Telecomunicatii C.F.R.

Reliable communication infrastructure & customized services

General Information

- Was founded in 2002

- Headquarters - Bucharest, Romania

- National organization with 8 regional offices

- National presence in all cities from Romania

- Intervention teams in each regional office

- Optical access in more than 560 sites

Overview

- ✓ *"Telecomunicatii C.F.R." was founded in 2002, being the national telecommunication company that administrates digital telecom network belonging to CFR and offers a large portfolio of services for all the companies that action over the railway infrastructure and to many other telecom operators and companies on the free market*

- ✓ *"Telecomunicatii CFR" has:*

  - • *Headquarter located in Bucharest*
  - • *8 Regional Telecom Branches: Bucharest, Craiova, Timisoara, Cluj, Brasov, Iasi, Galati, Constanta*
  - • *4 – 5 Local divisions for every branch*
  - • *National presence in all cities in Romania*

- ✓ *The strength points of "Telecomunicatii CFR" are its national coverage and its personnel*

- ✓ *We have telecom teams all over the country, teams of specialists that can provide various types of works: installation, testing, commissioning, logistic, civil works and maintenance*

- ✓ *Telecomunicatii CFR's network is a fully digital infrastructure, using multiple communications technologies such as: PDH, SDH, DWDM, ATM, ISDN, IP over optical cables*

- ✓ *We offer optical access in over 560 locations*

Optical Backbone – flexibility & redundancy

✓ *The optical fiber backbone was developed along the railway having a national coverage.*

✓ *The infrastructure offers large interconnection capabilities with all the neighboring telecommunication networks, being present at the borders with Bulgaria, Serbia, Hungary, Moldova and Ukraine.*

✓ *The network is homogenous, based on ring topology, being routed between major capital cities, with access via dual fibre routes for an increased redundancy*

✓ *Optical fiber network*

  • *20 single mode optical fibers*

  • *4.990 km*

  • *future extensions*

✓ *Switch redundancy and routes diversity ensure the reliability and flexibility for all applications*

✓ *Railway telecommunication networks comply with all EU and UIC technical regulations*

✓ *Network Operation Center keeps the entire network under surveillance around-the-clock*

Technologies & Services

Networks

Optical fiber

DTBN

ISDN

DWDM

TCP/IP

Services

- Telephones
- Leased lines
- Data transmission
- Internet access
- Other communications services.

Points of Presence

- ✓ *Headquarter in Bucharest and regional offices in Bucharest, Craiova, Timisoara, Cluj, Brasov, Iasi, Galati, Constanta*

- ✓ ***Nx Data** - Bucharest Neutral Collocation Center – center that offers dedicated space for equipment housing*

- ✓ *Cross-border points are: Giurgiu, Stamora Moravita, Curtici, Episcopia Bihor, Halmeu Frontiera, Valea Viseului, Vicsani, Ungheni Prut, Pod Prut Giurgiulesti, and we offer interconnection opportunities in: Nadlac, Salonta, Valea lui Mihai, Carei, Campulung la Tisa, Falciu and Giurgiulesti*

