



INFRASTRUCTURE AS A SERVICE (IAAS) - SERVICE GUIDE

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1 OVERVIEW

Performance and Security for Demanding Workloads IaaS Premium™ is InterVision's flagship production hosting environment, designed for the highest level of performance, service, and security. This VMware-based platform is built on InterVision's cloud infrastructure and can be architected as a virtual private cloud using software isolation, or if your workload requires physical isolation of resources, InterVision offers tailored, private cloud options that can be isolated at the host, SAN, RAID or datastore level. IaaS Premium™ is designed to integrate wholly into a broader hybrid cloud strategy to allow your team to take a regimented approach to deploying cloud resources. With customizable levels of security and the highest uptime guarantees available in the cloud, IaaS Premium™ delivers a superior hosting experience.

IaaS Essentials™ is designed specifically for pre-production, transient workloads that are highly elastic. For teams who need fast deployment of public cloud resources with considerable day-to-day flexibility, this solution enables IT, teams, to iterate quickly when building applications, performing functional testing and demonstrations, and delivering proof-of-concept workloads. InterVision's VMware-based platform is built on InterVision's cloud infrastructure, designed to integrate wholly into a broader hybrid cloud strategy, allowing a regimented approach to deploying cloud resources. Because this type of workload is cost-sensitive, InterVision offers highly competitive compute, storage, and memory rates. With our pay-as-you-go model, you can scale capacity to meet your needs while only paying for what is used. InterVision Portfolio™ supports the ongoing management of resources, security services, and costs for full transparency and control.

2 SERVICE DESCRIPTION:

The IaaS solution suite offers the following features and options to suit your specific IaaS hosting needs:

- Enterprise-grade, top-to-bottom design leveraging top-of-the-line equipment
- Uptime Service Level Agreement (SLA) of 99.999%
- Constant access and management of utilization, security, and cost metrics through InterVision Portfolio™
- Competitive compute, storage, and memory costs
- Expertly managed services – Backups, Antivirus, OS Patching, Monitoring, and more

The IaaS Premium offering additionally provides the following:

- Low subscription density to insulate performance impact from the demand of other applications
- Advanced High-Availability software-defined networking, load balancing, and firewalls
- Simple integration with InterVision's Disaster Recovery-as-a-Service solutions that enable fast recovery onto the same production-grade environment at a second site (with both private and public options)
- 24x7 Enterprise and Professional support levels with a frontline support team that is equivalent in expertise to Tier 3 support personnel

The IaaS Essentials offering additionally provides the following:

- Full integration with IaaS Premium™ production hosting for a fast migration of Customer workloads
- Standard Storage tier and Basic Support level (additional options available)
- Pay-as-you-go billing

3 SERVICE DETAILS

Infrastructure as a Service (IaaS) delivers compute infrastructure as a service via a virtualized environment. Depending on the IaaS services utilized, they are billed as a utility based on the total amount of resources allocated or used by a specific tenant



3.1 ADMINISTRATION UTILITIES

Customers will be provided with remote administration tools to manage their virtual environment. Sample administrative activities include but are not limited to the following:

- Console access to Virtual Machines for operating system administration.
- Create, copy, and delete virtual machines.
- Restart, power down, and power on virtual machines
- Manage processing, memory, and storage resource assignments utilized by the virtual machines

3.2 NETWORK TOPOLOGY

Each IaaS Customer will be provided with one or more virtual networks that are isolated from other Customers.

Access into the Customer's IaaS virtual network can be accomplished through the use of private MPLS, Virtual Private Network, or other custom private access methods which might include customer private connections. Customers will be permitted, upon written notification to InterVision, to perform network audits and penetration testing of their specific IaaS services but not that of any other InterVision customer or any shared services offered by InterVision (example: hosted e-mail).

3.3 VIRTUAL MACHINE AND APPLICATIONS SUPPORT

IaaS includes support for the underlying infrastructure and platform. Support for the applications, operating systems running on the virtual servers, or the virtual servers themselves are optionally available via our Help Desk or NetTend offering.

