HP NonStop Core Licensing

A new option for the NB54000c and NB54000c-cg Integrity BladeSystems

For NonStop Customers

Karen Copeland
NonStop Enterprise Division

©2012 Hewlett-Packard Development Company, L.P.
The information contained herein is subject to change without notice
Agenda

- Introduction & Terminology
- Core licensing concepts and benefits
- Details of how core licensing works
- What’s supported today
- Q & A
Introduction

This presentation describes a new function that allows customers to choose to have 2-cores (or IPUs) active in all CPUs when they purchase a new NB54000c or NB54000c-cg platform. In the past this platform was only available with a high end 4-core capability.
Terminology

A few clarifications on terminology used in this presentation:

- “Core”: The core licensing program uses the term “cores” to refer to the IPUs (Instruction Processing Units) that exist in each processor on the system. When we refer to “a core” in this document we mean IPUs.

- Core “enablement”: “Enablement” refers to the number of cores the customer is allowed to run on their system based on what is listed in the core license on their system.

- NB54000c and NB54000c-cg: Throughout this slideshow when referring to the NB54000c, we also mean that the same item applies equally to the NB54000c-cg. From the software point of view and where core licensing is concerned, the two systems behave exactly alike.
Background

• In 2011, HP introduced new Integrity NonStop BladeSystems targeted to our high end market. The NB54000c BladeSystem is based on the Intel® Itanium 9300 series processors.

• Today each CPU on the NB54000c comes with 4 cores enabled as the default.

• The 4-core NB54000c continues to be well received by customers who need the power that 4 active cores on a NonStop server can provide.

• HP wanted to offer a new 2-core platform based on the Intel® Itanium 9300 series processor and envisioned this as an opportunity to add some new flexibility to the product line.
HP Integrity NonStop BladeSystems

New dimensions in scalability

• Starting with J06.13, customers can purchase a NB54000c with 2-cores enabled at a lower software price point.

• The 2-core NB54000c can be upgraded to a 4-core NB54000c to increase the system’s performance and capacity anytime during the life of the platform.

  • Software price is based on the core option selected.
  • Increased capacity is achieved in the same system footprint.
  • No hardware changes or downtime required to upgrade to a 4 core system.
Core licensing concepts

With J06.13, HP introduces software changes that read a new core license file on the NB54000c BladeSystem.

The NonStop OS uses this file to determine what core level a customer has purchased for the NB54000c and to enable either 2 or 4 cores to run in all CPUs on the system.
Core Licensing

- The *core license* is installed by HP before the system ships so it is already in place when the customer receives their system.
- Core licensed systems are installed like any other NonStop system when received by the customer.
Core Licensing

- The core license is installed by HP before the system ships so it is already in place when the customer receives their system.

- Core licensed systems are installed like any other NonStop system when received by the customer.

- HP tests that the system works at both the 2-core and 4-core enablement before shipping.
Customer benefits - Savings

• The software price on the NB54000c platform is less expensive when purchased with a 2-core enablement.

• The Integrity NonStop NB50000c platform which runs on the Intel® Itanium 9100 series processor is also a 2-core system.

• Software for the NB54000c system at 2-cores matches the NB50000c software pricing.

• The platform also continues to be offered at the 4-core enablement default available today.
Customer benefits - Performance

• The Integrity NonStop NB54000c uses the Intel® Itanium 9300 series processor.

• At 2-cores this processor provides a slight performance improvement over the NB50000c.

• This has been measured at about 6 to 8% depending on your application and environment.

• Moving to 4-cores offers you the same performance as the 4-core NB54000c today.
Customer benefit – Upgrade convenience

To upgrade your 2-core enabled NB54000c to 4-cores:

- Order a software upgrade for your system to go to 4-cores,
- Receive a core license file for your upgrade.
- Install the file on your system,
- All processors will begin using 4 cores instead of just 2 cores

No hardware purchase necessary and no downtime to plan.
Customer choices

Customers who feel they don’t need a 4-core system today and are concerned about costs, the best choice is:
• NB54000c with 2 cores enabled.
• A core upgrade is an option for the life of the system
• Some of customers may never decide to upgrade to 4 cores.

