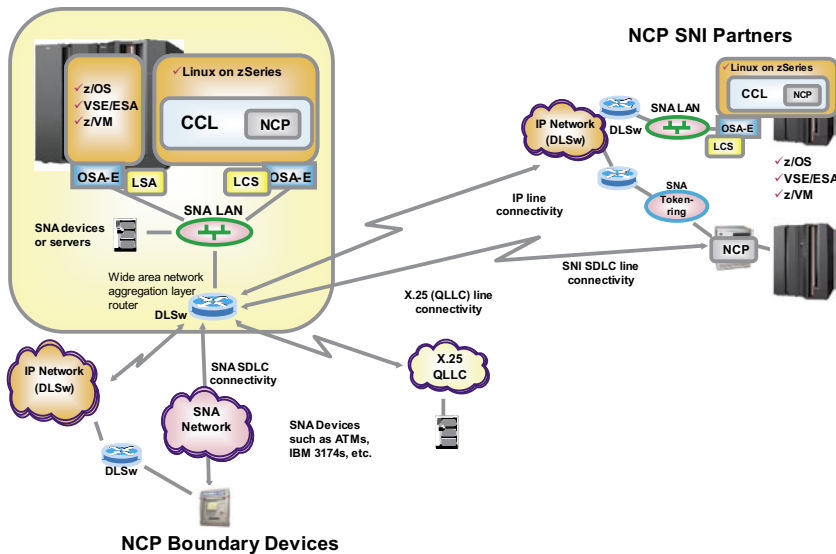


Migrate off of aging hardware while preserving software reliability



IBM Communication Controller for Linux on zSeries V1R1



Companies are simplifying their networks and moving toward an on demand environment. They want to move off of older, slower networking hardware and be able to take advantage of newer technology. At the same time, they want to preserve their investment in their current application portfolio and continue to use solutions they have come to rely on.

IBM® Communication Controller for Linux on zSeries® (CCL) is software that emulates 3745 hardware and runs on the zSeries. Communication Controller for Linux on zSeries provides an attractive migration solution, integrating the latest networking hardware with mission-critical existing software.

Alternative Hardware Option

The IBM 37xx Communication Controller hardware family was withdrawn from marketing in 2002. The IBM Communication Controller for Linux on zSeries was developed as a migration path from this hardware. CCL enables the Network Control Program (NCP) software that runs on 37xx hardware to now run in Linux on zSeries hardware. The result is replacement of dependencies on older

Highlights

- Provides migration path from 37xx Communication Controller hardware
- Removes dependencies on other non-strategic or nearing end-of-life hardware (token-ring, ESCON®)
- Runs reliable NCP software, supporting many key functions including SNI and boundary function
- Runs in existing zSeries® hardware, taking advantage of its security, virtualization, scalability, and business resiliency features
- Runs on Linux™ operating system, either in native LPAR mode or in a z/VM® LPAR
- Preserves investment in mission-critical SNA applications
- Focuses on ease of migration, requiring minimal network definition updates and no coordinated changes by business partners

37xx hardware with newer zSeries hardware and Linux software. And the Linux on zSeries platform is a strategic environment for running many key software solutions along with CCL.

In the past, 37xx NCPs were connected to your host via token-ring or ESCON channel attachments. Many token-ring products are also being withdrawn from marketing and ESCON channel chips are no longer manufactured.

In addition to moving the NCP into flexible zSeries Linux servers, running your NCP in Communication Controller for Linux on zSeries also provides an alternative Ethernet connection into the host, removing another non-strategic hardware dependency.

Network Consolidation

Communication Controller for Linux on zSeries supports consolidation of your network infrastructure to IP. SNA traffic enters and leaves CCL as SNA network flows over an OSA adapter. However, your wide area network infrastructure does not need to be SNA. You can consolidate your SNA traffic and use tunneling such as data link switching (DLSw) to encapsulate the SNA communication over an IP network. Bringing NCP into the zSeries and consolidating your network infrastructure to IP can decrease complexity and skill requirements throughout the network. At the same time, CCL allows you to continue using the SNA applications you count on

today without requiring a rewrite to IP, simplifying migration and ensuring continued reliability.

Connectivity Options

CCL supports LAN connectivity. The LAN can be either token-ring or Ethernet. From an NCP perspective, NCP only supports token-ring LAN connections, so if an Ethernet connection is used, CCL maps the Ethernet frames to token-ring before sending them to NCP. Devices that attach to a 37xx NCP over a TIC token-ring interface can attach to a CCL NCP. The IBM 37xx hardware supports a variety of other connectivity types, including X.25, SDLC, and frame relay. In order to migrate these connections from the older hardware to CCL, you can terminate them at a DLSw router and map them to the CCL NCP's LAN connection.

NCP to VTAM® communication is also over the OSA LCS port. This can be the same port used for BNN and SNI links. VTAM communicates to CCL NCP through an XCA interface, such as an OSA LSA interface.

Ease of Migration

Because CCL was developed as a migration solution, simplifying migration was a key focus area. Existing NCP software, with no required code changes, runs in Linux on zSeries. Some NCP definition updates might be needed, for example adding

a token-ring line definition if you do not already have one. CCL preserves your SNA subarea network topology and does not require APPN. Coordinated changes on the part of business partners are also not required.

An NCP running in CCL can connect to another CCL NCP or to an NCP running in 37xx, so migration can be staged. And CCL provides interfaces to load, operate, manage, and dump NCPs in a manner similar to operating NCP on a 37xx.

