

SOLUTIONS

THE FINAL STEP IN THE MIGRATION OF BNS
NETWORKS TO IP

THE FUTURE IS HERE



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DT-7000

Figure 1

INTRODUCTION

Datatek Applications, Inc. provides several products specifically engineered to facilitate the migration from networks based on the Lucent Technologies BNS-2000/BNS-2000¹ VCS family (a.k.a. Datakit[®] II VCS) to Internet Protocol (IP) networks. Datatek previously provided high-level migration plans² by which a customer's BNS network may be reduced to one or more nodes, which remain to handle the CommKit hosts that serve the Operations Systems (OS) applications.

As a further step in the migration to IP networks, by replacing CPM-HS modules in the node with Universal Trunk Modules (UTMs) and the CommKit software in the host with IP-CommKit[™] software, the remnant BNS nodes need not be co-located with any other network component. In addition, the use of Universal Mediation Interface modules (UMIs) in the nodes allows connectivity to non-BNS endpoints, thereby eliminating the need for the BNS network to have any endpoint connectivity.

The net result of the migration strategies presented to date is a remnant set of BNS nodes whose sole purpose is to interface to IP-CommKit hosts and to the IP network via UMI modules for endpoint connectivity. While all other BNS modules may be retired from this scenario by employing the proper Datatek migration products, the BNS/Datakit node's cabinet, shelves, controller modules, UTM, and UMI modules need to be maintained in service.

With the introduction of a new product, the DT-7000, the final step in the migration to a totally IP network can be completed. The DT-7000 will allow the retirement of the remnant set of nodes and hence, the last vestiges of the Lucent Technologies BNS/Datakit network.

¹ Henceforth in this document all node types (BNS-2000, BNS-2000 VCS, Datakit II VCS, etc. or the data network itself will be referred to as **BNS** nodes or the **BNS** network.

[®] Datakit is a registered trademark of Lucent Technologies, Inc, licensed to Datatek Applications, Inc., a company independent from Lucent Technologies.

² Read the documents ***Migration Strategies For BNS-2000 Networks*** and ***BNS-2000 / IP Network Integration Strategies*** available on the Datatek web site, www.datatekcorp.com, for more detail on the migration strategies.

[™] IP-CommKit is a trademark of Lucent Technologies, Inc, licensed to Datatek Applications, Inc., a company independent from Lucent Technologies.

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INTEGRATED BNS NETWORK ENVIRONMENT – No DT-7000

Below in Figure 2 is a picture of a BNS network that has been partially migrated to an IP network. Some of the OS hosts, network elements and terminals have been migrated off from the BNS network onto the IP network. However, many of these terminals and network elements devices still need access to the OS hosts that are connected to the BNS network. This is accomplished through the use of UMI and UTM modules in the node. A UTM module mimics the functions of a CPM-HS module but interfaces with the IP network and a host running IP-CommKit instead of CommKit. The UMI module mediates legacy protocols sent via IP into the internal BNS protocol. The BNS node is still a fundamental component in the network, but the objective is to migrate to a totally IP network.

In the mixed IP and BNS network, a typical data call is handled as follows: Each CommKit and IP-CommKit host is connected to a node via a CPM-HS or UTM module respectively. These modules are responsible for communication with the node backplane and indirectly the BNS controller. Using the fiber-connected host as an example, a call travels from the host application through the CommKit software through the fiber cable to the node through the CPM-HS module onto the backplane. It then proceeds through the node's switch module, onto the broadcast bus, and out of the node through the UMI module to the IP network. Typically, the call continues into a DT-6XXX application that is processing the specific customer protocol, back out again to the DT-4XXX mediation device, and finally out the DT-4XXX data port to the Network Element using the native protocol of the network element. The call has to proceed through two networks: the BNS network and the IP network. Hence, in this mixed network, the BNS node is still needed. The ultimate objective is to eliminate the need for BNS nodes and therefore, the entire BNS network.

