



SAP BUSINESS OBJECTS

AN EDGENEXUS ADC DEPLOYMENT GUIDE



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Introduction

This application deployment guide is intended for persons administering the SAP Business Objects and its load balancing. This document contains specific general suggestions and guidance, which may or may not be relevant for use within your organization.

SAP BusinessObjects is an enterprise software delivering business intelligence (BI) to the organization's management. SAP Business Objects is equipped with performance management, planning, reporting, query, analysis, and enterprise information management. In addition, other toolsets enable universes (a semantic layer between the physical data store and the front-end reporting tool) and pre-defined reports, centrally stored and made selectively available to users.

We recommend the following:

When used in a LAN environment, deploy the EdgeADC as a pair of appliances and install it as a virtualized or physical appliance.

In an infrastructure where there is access from external users via the Internet, and, depending on your corporate policy, you deploy the ADC as HA pairs in the DMZ to serve external users and the LAN to serve internal users.

The ADC's operate in a high-availability (HA) mode when placed in pairs and provide you the level of redundancy and resilience required for mission-critical systems.

The EdgeADC is fully capable of load-balancing your SAP Business Objects, and this guide explains how to set this up.

Prerequisites for supporting SAP Business Objects

As usual, it is assumed that the person who is installing and configuring the EdgeADC is familiar with the terminology used within this document and networking in general. We strongly suggest that both the network technician and SAP Business Objects administrator work in tandem when setting up the load balancing and that this is first done for a sandbox environment before replicating to the production environment.

Further, it is also recommended you follow the below requirements, which are regarded as the minimum:

- The latest ADC firmware should be used
- The SAP Business Objects should be installed and operational.
- The initial ADC configuration should be done against the SAP Business Objects sandbox deployment.
- DNS entries for both internal and external access should be configured and working.
- The ADC should be reachable using a web browser and the management IP.

Acronyms used

VIP – Virtual IP

VS – Virtual Service

RS – Real Server

RSIP – Real Server IP

ADC – Edgenexus EdgeADC

VIPs, Ports, and Other Bits

When load balancing SAP Business Objects, the following VIPs will be needed for operations.

HTTPS VIP Services

- (HTTPS) for handling HTTPS requests from client applications

HTTP VIP Services

- (HTTP) for handling HTTP requests from client applications

Port Requirements

The following are the port requirements for the SAP Business Objects platform.

Port	Protocol	Service Type	Explanation
443	TCP	L4-TCP or L7 HTTPS	This port is used to handle all HTTPS requests from client applications originating from the Internet. You can use Layer 4 TCP with SSL Passthrough or Layer 7 with SSL Bridging.
44300	TCP	L4-TCP or L7 HTTPS	This port is used to handle all CRM requests from the client. You can use Layer 4 TCP with SSL Passthrough or Layer 7 with SSL Bridging.
50001	TCP	L4-TCP or L7 HTTPS	This port is used to handle all Enterprise Portal requests from the client. You can use Layer 4 TCP with SSL Passthrough or Layer 7 with SSL Bridging.
8080	TCP	L4-TCP or L7 HTTPS	This port is used to handle all SAP Business Objects requests from the client. You can use Layer 4 TCP with SSL Passthrough or Layer 7 with SSL Bridging.

Sizing the EdgeADC

The ADC can operate in either physical or virtual deployments. The reverse proxy engine within the ADC is optimized for speed and efficiency. The ADC will use all available threads automatically.

