

Technical Specification

1. Purpose of Document

This document contains a list of the contracting authority's technical requirements for the virtual server (namely in terms of architecture, performance and quality parameters (SLA) or restrictions – if any) through which services will be implemented.

Unless the description of any technical requirement provides otherwise, all below-mentioned requirements must be satisfied already upon submission of the bid.

2. List of Abbreviations

SLA	Service Level Agreement – required level of the provided service based on its basic parameters
RAM	Operating memory
GB	Giga Byte
IOPS	Input-output operations per second
IaaS	Infrastructure as a service
PaaS	Platform as a service
SaaS	Software as a service
VPN	Virtual private network

3. General Scope of Required Cloud Services

The contracting authority requires:

- Cloud service administration with user-admin interface accessible via Internet browser, allowing for online creation, cancellation, launching, closing and configuration of cloud services,
- Cloud service administration via API program interface allowing for online creation, cancellation, launching, closing and configuration of cloud services,
- Guarantee of provision of service supplies in the minimum extent pursuant to Table 1,
- Provision of services in the minimum scope pursuant to the table of required services and in the standard at least according to the SLA pursuant to this technical documentation,
- Possibility to transfer a virtual server image created in the contracting authority's center into the bidder's cloud environment, at least for virtualization platforms VMWare, Hyper-V a Citrix,
- Environment for securing of the protection of keys in cloud, using hardware security modules (HSM) allowing for protection of cryptographic keys and smaller secret keys such as passwords through keys which are stored in hardware security modules (HSM). It allows for importing or generating keys in the HSMs certified for FIPS 140-2 level 2 and according to the Common Criteria EAL4+ standards. The keys must not leave the borders of hardware security module. The key safe must prevent the cloud environment operator from seeing or extracting user keys,
- Minimum Java, PHP, .NET, Node.JS, Python support
- Choice of fixed public IP address,

- Availability of services at the minimum level of 99.9%, unless specified otherwise in Table 1,
- Automatic increase and decrease of performance upon requirements of an application operated in the environment for SaaS – the tendered shall provide description of the application interface as a part of its bid
- Possibility to create own templates for virtual server provisioning in the software configuration selected by the contracting authority

Table 1 – General Scope of Required Cloud Services

Name	Description	Minimum scope of availability	Maximum permissible time for setting the service into operation from completion of request entry
Directory service	Identity administration and access management function designated for cloud applications. It allows for synchronizing local identities and manages unified user log-ins and access to cloud applications. LDAP3 compatibility required.	Unlimited number of users	10 min
Multi-factor authentication	Verification by another authentication factor, at minimum via a sent SMS, mobile application for generating one-off keys (iOS, Android, Windows Phone), verification by a return call to the user on a mobile number or a fixed telephone line.	Unlimited number of users	10 min
Virtual servers with pre-installed operation system with the following HW configurations	Virtual servers for the platforms SUSE Linux Enterprise Server 12, SUSE Linux Enterprise Server 11 SP3, Windows Server 2012 Datacenter, Windows Server 2012 R2 Datacenter, Windows Server 2008 R2 SP1, Ubuntu Server 14, Oracle Linux 7 for the following hardware configurations: <ul style="list-style-type: none"> • Standard servers <ul style="list-style-type: none"> ○ 0,25 core, 0,75 GB RAM ○ 1 core, 1 GB RAM ○ 2 cores, 2 GB RAM ○ 2 cores, 4 GB RAM ○ 4 cores, 8 GB RAM ○ 8 cores, 14 GB RAM • High-availability and load-balancing supporting servers <ul style="list-style-type: none"> ○ 2 cores, 3,5 GB RAM, Load Balancing, Automatic reaction to performance request ○ 8 cores, 14 GB, Load 	500 servers	10 min

