Montenegro, Bosnia and Herzegovina and Croatia.</p>			
1.2	<p>Context and rationale</p> <p>By fulfilling all obligations of Visa liberalization Road Map with EU, as of January 1, 2010 Serbia entered Schengen White List regime. Due to this, the number of illegal migrants and asylum seekers from Far and Middle East as well as North Africa significantly increased. At the same time the number of Serbian citizens with unfounded asylum requests in EU states increased as well at the initial phase of implementation of Schengen Agreement. Illegal migrants (the majority coming from Afghanistan and the Middle East) continue their attempts to transit through Serbia, following the main routes from Turkey. This increasingly affects neighboring EU Member States.</p> <p>From October 2009 to August 2010, charges were filed against some 3,400 foreign citizens for illegally entering Serbia. A significant number of persons indicating their intent to file an asylum request at the border never do so, but disappear after entering Serbia in order to stay as irregular migrants or travel further.</p>			

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	<p>The link between border control and residence of foreigners is very important, since safety and coordination of both issues is one of the basic preconditions for the successful fight against illegal migration. For this reason, it is very important to continue to strengthen the integrated information system (IT network) on the state border by establishing an internal IT network between the headquarters of the Border Police and the regional police departments.</p> <p>The main pillars of the visa information system should be the MoI and MFA. This is a precondition for the successful establishment of a central database for foreigners that can be used by all relevant institution as envisaged by the Law on foreigners. The new visa system would facilitate a standardized, reliable and effective operation of Serbia's diplomatic and consular missions and the border crossings, and a safe verification and issuance of visas. This should enable the establishment of efficient and reliable processes and procedures from the moment of submitting a visa application for a foreigner until his/her entry in Serbia. This will prevent and considerably reduce illegal migration and other associated illegal activities on legal border crossings.</p> <p>Apart from technical shortcomings, there is an evident lack of capacities within the MFA for a specialized detection of irregular migrants. Training of the border police, with regards to the detection of counterfeit documents and profiling of immigrants who indicate some other reason for entering, will play a special role in improving capacity.</p> <p>Strategy for the Integrated Border Management in the Republic of Serbia, Chapter 9, stresses the necessity to establish a unified database on all the data regarding legal and illegal migrants, thus enabling more efficient monitoring.</p> <p>The Ministry of Interior (MoI) needs relevant software which will enable it to exchange data with the Ministry of Foreign Affairs (MFA), the National Employment Service (NES) and other relevant institutions.</p> <p>The implementation of Central Database for Foreigners (CDF) aims to strengthen the existing capacities of Serbian MoI and MFA for management of legal migration by ensuring the implementation of clear policies and coordination procedures.</p> <p>Serbian authorities don't have a unified visa information system that could provide opportunities for border police to do prompt check on all suspicious individual cases of border crossing or transiting through Serbia.</p> <p>Persons whose legal stay in Serbia has expired are equally perceived as irregular migrants. In this case the problem is the shared jurisdiction over the issuance of residential permits and working permits for foreigners between the MoI and the National Employment Service (NES). To that end, it is necessary to merge the data on residential permits issued and the number of issued working permits.</p> <p>Problems related to the possibility of abuse of the time limit set for the departure from the territory of the Republic of Serbia, as well as the inexistence of obligations to keep records and control the departures, will be overcome by establishing an efficient system for monitoring foreigners who should abide by departure order.</p>			

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<p>The existing information system in operational usage by the MoI includes files of specific categories of foreigners containing data on foreigners who have legally filed an application for temporary or permanent residence and also those under specific measures ("legal" and "illegal" part).</p> <p>The following IPA funded projects are relevant for this project:</p> <ul style="list-style-type: none"> • IPA 2010 – "Establishment of Efficient System for Suppression of illegal Migrations on the Territory of the Republic of Serbia" focuses on measures for tracking high-tech crime within the process of overall illegal migrations prevention as well as development of the Illegal Migrants Database that could correspond to relevant EU FRONTEX standards. The proposed IPA 2012 project should build upon the outcomes of this project and take next step in rounding up Serbia's IBM capacities by developing database on foreigners. • IPA 2010 - "Capacity building of institutions involved in migration management and reintegration of returnees in the Republic of Serbia" aims to strengthen existing institutions' capacity in order to achieve EU standards in Migration Management and reintegration of returnees upon readmission. Proposed project links with this one in the aspect of overall migrations monitoring and reporting. • IPA 2008 - "Development of the Information System for Border Crossing Control" aims to provide adequate technical infrastructure for border crossing checks, including development of an integrated information system for the Border Police Directorate. The proposed IPA 2012 project is a natural continuation of the results to be achieved in IPA 2008 project as it will provide basic infrastructure for establishment of interoperable data bases such as illegal migrants (IPA 2010) and foreigners (IPA 2012) databases. • IPA 2007 – "Improving Border Control Standards" focused on assessing available IT infrastructure resources of border services and state bodies, and securing a synchronized development of telecommunication and information technologies in terms of a support system to the integrated border management. It has been envisaged as the initial action of the assessment of the IT&C infrastructure and establishment of necessary preconditions for development of the Border Police Department's integrated information system to be developed in later IPA projects. • CARDS 2006 – Implementation of Integrated Border Management Strategy twinning project had the goal to analyse the current Human Resources Management system, including the legal framework, design a new Human Resources Management System, carry out training of the key personnel and develop the curricula for education and training of the staff involved in the Integrated Border Management activities. This project is completed in February 2011. 				
<p>1.3 Legal background</p> <p>This supply contract will contribute towards further progress in implementation of the acquis in this specific area: free movement of persons (freedom of movement for workers).</p>				

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European legislation:				
	<ul style="list-style-type: none"> • Council Directive 2009/50/EC of 25 May 2009 on the conditions of entry and residence of third-country nationals for the purposes of highly qualified employment; • Directive 2009/52/EC of the European Parliament and of the Council of 18 June 2009 providing for minimum standards on sanctions and measures against employers of illegally staying third-country nationals; • Directive 2011/51/EU of the European Parliament and of the Council of 11 May 2011 amending Council Directive 2003/109/EC to extend its scope to beneficiaries of international protection Text with EEA relevance; • Council Directive 2003/109/EC of 25 November 2003 concerning the status of third-country nationals who are long-term residents; 			
	National legislation:			
	<ul style="list-style-type: none"> • Law on Ministries (Official Gazette of the Republic of Serbia (RS) No. 19/04, 84/04, 79/05, 48/07; • Law on the Police (Official Gazette of the RS No. 101/05); • Civil Procedure Code (Official Gazette of the RS No. 125/05) • Criminal Procedure Code (Official Gazette of the RS No. 85/05) • Law on Travel Documents (Official Gazette of the RS No. 90/07); • Law on Foreigners (Official Gazette of the RS No. 98/2008) • Law about Personal Data Protection (Official Gazette of the RS No. 98/2008) • Decree concerning precise conditions for refusal of entry in the Republic of Serbia (Official Gazette of the RS No. 97/08). • Labor Law (Official Gazette of RS No. 54/09). 			

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1.4 Current Situation – Already existing Databases for Foreigners The current systems that provide information on the status of foreigner situations and interactions with various Serbian government institutions are not centralized and cannot provide consolidated insight into each individual. The proposed system must integrate with all of the existing systems (enumerated below) and provide a unified method of interrogation of the data to provide relevant and concentrated data to end-users. The existing databases list includes the following institutions / data sources:				
1.4.1 Databases for foreigners from Ministry of Interior				
Owner	Ministry of Interior			
Scope	To store information about foreigners: <ul style="list-style-type: none"> - in/out permission and in/out prohibition; - residence, transit; - issuing visas at the border crossing point; - issuing travel documents and identity cards. 			
Hardware	There are the following equipment: <ul style="list-style-type: none"> - servers (domain controller, database, application etc.); - workstations; - firewall devices, switches; - document readers, fingerprint readers, photo camera etc. 			
Software	Web applications (APP1, APP2, APP3 ... APPn)			
Database	Oracle Database			
Network	<ul style="list-style-type: none"> • INTRANET network – for all MoI entities; private network. • EXTRANET network – for all in/out traffic from other institutions based on web services. • VPN over Internet for VISA application access (MFA), only for two workstations. • There are no links between the networks. 			
Exchange data with other networks	<ul style="list-style-type: none"> • IN – data from VISA application (MFA) through VPN over Internet. • OUT – No. 			

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1.4.2 Database for foreigners from Ministry of Foreign Affairs				
Owner	Ministry of Foreign Affairs			
Scope	To store information about foreigners: <ul style="list-style-type: none">- issuing/rejecting visas through the diplomatic-consular network;- issuing special identity cards.			
Hardware	There are the following equipment: <ul style="list-style-type: none">- servers (domain controller, database, application etc.);- workstations;- firewall devices, switches etc.			
Software	Web application (VISA)			
Database	Microsoft SQL Server Database			
Network	<ul style="list-style-type: none">• INTRANET network – VPN over Internet to diplomatic-consular entities and Mol for VISA application.			
Exchange data with other networks	<ul style="list-style-type: none">• IN – No.• OUT – data from VISA application (MFA) to Mol VPN over Internet.			
1.4.3 Database for foreigners from National Employment Service				
Owner	National Employment Service			
Scope	To store information about foreigners: <ul style="list-style-type: none">- issuing working permits.			
Hardware	There are the following equipment: <ul style="list-style-type: none">- servers (domain controller, database, application etc.);- workstations;- firewall devices, switches.			
Software	Web application			
Database	IBM DB2 Database			
Network	<ul style="list-style-type: none">• INTRANET network – for all NES entities.			
Exchange data with other networks	<ul style="list-style-type: none">• IN – No.			

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	• OUT – No.			

NOTE: See the diagram with current situation in Figure no.1.

2.	SYSTEM GENERAL DESCRIPTION			
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The central database for foreigners (CDF) is an integrated system of both hardware and software components, tightly integrated to allow retrieval of data from external systems and output of the aggregated information for use in operational and decision making processes by the Beneficiary.

The system will assist the adequate monitoring of irregular immigrants as well as establish a central database for foreigners. It will improve cooperation and coordination between the three entities (MoI, MFA, NES) that are involved in effective migrations management system in line with EU standards.

The access to the system resources will be granted based on “need to know” principle and in accordance with the Serbian laws in effect today. The rights to perform certain actions and access information are provided to each user based on the role, group and user account.

For the purposes of the requested integrated system, the resources will be accessed only by the personnel from the following ministries:

(1) Ministry of Interior (MoI);

(2) Ministry of Foreign Affairs (MFA);

(3) National Employment Service (NES).

Location:

The IT equipment, licenses and applications necessary for operating of the proposed central database on foreigners will be placed in Ministry of Interior (MoI) facilities from Belgrade: Central Warehouse of the Ministry of Interior, Milorada Jovanovica 7

Quantity:

The system required is **one (1) Central Database for Foreigners (CDF)** including all hardware and software components required to allow the CDF to function correctly in the context of the project.

System components:

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List of hardware components is provided in the Table no.1.				
List of software components is provided in the Table no.2.				
The list of hardware/software components represents the minimum and mandatory amount and type of hardware/software required for the successful implementation of the CDF system.				
Each tenderer is encouraged to supply additional or equivalent components to the hardware/software components list, as long as all of the minimum requirements are met or exceeded.				
NOTE:				
(a) In order to ensure failover and backup the tenderer shall offer at least 2 hardware equipments for all devices in the project.				
(b) Regardless of the CDF system offered, any additional services required for the tenderer to successfully deliver it appropriately will not be quoted separately, as meeting all requirements and the inclusion of all features, modules and products is the sole responsibility of the tenderer.				
(c) The contracting authority will purchase a single, turn-key, fully compliant CDF system as part of the Contract, including all components and modules necessary to allow it to function properly.				

