

Services Director for Enterprise

Highlights

- **Scalability:** Create elastic ADC services on demand, which can cluster to massive scale
- **Agility:** Bring new services to market more quickly, adapting capacity to meet demand
- **Management and Control:** Orchestrate Layer 7 services within a virtualized architecture
- **Dramatic Cost Savings:** Optimize resources with enterprise-capacity management and usage model
- **Powerful Graphical Analytics:** Intuitive graphical tools for deep insight into end-to-end traffic flows - with optional Enterprise Management tools

A New Approach to Application Delivery with the Ivanti Services Director

Applications are now the center of the business world. We rely on them to reach customers, build products, automate backend business processes, and perform almost every task critical to business. A key ingredient for fast, reliable applications is the Application Delivery Controller (ADC). It accelerates transactions, maximizes availability, maintains security policies, and provides a point of control to monitor and manage application traffic.

However, most ADCs on the market today are not designed for largescale virtual or cloud deployments: their static architectures make them cumbersome and time-consuming to deploy and manage in virtualized and cloud environments.

There is a need for new dynamic architectures that remove bottlenecks and deliver improved agility, high automation levels and faster time to service. At Ivanti, we call this new architecture ADC as-a-Service (ADCaaS), which enables you to:

- Cut down provisioning time for ADC services from weeks to minutes
- Provide better user experience with per-application tuning and multi-tenancy
- Deliver better security and performance through isolation and scale
- Right-size your ADCs and save up to 50% in costs, compared to fixed capacity ADC instances

This new approach to application delivery provides a complete set of tools to deploy services rapidly, wherever and whenever they are needed. ADC instances can be deployed in minutes, rather than weeks, and can be adapted quickly to meet changing workloads and application updates.

Reliable Support Options

- Ivanti Essential Support
- Provides 24x7 access to Ivanti Technical Support expertise, reducing time to resolution
- Provides unmatched expertise in data center networking to optimize network performance
- Simplifies management through online technical support tools

Key Features

- Complete ADC lifecycle management
- Faster-time to service, reducing provisioning times from weeks to minutes
- SDN-ready to support orchestrated rollouts
- ADC automation using REST API
- Right-sized ADCs to reduce overprovisioning
- Reallocate ADC resources to meet changes in workload
- Usage-based business model for improved ROI
- Comprehensive enterprise management tools with powerful analytics

Ivanti Services Director: How It Works

The Ivanti Services Director lets you automatically provision, deploy, license, meter, and manage the inventory of thousands of ADCs in an “as-a-service” model, using the Ivanti Virtual Traffic Manager as the core application delivery platform. The solution also enables a new consumption model for customers