- ✓ *All the cities from Romania*

Open applications & multiple opportunities for enterprises and carriers
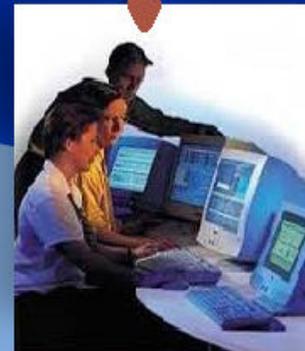
Railway traffic safety communications
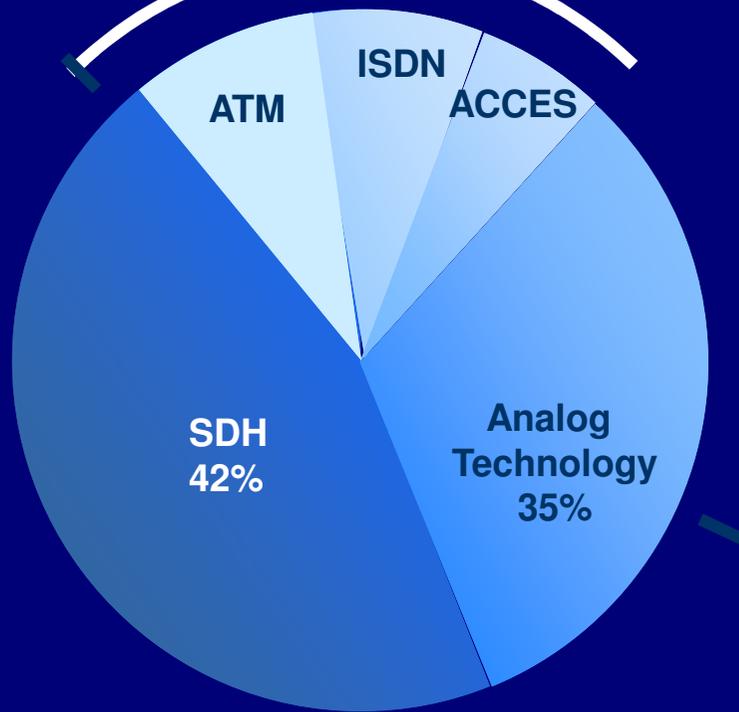
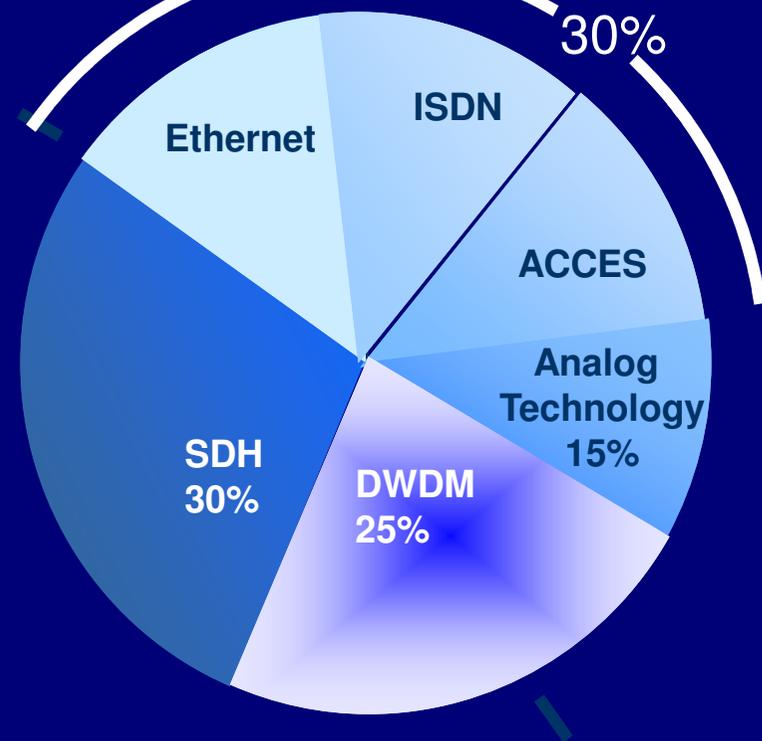**Management networks**

