

## ***Background***

## ***Chapter 1***

This chapter is designed to provide the student with a general knowledge about the AXE market as well as the main components in AXE 810. It will also show the benefits of the modernisation steps taken in AXE 810.

### **OBJECTIVES:**

Upon completion of this chapter the student will be able to:

- state the market for AXE based nodes in both fixed and mobile networks
- describe what AXE 810 is and what it is built-up of
- account for the main benefits of AXE 810
- account for the main high-lights of AXE 810.

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# 1 Background

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## THE MARKET

The market for AXE switches is huge in many perspectives:

- The system has been in service since 1978.
- It has been installed in more than 130 countries in all parts of the world.
- The world market share is up to 50% in some segments.
- AXE is the best selling digital switching system in the world.
- Ericsson is selling more AXE lines than ever before.
- We have not sold the half of all AXE nodes that we plan to sell in total during the system's life time.

The last two bullets indicate that the market window for circuit switched technology is wide open. The future may lie in packet switched technology but the present is dominated by circuit switched technology like AXE. This means that there is a need for further upgrades of the AXE system to make it more competitive and reduce manufacturing and handling costs within Ericsson. The solution is the AXE 810 upgrade described in this book.

## THE WORLD MARKET SHARES

The market share for Ericsson in different segments can be seen in the following figures.

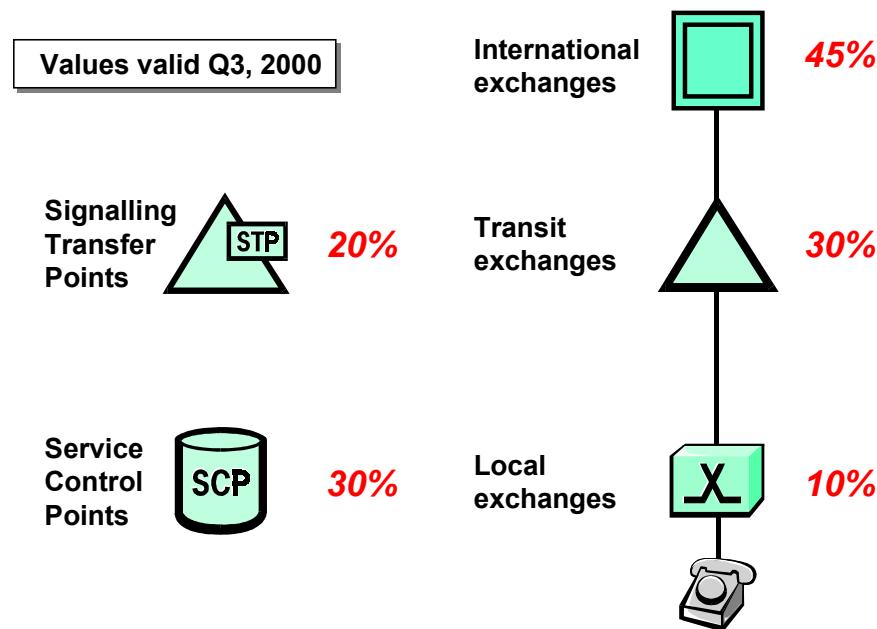


Figure 1- 1 The World market share for fixed lines (AXE)

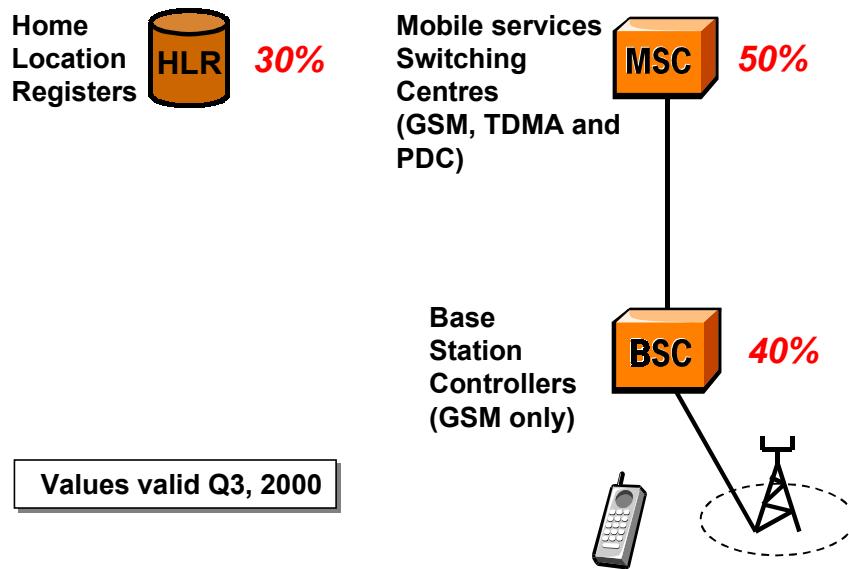


Figure 1- 2 The world market share for mobile exchanges and databases (based on AXE)

