CLAIMS

1. A method of data processing in a data processing environment, including physical first and second data processing systems, wherein the first data processing system is a source host and the second data processing system is a destination host, the method comprising:

executing on one or more physical processor cores of the source host one or more hardware threads of execution of a logical partition, wherein each hardware thread among the one or more hardware threads has a respective thread state including contents of registers in a physical processor core executing said each hardware thread;

the source host coordinating migration of the logical partition from the source host to the destination host utilizing communication via a network connection;

performing a live migration, via a physical link controller in the source host and a physical communication link coupling the source host and destination host, of a dataset of the logical partition while one or more hardware threads of the logical partition are executing on the source host from a system memory of the source host to a system memory of the destination host, wherein the source host is a separate physical data processing system from the destination host and is non-coherent with respect to the destination host, and wherein performing the live migration includes refraining from using the network connection to migrate the dataset from the source host to the destination host;

after migrating at least a portion of the dataset, migrating, from the source host to the destination host via the link controller and the communication link, a state of the logical partition, wherein the state of the logical partition includes a respective thread state of each of the one or more hardware threads of the logical partition; and

after migrating the state of the logical partition to the destination host, executing the one or more threads of the logical partition on the destination host.

2. The method of Claim 1, wherein performing live migration of the dataset includes migrating at least some of the dataset of the logical partition from the source host to the destination host after execution of the one or more hardware threads of the logical partition begins on the destination host.

3. The method of Claim 1, wherein performing live migration of the dataset includes the source host copying one or more memory pages of the dataset from system memory in the source host to system memory in the destination host based on requests of the destination host.

4. The method of Claim 1, wherein performing live migration of the dataset includes the source host initiating copying of one or more memory pages of the dataset from system memory in the source host to system memory in the destination host.

5. The method of Claim 1, wherein:

the dataset includes a plurality of memory pages, each having a respective associated page table entry defining a virtual-to-real address translation for the associated memory page; and

the method further comprises the source host tracking in a data structure which page table entries for the plurality of memory pages have been migrated to the destination host.

6. The method of Claim 1, wherein:

the source host includes a physical system fabric and a physical link controller physically and communicatively coupled to the system fabric; and

performing live migration of the dataset includes:

the source host issuing, on the physical system fabric, a store request specifying an address in a system memory of the destination host; and

the physical link controller in the source host receiving the store request on the system fabric and, based on the address, transmitting the store request via the communication link to a memory controller within the destination host.

7. The method of Claim 1, wherein performing live migration of the dataset includes the source host performing a bulk flush of all memory pages in the dataset that are subject to update by the source host from the caches of the source host to system memory.

8. A data processing system that is a source host, the data processing system comprising:

a physical system fabric;

a system memory;

a memory controller of the system memory, wherein the memory controller is physically and communicatively coupled to the system fabric and to the system memory;

a physical link controller physically and communicatively coupled to the system fabric and configured to be physically and communicatively coupled, via a communication link, to a destination host that is a separate physical data processing system from the source host, wherein the source host is non-coherent with respect to the destination host; and

a plurality of physical processor cores communicatively coupled to the system fabric, wherein each physical processor core among the plurality of physical processor cores processes one or more hardware threads of execution each having a respective thread state including contents of registers in that physical processor core, and wherein the plurality of physical processor cores is configured to execute one or more hardware threads of a logical partition having a dataset residing in the system memory and to perform live migration, to the destination host via the link controller and the communication link, of the logical partition while the one or more hardware threads of the logical partition are executing on the source host by:

coordinating migration of the logical partition from the source host to the destination host utilizing communication via a network connection;

migrating, from the system memory of the source host to a system memory of the destination host, via the link controller and the communication link, the dataset of the logical partition while the one or more threads of the logical partition are executing on the source host, wherein migrating the dataset includes refraining from using the network connection to migrate the dataset;

after migrating at least a portion of the dataset, migrating, via the link controller and the communication link, a state of the logical partition from the source host to the destination host, such that the one or more hardware threads of the logical partition thereafter execute on the destination host, wherein the state of the logical partition includes a respective thread state of each of the one or more hardware threads of the logical partition.