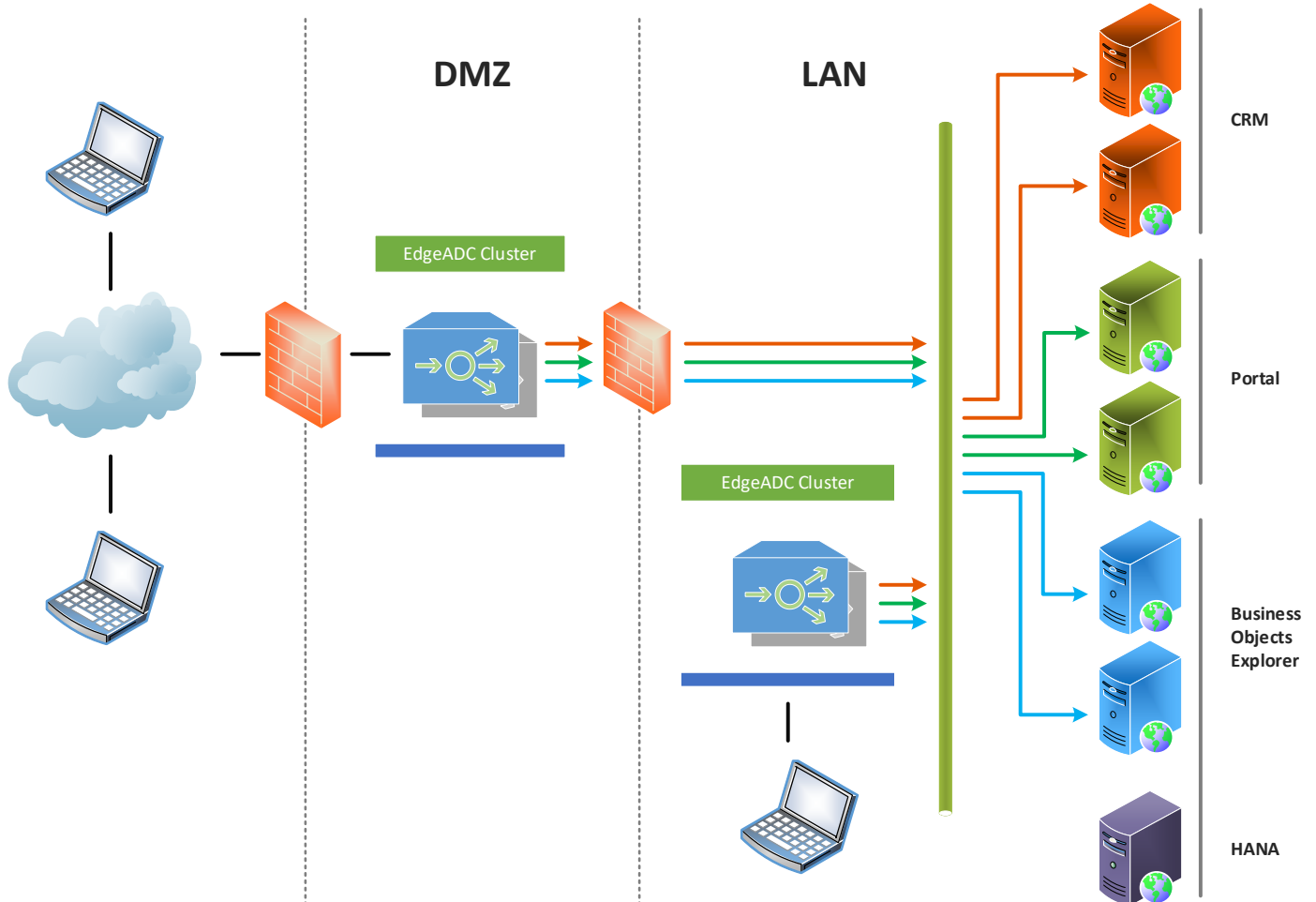
In virtualized environments, we recommend that you set the ADC to 4 vCPU with 8GB RAM, to begin with, and scale up when you need to.

We recommend that you utilize the hardware platforms from our partners in physical environments, with the base system being a quad-core Intel Xeon with 8GB RAM.

In both cases, 50GB of disk storage space should be sufficient.

Deployment Scenarios

Connections to the SAP Business Objects system occur by clients connecting to the VIP or Virtual IP service created on the ADC. The ADC then load-balances the connections to the nodes configured within the ADC and linked to the VIP. An example diagram is shown below.



Virtual Service Methods

There are several methods of configuring the ADC for use with SAP Business Objects.

SSL Passthrough

In this mode, the traffic enters the ADC on port 443 using SSL. Then, the traffic is sent onto the nodes without inspection. ADC service type Layer 4 TCP is used.

SSL Bridging

In this mode, the SSL traffic is terminated in the ADC and then re-encrypted before passing to the nodes. When this mode is chosen, you will need to have the SSL certificate installed on the nodes and install it in the ADC. This mode is the recommended best practice method for security reasons. ADC service type HTTP is used.

The recommended method(s) are shown highlighted in **Green**.

The following pages will take you through the VIP configuration. Please take care to configure correctly to avoid issues in operations.