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
3.	TECHNICAL REQUIREMENTS			
The technical specifications defined in this document correspond to the needs and requirements of the Beneficiary. Given the specificity of this project, the authority has described the needs for deliverables and services in a level of detail necessary to interested economic operators, allowing the identification of the purpose of this public procurement contract.				
All specifications, services and requirements mentioned and requested in the context of this technical specifications are accompanied by the mention "or equivalent".				
For all components, products with either equivalent or exceeding specifications are accepted, but tenderers must provide valid proof for each claim.				
3.1.	System general requirements			
[R1]	All functional and technical specifications must be considered minimum and mandatory for all hardware and software components and are cumulative, unless otherwise specified.			
[R2]	The Tenderer shall deliver an integrated system: hardware, software, integration services and final customization for system.			
[R3]	A single product must comply with all specifications listed in its category/section simultaneously, to be considered compliant.			
[R4]	The Tenderer must ensure that any additional products and services included (equivalent or exceeding the specifications) do not break the functionality and / or the integrity of the end CDF system proposed.			

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[R5]	Refurbished, used or pre-owned components, devices or equipment are not accepted.			
[R6]	The Tenderer must ensure, to the best of their abilities, that the proposed solution is applicable in practice and no compatibility or integrity issues between components are known before submitting the offer			
[R7]	The Tenderer must include licenses for all proposed components, according to the Table no.2.			
[R8]	All licenses must be perpetual (lifetime license), excluding support and maintenance services.			
[R9]	All software should be delivered with Software Quality Assurance (SQA) during warranty period.			
[R10]	The Tenderer assumes all liability and responsibility (legal, financial, operational, commercial etc.) for not including any licenses required for the correct implementation of the CDF system.			

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[R11]	<p>The CDF system must integrate the databases containing information about foreigners from the following three governmental institutions:</p> <ul style="list-style-type: none"> • Ministry of Interior (MoI); • Ministry of Foreign Affairs (MFA); • National Employment Service (NES). 			
[R12]	The CDF system architecture must allow integrating and making the information available between all external sources (external databases).			
[R13]	All components of the CDF system must benefit from high scalability features to provide further development and scaling of the proposed system.			
[R14]	The CDF system must integrate all components seamlessly and ensure proper interaction between all components, both hardware and software.			
[R15]	The CDF system must integrate data generated by already existing platforms currently in use by all involved ministries.			

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[R16]	The entire system should be interoperable, and support data integration between heterogeneous technology providers and existing applications. The existing applications will be detailed during the analysis stage by the Beneficiary and the Contractor.			
[R17]	The system must rely on open standards such as SOAP, WSDL, XML, W3C, HTTP, web services, cross platform development etc.			
[R18]	All the components of the CDF system must have adequate redundancy to ensure availability of the infrastructure, the database and the CDF Web-based Interface.			
[R19]	The CDF system must operate 24/7 with an average yearly availability of minimum 99.95%.			
[R20]	The system must ensure data integrity and traceability regardless of the source system that generated it and use of such data.			
NOTE:	(1) All data transfers will be performed over the Governmental IT&C network. (2) Hardware and software security shall be provided in accordance with the Beneficiary security policies.			

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3.2.	Quality assurance requirements			
[R21]	The equipment must conform to relevant regulations and standards, including any ISO, IEC, domestic or other relevant regulations and standards.			
[R22]	All equipment (except accessories, consumables) must be compliant with the standards of RoHS and WEEE and have CE.			
[R23]	The Tenderer must provide a Certificate of Conformity for all equipment (except accessories, consumables) from the system. Certificate of Conformity can be international/EU recognized certificate issued by the manufacturer.			
[R24]	Within the technical proposal, the Tenderer shall submit a copy of the Quality Manual, signed by the legal representative of the Tenderer. In the case of Consortium the Quality Manual can be delivered by the Leader.			
[R25]	The required services during the contractual period must ensure the expected results at an appropriate quality level.			

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[R26]	Within the technical proposal, the Tenderer must present a description of the procedures and the quality criteria for Quality Assurance, applicable to all processes running in the current activity.			
[R27]	The Tenderer must include in his offer, the preliminary version of the Quality Plan for the project. The Quality Plan must include at least the following information: <ul style="list-style-type: none"> • A description of the phases, stages and activities during the project; • A description of the work-packages and deliverables resulting from the provisioning of the services; • A description of the acceptance criteria for deliverables, work-packages, phases and steps, etc. • Forms which must be used within the project. 			
3.3.	Warranty requirements			
[R28]	The Warranty period for the integrated system must be one (1) year from the date of the Contracting Authority having issued a Certificate of Provisional Acceptance.			

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[R29]	The Tenderer shall submit the Certificate of Warranty for equipment and system to the Contracting Authority stating the commencement date as the date of the provisional acceptance.			
[R30]	<p>The following activities/operations shall be assured during the warranty period:</p> <ul style="list-style-type: none"> • Maintenance regarding the supplied system in the agreed parameters (performance, availability and data integrity etc.); • Improvements to the technical performances of the system if the case; • Solving bugs that have not been identified during the implementation and which occur during the production stage. 			
3.4.	Acceptance conditions			
[R31]	Installation, testing, demonstration and training must be completed within the time frame set out in the Contract.			
[R32]	The integrated system must be fully operational and the personnel chosen by the Beneficiary will have been given full training.			
[R33]	All tests from the Testing & Evaluation Program must be finalized with success.			


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3.5.	Delivery conditions			
[R34]	The Tenderer shall provide the necessary measures to prevent any damage during delivery, installation, integration and customization stages. If any damage occurs during delivery, installation, integration and customization stages, the Tenderer shall appropriately rectify it.			
[R35]	<p>The system shall be delivered with the following:</p> <ul style="list-style-type: none"> • List of equipment; • Certificate of Warranty; • Certificate of Conformity; • Certificate of Origin; • Licenses; • Source code for all developed/custom applications; • Project documentation, detailed technical documentation describing installation, configuration, integration, customization etc.; • User manuals, Administrator manuals, Maintenance manuals; • Backup and Disaster Recovery Procedures; • Procedures for system software 			

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	<p>installation, configuration, integration, customization;</p> <ul style="list-style-type: none"> CD / DVD with: equipment drivers, restore operating systems, installation kits for software. 			
[R36]	All above mentioned documents will be delivered to the Beneficiary in Serbian and English languages, except the documents which are provided by the equipment providers. Accepted documents will be delivered in English language.			
[R37]	All the documents shall be delivered in hard-copy and electronic format.			
[R38]	All the supplies shall be package in such a way to avoid any damage or deterioration in transit to their destination.			
[R39]	<p>Each packaged supply item must have on the outside a sticker label identifying with the following information:</p> <ul style="list-style-type: none"> Supply Item number; Delivery location; Manufacturer name; Country of origin; Gross and net weight; Emergency contact number; Warnings and instruction for handling fragile materials. 			

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[R40]	<p>In addition, all packages should be marked as follows:</p> <p> Financed by the European Union</p> <p>Contract title: Supply of a software solution and necessary equipment for the establishment of central database on foreigners</p> <p>Contract No: XXXXXXXXXXXXX</p>			
[R41]	All marking and labeling sign shall be resistant to specific transport and handling conditions.			
3.6.	Testing & evaluation requirements			
[R42]	<p>The Tenderer shall define Testing & Evaluation Program which will contain minimum the following types of tests:</p> <ul style="list-style-type: none"> • On-Site Acceptance Testing (OSAT); • System Wide Acceptance Testing (SWAT). 			
[R43]	The Tenderer shall submit the Testing & Evaluation Program for the Beneficiary approval within 20 working days before the testing commence.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R44]	<p>The Tenderer shall prepare the following documents for each type of tests:</p> <ul style="list-style-type: none"> • Testing & Evaluation Plan; • Testing & Evaluation Procedures (Testing & Evaluation Cases); • Testing & Evaluation Report. 			
[R45]	The Tenderer shall submit the testing & evaluation documents for the Beneficiary approval within 10 working days before the testing commence.			
[R46]	The Tenderer shall execute the Testing & Evaluation Program only in the presence of the Beneficiary. The successful criteria are represented by the successful passing of all tests.			
[R47]	The Tenderer shall provide all testing & evaluation resources.			
3.7.	Project Management requirements			
[R48]	The Project Management shall be conducted according to a methodology recognized internationally by the professional bodies, specific for Project Management such as PMP/PMI or PRINCE2.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R49]	Within the technical proposal, the Tenderer shall present the detailed description of the Project Management methodology which shall be used within the project.			
[R50]	Within the technical proposal, the Tenderer shall present the detailed Project Plan.			
[R51]	Within the project, the Tenderer shall present the method for conducting the communication between the participants on the project.			
[R52]	Within the technical proposal, the Tenderer shall present the manner in which there will be solved the problems which might occur during the project. There will be presented the procedures and the forms which shall be users for problem management and their escalation and resolution.			
[R53]	Within the technical proposal, the Tenderer shall present the Acceptance Plan that should be used within the project for the provisional acceptance and the final acceptance. It shall be presented the plan divided on stages, as well as the forms associated with provisional acceptance and the final acceptance.			
3.8.	Reporting requirements			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
3.8.1	Initial Report			
[R54]	The Tenderer shall transmit the Initial Report to the Beneficiary, and it must include a detailed plan of the activities, implementation of period of the project, and also a description of the methodology taken in order to address the problems occurred and methods of resolving them, as well as indicators referring to the achievement of the expected results.			
[R55]	The Tenderer shall provide, in this report, a provisional timetable for the execution of the activities of the project, which will present the method in which the activities are planned and executed during the project commissioning period. The graph will also contain certain marks for monitoring the project.			
[R56]	The Initial Report shall be transmitted in 10 working days from the beginning of the Contract.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
3.8.2	Final Report			
[R57]	The Final report will provide a detailed description of the activity provided by the Tenderer within the project and will contain details of the implementation, consisting in technical, financial and administrative nature. The report will also contain an assessment of the degree of achievement of the objectives of the project.			
[R58]	The Final Report, amongst other, shall: <ul style="list-style-type: none"> Describe the general situation of the project, including a critical study of any major problems that could occur during the implementation of the project; Describe the status and results of the assistance offered to each Beneficiary of the project. 			
[R59]	A preliminary version of the final report shall be forwarded with a 10 working days before the completion of the project, to the beneficiary who has the opportunity to make comments on the report, in order to include them in the final version. The final report shall contain a general description of the activities implemented during the fulfillment of the project, as well as a summary of the			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	results obtained and the problems that have occurred. The final version of the final report shall be sent not later than 15 working days after its completion.			
[R60]	The final report, like all other reports on which the supplier is obligated to submit them in agreement with this document (i.e. the Initial Report) shall be approved by the Beneficiary.			
3.8.3	Quarterly implementation reports			
[R61]	At the end of each quarter, the Tenderer is required to prepare and submit quarterly reports to the Beneficiary. These reports are intended to inform the Beneficiary with the progress of the activities carried out within the project, the main problem occurred, recommendations and requirements etc.			
[R62]	Quarterly reports should provide information on the technical progress of the project for the reporting period, the progress planned for the next reporting period, unsolved aspects which may lead to delays and/or contingency costs.			
3.9.	Visibility events			
[R63]	The Tenderer shall organize the following visibility events: <ul style="list-style-type: none"> • Press release – after the inception stage; 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<ul style="list-style-type: none"> • Press Conference – after the commissioning stage of the CDF System: <ul style="list-style-type: none"> - Approximately 50 participants; - The location of the event shall be selected in order to ensure integration of all activities proposed under the press conference; heating facilities, conference room, Internet connection; - The consultant will be responsible for: establish a proper and diverse agenda, print and send invitations to participants, follow-up the invitations in order to ensure the estimated participation, design and ensure the production of all printed materials to be distributed at the conference, arrange and support the expenses related to meals and coffee breaks, ensure reception of the participants, provide (tent) and operate during the conference adequate audio-visual equipment, video-record and take photos of the conference sessions and provide them on CD/DVD. 			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R64]	The visibility events shall be in accordance with EU rules. Additional info could be found to the following link: http://ec.europa.eu/europeaid/work/visibility/			

