NETWORK PLANNING LETTER

Switching Systems

4ESS™ SWITCH 4E25 GENERIC FEATURES FOR LOCAL EXCHANGE COMPANIES (LECs)

DESCRIPTION

This Network Planning Letter (NPL) and attachment describe the 4E25 Generic Release software features and hardware-related features for the Local Exchange Companies (LECs). The Core and UNIX® Real Time Reliable Operating System are required and have a right-to-use fee. An additional right-to-use fee applies to each Optional feature.

AVAILABLITY

The 4ESS Switch 4E25 Generic will be available (General Availability) beginning 1st quarter 2000.

This document is for planning purposes only and is not intended to modify or supplement warranties relating to Lucent Technologies or services. For additional information or assistance, please contact your Lucent Technologies Sales Representative.

4ESS™ SWITCH 4E25 GENERIC FEATURES FOR LOCAL EXCHANGE COMPANIES (LECs)

Table of Contents

1 CORE

1.1 Restructure Recent Change Pident (562)

The Recent Change pidents, RCMAPPOP and RCMARPOP, are being split into 16 new pidents. Most of the code is removed from the original RCMAPPOP and RCMARPOP pidents and added to these 16 new pidents. The RCMAPPOP and RCMARPOP pidents will contain the vector tables and code that is common to more than one message type. Available in 4E25R1

Benefits

Easier introduction of new Recent Change capabilities.

1.2 Splitting the VRFYOUT Pident (563)

This feature will split the VRFYOUT pident so that it will be easy to maintain the code. Available in 4E25R1

Benefits

Faster output for existing Verfy messages and easier introduction of new Verify capabilities

1.3 Improved ISUP Message Header Reduction for 4ESS™ Switch API Capacity (564)

This feature consists of two parts. The first part (Feature 564) consists of the removal of Feature 5003 (documented in 234-090-221). The second part (Feature 564i) is the redesign of the API ISUP Header reduction capability, and will be deployed in Generic 4E26.
The API acts as the message interface between the 1B processor, the Common Network Interface (CNI) ring, and the 3B Attached Processor. The total API bandwidth with the 3B21D APS is 85K words per second (~340 Kbytes/sec). Feature 564i reduces the size of the ISUP out of band signaling messages that traverse between the 1B and the CNI ring. Signaling size reduction is accomplished by eliminating non-essential header information data from the ISUP messages. By reducing the size of the ISUP messages, the overall call handling of the API is increased by 20 – 25 %.
Feature 564i improves upon Feature 5003 in that the reduction process is carried out at a lower level in the 1B software process. As such, its impact on 1B real time is much less than 1%.

Benefits

This feature prepares the 4ESS switch for the implementation of Feature 564i, which improves the overall message throughput of the API.

1.4 Restructure and Grow the Call Register (7254)

This feature will remove the Integrated Services Digital Network (ISDN) Register (IR) and Intelligent Network Register (INR) and move the information into the Call Register (CR). The size of the CR will be doubled from 256 words to 512 words. As a result of this feature, the following registers will also be doubled in size: the Non-Call Register, the Test Query Register, and the Trunk Maintenance Register. Available in 4E25R1

Benefits

New data will be able to be stored in the CR for future 4ESS features, and some real-time savings will be realized.

1.5   Enhanced Scheduling & Executive Control (6989)

This feature will enhance the task scheduling algorithms to take advantage of the faster 1B Processor by restructuring the software to allocate more resources (e.g., real time, call registers, other facilities) during peak Base Level Cycles (BLCs). As a result, 1B processor loads will be distributed more evenly, and additional real time per BLC will be available for call processing. Available in 4E25R3

Benefits

This feature is expected to result in a 6 to 10 percent greater call capacity in the 1B Processor.

2   UNIX REAL TIME RELIABLE OPERATING SYSTEM

2.1   4ESS 3B APS Software Upgrade to UNIX RTR 21.30 (552)

This RTR21.30 upgrade will be part of 4E25R1, and will be available for the 3B21 only. Any office on the 3B20D will be capped on 4E24/4AP17 generic.

