TESTING & INTEGRATION GROUP
SOLUTION GUIDE

Alteon Application Switch (AAS) optimizing the delivery of Microsoft OCS 2007 R2

Contents

TECHNICAL SOLUTION GUIDE
DATE: Monday, November 01, 2010
Version: 1.0
Author – Elad Kurzweil

Introduction

The Radware Alteon and Microsoft Office Communications Server joint solution ensures Office Communications Server customers solution resilience, efficiency and scale. Radware's Alteon Application Switch guarantees Office Communications Server maximum availability, scalability, performance and security. Managing traffic for both the Web Service content and SIP based Unified Communication services, Alteon Application Switch provides advanced health monitoring to avoid system down time and advanced traffic management to deliver a best of breed subsystem. With a pay as you grow platform licensing model, Alteon Application Switch ensures long term investment protection facilitating incremental growth demanded by today's business.

Microsoft Office Communications Server Overview

Office Communications Server 2007 R2 is available in two versions, Standard Edition and Enterprise Edition. The primary difference between these two versions is whether the deployment model is single server versus multi-server. Each of these deployment models is referred to a pool. Standard Edition combines all functions, including the SQL server, onto the same server platform, whereas Enterprise edition is intended to be deployed on multiple servers, providing scalability for enterprise deployments.

For the Office Communications Server 2007 R2 Enterprise Edition, Microsoft recommends the use of a hardware load balancer for Enterprise Edition deployments to distribute user traffic to the front end servers of a pool. Software load balancing products such as NLB are not recommended for use with Office Communications Server 2007 R2 for deployments larger than 500 users.

Office Communications Server 2007 R2 Edge Servers are deployed in the perimeter network and provide connectivity for external users and public IM connections. Employees traveling, or working from home or in remote offices, use the Edge Servers to remotely access the service.

Client access to Office Communication Server 2007 R2 is provided via Microsoft Office Communicator 2007 R2 and Live Meeting 2007 R2 client desktop software. Optionally Office Communications Server 2007 R2, Communicator Web Access is a web service where external users can access the IM and presence features of Office Communications Server 2007 R2 through any supported Web browser.

For more information, see the Microsoft Office Communications Server 2007 R2 Planning Guide.

Office Communications Server Architecture

Office Communications Server 2007 R2 is a distributed server environment. Independent software modules work in conjunction to provide the features of Office Communications Server.

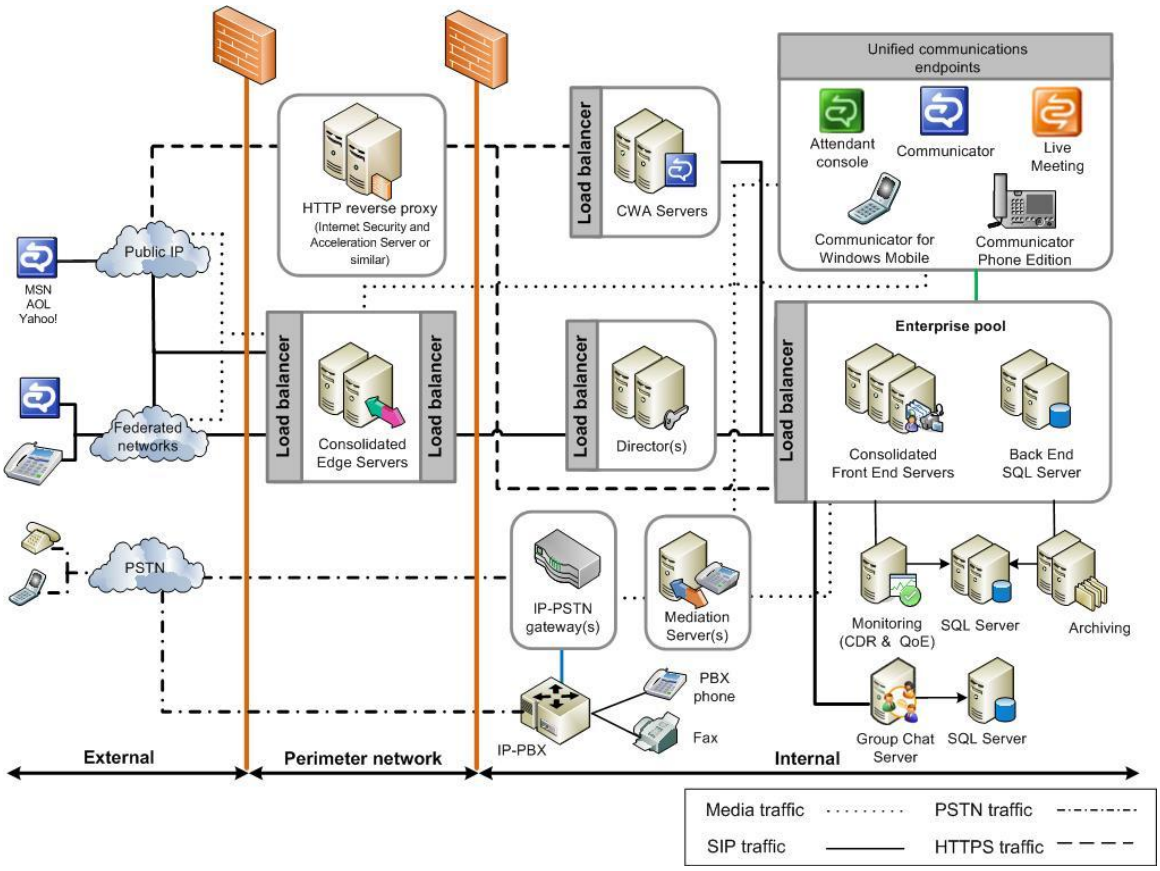


Diagram 1.0 - Office Communications Server 2007 R2 consolidated topology

Pool Components

An Office Communications Server pool consists of one or more Front End Servers that provide IM, presence, and conferencing services and are connected to a SQL Server database for storing user and conference information.

Front-End Server

The principal function of the front end server is to provide the following services to end users and control the application environment.

- Address Book Server
- A/V Conferencing Server
- IM Conferencing Server
- Telephony Conferencing Server
- Web Conferencing Server

- Web Components Server
- Application Sharing Server for Multiparty or CWA-based Application Sharing.

The Office Communications Server 2007 R2, Standard Edition or Enterprise Edition, Front End Server is responsible for the following tasks:

- Handling signaling among servers and between servers and clients
- Authenticating users and maintaining user data, including all user endpoints
- Routing VoIP calls within the enterprise and to the PSTN
- Scheduling and initializing on-premise conferences and managing conference state
- Aggregating enhanced presence information of users for clients
- Routing signaling and IM traffic
- Managing conferencing signaling and conference state
- Hosting SIP server applications
- Filtering SPIM (unsolicited commercial IM traffic)

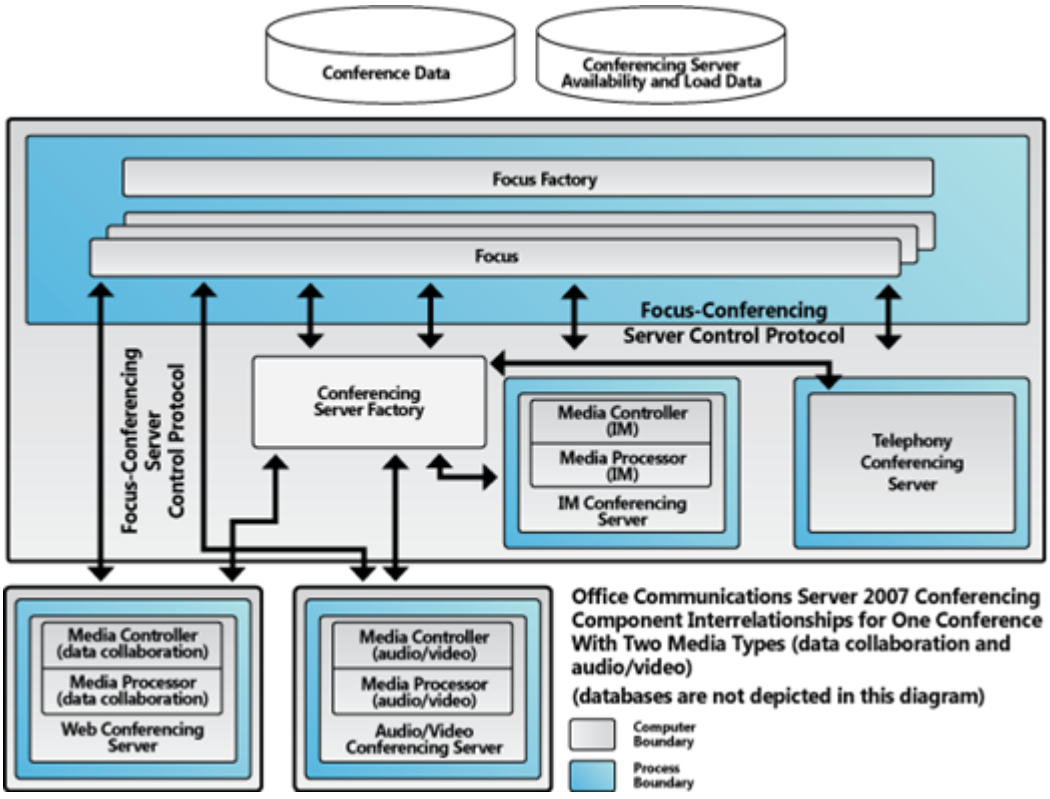


Diagram 2.0 – Office Communications Server Conferencing Component Interrelationships

These services are supported via the following software modules:

Instant Messaging Conferencing Server

The Instant Messaging Conferencing Server (IM MCU) is responsible for user registration into Office Communications Server 2007, instant messaging traffic, and presence state for users.

A/V Conferencing Server

The A/V Conferencing Server enables multiparty audio and video mixing and relaying capabilities. It is built on industry standard Real-time Transport Protocol (RTP) and Real-time Transport Control Conferencing Server the Protocol (RTCP).