Table no.1: Hardware for CDF

No.	Hardware	Unit type	Total Quantity
1.	Enterprise Chassis	Piece	2
2.	Network Switch	Piece	4
3.	Fiber channel switch	Piece	4
4.	Blade server	Piece	8
5.	Storage system	Piece	2
6.	Fiber Optic Cable	Piece	16
7.	Rack 19 inch	Piece	2
8.	KVM Console Kit, Switch & Accessories	Piece	2
9.	Workstation	Piece	15
10.	Document Reader	Piece	30
11.	Printer - A4, laser	Piece	15

Table no.2: Software for CDF

No.	Software	Unit	Total Quantity
1.	Server Operating System	Per server	8
2.	Database Management System	Per core	8
3.	Web Application Server	Per core	6
4.	Integration System	Per core	4
5.	Data warehouse appliance	Per appliance	1
6.	Foreigners Information System (FIS) – Audit Appliance	Per appliance	1
7.	Foreigners Information System (FIS) – Foreigners Management Module	Per user	1000
8.	Foreigners Information System (FIS) – Foreigners Search Module	Per user	1000
9.	Foreigners Information System (FIS) – Foreigners Reporting Module	Per user	1000
10.	Foreigners Information System (FIS) – Foreigners Content Management Module	Per user	30
11.	Security and Access Control – Access Manager Single Sign-On	Per user	1000
12.	Security and Access Control – Access Manager for Web	Per user	1000
13.	Infrastructure Monitoring – Resource Monitoring	Per device	30
14.	Infrastructure Monitoring – Agent Monitoring	Per device	60
15.	Storage Management – Storage Manager	Per client	32
16.	Storage Management – Email Storage Manager	Per client	32
17.	Application Management	Per application	5
18.	Log Management	Per server	1
19.	Backup Management	Per CPU	20

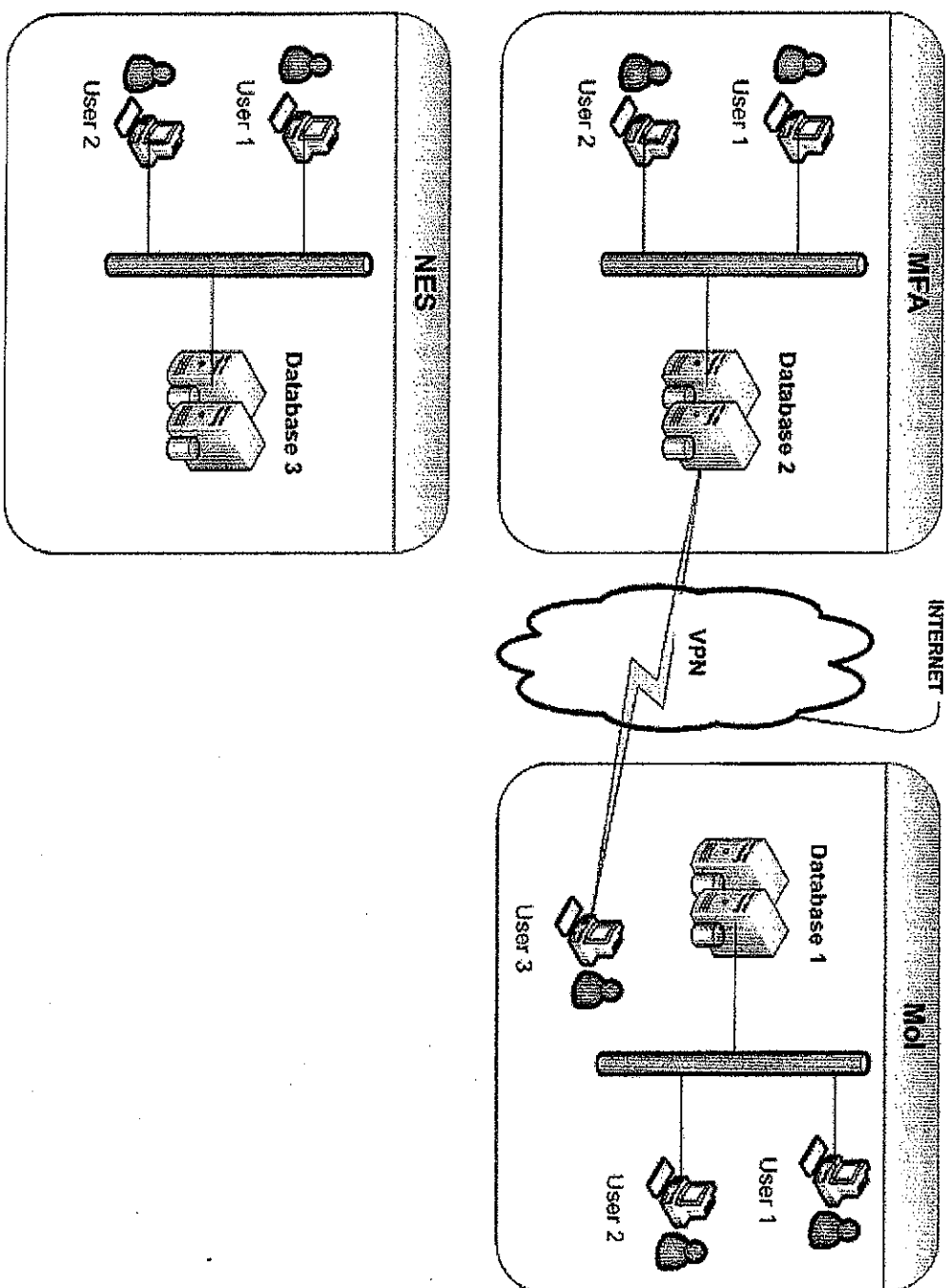


Figure no.1: Current situation: Databases for Foreigners – MoI, MFA, NES

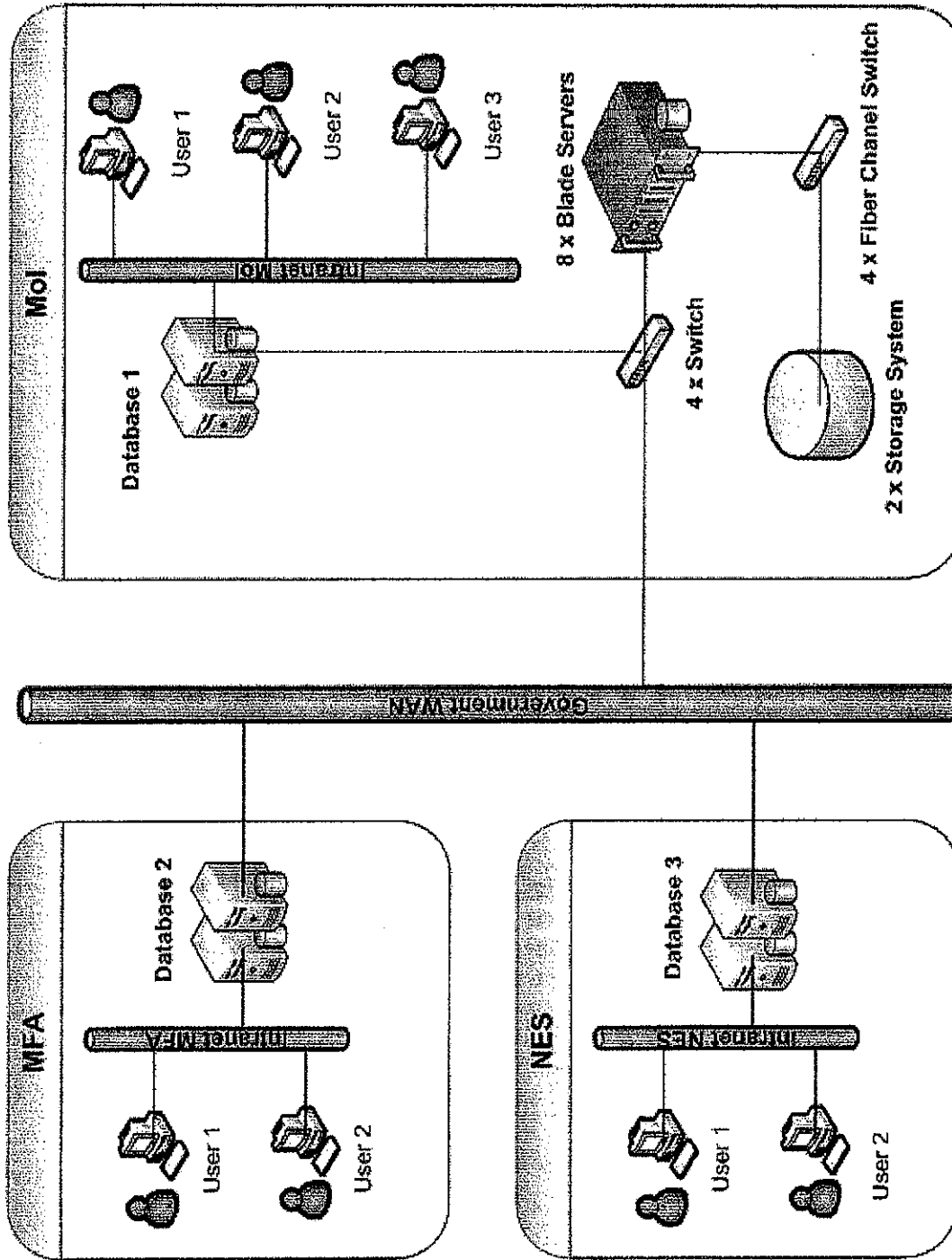


Figure no.2: Suggested architecture: Central Database for Foreigners – Physical Diagram

