

Extending the Value of Carrier Networks through Transparent Smart Redirection and Dynamic Policy Enforcement



Content Inspection Director (CID), Radware's transparent smart redirection and dynamic policy enforcement function is designed to meet contemporary carrier needs. Using a deep packet/flow inspection (DPI/DFI) engine, CID enables carriers and service providers to provide fast time-to-market value-added services deployments.

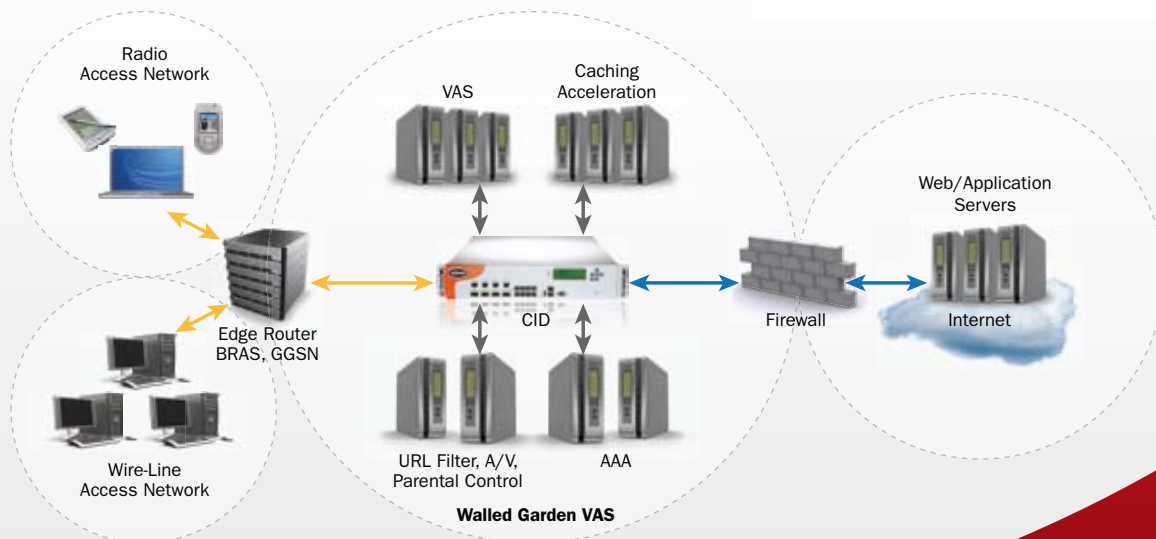
As wire-line and mobile operators face increasing competition and are searching for new revenue generators while reducing TCO, CID enables dynamic and flexible new premium services creation. With CID, profitable new business models are possible, deploying next-generation network architectures and meeting future market needs.

CID also allows service providers to gain additional CAPEX / OPEX reduction by designing the network to operate with average load instead of peak loads.

Radware's on-demand "pay-as-you-grow" approach enables carriers to increase throughput from 0-16Gbps without replacing hardware, thus simplifying implementation without compromising business availability or performance.

Benefits

- Enhanced DPI/DFI engine
- Service/content/user awareness
- Fully transparent multi-stage traffic redirection
- Smart and dynamic policy and control enforcement function (PCEF)
- L7 header enrichment/modification
- On demand scalable throughput



Mobile Operators: The Challenge

Mobile carriers are evolving from controlled, closed WAP-based walled garden applications with Internet access to fully open mobile broadband access, while facing:

- Evolution of broadband data radio technologies (HSxPA, LTE, WiMax)
- Introduction of advanced open operating systems mobile devices (e.g. Windows Mobile, Symbian OS, Apple's iPhone SDK and Google's Android)
- New mobile applications and rich web content (streaming) as well as new content delivery models (user generated content, syndicated content)
- New reference architectures such as Service Delivery Platforms (SDP) targeting flexible delivery and deployment of third party services (Internet Application Service Providers)

Driven by the need to provide open mobile broadband connectivity and services, mobile networks are introduced to many challenges, the major ones being the increased volumes of traffic which cause new quality of experience (QoE) assurance challenges, the move of the operators to support flat fee tariff plans regardless to the amount of bandwidth used by subscribers, and the bypass of Walled-Garden VAS by subscribers. As a result mobile operators are forced to increase their infrastructure investments (e.g. RAN, Core and VAS), while facing a decline in the average revenue per user (ARPU). The outcome is the eventual disruption of the operator's business model.