Telephony Conferencing Server

The Telephony Conferencing Server (ACP MCU) is responsible for facilitating audio conferences hosted on a PSTN bridge provided by a telecomm provider.

Web Components Server

This is an Internet Information Server (IIS) service. The Web Components Server enables organizers to upload presentations and other data for use in a Web conference. Participants download this content via the Web Components Server. This IIS service also performs distribution list (DL) expansion for Office Communicator clients and distributes address book files to clients.

Web Conferencing Server

The Web Conferencing Server (DATA MCU) adds data collaboration functionality to Office Communications Server. The Web Conferencing Server is built on the same Persistent Shared Object Model (PSOM) technology used by the Live Meeting service. Both signaling and media are sent to and from a Web Conferencing Server using the PSOM protocol. The Web Conferencing Server supports Live Meeting features, such as Microsoft Office PowerPoint presentations, document presentations, chat, voting, white boarding, and application sharing.

Application Sharing Server

The Application Sharing Server is a new conferencing server role introduced in Office Communications Server 2007 R2, and is used specifically for multi-party Desktop Sharing from the Office Communicator client and Desktop Sharing from the Communicator Web Access client. The Application Sharing Server uses the RDP protocol. Though the Web Conferencing Server is also capable of Application Sharing (by using the PSOM protocol and the Live Meeting client), the Application Sharing Server provides Desktop Sharing functionality users can access directly in Office Communicator and Communicator Web Access, instead of users having to launch the Live Meeting client separately.

Audio/Visual Conferencing Server

The A/V Conferencing Server (AV MCU) enables users to share audio and video streams during multipoint Conferences.

Focus

Focus is a conference state service that manages all group IM, multiparty A/V, and data collaboration sessions on the Front End Server the service is responsible for conference setup and signaling for the duration of the conference.

Focus Factory

The Focus Factory is part of the Focus that is responsible for creating and destroying an instance of a conference and returning information about the conference to the client and is responsible for scheduling meetings.

Conferencing Server Factory

The Conferencing Server Factory is responsible for provisioning a conference for a particular media type on a conferencing server.

Front End Server VoIP Components

Translation Service

The Translation Service is the server component that is responsible for translating a dialed number into the E.164 format or another format

Inbound Routing Component

The Inbound Routing component handles incoming calls largely according to preferences that are specified by users on their Enterprise Voice clients.

Outbound Routing Component

The Outbound Routing component routes calls to PBX or PSTN destinations. It applies call authorization rules to callers and determines the optimal media gateway for routing each call.

Exchange UM Routing Component

The Exchange UM routing component handles routing between Office Communications Server and servers running Microsoft Exchange Unified Messaging (UM),

Consolidated Deployment Overview

Office Communications Server 2007 R2 consolidated configuration deployments typically consists of an Enterprise pool where all server components are co-located on the pool's front end servers. All front end servers in the Enterprise pool are configured identically. The back end server running a SQL Server database resides on a separate dedicated physical server. The consolidated configuration provides scalability and high availability and is easy to plan, deploy, and manage.

In the Office Communications Server 2007 R2 consolidated pool topology, the following server roles and services are collocated on the same computer as the Front End Server:

- Address Book Service
- Address Book Web Query Service
- Application Server
- Application Sharing Server
- A/V Conferencing Server
- Conference Announcement Service
- Conference Attendant
- Group Expansion Service
- IM Conferencing Server
- Outside Voice Control
- Response Group Service
- Telephony Conferencing Server
- Device Update Server
- Web Conferencing Server

Enterprise pool in consolidated configuration requirements:

- Requires two or more front end servers deployed behind a hardware load balancer.
- Each of the Office Communications Server 2007 R2 components is installed onto each front-end server in the pool.
- A dedicated SQL Server is required to support the pool.
- All servers in the Enterprise pool must be deployed on the same subnet.

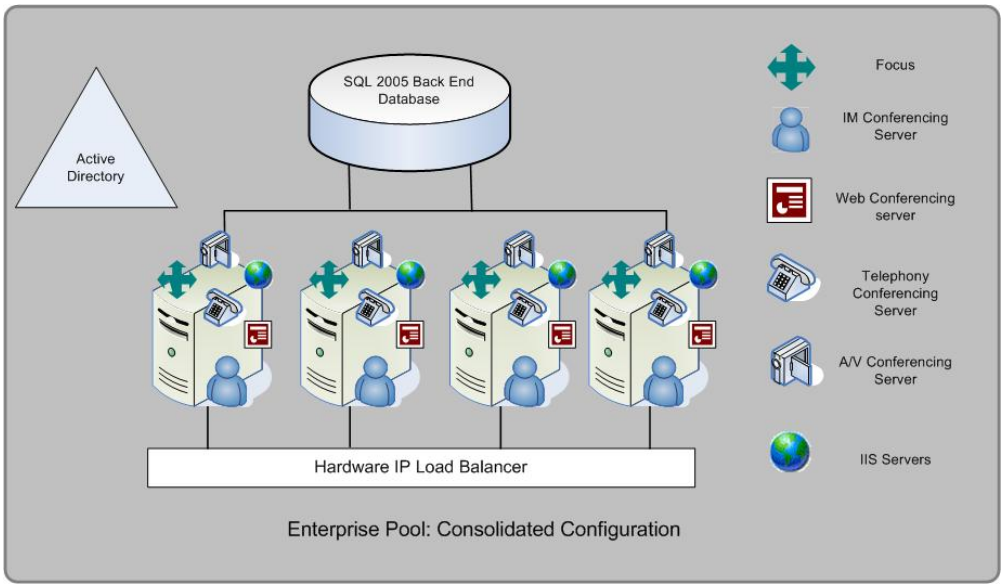


Diagram 3.0 - Enterprise Pool: Consolidated Configuration

Perimeter Network Configuration for IM and Conferencing

Office Communications Server 2007 R2 allows users working outside the enterprise network to participate in on-premise conferences, complete with data collaboration and the ability to relay audio and video through your organization's firewall. Office Communications Server 2007 R2 also enhances existing support for remote access, federation, and public IM connectivity service providers: AOL, MSN, and Yahoo!

The Edge Server is composed of the following services: Access Edge Service, A/V Edge Service, and Web Conferencing Edge Service.

- The Access Edge service validates and forwards SIP signaling traffic between internal and external users.
- The A/V Edge service enables audio and video conferencing, desktop sharing, and audio/video (A/V) peer-to-peer communications with external users who are equipped with a supported client. For details, see Supported Clients.
- The Web Conferencing Edge service enables external users to participate in conferences that are hosted by an internal Web Conferencing Server.
- The HTTP reverse proxy is required for downloading Address Book information, expanding membership in distribution groups, downloading Web conference content, and providing access to files for updating devices and clients.

Diagram 4.0 shows the servers that are required in the Office Communications Server 2007 R2 perimeter network and the protocols they use to communicate with Internet clients on one side and with Enterprise Edition servers on the other.

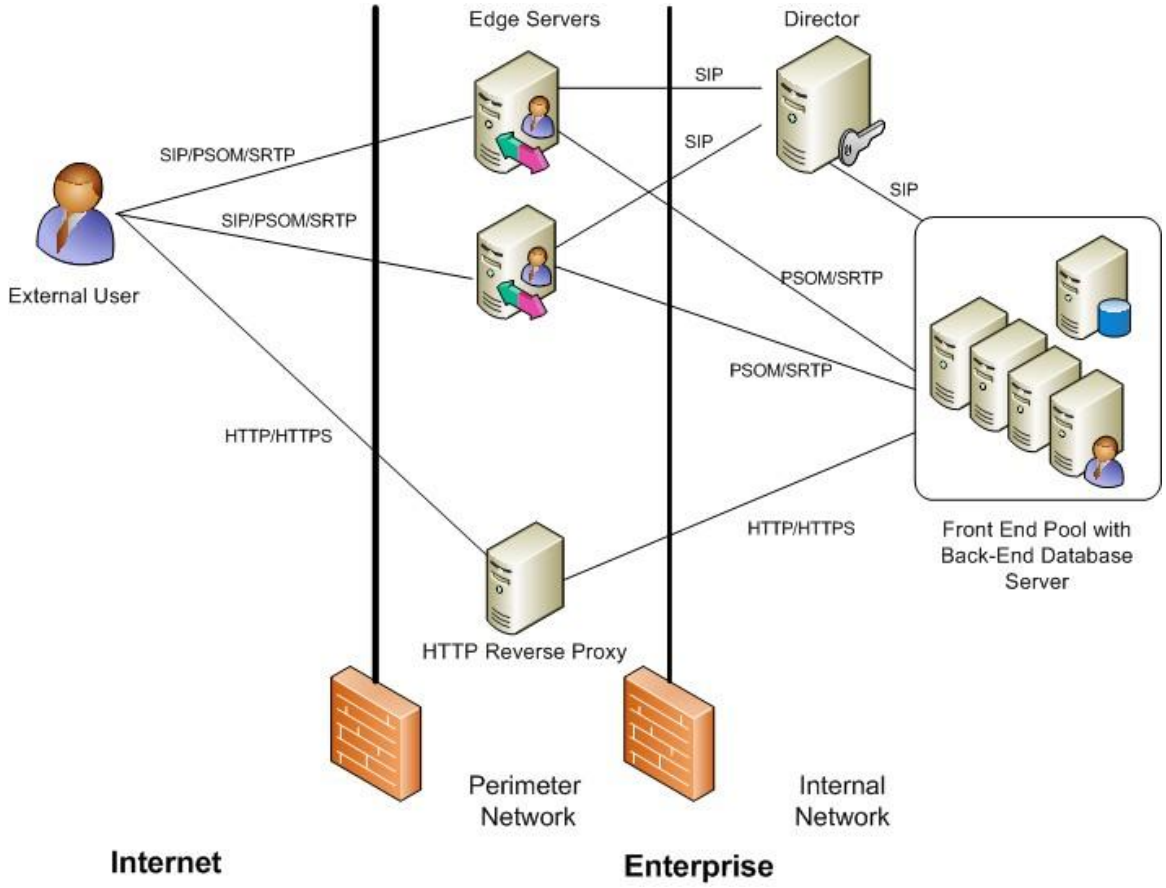


Diagram 4.0 - Office Communications Server 2007 R2 external configuration

Required services in the Office Communications Server 2007 R2 perimeter network are as follows.