Clustering the EdgeADC

The EdgeADC can operate as a stand-alone appliance, and it is incredibly reliable. However, in terms of best practice, we must accept that it is as critical as the servers it is load balancing, and we would therefore recommend placing it in a cluster.

- First, stand up a second EdgeADC in the same subnet as the primary.
- Once you have licensed it logon to your Primary EdgeADC
- Proceed to System > Clustering
- You should see the page as below.

Clustering

Role

Cluster
Enable Edgenexus ADC to act as part of a Cluster, providing High Availability in Active-Passive mode - automatic synchronisation of appliances

Manual
Enable Edgenexus ADC to act in High Availability mode, either Active-Active or Active-Passive - manual configuration of appliance

Stand-alone
This Edgenexus ADC acts completely independently without high-availability

Settings

Failover Latency (ms): **Update**

Management

Unclaimed Devices
192.168.1.225 EADC

Priority	Status	Cluster Members
1	●	192.168.1.220 EADC

- You will notice that there are two panels within the Management panel. On the left is the Unclaimed panel. On the right is the Cluster showing the cluster members, their priority, and status.
- In between the two panels is a cluster of arrow buttons.
- Click on the EdgeADC that is in the Unclaimed Panel and click the RIGHT arrow button.
- This action moved the unclaimed EdgeADC into the cluster.
- Immediately it is moved across; the Primary will replicate its settings, including VIPs to the secondary. **Note that any apps you have added to the Primary will not be replicated to the Secondary – examples are WAF, GSLB, etc.**
- After clustering, the Management panel should look like the one below.

Unclaimed Devices

Priority	Status	Cluster Members
1	●	192.168.1.220 EADC
2	●	192.168.1.225 EADC

SAP CRM VIP - L7 SSL Bridging

The method being used here is SSL Bridging. In this method, the SSL traffic enters the ADC, is then terminated internally, any inspection required is carried out, and the traffic is then re-encrypted and sent to the nodes.

{INSERT DIAG HERE}

- The first step is to create the VIP and initial VS
- Log into the ADC and go to IP Services. This location should be the default entry point.
- Click Add Service
- You will see an empty row into which you will add values similar to the one below. The field values we provide are examples for your reference.

IP Address	Subnet Mask	Port	Service Name	Service Type
10.10.10.222	255.255.255.0	44300	SAP-CRM	HTTP

So this has now created the initial VIP with the entry IP address of 10.10.10.222. In this example, we show a NAT IP address, and the assumption is that there is a firewall between the ADC and the public Internet. You can, of course, have a public IP address as the VIP entry point.

We have specified the entry port as 44300, the standard SAP CRM port. You may wish to use 443 to allow regular Internet users to have a common means of access.

- Now we will define the Real Servers (RS) section.
- Click on the Servers tab to display the Real Servers listing.
- There is a ready-created blank entry to aid you in adding the RS entries.
- Please enter the details relevant to your infrastructure following the examples we have provided below. In our case, we have three array nodes, but you may have more.

Address	Port	Weight	Calculated Weight	Notes	ID
10.10.10.201	44300	100	100	SAP-CRM 1	1

- Click Update to save.
- Click the Copy Server button and make changes for the second array node.

Address	Port	Weight	Calculated Weight	Notes	ID
10.10.10.202	44300	100	100	SAP-CRM 2	2

- Click Update to save.

You can add a name for the server group if you wish.

We have now defined our first VIP, and its two connected Real Server nodes. We have to do some more work yet to do.

The next stage is to configure the Basic tab.

- Click on the Basic tab within the Real Servers section.
- Make changes as follows:

Field	Value
Load Balancing Policy	Persistent Cookie
Server Monitoring	2000K
Caching Strategy	Off
Acceleration	Compression
Virtual Service SSL Cert	Your SSL certificate
Real Server SSL Cert	Any

- Click Update when done.

There are no configurations to be done within the Advanced tab.

Note: To add your SSL certificate, please consult the EdgeADC Administration Guide

SAP Enterprise Portal VIP - L7 SSL Bridging

The method being used here is SSL Bridging. In this method, the SSL traffic enters the ADC, is then terminated internally, any inspection required is carried out, and the traffic is then re-encrypted and sent to the nodes.

{INSERT DIAG HERE}

- The first step is to create the VIP and initial VS
- Log into the ADC and go to IP Services. This location should be the default entry point.
- Click Add Service
- You will see an empty row into which you will add values similar to the one below. The field values we provide are examples for your reference.