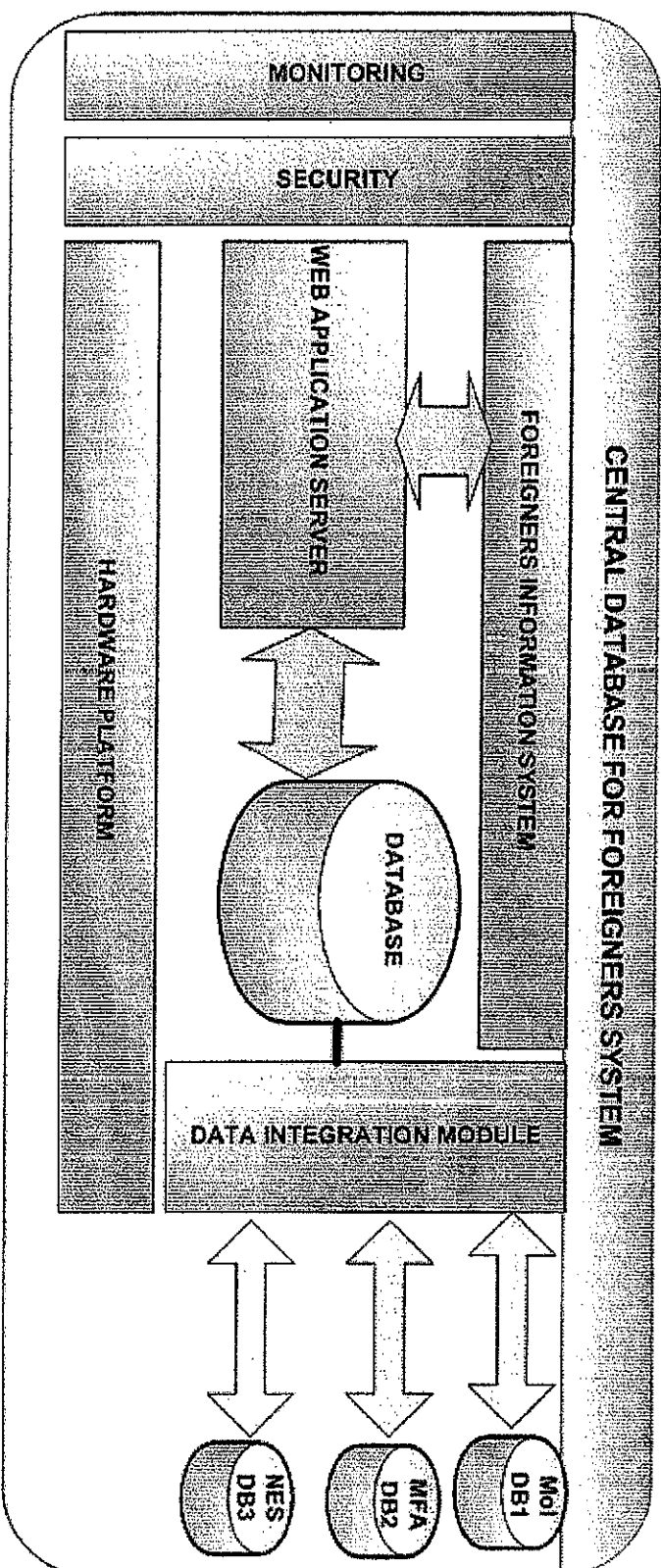


Figure no.3: Suggested architecture: Central Database for Foreigners – Logical Diagram

ANNEX III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Column 1-2 should be completed by the Contracting Authority
 Column 3-4 should be completed by the tenderer
 Column 5 is reserved for the evaluation committee