Access Edge Service

The Access Edge service handles all SIP traffic across the corporate firewall. The Access Edge service handles only the SIP traffic that is necessary to establish and validate connections. It does not handle data transfer, nor does it authenticate users. Authentication of inbound traffic is performed by the Director or the Front End Server. A Director is an Office Communications Server 2007 R2 Standard Edition server or Enterprise pool that does not home users and that resides inside the organization's firewall. A Director is not mandatory but is strongly recommended. If a Director is not deployed, this authentication is performed on the Front End Server on the pool or Standard Edition server that you designate to do so. (Active Directory Domain Services, or AD DS, access is required to perform authentication, which the Edge Servers do not have because they are deployed in the perimeter network outside AD DS.) The Access Edge service is essential for all external user scenarios, including conferencing, remote user access, federation, and public IM connectivity

Web Conferencing Edge Service

The Web Conferencing Edge service proxies Persistent Shared Object Model (PSOM) traffic between the Web Conferencing Server and external clients. External conference traffic must be authorized by the Web Conferencing Edge service before it is forwarded to the Web Conferencing Server. The Web Conferencing Edge service requires that external clients use TLS connections and obtain a conference session key.

A/V Edge Service

The A/V Edge Service provides a single trusted connection point through which inbound and outbound media traffic (including application sharing traffic) can securely traverse network address translations (NATs) and firewalls. The industry-standard solution for multimedia traversal of firewalls is Interactive Connectivity Establishment (ICE), which is based on the Simple Traversal Underneath NAT (STUN) and Traversal Using Relay NAT (TURN) protocols. The A/V Edge service is a TURN/STUN server. All users are authenticated to secure both access to the enterprise and use of the firewall traversal service that is provided by the A/V Edge service. To send media inside the enterprise, an external user must be authenticated and must have an authenticated internal user agree to communicate with him or her through the A/V Edge service.

HTTP Reverse Proxy

An HTTP reverse proxy in the perimeter network carries HTTP and HTTPS traffic for external users. The HTTP reverse proxy can be used to authenticate external users using Communicator Web Access. It is also required to enable external users to download the following data:

- Address Book Server information
- Web conferencing content
- Expanded distribution lists
- Client and device updates

The reverse proxy does not run Office Communications Server 2007 R2 or carry SIP traffic. The reverse proxy can run Microsoft Internet Security and Acceleration (ISA) Server 2006 or other Internet software.

Communicator Web Access

Communicator Web Access is the browser-based client for Office Communications Server 2007 R2. Communicator Web Access is designed with a similar look and feel to the desktop version of Microsoft Office Communicator 2007 R2. External Users can access the IM and presence features in Office Communications Server 2007 R2 through any supported Web browser. Communicator Web Access Server is deployed in the internal network. Internal users can access it directly. External users access the Communicator Web Access Servers through the HTTP reverse proxy.

Component (server role or client)	Port	Protocol	Notes
Load balancer for Front End Servers	5060/5061	TCP MTLS	Used by Standard Edition servers and Enterprise pools for all internal SIP communications between servers and between servers and Office Communicator.
Load balancer for Front End Servers	443	HTTPS	Communication from Front End Servers to the Web farm FQDNs (the URLs used by Web Components).
Load balancer for Front End Servers	444	HTTPS	Communication between the focus (the Office Communications Server component that manages conference state) and the conferencing servers.
Load balancer for Front End Servers	135	DCOM and RPC	Used when a load balancer is deployed. Port 135 is used by the Front End Servers for WMI operations and for moving users (a remote DCOM-based database operation).
Load balancer for Front End Servers	5065	TCP	Used for incoming SIP listening requests for application sharing.
Load balancer for Director	5060/5061	TCP	Used for internal communications between servers.
Load balancer for Edge Servers	443	TCP	Used for internal ports for SIP/TLS communication for remote user access, accessing internal Web conferences, and STUN/TCP inbound and outbound media

			communications for accessing internal media and A/V sessions.
Load balancer for Edge Servers	5061	TCP	Used for internal ports for SIP/MTLS communication for remote user access or federation.
Load balancer for Edge Servers	5062	TCP	Used for internal ports for SIP/MTLS authentication of IM communications flowing outbound through the internal firewall.
Load balancer for Edge Servers	3478	UDP	Used for internal ports for STUN/UDP inbound and outbound media communications.
Load balancer for Edge Servers	443	TCP	Used for external ports for SIP/TLS communication for remote user access, accessing internal Web conferences, and STUN/TCP inbound and outbound media communications for accessing internal media and A/V sessions.
Load balancer for Edge Servers	5061	TCP	Used for external ports for SIP/MTLS communication for remote user access or federation.
Load balancer for Edge Servers	3478	TCP	Used for external ports for STUN/UDP inbound and outbound media communications.
Live Meeting 2007 client	8057	TCP	Used for outgoing PSOM traffic sent to the Web Conferencing Server.

Table 1.0 – Office Communications Server Protocols load balanced by Alteon

For more information, please visit:
http://www.microsoft.com/communicationsserver/en/us/technical-resources.aspx

Radware Alteon

Alteon Application Switch Series 4-5 provide breakthrough performance, advanced application acceleration capabilities and on demand scalability needed to effectively meet contemporary network and business needs. Specifically designed for the majority of enterprises and carriers that operate in dynamic, ever-changing environments and face diverse requirements, the Alteon Application Switch provides the extendable throughput they need from 0 to 20Gbps for unparalleled scalability, business availability and performance.

Breakthrough Performance Delivering best Quality of Experience

Powered by state-of-the-art, custom-designed hardware platforms, the Alteon Series 4-5 ensure the best user experience and fastest response time for your mission-critical applications, resulting in effective, continuous business operation. The Alteon 4008 & 4416 provide up to 4Gbps of scalable throughput capacity while delivering breakthrough performance including 215K Layer 4 and 135K Layer 7 Transactions per Second (TPS). The Alteon 5412, targeting large data centers and carrier environments packed with four 10GE ports, supports up to 20Gbps of throughput capacity, 2.5 Million DNS queries per second, 535K Layer 4 and 300K Layer 7 Transactions per Second.
The beating heart of Alteon Series 4-5 is the Virtual Matrix Architecture (VMA), a one-of-a-kind technology that unleashes the power of Alteon's next-generation proprietary platforms. VMA is a fast, robust, and flexible architecture that leverages the entire system's capacity while providing the parallel performance of distributed processing.

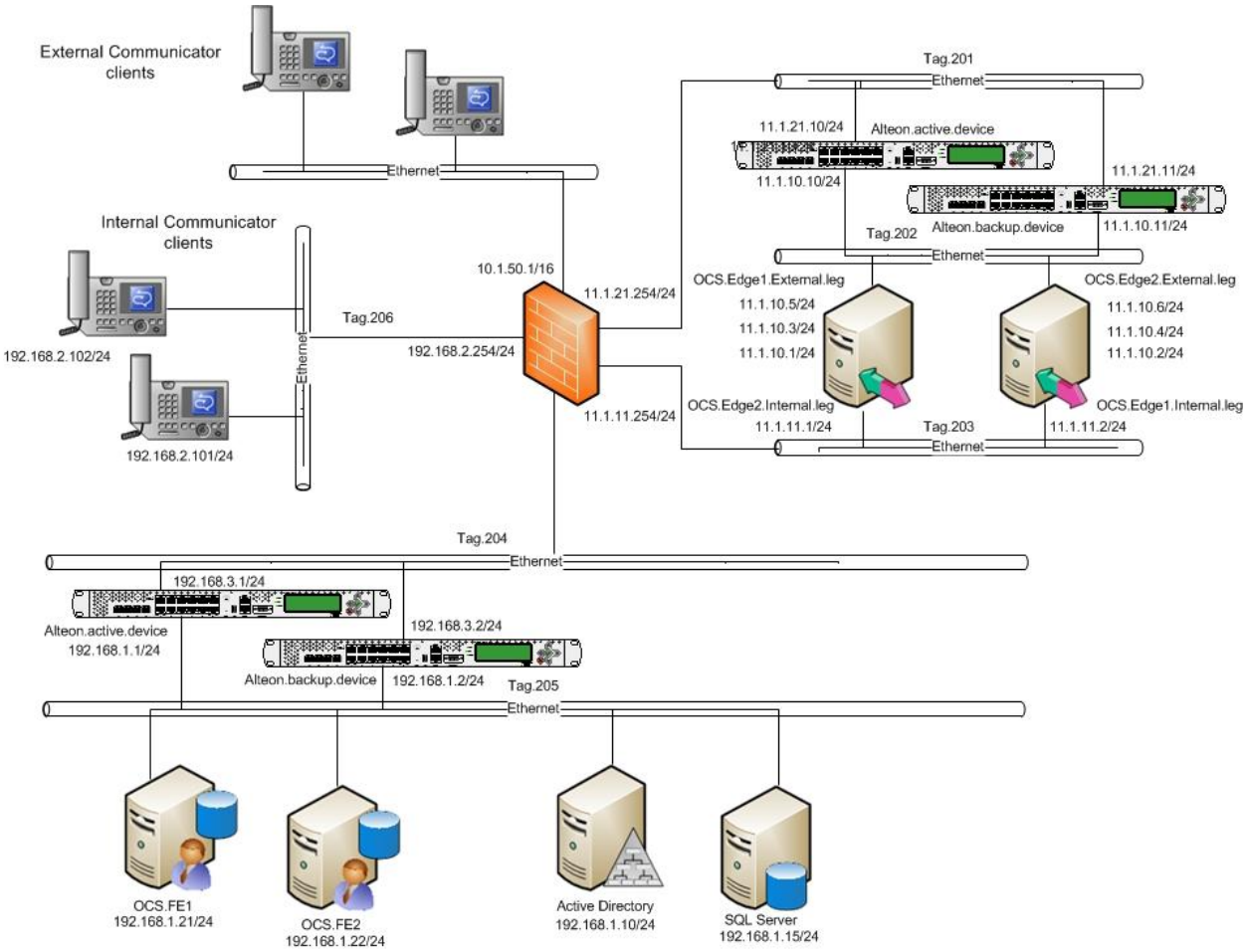
Integrated Application Acceleration Capabilities

Alteon Application Switch Series 4-5 deliver a wide set of application acceleration capabilities including SSL offloading, web compression, caching, HTTP multiplexing and TCP optimization. These capabilities are designed to offload servers, address server performance issues, enhance response-time for best QoE and mitigate security risks. By offloading processor intensive operations from servers, Alteon frees the servers' CPUs to handle additional requests, eliminating the need to buy additional hardware in order to support application processing requirements and reducing CAPEX and OPEX.
The Alteon Application Switch is validated and certified by leading application vendors such as Microsoft, Oracle, SAP, IBM and others. When operating Alteon Application Switch Series 4-5 with Microsoft SharePoint for example, the response time of SharePoint servers is accelerated by 350% and the servers' CPU load is reduced by 40%. Similar benefits are achieved with other popular applications.
Application acceleration capabilities have greater importance in virtual data centers where applications suffer from increased latency caused by virtualization infrastructure. Alteon reduces applications latency and improves QoE of virtual applications.

