

# HPE Shadowbase Support for IBM Db2®



## Recognize New Advantages

Leveraging HPE Shadowbase solutions brings mission-critical advantages to businesses at an attractive cost. Shadowbase software supports IBM Db2 uni-directional and reciprocal replication to any Shadowbase target database, without requiring any changes to the application. The Db2 source database can be on any IBM source environment/platform such as AIX, HP-UX, Linux, Solaris, Windows, z/OS, and more. In certain architectures, such as a z/OS IBM mainframe Db2 source or target, no Shadowbase components are required to be installed on the z/OS system itself; Shadowbase software leverages IBM software components for Db2 event processing (see below).

Businesses must react with pivotal, real-time business decisions while ensuring business continuity. These requirements challenge IT departments attempting to integrate data and applications, ensure audit compliance, validate database consistency, protect database changes from ransomware, authenticate database changes, and manage data bottlenecks. These needs are addressed utilizing HPE Shadowbase software's extensible and scalable architecture.

## Extensibility and Scalability with Low Latency

Figure 1 shows HPE Shadowbase replication from a Linux, Windows, or AIX Db2 source database into an HPE NonStop target environment. This architecture requires a Db2 client connection into the Db2 source database in order for Shadowbase software to extract Db2 table schema information (similar to any other application that accesses the Db2 database). It works with any MQ version supported by IBM InfoSphere Data Event Publisher (IDEP):

1. Shadowbase software uses IDEP on the source environment to extract the application's transactional database changes from the Db2 change log and feed them into IBM MQ Series for transport.
2. Then, MQ on the source environment publishes the source transactional database changes into a queue for Shadowbase replication to process.
3. Shadowbase Collection reads the events from the MQ queue.
4. Shadowbase software uses Db2 Connect to retrieve Db2 table schema information for the tables it is replicating.
5. Shadowbase replication then forwards the data to any supported Shadowbase target environment (an HPE NonStop Server in this example).
6. Shadowbase software on the target system receives the events and applies them to the target database.

