    - Cloud Gateway
- Containerization

Introduction

Like any software, IdentityIQ installations require various computing resources for operation. While each installation may have different functional requirements, we can make generalizations for physical or virtual hardware that work for most situations. The aim of a sizing guide is to help an IdentityIQ customer answer the simple question: *What computing resources must we purchase or allocate to support IdentityIQ?* While this question requires some analysis of site-specific performance goals, the vast majority of installations do not need a complicated review to arrive at a hardware recommendation for an IdentityIQ system.

For software sales or deployment professionals, the process of creating a hardware sizing recommendation is a process of gathering functional requirements of how IdentityIQ will be used and then producing a diagram with specifications for hardware that IdentityIQ will run on. Recommendations herein do the majority of that work for you and introduce a simple process for doing hardware sizing via common "footprints". Guides for determining which footprint an IdentityIQ installation should be using are provided below.

Virtualization questions may arise, and despite this document mentioning "hardware", realize that is a generalized term for discussion about compute resources. Many customers of all shapes and sizes have virtualized all system components (IdentityIQ hosts, database or DB servers, IQService, etc.). Furthermore, when cloud platforms are involved (e.g. Amazon Web Services or Microsoft Azure), consider that we do have specific recommendations for some platforms on our IdentityIQ Performance Resources landing page. When in doubt, know that the hardware sizing advice here can be leveraged as a starting point, regardless of hosting platform.

Hardware resource allocation also requires architecture strategy. Be sure to review our Recommended IdentityIQ Deployment Architectures document in tandem with this guide.

Performance tuning is an important part of any deployment. Consider our related resources here when planning: IdentityIQ Performance Resources.

While this guide is targeted at currently-supported versions of IdentityIQ, many of the recommendations here apply to early versions as well. See the IdentityIQ End of Life Policy for more details on what constitutes a current IdentityIQ version.

Hardware Footprints

IdentityIQ installations come in many shapes and sizes. Experience has shown that over 95% of IdentityIQ installations can be easily grouped into one of five "footprints". A footprint is a hardware deployment topology that supports an IdentityIQ installation of a certain scale. The five footprints in the table below represent the most common installation layouts used with IdentityIQ. These specifications target a 2-3 year life cycle for reasonable growth of the system.

All but the smallest scale deployments separate the function of serving responses to user interface requests (UI) from the function of performing long-running background tasks (task/batch). The most straightforward way to segment these roles is to use multiple servers (VMs or physical), each assigned a function category. These two tiers are commonly called "UI servers" and "batch/task servers". The terms "presentation layer" and "background layer" are also used, respectively. Separating these two functions provide many performance and redundancy benefits, and this is highlighted in our footprint sizes of medium and larger.

Consider that SailPoint no longer recommends the use of 32-bit Java or operating systems. 64-bit hardware and software is recommended for all installations, regardless of footprint.

Storage space (i.e. block storage or disk) recommendations do not account for operating system minimums. Numbers provided here are only for IdentityIQ or related software aspects. Please consider this when quoting storage and add additional space as needed for your operating system platform.

Refer to our Performance Management Guide for IdentityIQ to clarify details regarding various CPU, memory, and storage recommendations.