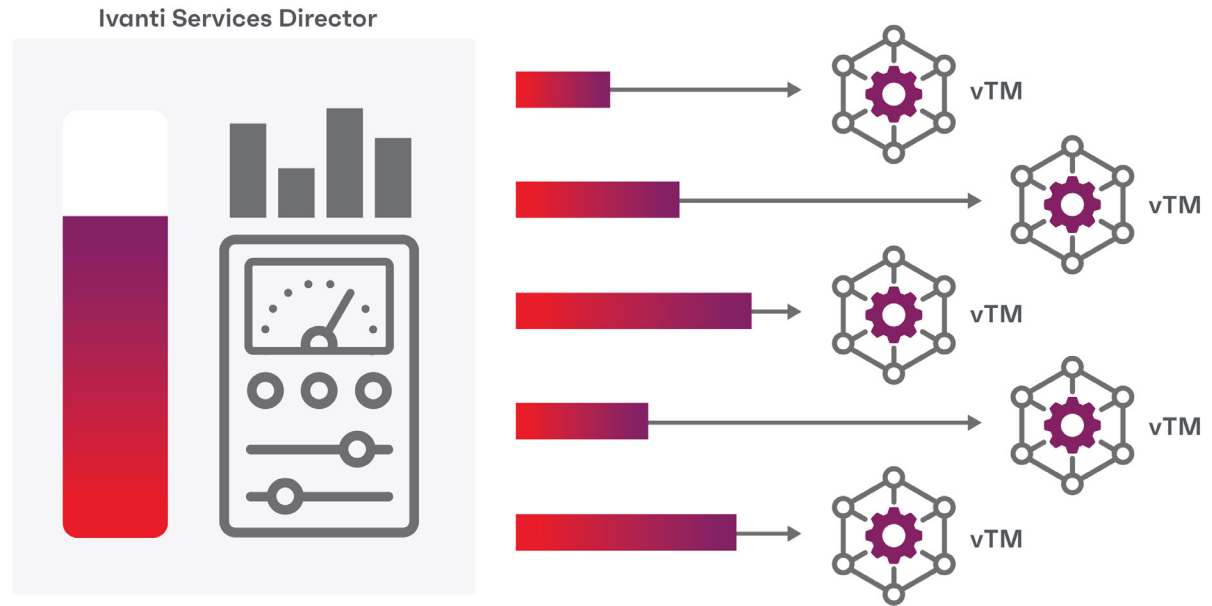


Figure 1. The Ivanti Services Director

deploying ADC services. This allows ADC services to be scaled elastically and be right-sized on demand to suit each application in your data center, offering high density, full isolation, and multi-tenancy capabilities.

Provisioning: The Ivanti Services Director provisions individual instances of Ivanti Virtual Traffic Manager within a hosted virtual environment; alternatively, Services Director can register externally deployed instances within your own data center or hybrid cloud environment.

Licensing: Each instance is licensed automatically, to define the capacity and capability of each instance

based on the needs of each application. Ivanti Services Director manages the inventory of vADC instances, and ensures that total allocated capacity remains within the overall bulk licensed capacity. This inventory management lets you share the capacity between a number of instances, and reallocate resources to meet changes in demand.

Metering: The Ivanti Services Director tracks each instance and creates usage reports for monitoring and billing, and longer-term capacity planning: Enterprises can use this information to cross-charge to each business unit or application owner.

Feature Summary

Flexible and on-demand licensing

Why pay for ADC capacity you don't need or use?

The Ivanti Services Director takes the guesswork out of sizing application delivery services, so there is no need to pre-purchase ADC capacity in advance. Start small, and add new licensed capacity only when you need it. With this new usage-based business model, you are in control of your costs: you can allocate the charges for internal and external client applications based, for true ADC-as-a-Service.

Enterprise Scalability

The Ivanti Services Director can manage the lifecycle of thousands of ADC instances under the same shared resourcing pool. With a high-level view of ADC utilization across your data center and cloud deployments, the Ivanti Services Director helps you manage application delivery services across all your applications with a common resource model.

Agile ADC provisioning

Deploy application delivery services in minutes, and exactly where needed to reduce time to market for new applications and services. Create new ADC instances on a per-application or per-tenant basis instantly, start and stop instances for service migration, and even pre-provision ADC instances for even faster "instant-on" services.

High-density multi-tenancy and isolation

With the Ivanti Services Director, you can right-size and scale in multi-tenant environments, while maintaining isolation on a per-application or per-tenant basis. This reduces "noisy neighbor" performance concerns, while maximizing ADC utilization and investment. In addition, this service isolation makes it easy to perform upgrades without impacting adjacent applications.

Lightweight ADC services

With support for a range of deployment options, the Ivanti Services Director can deploy lightweight ADC services within a managed host environment. Alternatively, Services Director can license and monitor externally deployed ADC services and clusters for large-scale applications, giving complete elasticity in either a shared-services or a distributed deployment model.

Automated service metering

The Ivanti Services Director maintains a database of all ADC instances, and the license allocated to each ADC. Services Director also maintains an audit trail of which ADC services have been deployed, and records the throughput and peak data rate of each ADC instance, and provides integrated billing records that enable you to charge back to individual client applications.

