tyco | CEM Systems

Data Sheet

AC2000 Multi-node Server Failover
A HADR solution for AC2000 Linux servers.

Key Features

- Up to a maximum of four nodes in failover cluster
- High availability disaster recovery solution
- One primary node (CDC) and one, two or three secondary nodes
- CDC/RTC combination server supported as single primary node
- Choice of standard and RAID hardware supported
- Virtual nodes supported
- Notifications to AC2000 monitoring software on node status

AC2000 multi-node server failover

In a world where increasing automation services are depended upon, system administrators turn towards additional options designed to increase system resilience and high availability. The AC2000 failover or hot standby system solution provides HADR (High availability Disaster Recovery) solutions. The HADR solution supports up to up to four nodes failover cluster, supporting one primary server and a maximum of three secondary servers or nodes.

A failover cluster is a group of independent computers that work together to increase the availability of applications and services. The clustered servers (called nodes) are connected by physical cables and by software. If one of the cluster nodes fails, another node begins to provide service (a process known as failover).

As a minimum the solution requires at least one primary server and one secondary server, a.k.a. a two-node option.

The system uses Linux Distributed Replicated Block Device (DRBD) technology. DRBD replicates data from the primary to the secondary nodes. Cluster Resource Manager (CRM) controls which server or node runs the AC2000 software.

AC2000 failover nodes can be purchased as software only licences, and optionally as hardware PC server units bundles with preconfigured failover software licences. Contact CEM in advance if special (non default) IP addressing of the hardware node option is required before shipping.

Manual Failover - Used as an option for manual initialisation of Failover. Failover is set to manual mode so user intervention is required to initiate the Failover process, default mode during setup.

Automatic Failover - Automatic Failover mode initiates Failover without user intervention. This process is controlled by the CRM pacemaker service. If pacemaker packets are not received, the primary server is assumed to be not working and all services are switched to the next available secondary node.

Network requirements

Main network - The AC2000 client and field devices network, such as CEM intelligent reader controllers, ethernet door control modules, I/O panels and workstations.

Replication network - The network that connects the headend failover node database servers. Data is replicated using this network.

CEM Failover requires a minimum of five network addresses, maybe more depending on the system setup. The number of IP addresses depends on the number of nodes in the Failover cluster, and the number of subnets that you are using. Avoid using more than one subnet if possible. Each subnet requires a different cluster IP and it makes contacting the correct server in the event of failover more complicated for each client workstation.

IP addresses are required for each node NIC, one main network and one replication network, and one cluster IP for each subnet.

The primary and secondary nodes each require dual NICs (network interface cards) as standard for automatic failover configuration, a single NIC on each node server can suffice for manual failover option.