## NUMBER OF NODES AND LINES

Today (mid 2000), there are some 11000 exchanges installed all over the world. There are also some 1200 databases such as HLR and SCP based upon AXE technology. Estimates indicate that Ericsson are going to sell around 3000 nodes/year in the near future. This means that sales are still going to be very high.

Number of lines installed is usually expressed in “local lines” and “transit lines”. One local line could be said is a subscriber while a transit line is equal to one calling channel between two exchanges. When it comes to mobile figures, the number of subscribers are usually used as a reference.

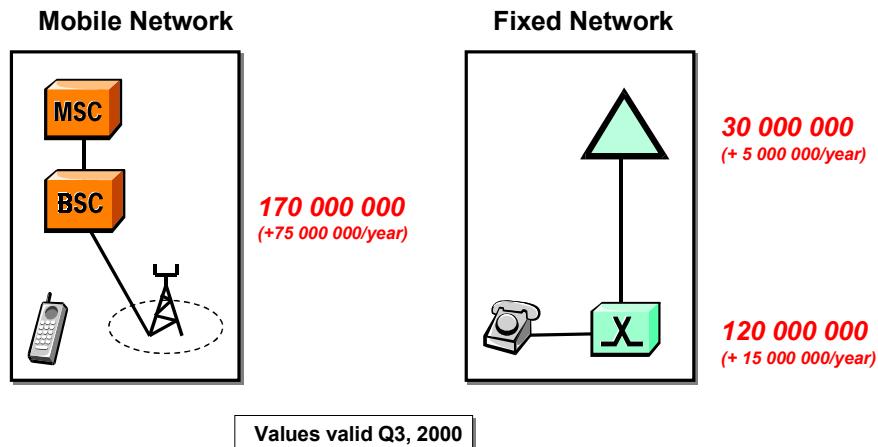


Figure 1- 3 Number of AXE lines in the world

## WHAT IS AXE 810?

AXE 810 is the name of the AXE version that will be available to the market at the beginning of 2001. AXE 810 is based on a new type of subrack called GEM. Many devices, for example the group switch, is located in this subrack. Some devices have not been changed to the new GEM hardware and will be located in the GDM subrack available in AXE with hardware version 1.3 and 1.4. However, also some of the GDM based hardware is updated toward smaller footprint and larger capacity. During the course, you will get information about the new APZ, the GEM based hardware as well as the GDM based hardware. The figure shows an example of a node.

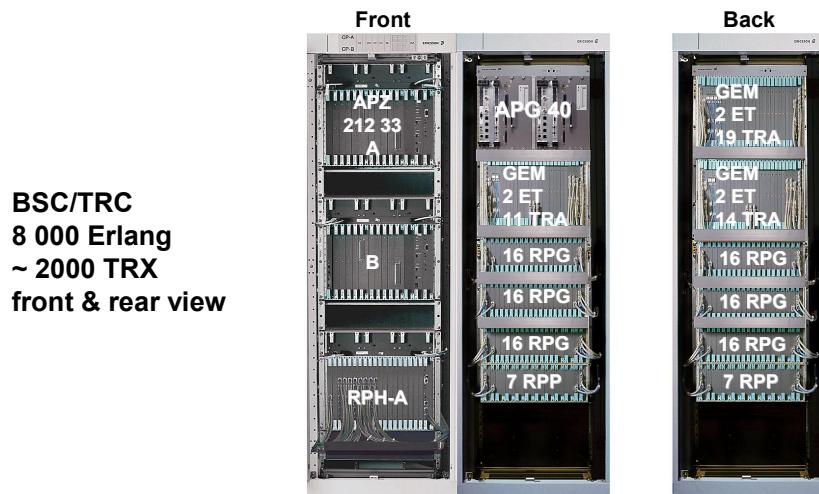


Figure 1- 4 Example of an AXE 810 node

AXE 810 is significantly smaller in footprint than earlier AXE versions. The figure below compares a transit switch built with different generations of AXE.