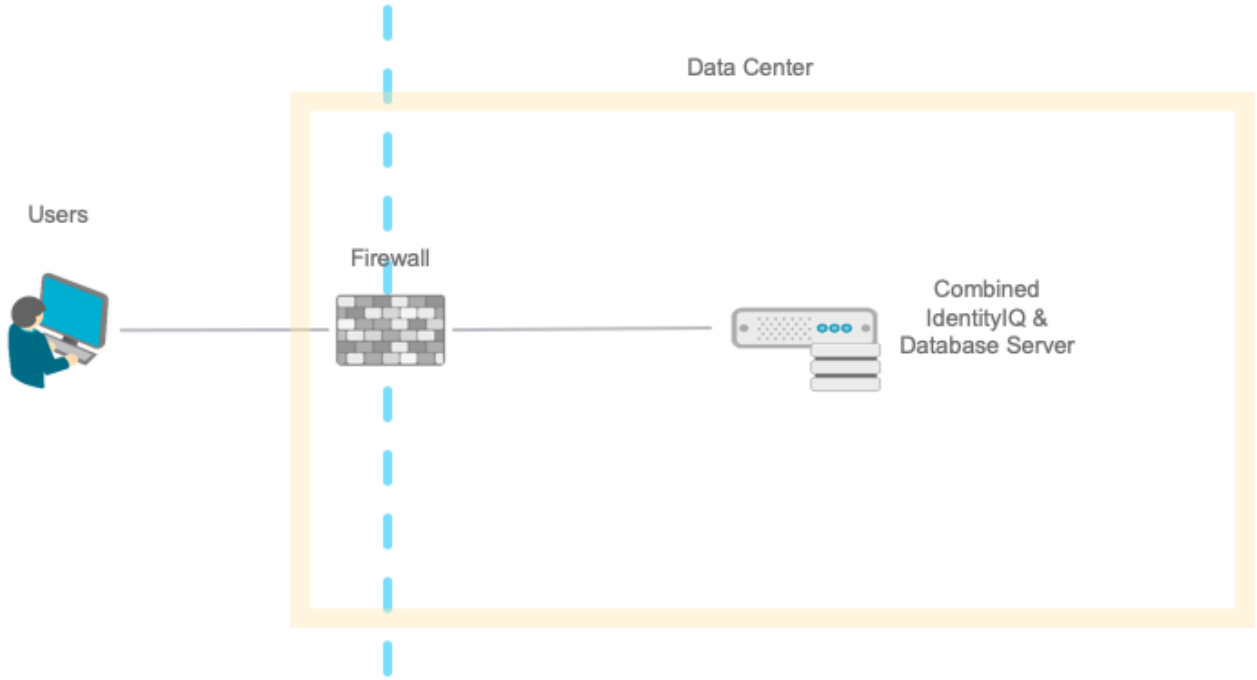
Footprint	Description
Micro	Very small, non-production installations of up to 5,000 Identity objects. An "all in one" platform can be used to meet this requirement. This single host would include the relational database management system (RDBMS or DBMS) and servlet container necessary to support IdentityIQ.
Small	Installations of up to 10,000 Identity objects. This size may utilize a "matched pair" of hosts to provide a form of redundancy.
Medium	Installations from 10,000 to 50,000 Identity objects. These can be configured as a 2, 3, or 4 host configurations. In many cases, roles for UI and Task functions are broken apart onto separate IdentityIQ hosts.
Large	Installations of 50,000 to 500,000 Identity objects. These are most frequently configured as 2 UI/Presentation servers, 2 Batch/Task servers, and 1 DB server. In some cases, customers may also create an active/passive architecture to create a disaster recovery environment.

Call	Short for "Please call SailPoint!"; applies to installations over 500,000 Identity objects. These are the extra large installations that usually start off with a large footprint and then expand based on site-specific needs. Installations at this scale may involve 3 to 8 Task servers and/or 2 to 5 UI servers, depending on use cases involved. Installations of this size require a solution architect's review of the use cases to help specify additional servers based on the needs of the installation.

Micro Footprint Installations

These are the smallest installations of IdentityIQ, usually used for sandbox or development environments. All components, including the RDBMS, servlet container, and IdentityIQ, are all running on one operating system image. The virtual machines (VMs) used in SailPoint's training classes and on many developer's workstations are examples of micro footprint installations. Installations of "micro" scale should not be used for production use because they lack redundancy and scalability features.

- 1 x combined DBMS & IdentityIQ host, with:
  - 1-2 CPU
  - 2 GB of memory, 4 GB or more preferred
  - 40 GB of block storage for IdentityIQ binaries, logs, and DB

