OPENSTACK FOR APPLICATIONS. BARE METAL FOR TRADITIONAL DATABASES AND BIG DATA.

INTRODUCTION:

Savvy organizations are adopting cloud technologies for rapid scalability, cost reduction, and automation. While many application workloads run efficiently in a cloud environment, sometimes the cloud database servers, which support those applications, may suffer from unpredictable performance when they run in the same virtual environment as the applications.

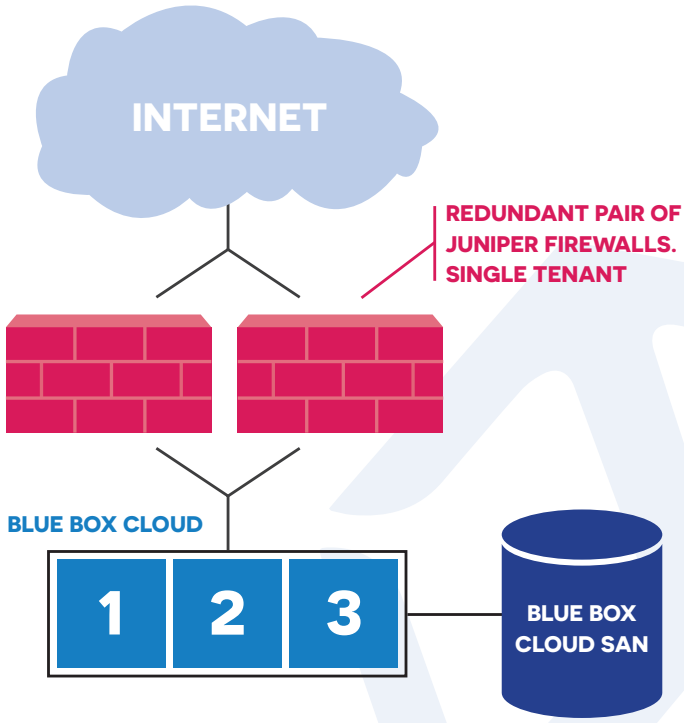
There can be a number of constraints on database servers in cloud environments:

- Insufficient RAM provisioning to allow for efficient database operations.
- Competing workloads on the CPUs.
- I/O starvation.
- Unfavorable cloud licensing policies from commercial database vendors.
- No space-efficient snapshots of data tables for disaster recovery.

This white paper discusses the typical database problems in the cloud and the solutions that Blue Box offers to address these problems with Blue Box Cloud Bare Metal Server offerings.

THE BLUE BOX CLOUD SOLUTION:

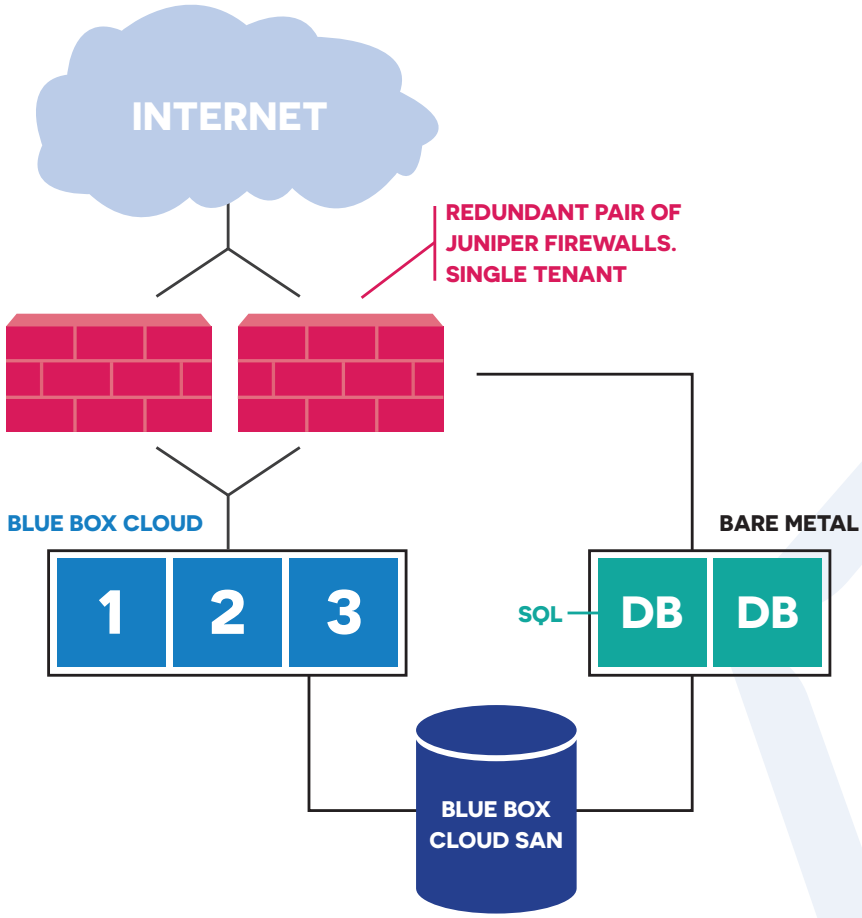
The standard Blue Box Cloud environment is a 3-node OpenStack deployment based on the latest release of OpenStack. This is a single tenant deployment where the customer receives dedicated access to compute and storage resources.



