Supermicro Brief

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Supermicro ICR* Overview

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* Intel® Cluster Ready (ICR), http://www.intel.com/go/cluster

Certification Overview

The purpose of the Supermicro ICR cluster certification is to make it easier for resellers to specify and deploy HPC clusters for their customers, and make it easier for these customers to use the system they have purchased. Supermicro has partnered with Clustercorp and Intel to help resellers to achieve these goals. This paper outlines the key documents that describe each Supermicro ICR certified cluster configuration, and details how the certification process helps resellers working with Supermicro clusters.

Documents

There are two key documents describing the Supermicro ICR cluster certification. The first is the **Supermicro ICR Recipe** for building the certified cluster. The second is **a set of XML files** used by the Intel® Cluster Checker tool that are specific to the certified configuration and recipe. These elements are downloadable from the Supermicro Reseller Web Site for each certified cluster configuration. These documents will be explained in more detail below.

The Supermicro ICR Recipe: specifies both a hardware and software bill of materials needed to construct the certified cluster. The software components at the Linux OS level and above are available in a single distro DVD from Clustercorp, www.clustercorp.com The distro includes the Red Hat server OS, the Rocks+ cluster OS package, and the Intel® Cluster Checker tool. The Supermicro hardware components are available through normal reseller channels. The recipe then gives step by step instructions for building up the SuperBlade HW components, installing the Rocks+ package (including base server OS), and finally running the Cluster Checker tool. The basic mechanics of this will be familiar to anyone who has built a Linux based cluster, particularly those based on Rocks. The final step, involving the Cluster Checker tool, may be new.

The Intel Cluster Checker tool: automates the process of ensuring that a cluster is both functional and performant. The tool checks the OS installation to ensure that various tools and libraries are available in specified locations. Then the tool checks each major subsystem to ensure that it is functional. This includes the CPU, the memory subsystem the network(s) and the disk subsystem. Finally the tool checks to ensure that each major subsystem is performant, that is, tests out to a predetermined performance level. This is done uniformly across the cluster.

> The *configuration files*: are input to the Cluster Checker tool (in XML format). These files are created during the ICR certification procedure by Supermicro, Clustercorp and Intel personnel in the Supermicro lab in San Jose, CA. These

specify the various subtests to be run on the cluster along with the expected output & performance levels.

The *output files*: from the Cluster Checker tool during the ICR certification run are available to the reseller. This allows the reseller to check output from the tool against the certified output each time a cluster is built. The tool is also quite useful for field support if resellers need to debug problems at the customer site.

Goals

Supermicro Clusters are easy to specify: Supermicro and Clustercorp have invested a significant amount of time in each certified configuration to ensure that all elements of the cluster function together correctly and at the expected performance levels. There is no longer a need to specify and verify a combination of hardware, BIOS / firmware revs and settings, Linux OS, rev, configuration, and cluster admin tools that will all function correctly together.

Supermicro Clusters are easy to deploy: The Cluster Checker tool, provided by Intel as part of the program, is built into the distro DVD and the cluster recipe. The tool systematically checks each server in the cluster and each major subsystem in each server for functionality and performance. No cluster build is trouble free. The tool does not eliminate that. What is does do is speed up (and automate) the process of locating problems so that reseller personnel can fix them. For example, instead of asking the question 'Is there a bad DIMM somewhere?' reseller personnel can ask the question 'Which DIMM in compute node #2 is bad?'

Supermicro Clusters are easy to use: The Rocks+ cluster OS from Clustercorp is certified as ICR compliant and thereby providing the requisite functionality to effectively administer a cluster. More importantly, Intel and a large list of HPC ISVs have certified their HPC application SW as compliant with the ICR specification. The reseller is assured beforehand that indeed, *"this software **is** certified by the vendor for your cluster configuration".* All of the required libraries are in the correct locations. The cluster has the proper mix of CPU, memory bandwidth, interconnect performance and disk capacity and performance.

The bottom line: *Supermicro ICR certified clusters offer resellers faster time to deployment, reduced support costs and are 'out of the box' compatible with a growing list of pre-certified ISV applications. This allows resellers to spend more time building their customer relationships without having to worry about the nuts & bolts of cluster deployment. This helps both Supermicro and Supermicro resellers to expand their business.*