The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the Contracting Authority shows the required specifications (not to be modified by the tenderer),
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words "compliant" or "yes" are not sufficient)
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
4.	HARDWARE REQUIREMENTS			
4.1.	Hardware requirements			
[R65]	The Tenderer must include in their offer a complete set of required cables, patch cords, power cords, Ethernet cables, appropriate FC cables, accessories and other physical modules required for the proposed system to operate in accordance with specifications.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R66]	The system must be suited for operation under Central European land climate and weather conditions without requiring a special preparation process.			
[R67]	Operating temperature: +10°C to +35°C unless specified otherwise.			
[R68]	In case of media failure replacement will take place without returning the original media, due to security constraints.			
4.2.	Enterprise Chassis (Quantity 2)			
[R69]	Blade Chassis 19" rack mounting.			
[R70]	It need to provide space to place at least 14 standard (single) blade servers compatible with blade server nodes based on x86 compatible architecture and blade server nodes based on RISC based architecture.			
[R71]	Support for at least 4 communication I/O modules; 8 Gbps and 16 Gbps Fiber Channel; 10 Gbps Ethernet; Infiniband. All IO bays must be filled with adequate switches (2 x switch 10 Gbps Ethernet and 2 x 16 Gbps Fibre Channel switch modules) modules to enable capability of future upgrades of IO connectivity.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R72]	Offered solution must provide full Switching Redundancy.			
[R73]	At least 6 Power Supplies; All slots populated (for the maximum possible installed capacity of server nodes and I/O modules). Power Types Single-phase; three-phase (with power distribution units [PDUs]).			
[R74]	Supported PS redundancy N+1, N+N.			
[R75]	All fan slots must be populated (for the maximum possible installed capacity of server nodes and I/O modules).			
[R76]	Chassis management system must be redundant, minimum two management modules for chassis management.			
[R77]	Chassis Management User Interface must support Web and command line interface (CLI).			
[R78]	Chassis Information Panel with front and rear LED panel with identity, check log, and fault LEDs.			
[R79]	Chassis Midplane type – Passive.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
4.3.	Network Switch (Quantity 4)			
[R80]	10Gb Downlink Ports: at least 14 x 10GbE standard.			
[R81]	10Gb Uplink Ports: at least 10 x 10GbE standard.			
[R82]	Provided 40Gb Uplink Support.			
[R83]	Security features: Security features supported: VLAN-based, MAC-based, and IP-based access control lists (ACLs), 802.1x port-based authentication, Multiple user IDs and passwords, User access control, Radius, TACACS+ and LDAP authentication and authorization.			
[R84]	Supported Layer 2/3 switching functionalities, complete solution need to provide Layer 3 capabilities (RIP, OSPF, BGP, IGMPv3, POS, ACLs). Blade switches without Layer 3 capabilities are only accepted if an additional external redundant switch is included as part of offered solution (10 Gbps switch, at least one per chassis).			
[R85]	Network Virtualization Aware: Yes.			
[R86]	Virtual NIC support: Yes - Virtual NIC support for Ethernet, iSCSI, or FCoE traffic is supported on vNICs.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R87]	Stacking: Yes.			
[R88]	Provided SFP: Provided SFP for blade switch at least 5 x 1000Base-T SFP RJ45 SFP and 4 x SFP+ SR per switch; adequate 10 Gbps SFP modules need to be included in optional external switches.			
4.4.	Fiber Channel SAN Switch (Quantity 4)			
[R89]	At least 14 x 16Gb Fiber Channel activated Downlink Ports per switch.			
[R90]	At least 10 x 16Gb Fiber Channel activated Uplink Ports per switch.			
[R91]	Enabled functionalities: Full fabric, Access Gateway, Advanced zoning, Enhanced Group Management, ISL Trunking, Adaptive Networking, Advanced Performance Monitoring, Fabric Watch, Extended Fabrics, Server Application Optimization.			
[R92]	Provided SFP for blade switch at least 2 x 16Gb/s and 8 x 8Gb/s SFP+ modules per switch.			
4.5.	Blade Server (Quantity 8)			
[R93]	At least 4 CPU sockets per node.			
[R94]	At least 4 x Xeon Eight Core 2.2 GHz installed or equivalent.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R95]	Supported memory technology, DDR3 LRDIMMs (1.35V), RDIMMs (1.35V, 1.5V), or UDIMMs (1.35V).			
[R96]	Supported memory protection Memory Protection, memory mirroring, memory rank sparing.			
[R97]	Maximum Memory: 1.5TB (48 x 32GB LRDIMMs), 768GB (48 x 16GB RDIMMs), or 128GB (32 x 4GB UDIMMs).			
[R98]	At least 128 GB installed, PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM.			
[R99]	Chipset: Intel C600 (Patsburg) / 7500 (Boxboro) or equivalent.			
[R100]	Hard disk and RAID with integrated controller support, SATA, SSD, SAS drives support, at least RAID 0, 1, and 10.			
[R101]	2 x 300GB 2.5in SFF 10K 6Gbps HS SAS HDD must be included in node.			
[R102]	Media ports, at least 1 USB port.			
[R103]	At least 4 x 10Gb Ethernet ports per node with enabled support for FCoE, iSCSI and vNIC.			
[R104]	At least 4 x 16 Gbps Fibre Channel ports per node.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R105]	Remote access for Management.			
[R106]	Enabled Trusted Platform Module Support 1.2.			
[R107]	Diagnostics Tools based on light emitting diodes (LEDs) used to predictive failure analysis at least for the following items: processors, memory and disk drives.			
4.6.	Storage system (Quantity 2)			
[R108]	Storage system must have no point of failure.			
[R109]	System with at least 2 active-active controllers.			
[R110]	At least 8 GB based cache per controller.			
[R111]	Storage must be dynamic system with internal storage virtualization installed.			
[R112]	Supported disks: SSD, SAS, NL-SAS/SATA.			
[R113]	Storage capacity included: at least 9 x 900 GB SAS 10k drives.			
[R114]	RAID support 0, 1, 5, 6, 10.			
[R115]	Storage protocols support: iSCSI, FC, FCoE.			
[R116]	Storage OS support for: Windows, AIX, Linux, Solaris, HP-UX, VMware.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R117]	Storage interface ports: <ul style="list-style-type: none"> • Min 8 x 8Gbps FC ports; • Min 4 x 1 Gbps Ethernet. 			
[R118]	Storage system must support at least 120 numbers of disks.			
[R119]	Thin/Virtual provisioning for total RAW installed storage capacity.			
[R120]	Storage „point in time“ copy features.			
[R121]	One-way data migration required software.			
[R122]	Support for automatic and dynamic storage multi tiring data allocation – using SSD installed disks; Support for remote mirroring.			
[R123]	Multi path support, failover, loads balancing for the following: Microsoft Windows, Linux Red Hat, Solaris, SLES, Vmware ESX, Microsoft Hyper-V, IBM AIX, HP-UX.			
[R124]	Storage management software: Web based, CLI or dedicated management application.			
[R125]	Rack mountable. The configuration shall also include the kit for rack mounting equipment.			
[R126]	At least 8 x 5m Long FC-LC optic cable.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
4.7.	Rack 19 inch (Quantity 2)			
[R127]	At least 42U, 600 mm width × 1200 mm depth.			
[R128]	At least six 1U rear-facing sidewall compartments for power distribution and other components.			
[R129]	Lockable doors and side walls.			
[R130]	Minimum 2 PDU with minimum 12 IEC C-13 outlets, 32A three-phase input.			
[R131]	Minimum 2 PDU with adequate power connections for offered blade chassis, with minimum 12 IEC C-19 and minimum 12 IEC C-13, 32A, three-phase.			
4.8.	KVM switch / KVM Console / KVM Accessories (Quantity 2)			
[R132]	Must include compatible cables for connection with servers and must provide enhanced remote management, access, and security capabilities with out-of-band access to servers; KVM-over-IP and serial console management technology.			
[R133]	Support for VGA, SVGA, SGA, and SXGA video.			
[R134]	1U form factor.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R135]	Virtual Media and TFA device support.			
[R136]	Support for minimum 16 Servers.			
[R137]	Video resolutions minimum up to 1600x1200 or 1680x1050 (widescreen).			
[R138]	Keyboard: integrated.			
[R139]	Mouse: Track-ball / Touch-pad.			
[R140]	1 x USB Port shall be present.			
[R141]	All needed accessories shall be included.			
[R142]	Rack mountable. The configuration shall also include the kit for rack mounting equipment.			
4.9.	Workstation (Quantity 15)			
[R143]	Processor x86 at minimum 3.1GHz and 8MB cache.			
[R144]	Support for 1600 MHz, DDR3 RAM Memory, with at least 4 GB installed.			
[R145]	4 x USB 3.0, 5 x USB 2.0.			
[R146]	Support for up to 2 HDD, with 1 x 1TB, 3.5", SATA, 7200 rpm installed.			
[R147]	Optical drive: DVD +/- RW.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R148]	Power supply unit: minimum 500 W.			
[R149]	Keyboard with Serbian language support and mouse shall be delivered.			
[R150]	Network / Ethernet: At least one on-board gigabit Ethernet card.			
[R151]	The workstation shall be delivered with the latest version of Windows operating system.			
[R152]	A monitor shall be included. The monitor shall have 1440x900 resolution, 5ms response time.			
4.10.	Printer (Quantity 15)			
[R153]	The printer must support A4 paper format.			
[R154]	Printing speed (black & white) must be at least 35ppm.			
[R155]	Printing resolution must be 600x600dpi.			
[R156]	Standard RAM memory must be 128MB.			
[R157]	USB 2.0 must be supported by the printer.			
[R158]	Wireless LAN support must be available (WiFi 802.11 b/g/n).			
[R159]	Support for PCL 5e, PCL 6, PostScript 3 and PDF must be available.			
[R160]	Minimum printing volume per month must be 50000 (per month).			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
4.11.	Document Reader (Quantity 30)			
[R161]	Resolution: 400 dpi.			
[R162]	Image formats: BMP, JPG.			
[R163]	Illumination: White visible, 400-750nm, IR 850nm, Ultraviolet A 365nm.			
[R164]	Processes: Image capturing, OCR data capture, read 2D barcodes (PDF 417) from paper documents, Contactless chip reading (ISO/IEC14443A&B).			
[R165]	Minimum hardware configuration: 1.7 GHz P4, 512 Mb DRAM, 100 Mb HDD space for software.			
[R166]	Hardware interface: USB.			
[R167]	Operating systems: Windows 2000-SP4, Windows XP, Windows Vista or Windows 7.			
[R168]	Operating temperature: -10° to 50° C.			
[R169]	Operating humidity: 20 to 95% (R.H. non-condensing).			
[R170]	Storage temperature: -20° to 50° C.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.	SOFTWARE REQUIREMENTS			
5.1.	Software general requirements			
[R171]	The solution must have an open-standard, flexible architecture.			
[R172]	The server's operating systems proposed must support failover and load-balance multi-path disk access.			
[R173]	The software components must be tightly integrated and should allow the Central Database for Foreigners (CDF) to extract process and display information extracted from the external data sources.			
[R174]	The software components will provide support to extract information from heterogeneous databases pertaining to three different institutions (MoI, MFA and NES).			
[R175]	The system shall extract data from MoI, MFA and NES databases according to the rules and regulations imposed by the Serbian law.			
[R176]	The system shall extract the data from MoI, MFA and NES databases on demand no later than 5 minutes since the changes occurred.			
[R177]	The system shall offer options to independently configure data integration and extraction batch processes.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R178]	The CDF system must store the extracted data into the database management system component.			
[R179]	The data shall be stored in the database management system according to the Serbian laws and regulations in effect.			
[R180]	All data shall be stored at the CDF system, on line in near-real-time, every time changes occur.			
[R181]	The proposed solution shall consolidate the selected data entries from Mol, MFA and NES databases into CDF system database component.			
[R182]	Data shall be consolidated in the CDF database asynchronously.			
[R183]	Change detection shall be performed without significant overhead on the source systems. All changes shall be merged using optimized queries, through the use of advanced ETL processes.			
[R184]	Merged data shall be transformed and data quality shall be ensured (duplicates removed, typos corrected etc.) before merging into the CDF database.			
[R185]	All merge operations shall be logged.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R186]	All merge operations shall be optimized to reduce the processing overhead and load increases on the CDF database.			
[R187]	The ETL and merging system shall include a staging area for the data.			
[R188]	The ETL staging area will be used to perform all optimization processes before data merging takes place in the CDF database.			
[R189]	<p>The data types which will be extracted from MoI, MFA and NES databases are, as specified in the appropriate laws and regulations:</p> <ul style="list-style-type: none"> • From MoI Database to CDF: <ul style="list-style-type: none"> ○ Foreigners who have been granted permanent residence; ○ Foreigners who have been granted temporary residence; ○ Foreigners whose temporary residence has been revoked; ○ Registrations of foreigners' permanent residence, terminations of permanent residence and changes of address; ○ Registrations of foreigners' stays; ○ Foreigners in transit through the 			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<p>territory of the Republic of Serbia;</p> <ul style="list-style-type: none"> ○ Prohibitions of foreigners' entry into and exit from the country; ○ International felons who are prohibited from entering the Republic of Serbia; ○ Foreigners in respect of whom a protective measure of removal or security measure of banishment is in force; ○ Visas issued at border crossing and rejected applications for issuing visas at border crossing; ○ Foreigner travel documents and identity cards issued; ○ Foreign travel documents used for entry into and exit from the Republic of Serbia; ○ Foreigner travel and other documents reported lost and found, in conformity with the Law; ○ Travel documents temporarily confiscated; ○ Carriers and tour operators in 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<p>respect of which a protective measure of prohibition of engagement in commercial activity referred to in Article 81, paragraph 4 hereof has been pronounced;</p> <ul style="list-style-type: none"> ○ Legal entities and sole traders in respect of which a protective measure of prohibition of engagement in commercial activity referred to in Article 82, paragraph 3 hereof is in force. <ul style="list-style-type: none"> • From MFA Database to CDF: <ul style="list-style-type: none"> ○ Issued visas; ○ Rejected visa applications; ○ Issued special identity cards; ○ Issued foreigner's laissez-passers (travel document issued by a national government or certain international organizations); ○ Foreigner travel and other documents reported lost and found, in conformity with the Law. • From NES Database to CDF: <ul style="list-style-type: none"> ○ Working permits for foreigners. 			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R190]	A common foreigner identifier must be singled out during the analysis stage of the project to ensure that proper data model integration is implemented in the final product.			
[R191]	The CDF system must not allow data transmission from its own database system to other external systems (such as Mol, MFA and NES databases) without explicit permissions.			
[R192]	Access to the system resources shall be granted on a "need to know" basis and in accordance with the rights provided by the role, group and user account defined by the owners of information.			
[R193]	The interaction with the CDF system will be restricted to the user accounts, roles and permissions explicitly allowed to extract information according to the current specifications.			
[R194]	The user access rights and roles will be established in the detailed operational analysis stage of the project together with Beneficiary.			
[R195]	Authentication will be performed for each user connecting to the CDF system, through ID/password pairs, unique to each individual user for MFA and NES and by PKI for Mol.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R196]	Authentication against any application module authorizes any user to access all resources he has sufficient privileges to access.			
[R197]	The solution shall be designed and implemented so as to support a minimum number of 1.000 concurrent users (querying and actively using the CDF system simultaneously).			
[R198]	The system must provide any user account with a customized view of the system (e.g. name of a logged-in-user must appear on all pages).			
[R199]	The system must support Backup and Recovery through dedicated components and mechanisms (full, differential, incremental).			
[R200]	<p>All delivered components must be compliant with or must be implemented according to specialized standards in the field, such as:</p> <ul style="list-style-type: none"> • XML for inter-applications data transfer; • XSL for transforming data from one structure to the other; • SOAP/WSDL for calling inter-applications procedures; • AD or LDAP for access to the directory solution. 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R201]	All software components proposed shall be server operating system independent, being able to operate on multiple server operating systems (such as Microsoft Windows Server, commercial flavors of UNIX and enterprise Linux distributions).			
[R202]	All interfaces between modules or with external modules shall be created using protocols in compliance with the above mentioned standards or with other non-proprietary standards (HTTP, web services, XML transport, JAVA messaging etc.).			
[R203]	Software applications must support extending functions and development of new clients for server applications in a commercially available programming language.			
[R204]	Any of the delivered components must allow future extension and development of new functionalities.			
NOTE:	All information about structures of the existing databases and workflows will be gathered during the detailed analysis stage of the project.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.2.	Database Management System			
[R205]	The relational database shall support the communication with client applications using the TCP/IP transport protocol.			
[R206]	The relational database must not allow the execution of operations on database objects except if the user is authorized for the respective operation.			
[R207]	Database execution operations are only allowed once the users are correctly authenticated.			
[R208]	The relational database must offer an exclusive list of operations which a group or class of users can execute.			
[R209]	The DBMS must allow the import and export of information in different data formats.			
[R210]	The DBMS must ensure the reduction of data access conflicts and guaranteeing concurrent access to data.			
[R211]	The DBMS must allow the reorganization, moving, redefinition of tables.			
[R212]	The DBMS shall offer the possibility to define priority schemes within the database access module depending on the type of the user.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R213]	The DBMS must provide support for multimedia data			
[R214]	The database shall offer the possibility to store and manage XML data structures using native mechanisms of the database.			
[R215]	The database shall allow the parallel execution of SELECT, INSERT, UPDATE, DELETE, MERGE.			
[R216]	The DBMS shall ensure support for large databases with automatic management capabilities of the storage space without using volume manager software tools.			
[R217]	The DBMS shall offer control and blocking mechanisms in terms of record and mechanisms for ensuring read consistency, without any escalations, in order to allow a concurrent access for the user to the data.			
[R218]	The database shall support transactions recovery mechanisms during an unforeseen stop (voltage drops) of the database (roll-forward).			
[R219]	The DBMS shall offer the possibility to limit the number of connections to the database by using a database connection pooling mechanism.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R220]	The DBMS shall offer a native mechanism for restricting the access of users to the registration level and table column.			
[R221]	The DBMS shall offer a facility for saving and restoring the entire database.			
[R222]	The DBMS shall offer a facility for recording all database modifications, in order to allow the recovery of the database (transactions recording).			
[R223]	The DBMS shall offer a facility for recovering the entire database a given time, specified by the user.			
[R224]	The DBMS shall offer the ability to perform save operations for one or more spaces assigned to tables as specified by the database administrator.			
[R225]	The DBMS shall allow the online saving of the database directly to tape backup systems.			