For customers who feel they don’t need a 4-core system today but want to be positioned in the future to go to 4-cores dynamically, the best choice is:
• NB54000c with 2 cores enabled w/ a plan for a future 4 core upgrade
• If the customer needs to perform the upgrade online they should consider the memory needs of their application at the 4-core level when they make their initial purchase

For customers who need the maximum capacity and performance available on NonStop the best choice remains:
• The NB54000c with 4 cores
• This is today’s default
Planning for 4-core upgrades - memory

• Does your system have enough memory?
  • The minimum amount of memory per CPU on the NB54000c (16GB) is sufficient to operate the system at either the 2-core or 4-core enablement.
  • Depending on the architecture of your application environment, customers may want to consider buying additional memory when they purchase their 2-core NB54000c.
  • Memory options offered today include 16GB to 64GB* per logical processor.
  • A key advantage of core licensing is the ability to increase the number of cores in use without a system outage, planning ahead can help you realize that advantage.

*64GB is a new capability now available in J06.13.
Planning for 4-core upgrades – application

• Will you need to rebalance your system?
  • When adding processors to a system, it’s recommended to rebalance your disk space, applications and databases across the system to take advantage of the additional processing power.
  • When upgrading processor cores, you will now have more power and throughput capability in every processor of the system. Depending on your reason for increasing cores, you may still need to rebalance the workload on the system, especially if you are adding additional applications.
  • As with all changes on your system, we recommend that you test changes on your development system before putting them into production.
Partners and core licensing

• HP will sell all software products on the 2-core platform at the same price as the NB50000c software.

• This includes partner products which are resold through the HP NonStop division.

• HP has been engaging external partners to discuss the NonStop software pricing strategy and encouraging them to offer their software at their NB50000c pricing for the NB54000c with 2-cores.
Core Licensing Details
NonStop Platforms that support core licensing

Only the Integrity NonStop BladeSystems:
NB54000c and NB54000c-cg are offered to customers with the option to purchase the system with either 2 cores or 4 cores enabled.
License files on these systems will be validated by the OS starting with J06.13.

The following platforms do not support core licensing:
- NB50000c and NB50000c-cg
- NS2200
- Any platform that runs H-series
- Any platform that runs G-series

The NonStop OS in J06.13, will not look for or validate a core license file on these system types.
What info is kept in the core license file?

The core license contains:

- The *system serial number* of the licensed system.
- The *number of CPUs* on the system.
- The *number of cores* that are enabled to run in each CPU.

Some basic rules and attributes about core license files:

- Core licenses are *not transferrable* to other systems.
- Core license files *cannot be generated* by any entity other than HP.
- The license file must be *installed in the* `$SYSTEM.ZLICENSE` subvolume and named “VLICNEW” or “VLICENSE”.
- The file must be *secured for network read*, “NGGG”
- The file must be *file type 407*. 
How is the core license used?

Starting with J06.13, on NB54000c systems, the NonStop OS will read the core license under two circumstances:

1) When the system is coldloaded
2) When the customer initiates the installation of a new core license file.
Do customers have to do anything special?

All NB54000c systems sold in 2011 were preloaded with core license files for 4-core enablement.

New NB54000c systems shipped with 2-core enablement will also be preloaded with the appropriate core license file.

The core license file in general should not impact customers and should be backed up along with all other files on $SYSTEM on a regular basis.

If you add processors or cores to your system, the core license file should be updated as part of the upgrade.
How do core upgrades work?

• Increasing the number of cores in use from 2-cores to 4-cores can be done online without any system downtime.

• A core increase from 2 cores to 4 cores is simple to install.
  
  • After purchase of an upgrade to 4-cores, the customer requests and receives a new core license by email from the license order desk.
  
  • Customers install the new license on their system by using the “Install Core License File” guided procedure in OSM Service Connection.
  
