

Alcatel-Lucent VitalQIP High Availability Solution

Enterprise Appliance High Availability and Disaster Recovery

Alcatel-Lucent VitalQIP® DNS/DHCP and IP Address Management (IPAM) software provides High Availability (for site redundancy) or Disaster Recovery (for geographic redundancy) for Enterprise and Service Provider environments ensuring that your mission-critical IPAM infrastructure remains operational despite network, hardware or service outages. During normal operations, the VitalQIP Enterprise services and database are synchronized across a pair of VitalQIP Enterprise Appliances. These Appliances can be located in the same data center or across the globe. If an outage occurs, the Enterprise services are started on the warm standby Appliance with absolutely zero data loss. The DNS/DHCP servers remain operational throughout the failover process and connect with the active Enterprise Appliance.

The VitalQIP Enterprise Appliance High Availability and Disaster Recovery solution requires a pair of VitalQIP Enterprise Server Module (ESM) appliances. This feature is available in two options:

- ✓ High Availability (ESM-HA) – The Appliances are located on the same subnet in the same data center or in data centers located in close proximity to one another.
- ✓ Disaster Recovery (ESM-DR) – The Appliances do not need to be on the same subnet and can be located in separate cities, across the country or across the globe.

FEATURES	BENEFITS
Automated data synchronization between pair of Enterprise Appliances	In the event of outage, data integrity is maintained and no operational data is lost
DNS/DHCP servers remain connected to active Enterprise Appliance	Continuous availability of essential DNS and DHCP services for client devices.
Management of High Availability and Disaster Recovery options are facilitated by Appliance Management System (AMS)	Intuitive setup using the same interface administrators use to setup VitalQIP Appliances, which reduces the learning curve
Comprehensive GUI for administration and troubleshooting	Simplifies administration and reduces costs related to expensive outages

High Availability (HA) Option

The VitalQIP Enterprise Appliance High Availability solution offers resiliency for VitalQIP IPAM installations – resiliency that has only been available by using expensive and error-prone third-party solutions. Complete High Availability support is now available from a single vendor: Alcatel-Lucent.

As shown in the figure below, a pair of Alcatel-Lucent VitalQIP Appliances is configured as a Primary (Active) and a Secondary (Standby) server. The VitalQIP administrators will use the VitalQIP GUI to access the VitalQIP Enterprise application and maintain IPAM data. The Virtual IP (VIP) address allows the users to access the active machine (indicated by solid arrows). The Remote servers running DNS, DHCP and other mission critical services are connected to the Primary Appliance.

Automatic Data Synchronization between Enterprise Appliances

The High Availability solution includes Sybase Replication Server which ensures that the databases on the Primary and Secondary servers are consistent and in “lock step.” Changes to the database on the Active server get replicated automatically and in near-real time to the Standby server. If one server is down, the changes are queued in a transaction log until the server comes back on-line.

Automatic Failover

In the event of a failure to the Active Appliance, to the network or to the services running on the Active Appliance, an automatic failover (or switchover) will occur. In this situation, assurances are made so that the VitalQIP Enterprise services on the Active Appliance are stopped. The next step is to start the VitalQIP Enterprise services on the Standby Appliance. The VitalQIP database continues to run during this operation.