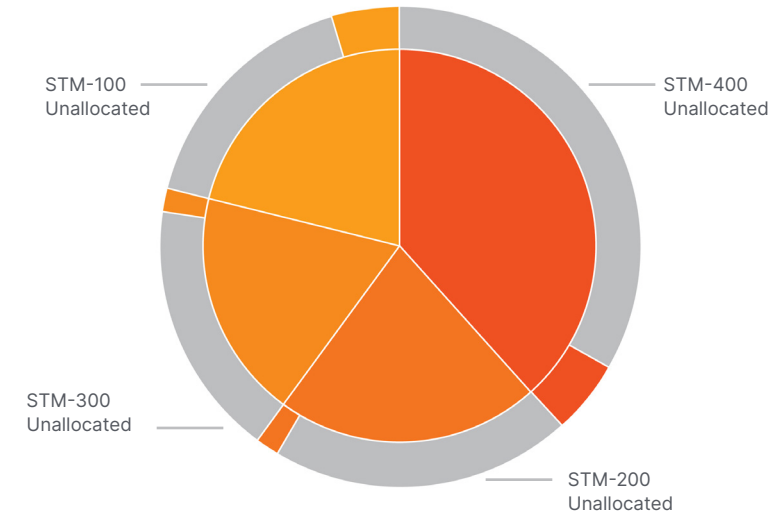


Figure 2. Bandwidth Allocation.

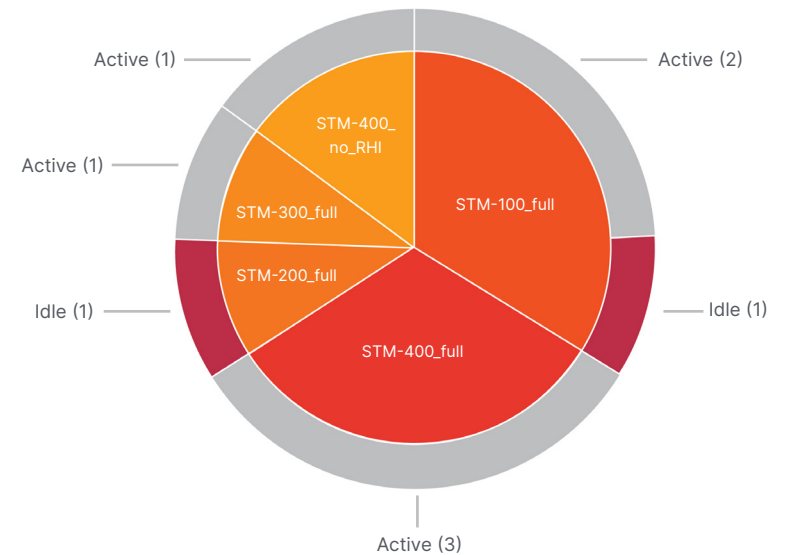


Figure 3. Total Instances

Reallocate resources to match demand

Because Ivanti Services Director keeps track of the ADC resources used, and the actual throughput used by each application, it is easy to re-allocate the resources to meet changes in workload. As the needs of your applications change through seasonal or periodic cycles, you can re-assign the application delivery resources to match the workload: no need to purchase extra capacity unless the total usage exceeds the overall licensed capacity.

Open APIs

The Ivanti Services Director integrates directly into your network and service provisioning systems with a powerful REST-based API. Services Director can register an externally managed instance of Ivanti Virtual Traffic Manager; or alternatively, Services Director can build a complete, dedicated ADC on demand with unique name, control ports, admin credentials, and a license key, ready to be configured to suit the needs of the application. In both cases, Ivanti Services Director manages each ADC instance via the standard RESTful API for Ivanti Virtual Traffic Manager.

Reporting and Service Visibility

The Ivanti Services Director includes a comprehensive suite of reports that provide intuitive point-in-time information on utilization for service resources.

These reports gather metrics from Traffic Managers registered with the Services Director, and presents via the Services Director graphical console for review and capacity planning:

- **Traffic Manager Status Report:** Summary of all Traffic Manager instances managed by Services Director, grouped by feature packs and by status. The chart is interactive, to allow drill-down into individual feature-pack or hosts.
- **CPU Utilization Report:** Detailed review of CPU utilization and aggregated throughput data on per host basis for all instances managed by Services Director. In order to scale the report for large deployments, regex filters are supported on instance names.
- **Throughput Utilization Report:** Display the overall utilization of managed and externally deployed ADC instances, both incoming and outgoing data throughput. The data is aggregated on a per-host basis with regex filters allowed on instance names.
- **Bandwidth Allocation Report:** Snapshot of current bandwidth allocation, grouped both by type of instance, and by type of license. As with the other reports, the chart is interactive, so you can drill down on the chart to analyze capacity available per-license.