3.4 HIGHEST QUALITY DATACENTERS

- Choose between a SOC 2 audited data center in a Tier 3 facility or a SOC 3 audited data center in a Tier 4 Gold facility, the first-ever of its kind
- State-of-the-art data center facilities located 1,500 miles apart and 500 miles from US coasts, to meet all published business continuity requirements
- Compliant with the EU-US and Swiss-U.S. Privacy Shield frameworks, and supports other compliance needs such as HIPAA, PCI-DSS, and GDPR
- 30+ carrier feeds entering its datacenters for network redundancy

3.5 ROLES & RESPONSIBILITY MATRIX

	Client	InterVision	Extended Services*
Implementation			
System configurations		X	
Test and validate		X	



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	Client	InterVision	Extended Services*
Workload Migrations	X		X
IaaS Operations			
Monitor - Performance and Availability		X	
Hardware Firmware Patch & Updates		X	
System Administration		X	
Troubleshooting		X	
Performance Tuning		X	
Storage Config. - RAID, Volumes, Drives		X	
Configuring, adding, and deleting file systems		X	
Data Encryption		X	
Replace Failed Drives/Components		X	
System configuration backups		X	
Backup and recovery		X	
Analyze System Logs		X	
Documenting Configs and data flows		X	
Capacity Planning		X	
Audits		X	
Operating System Management			
OS Monitoring	X		



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	Client	InterVision	Extended Services*
OS configuration	X		X
OS update/patching/tuning	X		X
Antivirus	X		X
Database Management			
Database Monitoring	X		
Database configuration	X		
Database update/patching/tuning	X		
Database Import/Export	X		
Database Security	X		
Application Management			
Application Monitoring	X		
Application configuration	X		
Application update/patching/tuning	X		
Application authentication	X		
Application interface management	X		
Access Management			
Initial Access Management to Portfolio		X	
Remote or Physical Access to Servers	X		
Privileged Account Management	X		



4 SERVICE ACTIVATION

Implementation of InterVision’s hosted services is a partnership with the Customer to ensure workloads are put into InterVision’s cloud in the most efficient manner possible, whether that is IaaS Premium, IaaS Essentials or both. Common activation steps are outlined below:

1. Project kickoff call with the client to introduce the project team, review technical specifics, and component specifics, respond to and ask initial questions, and set expectations for the implementation process
2. Environment setup:
 - a. Administrative setup
 - b. Resource provisioning
 - c. Establish Connectivity

5 COLLABORATIVE IMPLEMENTATION

1. Procurement, installation, and configuration to support the implementation of the migration service for workloads
2. Stabilization of workload environments to ensure the Customer’s individual needs are met as they begin working within InterVision’s cloud hosting environments. Examples may include helping you with our partner technology or assisting in product or software training

*These types of activities typically require lead times and should start as soon as they are identified since they are prerequisites to other project tasks.

6 TERMS AND CONDITIONS

6.1 SERVICE LEVEL AGREEMENT (SLA) FOR IAAS

6.1.1 SERVICE COMMITMENT

InterVision commits that Infrastructure as a Service (IaaS) will be available 100% in a given calendar month. The service credit applied will be calculated by multiplying the charges for IaaS in a given Data Center during the month we failed to meet the commitment by the percentage credit you qualify for in the table below:

IaaS Monthly Availability %	Service Credit
<100% to 99.9%	3%
<99.9% to 99.5%	5%
<99.5% to 99.0%	10%
<99.0%	20%



6.1.2 CHRONIC OUTAGE

Customer shall have the right to terminate their IaaS Service in the event of any “IaaS Chronic Service Quality Problem” (as hereinafter defined) upon fifteen (15) days written notice to InterVision. As used herein, the term “IaaS Chronic Service Quality Problem” shall mean: (i) anyone confirmed Interruption lasting more than twenty-four (24) hours or (ii) five (5) or more confirmed Interruptions lasting more than one hour each in any thirty (30) day period. In the event of a termination of IaaS Service for an IaaS Chronic Service Quality Problem, the Customer shall only be responsible for the payment of charges for the Service incurred prior to the termination date plus any applicable Early Termination Fees relating to Broadband Circuits.

