The VSXi from Sansay ushers in the next generation of session controllers. Designed to keep pace with the most dynamic telecom markets and demanding customers, the VSXi offers critical capabilities for communications service providers determined to stay a step ahead of the competition. The VSXi delivers superior results through an advanced product architecture that is built from the ground-up to achieve breakthrough levels of flexibility, scalability, and reliability.

**System Overview**

The VSXi session controller provides critical functions for communications service providers, including security, network address translation, protocol interworking, and traffic management.

The VSXi is deployed to support network peering traffic, selecting the optimal route for communications traffic and assuring effective interworking with outside networks.

The product is also deployed to manage subscriber-facing traffic, providing packet-header manipulation and digit mapping for automatic number identification (ANI) and dialed number identification services (DNIS) manipulation.

**Customer Deployments**

The VSXi has been commercially deployed by over 300 communications service providers, worldwide. Customers use the VSXi to support services that include hosted business VoIP, SIP trunking, residential VoIP, wholesale VoIP, wireless broadband, and video communications.

The VSXi also supports specialty applications for communications providers such as media transcoding and lawful intercept / CALEA.

**Product Capabilities**

- Network topology protection and resource hiding
- Firewall & network address translation (NAT) traversal, near & far end
- Local number portability (LNP) dipping & complete control of inbound / outbound RN handling
- Session-routing based on ANI & DNIS jurisdictional control
- Manages 60M routes in 1000 different route tables
- Generate call detail records (CDR) w/ retrieval via RADIUS, FTP, RSync, SCP
- Performance monitoring w/metrics updated in real-time
- Protocol interworking for SIP and H.323

**Benefit Highlights**

- **Flexibility:** Uses “network license model” that dynamically distributes network session capacity across a cluster of VSXi nodes. Allows provisioning via intuitive GUI or SOAP API with XML files.
- **Reliability:** Delivers non-stop uptime and hitless upgrades though high-availability architecture.
- **Scalability:** Switches up to 1,500 cps & 50,000 sessions per HA node. Combine up to 8 nodes in a cluster for 12,000 cps & 400,000 sessions.
Unmatched Flexibility and Reliability

The VSXi was designed and engineered from inception to maximize flexibility and reliability. High availability and geographic resilience is achieved through n+1, active-active redundancy approach. The VSXi uses a “network licensing model” that lets operators cost effectively add nodes without incurring additional license charges. Licensed session capacity is spread across the pool of access or peering systems.

Optimal Scaling for Service Providers

The VSXi offers configurations that scale up to support the largest operators or can be scaled down for starter, lab, and specialty use applications. Starter configurations combine signaling and media handling functions onto a single server. As shown on the left, signaling and media functions can be deployed on specialized hardware resources for increased performance.

Security Capabilities and Countermeasures

The VSXi remains highly opaque in the network and uses dynamic access control lists (ACL) to respond to a minimal number of unknown devices. The ACL for registered users is more complex. The VSXi tracks the number of failed registrations by IP address and will block an offending IP address almost instantly.

Denial of Service Attacks: A common approach to take down networks is through a flood of Register attacks. The VSXi uses a Register per Second throttle to avoid overwhelming the feature server. Registered users and new registrations are managed independently, enabling persistent service to subscribers through the duration of the attack.

Transcoding

The VSXi brings the ability to transcode sessions with the same flexibility, scalability, and reliability as its other media management functionality. Transcoding is provided through cards configured on the Media Server. Sessions that require transcoding are intelligently routed to media server ports with the necessary transcoding capabilities.

Specifications

<table>
<thead>
<tr>
<th>Protocols:</th>
<th>Power and Physical:</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFC 3261, RFC 2543, RFC 2833</td>
<td>19 inch rack mountable</td>
</tr>
<tr>
<td>H.323 GK, GW ENUM-GSMA Cert.</td>
<td>1U or 2U options</td>
</tr>
<tr>
<td>Digit Manipulations:</td>
<td>1U server / 25 lbs</td>
</tr>
<tr>
<td>Full digit, host, and user control</td>
<td>- 300W; Universal AC / Autoswitched</td>
</tr>
<tr>
<td>Conditional dual stage</td>
<td>2U server / 37 lbs</td>
</tr>
<tr>
<td>outbound prepend / append</td>
<td>- 700W; AC or DC</td>
</tr>
<tr>
<td>Conditional dual stage inbound stripping / prepending DNSI or LRN</td>
<td>Licensing:</td>
</tr>
<tr>
<td></td>
<td>System licenses start at 250 sessions with increasing increment blocks to 100,000 sessions</td>
</tr>
</tbody>
</table>

Interoperability

Feature Servers: BroadSoft, Metaswitch, Genband, Cisco, IVR Tech, Asterisk, Metaswitch, Sonus
IP PBXs: Avaya (Nortel), Cisco, Microsoft Lync, Alcatel-Lucent, Mitel, Asterisk, and more
Billing Systems: APEX, Fastlink, BillCall, Oculus, Oercawave Teledynamix, MCL, WebCDR, RiverRock Systems, Logisense
LCR Applications: Neustar, GCS, BillCall, Teledynamix, AutoLCR, Oercawave, Pulse
Media Gateways: TelcoBriges, Dialogic, Audiodcodes. Cisco