Radware-Alteon Application Switch and Blue Coat Proxy
Implementation Guide

Products:
Radware-Alteon Application Switch
**Software:** Radware-Alteon Application Switch version 26.3.0.3
**Platform:** Alteon Application Switch 5412

Blue Coat : CacheFlow 5000 Series
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Solution Overview

The Radware-Alteon and Blue Coat joint solution ensures Blue Coat customers a resilient, efficient and scalable solution. Radware’s Alteon Application Delivery Controller (ADC) guarantees Blue Coat Proxies devices maximum availability, scalability, performance and security, while managing traffic for WAN Optimization and Securing Web Gateway services.

By offloading processor intensive operations from Blue Coat Proxies, Alteon Application Switch frees the proxies’ CPUs to handle additional traffic and enhances the Quality of Experience for end users. The advanced health monitoring capabilities of Alteon eliminate system down time and the advanced Layer 7 traffic management capabilities allows maximum flexibility of the system.

By embracing Radware’s “Pay-as-you-Grow” approach, the joint solution customers only pay for the exact capacity currently required and prevent over-spending on the initial solution. Throughput capacity, acceleration capabilities and application-aware services can be added on demand to meet new business requirements.

Blue Coat CacheFlow 5000 Series Overview

The Blue Coat CacheFlow appliance enables service providers to manage dramatic increases in network traffic and subscriber growth. Utilizing highly effective Web caching technology, CacheFlow appliances save bandwidth on expensive international links and backhaul traffic, while improving the end-user Web experience. Through a scalable architecture of cache farms, service providers can accelerate the delivery of rich Web 2.0 content, large files and video. This significantly reduces infrastructure costs by controlling bandwidth consumption while improving customer satisfaction.

Key Benefits and Feature Overview:

Save bandwidth. By caching content in-region and closer to the user, the CacheFlow appliance drastically reduces bandwidth consumption. This translates into a rapid return on investment and significant long-term cost savings for service providers on international bandwidth, as well as reducing backhaul traffic on domestic links.

Accelerate Web 2.0 and Rich Media Delivery. CacheFlow enables you to cache popular, rich media and Web 2.0 sites, including file-sharing and video sites. Caching saves on bandwidth while boosting the user experience.

Ensure Caching Effectiveness. CacheFlow leverages Blue Coat CachePulse™ for automatic, network-based updates as the Web changes to ensure the appliance effectively caches content and consistently delivers high bandwidth savings.
Filter and Secure Web Traffic. By turning on the built-in Blue Coat WebFilter™ option, CacheFlow filters and secures web traffic, including undesirable content and malware-infected sites. CacheFlow also allows you to create customized exception and block lists for specific sites, as well as leverage the Internet Watch Foundation list to filter illegal content.

Scale with User and Traffic Growth. CacheFlow was designed for high throughput service provider environments with the ability to scale to multi-gigabit support through the use of cache farms. CacheFlow offers both 1GigE and 10GigE interfaces for high-speed network infrastructure requirements and tight integration with load-balancing switches for greater scalability and performance.


Carrier-class Service and Support. Global 24/7 support options are available for the CacheFlow appliance. The appliance is supported by a dedicated team of service provider experts at Blue Coat, plus the appliance includes built-in features so support can proactively mitigate issues and expedite resolution.

For more information, please visit: http://www.bluecoat.com/
Radware-Alteon Application Switch Overview

Radware-Alteon Application Switch is an intelligent application delivery controller (ADC) that provides scalability and application-level security for service infrastructure optimization, fault tolerance and redundancy. Radware combined its next-generation, OnDemand Switch multi-gigabit hardware platform with the powerful capabilities of the Alteon operating system, resulting in accelerated application performance, local and global server availability, and application security and infrastructure scalability for fast, reliable and secure delivery of applications over IP networks.

Radware-Alteon Application Switch is powered by the innovative OnDemand Switch platform. OnDemand Switch, which has established a new price/performance standard in the industry, delivers breakthrough performance and superior scalability to meet evolving network and business requirements. Based on its on demand, “pay-as-you-grow” approach, no forklift upgrade is required even when new business requirements arise. This helps companies guarantee short-term and long-term savings on CAPEX and OPEX for full investment protection. Radware’s OnDemand Switch enables customers to pay for the exact capacity currently required, while allowing them to scale their ADC throughput capacity and add advanced application-aware services or application acceleration services on demand to meet new or changing application and infrastructure needs. And it does it without compromising on performance.