  • Upon completion of this step the NonStop OS will immediately begin using the idle cores in each CPU so that all 4-cores are in use by the system.
What happens if a core license is invalid?

If the file is missing, cannot be read or is invalid in some way, the following behavior will occur after coldloading J06.13:

• The system will come up and default to running 4-cores.
• EMS events, OSM alarms and dial outs will report that the core license on the system is missing, corrupt or invalid.
• If the customer was licensed for 4-cores, this is easily corrected by installing a corrected core license using OSM.
• To correct this problem on a 2-core system, a corrected license file must be installed and the system must be coldloaded.

In some cases if the license file contains a lower CPU count for the system than what’s actually installed, extra or new CPUs will not reload as part of the migration to J06.13.
How can I check my core license file?

Prior to installing J06.13, customers can review the contents of their core license file using a tool called “Core License Validation” or CLICVAL. This free tool can be requested by sending an email to license.manager@hp.com.

After installing J06.13, customers can use a command in OSM called, “Read Core License” to verify the contents of their Core License file.
What if my core license is wrong?

You can contact the GNSC for help in getting a new core license file, especially if the need is urgent.

You can also email license.manager@hp.com directly. You will need to provide your system id number, the number of CPUs on the system and the number of cores you believe you are licensed to use on the system. Be sure to include your name and the name of your company.

New license files are returned through email within 24 hrs with instructions for installation.

Customers running J06.13 can use the “Install core license file” procedure in OSM to install the new file.
Can I programmatically check my core enablement?

As part of J06.13, some new Operating Procedure Calls have been added that allow for the programmatic verification of core level. These are documented in the Guardian Procedure Calls Manual and include:

PROCESSOR_GETINFO_LIST - this procedure has new options to request a system message about the cores on the system including: number of enabled IPUs (or cores), cores physically present and whether core licensing is supported on that system type.

PROCESS_MONITOR_VCORE - new procedure that enables or disables the receipt of a system message associated with the enabling of Core Licenses.

HP NonStop Manuals are located at:

http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?lang=en&cc=us&taskId=101&contentTyp...
Core Licensing
what’s supported
Core licensing - 2-core or 4-core on all CPUs.

For core licensing the enablement sets the number of cores for all CPUs on the system and cores enabled must be the same in each CPU.

- When increasing core capacity on the system, all CPUs will start using the new capacity at the same time.
- Odd numbers of cores (such as single or triple-core) is not supported.
- Mixing different core enablement levels from one CPU to another on the same system is not supported.
- Our licensing is simple: It’s either a 2-core license for all CPUs or a 4-core license for all CPUs. It’s not a license for the total cores your system can handle (like a 32 core system).
Core licensing - only supported on J06.13 or later

- The functionality for 2-core enablement is not part of the NonStop operating system in prior RVUs.

- J06.13 is the minimum RVU that you must run on your new NB54000c platform if you wish to enable 2-cores.

- If you need to run an earlier RVU due to business requirements but want a 2-core system, you might consider the NB50000c which is still available and actively sold.
Migrating from NB50000c to core licensing

• When you are ready for J06.13 or a later RVU, your NB50000c can be upgraded to NB54000c processors with 2-cores enabled.
• No software charges are involved to do this so your software pricing and licensing remains the same.
• Hardware changes and charges are required as you are moving from a 2-core capable processor to a 4-core capable processor with 2-cores enabled.
• A license file will be required.
• Trade-in programs exist for your old NB50000c processors.
• After the upgrade your system is positioned to be able to go to 4-cores in the future without an outage.
Core licensing – increasing cores is permanent

Core enablement can only be increased not decreased. A core upgrade from 2 cores to 4 cores is a permanent change on the system.

After performing this upgrade new CPUs added to the system in the future will also be at the 4-core enablement level.
Core Licensing

Core licensing is a new function of the NonStop OS. Future enhancements and capabilities are under consideration.
Questions?

Feel free to email me directly to discuss how future core licensing features can help your business.

Karen.Copeland@hp.com
THANK YOU