	<ul style="list-style-type: none"> Balancing, Automatic reaction to performance request <ul style="list-style-type: none"> ○ 8 cores, 56 GB, Load Balancing, Automatic reaction to performance request • High-performance supporting servers <ul style="list-style-type: none"> ○ 8 cores, 28 GB, 400 GB local SSD cache, Load Balancing, Automatic reaction to performance request ○ 16 cores, 112 GB, 800 GB local SSD cache, Load Balancing, Automatic reaction to performance request <p>The contracting authority requires a minimum of 20 hardware configurations. The contracting authority allows also for other HW configurations than those listed in this table, however, minimum configuration (0,25 core, 0,75 GB RAM) and maximum configuration (16 cores, 112 GB, 800 GB local SSD cache, Load Balancing, Automatic reaction to performance request) is required. Other configurations may be designed by the tenderer with deviations towards higher parameters from the configurations required in this table by maximum 20%. Deviations towards lower parameters are not allowed.</p>		
Integration platform	Extendable cloud integration service providing B2B integration and enterprise applications integration (EAI) functions allowing for transfer of cloud and hybrid integration solutions.	100	10 min
Environment for SaaS	Environment for operation of applications optimized for cloud platform, without the need of performing the server infrastructure administration.	100	10 min
Document database	Database service for NoSQL documents offering inquiries and transactions with data without a scheme, and provides for a predictable and reliable performance and fast development. Requested support minimum for JSON and JavaScript.	500	10 min
Database server	Database server of the platforms Oracle Database (11 Enterprise Edition, 11 Standard Edition, 12 Enterprise Edition, 12 Standard Edition), IBM DB2 Advanced Workgroup Server Edition V10.5, Microsoft SQL Server (2008 R2 Enterprise, 2008 R2 Standard, 2012		

	Enterprise, 2012 Standard, 2014 Enterprise, 2014 Standard) The contracting authority requires that these database platforms are accessible on HW configurations listed under the item "Virtual servers with pre-installed operation system with the following HW configurations" listed in this table		
Disk space	Option to store non-structured data (media files, documents) and structured data using SQL is required. Allows for at least 45 000 IOPS per one virtual computer. A choice of geo-redundancy option for data storage in two or three datacenters of the bidder is required.	50 PB	10 min
Data backup	Service for data backup using a disk space in the bidder's cloud environment. The service must support different types of backups: at least incremental and total. Support of retention policies is further required.	50 PB	10 min
Direct guaranteed connectivity into the contracting authority's data center	Option of direct network connection of the bidder's datacenter with the contracting authority's datacenter is required, using a dedicated connection via network operators' infrastructure with a guarantee of an explicit network route,		1 month
Environment for operation of web applications	Operation of web applications minimum on the platforms .NET, PHP, Node.JS, Java supporting automatic performance increase and reduction depending on capacity utilization	100	10 min

4. Requirements for Administration Environment, Supervision of the Contracting Authority's Cloud Environment including Billing

- Accessible via http protocol
- Accessible via Internet, without necessity of setting up VPN accessing device
- Overview of running and closed services
- Overview of the usage and load levels of running services
- Report generator
- Operation statistics in the minimum extent:
 - Timeslot selection for statistics
 - Service selection

- Overview of costs of services in time

5. Requirements for Time Setting of Services and Automation of Environment Management and Configuration

- The contracting authority requires an option of setting the closing and launching of individual services based on a time schedule set by the contracting authority.
- Minimum unit for the time schedule is one minute
- The time schedule must allow for scheduling of the launching/closing requirements for the minimum period of the next 5 years
- The cloud service environment must enable remote launching based on basic parameters

6. Integrability

- An option of integration into the contracting authority's local environment (ActiveDirectory), implementable in accordance with WS-Federation
- Support for IP protocol version 6 (IPv6),
- Option of creating VPN configuration on the side of the bidder's cloud environment for interconnection with the contracting authority's local environment

7. Required SLA for Cloud Services

Table 2

Availability of services	99.9 %
Guaranteed availability level in % and penalty for potential non-compliance	99.9% or 99.95%; Credit calculation: e.g. 25% credit at dropping below 99.9%; 50% at dropping below 99%; 100% credit at dropping below 95%. All on a monthly basis.
Provided support levels depending on guaranteed response times	Graduated support levels at response of max. 15 min, 1 hour, 2 hours. Support in the Czech language at least during standard working hours in the Czech Republic, in English at other time.