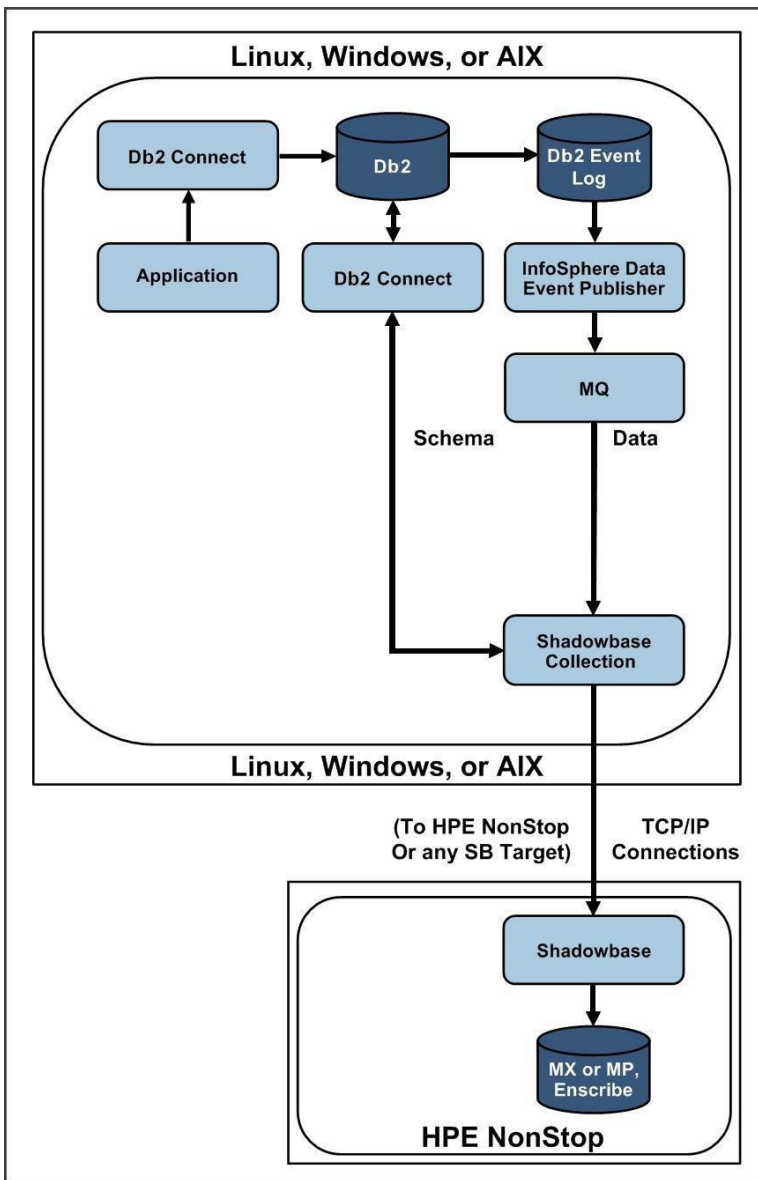


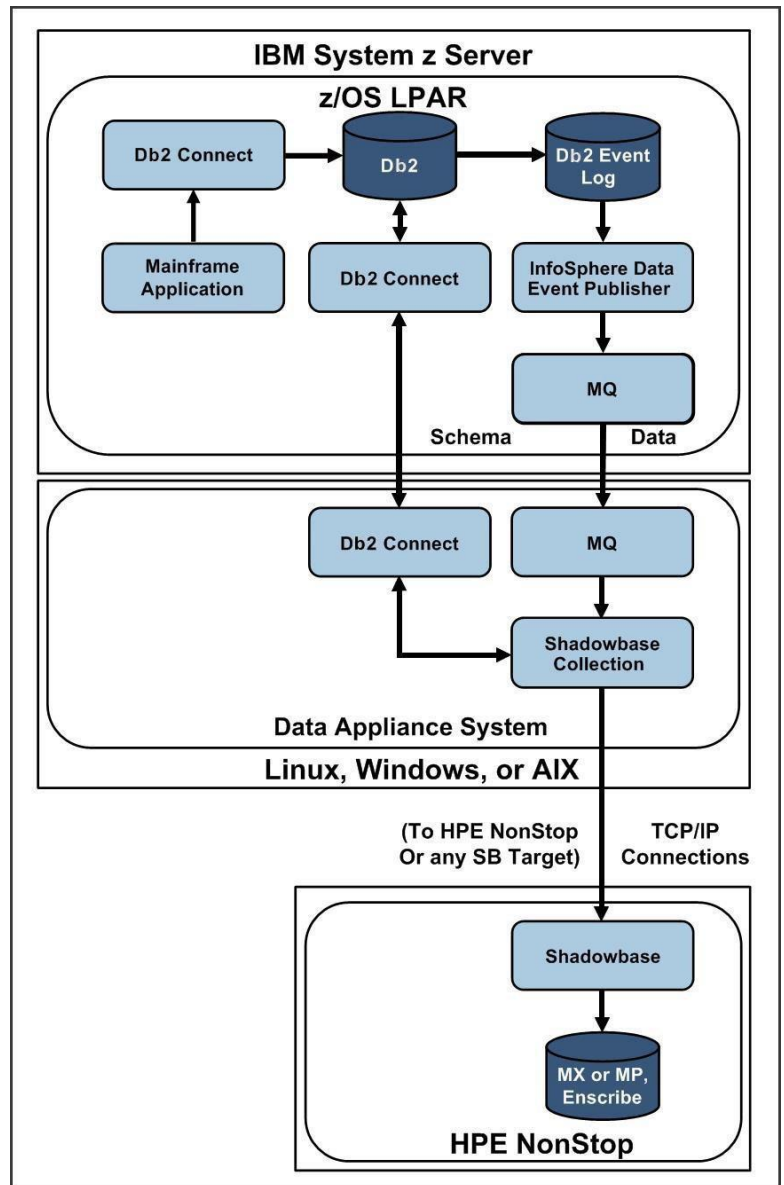
Figure 1 – Replication from Db2 on Linux, Windows, or AIX to HPE NonStop

When the Db2 database is on a platform other than Linux, Windows, or AIX (e.g., z/OS or AS/400), Shadowbase software runs on an intermediate Data Appliance system that has the MQ API and Db2 client access to the database.