Intelligently Embedding Radware's 'On Demand' Infrastructure Approach

By embracing Radware's "Pay-as-you-Grow" approach, you 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 – with no forklift upgrade of the device and without even restarting it.
The "Pay-as-you-Grow" approach enables you to overcome capacity planning challenges and reduces the risk associated with data center growth for best investment protection. Thanks to platform standardization and simplicity, there are two platforms to cover all of your application needs resulting in fewer spare parts, and less training and operations, to dramatically reduce OPEX.

Radware Alteon and Microsoft Office Communication Server Architecture



Tested Network Drawing

Important Implementation Notes

1. There are two pairs of Alteon Application Switches configured for this deployment. A pair of Alteons configured in the DMZ for the Edge Servers and a pair of Alteons configured in the LAN for the Front-End Servers.

2. DNS SRV records for the appropriate domain are used to locate the OCS servers for client connectivity. DNS administration is required to bind an A record for the OCS FQDN, where the FQDN resolves the appropriate Alteon Virtual IP Address (VIP). Alteon has the ability to become the Authoritative responder for this FQDN, normally used in Disaster Recovery designs; in this case the DNS would use a name server record pointing to the Alteon for the authoritative response. Alteon would base the response on the availability, load and proximity information it uses to drive intelligent load distribution.

3. SSL traffic is (TCP.443) is persistent with SSLID tracking.

4. Other traffic is persistent with Source IP LB.

5. Internal legs of the Edge servers routing table for 192.168.1.0/24, 192.168.2.0/24 and 192.168.3.0/24 must be routed statically on the servers to IP 11.1.11.254. Windows command example: `route add 192.168.1.0 mask 255.255.255.0 11.1.11.254 –p'

6. Microsoft requires session timeout for 1200 second; Make sure that aging time on the Alteon is set to 20 minutes.

7. To sync configuration after configure the active Alteon please run the command /oper/slb/sync to copy the configuration (L2 and L3 network configuration need to be configured one the Alteon standby device before applying the sync command)

Software and Hardware

The following is a list of hardware and software tested to verify the interoperability of the presented solution:

Microsoft Windows 2008 R2 x64bits
Radware's Alteon ODS2 v.27.0 (4 units)
Microsoft Communicator 2007 R2
Microsoft SQL Server 2005
Microsoft OCS 2007 R2 Front End and Edge servers

Configuration

Alteon Internal Active Configuration

Network Configuration

Add Delete Search Refresh

	VLAN ID	Name	Ports	STG	State
	1	lan	2-12	1	
	204	TAG.192.168.3.x	1	1	
	205	TAG.192.168.1.x	1	1	

```
/c/port 1
        tag ena
        pvid 204
/c/port 2
        tag ena
        pvid 205
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 204
        ena
        name "TAG.192.168.3.x"
        learn ena
        def 1
/c/l2/vlan 205
        ena
        name "TAG.192.168.1.x"
        learn ena
        def 2
/c/l2/stg 1/clear
/c/l2/stg 1/add 1 204 205
```

IP Interfaces

Add Delete Search Refresh

	Interface ID	IP Address	Mask/Prefix	Broadcast Address	VLAN	Status
	1	192.168.3.2	255.255.255.0	192.168.3.255	204	
	2	192.168.1.2	255.255.255.0	192.168.1.255	205	

```
/c/l3/if 1
        ena
        ipver v4
        addr 192.168.3.2
        vlan 204
/c/l3/if 2
        ena
        ipver v4
        addr 192.168.1.2
        vlan 205
```

```
/c/l3/gw 1
        ena
        ipver v4
        addr 192.168.3.254
```

Sync Configuration

```
/c/slb/sync
        pips e
        certs e
        state e
/c/slb/sync/peer 1
        ena
        addr 192.168.1.3
```

Real Servers Configuration

Real Servers

Add | Bulk Edit | Delete | Search | Refresh

ID	Name	IP Version	IP Address	Max Connections	MAC Address	VLAN	Port	Status
1	OCSR2.Server1	4	192.168.1.21	200000	00:50:56:af:18:15	205	1	
2	OCSR2.Server.2	4	192.168.1.22	200000	00:50:56:af:1c:c1	205	1	
3	OCS.EDGE.Internal.1	4	11.1.11.1	200000	00:03:b2:3d:2f:81	204	1	
4	OCS.EDGE.Internal.1	4	11.1.11.2	200000	00:03:b2:3d:2f:81	204	1	

```
/c/slb/real 1
        ena
        ipver v4
        rip 192.168.1.21
        name "OCSR2.Server.1"
/c/slb/real 2
        ena
        ipver v4
        rip 192.168.1.22
        name "OCSR2.Server.2"
/c/slb/real 3
        ena
        ipver v4
        rip 11.1.11.1
        name "OCS.EDGE.Internal.1"
/c/slb/real 4
        ena
        ipver v4
        rip 11.1.11.2
        name "OCS.EDGE.Internal.1"
```

Server Groups Configuration

Server Groups

Add Delete Search Refresh

Server Group ID	Name	SLB Metric	Health Check	Backup
1	ocs.frontend.SIP.5060	roundrobin	icmp	None
2	ocs.frontend.HTTPS.conf.444	roundrobin	icmp	None
3	ocs.frontend.HTTPS.443	roundrobin	icmp	None
4	ocs.frontend.MTLS.5061	roundrobin	icmp	None
5	ocs.frontend.DCOM.135	roundrobin	icmp	None
6	ocs.frontend.SIP.app.sharing	roundrobin	icmp	None
8	EDGE.Server.internal	roundrobin	icmp	None

```
/c/slb/group 1
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.SIP.5060"
/c/slb/group 2
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.HTTPS.conf.444"
/c/slb/group 3
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.HTTPS.443"
/c/slb/group 4
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.MTLS.5061"
/c/slb/group 5
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
```

```
        name "ocs.frontend.DCOM.135"
/c/slb/group 6
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.SIP.app.sharing"
/c/slb/group 8
        ipver v4
        metric roundrobin
        health icmp
        add 3
        add 4
        name "EDGE.Server.internal"
```

Alteon process directions

```
/c/slb/port 1
        client ena
        server ena
/c/slb/port 2
        server ena
```

Virtual Servers and Services Configuration

Virtual Servers

Add | Bulk Edit | Delete | Search | Refresh

ID	Name	IP Version	IP Address	Domain Name	Status	Services	
						Port	Group
1	ocs.frontend.DCOM.135	4	192.168.1.200		enabled	135	5(ocs.frontend.DCOM.135)
2	ocs.frontend.HTTPS.443	4	192.168.1.200		enabled	443 (https)	3(ocs.frontend.HTTPS.443)
3	ocs.frontend.HTTPS.conf.444	4	192.168.1.200		enabled	444	2 (ocs.frontend.HTTPS.conf.444)
4	ocs.frontend.SIP.5060	4	192.168.1.200		enabled	5060 (sip)	1(ocs.frontend.SIP.5060)
5	ocs.frontend.MTLS.5061	4	192.168.1.200		enabled	5061	4(ocs.frontend.MTLS.5061)
6	ocs.FE.SIP.app.sharing.5065	4	192.168.1.200		enabled	5065	6 (ocs.frontend.SIP.app.sharing)
7	ocs.edge.internal.UDP.STUN.3478	4	192.168.1.230		enabled	3478	8(EDGE.Server.internal)
8	ocs.Edge.internal.443	4	192.168.1.230		enabled	443 (https)	8(EDGE.Server.internal)
9	ocs.Edge.internal.5062	4	192.168.1.230		enabled	5062	8(EDGE.Server.internal)
10	ocs.Edge.internal.8057	4	192.168.1.230		enabled	8057	8(EDGE.Server.internal)
11	ocs.Edge.Internal.5061	4	192.168.1.230		enabled	5061	8(EDGE.Server.internal)

```
/c/slb/virt 1
```

```
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.DCOM.135"
/c/slb/virt 1/service 135 basic-slb
        group 5
        pbind clientip norport
        tmout 20
/c/slb/virt 2
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.HTTPS.443"
/c/slb/virt 2/service 443 https
        group 3
        dbind ena
        tmout 20
/c/slb/virt 3
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.HTTPS.conf.444"
/c/slb/virt 3/service 444 basic-slb
        group 2
        dbind ena
        tmout 20
/c/slb/virt 4
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.SIP.5060"
/c/slb/virt 4/service 5060 sip
        group 1
        pbind clientip norport
        tmout 20
/c/slb/virt 5
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.MTLS.5061"
/c/slb/virt 5/service 5061 basic-slb
        group 4
        pbind clientip norport
        tmout 20
/c/slb/virt 6
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.FE.SIP.app.sharing.5065"
/c/slb/virt 6/service 5065 basic-slb
        group 6
        pbind clientip norport
        tmout 20
/c/slb/virt 7
        ena
        ipver v4
```