Powerful Graphical Analytics

Take a closer look at your application, visualize your traffic flows and drill down to discover what's really going on. With the optional Analytics Application, Ivanti Services Director helps you discover a new perspective on your applications, with a powerful analytical application that gives you incredible insights into end-to-end traffic flows.

No need to sift through mountains of raw data, Services Director helps you explore and visualize the traffic flows to develop actionable insights and optimize your applications.

Visualize traffic flows

Tree view lets you visualise where your traffic is coming from, how it is flowing through applications, clusters and servers.

At a glance

Quickly find out which of your applications are missing their performance SLAs.

Identify Performance Bottlenecks

Identify application bottlenecks using the horseshoe chart, and focus on the problem areas.

Combination charts

Link performance metrics to connection statistics to discover how your applications respond under load.

Microsecond Timing

Drill down through the raw data to individual transactions for accurate connection tracing.

Enterprise Management Features

Ivanti Services Director offers powerful tools to help IT professionals to manage large numbers of Traffic Managers, including powerful graphical analytics and centralized logging, so you can gain a deeper understanding of how your all your applications are performing.

The Graphical Analytics capabilities of Services Director are enabled through optional add-on feature packs.

Powerful Graphical Analytics:

Intuitive graphical analysis to give deep insight into end-to-end traffic flows and transactions, helping you to understand how traffic flows through your vTM estate, and identify performance problems and application issues.

Analytics Data Export:

Export rich analytical data streams from Traffic Managers, and stream to a central data store for analysis and filtering, using the built-in Analytics Application, or your own data mining tools.

Centralized Logging:

Collate log data from all Traffic Managers across all your applications in one place, aggregating data from each member of a cluster for analysis in a single view.

Centralized Backup/Restore:

Set backup and restore policies centrally from Services Director; no need to manage backups for each individual Traffic Manager.

Centralized Authentication Profiles:

Set authentication profiles and policies centrally from Services Director, and define profiles to be applied during provisioning of Traffic Managers.

Enterprise Licensing

The Ivanti Services Director introduces a different approach for license key management for your application delivery controllers. Ivanti Services Director manages the complete lifecycle of Ivanti vADC products:

- Deployment
- Licensing
- Metering
- Inventory management
- Performance monitoring

The Ivanti Services Director keeps track of the overall bandwidth capacity and allows the capacity to be dynamically reallocated to suit workload requirements. There is no fixed limit to the number of instances that can be deployed within the overall licensing pool.

This new innovation in the ADC market allows for on-demand, right-sizing of your vADCs that results in OPEX savings through automated actions by the Ivanti Services Director. This results in a much more flexible licensing model. To achieve this, Ivanti Services Director is required to maintain licensing information about each product under its control, in addition to its own license.

Service Provider Licensing

A different licensing model is available for organisations who wish to resell application delivery services using Ivanti Services Director. These organizations, termed Cloud Service Providers by Ivanti, are subject to a separate Service Provider agreement and licensing model. For more information, please contact your account manager for details.

Ivanti Service Director Bandwidth Packs

Bandwidth Packs

The Ivanti Services Director introduces the concept of Bandwidth Packs, providing a pool of deployable bandwidth. Each Base Bandwidth Pack adds to this pool, and each deployed instance reserves a portion of it for its own exclusive use. Each bandwidth pack must be associated with a specific Services Director license and can be used in a cluster of Services Directors. If the Services Director fails, the bandwidth packs associated with the director remains valid as long as the cluster is still available. Any combination of Traffic Manager sizes may be deployed. The only limit is the total deployable throughput capacity as defined by the Bandwidth Packs purchased. This means you can draw an unlimited number of Traffic Manager instances, subject to the overall licensed bandwidth limits.

You can increase the available capacity using additional Bandwidth Packs. Ivanti offers you flexibility, there is no requirement to purchase the same capacity of add-on bandwidth packs as base packs, and you can assign capacity and capabilities only to those Traffic Manager instances that need it.

Feature Tiers

In addition to the standard base Bandwidth Pack, Ivanti Services Director is available in two key feature tiers, the Advanced Edition, and the Enterprise Edition. Resource pools are created for each feature tier, and each resource pool can be allocated across as many ADC instances as needed. However, each ADC instance can only draw from a single type of resource pool—resource pools cannot be merged or combined.