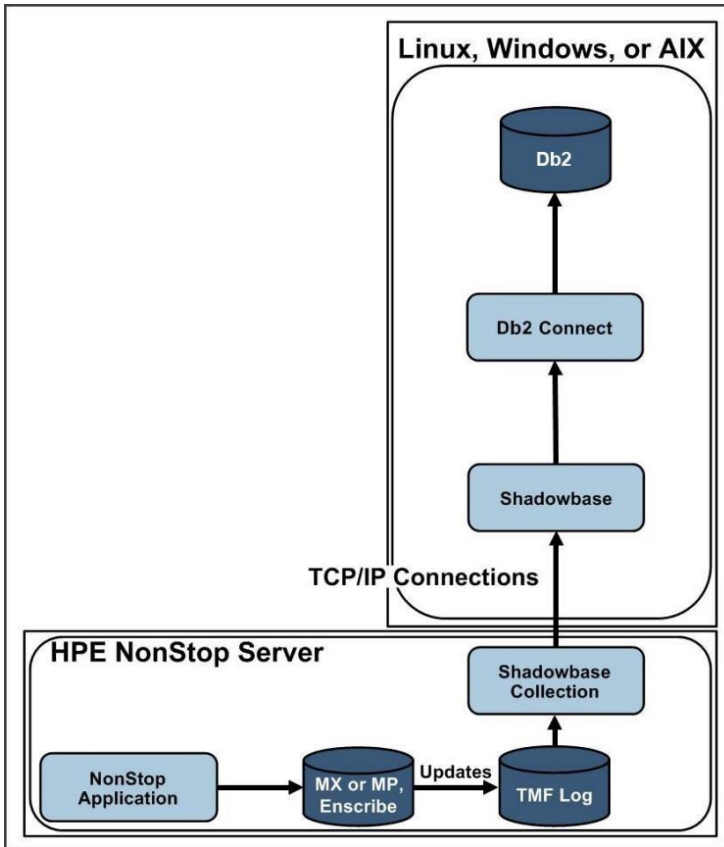
Figure 2 shows HPE Shadowbase replication from an IBM z/OS mainframe Db2 source database into an HPE NonStop target environment:

1. The Mainframe Application updates the Db2 database.
2. The Db2 database changes are written into the Db2 Event Log.
3. Then, IDEP publishes the Db2 events to an MQ queue located on an intermediate data appliance (Linux/Windows/AIX).
4. Shadowbase Collection on the intermediate data appliance reads the events from the MQ queue and forwards them to the target system (an HPE NonStop Server in this example).
5. Shadowbase software uses Db2 Connect to retrieve Db2 table schema information for the tables it is replicating.
6. Shadowbase software on the target system receives the events and applies them to the target database.

It is important to note that this architecture supports system durability (fault tolerant and highly available). Multiple data appliance systems can route to the same or different destinations. Additionally, once the data is in Shadowbase Collection, more actions can be taken (e.g., processing through a real-time fraud detection system.)