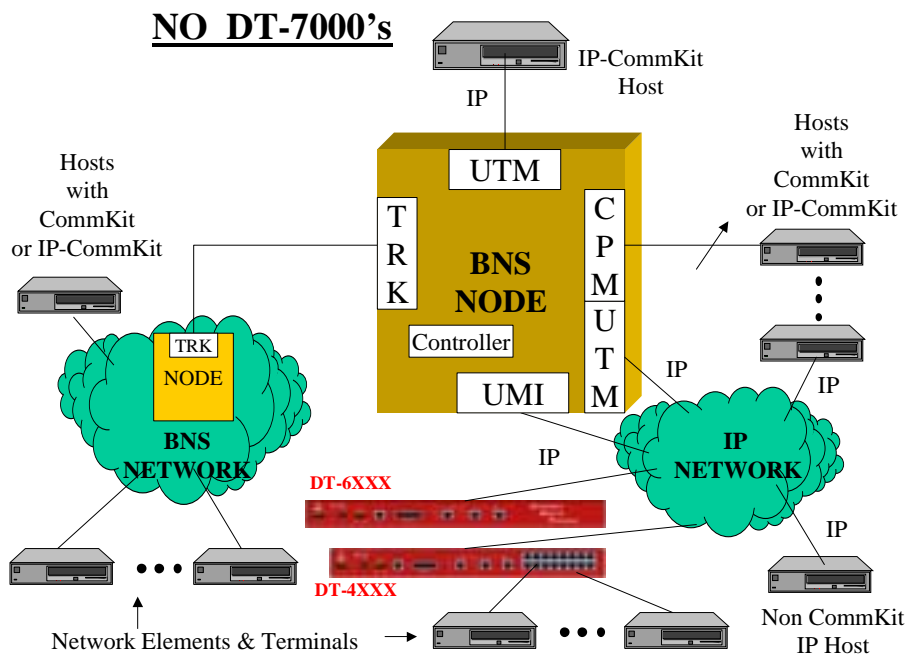


Figure 2

THE FINAL STEP IN THE MIGRATION OF BNS NETWORKS TO IP

Migration Completion Using DT-7000's – No BNS Network

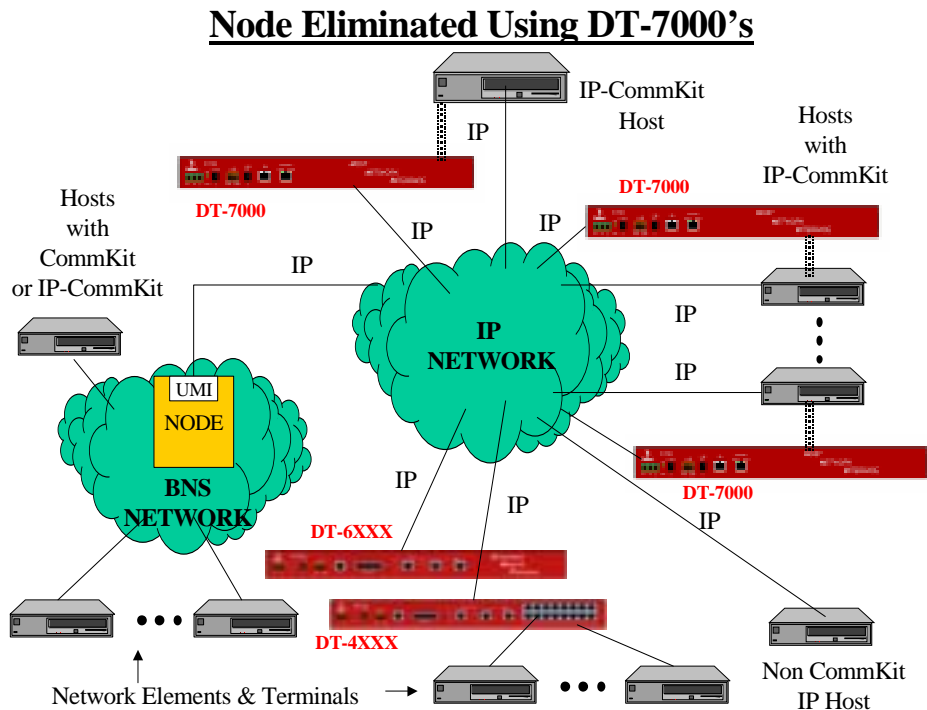
The short-term objective is to eliminate each BNS node one at a time and long-range to eliminate the entire BNS network by replacing it with an IP network. Another objective is to make the transition transparent to the users and the application on an OS host: that is, the application on the host continues to use the functionality of IP-CommKit but is not required to make any changes in the application software, operations tables, or procedures. A host must believe it is still talking to a BNS network using BNS names and routing even though it actually is communicating with the network elements and users over an IP network. *The DT-7000 together with IP-CommKit in the host fulfills these requirements.*

