

# Juniper Networks Instant Virtual System

## Comprehensive virtualization for Juniper Networks SSL VPN appliances

Juniper Networks Instant Virtual System solution is the industry's first end-to-end SSL VPN virtualization framework designed to enable administrators to provision 255 logically independent SSL VPN gateways within a single appliance/cluster. This enables Service Providers (SPs) to offer network-based SSL VPN managed services to multiple customers from a single device or cluster, as well as enabling enterprises to completely segment SSL VPN traffic between multiple groups. IVS features complete application-layer, network-layer and access management virtualization, so that end customers of service providers or groups within enterprises can have the experience of their own SSL VPN deployment, while the service provider or enterprise administrator only has to manage one device or cluster. IVS software can be provisioned on a variety of Juniper Networks SSL VPN platforms, both by service providers and by enterprises.

IVS enables complete customer separation and provides segregation of traffic between multiple customers using granular role based VLAN (802.1Q) tagging. This enables the secure segregation of end users' traffic, even if two customers have overlapping IP addresses and enables provisioning of specific VLANs for different user constituencies, such as remote employees and partners of customers. DNS/WINS, AAA, log/accounting servers and application servers such as Web mail, file shares, etc. can reside either in the respective customers' intranets or in the SP network. SPs can provision an overall concurrent number of users on a per customer basis with the flexibility to distribute further amongst different user audiences such as remote employees, contractors, partners, etc.

Like all products built on the Instant Virtual Extranet (IVE) platform, IVS is based on the use of Secure Socket Layer (SSL) available in all Web browsers as a means of secure transport. This enables the service provider to offer customers a means of remote access for their mobile employees and contractors without deploying client software, as well secure extranet or intranet access with no DMZ buildout, server hardening, Web agent deployments, or ongoing maintenance.

### Instant Virtual Systems for the Service Provider

Service providers can provision IVS to cost-effectively offer high return differentiated services such as remote employee & extranet access, disaster recovery, intranet LAN security and mobile device access to many customers from a single platform or cluster. End customers can be assigned a single virtual system with the flexibility to create multiple hostnames/sign-in URLs for user subgroups. Service providers also

have the flexibility of offering different VLANs for each subgroup of an enterprise, should intra-group traffic need to be segmented. This feature can aid in regulatory compliance and raise security, without adding any additional equipment for the end customer to manage. Service providers can tailor their offerings, and they can control the degree of customer management and configuration that they wish to offer to their end customers. For example, a service provider can choose whether they wish to delegate the ability for end customers to establish their own customized user portal, end point security, authentication, authorization and auditing policies or whether they would prefer to limit the offering to predefined standards.

### Instant Virtual Systems for the Enterprise

The IVS solution can also be used within enterprises, should an organization want to deploy a highly available SSL VPN solution with granular, group-based VLANs in order to provide traffic segregation between multiple groups/domains. One such deployment could be in the case of a corporate headquarters, where the enterprise wanted to provide connectivity to branch offices. IVS could be used to create a virtual system for each branch office, allowing admins in those offices to manage their own SSL VPN virtual system, while not being able to view or modify information on another branch's virtual system. This use case offers a high degree of flexibility while allowing corporate headquarters to retain ultimate control of the system and ensure regulatory compliance.

## Instant Virtual System Features At-a-Glance

### Multiple Virtual Systems from One Platform/Cluster

IVS enables administrators to provision customer/group specific virtual systems each with unique virtualization definitions for network, security (endpoint, authentication, authorization & auditing), and management policies.

Features	Benefits
<b>Virtualized Network Settings</b>	
<ul style="list-style-type: none"> <li>Highly granular role based VLAN (802.1Q) tagging support for Core, Secure Application Manager (SAM) and Network Connect (NC) access methods</li> <li>255 VLANs each with its own route table and with VLAN IDs configurable in the range of 1 to 4095 can be provisioned on the fly, without requiring a system reset</li> <li>Virtualized DNS/WINS Settings</li> </ul>	<ul style="list-style-type: none"> <li>Enables administrators to define one or more unique 802.1Q VLAN tags on a role basis within each customer/group specific virtual system</li> <li>Enables SPs/enterprises to maintain complete logical separation between multiple customers/groups when shared on a single appliance/cluster</li> <li>With a configurable VLAN ID range and dynamic addition &amp; deletion of VLANs, new customers/groups can be provisioned without interrupting existing customers' traffic</li> </ul>
Overlapping IP addresses support across Instant Virtual Systems	<ul style="list-style-type: none"> <li>Ability to configure overlapping IP addresses for application and authentication servers across intranets of multiple customers shared on the same appliance/cluster</li> <li>Administrators can also provision static IP address pools with overlapping IP addresses for NC end users across multiple customers</li> </ul>
<b>Virtualized System Settings</b>	
Fully customizable look and feel at the end user level with one or more sign-in URLs (host-names)	<ul style="list-style-type: none"> <li>Administrators can assign one or more sign-in URLs per customer/group and offer complete flexibility to customize the UI for unique look and feel</li> <li>Ability to create a standard portal look and feel for quick rollout</li> </ul>
Flexibility in defining per customer authentication and authorization servers	<ul style="list-style-type: none"> <li>Ability to configure one or more authentication servers per customer with the flexibility to select different server types for authorization</li> <li>Seamless integration with existing directory infrastructure in customers' networks</li> </ul>
Controlled, distributable concurrent user counts	<ul style="list-style-type: none"> <li>Ability to provision an overall concurrent number of users on a per customer/group basis with the flexibility to distribute it further amongst different user audiences such as remote employees, contractors, partners, etc.</li> </ul>
<b>Configurable Security &amp; Access Policies</b>	
<ul style="list-style-type: none"> <li>Authentication &amp; authorization policies to control end user access privileges</li> <li>Endpoint security policies to assess device/network security state</li> </ul>	<ul style="list-style-type: none"> <li>SPs can standardize offerings, or offer differentiated services with flexibility to create security policies on a per customer basis that meet specific end user access privilege requirements</li> <li>Granular access privileges for variety of end user constituencies such as employees, contractors, partners, etc.</li> <li>Multiple customers on a shared single system can have entirely different or overlapping end point security policies</li> </ul>
Comprehensive application layer and network layer access methods with granular access controls	<ul style="list-style-type: none"> <li>Can standardize offerings, or create differentiated services with the flexibility to create customer specific policies that reflect their own end user base needs</li> <li>Each access method provides different levels of access control, from IP addresses, all the way to the URL or file level</li> </ul>
Auditing and logging	<ul style="list-style-type: none"> <li>SPs can offer auditing and logging services or end customers can use their own log / accounting servers</li> <li>With log data, SPs can help end customers with regulatory compliance</li> </ul>