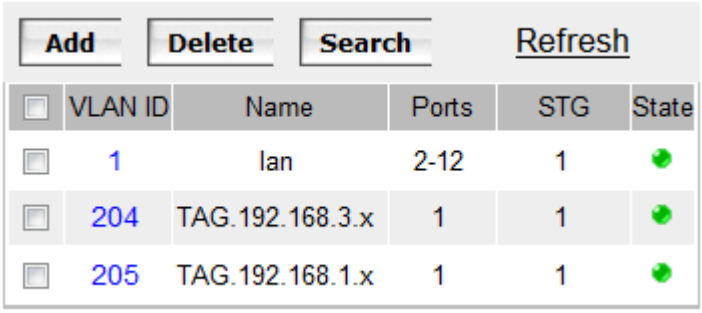
```
        vip 192.168.1.230
        vname "ocs.edge.internal.UDP.STUN.3478"
/c/slb/virt 7/service 3478 basic-slb
        group 8
        protocol udp
        pbind clientip norport
        tmout 20
/c/slb/virt 8
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.443"
/c/slb/virt 8/service 443 https
        group 8
        dbind ena
        tmout 20
/c/slb/virt 9
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.5062"
/c/slb/virt 9/service 5062 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 10
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.8057"
/c/slb/virt 10/service 8057 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 11
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.Internal.5061"
/c/slb/virt 11/service 5061 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 2/service 443 https/pbind sslid
/c/slb/virt 3/service 444 ssl/pbind sslid
/c/slb/virt 8/service 443 https/pbind sslid
```

VRRP Configuration

```
/c/l3/vrrp/on
/c/l3/vrrp/vr 1
        ena
        ipver v4
        vrid 131
        if 1
        addr 192.168.3.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 132
        if 2
        addr 192.168.1.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
        vrid 133
        if 2
        addr 192.168.1.200
        track
                ifs e
                ports e
/c/l3/vrrp/vr 4
        ena
        ipver v4
        vrid 134
        if 2
        addr 192.168.1.230
        track
                ifs e
                ports e
/c/l3/vrrp/vrgroup 1
        name ""
        prio 101
        add 1
        add 2
        add 3
        add 4
        ena
        track
                ifs e
                ports e
```

Alteon Internal Standby Configuration

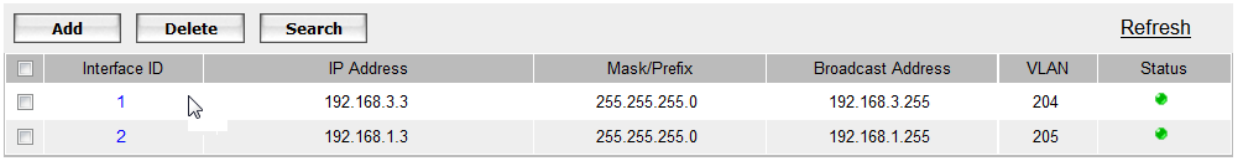
Network Configuration



	VLAN ID	Name	Ports	STG	State
	1	lan	2-12	1	
	204	TAG.192.168.3.x	1	1	
	205	TAG.192.168.1.x	1	1	

```
/c/port 1
        tag ena
        pvid 204
/c/port 2
        tag ena
        pvid 205
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 204
        ena
        name "TAG.192.168.3.x"
        learn ena
        def 1
/c/l2/vlan 205
        ena
        name "TAG.192.168.1.x"
        learn ena
        def 2
/c/l2/stg 1/clear
/c/l2/stg 1/add 1 204 205
```

IP Interfaces



	Interface ID	IP Address	Mask/Prefix	Broadcast Address	VLAN	Status
	1	192.168.3.3	255.255.255.0	192.168.3.255	204	
	2	192.168.1.3	255.255.255.0	192.168.1.255	205	

```
/c/l3/if 1
        ena
        ipver v4
        addr 192.168.3.3
        vlan 204
/c/l3/if 2
        ena
        ipver v4
        addr 192.168.1.3
        vlan 205
```

```
/c/l3/gw 1
        ena
        ipver v4
        addr 192.168.3.254
```

Sync Configuration

```
/c/slb/sync
        pips e
        certs e
        state e
/c/slb/sync/peer 1
        ena
        addr 192.168.1.2
```

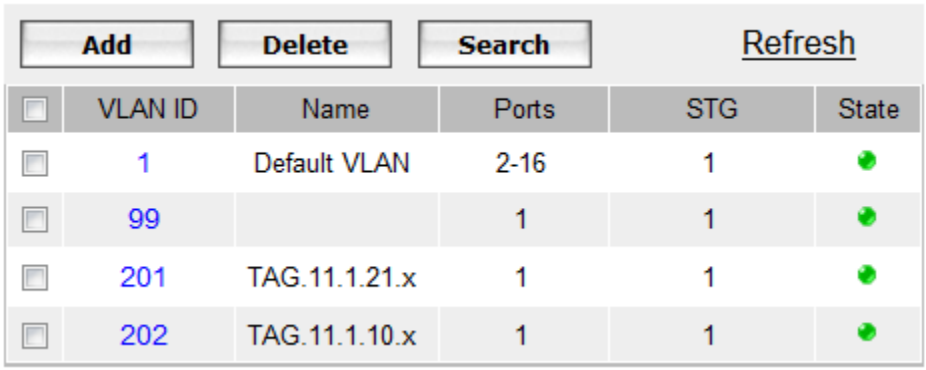
VRRP Configuration

```
/c/l3/vrrp/on
/c/l3/vrrp/vr 1
        ena
        ipver v4
        vrid 131
        if 1
        addr 192.168.3.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 132
        if 2
        addr 192.168.1.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
        vrid 133
        if 2
        addr 192.168.1.200
        track
                ifs e
                ports e
/c/l3/vrrp/vr 4
        ena
        ipver v4
        vrid 134
        if 2
        addr 192.168.1.230
        track
                ifs e
                ports e
/c/l3/vrrp/vrgroup 1
        name ""
```

```
        add 1
        add 2
        add 3
        add 4
        ena
        track
                ifs e
                ports e
```

Alteon External Active Configuration

Network Configuration




```
/c/port 1
          tag ena
        pvid 201
/c/port 2
          tag ena
        pvid 202
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 201
        ena
        name "TAG.11.1.21.x"
        learn ena
        def 1
/c/l2/vlan 202
        ena
        name "TAG.11.1.10.x"
        learn ena
        def 2
/c/l2/stg 1/clear
/c/l2/stg 1/add 1 201 202
```

IP Interfaces

Add | Delete | Search | Refresh

	Interface ID	IP Address	Mask/Prefix	Broadcast Address	VLAN	Status
☐	1	11.1.21.11	255.255.255.0	11.1.21.255	201	●
☐	2	11.1.10.11	255.255.255.0	11.1.10.255	202	●

```
/c/l3/if 1
        ena
        ipver v4
        addr 11.1.21.11
        mask 255.255.255.0
        broad 11.1.21.255
        vlan 201
/c/l3/if 2
        ena
        ipver v4
        addr 11.1.10.11
        mask 255.255.255.0
        broad 11.1.10.255
        vlan 202
/c/l3/gw 1
        ena
        ipver v4
        addr 11.1.21.254
```

Real Server Configuration

Real Servers

Add | Bulk Edit | Delete | Search | Refresh

	ID	Name	IP Version	IP Address	Max Connections	MAC Address	VLAN	Port	Status
☐	1	edge.server.1	4	11.1.10.1	200000	00:50:56:af:2c:27	202	1	●
☐	2	edge.server.2	4	11.1.10.2	200000	00:50:56:af:3d:cf	202	1	●
☐	5	frontend.internal.ocs.vip	4	192.168.1.200	200000	00:03:b2:3d:2f:81	201	1	●
☐	6	meeting.Server.1	4	11.1.10.5	200000	00:50:56:af:2c:27	202	1	●
☐	7	meeting.Server.2	4	11.1.10.6	200000	00:50:56:af:3d:cf	202	1	●
☐	8	av.server.1	4	11.1.10.3	200000	00:50:56:af:2c:27	202	1	●
☐	9	av.server.2	4	11.1.10.4	200000	00:50:56:af:3d:cf	202	1	●

```
/c/slb/real 1
        ena
        ipver v4
        rip 11.1.10.1
        name "edge.server.1"
/c/slb/real 2
        ena
        ipver v4
        rip 11.1.10.2
        name "edge.server.2"
/c/slb/real 5
```

```
        ena
        ipver v4
        rip 192.168.1.200
        name "frontend.internal.ocs.vip"
/c/slb/real 6
        ena
        ipver v4
        rip 11.1.10.5
        name "meeting.Server.1"
/c/slb/real 7
        ena
        ipver v4
        rip 11.1.10.6
        name "meeting.Server.2"
/c/slb/real 8
        ena
        ipver v4
        rip 11.1.10.3
        name "av.server.1"
/c/slb/real 9
        ena
        ipver v4
        rip 11.1.10.4
        name "av.server.2"
```

Servers Group Configuration

Server Groups

Add | Delete | Search | Refresh

Server Group ID	Name	SLB Metric	Health Check	Backup
1	ocs.edge.HTTPS.SIP.443	roundrobin	icmp	None
3	ocs.edge.lm.443	roundrobin	icmp	None
4	ocs.edge.meeting.443	roundrobin	icmp	None
5	ocs.edge.av.443	roundrobin	icmp	None

```
/c/slb/group 1
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.edge.HTTPS.SIP.443"
/c/slb/group 3
        ipver v4
        metric roundrobin
        health icmp
        add 5
        name "ocs.edge.lm.443"
/c/slb/group 4
        ipver v4
        metric roundrobin
        health icmp
```

```
        add 6
        add 7
        name "ocs.edge.meeting.443"
/c/slb/group 5
        ipver v4
        metric roundrobin
        health icmp
        add 8
        add 9
        name "ocs.edge.av.443"
```

