Cisco based dispatcher solution…
… for next generation networks

links:
www.iptouchcall.cz
www.ttc.cz
Agenda

- **TTC TELEKOMUNIKACE, s.r.o.**
  - Historical milestones

- **IP TouchCall gateways, servers, terminal application environment**
  - Products introduction, basic data

- **Cisco based dispatcher solutions for next generation networks**
  - Public safety
  - Public transport
  - Military solution
  - Solution for public utility

- **References, projects in progress**
1953  Telecommunications Research Institute (VÚT) established as a sectoral research institution

1958 – 1989  The Institute represented a scientific and research base of the telecommunications industry (it was a part of the TESLA, TESLA IE Group)

1989 – 1992  The Institute’s activities were extended and the Institute became a development and manufacturing enterprise. The Institute was privatized and incorporated as TESLA TELEKOMUNIKACE, spol. s r.o.

1993 – 1996  Subsidiaries were established and the TTC Group was formed

1997  TTC TELEKOMUNIKACE, s.r.o. obtained Quality Management Certificate under ISO 9001

2001  TTC TELEKOMUNIKACE, s.r.o. obtained from the National Security Authority a security clearance certificate for working with classified information at the SECRET level. TELEPORT telehouse was built

2003 – 2006  TTC was incorporated as a holding company and registered as TTC TELEKOMUNIKACE, s.r.o.
IP TouchCall gateways, servers, terminal application environment

Exchanges, gateways, phones, ...

Network extensions

Terminal extensions

Fleet management
Electronic security and fire systems
Workflow management
...

GSMR services
Priority services
Routing services
Group call services
Management services
...

Exchanges, Kgateways, Kphones, ...
The system integration potential is extended by rich and solution specific features of particular interfaces a gateways.

IP TouchCall gateways, servers

Moto:

IP TouchCall

- Special-purpose IP Voice gateways
  - E&M/LB phones converter
  - SIP/GSM-R gateway
  - Switching system with special interfaces
- Radio Voice and Control gateways
  - Analog/digital radio system control gateways
- Special Dispatcher Services
  - Microsoft Domain based services
If the core components are the central brain, then the terminals are the face of the system.
IP TouchCall terminal application environment

- Configurable accessories
  - Angle adjustment mechanism
  - Common or LCD keys
  - Card reader modules
IP TouchCall terminal application environment

- Programmable GUI
- Programmable components
- Programmable functions
IP TouchCall terminal application environment

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IP TouchCall terminal application environment

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IP TouchCall terminal application environment

- Display No.1: queue of incoming calls
- Display No.2: dialing box
- Display No.3: conference room
- Display No.4: simple call room
- Display No.5: hold room
- Status bar
- Hot-line buttons for direct access
- Function keyboard
- Audio volume control
- Reception rooms
The basic idea:

... The IP network is the best unified environment for system integration of many systems and technologies

System integration:

- **Voice system integration**
  - Fixed (IP, ISDN, E&M, MB, ...), mobile (radio, GSM, ...) and radio (analog and TETRA) network

- **Data system integration**
  - Messages (email, sms, ...), availability (on/off line, busy, ...), states (up/down, alarm, ...), locality (GPS) ...

- **Video system integration**
  - CCTV systems, video conferencing, ...
Cisco based dispatcher solutions for next generation networks

The basic principles (cont.):
Cisco based dispatcher solutions for next generation networks

- Public transport
  - Railways
  - Urban transport

- Public utilities
  - Products Pipelines
    - electricity, natural gas, water, oil

- Military solutions
  - Ground and air forces

- Public safety
  - Ambulances, policy, fire brigades
Cisco based dispatcher solution: public transport

Solution for system integration:

- **Telephone system integration**
  - IP, ISDN, Analog, telephones with LB

- **Radio system integration**
  - Radio analog/digital systems products (Motorola, Proprietary radio systems)

- **Mobile system integration**
  - GSM-R system - EIRENE standards
Cisco based dispatcher solution: public transport

Telephone system integration
(principal scheme)
Cisco based dispatcher solution: public transport

Radio system integration

(principal scheme)
Cisco based dispatcher solution: public transport

GSM-R system integration
(principal scheme)
Cisco based dispatcher solution: public transport

Telephone/Mobile/Radio system integration
(principal scheme)
Cisco based dispatcher solution: public transport

GUI for Czech railways
Cisco based dispatcher solution: public transport

Czech railways GUI details
Cisco based dispatcher solution: public transport

Interoperability with Nortel GSM-R

Test summary
- Basic call scenarios
- Multi-Party
- Call Hold
- VGCS
- VBS
- Railway emergency calls
- Functional Addressing
- Access Matrix

Test date
25.5.2007

Test result
OK in all points without comments
Cisco based dispatcher solution: c&c for air forces

Solution for system integration:

- Telephone system integration
  - IP, ISDN, Analog, telephones with LB
- Radio system integration
  - Radio analog/digital systems products (Rohde & Schwarz)
Cisco based dispatcher solution: c&c for air forces

The central parts:

- Telephone voice and control unit
  - Module CUCM, routing & switching
- Radio voice and control unit
  - LMR, Radio control module (MICU)
- Voice and events recording unit
  - Redat3
- Unit of voice conferencing and group communication
  - Conference control unit (CCU)
- Unit of central domain services
  - Service control unit (SCU)
Cisco based dispatcher solution: c&c for air forces