9. The data processing system of Claim 8, wherein migrating the dataset includes migrating at least some of the dataset of the logical partition from the source host to the destination host after execution of the one or more hardware threads of the logical partition begins on the destination host.

10. The data processing system of Claim 8, wherein migrating the dataset includes the source host copying one or more memory pages of the dataset from system memory in the source host to system memory in the destination host based on requests of the destination host.

11. The data processing system of Claim 8, wherein migrating the dataset includes the source host initiating copying of one or more memory pages of the dataset from system memory in the source host to system memory in the destination host.

12. The data processing system of Claim 8, wherein:

the dataset includes a plurality of memory pages, each having a respective associated page table entry defining a virtual-to-real address translation for the associated memory page; and

the plurality of physical processor cores is further configured to perform:

tracking in a data structure which page table entries for the plurality of memory pages have been migrated to the destination host.

13. The data processing system of Claim 8, wherein migrating the dataset includes:

the source host issuing on the system fabric of the source host a store request specifying an address in a system memory of the destination host; and

the link controller of the source host receiving the store request and, based on the address, transmitting the store request via the communication link to a memory controller within the destination host.

14. The data processing system of Claim 8, wherein migrating the dataset includes the source host performing a bulk flush of all memory pages in the dataset that are subject to update by the source host from the caches of the source host to system memory.

15. A program product, comprising:

a computer-readable storage device; and

program code, stored within the computer-readable storage device, which when executed by a physical first data processing system serving as a source host causes the first data processing system to perform:

live migration of a logical partition to a physical second data processing system serving as a destination host, wherein live migration of the logical partition includes:

executing on one or more physical processor cores of the source host one or more hardware threads of execution of the logical partition, wherein each hardware thread among the one or more hardware threads has a respective thread state;

coordinating migration of the logical partition from the source host to the destination host utilizing communication via a network connection;

performing a live migration, from a system memory of the source host to a system memory of the destination host via a physical link controller in the source host and a physical communication link coupling the source host and destination host, of a dataset of the logical partition while the one or more hardware threads of the logical partition are executing on the source host, wherein the source host is a separate physical data processing system from the destination host and is non-coherent with respect to the destination host, and wherein performing the live migration includes refraining from using the network connection to migrate the dataset from the source host to the destination host;

after migrating at least a portion of the dataset, migrating, from the source host to the destination host via the link controller and communication link, a state of the logical partition, wherein the state of the logical partition includes a respective thread state of each of the one or more hardware threads of the logical partition; and

after migrating the state of the logical partition to the destination host, executing the one or more hardware threads of the logical partition on the destination host.

16. The program product of Claim 15, wherein performing live migration of the dataset includes migrating at least some of the dataset of the logical partition from the source host to the destination host after execution of the one or more hardware threads of the logical partition begins on the destination host.

17. The program product of Claim 15, wherein performing live migration of the dataset includes the source host copying one or more memory pages of the dataset from system memory in the source host to system memory in the destination host based on requests of the destination host.

18. The program product of Claim 15, wherein performing live migration of the dataset includes the source host initiating copying of one or more memory pages of the dataset from system memory in the source host to system memory in the destination host.

19. The program product of Claim 15, wherein:

the dataset includes a plurality of memory pages, each having a respective associated page table entry defining a virtual-to-real address translation for the associated memory page; and

the program code further causes the source host to track in a data structure which page table entries for the plurality of memory pages have been migrated to the destination host.

20. The program product of Claim 15, wherein performing live migration of the dataset includes:

the source host issuing on a physical system fabric in the source host a store request specifying an address in a system memory of the destination host; and

receiving, by a physical link controller in the source host that is physically and communicatively coupled to the system fabric and to the communication link, the store request on the system fabric and, based on the address, transmitting the store request via the communication link to a memory controller within the destination host.

21. The program product of Claim 15, wherein performing live migration of the dataset includes the source host performing a bulk flush of all memory pages in the dataset that are subject to update by the source host from the caches of the source host to system memory.