

Trigence AE and Solaris BrandZ

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What is BrandZ?

Solaris BrandZ (short for branded zone) is a framework that extends the Solaris 10 Zones to support non-native applications. When creating a Solaris zone, a parameter indicates it will be a non-native zone, and afterwards, either part or all of the guest operating system is installed in the zone. Currently only 32-bit RedHat and CentOS 3.0 on x84/x64 are supported. What this means is that when you log into a branded zone, you can execute RedHat or CentOS 3.0 executables and the branded zone will map it to Solaris system calls for execution. Just an application can be put into a zone or an entire Linux environment.

How does BrandZ work?

They achieve this Linux to Solaris mapping by adding interposition points into the Solaris kernel. In other words, the zone intercepts the Linux system call, check what 'brand' it's in, then map that call to the Solaris equivalent if possible, otherwise, it emulates the system call. Therefore, no guest kernel is ever used and all guest code is run in user space. The estimated overhead at this time is about 5% on average. Currently there are certain limitations. Some examples are:

- Linux code that directly access kernel state won't work as there is no Linux kernel
- Applications which require specific Linux devices won't work (i.e. any device drivers that plug into the Linux kernel such as many entries in /proc and /dev although some are emulated)
- Applications that require direct access to a framebuffer won't work. Therefore if an application wants to use an X server, they must use the one in the global zone.
- Linux applications will not run in the global zone
- chroot isn't supported
- Linux kernel modules aren't supported

How does BrandZ compare to Trigence AE?

While BrandZ works similarly to Trigence AE, the combination of guest OS and host OS do not overlap. BrandZ does Linux (RHEL/CentOS 3.0) on Solaris 10 while Trigence AE does Linux on Linux (RHEL 3.0, 4.0, SLES/SuSE 9, 10) and Solaris (5.6, 8, 9, 10) on Solaris (9, 10). Therefore both technologies can be combined to provide a migration solution to Solaris 10. Trigence AE for older Solaris platforms to Solaris 10 and BrandZ from Linux to Solaris 10. Both technologies will allow applications to run inside Solaris 10 zones.

The Trigence AE software can also provide the following:

- Application discovery to allow previously installed applications to be virtualized
- Virtualized Solaris applications can run in a global or local zone
- Virtualized Solaris applications from various versions of the Solaris OS can execute together in the same zone
- Any number of virtualized applications can run inside a zone together and without conflict (i.e. two Apache instances in the same zone) bound only by resources
- Once an application is virtualized, it can be moved from host to host without the need to be reinstalled or reconfigured

References

<http://www.opensolaris.org/os/community/brandz/>
<http://docs.sun.com/app/docs/doc/819-2450/6n4o5mdl8>

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