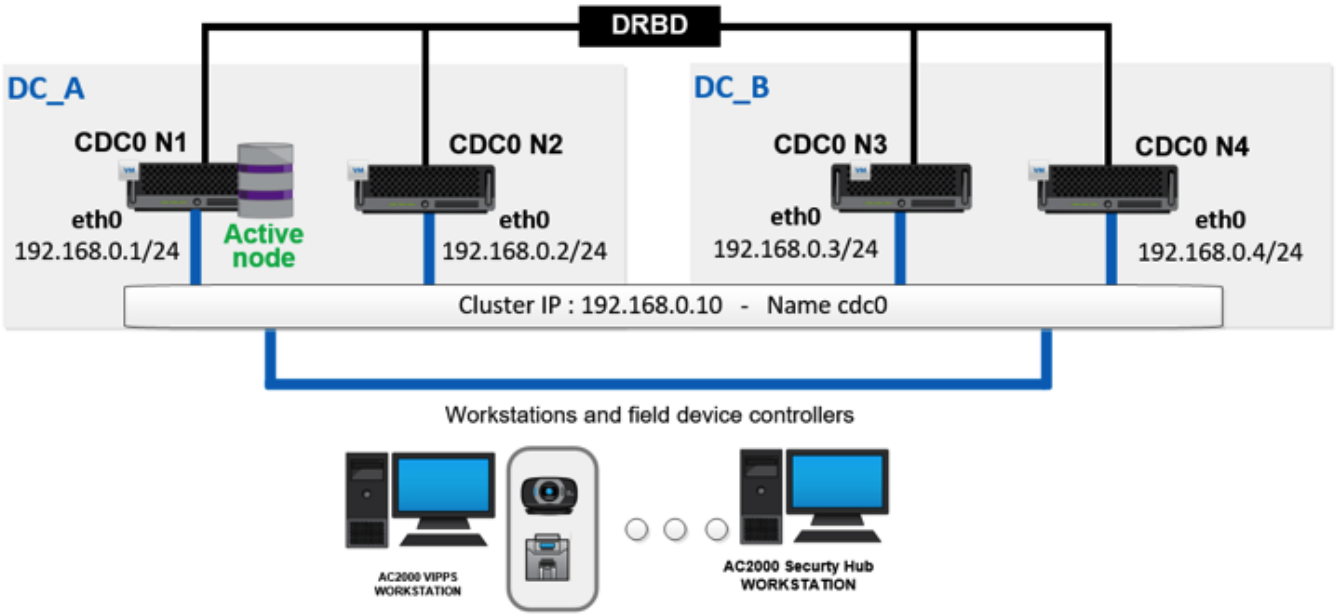

Fig. 1: Standard four node failover using same subnet across all nodes.
There is no difference to the HADR failover setup if the node is CDC or CDC/RTC combination server.

Supported AC2000 server types

AC2000 headend options – The AC2000 4 node failover option is compatible with the following primary node types: CDC, CDC/RTC and RTC.

Virtual Failover – Virtual AC2000 failover nodes require separate server applications with its own virtual disk and similar NIC and network requirements as standard PC hardware options.

sRTC server failover – The super RTC (sRTC) supports the AC2000 multi node failover option, at least one secondary node is generally recommended for sRTC configurations. The sRTC and failover sRTC nodes each require dual NICs as standard for automatic failover configuration. Each sRTC server will use up to twelve IP address. Two for the primary PC NICs and one for each of the additional seven for the containers, and two more for the secondary failover server. Note the sRTC failover option is only supported on a single subnet. Contact CEM Systems for further details and sRTC high availability licensing requirements.

Monitoring Node status

The following failover alarms are shown on AC2000 Security Hub.

System failed over – Primary server gone, Secondary Server in Primary mode

System recovered – Primary server restored, and Secondary Server in standby mode

Heartbeat failure – Warning of imminent system failover

Heartbeat restored – Failover system stable

Split-Brain – Secondary Server and Primary in Primary mode.

Split-Brain RESET – Only One server in Primary mode after Reset routine completed.

Replication FAILURE – Data replication halted

Replication RESTORED – Data replication currently being kept up to date.

Disk FAILURE(drbd) – Indicates the DRDB replication service has detected a system disk (logical drive) write problem.

Disk OK(drbd) – Indicates the DRDB replication service is normal.

Ordering Information

Product Code	Description
SWFAIL-NODE3	AC2000 CDC Failover NODE 3 Software Licence Requires CDC Failover SWFAIL applied to primary server
SYS/102/03F	AC2000 CDC Failover NODE 3 latest RAID-5 server including CDC NODE 3 Software Licence. Requires CDC Failover SWFAIL applied to primary server
SWFAIL-NODE4	AC2000 CDC Failover NODE 4 Software Licence Requires CDC Failover SWFAIL and NODE 3 applied to primary server
SYS/102/04F	AC2000 CDC Failover NODE 4 latest RAID-5 server including CDC NODE 4 Software Licence. Requires CDC Failover SWFAIL and NODE 3 applied to primary server
SWFAIL-RTCNODE3	AC2000 RTC Failover NODE 3 Software Licence Requires RTC Failover SWFAIL-RTC applied to primary server
SYS/101/33F	AC2000 RTC Failover NODE 3 latest RAID-5 server including RTC NODE 3 Software Licence. Requires RTC Failover SWFAIL-RTC applied to primary server
SWFAIL-RTCNODE4	AC2000 RTC Failover NODE 4 Software Licence Requires CDC Failover SWFAIL-RTC and NODE 3 applied to primary server
SYS/101/34F	AC2000 RTC Failover NODE 4 latest RAID-5 server including RTC NODE 4 Software Licence. Requires CDC Failover SWFAIL-RTC and NODE 3 applied to primary server

To order contact cem.sales@tycoint.com or call +44(0) 2890 456 767

Related Products

- AC2000
- AC2000 Airport

About Johnson Controls

Johnson Controls is a global diversified technology and multi-industrial leader serving a wide range of customers in more than 150 countries. Our 120,000 employees create intelligent buildings, efficient energy solutions, integrated infrastructure and next generation transportation systems that work seamlessly together to deliver on the promise of smart cities and communities. Our commitment to sustainability dates back to our roots in 1885, with the invention of the first electric room thermostat.

For additional information, please visit **www.cemsys.com** or follow CEM Systems on LinkedIn and Twitter.

The power behind **your mission**