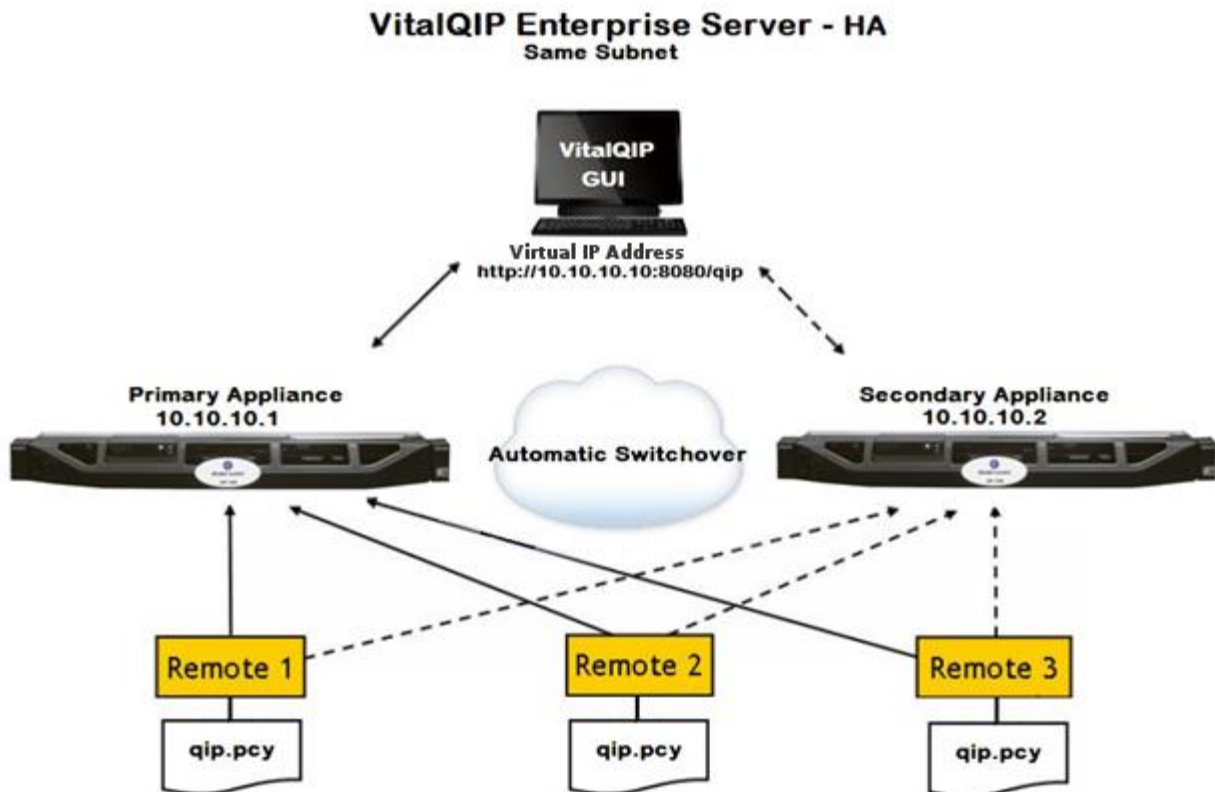
During the automatic failover, the users continue to use the VIP address to access the VitalQIP GUI. Despite a momentary delay when the failover is occurring, minimal disruption will be experienced, and no data will be lost during the failover.

DNS/DHCP remotes automatically reconnect after failover

Once failover has completed, the remote servers running DNS, DHCP and other applications (such as NTP, TFTP, SNMP, Anycast, DNS High Availability, DNS/DHCP probes, Auto Discovery, etc.) will automatically reconnect to the new Active Appliance. Any updates to the Enterprise database will be queued on the remote server until the connection can be reestablished.

Manual Failover

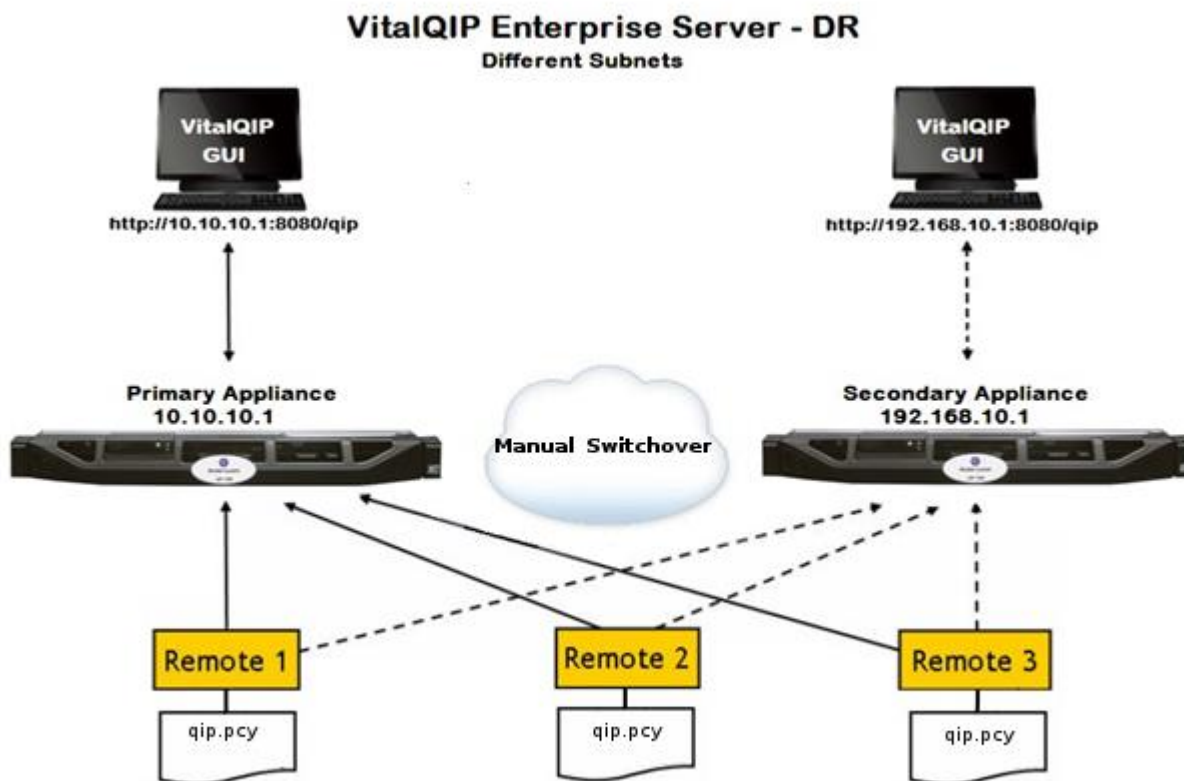
Users can also initiate manual failover to shift services from the Active to the Standby Appliance. The same synchronization occurs as in the automatic failover. The manual failover can be performed for routine maintenance or to test disaster recovery readiness.



