



## SIP Service Delivery Solutions



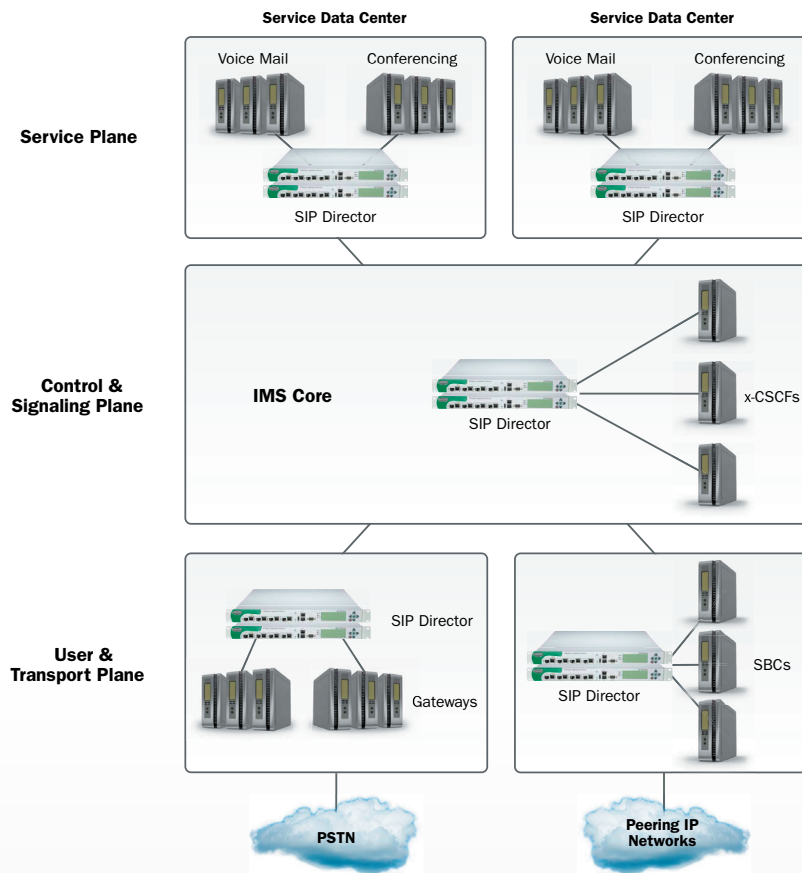
*Smart Network. Smart Business.*

# SIP Service Delivery Solutions

Radware's SIP Director™ is a SIP Application Delivery Controller. With SIP Director, operators can guarantee the high availability, performance and security of SIP-based applications, services and SIP-aware network entities.

By extending SIP service visibility, intelligence and control, SIP Director addresses SIP service operational requirements, providing the reliability, scalability and interoperability needed to ensure large scale carrier-grade deployments of SIP-based services.

With SIP Director, carriers, network equipment providers and system integrators can optimize SIP delivery across application/feature servers, voice mail service, IVRs, conference applications, media servers, call center applications and 911 services among others. SIP Director supports SIP-based services for pre-IMS frameworks including softswitches and SBCs, as well as IMS frameworks including SIP services across IMS service, control and transport planes.



SIP Applications & Services

- Application/Feature Servers
- Value Added Services
- IVRs
- Voice Mail Applications
- Messaging Applications
- Voice/Video Conferencing
- Media Servers
- 911 Services
- Call Centers

SIP Core Network & Border Elements

- SBCs
- x-CSCFs
- SIP Trunking Gateways
- Softswitches
- PSTN Gateways
- Media Gateways

## SIP SERVICE DELIVERY CHALLENGES

SIP (Session Initiation Protocol) forms the basis of next generation IMS architectures and converged services, capable of carrying both voice and data while enabling the seamless integration of other new value-added IP services. As SIP adoption continues to grow, SIP is rapidly emerging as a mission critical service, creating the need to provide operators with solutions supporting carrier-grade service delivery. These requirements impose application and system challenges not typically addressed within SIP-service and product development cycles, requiring solutions capable of meeting SIP performance in the deployment, integration and ongoing service operation phases.

- **SIP Service High-Availability, Fault Tolerance & Disaster Recovery**

SIP-based call establishment, responsiveness, completion and continuity are critical for SIP deployments in large scale networks. To ensure SIP service high availability, SIP Director performs advanced health, resource and call handling capacity checks across all SIP-aware entities. By intelligently and accurately routing SIP traffic across server clusters, SIP Director guarantees SIP service fulfillment and optimal call completion, identifying and by-passing SIP application failures. SIP Director is a fully redundant solution, with internal local fail-over and global traffic redirection, off-loading and backup between locations, ensuring carrier-grade resilience and multi-site disaster recovery.