Advanced Edition:

Includes the most common LB capabilities, including SSL/TLS offload, session persistence, service level monitoring, simple TrafficScript Rule Builder, and support for IPv6 and HTTP/2; and also includes capabilities such as Global Load Balancing, Route Health Injection, and customisation using Ivanti’s powerful TrafficScript scripting language and Java Extensions.

Enterprise Edition:

Adds premium L7 services such as Web Content Optimization (WCO), Web Application Firewall (WAF) and FIPS compliance.

In addition, some capabilities may be offered as stand-

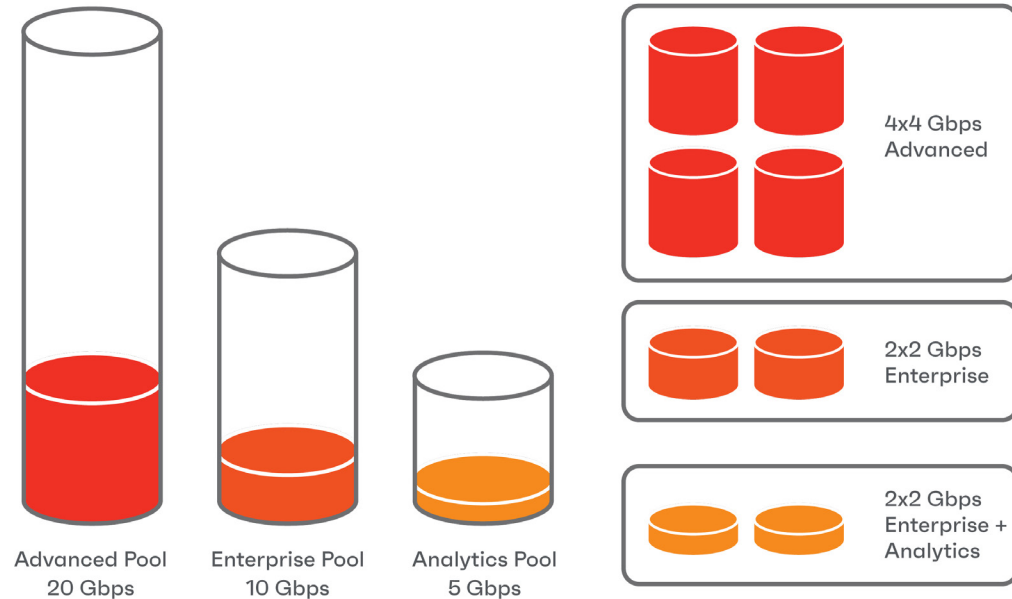


Figure 4. Three License Pools deployed in four vTM instances

alone bandwidth packs. For example, an Analytics pack can be added to enable export of traffic data for the Services Director Analytics Application, and a vWAF pack can be added to provide application security to applications that do not need additional ADC capability.

Example Feature Tiers

To help visualize the allocation of bandwidth packs to vADC instances, imagine that we have purchased three different bandwidth packs to create the following pools:

- 20 Gbps of “Advanced vADC” capacity
- 10 Gbps of “Enterprise vADC” capacity
- 5 Gbps of “Analytics” capacity

And we now want to deploy the following instances:

- 4× 4Gbps “Advanced”
- 2× 2Gbps “Enterprise”
- 2× 2Gbps “Enterprise + Analytics”

After allocating these instances, we still have 4 Gbps “Advanced” capacity, and 2 Gbps “Enterprise” capacity available to be allocated. The Analytics pool only has 1 Gbps remaining, which can be allocated if required.

Ivanti Services Director Feature Tiers

Ivanti Services Director is available in a range of bandwidth packs, and two key feature tiers, the Advanced Edition, and Enterprise Edition:

Advanced Edition:

Includes the most common LB capabilities, including SSL/TLS offload, session persistence, service level monitoring, simple TrafficScript Rule Builder, and support for IPv6 and HTTP/2; and also includes capabilities such as Global Load Balancing, Route Health Injection, and customisation using Ivanti's powerful TrafficScript scripting language and Java Extensions.