Radware-Alteon Application Switch lets you get the most out of your service investments by maximizing the utilization of service infrastructure resources and enabling seamless consolidation and high scalability. Radware-Alteon Application Switch throughput licensing options allows pay as you grow investment protection. Make your network adaptive and more responsive to your dynamic services and business needs with Radware-Alteon Application Switch fully integrated traffic classification and flow management, health monitoring and failure bypassing, traffic redirection, bandwidth management, intrusion prevention and DoS protection.

Key Benefits:

- Support for Bridge and Routed deployment options, providing a powerful in-line vehicle.
- Simultaneous support for VIP (CDN) and transparently intercepted (Standard) Optimization service traffic.
- Intelligent request differentiation and distribution based on flexible filters optimizing cache hit ratios.
- Bi-Directional persistency for transparent service deployments.
- OnDemand throughput for Incremental growth and long term solution viability.
- Repeatable deployment model standardizing configurations and minimizing risk.
Design Overview

There are two types of traffic interception models used in Content Delivery Networks and Optimization Infrastructure designs. One is a transparent model geared toward transparently intercepting requests destined for origin servers outside of the systems domain where traffic forwarding logic and load distribution strategies are equally important based on the load and availability of cache/optimization resources. The goal of the ADC in this model is to provide layer 7 inspection of requests to ensure content support, switching and persistency in a high volume environment. This model is highly dependent on surrounding routing infrastructure to policy route traffic via the in-line vehicle (Radware-Alteon Application Switch) for advanced packet handling consideration. This transparency design which includes source IP integrity throughout the joint subsystem represents the most complex configuration and will therefore be the focus of this implementation guide.

The second design model, which can be easily supported in parallel to the transparent configuration by the Radware-Alteon Application Switch, is that of a hostname/virtual IP model. In this model, domains are under the control of system administration and content is intelligently published to one or many optimization nodes where the goal of the ADC is to intelligently steer incoming requests to the most appropriate resource locally or geographically.

Diagram 2.0 – Blue Coat CacheFlow and Radware-Alteon Application Switch Physical Topology
Joint Subsystem Traffic Flow Definition

Focusing on the transparent design model, traffic is policy routed to the ADC for service evaluation bi-directionally. If the request is an HTTP request, the ADC will hash a forwarding decision from the value contained in the ‘Host’ header. This optimizes hit ratios per domain, avoiding object level granularity seen in evaluation of the entire URI. If necessary, it is also possible to switch on a given domain then hash on the full URI to enjoy URI or object level granularity given unusually high volume for a specific domain. By evaluating the host header, Radware-Alteon eliminates the challenge where a single domain may be represented by more than one destination IP address, optimizing hit ratios and lowering day two administration requirements. Ultimately this process ensures optimization of the caches while removing unnecessary traffic.

Once the Cache is invoked for a given session, it will forward the request on to the origin server spoofing the original client IP. To ensure bi-directional persistency of request/responses the Radware-Alteon Application Switch tracks outbound connections to ensure proper bi-directional state management.

Primary Radware-Alteon Application Switch Configuration

Diagram 3.0 – Blue Coat CacheFlow and Radware-Alteon Application Switch Reference Topology
**Initial Configuration of the Switch Management Interface**

Using a serial cable and a terminal emulation program, connect to the Radware-Alteon Application Switch.

The default console port settings are:
- Bits per Second: 9600
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

Use the /cfg/sys/mmgmt menu to configure the management IP address 10.168.1.100, subnet mask 255.255.0.0, and default gateway 10.168.0.1.

```
/cfg/sys/mmgmt/addr 10.168.1.100
/cfg/sys/mmgmt/mask 255.255.0.0
/cfg/sys/mmgmt/gw 10.168.0.1
/cfg/sys/mmgmt/enm
```

Enable access to the Radware-Alteon Application Switch Switch for Telnet, SSH and HTTP.

```
/cfg/sys/access/http/enm
/cfg/sys/access/tnet/enm
/cfg/sys/access/sshd/on/enm
apply
save
```

**Connecting to the Switch**

You can accomplish initial switch configuration and management in a number of ways. An Application Switch offers a console connection, Telnet session, SSH and Web Browser connection for initial configuration.