In order to overcome these challenges, mobile operators strive to increase their operational efficiencies by:

- Introducing service factories optimization for Internet and Walled-Garden services
- Differentiating services through enhanced visibility and control
- Supporting Next Generation architectures for dynamic policies support (3GPP PCC reference architecture)
- Reducing new services time to market (TTM)
- Adding "Smart" flow enforcement and header/content manipulation

Wire-Line Operators: The Challenge

To support subscriber growth, wire-line operators will always need to add capacity and upgrade access and core networks. In many cases, access network expansion is not aligned with subscriber traffic growth, usually due to increasing demand for "traffic consuming applications" such as video streaming and P2P traffic. Both unruly customers and bandwidth consuming applications cause major disruptions to their business model.

So wire-line operators need to increase operational efficiencies while reducing operational costs. This is realized by introducing smart and dynamic policy enforcement functions that can provide alternative, more profitable, service packages to differentiated users. In addition, data centers are consolidated which in turn introduces additional requirements for high capacity network elements.

In IMS and pre-IMS network architectures, Session Border Controllers (SBCs) are becoming network bottlenecks due to the increase of VoIP calls and services. Therefore, SBC resource offloading and smart call admission control is a key challenge for wire-line operators wishing to provide greater volumes of VoIP minutes.

CID: The Radware Solution for Mobile and Wire-Line Operators

Carrier-Grade Visibility and Control

Radware's CID provides mobile and wire-line operators with a transparent, tailor-made, DPI/DFI application delivery platform for improved visibility and dynamic control across network and services. This allows for effective service factory optimization and reduced implementation complexities of back-end resources. User QoE and service provider visibility and control are improved, while "dumb pipe" network operation is eliminated, and enhanced tiered billing capabilities and new network monetization opportunities are introduced.

Feature	APbsolute Advantage
Subscriber/Content/Application Awareness (DPI/DFI) Enables wire speed policy-based redirection of the traffic to the required service engines according to DPI/DFI	<ul style="list-style-type: none"> • Gain deeper network intelligence visibility and control at the micro flow and transactional level • Redirection is based on a wide range of Layer 1-7 parameters • Allow differentiating services according to user/subscriber/content details
AAA Integration Extract user information from the operator's authentication, authorization and accounting (RADIUS) systems	<ul style="list-style-type: none"> • RADIUS Start/Stop/interim ACCOUNTING messages aware • Deploys dynamic polices according to any RADIUS AVP (MSISDN, RAT, SGSN IP Address etc)
Device Logging Store session and additional user dynamic information carried out from RADIUS Start/Stop accounting messages	<ul style="list-style-type: none"> • Increase operator visibility and network discovery

Managed Services Delivery

With Radware's CID, carriers and operators can effectively support the delivery of high performance customized content inspection services on demand, including typical store and forward inspection tools such as: URL filtering, Web Application Firewalls (WAF) and parental control as well as acceleration services such as caching, compression and SSL for business and residential customers. With its unique wire-line load balancing mechanism, CID supports transparent introduction of MAC-less anti-virus, anti-spam value add services. CID enables the seamless deployment of high-availability, optimized, best-of-breed (third party) content inspection tools across carrier networks by redirecting the classified flows into the content inspection tools. In addition, CID supports Fixed and Mobile Convergence (FMC) by reusing the same VAS infrastructure for both wire line and wireless subscribers. This creates a unique competitive differentiator for service providers in their local markets and high margin new revenue generating services.

