SAIA BURGESS CONTROLS

3rd Party Product

Saia PCD® Supervisor
High Availability and Redundancy

How to operate Supervisor under virtualized ‘always on’ environments.
Based on the everRun environment from Stratus Technologies.

31S707 | ENG02 | 06.2021

Saia PCD® Supervisor
High Availability and Redundancy

The subject of server redundancy, fault tolerance, high availability and the general trustworthyness of a supervisor solution is a fairly complicated one, with more than one solution. The success in choosing a suitable solution for any particular application is dependant on a few important facts.

Is there already a suitable platform avaible?

Some installations may already have commonly used solutions in place, for other systems or aspects of the business being conducted locally. For example, if a datacentre already hosts a number of ‘protected virtual machines’ for other applications, Supervisor could perhaps most easily be adopted as one of those applications. It is very suitable for virtualisation, and fits very well into this world.

Can a virtualisation solution be added?

There are many virtualisation platforms avaiable now, some already built into commonly used Microsoft operations systems. These are known as Hypervisors, and some examples would be VMware, Hyper-V (which is resident in Microsoft’s server OS) and Oraclebox. Using a VM allows for a good level of realiability straight away, and means backup/restore operations are very much faster than traditional PC based installation. VMs can be ‘snapshotted’ easily and then restored in mintues, perrhaps faster. Some expertise is required to get these running a redundant or hardware fault tolerant VM, but it is perfectly possible to use these to get Supervisor to that level. This means server failure will not stop the VM, and therefore Supervisor, from running.

Is there a requirement for a fully fault tolerant, ‘5 9s’ * redundant system?
This is typically a higher cost solution, as quite high specification servers and specialised software are both required. However, this does lead to a highly robust solution, which offers very high levels of reliability and availability. This is detailed on the next page.

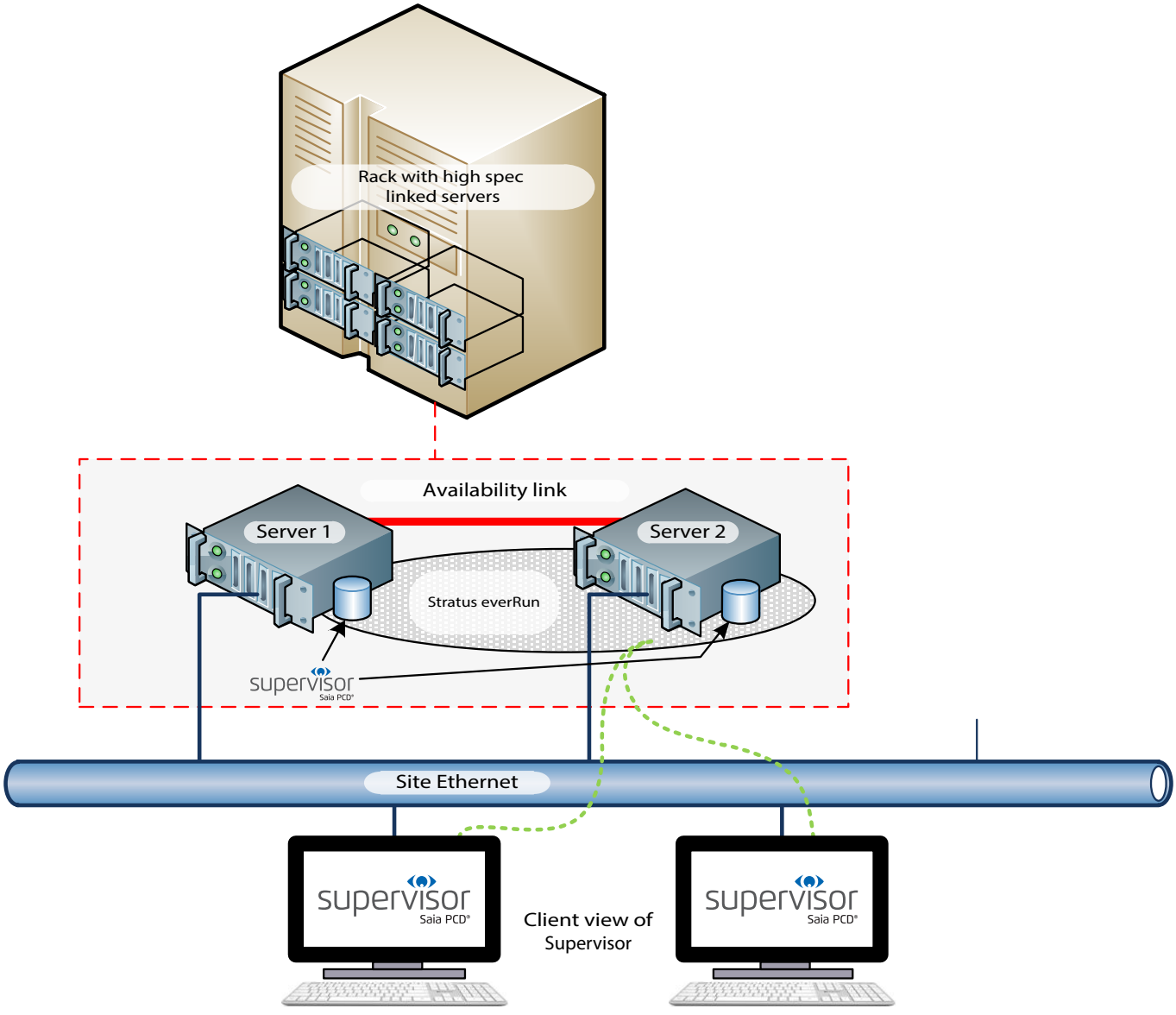
In order to provide Supervisor as a high availability service, which is tolerant of machine level component failures, it is recommended that the system is assembled as described in the following page.

