

TOTAL COST OF OWNERSHIP (TCO) (F4.5)

This Form shall be used by the Tenderer to respond to the requirements related to financial proposal as they are described in the specification from tender documents, intended for the description of the components Total cost of ownership (TCO).

The form is structured as follows:

Table 1: TCO summary - [table aggregating cost components, detailed in other tables below this form, including for a period of 5 years after the end of the warranty period (single and recurring costs).]

No	Name	Period under contract	Year 2	Year 3	Year 4	Year 5	Year 6	TOTAL (USD)
1	IPS/X System license (licenses for the software solution for an instant payments system (IPS), including one year of standard support from the manufacturer)	195000	n/a	n/a	n/a	n/a	n/a	195,000.00
2	Standard support from the manufacturer for licenses after warranty period	n/a	128700	128700	128700	128700	128700	643,500.00
3	Implementation services for IPS	346300	n/a	n/a	n/a	n/a	n/a	346,300.00
4	Training services related to IPS	61800	n/a	n/a	n/a	n/a	n/a	61,800.00
5	Warranty services related to implementation of IPS	0	n/a	n/a	n/a	n/a	n/a	0
6	Man Hours for additional development and change requests during the implementation and warranty period (300 man-hours)	0	n/a	n/a	n/a	n/a	n/a	0
7	Post-warranty services for implementation services of IPS, after one year of standard support	n/a	0	0	0	0	0	0
8	Development services, based on change requests in estimated volume of 100 man / hours after the expiry of the warranty period	n/a	0	0	0	0	0	0
TOTAL COSTS								1,246,600.00 USD

Table 2: Licenses of the IPS software solution
[All licenses delivered will include in their cost one year of support and maintenance]

Goods	Q-ty	Period	Price per unit	License price	Support and maintenance		Discount for licenses		Discount for support and maintenance		TOTAL LICENCES (USD)	TOTAL SUPPORT AND MAINTENANCE (USD)
					%	USD	%	USD	%	USD		
1. Licenses for IPS*												
IPS/X System License for the production environment	1	Permanent	390000	390000	33	128700	50	195000*		128700	195,000.00	128,700.00
IPS/X System Licenses for the testing environment	1	Permanent	Free of charge									
IPS/X System Licenses for the back-up environment	1	Permanent	Free of charge									
....												
TOTAL											195,000.00 USD	128,700.00 USD

* Licence price discounted by 50% from the price list 390,000.00 USD;

Table 3: Implementation services and warranty services (for 12 months)

Type of service		% in total services	Cost, USD
I. Implementation services (excluding Project Management and Training)	Business Analysis & Consulting, Functional and Tech. Specs	64,3%	262,300.00
	Test Procedures, Migration and Deployment Strategy		
	Adaptation & Parametrization of the System in CMA Labs		
	Documentation		
	Installation and Acceptance		
	Deployment, Pilot, System launch and SOAK period		
	Project Management and Quality Control	20,6%	84,000.00
	Training	15,1%	61,800.00
II. Warranty services (12 months)		0%	0
Warranty services (maintenance and support)			
III. Man hours for additional development and change requests during implementation and warranty period		0%	0
300 man hours			
Total			408,100.00 USD

Table 4: Requirements towards infrastructural specifications
[Infrastructure specifications will be indicated for each lot separately.]

a. Server configuration in accordance with proposed architecture

Component		Recommended	
Name of required component	The recommended model for component, features recommended	Recommended quantity	
Database Server	<p>The configuration for each server is the next:</p> <ul style="list-style-type: none"> • CPU : 4 cores of high performance CPU (Intel Xeon Gold) • RAM: 64GB • From 300GB of local storage • Redundant FC connection to external SAN Storage • Redundant LAN access, 1Gbps • Oracle Database 19c Enterprise Edition • Oracle Real Application Cluster add-on • OS: RHEL 8 	<p>The recommended quantity for the component (pcs.)</p> <p>Production Environment – 2 pcs Backup Environment – 2 pcs Test Environment – 1 piece</p>	
Application servers	<p>The configuration for each server is the next:</p> <ul style="list-style-type: none"> • CPU: 4 cores of Intel Xeon CPU • RAM: 64 GB • From 300GB of local storage • Redundant LAN access, 1Gbps • OS: RHEL 8 	<p>Production Environment – 2 pcs Backup Environment – 2 pcs Test Environment – 1 piece</p>	
Access servers	<p>The configuration for each server is the next:</p> <ul style="list-style-type: none"> • CPU 8 cores of Intel Xeon CPU • RAM from 96GB • From 300GB of local storage • Redundant LAN access, 1Gbps • OS: RHEL 8 	<p>Production Environment – 2 pcs Backup Environment – 2 pcs Test Environment – 1 piece</p>	

External disk array	<p>The disk array should have two controllers, two types or layers of data storage and six 16GB FC ports to connect database servers in redundant mode.</p> <p>CMA recommends having two different types of storage in the disk array:</p> <ul style="list-style-type: none"> Storage on SSD disks for fast access of frequently changing data like Oracle redo logs. CMA recommends having at least 400 GB of usable space for these purposes. <p>The main data storage is on SAS disks. The recommended size of the storage depends on requirements for the timeframe of holding payments in database. To hold payments for 2 years we recommend having 10 TB of usable disk space.</p>	<p>Production Environment – 10TB Backup Environment – 10 TB Test Environment – 2 TB (will share the disk array with one of the environments)</p>
Network switches	<p>The switches should support VLAN technology and have 1/10Gbps non-blocking backplane throughput. The switches are necessary to connect all the servers to the LAN.</p>	<p>Production Environment – 2 pcs Backup Environment – 2 pcs Test Environment – will share the network switch with one of the environments</p>

b. Specifications of licenses needed for the database management system and estimated costs


Product Name	Licensing model (per user, processor etc.)	No of recommended licenses	Estimated costs*
Production environment (Licenses for database)	Bundled CMA Database License (Oracle Enterprise Edition, Oracle RAC add-on, 20 intel cores)	1	151 000 \$ - license 30 200 \$ - annual support
(Licenses for operation systems)	RedHat Enterprise Linux, v8, host based (Embedded)	6 host licenses	3300\$ - annual support
Test environment (Licenses for database)	Included in production RedHat Enterprise Linux, v8, host based (Embedded)	-	
(Licenses for operation systems)		3 host licenses	1650\$ - annual support
Back-up environment (Licenses for database)	Included in production RedHat Enterprise Linux, v8, host based (Embedded)	-	
(Licenses for operation systems)		6 host licenses	3300\$ - annual support

Table 5: Cost estimation regarding the licenses for the gateway solution (solutions, implemented on the side of IPS participants, that keep the account balances of end users and can authorize, on behalf of the participant, the debit/credit of end users accounts)

Business Area	Estimated additional costs to the solution license (USD)	Estimated costs for the implementation services (USD)	Estimated additional costs for the support and maintenance (USD)	Other costs if applicable (to be explained)	TOTAL (USD)*
Gateway solution, implemented on the side of IPS participants	44,500.00	22,000.00	9,800.00 after warrantee	NA	66,500.00
TOTAL	44,500.00	22,000.00			66,500.00

Note: The information on licensing costs for the gateway solution is for information purposes only and is not taken into account in the financial evaluation.

*Infrastructure hardware, Data Base and other third party licenses not included

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