Applications Tc CFR

Internet acces

PABX

Unified domain

Unified user experience

2004

23%

ATM

ISDN

ACCES

SDH
42%

Analog
Technology
35%

Today

30%

Ethernet

ISDN

ACCES

SDH
30%

DWDM
25%

Analog
Technology
15%

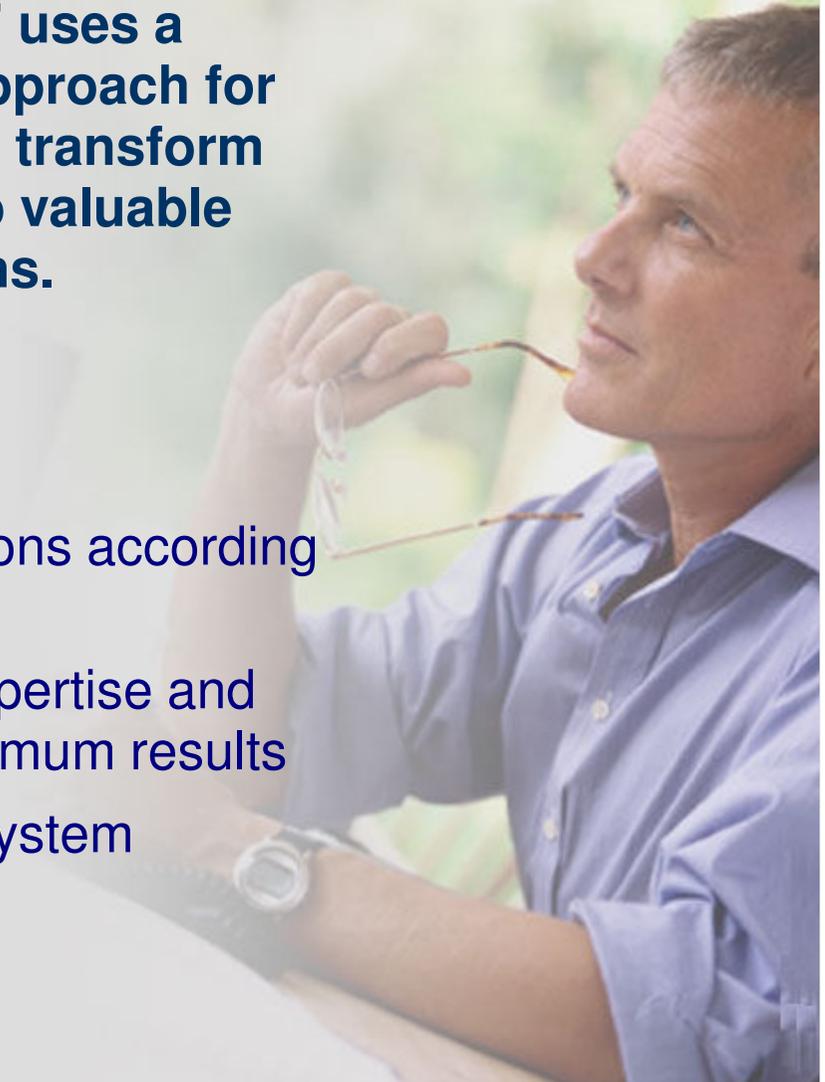■ **Technological evolution in the last 11 years**

"Telecomunicatii CFR" – Easy access & reliable choice

"Telecomunicatii CFR" uses a consultative end-to-end approach for helping our customers to transform their business goals into valuable business solutions.

We are focused on:

- Developing optimum solutions according to the customer's needs

- Offering the appropriate expertise and consistency to achieve optimum results

- Delivering full support for system integration
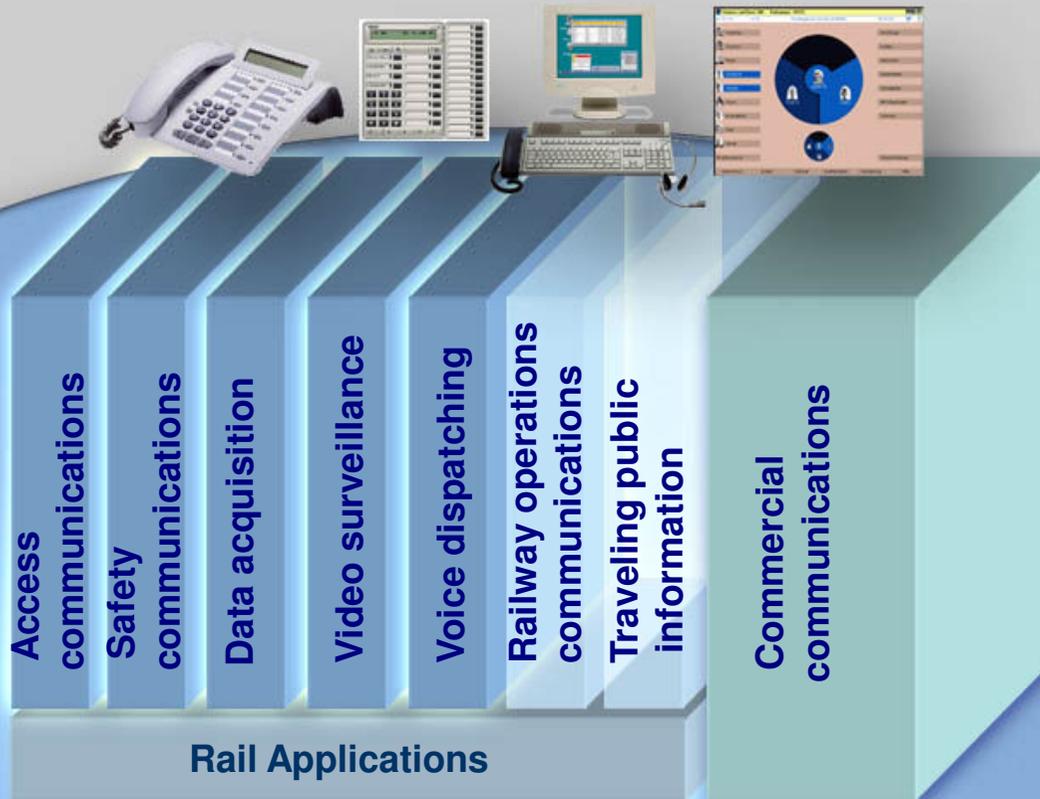
"Telecomunicatii CFR" – Experience & cost effective

o Along the years, our company has acquired a strong experience by implementing various and challenging projects.

o We have dedicated, determined and skilled professional teams, able to manage vary processes and to deal with multiple "on field" situations.

o "Telecomunicatii CFR" has the skills and resources to deliver large-scale telecom projects. Our technical staff is qualified in optical networks, SDH, DWDM, Access, Synchronization, ATM and ISDN.

o "Telecomunicatii CFR" strongly believes in delivering quality and cost effective solutions and services for all customers.

o Our mission is to offer a choice of alternatives for all levels: technology, solutions and services.

Integrated communications provided by "Telecomunicatii CFR"

Rail Applications

Commercial Applications

Access communications

Safety communications

Data acquisition

Video surveillance

Voice dispatching

Railway operations communications

Traveling public information

Commercial communications

Rail Applications

Telecomunicatii CFR -
Services that Enhance Business Productivity

TcCFR Services

Professional Services

Consulting, Assessments, Custom Integrations

Lifecycle Services

Onsite and Remote Maintenance Support

Managed Services

Communications Management

Services provided by "Telecomunicatii CFR":

1. Data transport: **n x 10 Gbps**
2. Internet Access Solutions
3. Leased circuits (lines)
4. Local loop
5. Equipment collocation in technological spaces managed by "Telecomunicatii CFR"
6. Design, implementation and maintenance for optical networks:
   - Installing of aerial, underground and indoor optical cables
   - Optical networks surveillance and maintenance
   - Localizing and fixing network faults
   - Measurements and interconnection
   - Installing power, distribution and grounding.
7. Installing, commissioning, testing, maintenance and diagnosis of telecom equipment
8. Installing, maintenance, diagnosis and repair for air conditioning

- Telecomunicatii CFR -

Proficiency

Quality and Consistency

Safety and Redundancy