- **Optimized SIP Service Performance & Scalability**

SIP services must be capable of scaling to accommodate growing volumes of users and calls. However, SIP application state management and the need to support TCP and TLS transport introduce service scaling challenges. By optimizing SIP resource selection across application servers, core network entities and border elements, SIP Director improves SIP service performance and QoS. Employing IP and SIP call/messaging load balancing along with TLS/TCP off-loading and acceleration, connection re-use, aliasing and multiplexing. SIP Director streamlines the utilization of SIP resources, enabling unlimited and scalable call handling capacity. In addition, SIP Director makes it possible to meet dynamic load and peak usage requirements by off-loading and managing SIP traffic between locations, while enabling transparent server addition, for tuned service capacity management and a highly economical 'build-out as you grow' approach.

- **SIP Service Interoperability & Feature Support**

Even though SIP is an IETF/RFC 3261 standard, many SIP extensions and protocol implementations including support for IMS (3GPP and TISPA) or support of more advanced features and services are not standard. SIP Director supports all common SIP transport protocols including common transports (eg. UDP, TCP and TLS), IMS extensions, messaging headers and security features among others. By affording a robust, RFC 3261 compliant SIP proxy, SIP Director greatly simplifies deployment of SIP services across different standards, serving as a gateway for on-the-fly support of SIP/UDP, SIP/TCP, SIP/TLS and SIPS/TLS connecting with SIP Servers, Proxies, Gateways and UAs.

- **SIP Director Service Security and Network Integrity**

Deploying SIP services in the network exposes its core and edge entities to security threats such as network DoS/DDoS attacks, SIP level floods and other SIP vulnerabilities. SIP Director provides integrated SIP-service and network security protecting operators' SIP servers, core and edge SIP network elements, against attack. SIP Director provides signature and behavioral based DoS/DDoS security delivering 'zero-touch, zero-minute, zero false positives' detection and mitigation of SIP layer floods, worms and SIP protocol exploits (eg. buffer overflows and SQL injections).

- **SIP Director Service Flexibility & Rapid Time-To-Market**

Building a SIP service architecture that meets the challenges of high availability, resilience, scalability, security and interoperability, typically requires long development cycles introducing delays in service deployment and service launch. SIP Director features 'out-of-the-box' compliance, along with SIP interoperability support, greatly reducing the complexity and time-to-market of SIP service deployment for vendors, integrators and carriers.

### High Availability

Optimal Call Completion  
Failure Recovery  
Disaster Recovery

- Local and Global Clustering
- Mid-Call Failure Recovery (specific backup server)
- SIP Application Health Monitoring
- Internal Resiliency – No Single Point of Failure
- Call/User Admission Control

### Performance & Scalability

Unlimited Call Handling Capacity  
Performance Optimization  
Traffic Acceleration  
Service Fulfillment  
Saving Server Resources

- SIP Call/Message Load Balancing
- SIP-aware Persistency (by call/conference/user ID or user configured parameter)
- Automatic Persistency for Outbound Calls (crucial for B2BUA/Gateways)
- TLS/TCP Processing Off-load and Acceleration
- Connection Reuse/aliasing/Multiplexing

### Interoperability

Network Connectivity  
SIP Entities Compatibility

- Transport Agnostic (SIP over UDP/TCP/TLS)
- Transport Conversion (UDP, TCP, TLS)
- SIPS URI Conversion (SIPS to/from SIP w/transport=TLS)
- Integrated SIP Proxy
- Standards Compliant (RFCs 3261, 3263, 3265 and feature/IMS extensions)
- Field Tested for Interoperability

### Flexibility

SIP Intelligent Switching  
System Context-Aware Routing

- Highly Configurable Rule-Based SIP Routing
  - a. Service classification
  - b. User Classification
  - c. Request Content
  - d. System Status (eg. load)
- NAT/Firewall Traversal for signaling
- QoS Guarantee and Bandwidth Management

### Service & Network Security

User and Network protection  
Privacy Enablement

- Authenticated TLS Encryption
- DoS Flood Protection (SYN, TCP, UDP floods)
- Configurable Access Control

### Time To Market

Out-of-the-box Carrier Grade  
Standards Compliant  
System Performance Guarantee

- SIP TLS/TCP on-the-fly enablement
- Interoperability with SIP servers, Proxies, Gateways and UAs
- Out-of-the-box and Configurable (no coding required)

## About Radware

Radware is the industry leader in intelligent application delivery solutions. Wireline and mobile carriers rely on Radware to optimize IP services, guaranteeing high-availability, maximum performance, service and network integrity and efficient infrastructure utilization.

With Radware, carriers are able to ensure the performance and quality of IP-based services, reduce service delivery costs and introduce new services and Internet business models to grow revenues and IP service profitability.

[www.radware.com](http://www.radware.com)