Typical Blue Box Cloud Configuration

Using a private cloud with single tenant compute and storage resources produces stable and predictable application server results. However, installing and configuring a mission-critical database can be challenging and expensive. Running database servers as bare metal boxes allows organizations to separate databases from the application servers. Isolation of database workloads from competing application workloads provides massive scalability for cloud environments. Additionally, coupling a bare metal database with SAN/SSD storage eliminates I/O starvation in the cloud. Blue Box provides high-performance, dedicated SAN/SSD storage using Nimble CS300 as the storage platform.

Beyond performance concerns, cloud adopters must consider the licensing implications of running commercial databases in the cloud. Many of the major commercial database vendors charge licensing fees based on a formula of the total core-count physically present on the server even if that database is configured to consume only a fraction of the resources available. The only solution to reduce licensing liability in a non-proprietary cloud infrastructure is to provision a bare metal database with a low number of physical cores.



Typical Blue Box Cloud Configuration with SAN & Bare Metal Servers

The Blue Box Cloud Bare Metal Server offerings can help you solve many cloud database problems. Here are some of the most common use cases for bare metal database servers.

USE CASE #1:

Reduce licensing liability for commercial RDBMS package.

Blue Box offers a 6-core bare metal server with 64GB of RAM for clients who need high performance databases and want to control licensing costs on their commercial databases. Organizations that rely on commercial database software can harness the performance of dedicated database servers and reduce their overall license burden to the RDBMS vendor.

USE CASE #2:

High I/O database server for RDBMS workload.

Our 20-core bare metal server with 128GB of RAM, SSD disks, and 10GB network interfaces is perfect for clients who need high I/O databases and do not have pay-per-core license constraints on the RDBMS software. Users of commercial RDBMS packages can also use this configuration for fast Data Warehouse and Business Intelligence workloads.

USE CASE #3:

Maximum RAM configuration for In-Memory Database workloads.

Our 12-core bare metal server with 256GB of RAM and 10GB network interfaces is designed for extreme I/O performance. Database administrators can choose to run the entire database in RAM for the fastest possible I/O.

USE CASE #4:

Maximum local storage for NoSQL or Hadoop workloads.

For data-intensive workloads, our 12-core bare metal server with 128GB of RAM and 24TB of local disk storage is ideal. Clients using Big Data analytics can benefit from bare metal performance and a huge quantity of local storage per node.

ENHANCING THE CLOUD AND BARE METAL SERVERS.

Combining Blue Box Cloud and Bare Metal with dedicated Juniper Firewalls and a Nimble SAN produces a cloud environment with maximum performance and security for production workloads in the cloud.

DEDICATED JUNIPER SRX240 FIREWALLS:

The SRX240 firewall has 16 physical network interfaces and processes standard firewall packets at 1.8Gb/sec. The firewall supports up to 300Mb/sec of AES VPN throughput. Blue Box deploys Juniper SRX240 firewalls as a highly redundant pair of devices. Bare metal servers can be isolated on separate subnets from the cloud environment if desired.

BLUE BOX PRIVATE BLOCK STORAGE (POWERED BY NIMBLE):

In addition to the server configurations listed above, Blue Box clients can include a powerful Nimble CS300 with the cloud and bare metal configurations. Because this high performance storage is dedicated to an individual customer, there is no multi-tenancy contention for I/O resources. Additionally, the Nimble CS300 utilizes 4 SSD disks within the storage chassis to boost customers up to 30,000 IOPS per chassis without any special configurations to the cloud or bare metal servers.

CONCLUSION:

Blue Box Cloud provides unequaled agility, avoiding the burden of designing, deploying and managing your own infrastructure. By adding a Blue Box Cloud Bare Metal configuration, organizations running data-intensive applications can ensure optimal performance, while reducing commercial license liabilities.

ABOUT BLUE BOX

Blue Box delivers Private Cloud as a Service (PCaaS) to customers worldwide. The company's technology platform leverages decades of operational expertise in cloud and distributed systems to deliver Blue Box Cloud—a managed, hosted private cloud on dedicated hardware, powered by OpenStack and available and scalable on demand. Blue Box Cloud delivers core benefits of both public and private clouds in one offering. Blue Box meets the control, performance, and security needs of customers in a wide range of industries, including healthcare, financial services, digital media, gaming, technology and retail. Learn more about Seattle-based Blue Box at **blueboxcloud.com** or find Blue Box on Twitter at **@bluebox**.