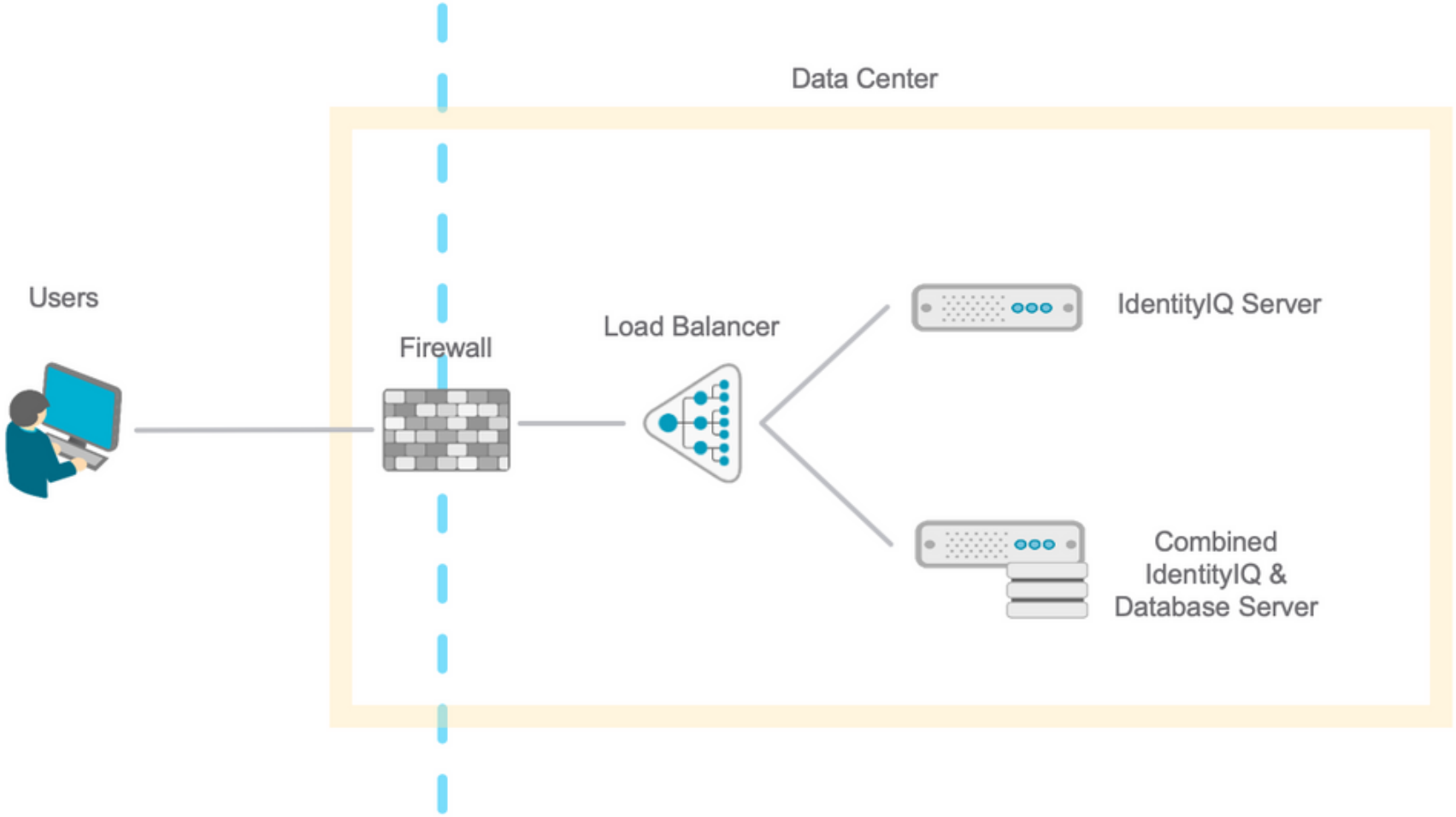


Note: A micro footprint installation might not involve a firewall as shown in the diagram when it is installed as a virtual machine on a developer's PC/Mac and accessed only by a single, local user.

Small Footprint Installations

These are installations of IdentityIQ designed for relatively small enterprises. These installations can chose to separate the DB functionality to a separate host or run it alongside one of the IdentityIQ application server instances. These are usually specified as a pair of virtual machine images or physical servers. Both hosts in the pair of servers accept UI traffic and run task/batch operations. At this scale, the batch operations rarely put noticeable load on the hosts.