The DT-7000 is the last piece in the migration product evolution that is needed to allow the completion of the migration to a completely IP network. It performs this function transparently to the host and the endpoints.

Each DT-7000 replaces the functionality of one CPM-HS or UTM, the backplane, BNS controller, UMI module and the CommKit/IP-CommKit communication processing previously performed in the node. Now the data call described in the previous section is handled as follows: The call travels from the host application through the IP-CommKit software through the LAN module in the host to the IP network and into the DT-7000. The call then is routed via the DT-7000 out through its UMI equivalent interface into the IP network to the DT-6XXX. The call continues as described previously. Thus, only the IP network is needed. There is no longer any dependency on BNS networks.

Using the DT-7000, the previous network picture in Figure 2 now becomes:

Figure 3



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A node has been eliminated in Figure 3 above by employing DT-7000's. Each connection to a CommKit or IP-CommKit host has been replaced with a DT-7000. Each DT-7000 communicates with other IP endpoints (up to 504) via its built-in UMI functionality and other DT-7000's (up to 64) that are each connected its own IP-CommKit host using only the IP network. The DT-7000 performs the equivalent of the old BNS controller call-setup functions between the associated host logically connected to it, other non IP-CommKit endpoints in the IP network, and other DT-7000's, each with their associated IP-CommKit host.

An IP-CommKit host can have more than one connection to the BNS network via UTM modules. In the IP only network, each connection is replaced by a separate DT-7000. Each DT-7000 is physically connected directly to the IP network through its 10/100 Base T port. The IP-CommKit host also is physically connected directly to the IP network. However, each DT-7000 has one and only one IP-CommKit host *logically* connected to it. This host is known as its *associated* host. (The dotted lines in the above picture show the logical connection between a DT-7000 and its associated IP-CommKit host.)

IP-CommKit is required in place of CommKit in a host. Replacing CommKit with IP-CommKit in the host is usually transparent to the application using the interface. Additional benefits are that the specially developed CommKit hardware module is no longer needed in the host. Instead, the standard host Ethernet interface is used. Now the host can be located anywhere in an IP network. There is also no need to collocate the DT-7000 and its "associated" IP-CommKit host.

In conclusion, by using the DT-7000 the BNS network can be slowly eliminated and migrated to a totally IP network, transparently to users, NE's and hosts.

The DT-7000 is *now available for purchase*. For prices, contact Datatek's resellers, CBM of America or Lucent Technologies. Inc. Contact Datatek Applications at sales@datatekcorp.com with questions and comments.

Table 1 on the next page shows the significant DT-7000 Features.

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Table 1
DT-7000 FEATURES

Allows Removal of a BNS/Datakit node
10/100M LAN Interface
Built-in Equivalent of UMI Functionality (504 Virtual Ports for connection to Non-IP CommKit IP endpoints including Endpoints on BNS/Datakit and other networks)
Built-in Equivalent of UTM Functionality (Equivalent to 65 UTMs for logical connection to home (associated) IP-CommKit host and 64 remote DT-7000's each connected to their own home (associated) IP-CommKit host.)
Built-in Equivalent of IP-CommKit Termination in BNS/Datakit Node for One Associated IP-CommKit Host
Built-in Equivalent Subset of BNS/Datakit Controller Functionality
High Availability Option Active/Standby Configuration

Power over Ethernet
-48V (36-72V) DC Input
24V (18-72V) DC Input
AC to +24V DC Input
+5 V DC Output
Redundant Power Option

Telnet Console
Optional Data Encryption
Closed User Groups
SNMP Agent
Hunt Groups
Host IP Address Resolution Table and DNS Support
Alarm Grid Connector
Temperature Alarms



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