[R226]	The DBMS shall allow the possibility to restore the database directly from tape backup systems.			
[R227]	The DBMS must record in multiple disk files simultaneously during a saving operation.			
[R228]	The DBMS must read from multiple disk files at a time during a restoration operation.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R229]	The DBMS must have database and table partitioning features included.			
[R230]	The relational database shall allow for high availability architecture.			
[R231]	The DBMS must allow for a temporary stopping of a node for maintenance, support, system upgrade and remain available during all this time.			
[R232]	The DBMS must allow for a dynamic modification of the database parameters in case of supplementing the system with memory, processors or storage space without requiring the restarting of the systems.			
[R233]	The relational database shall identify and solve deadlock situations.			
[R234]	The DBMS must allow the administrator the possibility to impose primary key constraints.			
[R235]	The relational database must offer the ability to impose constraints in order to ensure that not duplicate value is introduced in a certain column which does not participate to a primary key or unique index.			
[R236]	The DBMS must offer the ability to impose constraints on the data values.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R237]	The DBMS must include workload management capabilities as well as autonomic and self-tuning capabilities.			
[R238]	The relational database must include an optimizer system based on hardware resource cost in order to optimize queries.			
[R239]	The DBMS shall not depend on the server operating system and must support the work of non-standard data types (XML).			
[R240]	Multiple database instances, isolated and completely functional shall coexist on a single SMP node.			
[R241]	The relational database shall support data compression.			
[R242]	<p>The database administration tool shall include the following functionalities:</p> <ul style="list-style-type: none"> • A SQL window for building and executing scripts; • A window for saving and displaying SQL scripts; • A graphical window for adding and deleting the following objects of the database and for modifying their properties: table, index, view, constraint, trigger, stored procedure; • A graphical window for performing 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	tasks related to the following functions of the database: storage, backup, recovery.			
[R243]	The database must include a development tool dedicated to extending, adding or changing the features and the way the DBMS works.			
5.3.	Web Application Server			
[R244]	The application server must be a robust, agile platform providing support for running J2EE applications.			
[R245]	The application server must meet the Java EE 6 standard, provide support for EJB 3.0, JPA (Java Persistence API) and JDK 6.0.			
[R246]	The application server must enable simplifying interoperability via web services.			
[R247]	The application server must provide WEB 2.0 support.			
[R248]	The application server must provide support for Session Initiation Protocol (SIP).			
[R249]	The application server must enable communicating via asynchronous messages using a Java Message Service (JMS) integrated provider meeting the JMS 1.1 standard.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R250]	The application server must provide support for Java EE Connector Architecture (JCA) 1.5 for connectivity between application servers and various information systems (Enterprise Information Systems - EIS).			
[R251]	The application server must provide support for Java Transaction API (JTA) 1.1.			
[R252]	The application server must provide authenticated and authorized access.			
[R253]	The application server must provide support for LDAP registry, Custom registry, file-based registry or federate registry.			
[R254]	The application server must provide support for Java Authorization Contract for Containers (JACC) 1.1.			
[R255]	The application server must provide support for model-based development.			
[R256]	The application server must provide native integration with a compatible development platform.			
[R257]	The application server must enable the secured exposure of intranet services to internet users.			
[R258]	The application server must enable intranet localized systems to securely use external web services.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R259]	The application server must enable cluster structures and failover configuration.			
[R260]	The application server must enable support for active clustering.			
[R261]	The application server must be able to function as a web server directing browser requests towards applications running on the application server.			
[R262]	The application server must enable the intelligent distribution or the work task in the cluster.			
[R263]	The application server must be able to balance the traffic entering into the system.			
[R264]	The application server must provide high availability and backup facilities.			
[R265]	The application server must provide mechanisms for regulating the performance on server level up to the most detailed level of applications and components used by them.			
[R266]	The application server must provide a balancing and caching component that is installed in front of the web server.			
[R267]	The application server must provide the web server component that is installed in front of the application server for balancing application nodes.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R268]	The application server must provide universal access to data and persistency.			
[R269]	The application server must support the Java DataBase Connectivity (JDBC) API.			
[R270]	The application server must support Java Persistence API (JPA).			
[R271]	The application server must support the SCA standard.			
[R272]	The application server must support the Service Data Objects (SDO) standard.			
[R273]	The application server must support Portlets. The application server must support Session Initiation Protocol (SIP) applications.			
[R274]	The application server must support Java Servlet 2.5 (JSR 154) and Java Server Pages (JSR 245) standard.			
[R275]	The application server must provide high granularity.			
[R276]	The application server must provide user definition and control flexibility.			
[R277]	The application server must provide auditing capabilities.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R278]	The application server must enable secure proxy-type implementations in order to easily configure the application server when it is used in demilitarized area (DMZ).			
[R279]	The application server must provide Single Sign-On functionalities.			
[R280]	The application server must enable auditing administrative actions security information, such as security configurations modifications, key and certificates management modifications, access control policies modifications, etc.			
[R281]	The application server must provide an improved security administration console level, with access based on rights depending on cell, node, cluster or application-level roles.			
[R282]	The application server must enable anticipating and adjusting critical parameters for the platform.			
[R283]	The application server must provide simplified and flexible infrastructure for the control of running environments efficiency.			
[R284]	The application server must provide remote administration for several application servers.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R285]	The application server must provide control for complex environments with complex topologies.			
[R286]	The application server must provide a web-based administration console.			
[R287]	The application server must enable the centralized management of information transfer in between environments.			
[R288]	The application server must provide capabilities for easily configuring the database security and connectivity with a stand-alone client for an efficient administration of the deployment environment (real operation environment).			
[R289]	The application server must provide consolidated administration capabilities for external devices that can be integrated and managed in the application server environment.			
[R290]	<p>The application server must provide support for new Web Services standards such as:</p> <ul style="list-style-type: none"> • Web Services Interoperability Organization (WS-I) Basic Profile 1.2 and 2.0; • WS-I Reliable Secure Profile; • Java API for XML Web Services (JAX-WS); 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<ul style="list-style-type: none"> • SOAP 1.2; • SOAP Message Transmission Optimization Mechanism (MTOM); • XML-binary Optimized Packaging (XOP); • WS-ReliableMessaging; • WS-Trust; • WS-SecureConversation; • WS-Policy. 			
5.4.	Integration System			
[R291]	Extract, Transform, Load (ETL) tool with GUI for design and deployment of ETL jobs.			
[R292]	ETL must have parallel processing capabilities for real-time or near real-time ETL jobs.			
[R293]	ETL tool must have incremental load of changed data only in order to speed up data load.			
[R294]	ETL tool must have scheduling mechanism for ETL jobs.			
[R295]	ETL tool must have built in error handling and automatic restart of failed ETL jobs.			
[R296]	ETL tool must be able to connect to various data sources such as: databases, different file formats (txt/excel/cvs) and webservices.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R297]	ETL tool must support real-time data integration requirements from sources such as web services, or message queues.			
[R298]	ETL tool must support resource estimation and detailed explanation of CPU, memory and disk usage in each stage of the ETL process.			
[R299]	ETL tool must support performance monitoring.			
[R300]	ETL tool must support data lineage analysis.			
[R301]	ETL tool must support scalability.			
5.5.	Data Warehouse appliance			
[R302]	Data Warehouse appliance must have data compression.			
[R303]	Data Warehouse appliance should provide capacity for at least 10 TB of compressed user data.			
[R304]	Data Warehouse appliance must support no indexes or tuning and out of the box performance, no configuration or physical modeling.			
[R305]	Data Warehouse appliance must be data model agnostic.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R306]	Data Warehouse appliance must support option that no aggregate tables are needed.			
[R307]	Data Warehouse appliance must have standard JDBC and OLE DB interfaces for integration with ETL, reporting and analytic applications.			
[R308]	Data Warehouse appliance must support Workload management and assessing the workload of the system and using job control and prioritization features to allocate the appropriate share of resources to jobs running on the system.			
[R309]	Data Warehouse appliance support managing of multiple separated databases.			
[R310]	Data Warehouse appliance must support Short query bias (SQB).			
[R311]	Data Warehouse appliance must support Guaranteed resource allocation (GRA).			
[R312]	Data Warehouse appliance must support Prioritized query execution (PQE).			
[R313]	Data Warehouse appliance must support data loading and query processing simultaneously and concurrent within the system.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.6.	FIS Audit Appliance			
[R314]	<p>It shall comply the following requirements:</p> <ul style="list-style-type: none"> • Memory: 6 GB DDR3; • Storage: Internal 1 x 2.5" SATA HDD, 250 GB; • External drive bays: 1 x 3.5"; • USB Interfaces: 4 x USB ports, 2.0; • Serial Interfaces: 2 x standard RS-232; • LAN Interfaces: 2 x Gigabit Ethernet; • Protection Class: IP20; • Shock and vibration protection. 			
[R315]	It shall rely on an internal disk for storing information.			
[R316]	It shall support linking via a LAN connection to application servers and other components in order to enable access to their internal data.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.7.	Foreigners Information System (FIS)			
5.7.1	Foreigners Information System (FIS) – Interface			
[R317]	The system shall ensure the following interfaces: <ul style="list-style-type: none"> • CDF with Mol, MFA and NES Databases; • CDF with users. 			
[R318]	The system should ensure the interfaces for future development and information exchange with: <ul style="list-style-type: none"> • Serbian internal entities: <ul style="list-style-type: none"> ○ Ministries / Structures from Serbia; ○ Foreigners Centre; ○ Interpol National Office; • Serbian external entities: <ul style="list-style-type: none"> ○ Frontex; ○ UE structures; ○ Partners, neighbors. 			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R319]	The system shall provide GUI in Serbian-Cyrillic, Serbian-Latin and English languages with option to switch between these three languages.			
[R320]	<p>Considering the technology to access applications via web browsers, it is important that the user interface meets standardized usability principles. This concept considered the capacity of the user interface to be:</p> <ul style="list-style-type: none"> • Easy to use by all user categories; • Intuitive – system functionalities must be easily identifiable and accessible; • To prevent data entering errors by validation rules; • To ensure the easy assimilation of applications by providing an interface as even as possible between various components. 			
5.7.2	Foreigners Management Module (FMM)			
[R321]	It shall have web based user interface.			
[R322]	It shall be task-driven. All the operations shall be associated to a task that was previously created through the system flows.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R323]	It shall be a web services based application, using a SOAP envelope containing all the information needed to identify the sender, the receiver, the requested service, the kind of contained documents, the physical point (enabled workstation) of departure of the service request, the physical point that must receive the reply from the receiver.			
[R324]	It shall have web services for foreigner attributes allocations for data transfer.			
[R325]	The CDF system shall be able to do match check system between the central and external systems.			
[R326]	It shall have alarm and event notification mechanism which shall alert users when an electronic record is pending.			
[R327]	It shall allow saving of stored information to different media such as CD, DVD, etc, for enabled users.			
[R328]	It shall allow management of foreigner data (database records and other formats), organize and archive all the information and make it accessible to enabled users inside the MoI, MFA or NES.			
[R329]	The application shall show the different messages or unread tasks for the users to see when they are connected.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R330]	The application shall have a central repository with all the real information (ID, names, number plates, etc.) needed for the operational work performed by the end users.			
[R331]	The application shall manage the information in the operational repository.			
[R332]	The application shall be sufficiently open to be able to host any type of record that the user's needs.			
[R333]	The application shall allow a record to group together a collection of other records (e.g. name and married name for a woman).			
[R334]	Each record shall be stored in an XML file with all its properties and entities so that it can be easily integrated or sent to external institutions.			
[R335]	The application shall provide consistency in the relational model (orphan or duplicated registers).			
[R336]	It shall provide discreet values different for each field.			
[R337]	It shall provide registers with fields whose values are not provided.			
[R338]	It shall provide selections of "dirty" registers.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R339]	It shall provide single values that are susceptible to being key values.			
[R340]	It shall provide filter all the "unwanted" registers for analysis.			
[R341]	The CDF automatic checking processes shall be configurable so that they are launched in off-peak hours and avoid increasing the load on the source systems.			
[R342]	Less aggressive criteria must be set up for all systems that are considered to be critical because their access is restricted or limited.			
[R343]	The system shall automatically alert the users or the units interested in the match once it have discovered that a positive match exists.			
[R344]	The CDF record management system shall check for matches between two or more records to notify of the entities that coincide on various records.			
[R345]	All the events shall be recorded by the CDF system on the auditing log and classed and coded appropriately, including connection events, event types, time and date, failed connections, administration events.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R346]	All the CDF system modules shall use a shared data dictionary that the users turn to in order to improve the quality of the stored information.			
[R347]	An ontological dictionary shall be available and shared by the entire system, used by the application. The ontological dictionary should be formalized through at least concepts, classes, relations, functions, axioms.			
[R348]	<p>The CDF system shall permit to generate periodically (daily, monthly, yearly and on-demand) statistical information about the following data:</p> <ul style="list-style-type: none"> • From Mol Database to CDF: <ul style="list-style-type: none"> ○ Foreigners who have been granted permanent residence; ○ Foreigners who have been granted temporary residence; ○ Foreigners whose temporary residence has been revoked; ○ Registrations of foreigners' permanent residence, terminations of permanent residence and changes of address; ○ Registrations of foreigners' stays; ○ Foreigners in transit through the 			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<p>territory of the Republic of Serbia;</p> <ul style="list-style-type: none"> ○ Prohibitions of foreigners' entry into and exit from the country; ○ International felons who are prohibited from entering the Republic of Serbia; ○ Foreigners in respect of whom a protective measure of removal or security measure of banishment is in force; ○ Visas issued at border crossing and rejected applications for issuing visas at border crossing; ○ Foreigner travel documents and identity cards issued; ○ Foreign travel documents used for entry into and exit from the Republic of Serbia; ○ Foreigner travel and other documents reported lost and found, in conformity with the Law; ○ Travel documents temporarily confiscated; ○ Carriers and tour operators in 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<p>respect of which a protective measure of prohibition of engagement in commercial activity referred to in Article 81, paragraph 4 hereof has been pronounced;</p> <ul style="list-style-type: none"> ○ Legal entities and sole traders in respect of which a protective measure of prohibition of engagement in commercial activity referred to in Article 82, paragraph 3 hereof is in force. • From MFA Database to CDF: <ul style="list-style-type: none"> ○ Issued visas; ○ Rejected visa applications; ○ Issued special identity cards; ○ Issued foreigner's laissez-passers (travel document issued by a national government or certain international organizations); ○ Foreigner travel and other documents reported lost and found, in conformity with the Law. • From NES Database to CDF: <ul style="list-style-type: none"> ○ Working permits for foreigners. 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R349]	The CDF system shall be able to represent the processed data in tabular, diagram (e.g. relations between persons or relation between person and different objects – car, house, phone) and form data, depending on the user preference and the type of data being processed.			
[R350]	<p>The CDF system must store data in geographical format for the following categories of information:</p> <ul style="list-style-type: none"> • From MoI Database to CDF: <ul style="list-style-type: none"> ○ Foreigners who have been granted permanent residence; ○ Foreigners who have been granted temporary residence; ○ Foreigners whose temporary residence has been revoked; ○ International felons who are prohibited from entering the Republic of Serbia; ○ Visas issued at border crossing and rejected applications for issuing visas at border crossing; • From MFA Database to CDF: <ul style="list-style-type: none"> ○ Issued visas; 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<ul style="list-style-type: none"> o Rejected visa applications; • From NES Database to CDF: o Working permits for foreigners. 			
[R351]	The geographically stored data fields are: residency address, country of origin, border crossing point, place where visa was issued.			
[R352]	The application should be optimized using efficient techniques applied for optimizing web content in order to minimize the data volumes sent onto limited bandwidth (shared 512kbs).			
5.7.3	Foreigners Search Module (FSM)			
[R353]	The Foreigners Search Module shall be based on COTS (Commercial off the Shelf) software and shall not require additional equipment to be integrated into the CDF system; the software module must have at least three years maturity on the market proven with registered trademark certificate.			