**Figure 2 – Replication from Db2 in a z/OS LPAR Environment via a Data Appliance to HPE NonStop**



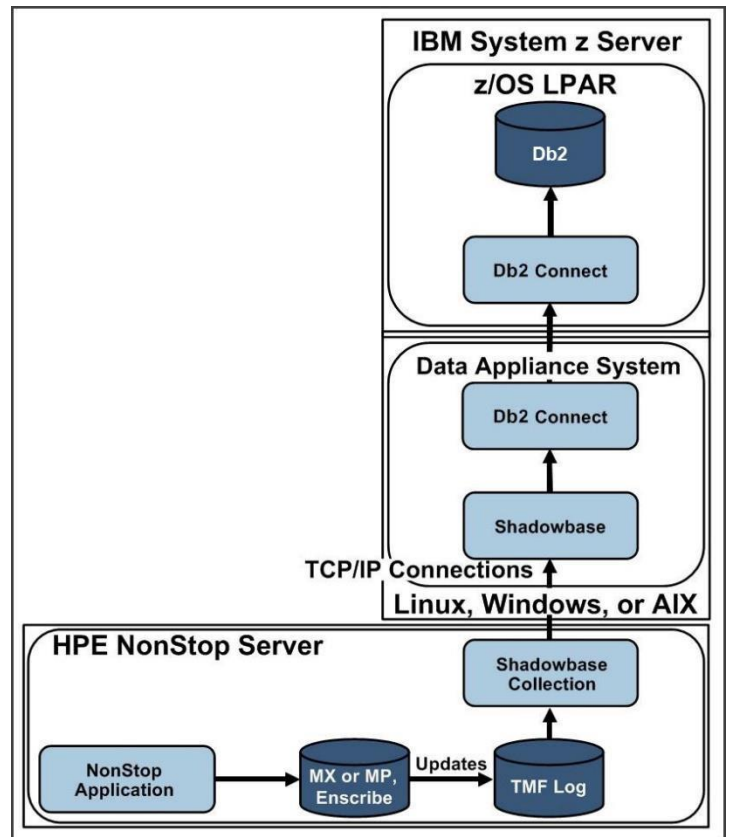
**Figure 3 – Replication from HPE NonStop to Db2 on a Linux, Windows, or AIX Platform**

Figure 3 shows HPE Shadowbase replication from an HPE NonStop source database to a Db2 target database on Linux, Windows, or AIX:

1. NonStop Application updates audited SQL/MX, SQL/MP, and/or Enscribe source files and tables
2. These changes are recorded in the TMF audit log, which is read by the Shadowbase Collection software
3. The changes are then sent over a TCP/IP connection to Shadowbase replication on the Linux, Windows, or AIX system
4. Shadowbase software directly applies the changes, using transaction semantics, into the Db2 database using a Db2 Connect connection

Figure 4 shows HPE Shadowbase replication from an HPE NonStop source database to a Db2 target database on an IBM mainframe z/OS environment. Note that it will use a Linux, Windows, or AIX “data appliance” system for the Shadowbase processes:

1. NonStop Application updates audited SQL/MX, SQL/MP, and/or Enscribe source files and tables
2. These changes are recorded in the TMF audit log, which is read by the Shadowbase Collection software
3. The changes are then sent over a TCP/IP connection to the Shadowbase software running on a Linux, Windows, or Unix “data appliance” system
4. Shadowbase software on the data appliance system applies the changes, using transaction semantics, into the Db2 database using a Db2 Connect client connection to the Db2 database



**Figure 4 – Replication from HPE NonStop to Db2 on an IBM System z Server**

## Summary

HPE Shadowbase support for IBM Db2 is extensive and scalable to meet your architectural and performance requirements. Leverage Shadowbase solutions to easily integrate your Db2 data with the rest of your processing infrastructure, including HPE NonStop. The Db2 database can act as a source, a target, or both in the Shadowbase replication architecture.

HPE Shadowbase software's total cost of ownership (TCO) is one of the lowest in the industry. You can now integrate your IBM Db2 database data with the rest of your processing environments – simply, easily, safely, and at an affordable cost.

Hewlett Packard Enterprise globally sells and supports Shadowbase solutions under the name HPE Shadowbase. For more information, please contact your local HPE Shadowbase representative or visit our website. For additional information, please view our Shadowbase solution videos: <https://vimeo.com/shadowbasesoftware>.

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