* '5 9s' = five nines = 99.999% = High availability of services, when the downtime is less than 5.26 minutes per year.

Saia PCD® Supervisor
High Availability and Redundancy

First of all, two identical servers are used. These have to be of a high specification, and have more than the normal number of network cards installed. Some of these network cards are used for the normal purpose of connecting the PC to the IT infrastructure, the others are used for management and/or the essential synchronising service which keeps both servers and their disks in step with each other. Having more than one network card for attachment to the business network builds in connection resilience too.

The HA (High Availability) management software operates as a shell which encapsulates the two servers, and ensures that if a failure occurs, the routine operation switches to whichever server(s) are unaffected. In so doing, the service to the connected user is either not interrupted at all, or is only unavailable for a very short space of time, usually in the order of 99.999% availability, or no more than 6 seconds of downtime per week. This failover is handled by the HA system, and should require no user intervention at all.



Saia PCD® Supervisor
High Availability and Redundancy

The key benefits of everRun are as follows:

- Prevents application downtime locally, cross-campus
- Enables business continuity and compliance
- Ensures no business interruptions or in-flight data loss
- Provides integrated disaster recovery
- Works with off-the shelf industry standard servers
- Installs easily and affordably without the need for specialized IT staff
- Functions application and hardware independent
- Requires no modifications to applications
- Operates in physical, virtual and cloud environments
- Protects entire servers or select data
- Adapts to changing business requirements with scalable system
- Provides fault tolerant or high availability protection for symmetric multiprocessor (SMP) and multi-core workload.

The installation process is as follows:

- Boot the servers off the everRun installation disk one at a time and follow the on screen prompts to install the everRun software. This has to be completed on BOTH servers before any Operating System software can be installed. During this process, the network connections between the servers are also configured and validated.
- Install the required operating system as a Virtual Machine – this VM is automatically run and maintained by the everRun environment. The environment can actually support several VM's, but only one is required for Saia PCD® Supervisor.
- Install Saia PCD® Supervisor onto the VM. As this is a single instance of Saia PCD® Supervisor only one licence is required.

It is possible to remotely engineer the virtualised installation of Saia PCD® Supervisor using a station connection from an engineering machine also running Saia PCD® Supervisor This removes any necessity for using remote machine control software, such as remote desktop. As the Saia PCD® Supervisor station will run as a service, it is not necessary to install or use service wrapper products.

The everRun environment cannot be purchased from SBC. More information concerning everRun environment:
https://www.stratus.com/solutions/platforms/everrun/

Saia-Burgess Controls AG
Bahnhofstrasse 18
3280 Murten
Switzerland

T +41 26 580 30 00
F +41 26 580 34 99

www.saia-pcd.com
info.ch@saia-pcd.com
www.sbc-support.com