[R354]	The module shall have a search mechanism based on different search criteria (e.g. foreigner name, address, national ID, spouse name etc.), ensuring information tracing within application.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R355]	It shall offer search facilities which will allow user to set personal search criteria.			
[R356]	It shall offer combined criteria for search and semantic filtering technology (e.g. Martin can be a part of person name or a name of a car manufacturer).			
[R357]	It shall offer advanced searching: boolean (AND, OR), free text, phrase, word proximity, range, prefix queries, regular expression.			
[R358]	The search module needs to index all collected data for fast search and verification.			
[R359]	It shall permit facile integration and communication with external systems that shall get/search/view data from CDF system.			
[R360]	It shall support for open standards and be a highly scalable solution.			
[R361]	It shall support search advanced linguistic features, including Serbian (Cyrillic and Latin), Russian, Hebrew, Arabic and other major Asian and all European languages.			
[R362]	It shall allow searching in at least 15 million records.			
[R363]	It shall return a response to user request in maximum 3 seconds.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R364]	It shall allow optimizing the request if the answer has no desired consistency after 3 seconds.			
[R365]	It shall display all data from CDF which are complying with the search criteria and with the user rights.			
[R366]	The list of results shall be displayed in descending order of date by default.			
[R367]	The list of results must be sortable using multiple columns.			
[R368]	It shall allow choosing any data field displayed.			
[R369]	It shall allow searching through metadata and even searches in documents.			
[R370]	The search module shall allow integration with various content management systems (CMS).			
5.7.4	Foreigners Reporting Module (FRM)			
[R371]	The system shall provide a reporting module with statistic capabilities.			
[R372]	The reporting module shall allow the users of the application to build and run their own reports, according with system performance limit, without being necessary to know database systems - without knowing the database structure and SQL query language.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R373]	It shall provide accessibility through an integrated portlet or widget in the web-based application.			
[R374]	<p>It shall allow differentiated access to users/user groups to:</p> <ul style="list-style-type: none"> • Entities – a user should not be able to build reports based only on the entities to which the user has access; • Attributes specific to entities – a user should not be able to build reports based only on the attributes to which the user has access; • Saved reports – a saved report can be run only by the user who created it. The user may transfer the right to run the report to other users/user groups. 			
[R375]	<p>It shall allow the display on any printed report from the system of the following information:</p> <ul style="list-style-type: none"> • Report creation date; • Author; • Source Department; • Report Name; • Unique generated report number. 			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R376]	Establish the types of reports: if they meet the required traceability security level, they cannot be generated without containing predefined security features.			
[R377]	The reporting module shall define and manage different layouts for data aggregation and visualization.			
[R378]	It shall define, save views based on existing data from the CDF.			
[R379]	It shall define, save and use logical hierarchical structures to store data views.			
[R380]	It shall enable quick access to each view in accordance to defined security policy.			
[R381]	It shall provide reports which determining any changes in the database at a predefined time interval, with the format of existing data before the transaction and data changed after the transaction.			
[R382]	It shall allow customizable reporting on criteria of the following types: data, severity, type of event or other identifiers.			
[R383]	The reports shall present geographical information from database in graphical format.			
[R384]	The reports shall allow export in the following formats: pdf, excel, doc, html.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.7.5	Foreigners Content Management Module			
[R385]	Store, manage, and provides access control for objects stored on one or more resource managers. Processes requests (such as update or delete) from one or more clients.			
[R386]	Maintains data integrity between all of the components in the content management module.			
[R387]	Directly controls user access to objects stored on any resource manager in the system.			
[R388]	Relies on a relational database management system.			
[R389]	Support for multiple operating systems.			
[R390]	Must have Java-based tool for managing the system.			
[R391]	Must support LDAP.			
[R392]	Must support browser access.			
[R393]	Support for business documents of different kinds (electronic documents, XML, audio and video files, document images etc.).			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R394]	Must have administration tools for defining users and user privileges, defining data, and providing ways to manage your servers and data.			
[R395]	Must have efficient methods for keeping the system secure.			
[R396]	Must support document routing to manage the flow of work through the system.			
5.8.	Monitoring System			
5.8.1	Device and Infrastructure Monitoring			
[R397]	Monitoring system shall be able to provide roll based access to monitoring environment so that system administrators can see only parts of environment that they are allowed to.			
[R398]	Monitoring system shall be able to identify errors on environment, be able to group errors, correlate errors and archive errors.			
[R399]	Monitoring system shall be able to provide predictive analysis of monitored environment.			
[R400]	Monitoring system shall be able to show real time monitored data in combination with historical data from single interface.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R401]	Monitoring system shall be able to trigger corrective actions based on received alarms from environment.			
[R402]	Monitoring system shall be able to set different thresholds for monitored environment.			
[R403]	Monitoring system shall be able to receive SNMP traps from monitored environment in order to achieve passive monitoring without impact on monitored systems.			
[R404]	Monitoring system shall be able to utilize MIB files so that it is not limited to predefined monitoring systems.			
[R405]	MIB files utilized by monitoring system must be selectable by entries so that only required information is received.			
[R406]	Monitoring system shall be able to query WMI data in order to get performance metrics from system.			
[R407]	Monitoring system shall use reporting tools to provide reports in xml, csv, pdf and xsl format.			
[R408]	Reports generated by monitoring system must be predefined and also must be configurable for custom reporting.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R409]	Monitoring system shall be able to store historical data indefinitely (e.g. only be limited by disk space).			
[R410]	Monitoring system shall be able to forward information to third party systems.			
[R411]	Monitoring system must provide Visualization of Systems Management Information using Enterprise Portal.			
[R412]	The system must have the ability to store all data collected from all parts of the system (HW, applications ...) within a predefined unified data warehouse system, which should be an integral part of the solution without the need to purchase additional software licenses or hardware.			
[R413]	Monitoring system must provide Common reporting mechanism across all Systems Management information, providing both pre-defined reports and included Web based drag & drop report authoring tool with live data preview feature. Common reporting must be able to report based on data from the monitoring data warehouse.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R414]	Monitoring system must provide Out-of-box set of pre-defined situations providing advice on resolving common problems and automation to resolve them where appropriate. Ability to create your own situations.			
[R415]	Monitoring system must provide Support for Fixed Thresholds (such as "80%" CPU for an alert to be issued.).			
[R416]	Monitoring system must provide Support for Dynamic Thresholds (different threshold levels to match changing system load over time).			
[R417]	Monitoring system must provide Support for Persistent Situations (set a "fixed threshold" but verify if "true" several times before sending an alert, to reduce "false alerts").			
[R418]	Monitoring system must provide Support for Incident Zoom (graphical tool to zoom in quickly to a specific time window, in which you can isolate an incident, determine incident time-frame and without resorting to a separate reporting tool).			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R419]	Monitoring system must provide Support for Incident Historical Navigation (graphical time-based incident investigation mode that allows fast research into the cause of an incident).			
[R420]	Monitoring system must provide Support for Capacity and Performance Analytics Forecast, report and alert on future resource capacity constraints to reduce incidents.			
[R421]	Monitoring system must provide support for heterogeneous operating systems monitoring including, but not limited to Windows, AIX, HP UNIX, SUN Solaris, RedHat, SuSE, and virtualization technologies (VMWare, HyperV etc.).			
[R422]	System must offer wizard-based utility to create monitoring agents based on equipment MIB definition without the need for programming.			
[R423]	System must include system tray notification utility for Windows-based computers which notifies administrator about important alarms or events in the system.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R424]	System must support asymmetric encryption of communication between server and agent(s) using public-private key pairs and signed certificate for security purposes, with the option to use temporary self-signed certificate until the official one is provided.			
[R425]	System must support monitoring agents which run in autonomous mode (commands and configuration coming from local XML file rather than central server), for environments with increased security requirements where communication with central server is not allowed for these purposes. Autonomous agents must be able to create individual operation logs on the local file system.			
[R426]	Monitoring solution must provide predefined Web Service for accepting and processing of incoming monitoring information from systems which, for security or other reasons, cannot have standard monitoring agents installed, or communicate monitoring information using SNMP protocol.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.8.2	Storage Management Component			
[R427]	The storage management system shall support tape reclamation so that used tape cartridges will be automatically reclaimed after they have hit a certain expiration threshold in order to keep total number of required tape slots as low as possible.			
[R428]	The storage management system shall use only one full backup and all following backups shall be incremental thus avoiding requirements for periodic full backups.			
[R429]	The storage management system shall use centralized management so that all backup servers (if there shall be more than one) will be controlled via single administrative screen.			
[R430]	The storage management system shall be able to send behavioral information via SNMP traps.			
[R431]	The storage management system shall be able to define data repositories by types (disks, tapes or optical), so that critical backup data can be kept on fastest storage available.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R432]	The storage management system shall provide ability to seamlessly and automatically migrate data from old tapes to new tapes so that old archived data can be migrated to newer tape technology.			
[R433]	The storage management system shall utilize disk caching mechanism in order to keep up with tape streaming and to avoid tape "trashing".			
[R434]	The storage management system shall be able to use file co-location so that files from one client can be kept on same tape or tape volume as others files associated with that client.			
[R435]	The storage management system shall be able to utilize LAN-free backup (e.g utilize SAN network).			
[R436]	The storage management system shall be able to utilize SAN-enable tape pooling.			
[R437]	The storage management system shall not require file rebuilding in order to restore single file.			
[R438]	The storage management system shall be able to utilize temporary buffer the data from multiple clients for subsequent staging to tapes in order to initiate more backup tasks then the number of tape drive configured.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R439]	The storage management system shall not stripe or interleave data across multiple tape cartridges.			
[R440]	The storage management system shall not use flat files index catalogue.			
[R441]	The storage management system shall be able to support disaster recovery not only by allowing backed up data to be taken to off-site but also to track on-site and off-site tapes and to be able to identify which tapes to take off-site.			
[R442]	The storage management system shall use data deduplication on source and target level without extra charges.			
[R443]	The storage management system shall use external LDAP for security purposes.			
[R444]	The storage management system shall provide reporting capabilities in html, pdf, csv and xsl report types. Reporting tool must have pre-defined reports and also reports must be configurable.			
[R445]	The storage management system shall be able to use hot backups without requirement to shut down the mail server.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R446]	The storage management system shall be able to make item level recovery in order to achieve recovery of user's mailbox or individual item in mailbox.			
[R447]	The storage management system shall utilize the application program interfaces (APIs) provided by e-mail application vendors to perform hot backups and improve restores without shutting down the e-mail system.			
[R448]	The storage management system shall be able to provide different types of backups specified by APIs (Full backups, incremental backups, differential backups, copy backups and database copy backups).			
5.8.3	Backup Management Component			
NOTE:	Backup & Recovery tape library will be provided by the Beneficiary.			
[R449]	All necessary software for backing up virtual servers and environment must be provided.			
[R450]	Must include complete protection of VMware environments.			
[R451]	Must include functionality to extract individual files and Exchange items.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R452]	Must recover entire ESXi servers, including binaries, configuration and VMs to a bare metal machine.			
[R453]	Must include wide selection of backup destinations, including local disk, FTP, network shares, ESX(i) datastore, and the cloud to optimize storage.			
[R454]	Must have agent-less backup of virtual machines.			
[R455]	Must include feature to deploy app as ESX(i) Virtual Appliance.			
[R456]	Must include feature to manage from VMware vCenter (all operations).			
[R457]	Must support cloud-based storage.			
[R458]	Must include Change Block Tracking (CBT) support.			
[R459]	Must include data deduplication between backup sessions.			
[R460]	Must include Encryption support (AES 256 bit).			
[R461]	Must include Physical to Virtual (P2V) and Virtual to Virtual (V2V) Migration.			
[R462]	Must be available in per CPU license (Per-socket license with unlimited VMs).			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.8.4	Application Management Component			
[R463]	Provides consolidated performance and health monitoring across the application stack (OS through middleware to applications).			
[R464]	Must proactively monitor health and availability of web servers, application servers and critical web applications.			
[R465]	The solution will have to monitor transactions for all the critical web applications - Java, .NET and SOA environments - for all users on a 24 hours / day, 7 days / week and detect potential problems before they affect end-user.			
[R466]	The solution must be able to monitor Java and .NET application servers, web servers, mail servers, database servers.			
[R467]	The solution must provide real-time information about processes monitored.			
[R468]	The solution should monitor the final user experience by tracking transactions "end-to-end business" to ensure successful end user applications using the designed parameters and follow the IT department.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R469]	The solution must identify and prioritize issues that affect the quality of services to the end user in real time by analyzing individual transactions for each user.			
[R470]	The solution must offer IT department performance measurement instruments and quality web applications user transactions.			
[R471]	The solution should correlate application performance and user experience with the impact on business rules (obtained from monitoring) to provide solutions to improve applications and communications.			
[R472]	The solution must be able to measure service type: Service Level Agreements (SLAs).			
[R473]	The solution must be able to proactively identify any decrease in performance Web applications and proposes solutions to solve infrastructure mapped.			
[R474]	The solution must operate in complex environments and virtualized SOA.			
[R475]	Must include comprehensive monitoring and configuration for message queuing components and message broker components.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R476]	Provide real-time status on the availability and performance of unified communication servers through best practices of monitoring of key components.			
[R477]	Broad coverage for monitoring the performance and availability of database servers.			
[R478]	Monitoring support for instant messaging applications.			
[R479]	Must be compatible and natively integrated with the Storage Management, and Security and Access control system components offered.			
[R480]	Must include availability and performance monitoring for the latest operating system environments: Microsoft Windows, AIX, Linux, HP, SUN Solaris.			
[R481]	Must provide operating system Agent and Agentless technology.			
[R482]	Must include virtual environment support for AIX LPAR, Solaris Zones, VMware and Citrix.			
[R483]	Must include intelligent monitoring and management of database servers such as Oracle, IBM DB/2 and Sybase.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R484]	Full support for Microsoft applications and derived application environments.			
5.8.5	Log Management Component			
NOTE:	The log management system must be a high-performance system for collecting, analyzing, archiving and storing large volumes of network and security event logs			
[R485]	It must analyze data from network and security devices, servers and operating systems, applications, endpoints.			
[R486]	It must provide near real-time visibility into developing threats.			
[R487]	It must enable compliance management and help the organization meet compliance monitoring and reporting requirements.			
[R488]	It must be able to capture and processes large volumes of event data generated by the systems in the IT infrastructure.			
[R489]	It must enable rich compliance-reporting capabilities for reporting and analysis purposes, including security audits.			
[R490]	It must be scalable and support hundreds of thousands of events per second from the devices in the infrastructure.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R491]	It must generate actionable IT forensics by aggregating and correlating a diverse set of logs and events.			
[R492]	It must provide a solid, straightforward foundation for security or networking teams through a highly intuitive, centralized user interface.			
[R493]	Default dashboards must be available to the users by function.			
[R494]	It must collect data across a wide variety of network and security devices, including routers and switches, firewalls, virtual private networks (VPNs), intrusion detection/prevention systems (IDS/IPS), anti-virus applications, hosts and servers, databases, mail and web applications, custom devices, and proprietary applications.			
[R495]	It must have an advanced, two-level normalization taxonomy that is used to assign common terms to similar events coming from widely divergent log sources.			
[R496]	It must include a native customized rules engine for logged events processing.			
[R497]	It must process each incoming event in real time, assigning severity, credibility and relevance attributes.			