IP Address	Subnet Mask	Port	Service Name	Service Type
10.10.10.224	255.255.255.0	50001	SAP-Enterprise-Portal	HTTP

- Now we will define the Real Servers (RS) section.
- Click on the Servers tab to display the Real Servers listing.
- There is a ready-created blank entry to aid you in adding the RS entries.
- Please enter the details relevant to your infrastructure following the examples we have provided below. In our case, we have three array nodes, but you may have more.

Address	Port	Weight	Calculated Weight	Notes	ID
10.10.10.201	50001	100	100	SAP-EP 1	1

- Click Update to save.
- Click the Copy Server button and make changes for the second array node.

Address	Port	Weight	Calculated Weight	Notes	ID
10.10.10.202	50001	100	100	SAP-EP 2	2

- Click Update to save.

You can add a name for the server group if you wish.

The next stage is to configure the Basic tab.

- Click on the Basic tab within the Real Servers section.
- Make changes as follows:

Field	Value
Load Balancing Policy	Persistent Cookie
Server Monitoring	2000K
Caching Strategy	Off
Acceleration	Compression
Virtual Service SSL Cert	Your SSL certificate
Real Server SSL Cert	Any

- Click Update when done.

There are no configurations to be done within the Advanced tab.

Note: To add your SSL certificate, please consult the EdgeADC Administration Guide

SAP Business Objects VIP - L7 SSL Bridging

The method being used here is SSL Bridging. In this method, the SSL traffic enters the ADC, is then terminated internally, any inspection required is carried out, and the traffic is then re-encrypted and sent to the nodes.

{INSERT DIAG HERE}

- The first step is to create the VIP and initial VS
- Log into the ADC and go to IP Services. This location should be the default entry point.
- Click Add Service
- You will see an empty row into which you will add values similar to the one below. The field values we provide are examples for your reference.

IP Address	Subnet Mask	Port	Service Name	Service Type
10.10.10.224	255.255.255.0	8080	SAP-Business-Objects	HTTP

- Now we will define the Real Servers (RS) section.
- Click on the Servers tab to display the Real Servers listing.
- There is a ready-created blank entry to aid you in adding the RS entries.
- Please enter the details relevant to your infrastructure following the examples we have provided below. In our case, we have three array nodes, but you may have more.

Address	Port	Weight	Calculated Weight	Notes	ID
10.10.10.201	8080	100	100	SAP-BO 1	1

- Click Update to save.
- Click the Copy Server button and make changes for the second array node.

Address	Port	Weight	Calculated Weight	Notes	ID
10.10.10.202	8080	100	100	SAP-BO 2	2

- Click Update to save.

You can add a name for the server group if you wish.

The next stage is to configure the Basic tab.

- Click on the Basic tab within the Real Servers section.
- Make changes as follows:

Field	Value
Load Balancing Policy	Persistent Cookie
Server Monitoring	2000K
Caching Strategy	Off
Acceleration	Compression
Virtual Service SSL Cert	Your SSL certificate
Real Server SSL Cert	Any

- Click Update when done.

There are no configurations to be done within the Advanced tab.

Note: To add your SSL certificate, please consult the EdgeADC Administration Guide

Final Configuration

EDGE NEXUS
IP-Services
GUI Status
Home
Help
admin

NAVIGATION

- Services
- App Store
- IP-Services
- Library
- View
- System
- Advanced
- Help

Virtual Services

+ Copy Service
+ Add Service
- Remove Service

Mode	VIP	VS	Enabled	IP Address	SubNet Mask / Prefix	Port	Service Name	Service Type
Active	●	●	✓	10.10.10.200	255.255.255.0	44300	SAP CRM	HTTP
Active	●	●	✓	10.10.10.204	255.255.255.0	50001	SAP EP	HTTP
Active	●	●	✓	10.10.10.206	255.255.255.0	8080	SAP BO	HTTP

Real Servers

Server
Basic
Advanced
flightPATH

+ Copy Server
+ Add Server
- Remove Server

Status	Activity	Address	Port	Weight	Calculated Weight	Notes	ID
●	Online	10.10.11.214	8080	100	25	SAP BO1	1
●	Online	10.10.11.216	8080	100	34	SAP BO2	2