NCP Functionality

Many key NCP functions now run in the Linux on zSeries platform using Communication Controller for Linux on zSeries. SNA Network Interconnectivity (SNI) for business-to-business communication across networks is supported. As previously stated, migration on the part of the attached business partner is not required. Intermediate Network Node (INN) for communication between subareas within the same network is also supported.

In addition, selected boundary functions for Boundary Network Node (BNN) traffic are supported providing connectivity to SNA peripheral nodes. Continuing to connect these resources through NCP preserves the network topology. NCP boundary function support includes multiple availability functions. SSCP Takeover and Giveback and Extended Recovery



Facility (XRF) will work as they do today. Redundant CCLs and NCPs can be defined using duplicate MAC addresses for load balancing and availability of NCPs and OSA ports. Functionality similar to 37xx twin CCU configurations is available and CCL could also provide an alternative disaster recovery solution in place of a redundant 37xx installation.

NCP running in CCL can be a Composite Network Node in an APPN environment. It supports HPR to the same extent as NCP running in a 3745.

CCL Components

Communication Controller for Linux on zSeries consists of three components, the Engine, the Network Device Handler, and the MOSS console. The CCL Engine allows NCP to run unchanged in Linux on zSeries. Each instance of the CCL Engine loads one NCP. Multiple CCL Engines can run in one Linux image. The CCL Network Device Handler (NDH) provides the interface from the Linux device driver to the CCL Engine. If applicable, the NDH bridges the Ethernet frames to token-ring. The CCL MOSS console is a browser interface that provides functions similar to the 37xx MOSS console.

Linux on zSeries Advantages

Not only does CCL reduce your dependency on aging hardware, running NCP in Linux on zSeries

servers provides many other advantages. You can leverage the strengths of zSeries hardware, known for its reliability, security, scalability and business resiliency.

You can run Communication Controller for Linux on zSeries with Linux running in either native LPAR mode or as a z/VM guest. You can use IBM's Integrated Facility for Linux which supports a wide range of images per processor. A CCL can be created or started based on the demands of your network: if you need another CCL, you just start another instance, which can be run in the same image.

Communication Controller for Linux on zSeries is an attractive migration alternative integrating the advantages of zSeries hardware, virtual servers, and the Linux operating system with the reliability of your existing NCP software and SNA applications.

For More Information

To learn more about the IBM Communication Controller for Linux on zSeries V1.1, visit:

ibm.com/software/network/ccl

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IBM Communication Controller for Linux on zSeries V1.1 at a glance

Component or related application:	Features:
NCP Support	<ul style="list-style-type: none"> • Runs existing NCP code • Supported NCP functions: <ul style="list-style-type: none"> • SNI • INN • BNN • XRF • NRF • SSCP Takeover and Giveback • Duplicate MACs
CCL MOSS Console	<ul style="list-style-type: none"> • Similar to 37xx MOSS console • Easily accessible Web browser interface
Installation, Configuration, and Administrative Options	<ul style="list-style-type: none"> • Installation via CCL InstallShield • Can be automatically started during Linux boot • NCP load module is Linux file • VTAM operator commands and CCL MOSS console operation both supported
Problem Determination and Systems Management	<ul style="list-style-type: none"> • Diagnostic traces of data flows to/from NCP, CCL components, VTAM, network • Support of NCP dumping and restarting functions with faster availability • CCL Engine dumps available • Continue use of network management products such as Tivoli® NetView® and NTuneMON

Requirements:	Features:
Hardware	<ul style="list-style-type: none"> • Communication Controller for Linux on zSeries will run in a G5/G6, z800, z890, z900, or z990 • OSA adapters supported <ul style="list-style-type: none"> • OSA-2 ports in non-shared mode • OSA Express ports in shared or non-shared mode (z800 or z900 MCL 3.5, z890 or z990 MCL 5.50) • OSA network interfaces must be copper-based

Software

- CCL requires one of these Linux operating system distributions:
 - SUSE Linux Enterprise Server 8 for IBM zSeries and IBM s/390® (SLES8); minimum level SP4
 - SUSE Linux Enterprise Server 9 for IBM zSeries and IBM s/390 (SLES9); minimum level SP1
 - CCL has been tested with other Linux distributions and IBM is working with other Linux distributors to provide required updates to run CCL; the CCL website will be updated as new releases enabled for CCL become available
- CCL supports NCP V7R5 or later
- SSP, NRF, and NTuneMON supported by the NCP release are supported
- CCL requires a VTAM APAR to support activation and loading of CCL NCP resources
 - VM/VTAM 4.2 APAR VM63677
 - VSE/VTAM 4.2 APAR DY46311
 - OS/390® Communications Server V2R10 APAR OA10425
 - z/OS® Communications Server V1R2 APAR OA10425
 - z/OS Communications Server V1R4 APAR OA10425
 - z/OS Communications Server V1R5 APAR OA10425
 - z/OS Communications Server V1R6 APAR OA10425
- GCC C Compiler and C Compiler Utilities
- Make is required to process the makefile
- OSA-SF to configure the OSA-E adapter if applicable

Memory and Storage

- DASD for CCL = 45 MB
- DASD for CCL traces, dumps, logs, NCP load modules = 80-100 MB per CCL Engine instance
- DASD for Linux is approximate DASD space equivalent to two 3390-3 DASD volumes
- Memory required per CCL Engine instance - 20 MB
- Memory for Linux approximately 256-512 MB depending on distribution, packages, and kernel level