**Logging into the Switch**

The user and password is (Default “admin”) for both.
**Detailed Configuration Overview**

**Note:** The configuration reviewed below defines DST IP hashing. Please see **Appendix 1** for advanced configuration options.

```plaintext
script start "Alteon Application Switch 5412" 4 /***** DO NOT EDIT THIS LINE!
/* Configuration dump taken  2:31:18 Wed Nov 18, 2009
/* Configuration last applied at  2:24:15 Wed Nov 18, 2009
/* Configuration last save at  2:24:20 Wed Nov 18, 2009
/* Version 26.3.0.3, Base MAC address 00:03:b2:4f:b4:00
/c/sys/mmgmt
  addr 10.168.1.100
  mask 255.255.0.0
  broad 10.168.255.255
  gw 10.168.0.1
  tftp mgmt ena
/c/sys/mmgmt/port
  speed any
  mode any
  auto on
/c/sys
  idle 121
  hprompt ena
/c/sys/access
  snmp r
  http ena
  tnet ena
/c/sys/ssnmp
  name "Alpha"
/c/l2/trunk 1
  add 7
  add 8
/c/port 1
  tag ena
  pvid 66
/c/port 4
  tag ena
  pvid 66
/c/port 6
  tag ena
  pvid 65
/c/l2/vlan 65
  learn ena
  def 6 7 8
/c/l2/vlan 66
```

Management Interface Configuration

Display the host name on LCD display and CLI prompt

Host name definition

Create L2 Trunk1 and add phy. Ports 7 and 8

*tag ena* = enable VLAN Tagging on ph. port 1

Create VLAN 65 “Proxy Facing” and add phy. ports 6 – 8
Repeat for VLAN 66 and ports 1 and 4
ena learn ena
def 1 4
/c/l2/stg 1/ off
/c/l3/if 65
  ena
  ipver v4
  addr 10.65.0.5
  mask 255.255.0.0
  broad 10.65.255.255
  vlan 65
/c/l3/if 66
  ena
  ipver v4
  addr 10.66.0.5
  mask 255.255.0.0
  broad 10.66.255.255
  vlan 66
/c/l3/gw 1
  ena
  ipver v4
  addr 10.66.0.1
/c/l3/vrrp/on
/c/l3/vrrp/vr 66
  Ena
  Ipver v4
  vrid 66
  if 66
  addr 10.66.0.1
  prio 101
  share dis
/c/l3/vrrp/vr 65/vrid 65/addr 10.65.0.1/prio 101/if 65/en
/c/l3/vrrp/vr 65/vrid 65/share dis
/c/l3/vrrp/hotstan en
/c/l3/vrrp/group/en
/c/l3/vrrp/group/prio 101/if 65
/c/l3/vrrp/group/share dis
/c/slb/on
/c/slb/sync/peer 1
  addr 10.65.0.6
  ena
/c/slb/sync/prio dis
/c/slb/adv
  submac ena

sta 1/ off = disable Spanning Tree
Create L3 IP-Address and Mask for VLAN 65 (Proxies)
Create L3 IP-Address and Mask for VLAN 66 (Network)
Create the Default Gateway pointing to the PBR HA Address
vrrp/on = Enable VRRP redundancy mode
Create Virtual Router VRID 66 for L3 interface 66.
  Change priority to 101 and add VRRP address.
  Repeat for VRID 65
Turn on slb (server load balancing)
Enable configuration sync. Define backup Alteon IP address
rtsvlan ena
subdmac ena
tp cp ena
/c/slb/advhc/script 1
open "80,tcp"
close
/c/slb/real 1
ena
ipver v4
rip 10.65.254.200
maxcon 0
/c/slb/real 2
ena
ipver v4
rip 10.65.254.201
maxcon 0
/c/slb/group 1
ipver v4
metric minmisses
health script 1
add 1
add 2
/c/slb/filt 10
ena
action redir
ipver v4
sip any
smask 0.0.0.0
dip any
dmask 0.0.0.0
proto tcp
dport http
group 1
rport 0
vlan any
/c/slb/filt 20
ena
action allow
ipver v4
sip any
smask 0.0.0.0
dip any
dmask 0.0.0.0
vlan any
/c/slb/port 1
filt ena