3   OPTIONAL FEATURES

3.1 ETC Trunk Terminating Access Record Enhancement (575)

This feature extends the LNP recording for pre-queried LNP calls to Terminating Access Records (SC625/CC119) generated for ETC Types of Trunk (TOTs). This is done by appending Bellcore AMA Format (BAF) Module 720 containing the Location Routing Number (LRN) and placing the Directory Number (DN) from the Generic Address Parameter (GAP) in the terminating NPA and number fields.

Benefits

This feature allows the needed Automatic Message Accounting (AMA) information to be captured without re-provisioning of trunk data (that is, without changing FENCLASS from ACCESA to OEO).

3.2 4ESS™ Access Tandem Support for ISUP FACility Message (582)

This feature allows the *4ESS* AT switch to function as an intermediate exchange in LEC networks implementing the Advanced Intelligent Network (AIN) Send to Outside Resource (STOR) capability, or other capabilities requiring ISUP Remote Operations (RO) parameter transport through a network. This is done by providing support in the *4ESS* AT Switch for passing the ISUP FACility message. A FACility message received by the *4ESS* Access Tandem is passed through the switch unchanged by this feature. A FACility message can be passed through the 4ESS Tandem Switch after the completion of continuity checks and before a Release message is sent or received. In all other cases the FACility message is discarded. This feature applies to ISUP-to-ISUP calls only.

Benefits

This feature allows introduction of AIN or other services requiring ISUP RO transport in networks containing *4ESS* tandem switches.

3.3 4ESS™ Switch Final Handling Codes for LEC (583)

This feature provides an enhancement to the *4ESS* Switch call irregularity output associated with LNP calls that are final handled. For final handled calls involving an ISDN User Part (ISUP) Initial Address Message (IAM) containing a ported-number GAP parameter, the GAP information will be provided in any call irregularity output report, and will be identified as the dialed digits. The LRN is also provided, and is identified as the LRN.

Benefits

This feature identifies the original dialed number in addition to the LRN for ported calls that fail, allowing easier troubleshooting.

3.4 Dual Stream AMA 50/50 Record Split (584)

Under the existing Dual Stream billing capability, the AMA records are split between the two links (streams) based on service (call codes). Since a split by call codes would not always result in an even split of the AMA records over both streams, this feature provide a way to split the AMA records evenly over both streams. This feature splits the AMA records approximately evenly between the IC and OC streams to 3B21D disk on a 4ESS switch configured for Dual Stream Billing. This maximizes the AMA record throughput when data is polled from the disk over the two 56kpbs links.

Benefits

This feature increases overall AMA throughput.

3.5 4ESS AMA SCSI Disk Capacity Expansion (585)

AMA records generated by the 4ESS Switch are stored on SCSI disks. Each 4ESS Switch has three pairs of SCSI disks for AMA storage. One disk in each pair mirrors the other so there are in effect three SCSI disks for AMA storage. The 2GB SCSI disk is actually configured as a 600MB SCSI disk (which has only 571MB available for AMA record storage). Due to growth in the average AMA record length coupled with strong growth in the number of AMA records, additional record capacity is needed so that the disks can store six business days of records and not exceed seventy percent utilization. This feature expands the available record capacity from 571MB on each disk to 968MB on each disk, and is applicable only to 4ESS Switches with the 3B21D processor.

Benefits

Increases AMA storage capacity to allow increasing the number of AMA records generated without compromising AMA storage requirements.

3.6 SS7 Network ID Expansion (587)

SS7 Network ID (NID) is the first of three 8-bit fields comprising the 'routing label' portion of the SS7 Point Code (PC). The original 4ESS implementation of SS7 provided support for 16 non-local NID values. This was increased to 24 with the introduction of Network Interconnect in 4E14. NIDs are used for each network to which the switch routes. NIDs are assigned in descending order beginning at 254 (1111 1110) for large networks, and in ascending order beginning at 1 (0000 0001) for small networks. This translation table capacity needs to be expanded due to the expanding number of emerging carriers and to support interconnection required.This feature expands the number of non-local Network IDs supported by the 4ESS switch from the current 24 to 64.

Benefits

This feature allows 4E to support the expanding number of carrier networks.