Alteon process directions

```
/c/slb/port 1
        client ena
/c/slb/port 2
        server ena
```

Virtual Servers Configuration

Virtual Servers

Add | Bulk Edit | Delete | Search | Refresh

ID	Name	IP Version	IP Address	Domain Name	Status	Services	
						Port	Group
1	ocs.edge.SIP.HTTPS.443	4	11.1.10.200		enabled	443 (https)	1 (ocs.edge.HTTPS.SIP.443)
2	ocs.edge.av.HTTPS.443	4	11.1.10.201		enabled	443 (https)	5(ocs.edge.av.443)
3	ocs.edge.STUN.3478	4	11.1.10.201		enabled	3478	5(ocs.edge.av.443)
4	ocs.edge.meeting.HTTPS.443	4	11.1.10.202		enabled	443 (https)	4(ocs.edge.meeting.443)
5	ocs.edge.lm.HTTPS.443	4	11.1.10.203		enabled	443 (https)	3(ocs.edge.lm.443)

```
/c/slb/port 1
        client ena
        server ena
/c/slb/virt 1
        ena
        ipver v4
        vip 11.1.10.200
        vname "ocs.edge.SIP.HTTPS.443"
/c/slb/virt 1/service 443 https
        group 1
        dbind ena
        tmout 20
```

```
/c/slb/virt 2
        ena
        ipver v4
        vip 11.1.10.201
        vname "ocs.edge.av.HTTPS.443"
/c/slb/virt 2/service 443 https
        group 5
        dbind ena
        tmout 20
/c/slb/virt 3
        ena
        ipver v4
        vip 11.1.10.201
        vname "ocs.edge.STUN.3478"
/c/slb/virt 3/service 3478 basic-slb
        group 5
        protocol udp
        pbind clientip norport
        tmout 20
/c/slb/virt 4
        ena
        ipver v4
        vip 11.1.10.202
        vname "ocs.edge.meeting.HTTPS.443"
/c/slb/virt 4/service 443 https
        group 4
        dbind ena
        tmout 20
/c/slb/virt 5
        ena
        ipver v4
        vip 11.1.10.203
        vname "ocs.edge.lm.HTTPS.443"
/c/slb/virt 5/service 443 https
        group 3
        dbind ena
        tmout 20
/c/slb/virt 1/service 443 https/pbind sslid
/c/slb/virt 2/service 443 https/pbind sslid
/c/slb/virt 4/service 443 https/pbind sslid
/c/slb/virt 5/service 443 https/pbind sslid
```

Sync Configuration

```
/c/slb/sync
        pips e
        certs e
        state e
/c/slb/sync/peer 1
        ena
        addr 11.1.10.12
```

VRRP Configuration

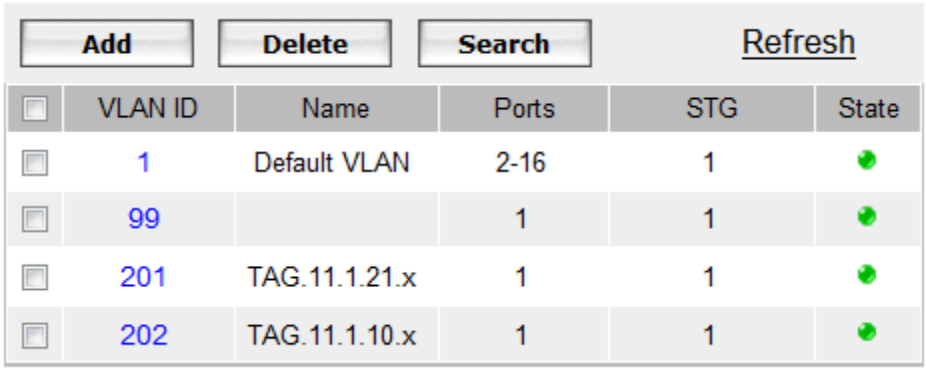
```
/c/l3/vrrp/on
```

```
/c/l3/vrrp/vr 1
        ena
        ipver v4
        vrid 141
        if 1
        addr 11.1.21.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 142
        if 2
        addr 11.1.10.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
        vrid 143
        if 2
        addr 11.1.10.200
        track
                ifs e
                ports e
/c/l3/vrrp/vr 4
        ena
        ipver v4
        vrid 144
        if 2
        addr 11.1.10.201
        track
                ifs e
                ports e
/c/l3/vrrp/vr 5
        ena
        ipver v4
        vrid 145
        if 2
        addr 11.1.10.202
        track
                ifs e
                ports e
/c/l3/vrrp/vr 6
        ena
        ipver v4
        vrid 146
        if 2
        addr 11.1.10.203
        track
                ifs e
                ports e
/c/l3/vrrp/vrgroup 1
        name ""
```

```
        prio 101
        add 1
        add 2
        add 3
        add 4
        add 5
        add 6
        ena
        track
                ifs e
                ports e
```

Alteon External Configuration

Network Configuration



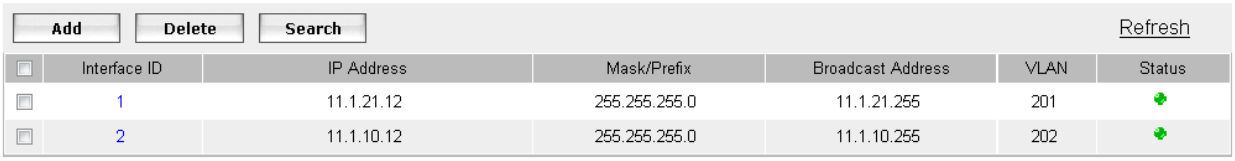
Add | Delete | Search | Refresh

	VLAN ID	Name	Ports	STG	State
	1	Default VLAN	2-16	1	
	99		1	1	
	201	TAG.11.1.21.x	1	1	
	202	TAG.11.1.10.x	1	1	

```
/c/port 1
        tag ena
        pvid 201
/c/port 2
        tag ena
        pvid 202
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 201
        ena
        name "TAG.11.1.21.x"
        learn ena
        def 1
/c/l2/vlan 202
        ena
        name "TAG.11.1.10.x"
        learn ena
        def 2
/c/l2/stg 1/clear
```

/c/l2/stg 1/add 1 201 202

IP Interfaces



	Interface ID	IP Address	Mask/Prefix	Broadcast Address	VLAN	Status
☐	1	11.1.21.12	255.255.255.0	11.1.21.255	201	
☐	2	11.1.10.12	255.255.255.0	11.1.10.255	202	

```
/c/l3/if 1
        ena
        ipver v4
        addr 11.1.21.12
        mask 255.255.255.0
        broad 11.1.21.255
        vlan 201
/c/l3/if 2
        ena
        ipver v4
        addr 11.1.10.12
        mask 255.255.255.0
        broad 11.1.10.255
        vlan 202
/c/l3/gw 1
        ena
        ipver v4
        addr 11.1.21.254
```

VRRP Configuration

```
/c/l3/vrrp/on
/c/l3/vrrp/vr 1
        ena
        ipver v4
        vrid 141
        if 1
        addr 11.1.21.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 142
        if 2
        addr 11.1.10.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
        vrid 143
        if 2
        addr 11.1.10.200
        track
```

```
            ifs e
            ports e
/c/l3/vrrp/vr 4
    ena
    ipver v4
    vrid 144
    if 2
    addr 11.1.10.201
    track
            ifs e
            ports e
/c/l3/vrrp/vr 5
    ena
    ipver v4
    vrid 145
    if 2
    addr 11.1.10.202
    track
            ifs e
            ports e
/c/l3/vrrp/vr 6
    ena
    ipver v4
    vrid 146
    if 2
    addr 11.1.10.203
    track
            ifs e
            ports e
/c/l3/vrrp/vrgroup 1
    name ""
    add 1
    add 2
    add 3
    add 4
    add 5
    add 6
    ena
    track
            ifs e
            ports e
```

OCS FE1 Server

- IP Address – 192.168.1.21/24
- DG – 192.168.1.1

OCS FE2 Server

- IP Address – 192.168.1.22/24
- DG – 192.168.1.1

OCS Edge 1 Server

External leg configuration,

- IP Address – 11.1.10.1/24
- IP Address – 11.1.10.3/24
- IP Address – 11.1.10.5/24
- DG – 11.1.10.10

Internal leg configuration,

- IP Address – 11.1.11.1/24
- Route to network 192.168.1.0/24 through 11.1.11.254
- Route to network 192.168.2.0/24 through 11.1.11.254
- Route to network 192.168.3.0/24 through 11.1.11.254

OCS Edge 2 Server

External leg configuration,

- IP Address – 11.1.10.2/24
- IP Address – 11.1.10.4/24
- IP Address – 11.1.10.6/24
- DG – 11.1.10.10

Internal leg configuration,

- IP Address – 11.1.11.2/24
- Route to network 192.168.1.0/24 through 11.1.11.254
- Route to network 192.168.2.0/24 through 11.1.11.254
- Route to network 192.168.3.0/24 through 11.1.11.254

