Industrial Embedded Systems - INES

Intelligent Monitoring and Management of Remote Sites - BIRD2

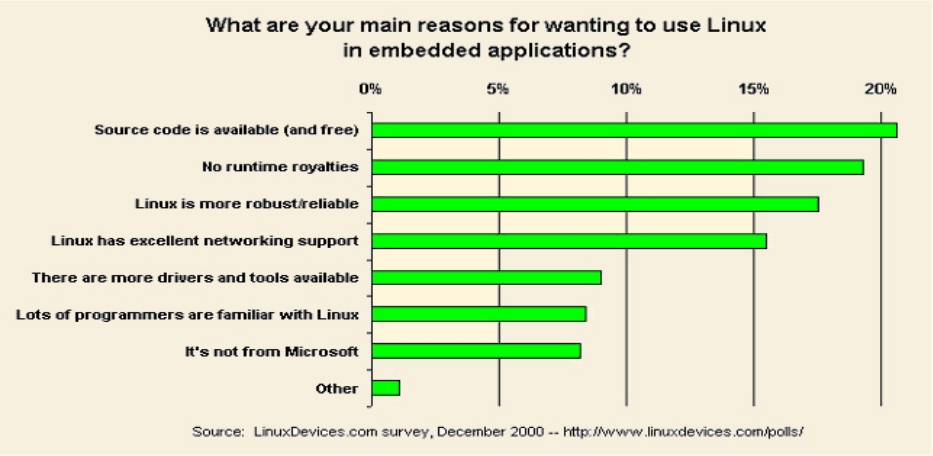
The objective of BIRD-2 User Experiment is to demonstrate the best practice use of an embedded TCP/IP communication based system and the adoption of an Open Source Operating System for the remote monitoring of GSM Base stations. The data can be transferred via various means of communications (PSTN, ISDN, Ethernet) using any TCP/IP compatible transmission channel or via a GSM mobile telephone network.

ULTRA is committed to the research, development, design and production of **high-tech solutions for electronics, communications and oil industry**. We aim to be known as the provider of **end-to-end supply chain management, m-payment and other advanced mobile solutions** that push the boundaries of technology and offer the highest level of performance to our customers and partners.

ULTRA

Employees in 2002:	84
Turnover in 2002:	6.463.600 EUR
Industrial Sector:	Monitoring and Control Systems
Technology introduced:	Modular Linux data acquision system

ECONOMIC BENEFITS



Direct benefits for the company:

- a payback period of BIRD2 project about 18 months,
- 70% less cost than using old technologies,
- customer prices will decrease for 30%,
- expecting 200% increase in profit,
- double sales every 3 years.

PRODUCT IMPROVEMENTS

Improvements and/or new functionalities:

- use of TCP/IP as standard protocol,
- remote access via a dial up connection or Internet Service provider,
- migration from desktop PC to an embedded computer with Linux OS,
- modularized hardware and software components,
- the ability to run diagnostic functions and upgrade remotely.

JOIN

Innovation with Microelectronics

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How to Go About It?

TECHNICAL CHOICE OPTIONS

After some years Linux is evolving and becomes widely accepted. For embedded PC applications, Linux present several advantages, such as:

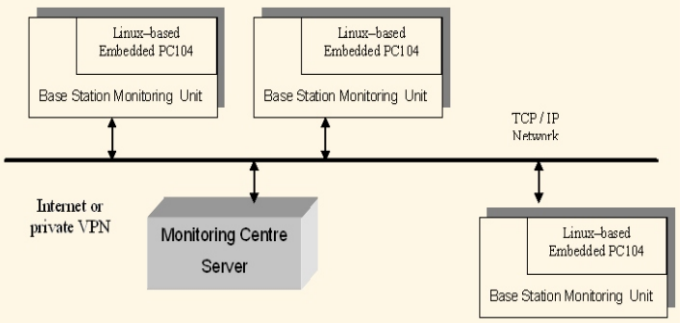
- Smaller amount of memory and ability to run without problems also in low cost PC solutions.
- a multitasking real-time OS has to include also protective measures and control of identification,
- Linux is free of charge ,
- Linux is being widely supported with tools and existing SW (some of it free) by many major companies, including C, C++ compilers and Java environments.

BIRD2 will deliver a major improvement in ULTRA's technology level by the adoption of Internet communication technology and open source OS.

TECHNICAL IMPLEMENTATION

The only "natural" choice for interconnectivity is TCP/IP as the system should interconnect base-stations distributed all-over the country. It allows to interconnect different & existing operating systems, it is transparent (common) at different network levels and allows remote diagnostics as well as target SW upgrade.
The support of existing SW, drivers and Tools at all levels and the wide use of internet-related SW makes this solution as an obvious one.

Structure of TCP/IP connectivity



EC IST Programmes aim to improve the competitiveness of European enterprises by promoting the adoption of under deployed or emerging technologies. This will enable these enterprises to increase their competitiveness and enhance their economic growth. The demonstrator described here is one example of the many Best Practice projects undertaken. Further details of projects covering a wide span of applications, industry sectors and technologies can be found on www.eurojoin.org.

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Best Practice in Microelectronics