Feature	APSOlute Advantage
<p>Transparent Application Delivery Define redirection and load-balancing policies based on real-time measurement</p>	<ul style="list-style-type: none"> • Improve Time to Market (TTM) for new Walled-Garden and Internet VAS • Support multi-vendor VAS environments • Support multiple access technologies • Reduce new VAS implementation complexities • Traffic redirection based on: <ul style="list-style-type: none"> o Application response time o Inbound/outbound bandwidth o Sessions, Connections, packets/sec
<p>Flexible Policy Enforcement Point (PEP) Sequentially redirect same session traffic across multiple VAS</p>	<ul style="list-style-type: none"> • Allow offloading resources from application servers and create significant savings on server CAPEX and OPEX • Control user, service or application traffic flows for differentiated services (hair pining) • Multi-staging policy enforcement capabilities (by handset, user, network, MIME type, etc.) • Optimizes service delivery and improve user QoE by adjusting the number of service proxies
<p>Wire-Line Load Balancing Support of "MAC-less" devices to enable transparent non-intrusive network connections</p>	<ul style="list-style-type: none"> • Load balance traffic to "MAC less" devices connected by a single or dual port for ingress and egress traffic
<p>Header Enrichment and Modification Transparently enrich and modify HTTP headers of subscriber requests</p>	<ul style="list-style-type: none"> • Support various optimization models, e.g. effective bypass WAP gateway, etc. • Improve visibility for external internet ASP • Transparently enrich and modify HTTP header with: <ul style="list-style-type: none"> o 3GPP RADIUS attributes o Any user provisioning related information stored within operator RADIUS DB • Transparent/non transparent URL relative path modification
<p>Bandwidth Management and Traffic Shaping Align service and network bandwidth with business objectives</p>	<ul style="list-style-type: none"> • Prevent misuse of bandwidth by non-business critical applications (P2P, etc.) • Prevent uneven network utilization by limiting/guaranteeing bandwidth per class, user • Class-based traffic shaping using CBQ • User-defined and Predefined classes include over 40 common applications, ToS or Diffserv bits
<p>Guaranty VAS High Availability Quickly identify and bypass failures at any point along the application or transaction path by automatically redirecting traffic to the best available servers</p>	<ul style="list-style-type: none"> • Business continuity and disaster recovery • Allows redirection of users to remote servers based on server availability • Advanced solution providing redirection capabilities for globally-dispersed data centers • Monitor the health of a wide range of applications including: VoIP, streaming media (RTSP), and more

Ensure Availability of Value Added Services

Business reputation, productivity and profitability depend on 24x7 business-application and Web site/portal availability. The financial implications of downtime and lost user transactions, due to application or hardware failures, are a major concern for wireless and wire-line operators and service providers alike. Radware's CID guarantees absolute uptime for all applications and value added services at all times. This means guaranteed transaction completion with a resilient solution that performs real-time identification and bypassing of any faulty element (such as application failure, server failure, server farm failure and even device failure) along the transaction path.

Feature	APbsolute Advantage
Active/Passive Device Redundancy Prevent application session disruptions and eliminate single point of failure in a high-availability architecture	<ul style="list-style-type: none">• Guarantee uptime, highest SLA and best QoE to users and customers• Reduce service interruptions at all cases• Full table synchronization
Highly-Reliable Platform Purpose-built, appliance delivering high MTBF	<ul style="list-style-type: none">• Redundant power supply• Separate management interface
Fail-Safe Mode Internal switch bypass	<ul style="list-style-type: none">• Transparently pass traffic through the device without processing in case both Active and Standby devices fail

Radware APbsolute™ Product Suite

Radware, the global leader in integrated application delivery solutions, assures the complete availability, performance and security of business-critical applications for nearly 10,000 enterprises and carriers worldwide. With Radware's comprehensive APbsolute suite of application delivery and network security products, companies can drive business productivity, improve profitability, and reduce IT operating and infrastructure costs by making their networks "business-smart."

Certainty Support

Radware offers technical support for all of its products through the Certainty Support Program. Each level of the Certainty Support Program consists of four elements – phone support, software updates, hardware maintenance, and on-site support. Radware also has dedicated engineering staff that can assist customers on a professional services basis for advanced project deployments.

Learn More

To learn more about how Radware's solutions can enable you to get the most of your business and IT investments, email us at info@radware.com or go to www.radware.com.