Appendix – I

ALTEON INTERNAL ACTIVE DEVICE FULL CONFIGURATION SCRIPT

```
script start "Alteon Application Switch VA" 4  /**** DO NOT EDIT THIS LINE!
/* Configuration dump taken 17:21:12 Thu Nov  4, 2010
/* Configuration last applied at 22:56:15 Wed Nov  3, 2010
/* Configuration last save at 22:56:18 Wed Nov  3, 2010
/* Version 27.0.0,  Base MAC address 00:03:b2:80:94:00
/c/sys/access
        http ena
        tnet ena
/c/port 1
        pvid 204
/c/port 2
        pvid 205
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 204
        ena
        name "TAG.192.168.3.x"
        learn ena
        def 1
/c/l2/vlan 205
        ena
        name "TAG.192.168.1.x"
        learn ena
        def 2
/c/l2/stg 1/clear
/c/l2/stg 1/add 1 204 205
/c/l3/if 1
        ena
        ipver v4
        addr 192.168.3.2
        vlan 204
/c/l3/if 2
        ena
        ipver v4
        addr 192.168.1.2
        vlan 205
/c/l3/gw 1
        ena
        ipver v4
        addr 192.168.3.254
/c/l3/vrrp/on
/c/l3/vrrp/vr 1
        ena
        ipver v4
        vrid 131
        if 1
```

```
        addr 192.168.3.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 132
        if 2
        addr 192.168.1.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
        vrid 133
        if 2
        addr 192.168.1.200
        track
                ifs e
                ports e
/c/l3/vrrp/vr 4
        ena
        ipver v4
        vrid 134
        if 2
        addr 192.168.1.230
        track
                ifs e
                ports e
/c/l3/vrrp/vrgroup 1
        name ""
        prio 101
        add 1
        add 2
        add 3
        add 4
        ena
        track
                ifs e
                ports e
/c/slb
        on
/c/slb/adv
        direct ena
/c/slb/adv
        submac "ena"
/c/slb/sync
        pips e
        certs e
```

```
        state e
/c/slb/sync/peer 1
        ena
        addr 192.168.1.3
/c/slb/real 1
        ena
        ipver v4
        rip 192.168.1.21
        name "OCSR2.Server1"
/c/slb/real 2
        ena
        ipver v4
        rip 192.168.1.22
        name "OCSR2.Server.2"
/c/slb/real 3
        ena
        ipver v4
        rip 11.1.11.1
        name "OCS.EDGE.Internal.1"
/c/slb/real 4
        ena
        ipver v4
        rip 11.1.11.2
        name "OCS.EDGE.Internal.1"
/c/slb/group 1
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.SIP.5060"
/c/slb/group 2
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.HTTPS.conf.444"
/c/slb/group 3
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.HTTPS.443"
/c/slb/group 4
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
```

```
        name "ocs.frontend.MTLS.5061"
/c/slb/group 5
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.DCOM.135"
/c/slb/group 6
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.SIP.app.sharing"
/c/slb/group 8
        ipver v4
        metric roundrobin
        health icmp
        add 3
        add 4
        name "EDGE.Server.internal"
/c/slb/port 1
        client ena
        server ena
/c/slb/port 2
        server ena
/c/slb/virt 1
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.DCOM.135"
/c/slb/virt 1/service 135 basic-slb
        group 5
        pbind clientip norport
        tmout 20
/c/slb/virt 2
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.HTTPS.443"
/c/slb/virt 2/service 443 https
        group 3
        dbind ena
        tmout 20
/c/slb/virt 3
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.HTTPS.conf.444"
/c/slb/virt 3/service 444 basic-slb
```

```
        group 2
        dbind ena
        tmout 20
/c/slb/virt 4
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.SIP.5060"
/c/slb/virt 4/service 5060 sip
        group 1
        pbind clientip norport
        tmout 20
/c/slb/virt 5
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.MTLS.5061"
/c/slb/virt 5/service 5061 basic-slb
        group 4
        pbind clientip norport
        tmout 20
/c/slb/virt 6
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.FE.SIP.app.sharing.5065"
/c/slb/virt 6/service 5065 basic-slb
        group 6
        pbind clientip norport
        tmout 20
/c/slb/virt 7
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.edge.internal.UDP.STUN.3478"
/c/slb/virt 7/service 3478 basic-slb
        group 8
        protocol udp
        pbind clientip norport
        tmout 20
/c/slb/virt 8
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.443"
/c/slb/virt 8/service 443 https
        group 8
        dbind ena
        tmout 20
/c/slb/virt 9
        ena
```

```
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.5062"
/c/slb/virt 9/service 5062 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 10
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.8057"
/c/slb/virt 10/service 8057 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 11
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.Internal.5061"
/c/slb/virt 11/service 5061 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 2/service 443 https/pbind sslid
/c/slb/virt 3/service 444 ssl/pbind sslid
/c/slb/virt 8/service 443 https/pbind sslid
/
script end  /**** DO NOT EDIT THIS LINE!
```

ALTEON INTERNAL STANDBY DEVICE FULL CONFIGURATION SCRIPT

```
script start "Alteon Application Switch VA" 4  /**** DO NOT EDIT THIS LINE!
/* Configuration dump taken 22:57:46 Wed Nov  3, 2010
/* Configuration last applied at 16:26:22 Wed Nov  3, 2010
/* Configuration last save at 17:04:42 Wed Nov  3, 2010
/* Version 27.0.0,  Base MAC address 00:03:b2:80:9d:40
/c/sys/access
        http ena
        tnet ena
/c/port 1
        tag ena
        pvid 204
/c/port 2
        tag ena
        pvid 205
```

```
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 204
        ena
        name "TAG.192.168.3.x"
        learn ena
        def 1
/c/l2/vlan 205
        ena
        name "TAG.192.168.1.x"
        learn ena
        def 2
/c/l2/stg 1/clear
/c/l2/stg 1/add 1 204 205
/c/l3/if 1
        ena
        ipver v4
        addr 192.168.3.3
        vlan 204
/c/l3/if 2
        ena
        ipver v4
        addr 192.168.1.3
        vlan 205
/c/l3/gw 1
        ena
        ipver v4
        addr 192.168.3.254
/c/l3/vrrp/on
/c/l3/vrrp/vr 1
        ena
        ipver v4
        vrid 131
        if 1
        addr 192.168.3.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 132
        if 2
        addr 192.168.1.1
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
```

```
        vrid 133
        if 2
        addr 192.168.1.200
        track
                ifs e
                ports e
/c/l3/vrrp/vr 4
        ena
        ipver v4
        vrid 134
        if 2
        addr 192.168.1.230
        track
                ifs e
                ports e
/c/l3/vrrp/vrgroup 1
        name ""
        add 1
        add 2
        add 3
        add 4
        ena
        track
                ifs e
                ports e
/c/slb
        on
/c/slb/adv
        direct ena
/c/slb/adv
        submac "ena"
/c/slb/sync
        pips e
        certs e
        state e
/c/slb/sync/peer 1
        ena
        addr 192.168.1.2
/c/slb/real 1
        ena
        ipver v4
        rip 192.168.1.21
        name "OCSR2.Server1"
/c/slb/real 2
        ena
        ipver v4
        rip 192.168.1.22
        name "OCSR2.Server.2"
/c/slb/real 3
        ena
        ipver v4
```

```
        rip 11.1.11.1
        name "OCS.EDGE.Internal.1"
/c/slb/real 4
        ena
        ipver v4
        rip 11.1.11.2
        name "OCS.EDGE.Internal.1"
/c/slb/group 1
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.SIP.5060"
/c/slb/group 2
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.HTTPS.conf.444"
/c/slb/group 3
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.HTTPS.443"
/c/slb/group 4
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.MTLS.5061"
/c/slb/group 5
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.DCOM.135"
/c/slb/group 6
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.frontend.SIP.app.sharing"
/c/slb/group 8
        ipver v4
```

```
        metric roundrobin
        health icmp
        add 3
        add 4
        name "EDGE.Server.internal"
/c/slb/port 1
        client ena
        server ena
/c/slb/port 2
        server ena
/c/slb/virt 1
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.DCOM.135"
/c/slb/virt 1/service 135 basic-slb
        group 5
        pbind clientip norport
        tmout 20
/c/slb/virt 2
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.HTTPS.443"
/c/slb/virt 2/service 443 https
        group 3
        dbind ena
        tmout 20
/c/slb/virt 3
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.HTTPS.conf.444"
/c/slb/virt 3/service 444 basic-slb
        group 2
        dbind ena
        tmout 20
/c/slb/virt 4
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.SIP.5060"
/c/slb/virt 4/service 5060 sip
        group 1
        pbind clientip norport
        tmout 20
/c/slb/virt 5
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.frontend.MTLS.5061"
```

```
/c/slb/virt 5/service 5061 basic-slb
        group 4
        pbind clientip norport
        tmout 20
/c/slb/virt 6
        ena
        ipver v4
        vip 192.168.1.200
        vname "ocs.FE.SIP.app.sharing.5065"
/c/slb/virt 6/service 5065 basic-slb
        group 6
        pbind clientip norport
        tmout 20
/c/slb/virt 7
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.edge.internal.UDP.STUN.3478"
/c/slb/virt 7/service 3478 basic-slb
        group 8
        protocol udp
        pbind clientip norport
        tmout 20
/c/slb/virt 8
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.443"
/c/slb/virt 8/service 443 https
        group 8
        dbind ena
        tmout 20
/c/slb/virt 9
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.5062"
/c/slb/virt 9/service 5062 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 10
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.internal.8057"
/c/slb/virt 10/service 8057 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 11
```

```
        ena
        ipver v4
        vip 192.168.1.230
        vname "ocs.Edge.Internal.5061"
/c/slb/virt 11/service 5061 basic-slb
        group 8
        pbind clientip norport
        tmout 20
/c/slb/virt 2/service 443 https/pbind sslid
/c/slb/virt 3/service 444 ssl/pbind sslid
/c/slb/virt 8/service 443 https/pbind sslid
/
script end  /**** DO NOT EDIT THIS LINE!
```