### Streamlined Administration with Role-Based Delegation

IVS provides streamlined administration to most efficiently provision multiple customers/groups. It also features standards based management protocols to facilitate integration with third party management and reporting products.

Feature	Benefit
Advanced role based delegation & management policies for: <ul style="list-style-type: none"> <li>• Customer administrators within an IVS</li> <li>• SP Administrators across IVSes</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility to delegate customer portal administration, customer specific logs and usage monitoring, end user access privileges and endpoint security policies</li> <li>• Delegated admin roles requiring single or dual factor authentication can be created for customer administrators within an IVS or for internal service provider administrators across IVSes with the ability to:               <ul style="list-style-type: none"> <li>– Provision read/write, read only access</li> <li>– Granularly delegate out individual tasks with read/write/deny privileges for each task</li> </ul> </li> </ul>
Syslog and usage monitoring	<ul style="list-style-type: none"> <li>• Virtualization of logs enables dynamic filtering of user and admin access logs for each customer</li> <li>• With log data, SPs can help end customers with regulatory compliance</li> <li>• Ability to restrict a customer admin to only view and/or export logs specific to that customer</li> <li>• Syslog data can be generated on a per customer basis even when multiple customers are hosted on the same system</li> <li>• Multiple syslog servers per customer allows syslog data to be sent to servers in the customer network and/or in the SP for record keeping and duplication purposes</li> </ul>
RADIUS accounting	<ul style="list-style-type: none"> <li>• Customer specific RADIUS accounting facilitates seamless billing integration with existing billing applications</li> <li>• Flexibility to enable RADIUS accounting even when authentication server type is different than RADIUS</li> </ul>
SNMP	<ul style="list-style-type: none"> <li>• Customer specific maintenance and troubleshooting with virtualized SNMP traps for major and critical events.</li> <li>• Real time system health monitoring with SNMP MIBs for critical parameters such as CPU and memory utilization, concurrent number of users</li> </ul>
Troubleshooting and diagnostics	<ul style="list-style-type: none"> <li>• Virtualized troubleshooting and diagnostics enable SPs to service individual customers without affecting other customers hosted on the same system</li> </ul>

### Virtualized Best-in-Class SSL VPN Features that End Users Demand

Juniper Networks market leading SSL VPN offerings provide an unmatched feature set. These features are available to end customers as part of a virtualized system, allowing the service provider to choose to offer them as part of a standard or differentiated service offering. More detailed information on the standard Juniper SSL VPN features can be found in the Secure Access family datasheets.

Classification	Specific Features
Access Privilege Management Capabilities	<ul style="list-style-type: none"> <li>• Hybrid role- / resource-based policy model</li> <li>• Pre-authentication assessment</li> <li>• Dynamic authentication policy</li> <li>• Dynamic role mapping</li> <li>• Resource authorization</li> <li>• Granular auditing and logging</li> <li>• Extensive directory integration &amp; broad interoperability</li> </ul>
Provision by Purpose	<ul style="list-style-type: none"> <li>• <b>Clientless Core Web access</b> - Access to Web-based applications, including complex JavaScript, XML or Flash-based apps and Java applets that require a socket connection, as well as standards-based e-mail, files and telnet/SSH hosted applications.</li> <li>• <b>Secure Application Manager (SAM)</b> - A lightweight Java or Windows-based download enables access to client/server applications using just a Web browser. Also provides native access to terminal server applications without the need for a pre-installed client</li> <li>• <b>Network Connect</b> - Provides complete network-layer connectivity via an automatically provisioned, cross platform download from a Web browser. Adaptive dual mode transport for optimal network layer connectivity in diverse connection environments.</li> </ul>
End-to-End Layered Security	<ul style="list-style-type: none"> <li>• Native Host Checker</li> <li>• Host Checker API</li> <li>• Host Check Server Integration API</li> <li>• Policy-based enforcement and remediation</li> <li>• Cache Cleaner</li> </ul>
User self-service features	<ul style="list-style-type: none"> <li>• Password management integration</li> <li>• Web-based Single Sign-On               <ul style="list-style-type: none"> <li>– BASIC Auth &amp; NTLM, Forms-based, Header Variable-based</li> </ul> </li> </ul>



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