Enterprise Edition:

Adds premium L7 services such as Web Content Optimization (WCO), Web Application Firewall (WAF) and FIPS compliance.

Services Director Flexible Capacity Bandwidth Packs

Throughput	2G 5G 20G
SSL/TLS TPL	Uncapped
Functionality	Choose from Advanced or Enterprise Editions
Deployment Model	Choose from Software or Virtual Appliance
License Style	Choose from Perpetual or Subscription

Ivanti Services Director Functionality Matrix

Functionality	Advanced Edition	Enterprise Edition
Ivanti vTM	Y	Y
Ivanti Services Director	Y	Y
Load Balancing	Y	Y
HTTP/2 Support	Y	Y
Content Routing	Y	Y
Health Monitoring	Y	Y
Simple TrafficScript Rule Builder	Y	Y
SSL/TLS Offload	Y	Y
HTTP Compression	Y	Y
Event and Action System	Y	Y
Service Protection	Y	Y
Activity Graphs	Y	Y
HTTP Caching	Y	Y
Autoscale	Y	Y
XML Parsing	Y	Y
Bandwidth Management	Y	Y

Functionality	Advanced Edition	Enterprise Edition
Rate Shaping	Y	Y
Service Level Monitoring	Y	Y
Traffic Script	Y	Y
Java Extensions	Y	Y
Multi Site Manager	Y	Y
Global Load Balancing	Y	Y
Route Health Injection	Y	Y
Web Accelerator Express		Y
Web Accelerator		Y
Web Application Firewall		Y
Enterprise Authentication		Y
FIPS		Y
Enterprise Management Capabilities		
Centralized Logging	Y	Y
Centralized Backup/Restore	Y	Y
Centralized Authentication Profiles	Y	Y
Centralized Logging	Y	Y

Additional Licensing Notes for the Ivanti Services Director

Licensing Note	Description
Production License Keys	Production Services Director licenses and bandwidth packs may be used for Production Traffic, so long as bandwidth packs are used exclusively with the associated Services Director license. However, vADC services may not be directly resold to any third party without the appropriate cloud service provider license, contact Ivanti for more information. All licenses are subject to the Ivanti End User License Agreement.
Evaluation License Keys	A evaluation or trial of Ivanti Services Director requires a Services Director license key, and Band-width Packs for Traffic Manager and any additional Feature Packs. Evaluation license keys may not be used to process production traffic.
Perpetual Licenses	Perpetual licenses provide a perpetual (non-expiring) license key that may be used up to the licensed limit. Support and software upgrades are not included with a perpetual license. This can be obtained by paying an annual support fee.
Subscription Licenses	Subscription licenses allows the software to be used for a period of time (the "term") and requires payment of a subscription fee up front for that term. Subscription licenses include support and maintenance for the duration of the subscription.
High Availability	The Ivanti Services Director can be deployed to give high availability. Ivanti recommends that all Bandwidth Packs are associated with the license key of a single Services Director in the cluster. If that Services Director is temporarily unavailable, an associated Bandwidth Pack will continue to be valid as long as the Services Director is a member of the cluster.
Grace Period	Licensed Traffic Managers will enter a 'Grace Period' if the Ivanti Services Director becomes temporarily unreachable. If licensed Traffic Manager instances are stopped and restarted (e.g. due to a failure) while no Services Directors are running, the restarted instances will enter a "grace period" until a Service Director becomes available for licensing. It is recommended that Services Director is deployed in a HA cluster arrangement to avoid this situation. If instances remain running while no Services Directors are available for licensing, they enter the grace period (normally six weeks) and maintain their li-censed features until that grace period expires, after which they become unlicensed (and fall back to run as the Community Edition).
Community Edition	If a Traffic Manager instance does not have a valid license key, then it will run as a "Community Edition." However, note that Community Edition Traffic Managers cannot be managed by Services Director, and there is no Community Edition for Services Director itself. Community Edition Traffic Manager instances can be deployed independently, without assistance from Services Director. Alternatively, low-capacity instances of Traffic Manager can be provisioned using the granularity offered by Services Director to suit the needs of each application or test environment. A single 5 Gbps Bandwidth Pack for Services Director can be used to provision up 100 independent Traffic Managers, sized at 50 Mbps each.
Performance Limits	The maximum capacity of each Traffic Manager is set at deployment time, and Services Director can be used to modify the performance of each Traffic Manager at any time. The performance rating applies to outgoing bandwidth (in all directions), after content compression. Traffic Manager instances managed by Services Director are unrestricted in SSL performance, up to the deployed bandwidth. Connections will not be dropped unless outbound traffic greatly exceeds the bandwidth capacity for a sustained period of time, when no data can be transmitted before the client or server timeouts expire. The host hardware must be adequately specified in order to deliver the desired performance.
Perpetual Licenses	Perpetual licenses provide a perpetual (non-expiring) license key that may be used up to the licensed limit. Support and software upgrades are not included with a perpetual license. This can be obtained by paying an annual support fee.
Expired Licenses	Perpetual licenses do not expire. Other licenses issued by Ivanti will have an expiration date. Once a Bandwidth Pack's expiration date has passed, there must be sufficient capacity in the remaining bandwidth packs to service all deployed instances. If there is not, all instances will drop into unlicensed mode. Other zero-cost licenses issued by Ivanti for non-production use can continue to be used at no cost unless Ivanti has terminated the relevant license of developer program.