Disaster Recovery (DR) Option

The Disaster Recovery (DR) option is similar to the High Availability (HA) option except that failover is manually initiated. An added benefit of the DR option is that the Enterprise Appliances do not need to be on the same subnet and can be in data centers located across the globe. Users will have

multiple links to the VitalQIP GUIs. Network solutions can be utilized to create a single link if desired.



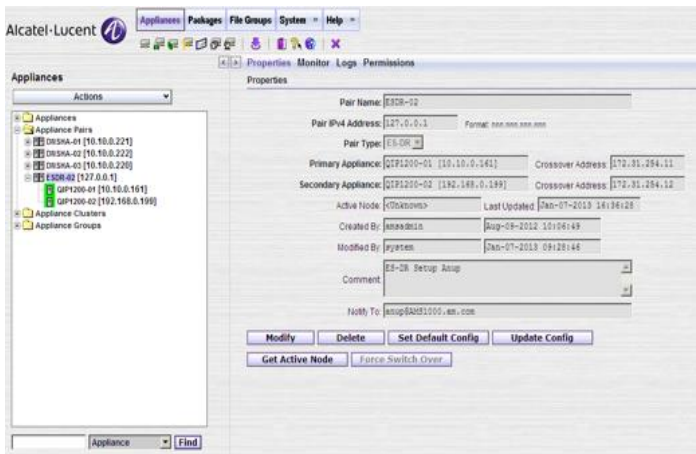
Configuration

Both the High Availability and Disaster Recovery solutions are configured using the Appliance Management Software (AMS). The Configuration screen (below) shows that the status of the pair can be monitored and manually failed over if appropriate.

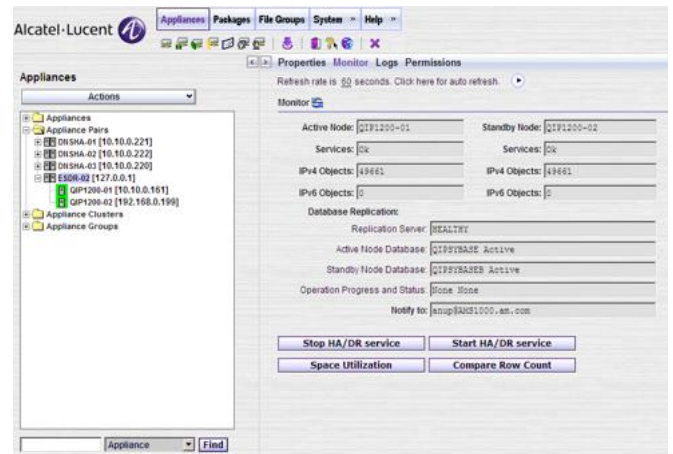
Troubleshooting and Monitoring

The Troubleshooting and Monitoring screen (which is shown in the second screenshot below) is the main AMS screen that is used to troubleshoot failover problems that may happen to occur. The overall health of each node is also shown, including a current count of the respective IPv4 and IPv6 objects for quick comparison. If an unexplained failover problem happens to occur and help is needed, log files can be pulled from either machine and sent to Alcatel-Lucent Support for analysis. The Services can be stopped and started, and space utilization can be viewed. A detailed comparison of the two databases can also be done. These tools will help to keep your VitalQIP environment running non-stop and minimize your administrative costs.

Configuration



Troubleshooting and Monitoring



Features

- VitalQIP data synchronization and recovery
- High Availability and Disaster Recovery Options
- No loss of transactions
- Single point of contact (Alcatel-Lucent) in case of problems
- Monitoring and Troubleshooting with AMS GUI
- Sybase Replication Server for high performance, scalability, security and guaranteed data delivery in near-real time

Platform support

- QIP 1200 and higher hardware appliances
- Software/Virtual Appliances also available (Contact Alcatel-Lucent)

Software requirements

- VitalQIP R7.3 or higher
- VitalQIP Appliance Manager (included with VitalQIP Appliances)
- Sybase Replication Server (provided with ESM-HA/DR feature)

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