6.1.3 EXCLUSIONS

The inability to launch virtual machines due to any of the following are not covered by this SLA:

- Exceeding your account quotas for IaaS resources like processor, memory, or storage.
- Hosts High Availability is enabled and in the process of automated recovery.
- Inability to access the IaaS due to network connectivity outside of InterVision’s Data Center due to loss or errors, including network access via private line or Internet circuits whether provided by InterVision or a third party.
- Inability to access IaaS due to customer security or software provided by the Customer or 3rd party.
- Any violation of the InterVision InterVision Acceptable Use Policy (AUP).

6.2 SERVICE LEVEL OBJECTIVES (SLO) FOR BLOCK STORAGE

InterVision commits to providing minimum service levels for Block Storage, through the use of monitoring tools and working with customers. Although certain types of customer workloads may vary in performance, InterVision will work with the customer to achieve optimal workload performance for the given workload.

6.2.1 STORAGE SERVICE OBJECTIVES

Storage Performance Objectives are measured in Input/Output Operations Per Second (IOPS) per GB of storage based on total allocated useable space on a specific datastore or Storage LUN (Logical Unit Number). There are many factors that can change the behavior of storage that would include the read and write types or patterns, file system format, alignment, read/write block size, and many others.

Traditional Block Storage

Storage Type	Minimum Service Level Objective
Fiber Channel 7k SATA	0.04 IOPS/GB
Fiber Channel 15k FC or SAS	0.31 IOPS/GB



Tiered Block Storage (SAN)

Storage Type	Minimum Service Level Objective
Bronze	0.12 IOPS/GB
Silver	0.54 IOPS/GB
Gold	1.35 IOPS/GB
Platinum	3.10 IOPS/GB
Diamond	10.00 IOPS/GB

Tiered Block Storage (Next Generation Solid State)

Storage Type	Minimum Service Level Objective
Enhanced Block	0.12 IOPS/GB
Performance	3.00 IOPS/GB
Max Performance	10.00 IOPS/GB

Note: All database servers and Microsoft Exchange are not allowed to reside on Enhanced Block or Performance and must reside on Max Performance tier.

InterVision uses the following specifications to determine its minimum SLO for sustained IOPS.

- All SLO's are based on 4KB read/write sizes with 70% read and 30% write.
- Filesystems not formatted to use 4096 blocks may not be covered under Service Level Objective.
- Filesystems not aligned on 64KB boundaries will not be covered under Service Level Objective.

7 SERVICE ITEMS

Infrastructure Components
<ul style="list-style-type: none"> • Infrastructure Component • CPU • Memory



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- Storage - Standard, Encrypted
- Storage - Archive
- Internet
- In Cloud Replication (Data Flow)
- 1 Gb Port
- 10 Gb Port
- IP Address

Licensing

- OS (MS Standard)
- OS (MS Enterprise)
- OS (Redhat Standard) - Small
- OS (Redhat Standard) - Large
- MS Remote Desktop Services
- Database (MS, SQL Standard)
- Database (MS, SQL Enterprise)
- Firewall Lic - Basic 5 User
- Firewall Lic - Basic 50 User
- Firewall Lic - Advanced
- Firewall Lic - HA Bundle
- Load Balancer Lic - Basic
- Load Balancer Lic - Adv 25 Mbit/sec
- Load Balancer Lic - Adv 200 Mbit/sec
- Load Balancer Lic - Adv 1 Gbit/sec