ALTEON EXTERNAL ACTIVE DEVICE FULL CONFIGURATION SCRIPT

```
script start "Alteon Application Switch VA" 4  /**** DO NOT EDIT THIS LINE!
/* Configuration dump taken 22:34:10 Wed Nov  3, 2010
/* Configuration last applied at 22:26:04 Wed Nov  3, 2010
/* Configuration last save at 18:24:43 Wed Nov  3, 2010
/* Version 27.0.0,  Base MAC address 00:03:b2:80:40:40
/c/sys/access
        http ena
        tnet ena
/c/port 1
         tag ena
        pvid 201
/c/port 2
         tag ena
        pvid 202
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 201
        ena
        name "TAG.11.1.21.x"
        learn ena
        def 1
/c/l2/vlan 202
        ena
        name "TAG.11.1.10.x"
        learn ena
        def 2
/c/l2/stg 1/clear
/c/l2/stg 1/add 1 201 202
/c/l3/if 1
        ena
        ipver v4
```

```
        addr 11.1.21.11
        mask 255.255.255.0
        broad 11.1.21.255
        vlan 201
/c/l3/if 2
        ena
        ipver v4
        addr 11.1.10.11
        mask 255.255.255.0
        broad 11.1.10.255
        vlan 202
/c/l3/gw 1
        ena
        ipver v4
        addr 11.1.21.254
/c/l3/vrrp/on
/c/l3/vrrp/vr 1
        ena
        ipver v4
        vrid 141
        if 1
        addr 11.1.21.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 142
        if 2
        addr 11.1.10.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
        vrid 143
        if 2
        addr 11.1.10.200
        track
                ifs e
                ports e
/c/l3/vrrp/vr 4
        ena
        ipver v4
        vrid 144
        if 2
        addr 11.1.10.201
        track
                ifs e
```

```
            ports e
/c/l3/vrrp/vr 5
        ena
        ipver v4
        vrid 145
        if 2
        addr 11.1.10.202
        track
            ifs e
            ports e
/c/l3/vrrp/vr 6
        ena
        ipver v4
        vrid 146
        if 2
        addr 11.1.10.203
        track
            ifs e
            ports e
/c/l3/vrrp/vrgroup 1
        name ""
        prio 101
        add 1
        add 2
        add 3
        add 4
        add 5
        add 6
        ena
        track
            ifs e
            ports e
/c/slb
        on
/c/slb/adv
        direct ena
/c/slb/sync
        pips e
        certs e
        state e
/c/slb/sync/peer 1
        ena
        addr 11.1.10.12
/c/slb/real 1
        ena
        ipver v4
        rip 11.1.10.1
        name "edge.server.1"
/c/slb/real 2
        ena
        ipver v4
```

```
        rip 11.1.10.2
        name "edge.server.2"
/c/slb/real 5
        ena
        ipver v4
        rip 192.168.1.200
        name "frontend.internal.ocs.vip"
/c/slb/real 6
        ena
        ipver v4
        rip 11.1.10.5
        name "meeting.Server.1"
/c/slb/real 7
        ena
        ipver v4
        rip 11.1.10.6
        name "meeting.Server.2"
/c/slb/real 8
        ena
        ipver v4
        rip 11.1.10.3
        name "av.server.1"
/c/slb/real 9
        ena
        ipver v4
        rip 11.1.10.4
        name "av.server.2"
/c/slb/group 1
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.edge.HTTPS.SIP.443"
/c/slb/group 3
        ipver v4
        metric roundrobin
        health icmp
        add 5
        name "ocs.edge.lm.443"
/c/slb/group 4
        ipver v4
        metric roundrobin
        health icmp
        add 6
        add 7
        name "ocs.edge.meeting.443"
/c/slb/group 5
        ipver v4
        metric roundrobin
        health icmp
```

```
        add 8
        add 9
        name "ocs.edge.av.443"
/c/slb/port 1
        client ena
        server ena
/c/slb/virt 1
        ena
        ipver v4
        vip 11.1.10.200
        vname "ocs.edge.SIP.HTTPS.443"
/c/slb/virt 1/service 443 https
        group 1
        dbind ena
        tmout 20
/c/slb/virt 2
        ena
        ipver v4
        vip 11.1.10.201
        vname "ocs.edge.av.HTTPS.443"
/c/slb/virt 2/service 443 https
        group 5
        dbind ena
        tmout 20
/c/slb/virt 3
        ena
        ipver v4
        vip 11.1.10.201
        vname "ocs.edge.STUN.3478"
/c/slb/virt 3/service 3478 basic-slb
        group 5
        protocol udp
        pbind clientip norport
        tmout 20
/c/slb/virt 4
        ena
        ipver v4
        vip 11.1.10.202
        vname "ocs.edge.meeting.HTTPS.443"
/c/slb/virt 4/service 443 https
        group 4
        dbind ena
        tmout 20
/c/slb/virt 5
        ena
        ipver v4
        vip 11.1.10.203
        vname "ocs.edge.lm.HTTPS.443"
/c/slb/virt 5/service 443 https
        group 3
        dbind ena
```

```
        tmout 20
/c/slb/virt 1/service 443 https/pbind sslid
/c/slb/virt 2/service 443 https/pbind sslid
/c/slb/virt 4/service 443 https/pbind sslid
/c/slb/virt 5/service 443 https/pbind sslid
/
script end  /**** DO NOT EDIT THIS LINE!
```

ALTEON EXTERNAL STANDBY DEVICE FULL CONFIGURATION SCRIPT

```
script start "Alteon Application Switch VA" 4  /**** DO NOT EDIT THIS LINE!
/* Configuration dump taken 22:35:41 Wed Nov  3, 2010
/* Configuration last applied at 22:26:30 Wed Nov  3, 2010
/* Configuration last save at 18:22:02 Wed Nov  3, 2010
/* Version 27.0.0,  Base MAC address 00:03:b2:80:a0:80
/c/sys/access
        http ena
        tnet ena
/c/port 1
         tag ena
        pvid 201
/c/port 2
         tag ena
        pvid 202
/c/l2/vlan 1
        learn ena
        def 0
/c/l2/vlan 201
        ena
        name "TAG.11.1.21.x"
        learn ena
        def 1
/c/l2/vlan 202
        ena
        name "TAG.11.1.10.x"
        learn ena
        def 2
/c/l2/stg 1/clear
/c/l2/stg 1/add 1 201 202
/c/l3/if 1
        ena
        ipver v4
        addr 11.1.21.12
        mask 255.255.255.0
        broad 11.1.21.255
        vlan 201
/c/l3/if 2
        ena
        ipver v4
        addr 11.1.10.12
        mask 255.255.255.0
        broad 11.1.10.255
        vlan 202
/c/l3/gw 1
        ena
        ipver v4
        addr 11.1.21.254
/c/l3/vrrp/on
/c/l3/vrrp/vr 1
```

```
        ena
        ipver v4
        vrid 141
        if 1
        addr 11.1.21.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 2
        ena
        ipver v4
        vrid 142
        if 2
        addr 11.1.10.10
        track
                ifs e
                ports e
/c/l3/vrrp/vr 3
        ena
        ipver v4
        vrid 143
        if 2
        addr 11.1.10.200
        track
                ifs e
                ports e
/c/l3/vrrp/vr 4
        ena
        ipver v4
        vrid 144
        if 2
        addr 11.1.10.201
        track
                ifs e
                ports e
/c/l3/vrrp/vr 5
        ena
        ipver v4
        vrid 145
        if 2
        addr 11.1.10.202
        track
                ifs e
                ports e
/c/l3/vrrp/vr 6
        ena
        ipver v4
        vrid 146
        if 2
        addr 11.1.10.203
        track
```

```
            ifs e
            ports e
/c/l3/vrrp/vrgroup 1
      name ""
      add 1
      add 2
      add 3
      add 4
      add 5
      add 6
      ena
      track
            ifs e
            ports e
/c/slb
      on
/c/slb/adv
      direct ena
/c/slb/sync
      pips e
      certs e
      state e
/c/slb/sync/peer 1
      ena
      addr 11.1.10.11
/c/slb/real 1
      ena
      ipver v4
      rip 11.1.10.1
      name "edge.server.1"
/c/slb/real 2
      ena
      ipver v4
      rip 11.1.10.2
      name "edge.server.2"
/c/slb/real 5
      ena
      ipver v4
      rip 192.168.1.200
      name "frontend.internal.ocs.vip"
/c/slb/real 6
      ena
      ipver v4
      rip 11.1.10.5
      name "meeting.Server.1"
/c/slb/real 7
      ena
      ipver v4
      rip 11.1.10.6
      name "meeting.Server.2"
/c/slb/real 8
```

```
        ena
        ipver v4
        rip 11.1.10.3
        name "av.server.1"
/c/slb/real 9
        ena
        ipver v4
        rip 11.1.10.4
        name "av.server.2"
/c/slb/group 1
        ipver v4
        metric roundrobin
        health icmp
        add 1
        add 2
        name "ocs.edge.HTTPS.SIP.443"
/c/slb/group 3
        ipver v4
        metric roundrobin
        health icmp
        add 5
        name "ocs.edge.lm.443"
/c/slb/group 4
        ipver v4
        metric roundrobin
        health icmp
        add 6
        add 7
        name "ocs.edge.meeting.443"
/c/slb/group 5
        ipver v4
        metric roundrobin
        health icmp
        add 8
        add 9
        name "ocs.edge.av.443"
/c/slb/port 1
        client ena
        server ena
/c/slb/virt 1
        ena
        ipver v4
        vip 11.1.10.200
        vname "ocs.edge.SIP.HTTPS.443"
/c/slb/virt 1/service 443 https
        group 1
        dbind ena
        tmout 20
/c/slb/virt 2
        ena
        ipver v4
```

```
        vip 11.1.10.201
        vname "ocs.edge.av.HTTPS.443"
/c/slb/virt 2/service 443 https
        group 5
        dbind ena
        tmout 20
/c/slb/virt 3
        ena
        ipver v4
        vip 11.1.10.201
        vname "ocs.edge.STUN.3478"
/c/slb/virt 3/service 3478 basic-slb
        group 5
        protocol udp
        pbind clientip norport
        tmout 20
/c/slb/virt 4
        ena
        ipver v4
        vip 11.1.10.202
        vname "ocs.edge.meeting.HTTPS.443"
/c/slb/virt 4/service 443 https
        group 4
        dbind ena
        tmout 20
/c/slb/virt 5
        ena
        ipver v4
        vip 11.1.10.203
        vname "ocs.edge.lm.HTTPS.443"
/c/slb/virt 5/service 443 https
        group 3
        dbind ena
        tmout 20
/c/slb/virt 1/service 443 https/pbind sslid
/c/slb/virt 2/service 443 https/pbind sslid
/c/slb/virt 4/service 443 https/pbind sslid
/c/slb/virt 5/service 443 https/pbind sslid
/
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:
U.S. and Americas: (866) 234-5763
International: +972(3) 766-8666