Turn on Return to Sender for Response Persistency

Define a health check script specifying DST port value

Create real server Proxy 1 with IP address. Repeat for all.
Allow unlimited connections = maxcon 0

Create group for cache/proxy cluster

Load balancing metric = minmisses – protecting removal of servers while maintaining persistency. Also compatible with Layer 7 lookups if enabled.
Use advanced health check (watchdog) = script 1

Add real servers

Create a filter to redirect all http traffic to group 1

Create a filter to route all other traffic to default gateway

Enable the filter process on port 1 Ingress and add the relevant filters.
This port is also marked for Hot Standby support.
Setting up the Redundant Radware-Alteon Application Switch

Initial Configuration of the Switch Management Interface

Using a serial cable and a terminal emulation program, connect to the Radware-Alteon Application Switch.

The default console port settings are:
- Bits per Second: 9600
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

Use the /cfg/sys/mmgmt menu to configure the management IP address 10.168.1.101, subnet mask 255.255.0.0, and default gateway 10.168.0.1.

```
/cfg/sys/mmgmt/addr 10.168.1.101
/cfg/sys/mmgmt/mask 255.255.0.0
/cfg/sys/mmgmt/gw 10.168.0.1
/cfg/sys/mmgmt/ena
```

Enable access to the Alteon Application Switch Switch for Telnet, SSH and HTTP:
```
/cfg/sys/access/http/ena
/cfg/sys/access/tnet/ena
```
/cfg/sys/access/sshd/on/ena
apply
save

Connecting to the Switch

You can accomplish initial switch configuration and management in a number of ways. An Application Switch offers a console connection, Telnet session, SSH and Web Browser connection for initial configuration.

Logging into the Switch

The user and password is (Default “admin”) for both.

Redundant Unit Networking Configuration to Prepare Sync

/c/sys/mmgmt
   addr 10.168.1.101
   mask 255.255.0.0
   broad 10.168.255.255
   gw 10.168.0.1
   tftp mgmt
   ena
/c/sys/mmgmt/port
   speed any
   mode any
   auto on
/c/sys/idle 121
   hprompt ena
/c/sys/access
   snmp r
   http ena
   tnet ena
/c/sys/ssnmp
   name "Beta"
/c/l2/trunk 1
   add 7
   add 8
/c/port 1
   tag ena
   pvid 66
/c/port 4
   tag ena
   pvid 66
/c/port 6
tag ena
pvid 65
/c/l2/vlan 65
 learn ena
def 6 7 8
/c/l2/vlan 66
 ena
learn ena
def 1 4
/c/l2/stg 1/off
/c/l3/if 65
 ena
ipver v4
addr 10.65.0.6
mask 255.255.0.0
broad 10.65.255.255
vlan 65
/c/l3/if 66
 ena
ipver v4
addr 10.66.0.6
mask 255.255.0.0
broad 10.66.255.255
vlan 66
/c/l3/gw 1
 ena
ipver v4
addr 10.66.0.1
/c/slb/sync/peer 1
 addr 10.65.0.5
 ena
/c/slb/sync/prio dis

Apply and Save

Use the command below to apply and save the configuration

apply
save
From the Primary Unit Command line, Sync Redundant Unit

Use the command below to manually sync the backup switch

/oper/slb/sync

NOTE: Use the "/cfg/slb/sync" menu to configure omitting sections of the configuration.

Appendix 1 – Optional Advanced Configurations

Steering Configuration to Classify Top Talking Domains with URL Hashing

/c/slb/adv/direct ena
/c/slb/layer7/redir/header ena host
/c/slb/layer7/redir/hash ena
/c/slb/layer7/slb/addstr "x.com"

/c/slb/filt <x>/adv/layer 7/l7lkup enable

Hostname Hashing for Redirection Filters Layer 7 Dispatch

/c/slb/adv/direct ena
/c/slb/filt <x>/adv/layer 7
l7lkup ena
httphash headerhash Host 255

To remove case sensitivity:

/c/slb/layer7/slb
case dis
Appendix 2 – Primary Unit Configuration

script start "Alteon Application Switch 5412" 4 /**** DO NOT EDIT THIS LINE!
/* Configuration dump taken  2:31:18 Wed Nov 18, 2009
/* Configuration last applied at  2:24:15 Wed Nov 18, 2009
/* Configuration last save at  2:24:20 Wed Nov 18, 2009
/* Version 26.3.0.3, Base MAC address 00:03:b2:4f:b4:00
/c/sys/mmgmt
    addr 10.168.1.100
    mask 255.255.0.0
    broad 10.168.255.255
    gw 10.168.0.1
    tftp mgmt
    ena
/c/sys/mmgmt/port
    speed any
    mode any
    auto on
/c/sys
    idle 121
    hprompt ena
/c/sys/access
    tnet ena
    http ena
    snmp r
/c/l2/trunk 1/add 7
/c/l2/trunk 1/add 8
/c/port 1
    tag ena
    pvid 66
/c/port 4
    tag ena
    pvid 66
/c/port 6
    tag ena
    pvid 65
/c/l2/vlan 65
    learn ena
    def 6 7 8
/c/l2/vlan 66
    ena
    learn ena
    def 1 4
/c/l2/stg 1/off
/c/l3/if 65
    ena
ipver v4
addr 10.65.0.5
mask 255.255.0.0
broad 10.65.255.255
vlan 65
{/l3/if 66
  ena
  ipver v4
  addr 10.66.0.5
  mask 255.255.0.0
  broad 10.66.255.255
  vlan 66
{/l3/gw 1
  ena
  ipver v4
  addr 10.66.0.1
{/l3/vrrp/vr 66/vrid 66/addr 10.66.0.1/prio 101/if 66/en
{/l3/vrrp/vr 66/vrid 66/share dis
{/l3/vrrp/vr 65/vrid 65/addr 10.65.0.1/prio 101/if 65/en
{/l3/vrrp/vr 65/vrid 65/share dis
{/l3/vrrp/on
{/l3/vrrp/hotstan en
{/l3/vrrp/group/en
{/l3/vrrp/group/prio 101
{/l3/vrrp/group/if 65
{/l3/vrrp/group/share dis
{/slb
  on
{/slb/sync/peer 1/addr 10.65.0.6/en
{/slb/sync/prio dis
{/slb/adv
  submac "ena"
  fastage 2
  rtsvlan ena
  subdmac ena
  direct ena
  tpcp ena
{/slb/layer7/redir/header ena host
{/slb/layer7/redir/hash ena
{/slb/layer7/slb/addstr "x.com","y.com"
{/slb/advhc/script 1
  open "80,tcp"
  close
{/slb/real 1
  ena
  ipver v4
rip 10.65.254.200
maxcon 0
{/c/slb/real 2
  ena
  ipver v4
  rip 10.65.254.201
  maxcon 0
{/c/slb/group 1
  ipver v4
  metric minmisses
  health script 1
  add 1
  add 2
{/c/slb/group 2
  ipver v4
  metric minmisses
  health script 1
  add 1
{/c/slb/adv/direct ena
{/c/slb/filt 10/adv/layer 7
  l7lkup ena
{/c/slb/filt 200/adv/layer 7
  l7lkup ena
  http hash headerhash Host 255
{/c/slb/filt 10
  ena
  action redir
  ipver v4
  sip any
  smask 0.0.0.0
  dip any
  dmask 0.0.0.0
  proto tcp
dport http
group 2
rport 0
vlan any
{/c/slb/filt 200
  ena
  action redir
  ipver v4
  sip any
  smask 0.0.0.0
  dip any
  dmask 0.0.0.0
  proto tcp
dport http
group 1
rport 0
vlan any
/c/slb/filt 201
    ena
    action allow
    ipver v4
    sip any
    smask 0.0.0.0
    dip any
    dmask 0.0.0.0
    vlan any
/c/slb/port 1
    filt ena
    hot ena
    add 10
    add 200
    add 201
/c/slb/port 6
    rts ena
    hot ena
/c/slb/port 4
    filt ena
    hot ena
/c/slb/port 7
    inters ena
/c/slb/port 8
    inters ena
/
script end  /**** DO NOT EDIT THIS LINE!
Technical Support

Radware offers technical support for all of its products through the Radware Certainty Support Program. Please refer to your Certainty Support contract, or the Radware Certainty Support Guide available at:

http://www.radware.com/content/support/supportprogram/default.asp.

For more information, please contact your Radware Sales representative or:

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