System Requirements

Ivanti Services Director for Enterprise

Ivanti Services Director is available as both as software and as a virtual appliance; Services Director can support instances of Ivanti Traffic Manager hosted on a wider range of platforms, provided there is network connectivity to support management and communication.

In addition, Ivanti Services Director can support an external analytics engine for application data export. This is optional, and only required to support the Analytics Application. The Graphical Analytics capabilities of Services Director are enabled through optional add-on feature packs

Ivanti Services Director: Virtual Appliance	
Hypervisor	VMware vSphere ESXi 5.0/5.1/5.5/6.0 QEMU/KVM (RHEL/CentOS 6.x, 7.x; Ubuntu 18.04) Also available as an AMI for Amazon AWS, contact your Ivanti sales representative for more information
Database	MySQL 5.5, MySQL 5.6 (recommended)
Other Services	SMTP
Recommended Hardware: CPU	4 vCPU
Recommended Hardware: Minimum Memory	8GB
Recommended Hardware: Minimum Disk Space	46GB
Analytics Engine	
Analytics Engine (Optional)	Splunk 6.x with large disk capacity Only required if using Analytics Application and Data Export (Data Export requires Ivanti Traffic Manager version 17.2 or above)
Ivanti Services Director: Software	
Operating System	Ubuntu 18.04 (x86_64) RHEL/CentOS 6 (x86_64)
Database	MySQL 5.5, MySQL 5.6 (recommended)
Other services	SMTP
Recommended Hardware: CPU	Intel Xeon / AMD Opteron
Recommended Hardware: Minimum Memory	2GB
Recommended Hardware: Minimum Disk Space	10GB plus additional disk space for metering logs, depending on number of instances metered
Managed vTM instances	
OS supported for managed instances	Ubuntu 18.04 (x86_64) CentOS 6.5 (x86_64)
OS supported for externally managed instances	Other operating systems are supported for externally managed instances. See the Ivanti Traffic Manager datasheet for details (requires Ivanti Traffic Manager version 9.5 or above)

About Ivanti

Ivanti makes the Everywhere Workplace possible. In the Everywhere Workplace, employees use myriad devices to access IT networks, applications and data to stay productive as they work from anywhere. The Ivanti automation platform connects the company's industry-leading unified endpoint management, zero trust security and enterprise service management solutions, providing a single pane of glass for enterprises to self-heal and self-secure devices, and self-service end users. More than 40,000 customers, including 78 of the Fortune 100, have chosen Ivanti to discover, manage, secure and service their IT assets from cloud to edge, and deliver excellent end user experiences for employees, wherever and however they work. For more information, visit [ivanti.com](https://www.ivanti.com)

The Ivanti logo consists of the word "ivanti" in a bold, lowercase, sans-serif font. The letter "i" is red, while the remaining letters "vanti" are black. A small registered trademark symbol (®) is located at the top right of the letter "i".

ivanti®

A vertical bar on the right side of the page, transitioning from red at the top to orange at the bottom.

[ivanti.com](https://www.ivanti.com)

1 800 982 2130

sales@ivanti.com