The terminal parts:

- **Dispatcher terminal IP TouchCalls**
  - Services of telephone networks
    - Voice calls, conferencing, listening, …
  - Services of radio networks
    - Radio correspondence listening, radio controlling, …
  - Services of dispatcher networks
    - Connect to call, call interrupt, call priority, …
  - Services of voice and events recording

- **Cisco IP phones 79xx**
  - Services of Cisco Unified Communications Manager
Cisco based dispatcher solution: c&c for air forces

GUI for CRC site
Cisco based dispatcher solution: c&c for air forces

CRC GUI details

Radio station No. 1

Ch: 48/130.105 MHz

Ch 25

120.000 MHz

Rdst. No 1

Rdst. No 2

Rdst. No 3

IC 3

IC 4

IC 5

1 2 3

4 5 6

7 8 9

Radio station No. 1

SQL Battery Test RDST Connect Enable/Disable

Active Connect Passive Connect

Freq TAD

Back Clear
Solution for system integration:

- Telephone system integration
  - IP, ISDN, Analog
- Radio system integration
  - Radio digital systems products (Motorola Mototrbo)

Cisco based dispatcher solution: public utilities
Cisco based dispatcher solution: public utilities

CEZ GUI details
Cisco based dispatcher solution: public utilities

GUI for CEZ project
Cisco based dispatcher solution for next generation networks

Other graphical user interface examples
Cisco based dispatcher solution for next generation networks

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Other graphical user interface examples
Cisco based dispatcher solution for next generation networks

Other graphical user interface examples
References

- **Solution for Public Transport**
  - Přerov – Břeclav (Czech Railways)
  - Fixed Terminal System GSM-R (Czech Railways)
  - Wilson Station Prague (Czech Railways)
  - Bakov – Česká Lípa (Czech Railways)
  - Plzeň - Lipová (Czech Railways)
  - Masaryk Station (Czech Railways)
  - ED Třešňovka (Czech Railways)
  - Voice Dispatching System (Ukrainian Railways)

- **Military solutions**
  - Voice Conferencing Control system (Czech Army)
  - CRC centre (Czech Army)

- **Public utilities**
  - CEZ group (Czech republic)
  - Kolektory Praha, a.s. (Czech republic)
References: military solutions

Project of a CRC centre

Basic information:
- Construction investor: Czech army
- Construction project: TTC TELEKOMUNIKACE, Ltd.
- Project implementation: TTC TELEKOMUNIKACE, Ltd.
- Technology partner: Cisco Systems, Ltd.
- Construction commenced: January / 2008
- Commissioning of full operation: March / 2009

Project information:
PS2000IP/LET
- Customized graphical unit of dispatcher terminals IPTA
- Full redundancy projected system

Connected networks:
- Dispatcher system PS2000
- Dispatcher system Frequentis
- Dispatcher system Distanc

Systems participants:
- Telephone subscribers of PS2000IP (IPTA, IP7960)
- Telephone subscribers of other networks (LB, Analog, ISDN)
References: military solutions

Project of a Czech CRC centre

Examples of customized terminals IPTA:

The first design of graphical interface was taken from IPTA of PS2000IP system. (01/2008)

The new version according to requests of Intercept Controllers of CRC was developed. (06/2008)

After testing, the customers asked some changes in graphical interface. They asked new functions and services as well. (08/2008)

At the moment, PS2000IP/LET is tested by Czech army representatives and system is prepared for using. At the same time, the system is prepared to be further customized according to operational needs. (01/2009)
References: public transport

CDP Přerov – Břeclav (Czech Railways) - reference

... remote control of corridor railway
Přerov - Břeclav

basic information:
central dispatcher station in Přerov

15 stations on railway Přerov – Břeclav

remote participants on railway
on fixed networks (IP, ISDN, LB)
on mobile network (GSM)
on radio networks (LRN, RRN)

IP TouchCall ...
... the main telecommunication system !!!
References: public transport

CDP Přerov – Břeclav (Czech Railways)
(principal scheme)
References: public transport

CDP Přerov – Břeclav (Czech Railways)
(press references)

The solution boosts effectiveness of the transportation operation control

From the control centre, a 100km-long track section is controlled, having these parameters:

The total number of remotely controlled railway stations: 15
The total number of stations: 8

The total staff saving amounts to 78 people.

Each controlling and section dispatcher has a GTN monitor, two dispatcher input computer monitors with the relief of the railroad lines and one technological monitor of the security facility at his disposal. On the desk board, there is a touch monitor to control the communication device which integrates line transportation connection, AUT, TRS and MRTS into the joint operating terminal (TouchCall).

Source: Scientific and technological proceedings ČD No. 22/2006
The central dispatching workplace in Přerov enjoys one success after another

The annual ACRI award in the category of security and telecommunication facility for 2006 was given at the yesterday’s ceremony of award-giving at the International Engineering Fair in Brno to the construction of the central dispatching workplace in Přerov. The construction has been also added on the list of the twelve nominated candidates in the Transportation construction of 2006 contest. SŽDC is the construction investor; it has been executed by AŽD Praha.

Questions ???

Answers !!!
Thank you !!!

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