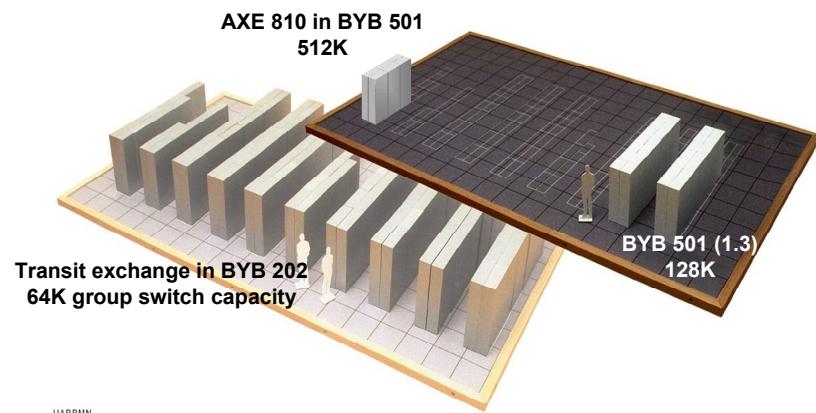


Figure 1- 5 Comparison of footprint

## MAIN BENEFITS OF AXE 810

The main benefits of the new AXE hardware and software are many but this chapter tries to capture the very essence of it. The main benefits are:

- Increased capacity  
This means that customers can build larger switches and in that way decrease their costs for the network (each site costs money in many different ways).
- Increased reliability  
This means that Ericsson's customers can get a more reliable network with a minimum time needed for software maintenance. A more reliable network will also increase the revenue in the customer's networks.
- Reduced cost of ownership  
As hardware shrinks, power consumption and cooling requirements go down as well. This means reduced cost of ownership. The number of board types have also been decreased so spare part stocks can be reduced meaning more money for other things than spare parts.
- Migration to 3G  
Ericsson's ENGINE concept as well as next generation mobile systems mean openness to next generation networks. By upgrading AXE with the new hardware, a path to second generation network is secured.
- Shorter time to RFI (Ready For Installation)  
Reduced size and better standardisation of nodes makes the order process within Ericsson simpler. It is almost that "one size fits all".

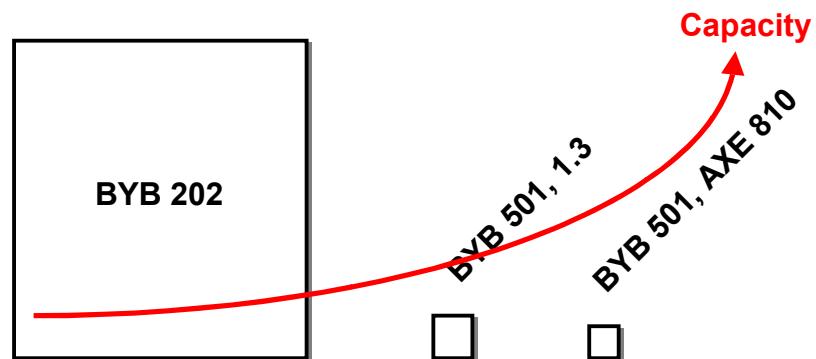


Figure 1- 6 Reduced footprint and increased capacity

## HIGH-LIGHTS OF AXE 810

All aspects of the new version of AXE will be described in this document. This chapter tries to capture the most important changes and their impact on the total system performance.

### Changes in APZ

- New Central Processor  
There is a new CP developed called APZ 212 33 with 70% more capacity than APZ 212 30. The processor is also prepared for a new type of inter-processor network.
- New Regional Processors  
All types of regional processors gets more capacity in less space. This is valid for RPG, RPP and RP.
- New APG, Adjunct Processor Group  
A new more powerful adjunct processor is developed (APG40). This means more storage capacity, faster reloading and more processing capacity for a number of applications.

### Changes in APT

- A new GEM subrack  
The GEM subrack (Generic Ericsson Magazine) can house the group switch and a large number of boards such as ET155, Transceivers and Echo Cancellers.
- A new Group Switch  
A new high-capacity group switch with distributed architecture is included. The switch is true non-blocking switch with a maximum capacity of 512k.
- One-board ET155  
An ET155 is now available in one-board solution decreasing the size of the exchange significantly. The ET155 is also adapted to the new GEM subrack.
- New Transcoders and Echo Cancellers  
New hardware with increased capacity adapted to the new GEM subrack.

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