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R498]	It must have analytics and behavior profiling capabilities.			
[R499]	Events must be easy to assign to a reference set of similar activity for further monitoring.			
[R500]	It must be compliant with NIST Log Management Standard SHA-x (1-256) hashing for tamper-proof log archives.			
[R501]	It must have a distributed architecture.			
[R502]	It must provide functionality to compresses older data to further extend retention periods and save disk space.			
[R503]	It must include more than 2000 out-of-the-box rules and reports natively supported by the application.			
[R504]	It must include full disk synchronization functionality between the systems from which logs are extracted.			
[R505]	Mirroring capabilities for all collected log source data must be available. Mirroring should be available to a secondary, identical backup deployment (not to be included in the license).			
[R506]	It must be able to use any database field for logging purposes.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R507]	It must be fully and natively compatible with the Security and Access Control System, Infrastructure Monitoring System, Storage Management System, Content Management System, Integration System, Database Management System and the Application Management system included in the offer.			
5.9.	Security System			
[R508]	The system shall have a unique authentication system for all the applications.			
[R509]	The security policies will be established in the analysis stage of the project.			
[R510]	The system shall have a centralized security management foundation that would enable delivery of application and data to internal users in a secure manner.			
[R511]	Resources access rights shall be able to be defined for roles/users/groups.			
[R512]	The system authentication shall use a „Single Sign-On“-type mechanism, enabling the user to access resources he has the necessary rights.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R513]	The system shall ensure authorization and authentication via digital certificates with official cards of employees, enabling the user to access resources he has the necessary rights.			
[R514]	The users shall have access only to those resources according to his profile.			
[R515]	The user's profile shall be managed in a unitary way and centralized, using a single access rights administration interface.			
[R516]	The system security shall improve the security level (users name and password) through user password policy.			
[R517]	The system security shall reduce the number of credentials of the end-users if possible.			
[R518]	The system security shall allow users to access all the applications and modules with only one password, the one of the user's account.			
[R519]	If the user's account is locked or deleted, the access of that user in any application shall be denied.			
[R520]	The users have to fill the password in the usual manner, every time the application is accessed.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R521]	The system shall allow the users to access any application with their own credentials from any computer having network connectivity to that application.			
[R522]	The system shall deny access to any data/systems/infrastructure, other way than expressly permitted (through the security policy/identity and access management solution).			
[R523]	The system shall include secure communication and data encryption based on the newest security standards, according to the legislation and internal MoI regulations in force.			
[R524]	The security of the CDF shall be centrally managed by an independent security distributed infrastructure.			
[R525]	All of the actions of each user in the system and interactions with other IT&C systems should be logged for later audit possibility.			
[R526]	The log records shall not be modified by the users.			
5.9.1	Security and Access Control Module			
[R527]	It must provide a security enhanced HTTP reverse proxy.			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R528]	It must have WEB single sign-on (basic authentication, forms, kerberos, token, x509 (SSL client cert/smartcard)).			
[R529]	It must support load balancing and automatic failover to back-ends.			
[R530]	It must have multiple authentication levels.			
[R531]	It must allow to step up authentication (upgrading the session to a stronger authentication level).			
[R532]	It must allow custom authentication plugins to be written in any language.			
[R533]	It must have access control policies on a per URL basis.			
[R534]	It must have time of day access controls.			
[R535]	It must have required authentication level per URL.			
[R536]	It must have integration with Java and .NET authentication/authorization frameworks.			
[R537]	It must have high performance proxy component written in C (not Java).			
[R538]	It must provide enterprise single sign-on.			
[R539]	It must have support for Citrix server.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
[R540]	It must have single sign-on across remote desktop connections.			
[R541]	It must have multi factor authentication (smartcard, fingerprint).			
[R542]	It must be deployable with or without custom GINA module.			
[R543]	It must be able to receive auto-generated credentials from the IDM solution.			
[R544]	It must not require active directory schema changes.			
[R545]	It must support roaming users (users moving and changing workstations).			
[R546]	It must be possible to "train" single sign-on to handle custom application without the need for programming.			
[R547]	Must enable recovery scenarios.			
[R548]	It must be configurable if credentials are locally stored, how long or not at all; when storing locally, strong encryption must be used.			
[R549]	Communication between agents and central components to be encrypted.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
5.10.	Integration Requirements			
[R550]	The Tenderer shall provide all necessary accessories and software tools to obtain the integration on hardware, software and data.			
[R551]	<p>The priority in which the system will be integrated with the existing databases should be the following:</p> <ul style="list-style-type: none"> • Step 1: System with MoI Database; • Step 2: System with MFA Database; • Step 3: System with NES Database. 			
6.	PERSONNEL TRAINING			
[R552]	The Tenderer must provide training to trainers before the provisional acceptance. The training shall be conducted in Beneficiary's facilities, in Belgrade.			
[R553]	The number of persons which will be trained must be at least 20.			
[R554]	The Tenderer shall submit the training plan for the beneficiary approval within 10 working days before the courses commence.			
[R555]	<p>The training plan should contain minimum the following information:</p> <ul style="list-style-type: none"> • ID information about trainers; • Training period; 			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<ul style="list-style-type: none"> • Course duration; • Place of training; • Materials list which will be used for training; • Syllabus; • Gantt chart with training implementation plan. 			
[R556]	The materials used for training should be audio-video tutorials, flipcharts and printed courses.			
[R557]	The Tenderer must certify all participating personnel after the completion of training courses.			
[R558]	The training materials must be in Serbian language.			
[R559]	The training process must be conducted in Serbian language.			