Managed Services

- Anti-Virus MS
- To-Tape Backup
- To-Disk Backup
- Restoration from backup (> 1 per mth)
- Firewall - Basic 5 User
- Firewall - Basic 50 User
- Firewall - Advanced
- Firewall - HA Bundle
- Load Balancer - Basic
- Load Balancer - Advanced
- IPS - Basic
- IPS - Professional
- IPS - Enterprise + Threat Cloud Standard
- IPS - Enterprise + Threat Cloud Elite
- Monitoring MS
- Patching MS

Support

- Enterprise



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- Professional
- Basic

8 DEFINITIONS

Infrastructure as a Service (IaaS) - InterVision's compute, storage, and network services, and does not refer to access to management tools or networks outside of an InterVision Data Center

Data Center - Represents a physical location where deployment of the InterVision IaaS resources exists for customers to deploy virtual machines and access storage

IPS - An Intrusion Prevention System (IPS) is a network security/threat prevention technology that examines network traffic flows to detect and prevent vulnerability exploits.

MPLS - Multiprotocol Label Switching (MPLS) is a protocol-agnostic routing technique designed to speed up and shape traffic flows across enterprise-wide areas and service provider networks.

GDPR - General Data Protection Regulation (GDPR) is a legal framework that sets guidelines for the collection and processing of personal information from individuals who live in the European Union (EU).

PCI-DSS - The Payment Card Industry Data Security Standard (PCI DSS) is an information security standard for organizations that handle branded credit cards from the major card schemes.

HIPAA - HIPAA is the acronym for the Health Insurance Portability and Accountability Act which was passed by Congress in 1996.

9 COMPATIBILITY GUIDE

9.1 INTERVISION TECHNOLOGY COMPATIBILITY SPECIFICATIONS

The InterVision is committed to providing your organization with the latest and greatest major technology releases to power your solution. However, because we are also deeply committed to the stability of both your environment and ours, we take our time upgrading to ensure success for both your team and ours.

The success and reliability of your hosted solution rely on the compatibility of your VMware versions and InterVision's solutions. In order to ensure that success, mutual coordination is key before any technology and software upgrades occur.

9.2 DISASTER RECOVERY

The following DRaaS technology providers are a sample of the those supported today by Hosted Café:

- Zerto
- Carbonite
- Veeam
- Commvault



9.3 WHEN REPLICATING FROM YOUR OWN SITE TO INTERVISION'S CLOUD, TO ENSURE A SUCCESSFUL RECOVERY, IT IS IMPERATIVE YOUR INTERNAL ENVIRONMENT REMAINS WITHIN THE FOLLOWING VERSION COMPATIBILITY MATRICES.

VMware Compatibility

Supported ESXi version Hardware Version

ESXi 6.7 U3x Hardware 14*

ESXi 6.5* Hardware 13

ESXi 6.0 Hardware 11

ESXi 5.5 Hardware 10

ESXi 5.1 Hardware 9

ESXi 5.0 Hardware 8

ESXi 4.x Hardware 7

**ESXi 6.7 and Hardware Version 14 support may not be available in all Zone01 Instances.*

Currently, all InterVision environments support the following replication software versions:

Zerto Supported?

Zerto Virtual Replication Version 8.5 u4 P1

Carbonite Supported?

Carbonite/Double-Take Availability all supported versions

Veeam Supported?

Veeam Backup and Replication 11.0.1.1261

Commvault Supported?

Commvault 11

Managed Cloud Hosting

InterVision's Managed Cloud Hosting infrastructure currently relies on VMware vCloud Director 9.0 to support guest operating systems and their compatibility is available here:

<https://docs.vmware.com/en/vCloud-Director/9.0/com.vmware.vcloud.user.doc/GUID-132B96E8-2E0A-41E1-B701-0E3C213403AE.html>

In addition to general compatibility, Hosted Café actively maintains the following catalog templates:

- Red Hat Enterprise Linux: 6, 7
- Windows Server: 2019, 2016, 2012 R2, and 2012

InterVision also provides additional open-source templates including CentOS and Ubuntu.

If you have a question about the compatibility of an operating system, please reach out to Hosted Café Support.

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