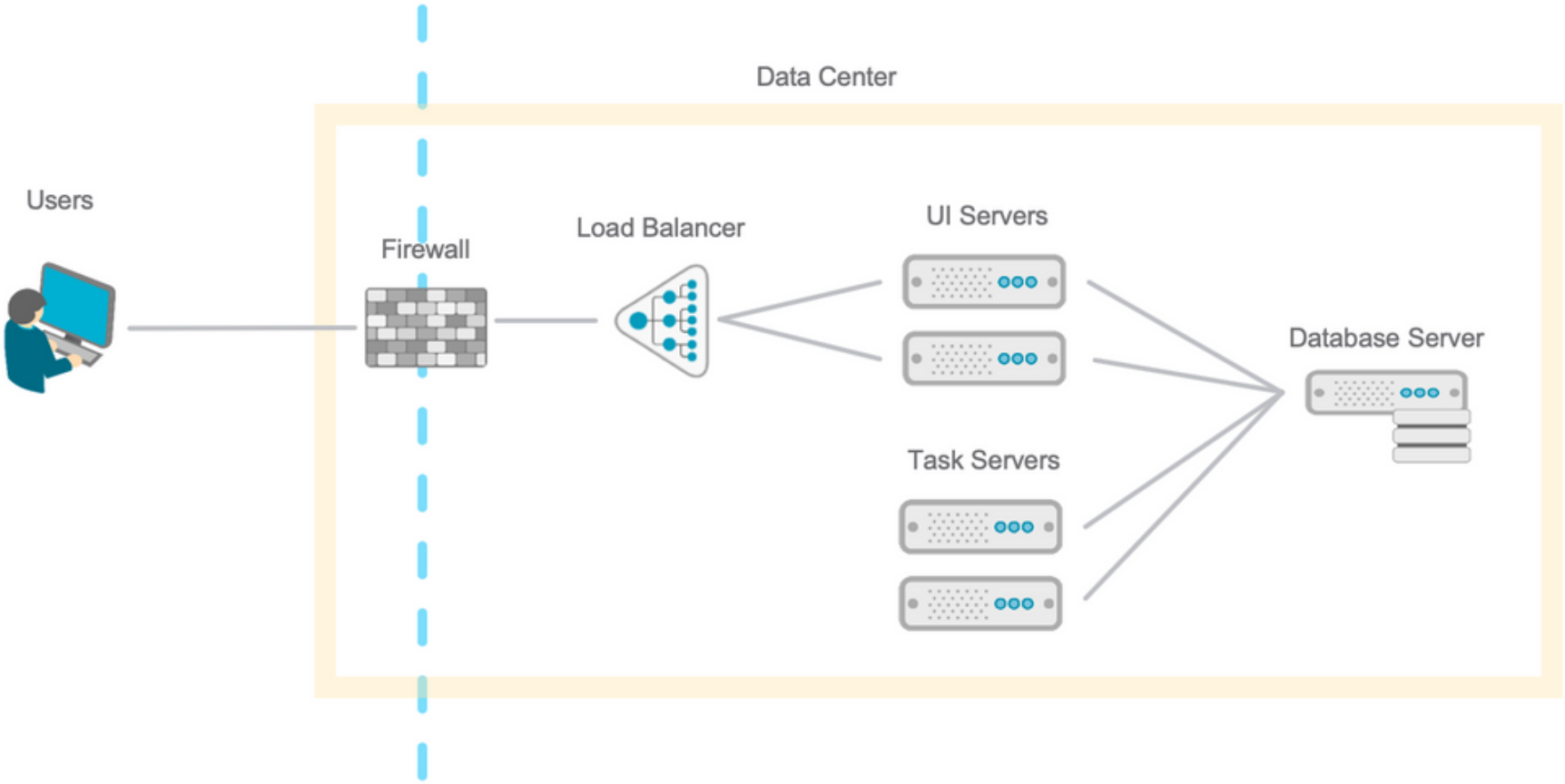
- 2 x IdentityIQ hosts (one combined with RDBMS), each with:
  - 4 CPU
  - 8 GB of memory
  - 50 GB of storage for IdentityIQ binaries and logs
  - 250 GB of RAID-protected DB storage



Medium Footprint Installations

These installations fit most medium-size enterprises and start to separate the UI and batch/task layers for performance benefits, typically designating two UI hosts and two batch/task hosts. Installations at this scale often have a substantial volume of data to process during account aggregation tasks. Thus, this scale requires the separation and dedication of a relational database host. Load balancing systems are also strongly recommended with medium configurations to provide for load distribution and redundancy at the UI layer.

- 2 x IdentityIQ batch/task hosts, each with:
  - 4 CPU
  - 8 GB of memory
  - 50 GB of storage space for IdentityIQ binaries and logs
- 2 x IdentityIQ UI hosts, each with:
  - 4 CPU
  - 8 GB of memory
  - 50 GB of storage space for IdentityIQ binaries and logs
- 1 x Dedicated DB server host, with:
  - 8 CPU
  - 64 GB of memory
  - 500 GB of RAID-protected DB storage



Large Footprint Installations

Large installations of IdentityIQ include enterprises that manage up to half-a-million Identity cubes. These installations usually have material requirements and service level agreements for aggregation times and responsiveness of the application; performance tuning may be required to meet project goals. Load balancers for the UI layer should be considered a requirement. In addition, many customers opt to have a database cluster, thus, our notation here about one database host is simply the *minimum* for system design; the sample diagram shows a database cluster with asynchronous replication, which is more robust. Implementers that decide additional capacity is required beyond our initial estimates here are advised to first keep the compute resources of the database host constant while adding one or two batch/task and/or one or two UI servers; this is equivalent to horizontal scaling.

- 2 x IdentityIQ batch/task hosts, each with:

    - 4 CPU
    - 16 GB of memory
    - 50 GB of storage space for IdentityIQ binaries and logs
- 2 x IdentityIQ UI hosts, each with:
    - 4 CPU
    - 8 GB of memory
    - 50 GB of storage space for IdentityIQ binaries and logs
- 1 x Dedicated DB server host, with:
    - 16 CPU
    - 128 GB of memory
    - 1 TB of RAID-protected DB storage
    - Database clustering highly recommended